

MATTHEW D. MANAHAN

Merrill's Wharf
254 Commercial Street
Portland, ME 04101

P 207.791.1189
F 207.791.1350
C 207.807.4653
mmanahan@pierceatwood.com
pierceatwood.com

Admitted in: MA, ME, NH

March 25, 2019

James R. Beyer
Maine Dept. of Environmental Protection
28 Tyson Drive
Augusta, ME 04333

Bill Hinkel
Land Use Planning Commission
18 Elkins Lane, 4th Floor
Augusta, ME 04333

RE: NECEC – Pre-Filed Rebuttal Testimony of Central Maine Power Company

Dear Jim and Bill:

Enclosed is CMP's Pre-Filed Rebuttal Testimony. Pursuant to the Third Procedural Orders, we are sending, via overnight delivery, the following:

- Original and 4 copies of CMP's Pre-Filed Direct Testimony for the DEP;
- Original and 9 copies of CMP's Pre-Filed Direct Testimony for LUPC.

Sincerely,



Matthew D. Manahan

Enclosure
cc: Service Lists

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)
)
CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbsdown Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY
of

CENTRAL MAINE POWER COMPANY

MARCH 25, 2019

**EXHIBIT LIST FOR PRE-FILED REBUTTAL TESTIMONY
OF CENTRAL MAINE POWER COMPANY**

TAB

Thorn Dickinson	CMP-1.1
Independent Evaluator’s Report	CMP-1.1-A
Analysis of Impact of 54-Mile Underground Line on NECEC Transmission Rate and Section 83 D Ranking	CMP-1.1-B
Gerry Mirabile	CMP-2.1
Mark Goodwin	CMP-3.1
Maine Forested Lands – Distance to Forest Edge-NECEC Overlay	CMP-3.1-A
Existing Transportation Infrastructure Overview Maps	CMP-3.1-B
MNAP Jack Pine Forest Habitat Maps	CMP-3.1-C
Lauren Johnston	CMP-4.1
MDIFW Final Review Comments and Exhibits 3/18/2019.....	CMP-4.1-A
Compensation Plan Table 1-5.12 Revised 3/20/2019.....	CMP-4.1-B
Amy Bell Segal	CMP-5.1
Coburn Visibility Map and Pan Photos	CMP-5.1-A
Terrence J. DeWan	CMP-6.1
Peggy Dwyer	CMP-7.1
Gate Agreement	CMP-7.1-A
Kenneth Freye	CMP-9
Resume.....	CMP-9-A
CMP to USA Easement	CMP-9-B
Appalachian Trail Location	CMP-9-C
Gold Brook – Rock Pond Area, Appleton Township	CMP-9-D
Dead River Compensation Tracts, Spring Lake, Pierce Pond and Lower Enchanted Townships	CMP-9-E
Cold Stream Area, Johnson Mountain Township.....	CMP-9-F
Tomhegan Stream Area Overview, West Forks Plantation	CMP-9-G
Tomhegan Stream Area Detail, West Forks Plantation	CMP-9-H
Justin Tribbet	CMP-10
CV	CMP-10-A

Justin Bardwell.....	CMP-11
CV	CMP-11-A
Underground Cost Estimate, Proposed Route	CMP-11-B
Underground Cost Estimate, New Corridor Only.....	CMP-11-C
Underground Cost Estimate, Underground Alternate Route	CMP-11-D
Underground Cost Estimate, AT Crossings.....	CMP-11-E
Underground Cost Estimate, Beattie Pond	CMP-11-F
Underground Cost Estimate, Gold Brook.....	CMP-11-G
Gary Emond	CMP-12
CV	CMP-12-A
Position Paper on the Presence of Significant Vernal Pools in or Adjacent to Transmission Line Corridors.....	CMP-12-B

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbs town Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY OF THORN DICKINSON

March 25, 2019

Regarding

- Issue 3: Alternatives Analysis
 - Responsive to Intervenor Group 8 (NextEra) witness Christopher Russo
 - Responsive to Intervenor Group 2 (Town of Caratunk) witness Elizabeth Caruso
 - Responsive to Intervenor Group 6 (The Nature Conservancy) witnesses Rob Wood, Andrew Cutko, and Bryan Emerson

I. Discussion (Relevant to DEP and LUPC Review)

This testimony is in response to the direct testimony of Christopher Russo on behalf of NextEra Energy Resources (“NextEra”), and portions of the direct testimony of Elizabeth Caruso of the Town of Caratunk and the direct testimony of Rob Wood, Andrew Cutko, and Bryan Emerson on behalf of The Nature Conservancy (“TNC”), relating to the purported alternative of installing portions of the New England Clean Energy Connect (“NECEC” or “Project”) transmission line underground. Mr. Russo provided testimony to the Department of Environmental Protection (“DEP”) and the Land Use Planning Commission (“LUPC”) asserting that during the planning of the NECEC Project there was a “failure to consider undergrounding the New England Clean Energy Connect (“NECEC”) high voltage direct current (“HVDC”) transmission line.”¹ Furthermore, Mr. Russo asserted that “[f]ailure to evaluate an undergrounded the [*sic*] HVDC transmission line means that CMP has failed to establish that ‘there is no alternative site which is both suitable to the proposed use and reasonably available to the applicant’ as required for portions of the NECEC within the Commission’s P-RR subdistrict.”² Ms. Caruso also testified that CMP should have but did not consider the alternative of burying the HVDC line underground.³ And finally, TNC’s direct testimony proposed that DEP should consider an alternative to the NECEC proposal that includes additional portions of the HVDC line to be buried in Segment 1 of the transmission line corridor.⁴

Contrary to opponents’ claims, burying the NECEC HVDC line underground in the 54-mile new corridor portion is not reasonable or feasible because the costs of doing so would

¹ Feb. 28, 2019 Pre-Filed Direct Testimony of Christopher Russo at page 2.

² *Id.* at 2.

³ Feb. 28, 2019 Pre-Filed Direct Testimony of Elizabeth Caruso at 6-10.

⁴ Feb. 28, 2019 Pre-Filed Direct Testimony of Rob Wood, Andrew Cutko, and Bryan Emerson at 7.

defeat the purpose of the Project. In determining whether the NECEC Project causes an unreasonable impact to the environment, DEP considers whether there are practicable alternatives to the proposed activity. Practicable is a defined term – it does not mean any available alternative. Rather, DEP defines practicable as “[a]vailable and feasible considering cost, existing technology and logistics based on the overall purpose of the project.”⁵ Similarly, in making its allowed use determination, LUPC must evaluate whether the applicant has shown by substantial evidence that “there is no alternative site which is both suitable to the proposed use and reasonably available to the applicant” for portions of the Project within a P-RR subdistrict.⁶ As with DEP’s review, in considering suitability and reasonable availability, LUPC necessarily must consider cost, existing technology, and logistics based on the overall purpose of the Project.

As I stated in my Pre-Filed Direct testimony, the overall purpose of the NECEC is to deliver up to 1,200 MW of renewably-generated electricity from Québec to the ISO-NE electric grid at the lowest cost for ratepayers.⁷ To construct an HVDC transmission line capable of delivering 1,200 MW of clean energy, the Project must have a mechanism by which CMP, or a CMP affiliate owning the line, can recover its costs and investment in building, operating, and maintaining the transmission line. Without such a cost-recovery mechanism, the NECEC would not move forward and the Project purpose of delivering 1,200 MW of clean energy to ISO-NE would not be met.

⁵ DEP Reg. 310.3(R); 315.5(G); 335.2(D).

⁶ LUPC Reg. 10.23,I(3)(d).

⁷ Feb. 28, 2019 Pre-Filed Direct Testimony of Thorn Dickinson at 3; Feb. 28, 2019 Pre-Filed Direct Testimony of Brian Berube at 4.

In the current transmission development market in New England, the only feasible way to obtain cost recovery for a transmission line with sufficient size to transport 1,200 MW of energy from Québec to New England, like the NECEC, is to bid the transmission line in conjunction with a clean energy resource, like Hydro-Québec, in response to a competitive solicitation. In fact, in the last few years several New England states have issued competitive solicitations for clean energy that allowed for the possibility of recovering the costs associated with the transmission development to bring the energy to market, including the 2016 Tri-State RFP, Massachusetts' 2017 Section 83D RFP, Massachusetts' 2017 Section 83C RFP, and the more recent 2018 Connecticut RFP and 2018 Rhode Island RFP.⁸

Avangrid and CMP developed the NECEC Project in response to the 2017 Massachusetts Section 83D RFP seeking 9,450,000 megawatt hours ("MWhs") of Clean Energy Generation to be procured under long-term contracts.⁹ Under the portion of the Massachusetts Energy Diversity Act referred to as Section 83D, the Massachusetts legislature, among other things,

⁸ Request for Proposals for Long-Term Contracts for Clean Energy Projects (Mar. 31, 2017) (Section 83D RFP) *available at* <https://macleanenergy.files.wordpress.com/2017/03/83d-rfp-and-appendices-final.pdf>; Request for Proposal for Long-Term Contracts for Offshore Wind Energy Projects (June 29, 2017) ("Section 83C RFP") *available at* <https://macleanenergy.files.wordpress.com/2017/02/section-83c-request-for-proposals-for-long-term-contracts-for-offshore-wind-energy-projects-june-29-2017.pdf>; Notice of Request for Proposal from Private Developers for Clean Energy and Transmission (Nov. 12, 2015) ("Tri-State RFP") (no longer available online); Request for Proposal for Long-Term Contracts for Renewable Energy (Sept. 12, 2018) ("RI RFP"), *available at* https://ricleanenergyrfp.files.wordpress.com/2018/09/2018-ri-ltc-rfp_draft-04-20-2018revd-08-31-2018-clean-copy.pdf; Notice of Request for Proposals From Private Developers For Zero Carbon Energy (July 31, 2018) ("CT RFP"), *available at* [http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/f18419651b249e2e852582db006cbca3/\\$FILE/2018.08.1_FINAL%20RFP%20-%20updated.pdf](http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/f18419651b249e2e852582db006cbca3/$FILE/2018.08.1_FINAL%20RFP%20-%20updated.pdf).

⁹ Feb. 28, 2019 Pre-Filed Direct Testimony of Thorn Dickinson at 3.

directed the Massachusetts Electric Distribution Companies (“Massachusetts EDCs”)¹⁰ to jointly and competitively solicit proposals for and to enter into cost-effective long-term contracts for Clean Energy Generation and related Environmental Attributes in an annual amount of 9,450,000 MWh, provided that such long-term contracts are approved by the Massachusetts Department of Public Utilities (“MA DPU”).¹¹ Section 83D also directed the MA DPU to adopt regulations requiring the transmission costs associated with a proposal to be incorporated into the bid, provided that, to the extent there are transmission costs included in a bid, the MA DPU may authorize or require the relevant parties to seek recovery of such transmission costs of the project through federal transmission rates, consistent with policies and tariffs of the Federal Energy Regulatory Commission (“FERC”), to the extent the MA DPU finds such recovery is in the public interest.¹²

To that end, the Section 83D RFP ultimately issued by the Massachusetts EDCs placed significant emphasis on cost containment of the transmission costs associated with responsive proposals. In fact, under Section 83D the RFP’s Phase 1 initial criteria for the evaluation of the eligibility of proposals, the RFP encouraged bidders to propose fixed pricing for the transmission portion and mandated that all transmission pricing proposals include cost containment features such as other fixed price components, cost overrun restrictions, and other cost bandwidth

¹⁰ The Massachusetts EDCs are Fitchburg Gas & Electric Light Company d/b/a Unitil; Massachusetts Electric Company d/b/a National Grid; Nantucket Electric Company d/b/a National Grid; NSTAR Electric Company d/b/a Eversource; Western Massachusetts Electric Company d/b/a Eversource, as investor-owned electric distribution companies.

¹¹ 2008 MASS. ACTS Ch. 169 § 83D(a).

¹² 2008 MASS. ACTS Ch. 169 § 83D(d)(4); *see also* 220 CMR § 24.05.

provisions.¹³ The RFP also indicated that “the bids that limit customer risk to a greater degree will be viewed more favorably.”¹⁴

Similar cost containment admonitions were reiterated in the subsequent Phase 1 RFP criteria for the threshold requirements review, which stated that “[i]n order to be considered, transmission bidders must include significant cost containment features in their proposals, and proposals that include more effective provisions that eliminate or minimize ratepayer exposure to transmission cost risks as described in this section will be evaluated more favorably throughout the evaluation process.”¹⁵ Each bidder was also required to submit a “detailed explanation of how its proposal mitigates transmission costs, and ensures that transmission cost overruns, if any, are not borne by ratepayers.”¹⁶ The RFP made it clear that under this phase of the review, the Massachusetts EDCs could decline to pursue a proposal if the proposal’s terms and conditions would place an unreasonable burden on the Massachusetts EDCs’ balance sheet.¹⁷

The RFP also made clear that transmission cost containment would weigh heavily in the Phase 2 Quantitative and Qualitative Evaluation of RFP bids. Under the RFP’s quantitative analysis, proposals were evaluated and ranked using a multi-year net present value analysis to determine whether the proposal was “economically competitive” when compared to other proposals.¹⁸ The RFP explained that the quantitative ranking was based on the direct and indirect economic and environmental costs and benefits of the proposal based on a combination

¹³ 83D RFP § 2.2.1.4(ii)(b) at 16.

¹⁴ *Id.*

¹⁵ *Id.* at § 2.2.2.6 at 25.

¹⁶ *Id.* at § 2.2.2.6.1 at 26.

¹⁷ *Id.* at § 2.2.2.12 at 31.

¹⁸ *Id.* at § 2.3.1.

of its direct contract price cost and benefits and other costs and benefits to retail customers.¹⁹

Proposals that were not economically competitive did not proceed to the qualitative evaluation.²⁰

So too did the RFP make clear that cost factors were a primary evaluation criterion in the subsequent qualitative analysis, stating that the Massachusetts EDCs would evaluate the proposal's benefits, costs, and contract risk by considering the "[e]xtent to which pricing is firm and/or the cost containment measures effectively limit cost risk for customers."²¹ The RFP described that following the conclusion of the RFP Phase 2 quantitative and qualitative evaluation process, the evaluation team would determine which proposals would proceed to the Phase 3 evaluation process based on three considerations: (1) the rank order of the proposals at the end of the Phase Two evaluation; (2) the cost effectiveness of the proposals based on the Phase Two quantitative evaluation; and (3) the total annual MWh/year quantities of the proposal(s), relative to the annual procurement target.²²

Under the RFP Phase 3 Portfolio Analysis, the final stage of the evaluation, the RFP made clear that the evaluation team would evaluate the proposals based on the Phase 2 ranking, as well as additional factors including the overall cost effectiveness of the various portfolio of proposals, any risks to customers that may be associated with projects proposing to recover transmission costs through transmission rates not fully captured in the Phase 2 evaluation, and any additional benefits to customers not fully captured in the Phase 2 evaluation.²³

¹⁹ *Id.* at §§ 2.3.1, 2.3.1.1, 2.3.1.3 at 31-33.

²⁰ *Id.* at § 2.3.1 at 31.

²¹ *Id.* at § 2.3.2(vi) at 35.

²² *Id.* at § 2.3.2(viii) at 36.

²³ *Id.* at § 2.4 at 36-37.

With this evaluation framework, which was similar to the evaluation framework used for the prior 2016 Tri-State RFP, CMP and Avangrid designed the NECEC Project to be as competitive as possible. These efforts included both minimizing costs to help ensure that the NECEC was selected in the competitive solicitation process and minimizing impacts where practicable in an effort to help ensure that the Project could obtain the requisite regulatory authorizations and permits and ultimately come to fruition, all while maintaining the quality and safety of the Project consistent with CMP and Avangrid's standards and good utility practice.

At the time the NECEC was designed and proposed in response to the Section 83D RFP, incorporating the costs associated with burying the NECEC transmission line, or portions of the transmission line, into the NECEC proposal would have resulted in the Project not being cost competitive relative to the other proposals. This would have defeated the Project's purpose because it would not have been selected in either the MA Section 83D RFP, or another similar competitive solicitation process. In fact, the importance of cost as a factor in the ultimate selection of the NECEC as the winning bidder in the Section 83D RFP is shown in the results of the Evaluation Team's Phase 2 and Phase 3 analyses of the proposals, which were attached to the evaluation report of the Massachusetts EDCs' consultant, Tabors Caramanis Rudkevich ("TCR"), and were replicated in the evaluation report of the Massachusetts Department of Energy Resources ("MA DOER") Independent Evaluator ("Independent Evaluator's Report"), which is attached to this Rebuttal Testimony as Exhibit CMP-1.1-A.²⁴

²⁴ The Massachusetts EDCs hired TCR to evaluate the costs and benefits of the Section 83D contract bids and TCR's work was overseen by an independent evaluator, Peregrine Energy Group (Independent Evaluator), which was retained by the MA DOER. Both TCR and the Independent Evaluator produced a report describing the costs and benefits of the various Section 83D contract bids. The Independent Evaluator's Report is attached hereto as Exhibit CMP-1.1-A (8/07/18 Independent Evaluator Report from Peregrine Energy Group on the Solicitation,

As shown in the Independent Evaluator’s Report at Appendices D (Phase 2 Evaluation for Large Projects) and F (Phase 3 Evaluation for Large Projects), the NECEC Project was ranked third in total score at the end of the Phase 2 evaluation and ranked first at the end of the Phase 3 portfolio evaluation.²⁵ In light of the fact that the competing New England Clean Power Link project in Vermont proposed by TDI New England (the “TDI Project”) and the Northern Pass Transmission Project in New Hampshire proposed by Eversource (the “Northern Pass Project”) had similar benefits with respect to achieving the Massachusetts’ renewable energy policy goals,²⁶ the inclusion of the costs of underground construction in the NECEC Project bid would have made the NECEC Project materially less beneficial and therefore less competitive. In fact, the EDC’s final Phase 3 analysis at Appendix F of Exhibit CMP-1.1-A, shows that the difference in net total benefits per MWh between the No. 1 ranked NECEC Hydro Project and the No. 2 ranked project was \$1.59 per MWh (\$40.02 NECEC Hydro Project - \$38.43 Portfolio 12 Project).

The attached analysis provided as Exhibit CMP-1.1-B demonstrates the impact on the NECEC proposal in the Section 83D rankings had the Project included an underground HVDC line for the 54-mile new corridor section. If the NECEC proposal had included an underground

Evaluation, Bid Selection and Contract Negotiation Process under Section 83D of the Green Communities Act (revised, redacted) (hereinafter the “Independent Evaluator’s Report”).

²⁵ Independent Evaluator’s Report, Exhibit CMP-1.1-A, at 72, 74 of 75 (Appendices D and F).

²⁶ Response To Request For Proposals For Long-Term Contracts For Clean Energy Projects Submitted By Hydro Renewable Energy Inc. (HRE), an affiliate of Hydro-Québec, and Northern Pass Transmission LLC (NPT), *available at* <https://macleanenergy.com/83d/83d-bids/> (public versions of the Section 83D RFP submissions for the Northern Pass Project); Proposal in Response to Request for Proposals for Long Term Contracts for Clean Energy Projects dated March 31, 2017 from Joint Bidders Hydro Renewable Energy Inc. and Champlain VT, LLC d/b/a TDI New England, *available at* <https://macleanenergy.com/83d/83d-bids/>. (public versions of the Section 83D RFP submissions for the TDI Project).

HVDC transmission line, the transmission portion of the contract cost would have increased by \$9.00 per MWh, resulting in an \$9.00 per MWh reduction in the net direct benefit and a net total benefit of \$31.02 per MWh (reflected in real levelized 2017 dollars per MWh). As shown in Exhibit CMP-3.1-A, Appendix F, if the net total benefit of the NECEC had been \$31.02 per MWh, the Project would have received a ranking of 9th, nowhere near the net total benefit needed to be competitive with the other projects in the selection process.

Accordingly, if the NECEC Project had included an underground HVDC transmission line, it would not have been selected by the Massachusetts EDCs in the Section 83D RFP, thereby defeating the purpose of the Project.

This conclusion is borne out by the TDI Project identified in Mr. Russo's testimony, which proposed a 154-mile underground/underwater HDVC transmission line to transport a similar amount of clean hydropower energy from Hydro-Québec into ISO-NE through Vermont,²⁷ and which has all of its material permits and authorizations but was not selected in the Section 83D RFP process, in large part because it was too expensive and imposed too great a financial burden on Massachusetts ratepayers.

Accordingly, CMP did not include an underground HVDC line in the NECEC Section 83D RFP proposal because to do so was not suitable, reasonable, or practicable, where the cost of including the underground line would have defeated the purposes of the NECEC, which is to produce a project that not only is designed to transport 1,200 MW of clean energy to New England, but is actually able to get built because there is a mechanism to recover the costs and investment of constructing, operating, and maintaining the transmission line.

²⁷ Feb. 28, 2019 Pre-Filed Direct Testimony of Christopher Russo at 4.

Now that the NECEC has been selected in the Massachusetts Section 83D RFP, and the associated transmission service agreements with fixed price transmission rates have been executed with the Massachusetts EDCs and approved by FERC, any additional project costs will be borne by CMP (or an affiliate owner of the Project) and its investors, and will not be recovered from the Massachusetts EDCs or from any other transmission customers. As part of the Maine Public Utilities Commission (“MPUC”) proceeding, CMP agreed to a stipulation that includes, among other things, \$79.5 million in additional benefits to customers contributed by CMP (or an affiliate owner of the Project) for the following purposes:

- A fund totaling \$50 million for the purpose of reducing the amounts that customers expend for electricity, with a focus on low income customers, to be paid in annual payments beginning on the NECEC commercial operation date (“COD”), expected on December 13, 2022, and continuing for a period of forty (40) years;
- The construction of facilities and equipment to provide additional fiber optic (broadband) capacity on the NECEC HVDC line for the benefit of the State of Maine and in particular the NECEC host communities, with an estimated value of \$5 million, to be paid prior to the NECEC COD;
- \$5 million toward the NECEC Heat Pump Fund, which will fund installation of heat pumps or other future efficient heating technologies in Maine, \$2 million of which will be paid on the fifth and sixth anniversaries of the NECEC COD and \$1 million of which will be paid on the seventh anniversary of the NECEC COD;
- \$5 million for the Dirigo EV Fund, which will be used to provide rebates to defray the cost of electric vehicle (“EV”) charging installations in Maine and customer rebates for the purchase of qualifying EVs by Maine residents, to be paid either in a lump sum beginning in the year in which all necessary permits and approvals to construct the NECEC and the interconnecting transmission facilities in Québec are received, or in annual contributions;
- \$5 million for a Franklin County Host Community Benefits Fund for the benefit of communities in Franklin County, to be paid through ten (10) annual payments of \$500,000 starting on the NECEC COD and continuing on each of the ensuing anniversaries of the COD;
- \$1 million in grant funding paid to Maine Prime Technologies LLC at the University of Maine to fund research and development activities associated with marine wind generation technology commercialization, to be paid upon the NECEC’s receipt of all Maine permits and approvals;

- \$1 million to fund internship programs and scholarships for needy Maine students to attend the University of Maine at Farmington, to be paid in annual payments of \$100,000 over a period of ten (10) years starting with the NECEC COD;
- \$4 million to fund vocational programs, scholarships, and innovative training programs in the areas of math, science, and technology for the school districts within Franklin and Somerset counties, or such programs and scholarships for the Maine community colleges that serve students from Franklin and Somerset counties, which will be paid in annual payments of \$400,000 over a period of ten (10) years starting with the NECEC COD;
- Up to \$2 million toward a study regarding transmission and non-wires alternatives that would reduce existing and projected congestion at the Maine/New Hampshire Interface and at the Surowiec-South interface, to be paid after the NECEC Project and the interconnecting Quebec transmission facilities receive all necessary permits and approvals for construction;
- Up to \$500,000 toward the cost of a regional decarbonization planning study to be paid after the NECEC Project receives all necessary permits and approvals; and
- \$1 million for a fund to pay for professional fees incurred to facilitate the securitization of the payments made to the Low-Income Customer Benefit Fund and the NECEC Rate Relief Fund.²⁸

These benefits were agreed to by CMP and the other Stipulating Parties, including the Maine Office of Public Advocate, the Governor’s Energy Office, Conservation Law Foundation, and the Acadia Center, in an effort to resolve the MPUC proceeding through the issuance of a certificate of public convenience and necessity. They represent tangible measures to mitigate the impact of the NECEC Project as identified by the Stipulating Parties and reflect the priorities of the parties that were addressed to achieve a negotiated resolution of the issues in the MPUC proceeding. The costs of providing these benefits will be borne solely by CMP’s shareholders or the shareholders of CMP’s affiliate that owns the line and are not recoverable from Maine electricity customers, the Massachusetts EDCs, or Massachusetts ratepayers. Given the

²⁸ Central Maine Power Company Request for Approval of CPCN for the New England Clean Energy Connect Consisting of the Construction of a 1,200 MW HVDC Transmission Line from the Québec-Maine Border to Lewiston (NECEC) and Related Network Upgrades, Docket No 2017-00232, Stipulation at 21-34 (Feb. 21, 2019).

significant cost of these benefits, they were deliberately structured to be paid in large part over time so that the NECEC Project could afford these additional costs without undermining the economic viability of the Project.

Should DEP or LUPC require that the NECEC Project HVDC transmission line be buried for the length of the 54-mile new corridor section running from the Québec-Maine border to Moxie Gore, or even for a portion of that section, the additional cost would undermine the Project's viability. As indicated in the Rebuttal Testimony of Justin Bardwell, the inclusion of an underground HVDC line for the 54-mile new corridor section would add \$644.6 million to the total cost of the Project, which, factoring in the allowance for funds used during construction ("AFUDC"), would actually total \$767.9 million. These additional costs would need to be paid prior to the NECEC COD and would not be recoverable from the Maine electricity customers, the Massachusetts EDCs, or Massachusetts ratepayers.²⁹ Therefore, the alternative of burying the transmission line is not practicable or reasonably available because it would result in the NECEC not moving forward because this cost could not be recovered. In other words, it would make the Project uneconomic and thereby would defeat the purpose of the NECEC, which is to deliver 1,200 MW of clean energy from Québec to New England.

Furthermore, as addressed in the testimony of Justin Bardwell, the alternative of burying the HVDC line in even a portion or portions of the new corridor section running from the Québec-Maine border to Moxie Gore is not a practicable, or a suitable or reasonably available alternative, due to the extremely high cost, limited environmental benefits, increased risk and impacts during construction, and potential adverse operational impacts during operation. .

²⁹ Pre-Filed Rebuttal Testimony of Justin Bardwell at Section C.1.

II. Conclusion (Relevant to DEP and LUPC Review)

For the foregoing reasons, burying the NECEC HVDC line underground in the 54-mile new corridor portion is neither reasonable, available, nor feasible, as the costs of doing so would defeat the purpose of the Project. Accordingly, it is not a practicable alternative, is not suitable to the proposed use, and is not reasonably available to CMP.

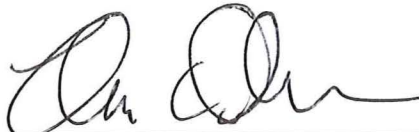
Exhibits:

CMP-1.1-A: Independent Evaluator's Report

CMP-1.1-B: Analysis of Impact of 54-Mile Underground Line on NECEC Transmission Rate and Section 83D Ranking

Dated: 3/18/19

Respectfully submitted,



Thorn Dickinson

STATE OF MAINE

Cumberland, ss.

The above-named Thorn Dickinson did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 3/18/2019

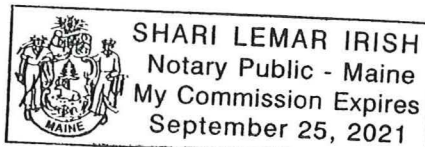


Notary Public

Name:

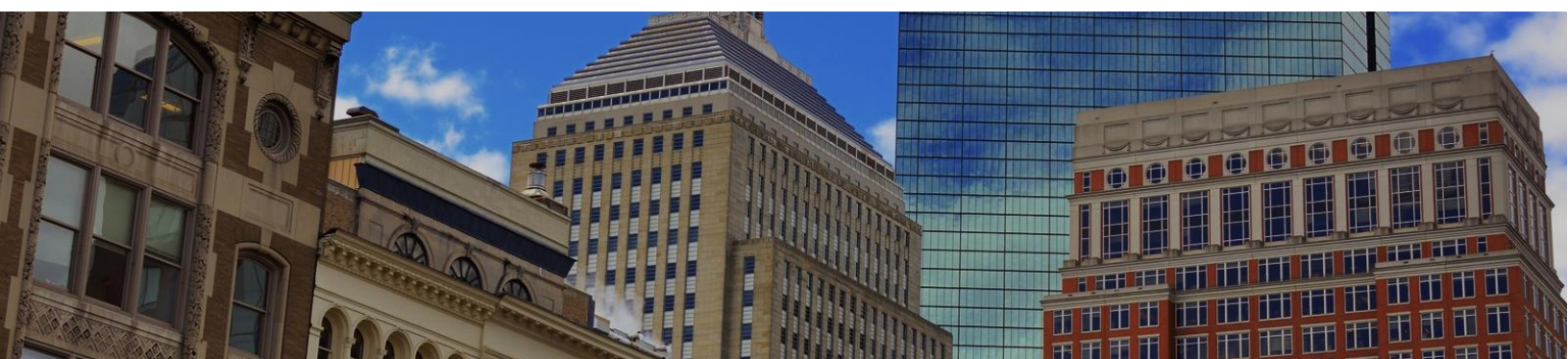
My Commission Expires:

SHARI LEMAR IRISH
Notary Public - Maine
My Commission Expires
September 25, 2021



SHARI LEMAR IRISH
Notary Public - Maine
My Commission Expires
September 25, 2021

REDACTED



Independent Evaluator Report

on the Solicitation, Evaluation, Bid Selection and Contract Negotiation Process
under Section 83D of the Green Communities Act

Prepared by Peregrine Energy Group

July 24, 2018

Revised August 7, 2018



Table of Contents

I. Introduction and Executive Summary.....	1
II. Background: 83D and the Role of the IE	3
A. The Energy Diversity Act	3
B. Development of the RFP and its Approval for Issuance	5
C. Independent Evaluator Scope and Standard of Review	7
III. Summary of the Solicitation, Bid Evaluation and Selection Process.....	9
A. Summary of RFP Provisions	9
B. Post-RFP Issuance: Bidder Conference; Answers to Bidder Questions; Development of the Detailed Evaluation Framework	12
1. Bidder Conference	12
2. Questions and Answers	12
3. Development of the Detailed Evaluation Framework	13
a. Introduction.....	13
b. Quantitative Evaluation Protocol and Base Case Development	13
c. Qualitative Evaluation Protocol.....	19
d. Stage 3 Evaluation Protocol	20
C. Evaluation of the Bids	21
1. Threshold Evaluation	21
2. Stage 2 Quantitative and Qualitative Evaluation.....	23
a. Quantitative Evaluation.....	23
b. Qualitative Evaluation	27
c. Stage 2 Scores and Ranking	28

3. Stage 3 Evaluation of Proposal Portfolios.....	28
D. Bid Selection	31
1. Initial Selection.....	31
2. NPT Denied Siting Approval; Evaluation Team Selects Conditionally Selects NECEC	34
IV. Monitoring the Contract Negotiation Process.....	36
V. Analysis of Solicitation, Bid Evaluation, Selection and Contract Negotiation Process	37
A. Process Issues: Transparency and Independent Oversight; Disclosure of Affiliate Relationships.....	37
i. Transparency.....	37
2. Independent Oversight	39
3. Disclosure of Affiliate Relationships	40
B. Fairness of the Bid Evaluation Framework	41
1. Interconnection Requirements.....	41
2. Detailed Evaluation Framework	43
C. Fairness of the Bid Evaluation and Selection Process.....	48
1. Threshold Evaluation	48
2. Stage 2 and Stage 3 Evaluation and Bid Selection	48
D. Contract Negotiation Process	51
VI. Conclusions	54
Appendix A - Qualifications and relevant experience of the Peregrine independent evaluator team	56
Appendix B - Key provisions of the 83D RFP	58
Appendix C - Bids that did not meet threshold / eligibility requirements.....	67
Appendix D – Large projects: Stage 2 evaluation	68

Appendix E – Small projects: Stage 2 evaluation	69
Appendix F – Stage 3 portfolio summary	70
Appendix G – Stage 3 portfolio summary: Scoring based on alternative \$NPV quantitative evaluation metric as reported by DOER	71

I. Introduction and Executive Summary

On March 31, 2017, Fitchburg Gas & Electric Light Company d/b/a Unitil (“Unitil”), Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid (“National Grid”), NSTAR Electric Company and Western Massachusetts Electric Company d/b/a Eversource (“Eversource”), as investor-owned electric distribution companies (collectively, “Distribution Companies” or “EDCs” and each a “Distribution Company”), in coordination with the Massachusetts Department of Energy Resources (“DOER”), issued a Request for Proposals (“RFP”) pursuant to which the Distribution Companies would solicit proposals for incremental Clean Energy Generation and associated environmental attributes and/or renewable energy certificates (“RECs”) under long-term contracts, which may include associated transmission costs, pursuant to Section 83D of Chapter 169 of the Acts of 2008 (the “Green Communities Act” or “GCA”), as amended by chapter 188 of the Acts of 2016, An Act to Promote Energy Diversity (the “Energy Diversity Act”) (hereinafter, “83D”). The Department of Public Utilities (the “Department”) approved the issuance of the RFP in an order issued on March 27, 2017.¹

Bids were submitted with respect to 53 proposed projects on or by July 27, 2017, the due date for proposals.² Following an extensive evaluation process, on January 25, 2018, an all-hydro bid submitted by an affiliate of Hydro Quebec, Hydro Renewable Energy Inc. (“HRE”), to be delivered through a new transmission project developed by Northern Pass Transmission LLC (“Northern Pass” or “NPT”), an Eversource affiliate, was selected for contract negotiations. A week later, however, the New Hampshire Site Evaluation Committee (“NHSEC”) decided on February 1, 2018 to deny the New Hampshire siting permit for the Northern Pass project.³ Subsequently, the Distribution Companies conditionally selected another high-ranking bid for contract negotiations, while continuing to negotiate with Northern Pass, with the ability to cease discussions with NPT and terminate its conditional selection by March 27, 2018.⁴ HRE was also the power supplier for the competing bid with transmission delivery through a proposed high-voltage direct current transmission (“HVDC”) project—the New England Clean Energy Connect (“NECEC”) project—whose U.S. segment would be constructed by Central Maine Power Company (“CMP”). On March 28, 2018, the Distribution Companies terminated negotiations with Northern Pass and continued their negotiations with NECEC and HRE,⁵ which ultimately led to concluded agreements. These agreements—(a) Power Purchase Agreements (“PPAs”) between the EDCs and a Hydro Quebec subsidiary, H.Q. Energy Services (U.S.) Inc. (“HQUS”)⁶ and (b) Transmission Service

¹ [Fitchburg Gas and Electric Light Company, et al, D.P.U. 17-32 \(2017\)](#).

² This number does not include pricing variants for proposed projects. This number also differs from the 46 bids referenced on the RFP website, <https://macleanenergy.com/83d/83d-bids/>, which was based upon the number of CDs (public versions) submitted by bidders, some of which contained multiple project proposals.

³ https://www.nhsec.nh.gov/projects/2015-06/transcripts/2015-06_2018-02-01_transcript_delib_day3_pm.pdf.

⁴ See <https://macleanenergy.files.wordpress.com/2018/02/doer-statement-update-2-16-18.pdf>.

⁵ <https://macleanenergy.com/2018/03/28/83d-selection-update-march-28-2018/>.

⁶ During the contract negotiation stage, the parties agreed that HQUS would replace HRE as the seller. Both HQUS and HRE are affiliates of Hydro Quebec. HQUS is an operating U.S. subsidiary that coordinates Hydro Quebec’s business development and energy marketing activities

Agreements (“TSAs”) between the EDCs and CMP—have been filed for approval with the Department; the TSAs between CMP and the Distribution Companies will also be filed by CMP with the Federal Energy Regulatory Commission (“FERC”).

83D requires that DOER and the Attorney General’s Office (“AGO”) jointly select, and DOER shall contract with, an independent evaluator to monitor and report on the solicitation and bid selection process (Section 83D(f)). Pursuant to that authority, Peregrine Energy Group, Inc. (“Peregrine”) was selected to be the Independent Evaluator (the “IE”) with respect to the 83D solicitation (as well as for the first solicitation for offshore wind generation conducted under Section 83C of the Act).⁷

Section 83D(f) states that the purpose of the Independent Evaluator is to help to “ensure an open, fair and transparent solicitation and bid selection process that is not unduly influenced by an affiliated company” and to assist the Department in its consideration of long-term contracts filed for approval. Among the IE’s responsibilities include the obligation to “file a report with the department of public utilities summarizing and analyzing the solicitation and bid selection process, and providing its independent assessment of whether all proposals were evaluated in a fair and non-discriminatory manner.”⁸ The IE’s role in the 83D RFP was also expanded at the request of DOER, with the approval of the EDCs, to include monitoring of the post-selection part of the process, including contract negotiations.⁹

This is the IE report that summarizes the solicitation, bid evaluation and bid selection process. In addition, it addresses the oversight of the contract negotiation process that the IE performed to assist DOER with respect to DOER’s contract monitoring role in the process.

In this report, the Independent Evaluator summarizes the development of the RFP and the Department’s approval of its issuance, the Evaluation Team’s subsequent development of a detailed evaluation framework, the receipt of bids, the evaluation of bids, bid selection, and the contract negotiation process leading up to the execution of contracts with HQUS and CMP. In addition, the report contains the IE’s assessment of the solicitation process and results in the context of whether the solicitation process and bid evaluation and selection were conducted objectively and in a fair and non-discriminatory manner without undue preference toward any affiliated projects. In the report, the IE has

in the Northeastern United States. HRE, an indirect wholly-owned subsidiary of Hydro Quebec, was established for the export of Hydro Quebec hydropower but does not (based on our understanding) currently engage in the purchase and sale of electric energy.

⁷ Peregrine’s Independent Evaluator team includes subcontractors New Energy Opportunities, Inc., Merrimack Energy Group, Inc., Power Consulting Services, LLC, and Meaden & Moore, LLP. A short summary of the IE team’s qualifications and pertinent experience is set forth in Appendix A to this report.

⁸ 83D(f).

⁹ See <https://macleanenergy.com/2018/03/28/83d-selection-update-march-28-2018/>.

drawn upon precedents of the FERC under the *Edgar-Allegheny* line of cases as guidance in conducting its assessment.¹⁰

This solicitation was a very complex, difficult and lengthy process due to the very different resources and products that were eligible to bid, the magnitude of energy sought—approximately 9,450,000 MWh/year—the participation of multiple Distribution Companies and DOER on an Evaluation Team which aimed to operate on a consensual basis, and the fact that two of the Distribution Companies were affiliated with certain bidders. Allowable bids included firm power from existing hydroelectric resources associated with new transmission projects that competed with unit-contingent intermittent power from new wind and solar Renewable Portfolio Standard (“RPS”) Class I generating facilities, as well as with combinations of these types of resources. Adding to the complexity were changes occurring during the solicitation process after the issuance of the RFP—the promulgation of the Clean Energy Standard (“CES”) regulations by the Massachusetts Department of Environmental Protection (“DEP”), which created new and additional demand for clean energy resources and ISO New England’s proposal, and receipt of FERC approval for, a cluster study interconnection process applicable to certain generation and transmission projects in Maine.

The process was not perfectly conducted, and this report addresses some of the issues that had to be addressed along the way. However, overall, the process was properly and fairly conducted, the bid selection decisions were reasonable and in accordance with RFP criteria, and the resulting contracts were fairly negotiated, in the IE’s opinion.

II. Background: 83D and the Role of the IE

A. The Energy Diversity Act

Section 83D of the Act, signed into law by Governor Baker on August 8, 2016, provides that in order to facilitate the financing of clean energy generation resources, each Massachusetts electric distribution company shall jointly and competitively solicit proposals for clean energy generation and, provided that reasonable proposals have been received, shall enter into cost effective long-term contracts for “clean energy generation” for an annual amount of electricity equal to approximately 9,450,000 megawatt-hours (“MWh”) by December 31, 2022. “Clean energy generation” is defined under Section 83B of the Act as either:

¹⁰ The *Edgar-Allegheny* guidelines were enunciated by FERC in *Boston Edison Electric Co: Re: Edgar Electric Energy Co.*, 55 FERC ¶ 61,382 (1991) and *Allegheny Electric Supply Company, LLC*, 108 FERC ¶ 61,082 (2004).

1. Firm service hydroelectric generation from hydroelectric generation alone (which may include multiple hydroelectric run-of-river generating units managed in a portfolio that creates firm service through the diversity of multiple units);
2. New RPS Class I eligible resources;¹¹ or
3. New RPS Class I eligible resources that are firmed up with firm service hydroelectric generation.

Aside from these three classes of generation resources, Section 83D allows “associated transmission costs to be incorporated into a proposal; provided that, to the extent there are transmission costs included in a bid, the department of public utilities may authorize or require the contracting parties to seek recovery of such transmission costs of the project through federal transmission rates, consistent with policies and tariffs of the Federal Energy Regulatory Commission, to the extent the department finds such recovery is in the public interest.”¹² Hence, several very different types of proposals are allowable under 83D:

- Firm service hydroelectric generation under a PPA;
- New Class I RPS generation, such as wind or solar, firmed by firm service hydroelectric generation under a PPA;
- New Class I renewables, such as wind or solar, under a PPA;
- Any of the foregoing types of generation under PPAs plus transmission under a long-term transmission contract or tariff.

Aside from satisfying the policy directives encompassed within Section 83D, the RFP states that another fundamental purpose of the RFP is to assist the Commonwealth with meeting its goals under the Global Warming Solution Act (“GWSA”), which requires reduction in greenhouse gas emissions in specified percentages by dates certain, including 2020.¹³

83D requires that the Distribution Companies jointly solicit proposals no later than April 1, 2017.¹⁴ Prior to that time, the Distribution Companies and DOER must propose “the timetable and method for

¹¹ “New Class I renewable portfolio standard eligible resources” are “Class I renewable energy generating facilities as defined in section 11F of chapter 25A of the General Laws that have not commenced operation prior to the date of execution of a long-term contract or that represent the net increase from incremental new generating capacity at an existing facility after the date of execution of a long-term contract.” Section 83B.

¹² Section 83D(d)(4)

¹³ RFP Section 1.1.

¹⁴ Section 83D(a).

solicitation of long-term contracts” to the Department, after consulting with the AGO. The Department must approve the issuance of the RFP.

Section 83D contains a number of criteria that are relevant to the design and implementation of the 83D RFP. They include the following criteria applicable to proposals submitted by bidders:

- Contribute to reducing winter electricity price spikes;
- Are cost effective to electric ratepayers in the commonwealth over the term of the contract taking into consideration potential economic and environmental benefits to the ratepayers;
- Avoid electrical line losses and mitigate transmission costs to the extent possible and ensure that transmission cost overruns, if any, are not borne by ratepayers;
- Allow long-term contracts for clean energy generation resources to be paired with energy storage systems;
- Guarantee energy delivery in winter months;
- Adequately demonstrate project viability in a commercially reasonable timeframe.

These and other matters were taken into consideration by the Distribution Companies and DOER in developing and implementing the 83D RFP.

B. Development of the RFP and its Approval for Issuance

In November 2016, DOER and the Distribution Companies commenced work in earnest on development of the 83D RFP.

Under 83D and 83C, DOER and the AGO are responsible for selecting, and the DOER for contracting with, an independent evaluator to monitor and report on the solicitation process. Following issuance of a Request for Quote by DOER on November 23, 2016 for the provision of Independent Evaluator services, Peregrine and its subcontractors were selected to serve as Independent Evaluator for the 83D solicitation and the first 83C solicitation. Peregrine started work on December 28, 2016.

The IE reviewed draft RFP documents and attended meetings and conference calls with respect to development of the RFP. The IE’s review focused on the elements of the RFP which were relevant to the IE’s scope of review and concerns. The IE provided its feedback to the Distribution Companies and DOER. Some of the IE’s suggestions were incorporated into the RFP, while others were considered but were not incorporated. Of those suggestions not incorporated, the IE was for the most part satisfied with the rationale for maintaining the approach as drafted.

In the Distribution Companies and DOER’s development of the RFP evaluation criteria, not all issues were fully decided but were left for further development and agreement through price and non-price evaluation protocols that were to be developed over the next few months. This was due to two major

factors: (1) timing constraints associated with the statutory requirement that the solicitation be issued on or by April 1, 2017; and (2) the complexity of the solicitation process. The RFP needed to be structured to provide for evaluation of bids with and without transmission, and with types of generation having different characteristics and industry practices.

The Distribution Companies filed the proposed RFP with the Department on February 2, 2017, seeking approval under 83D(b) of the “timetable and method for solicitation of long-term contracts.” Shortly thereafter, Peregrine submitted its IE report, as required by 83D(f), analyzing the draft RFP and including any recommendations for improving the process consistent with the statutory objective of “ensur[ing] an open, fair and transparent solicitation and bid selection process that is not unduly influenced by an affiliated company.” The IE suggested four modifications to the draft RFP:

- RPS Class I resources should not be required to incorporate in their bids the cost of network upgrades that go beyond those required to satisfy the ISO New England (“ISO-NE”) Capacity Capability Interconnection Standard (“CCIS”);
- The Distribution Companies and DOER—the Evaluation Team—should be allowed to modify the requirement that bidders must provide studies based on the current serial ISO-NE interconnection study system in light of the evolving status of a proposal by ISO-NE to convert partially to a cluster study system;
- In the event that the Evaluation Team subsequently determines that RPS Class I RECs will be valued in a way that is comparable to the valuation of the hydroelectric generation environmental attributes that do not qualify under the RPS, the RFP and form PPA provisions allowing the Distribution Companies to not pay for RECs if the RECs no longer qualify under the RPS due to a change in law should be eliminated because there are no similar provisions applicable to hydroelectric generation environmental attributes;
- Transmission bidders should be required to limit the recovery of abandoned plant cost at the FERC, if such recovery is sought, to costs incurred after the issuance of the RFP, and a winning transmission bidder should not have any right to recover abandoned plant costs from the Distribution Companies unless and until contracts have been executed and required regulatory approvals have been obtained, subject to any other negotiated limitations.

Over 20 parties, including the AGO, submitted comments to the Department on the proposed RFP. In response to some of the comments, the Distribution Companies provided clarifying changes to the RFP’s definition of the RPS Class I firmed by hydro bid category (Section 2.2.1.3.ii) and the winter energy guarantee requirement (Section 2.2.2.7).¹⁵

¹⁵ <https://eeaonline.eea.state.ma.us/EEA/FileService/FileService.Api/file/FileRoom/9188427>. In addition, the Distribution Companies added a requirement for energy pricing to RFP Section 2.2.1.4 to address instances of negative pricing, which had been inadvertently omitted from the 83D RFP. <https://eeaonline.eea.state.ma.us/EEA/FileService/FileService.Api/file/FileRoom/9187992>.

On March 27, 2017, the Department approved for issuance the proposed RFP (as revised) with minimal changes.¹⁶ On March 31, 2017, the Evaluation Team posted the RFP on the website for the RFP process, www.macleaneenergy.com. Also posted on the RFP website were the form model contracts for (a) RPS Class 1 energy resources, (b) firm hydroelectric generation resources, and (c) RPS Class I energy resources firmed by hydro, as well as a summary of terms to be addressed for proposed transmission service agreements, and forms to be filled out by bidders.¹⁷ Email notification of the posting was sent out to a notification list of approximately 650 industry participants and stakeholders.

C. Independent Evaluator Scope and Standard of Review

The Energy Diversity Act sets forth the standard of “open, fair and transparent” with regard to the solicitation and bid selection process and one that is “not unduly influenced by an affiliated company.” The Department has applied essentially the same standards in approving for issuance the Clean Energy RFP under Section 83A of the GCA.¹⁸ There, the Department stated that “the RFP may result in the submission of bids from the electric distribution companies’ affiliates or include projects in which the electric distribution companies or their affiliates have a financial interest,” thus, requiring “safeguards. . . to ensure that no potential bidder receives preferential treatment.”¹⁹ Similarly, there was the prospect for the 83D solicitation (as well as for 83C)—which turned out to be realities—that Distribution Company affiliates, or projects in which the Distribution Companies or their affiliates have a financial interest, would be bidders. In enacting 83D (as well as 83C), the Massachusetts Legislature required the retention and use of an Independent Evaluator as a safeguard to help ensure the openness, fairness and transparency of solicitations to be issued and to safeguard against any undue preferences toward EDC affiliates or unjust discrimination against any bidder.

FERC has enunciated what are sometimes referred to as the *Edgar-Allegheny* principles in decisions involving transactions between affiliates in which the buyer is a regulated utility. In the *Edgar* case in 1991, FERC required that a seller of wholesale electric power making a sale to an affiliated regulated utility for resale at market-based rates demonstrate that the rates and other terms and conditions of the power

¹⁶ The Department’s interpretation of its scope of review under 83D—the “timetable and method for soliciting long-term contracts”—is narrow. Fitchburg Gas and Electric Company et al., D.P.U. 17-32 (2018) at 18-19. The Department directed the Distribution Companies to correct inconsistencies regarding the time period that bidders must hold open their bids, which they had already agreed to do, *Id.* at 40, but did not require any other changes to the proposed RFP, including those suggested by the IE. This report addresses, among other things, how the issues raised by the IE in its initial report to the Department were managed in the implementation of the RFP process.

¹⁷ The model PPAs and summary of terms for transmission service agreements had not been previously provided to the Department with the RFP in connection with the Department’s approval of the issuance of the RFP. This was in accordance with past Massachusetts RFP practices.

¹⁸ Fitchburg Gas and Electric Company et al., D.P.U. 15-84 (2015) at 43-45 (“fair, transparent, and competitive” and “fair, open, and transparent”).

¹⁹ *Id.* at 43-44.

sales contract are not unduly preferential to the seller.²⁰ Where there is a competitive procurement process, FERC has required assurance that:

1. The process was designed and implemented without undue preference for the affiliate seller,
2. The analysis of the bids or responses did not favor the affiliate, particularly with respect to evaluation of non-price factors, and
3. Selection was based on some reasonable combination of price and non-price factors.²¹

In *Allegheny Electric Supply Company, LLC*, 108 FERC ¶ 61,082 (2004), FERC set forth guidelines applicable to its review of competitive solicitation processes under the *Edgar* standards.

1. “Transparency: the competitive solicitation process should be open and fair.
2. Definition: the product or products sought through the competitive solicitation should be precisely defined.
3. Evaluation: evaluation criteria should be standardized and applied equally to all bids and bidders.
4. Oversight: an independent third party should design the solicitation, administer bidding, and evaluate bids prior to the company’s selection.”

Subsequently, FERC found it sufficient for the independent third party to have overseen the design and implementation of the competitive bidding process, rather than to conduct the process itself.²² The purpose of the FERC guidelines is to provide assurance that regulated electric utilities do not unduly favor their affiliates, to the detriment of their customers.

Peregrine views the 83D (and 83C) standard of “open, fair and transparent” and “not unduly influenced by an affiliated company” to be substantially the same as the *Edgar-Allegheny* principles enunciated by FERC. Hence, the Independent Evaluator has viewed the *Edgar-Allegheny* principles as providing guidance in its review of the design and implementation of the 83D RFP.²³

²⁰ Boston Edison Electric Co: Re: Edgar Electric Energy Co., 55 FERC ¶ 61,382 (1991) (“Edgar”).

²¹ *Edgar*, 55 FERC ¶ 61,382 at 62,128.

²² *Southern California Edison Company: Re Sycamore Cogeneration Company*, 142 FERC ¶ 61,101 (2013). The role of the Independent Evaluator in competitive bidding processes conducted by electric utilities regulated by the California Public Utilities Commission typically involves an oversight function, rather than the actual conduct of the competitive solicitation.

²³ The FERC guidance also has practical implications for the 83D and 83C solicitation processes. Any PPA resulting from the solicitation process in which the seller is an affiliate of one of the Distribution Company buyers would require FERC approval under *Edgar-Allegheny*. In addition, there is, in our view, a substantial likelihood that FERC would apply the *Edgar-Allegheny* principles to review (a) any transmission service agreement or tariff in which the transmission owner is an affiliate of a Distribution Company resulting from this solicitation and/or (b) any associated PPA, even where the seller under the PPA is unaffiliated with the Distribution Company. See, e.g., *Ameren Electric Generating*

There are other contextual matters that have been important for our review. The requirement for an Independent Evaluator is a matter of Massachusetts law which applies regardless of whether there are affiliate bids or affiliate contracts, and 83D(f) requires the IE to provide “its independent assessment of whether *all* bids were evaluated in a fair and non-discriminatory manner” (emphasis added). Hence, we view the standard of “open, fair and transparent” as being applicable without regard to any specific concerns regarding undue preferences being provided toward affiliates. Also, we note the industry practice where independent evaluators are used, or have been used, to oversee the conduct of competitive solicitations in a variety of states, including California, Nevada, and Delaware.²⁴ Importantly, we also take into consideration key differences between the 83D/83C process and other solicitations overseen by independent evaluators. Typically, a single electric utility conducts a solicitation, which is overseen by an independent evaluator. Here, multiple distribution companies are conducting the solicitation in coordination with the state energy policy agency, DOER, and the RFP design phase also includes the involvement of the state’s consumer advocacy agency, the AGO. Also, the issuance of the RFP requires Department approval after providing for opportunity to comment by industry stakeholders and prospective bidders. The multiplicity of interests involved in the design and implementation of the solicitation may reduce the potential for one or more Distribution Company affiliates to be recipients of undue preferences, but does not eliminate it. The Independent Evaluator has taken into consideration the composition of the procurement team but has been guided by the *Edgar-Allegheny* principles in the conduct of its responsibilities.

III. Summary of the Solicitation, Bid Evaluation and Selection Process

A. Summary of RFP Provisions

The RFP specifies the products being solicited, also referred to as “Eligible Bid Categories,” identifies the threshold requirements applicable to all proposals, and describes the evaluation criteria and process to be used in evaluating the proposals. In addition, the RFP identifies the timetable for a bidder conference, a question and answer period, submission of bids, bid evaluation and selection, and

Company, 108 FERC ¶61,081 (2004) (acquisition of generating facilities from an affiliate under Section 203 of the Federal Power Act) reviewable under the *Edgar* standards); *Southern California Edison Company on behalf of Mountainview Power Company, L.L.C.*, 106 FERC ¶61,183 (2004) (all power purchases from affiliates, whether under market-based rates or cost-based rates, of at least one year in duration will be subject to the *Edgar* standards). In this context, it was prudent to establish and implement a solicitation process that would satisfy the *Edgar-Allegheny* principles.

²⁴ See Opinion Adopting Pacific Gas and Electric Company’s, Southern California Edison Company’s, and San Diego Gas & Electric Company’s Long-Term Procurement Plans, D.07-12-05 (CPUC 2007) at 131-142, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/76979.PDF, https://www.nvenergy.com/company/doingbusiness/rfps/Emissions-Capacity_RFP.cfm (NV Energy renewable energy RFP); 26 Del C. §1107(d)(2) (requiring retention of an independent consultant for solicitation of long-term contracts), <http://delcode.delaware.gov/title26/c010/>. Other states with formal competitive bidding rules and/or guidelines which require an Independent Monitor or Independent Evaluator, at least for solicitations in which a utility-ownership or affiliate option is present, include, Georgia, Louisiana, Oklahoma, Oregon, Utah, and Hawaii.

contract negotiation and execution, and submittal to the Department of contracts executed as a result of the solicitation. The RFP appendices include a bidder response package, standards of conduct, and form contracts/contract terms against which bidders may submit exceptions.

The RFP sets forth four eligible bid categories, with applicable requirements for each category:

- Proposal to sell Incremental Hydroelectric Generation (including environmental attributes) on a firm \$/MWh basis pursuant to a PPA;

If the proposed Clean Energy Generation specified for delivery in an hour is not delivered, the seller will be responsible for payment of liquidated damages;

- Proposal to sell new Class I RPS eligible resources (energy and RECs or RECs only on a \$/MWh basis) pursuant to a PPA;
- Proposal to sell new Class I RPS eligible resources firmed by Incremental Hydro Generation pursuant to a PPA;

If the proposed Clean Energy Generation specified for firm delivery in an hour is not delivered, the seller will be responsible for payment of liquidated damages;

- Any of the foregoing types of PPA proposals packaged with a proposed transmission project with payments to be made under a FERC tariff and service agreement.²⁵

The evaluation of the bids is to be conducted in three stages. In the first stage, the Evaluation Team reviews bids for compliance with various eligibility and threshold requirements (although this review may take place throughout the evaluation period). Among the eligibility/threshold requirements are the following:

- Term length of proposed contract: 15-20 years from commercial operation
- Allowable pricing:
 - a. Seller to take energy price risk associated with negative Locational Marginal Price ("LMP) at the delivery point
 - b. Seller of Class I RECs to take RPS change in law risk; pricing for Clean Energy Generation and Class I RECs must closely align with the relative market value of those products
 - c. For transmission projects, fixed prices are encouraged, but significant cost containment features are required for bids with cost of service pricing

²⁵ RFP Section 2.2.1.3.

- Bidders are responsible for all costs associated with interconnecting their projects using the Capacity Capability Interconnection Standard, although bidders are not required to clear their proposed projects in ISO-NE's Forward Capacity Market
- Site control:
 - a. Bidders of generation projects must demonstrate site control
 - b. Bidders of transmission projects must demonstrate a reasonable and achievable plan to obtain site control
- Ability to finance the proposed project (financial viability)
- Ability to develop, finance and construct the proposed project in a commercially reasonable timeframe (project viability).

In Stage Two, projects that satisfy the Stage One requirements are evaluated quantitatively and qualitatively. The result of this analysis is a relative ranking and scoring of all individual proposals. Stage Two scoring is on a 100-point scale, with a maximum 75-point score based on the quantitative evaluation and a maximum 25-point score based on the qualitative evaluation.²⁶

The RFP describes the direct contract costs and benefits to be evaluated for energy, RECs and transmission as well as other benefits and costs for evaluation, such as the impact of changes to LMPs paid by EDC customers and the impact of the proposal for contributing to meeting the Commonwealth's GWSA requirements, as determined by the Evaluation Team.²⁷

The RFP describes a number of factors for inclusion into the qualitative evaluation, such as bidder experience with similar projects, credibility of the project schedule, progress in the interconnection process, status of the project's community relations plan, credibility of the project's energy resource assessment, extent to which the project can support GWSA requirements by delivering energy on or before December 31, 2020, reliability benefits, price firmness and price risk, the extent to which proposed contract terms do not shift risks to the EDCs and their customers, environmental impacts from siting, and economic benefits to the Commonwealth.²⁸

The RFP provides that the Evaluation Team will select proposals from Stage Two for consideration in Stage Three taking into consideration rank order and cost effectiveness from the Stage Two evaluation

²⁶ RFP Section 2.3.

²⁷ RFP Section 2.3.1.

²⁸ RFP Section 2.3.2. A change was made to RFP Section 2.3.2 in June 2017 to conform with RFP Section 1.1 ("the Distribution Companies encourage proposals which include Clean Energy Generation able to commit to begin deliveries prior to the end of 2020 to maximize the Commonwealth's ability to meet its Global Warming Solution Act ("GWSA") goals"). See https://macleanenergy.files.wordpress.com/2016/12/83d-rfp-and-appendices-final_june-12-2017-conforming-changes-redlined.pdf.

and the annual procurement target—9,450,000 MWh.²⁹ In Stage Three, the Evaluation Team is to develop portfolios of projects based on the annual procurement target to determine overall cost effectiveness and impact on the Commonwealth’s policy goals, as directed by DOER, including GWSA goals.³⁰ In Stage Three, other factors may be considered by the Evaluation Team, such as risks associated with project viability of the proposals, any risks to customers associated with transmission projects and benefits to customers that may not have been fully captured in the Stage Two evaluation.³¹

The timeline in the RFP (subject to modifications as determined by the Evaluation Team) called for a bidder conference, a due date for bidder questions to the Evaluation Team, bids to be submitted by July 27, 2017, bid selection by January 25, 2018, contract execution by March 27, 2018, and submittal of contracts for Department approval by April 25, 2018.³²

A more detailed summary of RFP terms is provided in Appendix B to this report.

B. Post-RFP Issuance: Bidder Conference; Answers to Bidder Questions; Development of the Detailed Evaluation Framework

1. Bidder Conference

The Evaluation Team held a bidder conference at Eversource’s offices in Westwood, Massachusetts on April 25, 2017, with a presentation provided on the solicitation and bid evaluation process.³³ There were over 90 attendees. Bidder questions were entertained, but prospective bidders were advised that questions needed to be submitted in writing in order for the Evaluation Team to provide an official response.

2. Questions and Answers

Bidders submitted over 100 questions in writing. The questions were submitted to a dedicated email account, which was the specified method by which prospective bidders could communicate to the Evaluation Team. The Evaluation Team provided written responses in batches as responses were finalized.³⁴ All responses were posted on the RFP website by June 30, 2017. The responses were a collaborative effort by the Distribution Companies and DOER, with IE oversight to assure consistency with the RFP, accuracy, and fairness.

²⁹ *Id.*

³⁰ RFP Section 2.4.

³¹ *Id.*

³² RFP Section 3.1.

³³ <https://macleanenergy.com/83d/83d-bidder-conference/>.

³⁴ <https://macleanenergy.com/83d/83d-q-a/>.

3. Development of the Detailed Evaluation Framework

a. Introduction

After issuance of the RFP, a key activity was to develop evaluation protocols for the Stage 2 quantitative evaluation, the Stage 2 qualitative evaluation, and the Stage 3 evaluation. Contemporaneously with the Stage 2 quantitative evaluation protocol, the Evaluation Team worked with the Evaluation Team's consultant, Tabors Caramanis Rudkevich ("TCR"), to develop a base case for evaluation. These were steps required to implement the broad terms of the RFP and to provide guidance to the Evaluation Team for the evaluation of bids on a fair and non-discriminatory basis. The Evaluation Team also developed a checklist of eligibility and threshold requirements to aid in the Stage One evaluation. Finally, the Evaluation Team organized itself into several committees: a Steering Committee to oversee the work of the Evaluation Team, a Quantitative Committee responsible for the development and implementation of the detailed quantitative evaluation, and a Qualitative Committee responsible for development and implementation of the detailed qualitative (non-price) evaluation. Later, committees were also set up to focus on the threshold requirements evaluation and transmission matters.

This section of the report summarizes the development of the detailed framework for the evaluation of bids.

b. Quantitative Evaluation Protocol and Base Case Development

Work on development of the base case and the detailed quantitative evaluation framework began in earnest in June 2017 after the Distribution Companies retained TCR as the Evaluation Team Consultant, the Evaluation Team had responded to most of the bidder questions, and the draft offshore wind RFP under Section 83C of the Energy Diversity Act had been filed with the Department for approval.³⁵ TCR proposed utilization of the ENELYTIX model to evaluate the energy, REC and clean energy attribute costs and carbon emissions impacts of proposals submitted by bidders relative to a base case.³⁶ The base case would be developed by TCR working in conjunction with the Evaluation Team under the oversight of the

³⁵ Under Section 83C(a), the Distribution Companies were required to jointly issue a RFP for long-term contracts from offshore wind resources on or by June 30, 2017, following Department approval. In order to meet that statutory deadline, most of the 83D Evaluation Team worked on development of the 83C RFP in March and April 2017 so that it could be filed with the Department by the end of April 2017 (it was filed on April 28, 2017). The Distribution Companies retained the Evaluation Team Consultant (under the 83D RFP, the firm retained "to assist the Evaluation Team with the technical methodologies and findings for eligible proposals") in June 2017.

³⁶ The ENELYTIX model has three module components: (a) a capacity expansion module to determine the long-term optimal electric system expansion in New England, subject to capacity, RPS, and environmental requirements; (b) the energy and ancillary services module which simulates the day-ahead and real-time operations of the power system and power markets on a nodal basis; and (c) an ISO-NE FCM module which is used to compute capacity prices. The objective function is to minimize the total cost of the wholesale generation fleet serving the ISO-NE market. The ENELYTIX model and the modeling approach is described in more detail in a report provided by TCR to the Distribution Companies.

Independent Evaluator. Key assumptions for the base case were developed in parallel with the quantitative evaluation framework which would be embodied in a quantitative evaluation protocol.

The base case is a “but for” case against which all of the 83D bid proposals would be evaluated. The base case assumed that the Distribution Companies would not purchase energy, RECs and environmental attributes under long-term contracts pursuant to 83D. However, under the base case, all other legislative and regulatory mandates then in effect and certain proposed rules were assumed to be satisfied. These included: (a) RPS rules in Massachusetts and the other New England states; (b) compliance with new Massachusetts Clean Energy Standard (“CES”) rules (final rules were issued on August 11, 2017 and amended on December 8, 2017), which set a minimum percentage of clean energy that distribution companies and competitive suppliers must purchase as a percentage of their total sales (in addition to complying with the Massachusetts RPS);³⁷ as well as (c) new limitations imposed on carbon dioxide emissions from Massachusetts fossil fuel-powered electric generating facilities (also made effective in August 2017).³⁸ The purpose of these new rules was to facilitate compliance with the GWSA, which requires an 80 percent reduction in greenhouse gas (“GHG”) emissions by 2050, with an administratively-determined goal of 25 percent reductions by 2020. In addition, it was assumed that 1600 MW of offshore wind energy generation would be built pursuant to the 83C mandate to conduct solicitations for 1600 MW of long-term contracts for energy and RECs from offshore wind energy generation facilities.

Development of the base case involved making a variety of key assumptions involving fuel costs, load forecasts, RPS and CES requirements, and imports. The load forecast was based on the ISO New England 2017 CELT (Capacity, Energy, Loads and Transmission) report, with an extrapolated load forecast beyond 2026 (the last year covered in the 2017 CELT report). The assumptions for development of the base case (which were also common to modeling of proposal cases and portfolio cases) are described more fully in TCR’s Quantitative Evaluation Report which has been filed with the Department.

The detailed quantitative evaluation framework, described in the quantitative evaluation protocol, consisted of a benefit/cost analysis using the ENELYTIX modeling tool with two categories of benefits and costs—(1) direct contract costs and benefits and (b) indirect costs and benefits. Importantly, the evaluation framework incorporated the effects of the newly-enacted CES (as amended), which provided that all hydroelectric generating attributes procured and retained under the 83D solicitation and RPS Class I-qualifying resources will be CES-compliant.

Direct costs of a proposed project would include the bidder’s proposed cost of energy, the proposed cost of RECs for RPS Class 1-compliant bids, and for proposals with transmission, the proposed cost of transmission service. Against these costs, the market value of energy at the delivery point would be

³⁷ <http://www.massdep.org/BAW/air/cesf-amend.pdf>.

³⁸ <http://www.mass.gov/eea/docs/dep/air/climate/3dregf-electricity.pdf>.

calculated on a nodal basis with the project in service. In addition, the avoided cost of RECs (for RPS-compliant projects), and the avoided cost of Clean Energy Credits (“CECs”) (for CES-compliant projects), would be calculated. Wind, solar, and other projects that are compliant with RPS Class I and the CES would obtain value for the projected value of RECs/CECs. Hydroelectric generation procured under 83D would obtain value for the projected value of CECs.³⁹

The indirect benefits (or costs) associated with a proposal included:

- The impact of changes in LMPs (locational marginal prices) to Massachusetts Distribution Company customers as a result of the proposed project (or portfolio of projects);⁴⁰
- The cost reductions to Massachusetts EDC customers in RPS/CES compliance costs due to reductions in REC and/or CEC market prices as a result of purchases of RECs/CECs from the proposed project (or portfolio of projects);
- The value of a proposal’s contribution toward meeting GSWA requirements over and above the value of compliance with the RPS and CES;
 - This value was based on simulating the impact on the GHG inventory that is used by the Massachusetts Department of Environmental Protection (“DEP”) (for assessing the Commonwealth’s GWSA compliance) to calculate the inventory impact of a proposed project in reductions in metric tons of carbon dioxide equivalent emissions attributed to Massachusetts;
 - The quantity of GHG reductions is then multiplied by the base case emissions rate (GHG/MWh) to obtain a MWh equivalent of GHG emissions reductions (subject to further adjustment, as described later in this section);
 - The resulting MWh value is multiplied by the estimated avoided cost per MWh of obtaining incremental clean energy to obtain the total GHG inventory impact;
 - Preliminarily, this avoided cost was estimated to be \$20/MWh, but after the bids were evaluated in Stage 2, the amount was recalculated based on the median net direct cost without REC/CEC revenues (total costs minus energy revenues) per MWh of qualifying bids in the Stage 2 evaluation;
- The “hedge value” associated with the proposal during periods of high natural gas prices;
 - The three winter month period with the highest prices in the last 15 years was applied to a single power year (2023/2024), with the proposed project in place, to assess the relative

³⁹ 310 CMR 7.75 (2), (6), (7). RECs and CECs that would be used to serve EDC distribution load would be valued at their avoided cost (the base case value), while any surplus RECs and CECs that were sold would be valued at their market price.

⁴⁰ The Evaluation Team considered whether to use LMP impacts or a combination of LMP impacts and share of production cost savings as a measure of indirect customer benefits. AT TCR’s recommendation, LMP impacts alone were valued on the basis that they are a more direct measure of customer savings.

response to high natural gas prices, and a 1 in 15 year frequency was applied to calculate an impact on a \$/MWh basis.

- This “hedge” or “insurance value” was a method of implementing the RFP’s inclusion of “the economic impacts associated with resource firmness” (RFP section 2.3.1.2.iv) as a quantitative benefit in the context of 83D(d)(5)(ii)’s criterion that clean energy resources “contribute to reducing winter electricity price spikes.”⁴¹

The economic metric by which bids were to be evaluated was real levelized \$/MWh (2017\$). This metric had been recommended by TCR and DOER’s consultant Levitan and Associates (“LAI”).⁴² Other financial parameters were nominal inflation—2 percent, a nominal discount rate of 6.99 percent, and a real discount rate of 4.89 percent.

Under the RFP, the maximum number of points for the most cost-effective bid quantitatively in real \$/MWh was 75, with a maximum of 25 points for the qualitative evaluation. Bids other than the highest ranking bid in the quantitative evaluation would receive a number of points based on the ratio of the bid’s \$/MWh net benefit to that of the highest ranking bid multiplied by 75. For example, if the highest ranking bid in the quantitative evaluation was \$25/MWh and the second ranking bid was \$20/MWh, the highest ranking bid would receive 75 points and the second ranked bid would receive 60 points ($20/25 * 75$), subject to an outlier exception.

The Evaluation Team spent considerable time with TCR in the development of key assumptions for the economic analysis. If RPS supply was forecasted to be short of RPS demand, it was assumed that generic merchant RPS eligible generation would fill the gap using the ENELYTIX capacity expansion model. However, with respect to the CES, the model did not “solve for” the addition of CES-compliant generation. Instead, CES-compliance would be satisfied by either economic generation or by Alternative Compliance Payments (“ACP”), which beginning in 2021 would be 50 percent of the ACP under the Massachusetts RPS (in 2017, the ACP for RPS Class 1 is \$67.70; 50 percent of that is \$33.85).⁴³ This approach took into consideration the uncertainty as to whether the market alone would produce clean energy generation projects in the absence of long-term contracts (based on historical experience in New England). If there was a surplus of RECs or CECs, a \$2 market price was assumed, based on an amount to cover transaction costs.

⁴¹ Other indirect benefits were considered but were not ultimately incorporated in the final evaluations. The Evaluation Team considered the indirect impacts on capacity or ancillary service market prices with the proposed project in service (see RFP Section 2.3.1.2.v). However, there was insufficient data to determine the impact of proposed projects on ancillary services market prices (sometimes referred to as renewable integration costs) and the indirect impacts on market capacity prices were initially considered but were discarded when the results were deemed unreliable by the Evaluation Team. The IE concurred with these determinations. These considerations, however, were incorporated in the qualitative evaluation’s reliability criterion.

⁴² Also advising DOER was nFront Consulting, a subcontractor to LAI.

⁴³ In 2018-2020, the CES ACP is 75 percent of the RPS ACP during those years.

Bids were submitted on the due date of July 27, 2017. At that time, the Evaluation Team had not finalized the evaluation protocols, particularly the quantitative evaluation protocol. Prior to receipt of the bids, the Evaluation Team decided, with the IE's concurrence, that a specific person or persons for each Distribution Company would review information associated with the bids and wire transfer information to assess the adequacy of the bid fees. These persons would not communicate with other Distribution Company personnel involved in finalizing the evaluation protocols and the base case. With this limited exception, Distribution Company personnel would not review or have access to the bids pending the Evaluation Team's determination that the evaluation protocols and base case were effectively completed. Similarly, DOER and IE personnel working on finalization of the evaluation protocols and base case would not review the bids until the Evaluation Team determined that the evaluation protocols and base case were effectively completed. The purpose of this arrangement was to minimize the potential for review of the bids to influence decisions on the evaluation protocols, especially since there were expected to be bidders who would be affiliated with one or more of the Distribution Companies. On August 2, 2017, the Evaluation Team determined that the evaluation protocols were effectively complete, subject to further adjustments deemed necessary by the Evaluation Team, and evaluation of the confidential bids commenced. Over the next weeks and months, the base case and the quantitative evaluation protocol were further refined.

It was determined that for small projects that only direct benefits would be included in the Stage 2 quantitative evaluation, and that small projects would be compared and ranked against other small projects. The primary reason for this was that the Evaluation Team determined, based on initial modeling results, that the indirect benefit results from the ENELYTIX modeling appeared to be due to modeling "noise" rather than realistic impacts from projects. The IE did not see this approach as being inappropriate or discriminatory. Higher ranked smaller projects could be selected for inclusion in portfolios of approximately 9.45 TWh for Stage 3 evaluations, where the smaller projects in conjunction with other projects would be evaluated on the same basis as the larger projects, with both direct and indirect benefits evaluated.⁴⁴

The Evaluation Team operated by consensus. For the most part, the Evaluation Team members worked effectively together, although it took more time to make decisions than if the evaluation was being conducted by a single entity. The one area where the Evaluation Team was unable to reach consensus in developing the detailed evaluation framework was with respect to one important aspect of the methodology to determine contributions to meeting GWSA requirements.

DOER, supported by Eversource and Unitil, viewed the GWSA contribution value as being incremental to the market value for RECs and CECs that would be retired by the EDCs or Massachusetts competitive retail suppliers but not as separate additional values. As a result, in determining the *net* GWSA

⁴⁴ TCR defined projects as "small" if their generation capacity contribution for qualification in the Forward Capacity Market was less than or equal to 140 MW or its annual generation of RECS or CECs was less than 670 GWh/year. These thresholds were selected because they were not expected to reduce or delay the need for generic peaking capacity or to have an impact on REC/CEC market prices.

contribution in MWh, the DOER proposed methodology subtracted the amount of RECs and CECs (1 REC or CEC is equal to 1 MWh) forecasted to be retired in Massachusetts from the MWh-equivalent amount of carbon dioxide emissions attributable to a proposal compared to the base case. DOER viewed this approach as avoiding “double counting” of clean energy generation attributes.

The impact could be different for environmental attributes associated with hydroelectric generation (“Environmental Attributes” or “EAs”)—which could qualify as CECs but not RECs—compared to RPS Class 1 resources due to a provision of the 83D legislation, which requires that the EDCs retain the Environmental Attributes.⁴⁵

National Grid objected to this *net* approach, asserting that the RPS and CES created a market for environmental attributes and a marketable REC and CEC product that is different from and in addition to the value of reducing GHG emissions in a way that contributes to Massachusetts meeting its GWSA goals. National Grid proposed to calculate GWSA contributions in the same way as proposed by DOER but without deducting the MWhs associated with meeting RPS or CES requirements. After numerous discussions, National Grid stated that it would not accede to the other members of the Evaluation Team with respect to this aspect of the evaluation framework. The company proposed that it would evaluate proposals based on its proposed method, and if it resulted in the company making a different bid selection decision than the other EDCs, DOER could make the final decision after consulting with the IE, as provided by 83D.

The IE expressed the view that in the event of a failure to reach agreement on an important issue, the dispute resolution approach set forth in the statute could be applied to issues other than bid selection. However, National Grid expressed disagreement, and there was no consensus reached on a process to

⁴⁵ Section 83D(f) provides:

An electric distribution company may elect to use any energy purchased under such [83D] contracts for resale to its customers, and may elect to retain renewable energy certificates to meet the applicable annual renewable portfolio standard requirements under said section 11F of said chapter 25A. If the energy and renewable energy certificates are not so used, such companies shall sell such purchased energy into the wholesale market and shall sell such purchased renewable energy certificates attributed to Class I renewable portfolio standard eligible resources to minimize the costs to ratepayers under the contract; provided, further, that a *distribution company shall retain renewable energy certificates that are not attributed to Class I renewable portfolio standard eligible resources* (emphasis added).

With regard to Environmental Attributes, the MWhs used to meet the Distribution Companies’ CES obligations would be valued as CECs and would be deducted from the MWh-equivalent GHG contribution of a proposal, but the amount in excess would not be valued as CECs and would not be deducted in the GWSA contribution calculation because the Environmental Attributes would be retained by the Distribution Company. With regard to RPS Class I resources, similarly the RECs and CECs used to meet Massachusetts RPS and CES obligations would be deducted from the GWSA contribution calculation to avoid double counting of the value of the environmental attributes. However, where the market is in surplus, the RECs would be sold to comply with the 83D legislative mandate to sell them into the wholesale market. It was assumed that a share of them (based on defined criteria) would be retained in Massachusetts for voluntary sales, and this amount would be included in the GWSA contribution calculation—the remainder would not contribute to meeting GWSA requirements in the Massachusetts inventory. To be clear, the MWhs deducted in the GWSA contribution calculation because they would be valued as RECs or CECs, as applicable, would be valued as direct benefits of a project proposal.

reach a decision. National Grid requested that TCR perform a calculation of net benefits using its proposed approach in addition to the calculations performed for the majority of the Evaluation Team. Under these circumstances, the IE opined that the workbooks using the DOER approach should be viewed as the “official workbooks” and that the calculations performed for National Grid be in separate workbooks to avoid confusion. Without taking a position on the substance of the issue in dispute, the IE explained that the DOER method should be viewed as the “official” evaluation because it was supported by the majority of the Evaluation Team and that the issue involved energy policy matters and an interpretation of agency regulations and programs, which entitled DOER to some deference on the particular matter. National Grid expressed the hope that its different way of calculating net economic benefits would not result in differences in bid selection.⁴⁶ As it turned out, the different approaches did not result in significant differences in the bid evaluation results. The evaluation process proceeded.

c. Qualitative Evaluation Protocol

Under the RFP, a total of 25 maximum points was allocated to the qualitative evaluation component of Stage 2 of the evaluation process. In May 2017, a subgroup of the Evaluation Team began to develop the detailed evaluation framework for the qualitative evaluation, which would be embodied in a qualitative bid evaluation protocol.

The starting points were the 83D RFP and a prior qualitative evaluation protocol used in the multi-state RFP, which was conducted (from a Massachusetts standpoint) under Section 83A of the Green Communities Act. The objective was to modify the protocol previously used for applicability to the 83D RFP.

The qualitative criteria listed in Section 2.3.2 were extensive, including the general categories of overall project viability, operational viability, contributions to GWSA goals by the end of 2020, siting and permitting, reliability benefits, price firmness, contract risk, environmental impacts from siting, and economic benefits to the Commonwealth. The first step in the process was to ensure the qualitative criteria listed in the RFP were appropriately addressed in the bid evaluation. As part of this process, the Evaluation Team reviewed whether some of the criteria would be effectively addressed in the quantitative evaluation or whether certain outputs from the quantitative evaluation could be used and incorporated into the qualitative evaluation.⁴⁷ Otherwise, evaluation criteria would be addressed qualitatively as part of the qualitative bid evaluation.

⁴⁶ With the single exception that MWhs associated with meeting RPS and CES requirements were not deducted in the GWSA calculation, TCR performed the GWSA indirect benefit calculation for National Grid in an identical manner as for the calculations for the remainder of the Evaluation Team. National Grid also expressed reservations with the manner in which the avoided cost of clean energy in \$/MWh was calculated by the Evaluation Team.

⁴⁷ For example: curtailment risk (RFP section 2.3.2.ii) was considered to be adequately addressed in the quantitative evaluation and was not incorporated into the qualitative evaluation protocol; the extent to which a project could contribute to GWSA goals by delivering energy by

Once the qualitative evaluation criteria were agreed and draft evaluation sheets were prepared for each criterion, the next step was to include a description of the requirements for proposals to be classified in each of the scoring categories (or rankings) for each evaluation criterion. For most of the criteria, each proposal would be classified into one of three scoring categories based on meeting specified standards: Superior, Preferable, or Meets Minimum Standards. Once the drafts for each criterion were prepared, members of the Qualitative Evaluation Team and the IE reviewed the write-ups. The IE suggested modifications with the objective of providing more clear resolution between different scoring categories to facilitate the evaluation and scoring of bidder proposals.

Other issues addressed included: (1) the total number of points to allocate to each criterion based on the maximum 25 qualitative points; and (2) the amount of points to allocate based on the scoring category for each criterion. For the most part, if a proposal is deemed to meet the requirements listed for the Meets Minimum Standards category, the Bidder would receive 0 points. Proposals rated as Superior would achieve the maximum score for that criterion. Proposals deemed to be in the Preferable category were generally awarded points in the middle of the range, as specified in the qualitative evaluation protocol.

The Qualitative Evaluation Protocol was completed prior to the initiation of proposal review and evaluation.

d. Stage 3 Evaluation Protocol

The Evaluation Team developed a Stage 3 evaluation protocol that extrapolated from the RFP provisions applicable to Stage 3 of the evaluation (RFP sections 2.3.2 and 2.4). First, portfolios totaling approximately the annual procurement target of 9.45 TWh would be developed based on the higher-ranked bids from the Stage 2 evaluation. These portfolios would then be subject to the same quantitative evaluation as the large projects in Stage 2. The Evaluation Team would then make decisions regarding the selection of the project portfolio with an annual MWh amount that approximated the annual procurement target. The criteria for selecting project portfolios were described:

- Stage 2 evaluation criteria; other criteria might also be considered, such as production cost savings;
- Cost-effectiveness of the portfolios and impact on the Commonwealth's policy goals, including GWSA goals;
- Risks associated with project viability of the proposals;

the end of 2020 or could provide reliability benefits (RFP sections 2.3.2.iii and 2.3.2.v) was part of the qualitative evaluation protocol, but the scoring for it largely depended on outputs from the quantitative evaluation.

- Any risks that may be associated with proposed transmission agreements not fully captured in the Stage 2 evaluation;
- Any benefits to customers not fully captured in the Stage 2 evaluation;
- Any other factors to ensure that a proposal provides the greatest impact and value consistent with the stated objectives and requirements of 83D.

Finally, the Evaluation Team approved a scope of work for TCR's subcontractor Mott & McDonald, which would review the transmission proposals associated with generation bids in terms of reasonableness of cost estimates and schedule.

C. Evaluation of the Bids

This section of the report addresses the Evaluation Team's evaluation of proposals at each of the three stages of the evaluation process.

1. Threshold Evaluation

A working group was formed to review the various project proposals for threshold and eligibility requirement issues. One bid was disqualified at the outset because it was received by the Evaluation Team a day late.⁴⁸

The threshold working group conducted a preliminary analysis of bids that either appeared not to meet eligibility or threshold requirements or where clarification was required from the bidder. There were also questions where it was not clear whether there was a failure to meet threshold requirements or where more information was needed simply to facilitate the qualitative or quantitative evaluation of the proposal. This led to the Evaluation Team sending letters seeking clarification or additional information from many of the bidders. This was consistent with the RFP provisions which allowed the Evaluation Team to permit bidders to cure deficiencies in their bids.

During any stage of the procurement process, if the Evaluation Team determines that any proposal is deficient and missing applicable information needed to continue the evaluation process, the Evaluation Team will notify the respective bidder and permit the bidder a reasonable opportunity to cure the deficiency and/or supply the missing information.⁴⁹

The letters to bidders covered a wide range of questions, such as whether the bidder had submitted interconnection studies that satisfied RFP requirements (RFP section 2.2.1.9), complied with RFP pricing requirements (Section 2.2.1.4), and demonstrated sufficient site control (Section 2.2.2.1). In addition, letters were sent to bidders of generation with associated transmission regarding the specific threshold

⁴⁸ The bidder was [REDACTED]. The bid fees were returned because no evaluation of the bid was conducted.

⁴⁹ RFP section 2.1.

requirements applicable to transmission proposals (RFP Sections 2.2.1.4.i and 2.2.2.6) and the more general requirements applicable to all bids.

The Evaluation Team reviewed bidder responses to the questions. In some cases, the responses were unclear, and follow-up questions were issued to which the bidders responded. Many of the Evaluation Team questions pertained to the RFP requirements applicable to interconnection studies:

All projects submitted by bidders must have filed an interconnection request with ISO-NE. Projects that have received their I.3.9 approval from ISO-NE must identify that approval and include such documentation in their proposal. Proposals that do not have I.3.9 approval from ISO-NE must include technical reports or system impact studies that approximate the ISO-NE interconnection process, including but not limited to clear documentation of study technical and cost assumptions, reasoning, and justification of such assumptions. All studies must assume the project will interconnect using the Capacity Capability Interconnection Standard, must use the current ISO-NE interconnection process (including network impact scenarios from multiple projects interconnecting), and must also detail any assumptions with respect to projects that are ahead of the proposed project in the ISO-NE interconnection queue and any assumptions as to changes to the transmission system that differ from the current ISO-NE Regional System Plan.⁵⁰

All bids were also required to include a commitment to interconnect to the ISO-NE transmission system at the Capacity Capability Interconnection Standard.

The Evaluation Team consulted with ISO-NE representatives regarding the status of projects in the interconnection queue, ISO studies, and applicable ISO rules and practices.

All in all, 17 of the 53 project proposals submitted were determined not to satisfy eligibility and threshold requirements. The great majority of them—13 in all—were determined not to satisfy the interconnection and delivery requirements set forth in Section 2.2.1.9 of the RFP (and/or the commitment to interconnect at CCIS under Section 2.2.1.8). The reasons varied by project, such as not filing an interconnection request with the ISO at the time of bid, withdrawing interconnection requests, not including all costs to deliver to the delivery point, no ISO CCIS study or finding and no bidder CCIS study supplied, studies provided or being conducted that did not meet ISO standards, and location-specific problems that do not allow the CCIS to be satisfied without extensive upgrades that were not proposed by the bidder. Some bids had multiple interconnection-related deficiencies.

One bid from existing hydroelectric facilities in ISO-NE without any proposed expansion was determined not to supply incremental hydroelectricity, as required by RFP section 2.2.1.3.i. Another bidder failed to provide required financial information and failed to demonstrate financial viability of the project (see RFP sections 2.2.1.10 and 2.2.2.2). Finally, there was a failure to demonstrate site control with respect

⁵⁰ RFP section 2.2.1.9.

to two project proposals. The proposals that were found not to meet eligibility/threshold requirements, and the basis for determining that requirements were not satisfied, are summarized in Appendix C.

There were several other projects that had substantial questions as to whether they satisfied threshold requirements. However, the Evaluation Team did not reach consensus on these matters, so these projects were evaluated quantitative and qualitatively in the Stage 2 evaluation. None of these projects, however, were highly competitive, and none were selected.

Finally, the IE, pursuant to its contract with DOER, retained a forensic accounting firm, Meaden & Moore, to ascertain whether any bidder failed to disclose any affiliate relationships with the Distribution Companies, as required under RFP section 2.2.1.5. Meaden & Moore identified participation by EDC affiliates in three sets of project proposals—Northern Pass, an Eversource affiliate, involving Quebec hydro-only and hydro and wind bids and proposed transmission in New Hampshire; Granite State Power Link, a National Grid affiliate, involving Quebec wind-only bids and proposed transmission in New Hampshire; and NRPP Bid A, involving a National Grid affiliate, with wind and solar energy and firming hydro from New York. In each case, the Distribution Company affiliate was proposing to build new transmission. After review, Meaden & Moore did not find any bidder that failed to disclose an affiliate relationship to any of the Distribution Companies.

2. Stage 2 Quantitative and Qualitative Evaluation

a. Quantitative Evaluation

The Evaluation Team first commenced the quantitative and qualitative evaluation of small projects—defined (for this purpose) as below 300 MW in installed capacity—that passed an initial threshold evaluation screening. These projects were generally easier to evaluate than the larger projects—most of which involved associated new transmission in the project proposals. As more small projects were determined to have passed the threshold evaluation screening, they were passed on to TCR for quantitative evaluation and to the Qualitative Evaluation Team for qualitative evaluation.

The larger projects with associated transmission raised a number of issues for the evaluation. Some of these issues flowed from the lack of a pro forma transmission service agreement (“TSA”) that was provided to bidders (in contrast, PPA bidders were required to bid to a pro forma PPA) and the less restrictive threshold requirements applicable to transmission pricing compared to those applicable to PPAs.⁵¹ These issues included:

- Some proposed TSAs did not include provisions that precluded EDC liability for payments (either for transmission service or abandonment costs) absent non-appealable Department and FERC

⁵¹ The stated reason the Distribution Companies did not include a pro forma TSA in the RFP package was due to a desire to provide bidders with more flexibility. Other likely reasons are the relative lack of EDC experience in this area in a competitive bidding context and, perhaps, the difficulty they would have had on reaching agreement on a pro forma TSA within the timeframe of the RFP process.

approvals (the pro forma PPA precluded EDC liability for charges unless and until a non-appealable Department order approving the PPA was obtained);

- Some proposals contained proposed project schedules and/or pricing that were based on unrealistic assumptions regarding the timing of project selection in this solicitation, contract execution, and Department approvals (including dates that were more accelerated than those set forth in the RFP);
- Some transmission proposals contained either cost-of-service or price adjustment provisions that required estimation of items such as future levels of interest rates, commodity prices, and/or exchange rates;
- There were many clarification questions regarding complex provisions of proposed TSAs and their impact on risk allocation between the transmission owner and the EDCs;
- There were questions regarding whether some TSAs satisfied threshold requirements applicable to TSAs (such as the provisions in section 2.2.2.6 of the RFP regarding cost containment, abandonment cost, and transmission costs in the absence of energy).

The Evaluation Team sent several series of questions to the bidders with associated transmission proposals to address a variety of issues. Typically, the questions involved requests to modify the proposed TSA to conform with threshold requirements or to provide important clarifications.⁵² Bidders were also required to provide justification, where applicable, for their estimated costs associated with proposed cost-of-service provisions or those that contained price adjustments based on future costs. This process generally led to improvements in bids from the standpoint of conformance with threshold requirements, risk allocation and clarity. However, it took a substantial amount of Evaluation Team time and attention. The IE was highly involved in this process to assure that the evaluation was fairly and reasonably conducted, especially since three transmission bidders were EDC affiliates. The IE focused in particular on correctly interpreting the transmission proposals and assuring that they would be properly evaluated in the quantitative and qualitative evaluation from an EDC/EDC customer cost and cost risk perspective. Requiring transmission bidders to agree not to charge the EDCs, including for abandoned plant cost recovery, absent non-appealable FERC and Department orders approving the TSA addressed a concern raised by the IE in its RFP design report. In terms of the quantitative evaluation, the IE raised concerns regarding whether some of the costs for some transmission bids were being properly evaluated.

Northern Pass, an Eversource affiliate, had proposed [REDACTED] transmission rates [REDACTED]
[REDACTED]
[REDACTED] NPT's estimated cost of debt was stated as [REDACTED]

⁵² As one example, transmission bidders were asked to modify proposed TSAs, where necessary, to clarify that EDCs would not be liable for any charges or for abandonment cost recovery absent non-appealable Department and FERC approvals of the pertinent agreements.

percent [REDACTED] which appeared quite low. The IE drafted a question regarding the basis for this forecasted interest rate. NPT's response stated:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] At the time the bid was being evaluated (December 2017/January 2018), long-term interest rates had risen significantly from the time of bid submittal and were forecast to increase substantially over the next [REDACTED] years [REDACTED]. The IE raised the question to the Evaluation Team as to whether NPT's estimated cost of long-term debt of [REDACTED] was reasonable for use in the quantitative evaluation.

On a conference call in January 2018, TCR, members of the Evaluation and the IE met to discuss what interest rate to use in the quantitative evaluation of the NPT proposals (hydro and hydro and wind). Shortly before the call, National Grid had proposed a 5.00 percent interest rate, based on use of a 20-year Treasury rate representing the term of the proposed contract, a forecasted interest rate of 3.85 percent using the Blue Chip Financial Forecast, Long-range consensus estimate, published on December 1, 2017, and a credit adder of 1.15% based on a review of certain Eversource debt offerings. After discussion, TCR proposed to use a 4.55% for the Stage 2 (as well as Stage 3) evaluations based on use of a 10-year Treasury (reflecting a 20-year term and a 10-year weighted average life given that Treasury bonds pay out principal only at the end of the term), a forecasted interest rate of 3.60 percent based on the same consensus Blue Chip Financial Forecast referenced by National Grid, and a credit adder of .95 percent [REDACTED]—this was later reduced to 4.45% based on a reduced credit

⁵³ NPT Confidential Bid pp. 5-6 – 5-7.

adder due to a credit rating increase.⁵⁴ TCR, the Evaluation Team Consultant, National Grid, and the IE supported use of the 4.45% interest rate for use in the Stage 2 and Stage 3 evaluations.⁵⁵

At this time, Eversource opposed revising the quantitative evaluation—which was based on the [REDACTED] percent interest rate—to incorporate the higher interest rate proposed by TCR. Eversource argued that the bidder’s estimated interest rate should be used in the evaluation because using another interest rate would be “changing the bid.” At a Steering Committee meeting, the IE (and National Grid) thought that the decision was made to use the 4.45% interest rate, but there was apparently a lack of clarity. Subsequently, DOER stated that the higher interest rate should be run as a sensitivity in Stage 3 and not modify the Stage 2 results, which is the way the results were reported. Ultimately, as will be discussed, the selection decision was based on the quantitative evaluation using the 4.45% interest rate assumption.

The IE also raised a concern regarding a second transmission bid. One transmission bidder had proposed fixed transmission rates but had indicated by way of footnote that it was interested in discussing a [REDACTED] price adjustment provision in its TSA if it was selected for negotiations. The Evaluation Team asked the bidder to confirm that the proposed price was a fixed price or to specify any associated price adjustment provisions. The bidder responded that it was seeking a price adjustment for changes in specified [REDACTED] but that it was also proposing an alternative fixed-charge rate, albeit at a higher level than originally bid. The Evaluation Team decided to evaluate both proposals. The IE assisted in formulating questions that would obtain information from the bidder with enough specificity to facilitate TCR’s review of the pricing alternative with the proposed [REDACTED] price provision.

On December 22, 2017, the same day that President Trump signed into law the Tax Cuts and Jobs Act, which, among other things, reduced the corporate income tax rate from 35% to 21%, the Evaluation Team decided to give bidders the opportunity to refresh pricing based on the new lower tax rates, with the expectation that this could lead to significantly lower prices for some bids. In letters to all bidders, bidders were given until January 3, 2018 to propose lower prices if they chose to do so. A number of bidders, including several of the transmission bidders, submitted reduced prices.⁵⁶ Since the Stage 2 evaluation was then in the process of being finalized and the impact of the proposed price reductions appeared to be relatively modest, the quantitative evaluation of the revised bids was not included in the final Stage 2 evaluations but was included in the Stage 3 evaluations.

⁵⁴ [REDACTED].

⁵⁵ This same issue also affected the evaluation of the [REDACTED] bid, which had a price adjustment provision based on the 10-year Treasury note rate prevailing at the time [REDACTED].

⁵⁶ The effect on solar and wind projects of the new tax law was not clear because of the potential impact of the legislation on the financing value of investment tax credits and production tax credits. Many wind and solar developers did not provide reduced pricing.

b. Qualitative Evaluation

After the initial threshold evaluation review, members of the Qualitative Evaluation team as well as the IE reviewed and scored the proposals. Weekly meetings of the team were held to walk through and discuss the basis for scoring each proposal within each evaluation criterion. During the conference calls to discuss specific proposal scoring, members of the Qualitative Evaluation Team would each identify their score and the basis for the score awarded. If other team members scored the proposal differently, the members of the team would discuss the basis for scoring and attempt to reach a consensus. The IE raised issues if the scoring seemed inconsistent or skewed. In most cases, the IE identified his score and the basis for scoring if relevant to the discussion. The result of the qualitative evaluation was that team members generally reached resolution on a score for each of the criterion for each proposal, and the IE having evaluated and scored each proposal, was satisfied that the results were fair and objective.

There were a number of exceptions, particularly toward the end of the Stage 2 evaluation process, where the evaluation focused on the [REDACTED] categories. For example, Eversource proposed that NPT get a maximum score for the [REDACTED] category and proposed that certain competing transmission bids receive lower scores despite the fact [REDACTED]

[REDACTED] The other members of the Evaluation Team and the IE rejected this position, and the final scores, in the IE's opinion properly reflected the [REDACTED] inherent in these proposals.

Similarly, Eversource proposed that NPT receive the superior score for [REDACTED] [REDACTED] while competing bids receive the preferable (i.e., middle) score. Other members of the Evaluation Team and the IE did not accept this position, and NPT was given a preferable (i.e., middle) score.

Also, Eversource had argued that NPT [REDACTED] [REDACTED] and, hence, deserved a superior score for [REDACTED] [REDACTED], while other members of the Evaluation Team and the IE evaluated NPT as having [REDACTED], deserving only a preferable (i.e., middle) score. After discussion, the Evaluation Team gave NPT a preferable (middle) score in this category; a competing project that had already obtained its [REDACTED] was given a superior score.

[REDACTED]

On these matters, the IE advocated against compromising with Eversource where the result could not be justified on the merits. In the end, the IE was satisfied that the qualitative evaluation of the NPT bids as well as other bids was fair and objective and not unduly influenced by affiliate relationships.

c. Stage 2 Scores and Ranking

Summary results for large projects and small projects in terms of the quantitative evaluation, the qualitative evaluation, and total scores for Stage 2 are set forth in Appendix D and Appendix E respectively. These were compiled by TCR in early January 2018 and are reflected in Appendix 1 of the TCR Report. As indicated previously, these scores did not incorporate any proposed price reductions associated with the new corporate tax law and reflected NPT’s estimate of [REDACTED] % for the long-term cost of debt for this proposal.

3. Stage 3 Evaluation of Proposal Portfolios

At the beginning of Stage 3 of the evaluation, the Evaluation Team developed a number of project portfolios that approximated the annual procurement target of 9,450,000 MWh based on the rank order of projects at the end of the Stage 2 evaluation. In addition, the Evaluation Team developed a number of sensitivity analyses for TCR to model.

A number of proposals were of sufficient size to be their own project portfolios:

-	NECEC Hydro (HRE hydro supply)	Portfolio 6	9.55 TWh
-	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh
-	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh
-	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh
-	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh

Other portfolios involved combinations of large and small project proposals:

[REDACTED]	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh
[REDACTED]	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh
[REDACTED]	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh
[REDACTED]	[REDACTED]	Portfolio [REDACTED]	[REDACTED] TWh



TCR ran each of these portfolios in its ENELYTIX model and workbooks using the updated bids. The same quantitative evaluation methodologies were used as in Stage 2, although the revised bids with lower prices based on the tax law changes were evaluated. A quantitative scoring was assigned based on 75 for the portfolio with the highest levelized total net benefits per MWh and a proportionately lower score for other portfolios based on their evaluated net benefits. Qualitative scores were derived by weight averaging the qualitative scores for each project proposal comprising the portfolio.

The highest ranking proposals were NECEC Hydro (Portfolio 6), combinations of NECEC Hydro and [REDACTED], and NPT Hydro. The Evaluation Team decided to run scenarios for NPT Hydro and NECEC Hydro involving one-year delays in COD for these projects and considered different interest rate assumptions for NPT (with a range from the bidder estimate of [REDACTED] % to the TCR recommended rate of 4.45%). Because the top-ranked projects in the portfolio evaluation involved NPT Hydro and NECEC Hydro, the Stage 3 evaluation focused on the respective strengths and weakness of these two project proposals. Since both of them involved similar supplies of hydropower from Hydro Quebec's affiliate, HRE, the evaluation focused on the different transmission proposals and their potential benefits, risks and costs, especially those that may not have been fully incorporated into the quantitative and qualitative evaluation. The next highest ranked project was [REDACTED]. The proposed project, while more expensive than either NECEC or NPT, [REDACTED]. The Stage 3 evaluation, as conducted and compiled by TCR, with project rankings based on the real levelized \$/MWh metric and with the ranking for the NPT project based on the assumed 4.45% interest rate, is set forth in Appendix F to this report (which also includes the results of sensitivity runs). During the Stage 3 deliberations, TCR also presented a ranking with NPT's bidder supplied interest rate assumption. Under either set of assumptions, the NECEC Hydro proposal had a higher rank than the NPT Hydro proposal.

DOER put together a table based on the TCR evaluation results, but with alternative scores and ranking using net present value results in addition to scoring and ranking using the real levelized \$/MWh metric. [REDACTED] A summary of that table with scoring based only on the \$/NPV metric is set forth in Appendix G to this report.⁵⁸ Using the alternative net present

⁵⁸ The scoring for portfolios in Stage 3 based on the real levelized \$/MWh metric is in Appendix F.

value metric, the NPT proposal had higher scores and a higher ranking (taking into consideration the qualitative evaluation) than the NECEC proposal.⁵⁹

During the Stage 3 deliberations, Eversource proposed that the Evaluation Team give preference to projects that deliver earlier than others, stating that the quantitative and qualitative evaluation did not give sufficient value to this attribute and that early delivery can protect against the risks of an early onset polar vortex-type winter. Eversource also proposed that projects whose price may be too low to be financed or were at a relatively early stage of development should be assessed a contingency cost representing a replacement cost if the project can't be built. The IE thought that the Eversource proposal was insufficiently balanced and expressed the opinion that the proposed contingency adder was not supportable or even workable in the context of the solicitation.

The IE provided guidance to the Evaluation Team regarding the appropriate scope of the Stage 3 evaluation and the basis for selection of project proposals.

- The starting point for the Stage 3 evaluation should be the results of the Stage 2 evaluation and the portfolio evaluation results produced by TCR in Stage 3
- In the IE's opinion, the quantitative evaluation and scoring for the NPT Hydro proposal should be based on the 4.45% interest rate recommended by TCR, the Evaluation Team Consultant
- The RFP allows in Stage 3 for the EDCs and DOER to use "a reasonable degree of considered judgment" based on the criteria set forth in the RFP
- Matters for consideration include:
 - Cost-effectiveness of proposals
 - Impact on the Commonwealth's policy goals, including GWSA goals
 - Risks associated with the viability of projects
 - Any benefits that are valid in the context of this RFP but not fully captured in the evaluation
 - Risks associated with transmission costs not fully captured in the evaluation.⁶⁰

■ [REDACTED]

⁶⁰ The IE also noted that the quantitative evaluation of the NECEC proposals did not appear to take into consideration Hydro Quebec's ability to deliver 110 MW of energy through the NECEC line for its own account above the 1090 MW of deliveries to the EDCs under the proposal. The IE expressed that it wasn't certain what the impact of incremental Hydro Quebec deliveries would be because there could be a reduction in the LMP at the delivery point in Maine, which would reduce direct benefits, but this could be offset or exceeded by indirect benefits, such as reductions in LMPs for Massachusetts EDC customers and GHG reductions. The IE raised the question whether an additional model run should be conducted. An additional model run, at the request of Eversource, was conducted by TCR after the Stage 3 evaluation and bid selection, which showed an increase in net benefits (the indirect benefit improvement outweighed the reduction in direct benefits), which would not have affected TCR's rank ordering of the bids. The results of this additional model run are summarized in Appendix F.

DOER pressed the Evaluation Team to reach a selection decision in accordance with the RFP schedule, which called for selection by January 25, 2018. On a conference call, the Evaluation Team discussed risk issues and other evaluation matters pertaining to a number of higher-ranked projects.

Due to time limitations, the Stage 3 evaluation focused on the two highest ranked mutually exclusive projects, NECEC Hydro and NPT Hydro. Aside from the NPT interest rate issue previously discussed, the IE suggested that the Evaluation Team confer with ISO-NE regarding potential and likely outcomes of the Maine Cluster process with respect to NECEC. A call was held between representatives of the ISO and the Evaluation Team, which was very informative.

D. Bid Selection

1. Initial Selection

At a Steering Committee meeting held on January 18, 2018, the EDCs were asked which bid or bids they recommended for selection. Under 83D, if the EDCs unanimously agreed on the same bidder as the winning bidder, that bidder would be selected. Without unanimous agreement, DOER, after consulting with the IE, would make the final binding decision.

Eversource recommended the NPT hydro proposal. National Grid recommended the NECEC hydro proposal. The two EDCs provided reasons in support of their recommended selections. Unitil indicated that it had not yet reached a decision internally in order to make a recommendation. DOER asked the EDCs to meet separately to see if they could reach a consensus. If a consensus could not be reached, DOER asked each EDC to put their recommendations and supporting rationale in writing and to circulate their position papers the following day, which the EDCs did.

Eversource's rationale for selecting NPT was based in part on having the highest total net benefits, stated as a range of [REDACTED], and that those benefits would be delivered at the earliest date of the highest ranked proposals—prior to the end of 2020. Eversource stated that the [REDACTED] percent interest rate for NPT was "likely optimistic given changes in interest rates since the bids were submitted in July 2017," and that "[w]ithin the range selected by the Evaluation Team of [REDACTED] and 4.45 percent (high), NPT is the highest scoring project in terms of Total Net Benefits to customers" (using the NPV \$ metric). Eversource argued that net present value results are a better economic indicator of value to Massachusetts customers than real levelized \$/MWh for projects of similar size. On a variety of other factors, such as being more advanced in the permitting and interconnection process, Eversource rated NPT as a superior choice compared to NECEC.

Unitil rated NECEC and NPT as being similar with respect to quantitative net benefits but viewed NPT as a more mature project posing much less viability risk. In addition, it viewed the earlier projected on-line

date of NPT as creating more value for Massachusetts customers. Unitil recommended the selection of NPT.

In explaining its rationale for selecting NECEC, National Grid stated that using the real levelized \$/MWh metric, the NECEC project's net benefits of \$40.02/MWh was superior to that of NPT's \$ [REDACTED] MWh and the total score was higher, 90.63 points to [REDACTED], using the 4.45% interest rate supported by the Evaluation Team consultant and the IE.⁶¹ Even using the total \$ NPV metric, the NECEC project--\$3.9 billion—was higher than NPT's \$ [REDACTED] billion. Also, the levelized \$/MWh cost of the NECEC contracts were lower--\$59/MWh to [REDACTED]/MWh. National Grid stated that qualitative differences in the proposal were already captured in the qualitative scoring, with NPT scoring [REDACTED] higher. National Grid stated that NPT Hydro's claim that it will meet a December 2020 on-line date was highly doubtful, given that it would have to place [REDACTED] million at risk to do so, and that its [REDACTED].⁶² National Grid also stated that NECEC's fixed price bid provided less cost risk for customers than NPT's bid.

Given that the EDCs did not agree, the selection decision moved to DOER. On January 18 and January 24, DOER met with the IE in connection with the consultative process prescribed by 83D prior to a final DOER selection decision. The IE provided similar advice to DOER as it had given to the Evaluation Team as a whole regarding guidelines for selection. The IE advised that the starting point of the evaluation should be the quantitative and qualitative scoring under Stage 2 and Stage 3, with the quantitative evaluation to be based on the 4.45% interest rate for NPT rather than the bidder estimate of [REDACTED]%. Further, the IE suggested that the decision should be between the two highest ranked projects—NECEC Hydro and NPT. Beyond that, the IE suggested that DOER could consider a number of factors allowed to be considered in Stage 3 under the RFP and the evaluation protocol, which may include relative value regarding meeting GWSA goals, project viability, and ratepayer risk and benefit issues not fully captured in the Stage 2 evaluation.

On January 25, 2018, DOER announced its selection of NPT Hydro as the winning bid. DOER provided a memo to the IE setting forth the basis for its decision. First, DOER noted that its decision was based on

⁶¹ National Grid stated that it provided data supporting a debt financing rate of 5.0%. National Grid noted that NECEC had used a 5.0% percent interest rate assumption to formulate the NECEC transmission rate proposal and that NPT had used a [REDACTED] interest rate assumption in its bid in the multi-state Section 83A solicitation. National Grid also asserted that NPT's assumed debt financing rate of [REDACTED] percent was dismissed by the Evaluation Team as unrealistic and a debt financing rate of 3.6 percent proposed by Eversource was also unrealistically low.

The 3.6 percent interest rate was based on the use of current forward prices for future interest rates quoted by Bloomberg, specifically, an indication of what traders would commit to currently (January 24, 2018, in this case) with respect to interest rates several years in the future, rather than a forecast of what interest rates are likely to be several years in the future [REDACTED]

⁶² [REDACTED]

an assumed 4.45% interest rate for NPT, rather than the bidder supplied estimate of [REDACTED] DOER also noted that the two projects utilize the same Hydro Quebec generating resources and would deliver similar quantities of energy through two new alternative transmission lines. DOER stated that after careful consideration it believed that the NPT project would provide the greatest value to Massachusetts customers based on a number of reasons, including the following:

- A proposed in-service date two years earlier than NECEC's, supporting a stronger likelihood of an earlier in-service date
- More progress in the permitting and interconnection processes, providing additional certainty that the project will be constructed earlier
- Similar net benefits to Massachusetts ratepayers⁶³
- By coming online earlier, a likelihood of additional and earlier GHG tonnage reduction assisting the Commonwealth in meeting GWSA requirements
- Providing insurance benefits against winter price spikes and gas supply constraints at an earlier time than NECEC, mitigating significant winter reliability concerns.

While both NPT and NECEC were expected to provide cost-effective clean energy, DOER concluded that NPT's greater certainty for an earlier in-service date gave it the advantage as the winning bid in light of the urgent need to meet GWSA goals, as well continuing concerns for near-term winter reliability stresses on the regional electric grid exacerbated by pending generator retirements.

Based on this decision, the EDCs sent a letter to NPT and HRE notifying them that the NPT Hydro proposal was selected for contract negotiations.

On January, 31, 2018, DOER recommended, and the EDCs agreed, that the IE continue to monitor the next phase of the procurement, including contract negotiations. At the time, the expected contract negotiations were with Northern Pass, Eversource's affiliate, as well as HRE. This was beyond the IE's original scope of work, but resulted in an additional level of oversight.⁶⁴

⁶³ In its memo to the IE, DOER stated that "in terms of net benefits to Massachusetts ratepayers, the projects are within [REDACTED] % of each other, both delivering approximately [REDACTED] in net benefits to ratepayers." Given benefits of [REDACTED] billion for NPT (using the assumed 4.45% cost of long-term debt) and \$3.904 billion for NECEC, the difference is actually [REDACTED] %. However, the essential point is that DOER did not view the difference in quantitative benefits between the two projects as being sufficiently large to rely on in making its decision (absent other considerations) and that qualitative advantages for NPT (as further described in the memo) were determinative.

⁶⁴ Peregrine had originally recommended that monitoring of contract negotiations be included in the IE's scope of work, which is common for independent evaluators, but this was not included due to objections by the EDCs. Peregrine monitored the contract negotiations, which were mostly conducted on conference calls. As part of the arrangement with DOER and the EDCs, Peregrine was not provided with drafts of contracts or email exchanges with the bidders, but was allowed to review contract drafts by WebEx. The IE was also invited to internal calls with the EDCs and was provided with the opportunity to comment or ask questions on those calls.

2. NPT Denied Siting Approval; Evaluation Team Selects Conditionally Selects NECEC

On February 1, 2018, one week after NPT was selected as the winning bidder, the New Hampshire Site Evaluation Committee voted unanimously to reject Northern Pass' application for siting authority.⁶⁵ Without the NHSEC's approval, Northern Pass would not have the authority to construct its proposed project.

The next day, DOER sent a letter to the EDCs requesting that the EDCs send a letter to Northern Pass seeking information on the status of the project in light of the NHSEC's recent action and what the project's plans were to address the denial.⁶⁶ DOER also sought an early meeting with the EDCs and the IE to discuss the matter. On February 5, the EDCs sent a letter to NPT, asking whether and how the NHSEC decision affected Northern Pass's bid, including the proposed commercial operation date, and to describe the company's plans to reverse the NHSEC decision or otherwise obtain NHSEC approval. NPT responded that it would seek rehearing of the NHSEC decision and appeal it, if necessary. [REDACTED]

Soon thereafter, the EDCs and DOER met to consider NPT's responses and how to proceed. National Grid proposed that negotiations be commenced with NECEC, while negotiating at the same time with NPT, thereby giving Northern Pass some time to go through the NHSEC rehearing process. Eversource and Unitil recommended staying the course with NPT. The result of the conference call was that DOER would make a final binding decision regarding the course of action if the EDCs could not agree. A second conference call was held several days later.

DOER expressed the view that the fact of NPT's permit denial was very problematic and that the focus should be on the Massachusetts RFP timetable for decision, with a March 27, 2018 date for contract execution, not the timetable in the NHSEC process. The EDCs reiterated their position from the prior meeting.

The IE suggested that the Evaluation Team consider [REDACTED] as well as NECEC in deciding on an alternative project/project portfolio with which to negotiate, stating that while [REDACTED] was ranked below NECEC, it was ranked only slightly lower than NPT and it had a higher qualitative evaluation score because [REDACTED]. After a brief discussion, the EDCs unanimously stated their preference for NECEC over [REDACTED] due to NECEC's lower cost.

⁶⁵ Transcript of February 1, 2018 hearing at 24-26, NH SEC Docket No. 2015-06, https://www.nhsec.nh.gov/projects/2015-06/transcripts/2015-06_2018-02-01_transcript_delib_day3_pm.pdf.

⁶⁶ https://macleanenergy.files.wordpress.com/2018/02/letter-from-doer-asking-edcs-for-decision_02022018.pdf.

With disagreement among the EDCs regarding the terms under which negotiations would proceed with both NPT and NECEC (as the alternative selected project),⁶⁷ DOER decided that NECEC should be given the opportunity to negotiate a contract while negotiations also proceed with NPT, with discontinuance of contract negotiations with NPT and termination of its conditional selection if NPT did not obtain NHSEC approval by March 27, 2019. NECEC and NPT were asked to accept the terms of their conditional selections, which they did.

Following execution of confidentiality agreements, the two sets of negotiations commenced: a TSA with NPT with an associated PPA with HRE; and a TSA with CMP and an associated PPA with HRE. Negotiations and preparation for them were affected by several snowstorms, which slowed the process.⁶⁸

Negotiations proceeded for several weeks in March with both NPT and NECEC. On February 28, NPT had filed a request for rehearing with the NHSEC, which had been objected to by multiple parties. On March 13, the NHSEC ruled that it would issue a final written order (it had not yet memorialized its oral decision into a written order but had previously stated it would do so by March 31), and allowed another 10 days (under its rules) for any party to seek rehearing of its order.⁶⁹ There was no indication of any intent to reverse the unanimous oral decision denying NPT's application.

The 83D Steering Committee met on March 26, 2018. Prior to the meeting, DOER circulated draft letters for review by Steering Committee members (with NECEC and NPT as addressees), which stated that if NPT received its NHSEC permit by March 27, the EDCs would continue negotiations with NPT and terminate those with NECEC; alternatively, if NPT did not receive its NHSEC permit by that date, the EDCs would terminate NPT's conditional selection and continue negotiations with NECEC. At the ensuing Steering Committee meeting, National Grid supported terminating negotiations with NPT and continuing negotiations with NECEC. Eversource opposed terminating negotiations with NPT, indicating that the bidder should be given more time to reverse the denial and obtain the required permit, and that negotiations should continue with both NPT and NECEC, with a decision on which deal to execute to be made at the end of the negotiations. Unitil stated that given the difference in opinion between Eversource and National Grid, it was up to DOER to make the final selection decision.

The IE agreed that the decision at hand was a selection matter, and, under 83D, it was a matter for DOER to decide. The IE expressed the view that the decision implicit in DOER's draft letters was consistent with the prior Steering Committee decision. The IE also indicated that the likelihood of NPT

⁶⁷ The different approaches are reflected in letters from National Grid to DOER dated February 12, 2018 and from Eversource to DOER dated February 14, 2018.

⁶⁸ This was primarily due to EDC personnel needing to perform storm duty.

⁶⁹ Order Suspending Decision, Docket No. 2015-06. https://www.nhsec.nh.gov/projects/2015-06/orders-notices/2015-06_2018-03-12_order_suspend_decision.pdf.

being able to reverse the NHSEC decision and obtain its permit within any reasonable timeframe was remote. Further, the IE expressed the view that Eversource's continuing effort to keep NPT in the running represented favoritism or at least the appearance of favoritism toward its affiliate. DOER indicated that given the situation it was virtually impossible for NPT to make its scheduled 2020 online date, which was a major reason for its selection, and the unanimous permit denial made it very questionable whether the project could be built within the scope of its bid or at all. As a result, DOER decided that if NPT did not receive its permit by March 27, its conditional selection would be terminated and that contract negotiations would continue with NECEC. Subsequently, the EDCs terminated contract negotiations with NPT.⁷⁰

IV. Monitoring the Contract Negotiation Process

After the NECEC 100% hydro bid became the sole project with which the EDCs were negotiating, the negotiations proceeded in earnest with respect to the proposed PPA, the proposed TSA, and how these agreements interacted with each other. The IE monitored the negotiations and reviewed them from several perspectives:

- Were the resulting product of the negotiations (PPA and TSA) no less advantageous from an EDC customer standpoint than the bids submitted by CMP and HRE (such that the contracts as negotiated would be consistent with the bids as evaluated)?
- Were the resulting product of the negotiations (PPA and TSA) conforming with the requirements of the RFP?
- Did the EDCs negotiate in good faith and treat the winning bidders fairly?
- Was there any evidence of undue discrimination against the NECEC bid sponsors because they were not affiliates of any of the EDCs?

Since CMP or HRE are not affiliates of any of the EDCs, there was no issue of preferential treatment of an affiliate.

These matters are addressed in Section V.D of this report.

⁷⁰ On March 30, 2018, the SEC issued its written order denying NPT's application for site authority. https://www.nhsec.nh.gov/projects/2015-06/orders-notices/2015-06_2018-03-30_order_deny_app_cert_site_facility.pdf. Subsequently, NPT filed for rehearing, which the NHSEC denied at a hearing held on May 24, 2018, https://www.nhsec.nh.gov/projects/2015-06/transcripts/2015-06_2018-05-24_transcript_rehearing_deliberations_am.pdf, and memorialized in a written order issued on July 12, 2018, https://www.nhsec.nh.gov/projects/2015-06/orders-notices/2015-06_2018-07-12_order_mtn_rehearing_mtn_strike.pdf.

V. Analysis of Solicitation, Bid Evaluation, Selection and Contract Negotiation Process

In this section of the report, we review the fairness of the bid evaluation framework and the evaluation and selection of bids. We do this in the context of the 83D criteria of an “open, fair and transparent solicitation and bid selection process that is not unduly influenced by an affiliated company” and the *Edgar-Allegheny* FERC principles.

A. Process Issues: Transparency and Independent Oversight; Disclosure of Affiliate Relationships

i. Transparency

According to the *Edgar-Allegheny* principles, transparency is the free flow of information to all prospective and actual bidders. No party, particularly the affiliate should have an informational advantage in any part of the solicitation process. Transparency also means that the RFP and all relevant information should be released to all potential bidders at the same time. All aspects of the competitive solicitation should be widely publicized. The issuer can post the RFP on its website and issue a press release to that effect and/or advertise in the trade press. Also, to compete effectively, all bidders should have equal access to data relevant to the RFP and such information should be made available to all bidders at the same time. Transparency is also an objective from the standpoint of the public.

The Distribution Companies and DOER took a variety of steps to comply with the transparency principle. The Evaluation Team created and maintained a publicly available website (<https://macleanenergy.com>) which contained all relevant documents for prospective bidders, which were made available to them at the same time. The website contained the following types of information relevant to 83D:

- 83D documents
 - RFP and bidder response forms
 - Model PPAs for different types of generation bids and list of requirements applicable to transmission proposals
 - Form of notice of intent to bid
 - Standards of Conduct
 - EDC Evaluation Team members
 - Department order approving RFP for issuance
 - Stakeholder comments to EDCs prior to Distribution Company filing draft RFP for approval
- RFP timeline
- Bidder conference presentation
- Evaluation Team responses to prospective bidder questions
- Public versions of submitted bids

- Various posts regarding the selection of NPT, the decision to conditionally select NECEC after NH SEC's denial of NPT's application for site approval, and the termination of the conditional selection of NPT

The Distribution Companies and DOER acted to make the RFP known to a wide group of stakeholders. Before submitting the draft RFP to the Department for approval, the Distribution Companies sought comments from over 600 stakeholders on certain questions important to the design of the RFP and evaluation of bids, <https://macleanenergy.com/2016/12/19/83d-stakeholder-comments-requested/>, and posted the responses of over 30 commenters.⁷¹ The RFP was then vetted with the Department, which allowed for participation by interested parties. Following the Department's approval of the RFP for issuance, the Distribution Companies notified an extensive list of prospective bidders and interested parties regarding the launch of the RFP, as they had in past solicitations.⁷² Finally, the reports issued by the Independent Evaluator, including the report previously submitted on RFP design and this report regarding the bid evaluation and selection process, facilitate the transparency of the process.

In addition, the Distribution Companies which expected to receive affiliate bids—National Grid and Eversource—developed Standards of Conduct designed to ensure that affiliates have no competitive advantage for gaining access to information that is not available to third-party bidders. Under the pertinent Standard of Conduct, National Grid and Eversource designated the individuals participating in the Solicitation process, and identified the role of each individual in the process. Utility individuals were allowed to be on either a Bid Team or an Evaluation Team within their respective companies (Unitil only had an Evaluation Team). No individual was allowed to be a member of both teams, and no individual was permitted to change from one team to the other during the solicitation process. However, some individuals who are neither members of the Bid Team or Evaluation Team but who provide guidance or advice to the Bid Team and/or Evaluation Team in the normal course of their responsibilities could be designated as Subject Matter Experts (“SMEs”) and could communicate with members of both teams, although they could not be conduits for confidential information pertaining to the RFP. The Distribution Companies published the names of the individuals designated to be on the Evaluation Team and those designated as SMEs on the solicitation website. All team members were required to sign an agreement acknowledging that they would be bound by the Standard of Conduct and will be subject to training on the Standard of Conduct.

The IE had the opportunity to review and comment on the proposed Standards of Conduct. The IE expressed that it would be preferable that joint use of SMEs not be used in order to reduce the risk of transfer of confidential information between Bid Team and Evaluation Team and to enhance the

⁷¹ <https://macleanenergy.com/83d/83d-archived-documents-and-stakeholder-comments/>. The distribution list is derived from prospective bidders and other interested parties who signed up to receive notifications regarding the multi-state Clean Energy RFP and its associated website, <https://cleanenergyrfp.com>.

⁷² The Distribution Companies used the same distribution list as it used to solicit comments, as updated.

appearance of fairness and impartiality.⁷³ However, the IE stated that joint use of SMEs would be acceptable, with several modifications, including posting of the names of SMEs on the solicitation website and limiting the use of SMEs, which the Distribution Companies agreed to implement.⁷⁴ The Department approved this approach.⁷⁵

At the end of the process, after the contracts with HQUS and CMP had been executed, the IE asked National Grid and Eversource to state in writing whether they had complied with the standards of conduct. They responded affirmatively.

During the pendency of the RFP, the Evaluation Team did not provide the detailed evaluation framework or a summary of it to prospective bidders or the public. This is a common practice in the implementation of complex solicitations, such as 83D, and has been the Distribution Companies' practice in past solicitations. The rationale behind the practice is to encourage prospective bidders to put their best proposal forward rather than to facilitate their "gaming" of the evaluation system. In addition, putting together and making public a summary of the detailed evaluation framework prior to the submission of bids would have put an additional burden on the Evaluation Team, which was already struggling with timely meeting milestones for the solicitation process. Compliance with the transparency principle is typically assessed in the context of other procurement objectives and exigencies. In the IE's view, the principles of the evaluation framework set forth in the RFP, the bidder response package in the RFP, and the responses and public posting of over 100 bidder questions provided sufficient guidance for bidders to be able to submit competitive bids and for bidders to have a sufficient level of understanding as to basis upon which their bids would be evaluated.

Overall, the Distribution Companies and DOER implemented the RFP process in a manner that was open and that satisfies the transparency principle, in the IE's opinion.

2. Independent Oversight

The *Edgar-Allegheny* oversight principle provides that effective oversight of competitive solicitations can be accomplished by using an independent third-party with respect to the design and implementation of the competitive solicitation process. Ensuring that the third-party is independent and granting it at the outset oversight responsibility will help to ensure that the process will be conducted fairly throughout the process and will also minimize perceptions of affiliate abuse. 83D requires the appointment of an independent evaluator—selected jointly by DOER and the AGO—to monitor and report on the solicitation process and to provide its independent assessment of whether all bids were evaluated in a fair and non-discriminatory basis.

⁷³ IE RFP Design Report at 9-11.

⁷⁴ *Id.*

⁷⁵ D.P.U. 17-32 at 53-55.

Structurally, the 83D solicitation process contains numerous provisions for the independent oversight of the process. During the 83D RFP design phase, the process was subject not only to the independent oversight by the IE but also involved participation by DOER and the AGO. Importantly, the proposed RFP was the product of an agreement between three different Distribution Companies and DOER, and was subject to the Department's review and approval, after allowing comments by interested parties. Thereafter, DOER was a member of the Evaluation Team with the Distribution Companies and was intimately involved in developing the detailed evaluation framework, evaluating bids, and bid selection, with the IE actively involved in oversight of the entire process. DOER and the IE both had the opportunity to monitor contract negotiations between the Distribution Companies and selected bidders.

Solicitation processes have different strengths and weaknesses with respect to the oversight principle (as well as other considerations). While the degree of independent oversight was very strong, as outlined above, the process also had a few weaknesses. The IE was not brought into the deliberations regarding the RFP design until several weeks after they commenced. However, the IE had the opportunity to review drafts of the RFP and issues lists and participate in discussions with the Distribution Companies, DOER and the AGO on RFP design issues, so the impact was *de minimis*.

Another weakness was the limitations on IE (and DOER) access to draft contracts and substantive emails between the EDCs and the winning bidders during contract negotiations. The IE was only allowed physical access to these documents without the ability to retain them. Typically, the industry practice is that the IE is copied on all communications between bidders and the utilities, including throughout contract negotiations. However, the IE was able to monitor the contract negotiations throughout, provide comments to the EDCs during intra-EDC conference calls, and review the draft documents in person on request.

On the whole, there was strong independent oversight over the entire process.

3. Disclosure of Affiliate Relationships

The Independent Evaluator provided input into provisions of the RFP, the form of bidder certification, and the bidder response package to require bidders to identify any affiliate relationship with a Distribution Company or any financial interest that a Distribution Company had with the bidder or the proposed project.⁷⁶ The purpose of this was to ensure that there are no proposals where a Distribution Company has an undisclosed affiliate or financial interest in a bidder or proposed project. The IE had, as a team member, a forensic accountant, who provided assistance on these matters.⁷⁷ The accounting firm, Meaden & Moore, concluded that the utility affiliates who submitted bids, Northern Pass, Granite

⁷⁶ RFP sections 1.8, 2.2.1.5, and parts of Appendix B, Section 5.

⁷⁷ The use of a forensic accountant for this purpose was required, or at least encouraged, in the DOER RFQ for independent evaluator services.

State Powerlink, and Northeast Renewable Power Partners, properly disclosed their affiliate relationships, and that there were no bidders that failed to properly disclose any affiliated relationships.

B. Fairness of the Bid Evaluation Framework

An important part of the RFP process is the evaluation framework that is described in the RFP and the detailed evaluation framework that is developed to implement the provisions of the RFP. Under the *Edgar-Allegheny* principles, there are two guidelines that are of particular applicability to this part of the solicitation process—product definition and evaluation.

In *Allegheny*, FERC stated with respect to the “product definition” guideline:

The product or products sought through the RFP should be defined in a manner that is clear and nondiscriminatory. The RFP should state all relevant aspects of the product or products sought.

An RFP should not be written to exclude products that can appropriately fill the issuing company’s objectives. This is particularly important if such exclusions tend to favor affiliates.⁷⁸

Another of the four *Allegheny* criteria is:

Evaluation: evaluation criteria should be standardized and applied equally. . . .

To fulfill the evaluation principle, RFPs should clearly specify the price and nonprice criteria under which the bids are evaluated.⁷⁹

In this section of the report, the evaluation framework set forth in the RFP and the detailed evaluation framework developed after the RFP was issued will be analyzed in terms of (a) fairness and non-discrimination toward any types of bids and non-favoritism toward affiliates and (b) whether the detailed evaluation framework fairly implemented the more general provisions of the RFP. For purposes of this section of the report, the detailed evaluation framework includes the evaluation protocols developed after the RFP was issued, written answers to bidder questions, and the base case developed in connection with the evaluation of bids.

1. Interconnection Requirements

There are three principal requirements in the RFP pertaining to interconnection and delivery.

- Bidders are required to interconnect to the ISO-NE grid based on the CCIS (as well as the minimum interconnection standard);

⁷⁸ 108 FERC ¶ 61,082 (2004) at 8.

⁷⁹ 108 FERC ¶ 61,082 (2004) at 7, 8.

- Bidders must demonstrate that their proposed delivery into the ISO-NE grid, along with proposed transmission network upgrades, is sufficient to ensure “full dispatch” of the proposed clean energy deliveries; and
- Bidders that do not have certain interconnection studies completed by ISO-NE are required to submit technical reports or system impact studies under the current serial study process, even though ISO-NE was at the time in the process of converting to a cluster study process, subject to FERC approval, which affected certain projects in Maine.

In our RFP Design Report, the IE concurred with the use of the CCIS standard in the 83D solicitation (pp. 13-15), recognizing that this higher standard of interconnection than the “energy only” standard for Network Interconnection Service required in prior solicitations under Section 83 and 83A was justified in the context of 83D’s greater emphasis on reliability, noting the 83D statutory criteria that clean energy generation “contribute to reducing winter electricity price spikes” and “guarantee energy delivery in winter months.”

However, the IE was uncomfortable with the requirement that bidders demonstrate that proposed delivery, along with transmission network upgrades, is sufficient to ensure “full dispatch” of proposed energy deliveries. There is no ISO-NE study or requirement that is based on that standard. In fact, the “full dispatch” standard is substantially stricter than the CCIS standard, and ISO studies do not review for “full dispatch.” Moreover, how to “ensure” full dispatch is unclear, which is undesirable for a RFP threshold requirement. Finally, the issue of transmission constraints and impacts on delivered energy prices and project curtailment can, and was planned to be, evaluated in the quantitative nodal energy market simulation modeling.

The Evaluation Team addressed this issue, with the input of the IE, in response to a bidder question, with the answer posted to the RFP website. After explaining that a bidder would need to provide an ISO study based on the CCIS standard or a technical study provided by the bidder that would approximate an ISO study, the Evaluation Team explained:

The delivery profile submitted by the bidder should reflect any remaining projected constraints or curtailments, if any, associated with the proposal (after inclusion of any network upgrades associated with application of the CCIS-equivalent interconnection standard). If a bidder desires to reduce further any constraints or curtailments associated with its proposals, it must identify additional network upgrades (which would be instituted through an elective process with ISO-NE), estimated costs to achieve this result, proposed cost containment measures, and the delivery profile associated with the proposed level of network upgrades, all with supporting studies and information.⁸⁰

⁸⁰ Answer to Question 16, 83D Q&A Set 8. <https://macleanenergy.files.wordpress.com/2017/03/83d-qa-set-8.pdf>.

In practice, the Evaluation Team interpreted “full dispatch” as an obligation to incorporate any expected curtailments in the delivery profile submitted by the bidder, plus a bidder option, rather than a requirement, to identify additional upgrades to achieve “full dispatch.” The IE found this approach to be reasonable.

Following the issuance of the RFP, ISO-NE proposed to FERC modifications to its interconnection process to provide for a cluster study process for certain projects interconnecting in Maine, which FERC approved on October 31, 2017 and made effective on November 1, 2017.⁸¹ The Evaluation Team applied the interconnection requirements applicable to cluster-eligible projects under FERC’s revised rules (to the extent different from pre-existing requirements), both from a threshold requirements standpoint and in its qualitative evaluation of bids. The IE concurred with this approach, which relied on currently effective rules.

There were a number of bidders that sought clarification regarding the standards the Evaluation Team would apply based on the applicable RFP provisions. The Evaluation Team provided clarification in written responses, after seeking input from ISO-NE, with the answers being reviewed and concurred in by the IE.⁸² On the whole, the IE was satisfied that the interconnection requirements in the RFP as further interpreted in answers provided to bidders were designed and articulated in a fair, clearly stated, transparent and non-discriminatory manner.

2. Detailed Evaluation Framework

The Evaluation Team devoted considerable time and effort to develop a detailed quantitative evaluation framework pursuant to the more general provisions set forth in the RFP. The model used by TCR—ENELTYIX—allowed for more sophisticated quantitative evaluation than in prior solicitations. Also, this was the first Massachusetts RFP process where GWSA compliance value was part of the evaluation process. Finally, the evaluation process evolved following enactment of the CES and Evaluation Team review of initial quantitative results, with the concurrence of the IE.

The evaluation framework properly considered the projected market value of energy purchased under the proposed contracts. This was based on running ENELTYIX with the proposed project in service and determining the value of energy at the proposed delivery point. This is the point at which the EDCs would purchase the proposed energy (and, in all likelihood, sell the energy back into the market at the same point).

The environmental attributes and the market products embodying them were incorporated in the evaluation in three ways:

⁸¹ ISO New England Inc., 161 FERC ¶ 61,123 (2017).

⁸² See answers to questions 15, 16, 31, 36, 72, 82, 117, 118, and 119, 83D Q&A Set 8. <https://macleanenergy.files.wordpress.com/2017/03/83d-ga-set-8.pdf>

- The direct benefits associated with RECs and CECs
- The indirect benefits associated with the reduction of REC and CEC prices that EDCs and other retail electric suppliers would need to pay for these products other than those that the EDCs are or will be procuring under long-term contracts
- The value associated with reduction of emissions pursuant to the GWSA

At the time the RFP was issued, the Clean Energy Standard was a proposed rule (issued as a proposal in December 2016). The rules were finalized in August 2017 and then amended in December 2017. The evaluation performed incorporated the rules as they were finalized and amended. One major impact of the CES rules was that it greatly expanded the demand for clean energy—both RPS eligible generation and hydroelectric generation procured under 83D—and, hence, their value in the evaluation.⁸³

Important aspects of the evaluation included:

- Using the ENELYTIX model, REC and CEC values are based on the “missing money” required to meet RPS and CES requirements above market energy value (and applicable capacity value), subject to ACP values under the RPS and CES, which act as price caps
 - CEC values in many years were based on the ACP, which, in most years, is 50% of the RPS ACP value⁸⁴
 - Where RECs or CECs were projected to be used to serve EDC distribution load (Massachusetts retail load minus municipal utility load), the value of the RECs or CECs in the evaluation was assumed to be their avoided cost; where they were assumed to be surplus and sold, the value was based on the projected sale price.⁸⁵
 - The value of the RECs/CECs purchased were treated as a direct benefit of the project proposal.

⁸³ The CES requires Massachusetts retail suppliers (excepting municipal utilities) to obtain Clean Generation Attributes (including those from RPS Class I generating units) in amounts equal to 16 percent of their sales in 2018, increasing by 2 percent per year until 80 percent in 2050. 310 CMR 7.75(4). In contrast, the percentage requirement applicable to RPS Class I (subject to the solar carve outs) is 13 percent in 2018 and increases by 1 percent per year thereafter. 225 CMR 14.07.

⁸⁴ With respect to the RPS, it was assumed that merchant RPS qualifying generation would meet RPS demand beyond existing RPS qualifying generation, assumed imports, and projected offshore wind projects to be procured under 83C. The ENELYTIX model did not specifically “solve” for CES compliance, thus, did not assume that merchant generation would be built to meet CES demand (unless such CES-qualifying generation would be built for economic reasons). The IE was satisfied that these assumptions were reasonable in light of the relatively small amount of new large clean generation that has been built in the region in the absence of long-term contracts.

⁸⁵ Under 83D(h), “a distribution company shall retain renewable energy certificates that are not attributed to Class I renewable portfolio standard eligible resources.” Under the CES rules, as amended, all generation attributes retained under this statutory provision are clean generation attributes qualifying under the CES. 310 CMR 7.75(2) (definition of “Clean Generation Attribute”), which are clean generation attributes from hydro facilities procured under 83D. Under the amended rule, these retained CECs “shall be assigned to all end use customers served by all retail sellers subject to 310 CMR 7.75(4) [which exclude municipal electric departments and municipal light boards]”.

- The impact on future REC and CEC prices as a result of the proposed increment of RECs and CECs being created as a result of the proposed projects and the resulting impacts on the cost of RECs and CECs required to be purchased to serve Massachusetts retail load—an indirect benefit;
- The economic value on a \$/MWh basis associated with GHG emissions reductions attributed to Massachusetts under the GWSA based on the manner in which Massachusetts accounts for GHG emissions attributable to Massachusetts under the GWSA—using the GHG inventory accounting methodology, another indirect benefit.

The IE views the evaluation framework regarding environmental attributes, described in more detail at Section III.B.3.b. of this report, as being fair, non-discriminatory and reasonably based on the applicable statutory and regulatory provisions and practices under the RPS, CES, and GWSA. The IE appreciates that strong arguments can be made for the different approaches regarding whether the REC and CEC market values should be considered as being part of the GWSA compliance value—the position taken by DOER with the support of Eversource and Unitil—or whether it should be considered as separate and distinct and therefore additive—the position taken by National Grid. As previously indicated in this report, the IE supports the approach taken by DOER, with the support of the majority of the Evaluation Team, primarily because deference should be given, in the IE’s opinion, to the agency and its sister agency, DEP, who are charged with implementing the pertinent statutes and regulations and which are responsible for energy and environmental policy.⁸⁶ As it turned out, the different approaches regarding environmental attribute valuation did not appear to make a major difference in the evaluation results when different projects/portfolios were compared against each other. NECEC Hydro was the top-ranked portfolio based on the real levelized \$/MWh evaluation metric under both approaches.

Another indirect benefit was the impact of the project proposals on projected energy prices for Massachusetts EDC customers, which was an output from the ENELYTIX modeling. For most of the project proposals, this was a benefit, as injecting low marginal cost energy into the grid would reasonably be expected to reduce LMPs throughout New England, in the absence of material transmission constraints. Based on the initial evaluation results for small projects, it appeared that the outputs reflected modeling “noise” more than reasonable energy price changes, especially because the LMP price increases or decreases were divided by a small number of project MWhs to produce a \$/MWh value. It was reasonable, in the IE’s opinion, not to include the energy price change value (as well as other indirect benefits) in the evaluation of individual small projects, but to include it in both the Stage 2

⁸⁶ While Evaluation Team members may certainly assert their right to express their opinions regarding evaluation framework matters, it is difficult to manage a decision making process operating on a consensus basis where dissenting parties are unwilling to accede to the majority. At least, there was only one instance of this occurring. The IE does not know whether this was due only to a strongly held opinion of National Grid or whether it was influenced by the likelihood that National Grid’s preferred approach would be more favorable to National Grid’s affiliate wind and wind/hydro bids than the approach preferred by other members of the Evaluation Team (one of which, it should be noted, had an affiliate hydro and hydro/wind bid).

evaluation for large projects and the Stage 3 portfolio evaluation, which included aggregations of small projects in a number of the portfolios created for Stage 3.

The IE was also comfortable with the “hedge value” that TCR created to measure the extent to which a proposal/portfolio would mitigate price increases in the winter months due to unusually high natural gas prices in the winter months. In the IE’s opinion, this was a reasonable way to address the “economic impacts associated with resource firmness,” a criterion set forth in Section 2.3.1.2 of the RFP and 83D’s criterion of “contribut[ing] to reducing winter electricity price spikes.”⁸⁷ The particular formulation was the result of a collaboration with the Evaluation Team and TCR after consideration of several alternative approaches.

Other potential quantitative evaluation measures were considered but were not included for reasons that the IE found to be sound—such as the future impact on the needs for additional ancillary services and associated costs associated with intermittent generation, because of the lack of appropriate data. Another instance was the decision not to use outputs of the ENELYTIX model regarding the impact on capacity prices, because the model results did not appear to be reliable and consistent and that recent changes to ISO-NE’s Competitive Auctions with Sponsored Resources (“CASPR”) proposal made it less likely that new state-sponsored resources would impact capacity market prices.⁸⁸ These factors, however, were generally considered in the qualitative evaluation under the “Reliability” category.⁸⁹

The IE found the detailed qualitative evaluation framework—which addressed indicia of project viability, benefits not quantified in the quantitative evaluation, and cost and contractual risks not considered in the quantitative evaluation—to be reasonably based on the provisions of the RFP, fair to different types of allowable bids, and consistent with the statutory intent of 83D. The Stage 3 evaluation protocol followed the RFP provisions applicable to Stage 3.

The resulting evaluation framework was standardized for application to all proposals and portfolios of proposals and, in the IE’s opinion, was fair and non-discriminatory toward all proposals and not unduly influenced by the fact that there were several bidders who were affiliates of two of the EDCs.

In addition, the products being solicited—energy and RECs for RPS Class 1 resources and energy and environmental attributes for hydro resources—along with variants involving combinations of the foregoing products and for proposals involving proposed transmission projects were, in the IE’s opinion, stated with sufficient clarity. This was improved through the question and answer process, pursuant to

⁸⁷ 83D(d)(5)(ii).

⁸⁸ FERC approved the CASPR proposal in March 2018. *ISO New England Inc.*, 162 FERC ¶ 61,205 (2018).

⁸⁹ Included for consideration in this category was the extent to which the proposed project MWhs were firm or firming, the percent of project MWhs proposed for delivery during winter and summer peak hours, the reduction in natural gas burn during winter months relative to project MWhs, whether the proposed project is being paired with energy storage, and whether a proposed project is being delivered to eastern Massachusetts, rest-of-system in ISO-NE that is neither import nor export constrained, or in an export-constrained zone.

which the Evaluation Team provided written answers to more than 100 questions posed by prospective bidders, which were posted on the RFP website.

There were, however, several weaknesses in the evaluation framework. One weakness was the lack of a form Transmission Service Agreement for transmission bidders, which would have focused bidders on desired terms and conditions and facilitated Evaluation Team review of the bids. However, this was not at all a fatal weakness, and was favored by the EDCs due to their lack of experience with these types of agreements in a competitive bidding context (in contrast to PPAs) and the desire to facilitate creative proposals.

Another weakness, in the IE's opinion, was a difference in the change in law requirements for RPS Class I project bidders and firm hydro bidders. For RPS Class I projects, if there was a change in law such that the RECs ceased to conform with RPS Class I eligibility criteria, the EDCs could purchase only the energy under the PPA at the price specified for energy and not pay for the RECs. For firm hydro bidders, there was no similar requirement if the generation attributes no longer complied with the CES due to a change in law. In the RFP design report, the IE recommended deletion of the change in law requirement applicable to RPS Class I projects "if RPS Class I RECs and the associated environmental attributes are being evaluated in a manner that is comparable to that of the hydro environmental attributes."⁹⁰

While a weakness in terms of treating different types of generating resources fairly, the IE does not find this to be a major weakness in the context of the solicitation overall. First, the Department rejected the recommendation of the IE and several stakeholders to eliminate the RFP's RPS change in law requirement.⁹¹ Hence, it was appropriate for the Distribution Companies to implement the RFP with that requirement. Second, the CES was made final after the submittal of bids, and the RFP and the form agreements for firm hydro bids were not structured with a change in law provision regarding the CES which was then not in effect. It would not have been fair to apply to firm hydro (or firming hydro) bids a requirement that they take CES change in law risk after they had submitted their bids. Moreover, these bidders had not been required to bid separate pricing for energy and CES-compliant attributes in a similar way that RPS Class I qualifying bids were required to provide separate pricing for energy and RECs so the firm hydro bids did not provide a mechanism by which CES change in law risk could be limited to a specified \$/MWh amount.

For the foregoing reasons, it is the IE's opinion that the evaluation framework overall was standardized, fair, non-discriminatory, and non-preferential.

⁹⁰ RFP Design Report at 22.

⁹¹ Fitchburg Gas and Electric Company et al., D.P.U. 17-32 at 47-52.

C. Fairness of the Bid Evaluation and Selection Process

1. Threshold Evaluation

As indicated in Section III.C.1 of the report, 17 of the 53 project proposals were determined not to meet eligibility and threshold requirements. This is an unusually large percentage of projects that were disqualified for failure to meet minimum requirements for a competitive solicitation of this type. The primary reasons were the unusually strict minimum standards set forth in the RFP—particularly with respect to the interconnection and delivery requirements, which was the cause for the majority of disqualifications. Other reasons for failure to meet minimum RFP standards were failure to demonstrate site control, failure to provide financial information/demonstrate financial viability, and ineligibility based on existing hydro facilities in ISO-New England not providing incremental hydro.

The Evaluation Team considered many bids that different members of the Evaluation Team claimed did not meet one threshold requirement or another. In some cases, there were different interpretations of what was or was not a threshold requirement or how it should be applied in the context of a particular proposal. The IE took the position that threshold requirements should be narrowly construed and that only bids that clearly failed to pass threshold/eligibility requirements after bidders were given an opportunity to cure any deficiencies (or even where the deficiency was not reasonably curable, to explain their situation relative to the RFP requirement). The IE was satisfied that the Evaluation Team's decisions to disqualify bids was justified based on the application of RFP requirements to the particular proposal.

There were several other bids that the Evaluation Team considered as to whether they should be disqualified, but for which there was not unanimity in support of disqualification. None of these bids were competitive in the Stage 2 and Stage 3 evaluations, so that any failure to disqualify these bids was not material to the result of the solicitation.

2. Stage 2 and Stage 3 Evaluation and Bid Selection

Key to evaluation and bid selection is whether the evaluation framework was properly followed and applied in the evaluation of specific proposals and done so on a non-preferential and non-discriminatory basis. This applies for the quantitative analysis, the qualitative evaluation, the Stage 3 evaluation process and bid selection.

The IE saw some issues with the evaluation and selection process. Based on our observations, Eversource favored, or had the appearance of favoring, NPT in various stages of the evaluation and selection process, especially toward the end. This included the deliberations with respect to the interest rate assumption in the quantitative evaluation and the qualitative evaluation with respect to several criteria, including [REDACTED]. This was also the case with respect to the Stage 3 and bid selection process, where Eversource focused on aspects of the evaluation, evaluation metrics and assumptions that supported selection of Northern

Pass. It was perhaps even more apparent when Eversource sought to keep NPT in play for contract negotiations even after the required New Hampshire siting approval was denied, with a remote possibility for a prompt reversal in order for Northern Pass to be able to build the project anywhere near the timeframe proposed.

However, the evaluation process conducted by the Evaluation Team, with the oversight of the IE, counteracted any favoritism on the part of Eversource, such that the IE was comfortable that the resulting Stage 2 and Stage 3 evaluations were fairly conducted and not unduly preferential toward any bid nor unjustly discriminatory toward any bid. As mentioned previously, some of the issues, such as the interest rate to be used in the quantitative evaluation for NPT, was not properly addressed until toward the end of the evaluation process. In the IE's opinion, a reasonable forecasted interest rate, rather than the bidder-supplied very low interest rate, based on then-current interest rate levels, should have been used in the Stage 2 evaluation. However, a reasonable forecasted interest rate was finally applied in the Stage 3 evaluation, and DOER's ultimate decision was based on the quantitative evaluation using the forecasted 4.45% interest rate recommended by TCR, the Evaluation Consultant, with the support of the IE and National Grid.

Ultimately, the decision regarding which proposal to select was made by DOER because the EDCs did not agree on the selection decision. DOER followed the directives of 83D and consulted with the IE prior to making a decision. Generally, DOER's decision to select Northern Pass (it's initial decision) was within the guidelines that the IE provided for decision making:

- The decision was among the two proposals that the EDCs had recommended for selection and which were the two top-ranked bids (other than mutually exclusive bid variants of which NECEC was the major component);
- DOER used the 4.45% interest rate forecast for NPT in its decision making, rather than the bidder-supplied [REDACTED] % estimate;
- DOER viewed the net present value benefits for NPT as being comparable to those for NECEC (they were within [REDACTED] percent).

DOER concluded that NPT deserved selection for a number of reasons (as set forth in the memo explaining DOER's determination):

- NPT had an earlier proposed on-line date and was more advanced in permitting and interconnection processes, supporting a stronger likelihood of an earlier on-line date
- By coming online earlier, NPT would provide additional and earlier GHG reductions assisting the Commonwealth in meeting GWSA requirements and providing earlier insurance benefits against winter price spikes

In the IE's opinion, DOER's decisional memo should have given more weight or at least referenced the quantitative evaluations of the proposals using the metric of real levelized \$/ MWh net benefits chosen

by the Evaluation Team and the scoring and ranking of the bids using that metric.⁹² However, the IE was and is satisfied that DOER considered that the NECEC proposal was evaluated as having more net benefits in the quantitative evaluation. Moreover, the factors DOER cited in support of its decision were those that were proper for it to consider as the basis for its selection decision. Overall, it was the IE's opinion, that DOER's selection of NPT was one that was fairly made and within DOER's authority under the RFP and within the guidelines for decision set forth in the RFP and the Stage 3 evaluation protocol.

Following the decision by the NHSEC to deny NPT's siting authority permit a week later, DOER initiated a process that ultimately led to the conditional selection of NECEC, the termination of the conditional selection of NPT, and the negotiations leading up to the execution of agreements with HQUS and CMP. There was consensus among the EDCs that the NECEC bid was the best proposal to be the "back up" bid to NPT after NPT's site authority permit was denied. Again, it was DOER that ultimately decided to terminate NPT's conditional selection. The IE believed that the decision made by DOER was appropriate in the particular context, given the unanimous NHSEC permit denial and no indication that it would be reversed in time for NPT to start construction by [REDACTED], as proposed.⁹³ It also allowed the EDCs to focus negotiations on NECEC and the accompanying HQUS PPA, which facilitated the conduct and completion of the contract negotiations.

In the IE's opinion, the decision to select NECEC (first, as an alternative to NPT and, then, as the project for which contract negotiations would be conducted exclusively) was amply warranted. The NECEC 100% hydro proposal was the top-ranked proposal and was highest ranking in the quantitative evaluation. It also had the highest benefits based on NPV total \$, an alternative economic metric. While NECEC was at an early stage in the interconnection process, which was subject to the Maine cluster study process, and at a relative early stage in the permitting process as well, it, at least, had not received a unanimous denial of a required permit.⁹⁴ The next mutually exclusive bid in rank order was [REDACTED], which already had achieved many major project development milestones but had higher costs and lower net

⁹² DOER's ranking of bids using both the real levelized \$/MWh metric and the NPV \$ alternative metric prior to selection and the IE's consultations with DOER prior to and after its selection decision indicate that DOER considered and did give some weight to the bid evaluations using the real levelized \$/MWh metric.

⁹³ Of note, Section 83D(d)(5)(vii) provides that a proposal must "adequately demonstrate project viability in a commercially reasonable timeframe." It is the IE's view that DOER's decision to terminate negotiations with a project whose key siting authority application had been unanimously denied by the siting authority was consistent with the statutory intent of 83D.

⁹⁴ [REDACTED]

benefits and a lower total score and ranking. The decision to select NECEC over [REDACTED] was fairly and reasonably made.

D. Contract Negotiation Process

As indicated previously, the IE monitored the contract negotiations, subject to limitations. However, the IE was able to discuss with the EDCs outside of the negotiations the scope and focus of the IE review and any matters that were of concern to the IE. Finally, the IE was able to review the contract drafts when negotiations were at an advanced stage and the final execution copies of the agreements.

There were several issues that were presented during the contract negotiation from the IE's perspective.

First, National Grid wanted to obtain a contractual commitment from HRE that it would deliver from HQ hydro resources a substantial amount of energy over the term of the 20-year HRE contract outside of the contract such that the deliveries under the 20-year HRE contract would be considered "Incremental Hydroelectric Generation" within the meaning of the RFP. Under the RFP, "Incremental Hydroelectric Generation" is defined as:

Firm Service Hydroelectric Generation that represents a net increase in MWh per year of hydroelectric generation from the bidder and/or affiliate as compared to the 3 year historical average and/or otherwise expected delivery of hydroelectric generation from the bidder and/or affiliate within or into the New England Control Area.⁹⁵

In Section 4.1 of the Bidder Response Form (Appendix B to the RFP), hydropower bidders were required to provide the following information:

Describe why the generation proposal qualifies as Incremental Hydropower Generation. If the entire project is not new, specify the amount of power provided to or sold into the ISO-NE market during 2014, 2015, and 2016. Provide information which demonstrates that the resources and transmission capacity described in your proposal are capable of providing an increase in the amount of such power compared to the average power deliveries in ISO-NE over those three years.

The form PPA did not contain any specific provision requiring that a seller of existing hydropower generation deliver any amount of energy other than that being committed to under the proposed contract. Neither the IE, the other EDCs nor DOER agreed with National Grid that the RFP or form PPA required the type of commitment that National Grid was seeking [REDACTED]. Imposing a major obligation or liability on a bidder that was not contemplated by the form PPA and was not included within the scope of a bidder's proposal raised a fairness question. However, the IE noted that this

⁹⁵ 83D RFP, p. B.

matter had been raised by a number of parties, including HQUS, during the RFP approval process before the Department. HQUS, concerned that it could be required to deliver the historical amount of generation into New England outside of the contract, sought a modification to the definition of “Incremental Hydroelectric Generation” to simply refer to generation that is *capable* of delivering a net increase in hydropower deliveries into New England. This proposed modification was opposed by several commenters. The Department stated:

The Department agrees that there would be a risk to ratepayers if an electric distribution company entered into a contract with a bidder based on a bidder’s capability to provide a net increase in MWh/year of hydroelectric generation. If the bidder subsequently failed to provide a net increase in generation, ratepayers would have paid for a service (i.e., Incremental Hydroelectric Generation) that the bidder did not deliver.⁹⁶

On the other side of the argument, a commenter argued that the RFP definition be modified so that the proposed deliveries must be in addition to historical deliveries without any exceptions. The Department rejected this proposed modification as well.⁹⁷

The IE noted that while there was a fairness issue because a contractual requirement for deliveries outside of the proposed contract was not clearly stated either in the RFP or form PPA, the IE also noted that whether proposed imports would in fact be incremental to other deliveries HQUS would make was a matter of concern to the Department. The IE recommended that the Department’s decision with respect to this matter be raised with HQUS in the negotiations. Under the totality of the circumstances, the IE advised that it was acceptable for National Grid to negotiate to obtain a contractual commitment from HQUS on this matter, but cautioned that it be pursued in a manner that would not cause a collapse of the negotiations.

Another key issue in the negotiations involved the termination payments for which HQUS would be responsible for in the event that CMP defaulted on its obligations under the TSA (non-excused transmission outages) resulting in a contract termination by the EDCs. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The IE advised that it was appropriate for the EDCs to seek to negotiate full cover damages in this circumstance, but it was not a requirement of the RFP.

The RFP clearly states that for firm hydro proposals, the seller will be responsible for liquidated damages for failure to deliver (RFP section 2.2.1.3.i) and where transmission is part of a packaged bid, the bidder will be responsible for both liquidated damages for the energy and liquidated damages for associated

⁹⁶ D.P.U. 17-32, at 33.

⁹⁷ *Id.* at 31-33.

transmission support costs (RFP section 2.2.1.3.iv). However, “liquidated damages” is not further defined in the RFP (although “cover damages” was defined in the form PPA as the remedy for seller unexcused failure to deliver). When several commenters had asked the Department to modify the RFP to more clearly define “liquidated damages,” the Department declined to do so and stated that “we expect parties to address the particulars of any liquidated damages provisions during the course of contract negotiations.”⁹⁸

[REDACTED]

Overall, however, each of the three EDCs were able to negotiate risk allocation provisions, including seller damage provisions, that were significantly better from an EDC/EDC customer standpoint than those included in the NECEC/HRE bids.⁹⁹

Another issue was how to address what HQUS’ contractual obligations should be with respect to the CES, which was not promulgated until after HRE’s bid was submitted. The parties agreed to seek an interpretive ruling from DEP to obtain confirmation that its proposed manner of complying with the CES was appropriate (or be notified of any other applicable requirements or guidelines), with the right of either party to terminate if the interpretive ruling was unsatisfactory to it. Absent a termination, HQUS would be obligated to comply with the CES, and it would be obligated to use commercially reasonable efforts to comply with the CES if there was a change in law. This result seemed fair under the circumstances that the CES rules were not in effect at the time of bid submittal and the form PPA did not address CES rule compliance.

Finally, toward the end of the negotiations, [REDACTED]

⁹⁸ *Id.* at 45.

⁹⁹ In its RFP design report (p.25), the IE expressed concerns that the RFP allowed bidders to seek to recover abandoned plant costs at FERC if they failed to obtain required permits. In its bid, NECEC [REDACTED]. In the contract as executed, abandoned plant cost recovery is allowed only where abandonment of the project is caused by a change in Massachusetts law, with a cap on the EDCs’ potential liability, and only after non-appealable FERC and Department regulatory authorizations for the proposed project has been obtained.

¹⁰⁰ [REDACTED]

All in all, the IE found that the contracts that resulted from the negotiation process were no less adverse to the EDCs than the proposals and associated contracts submitted by HRE and CMP and, in many cases, were more favorable to the EDCs and their customers. This satisfied the criterion that the resulting contracts were consistent with, or at least no less favorable, than the proposals that were evaluated by the Evaluation Team.¹⁰¹

Neither CMP nor HQUS are affiliates of any of the EDCs. Hence, there was no issue of any undue preference given to affiliates in the negotiations. Nor was any such undue preference provided to HQUS or CMP.

The IE also monitored the negotiations and reviewed the contracts with respect to whether the contracts or any provision thereof violated any threshold requirement of the RFP. Neither the HQUS PPA nor the CMP TSA violate any RFP threshold requirement, in the IE's opinion.

All in all, the EDCs fairly negotiated the terms of the HQUS PPA and CMP PPA consistent with the requirements of the RFP.

VI. Conclusions

In this report, Peregrine, the Independent Evaluator for the 83D solicitation, has summarized and analyzed the entire solicitation, bid evaluation, selection and contract negotiation process which resulted in the execution, and filing for Department approval, of a power purchase agreement between the EDCs and HQUS and an accompanying transmission service agreement between the EDCs and Central Maine Power Company. These agreements are the result of a competitive bidding process for approximately 9,450,000 of annual MWh of Clean Energy Generation resources, as defined in 83D and the RFP previously approved for issuance by the Department. The Independent Evaluator has been closely involved in the entire solicitation process and has had access to all information and data related to the competitive solicitation and bid selection process necessary for the IE to perform its monitoring, oversight, and reporting functions, as more fully described in this report. It is the IE's conclusion that, in the phraseology of 83D, that "all bids were evaluated in a fair and non-discriminatory manner" and that the New England Clean Energy Connect 100% hydro bid, with energy supplied solely from Hydro Quebec hydroelectric generation resources, was fairly selected as the winning bid (after a proposal from

¹⁰¹ As part of the NECEC proposal, CMP proposed to contribute funding of \$50 million in total over a 40-year period following commercial operation of the NECEC project to provide benefits to low-income Massachusetts electricity customers (\$700,000 in Years 1-20 and \$1.1 million per year thereafter) and to promote innovative investments in customer-facing energy technologies targeting low-income Massachusetts households, such as applied energy storage technology (\$300,000 in Years 1-20 and \$400,000 per year thereafter). To effectuate this commitment, CMP has entered into a Memorandum of Understanding with Action, Inc. and Action for Boston Community Development, Inc. (collectively, "The Low Income Energy Affordability Network" or "LEAN") ("CMP/LEAN MOU"). The CMP/LEAN MOU is consistent with CMP's representations in the NECEC bid, based on the IE's review.

Northern Pass had been conditionally selected but whose conditional selection was terminated due to a denial of siting approval for the proposed Northern Pass transmission line). The NECEC 100% hydro bid was the highest ranking bid in the final evaluation of project portfolios (with quantities that approximated the 9,450,000 annual MWh procurement target) as well as the proposal with the highest net benefits and lowest cost per MWh in real levelized \$2017.

DOER, with the concurrence of the EDCs, requested that Peregrine also monitor the contract negotiations between the EDCs and the selected bidders, and Peregrine performed this function and has reported on its monitoring in this report.¹⁰² It is Peregrine's assessment that overall the EDCs fairly negotiated the contracts that have been submitted for the Department's approval, that the negotiated terms are at least as favorable as those included in HQUS' and CMP's winning proposals (as they were modified in the bidding process) for the NECEC 100% hydro bid, and that the resulting contracts satisfy the requirements of the 83D RFP. Moreover, the IE notes that the EDCs were able to negotiate improvements in certain risk allocation features in the PPA and TSA from HQUS' and CMP's proposals, thereby improving on them from the standpoint of the EDCs and their distribution customers.

Finally, as described in this report,¹⁰³ the solicitation was implemented in a manner that appropriately addressed or rendered moot the concerns the IE had noted in its RFP Design Report regarding interconnection requirements, the application of change in law provisions, and abandonment cost recovery for transmission projects.

¹⁰² This monitoring started when negotiations were expected to be exclusively with Northern Pass, an Eversource affiliate, and HRE, but continued throughout the time that negotiations were with NECEC and HRE/HQUS, non-affiliates of the EDCs.

¹⁰³ See Section II.B at p. 6 (IE suggested modifications in RFP Design Report), Section III.C.2.a at p. 24 (abandonment cost liability), Section V.B.1 at pp.41-43 (interconnection-related requirements), Section V.B.2 at p. 47 (change in law), and Section V.D at p. 53, n. 99 (abandonment cost liability) .

Appendix A - Qualifications and relevant experience of the Peregrine independent evaluator team

The Independent Evaluator for the 83D RFP consists of Peregrine Energy Group, Inc. (“Peregrine”) as the contracting party to the Massachusetts Department of Energy Resources (“DOER”), with four subcontractors--New Energy Opportunities, Inc. (“NEO”), Merrimack Energy Group, Inc. (“Merrimack”), Power Consulting Services, LLC, and Meaden & Moore, LLP (Meaden & Moore). The key individuals for the project team are:

- Paul Gromer, CEO of Peregrine
- Barry Sheingold, President of NEO
- Wayne Oliver, President of Merrimack
- David Andrus, Principal of Power Consulting Services, LLC
- Patrick Kelleher, Partner, Investigative Accounting Group, Meaden & Moore

Overall, Paul Gromer is responsible for management of the Independent Evaluator team, with Barry Sheingold serving as project lead for the 83D solicitation, Wayne Oliver as co-lead, David Andrus as transmission consultant, and Patrick Kelleher advising on affiliate relationships.

Mr. Gromer, CEO of Peregrine, is an attorney and former Massachusetts Commissioner of Energy Resources. He has led Peregrine in providing consulting and related services in the renewable energy, energy efficiency, and competitive retail energy fields over the past 25 years.

Barry Sheingold and Wayne Oliver have collaborated as IEs or consultants on a more than a dozen clean and alternative energy solicitations for long-term contracts, including:

- Southern California Edison Renewable Portfolio Standard solicitations for long-term contracts—4 solicitations (2009, 2013, 2014, 2015);
- NV Energy Emission Reduction and Capacity Replacement Renewable Energy RFPs—3 solicitations (2014, 2015 and 2016);
- Southern California Edison Company Request for Offers for Combined Heat and Power—3 solicitations (2012, 2013, 2014);
- PacifiCorp Request for Proposals for Renewable Electric Resources (2008);
- Delmarva Power solicitation for long-term contracts (2006).

In addition, NEO and Merrimack Energy have advised Massachusetts state agencies relating to the development and implementation of competitive procurement processes for long-term contracts to facilitate financing of renewable energy projects.

- Massachusetts Utilities Long-Term Contracting Requirements for Renewable Resources under Section 83 of the Green Communities Act (2009-2010);
- Massachusetts Technology Collaborative RFP for Options Agreements on Renewable Energy Certificates (2003-05).

Over the past 18 years, Mr. Sheingold has served as IE or provided consulting assistance in the clean energy field, with a specialty in power procurement. Mr. Sheingold served as DOER's principal consultant with respect to DOER's role in the design and implementation of two prior RFPs for long-term renewable energy contracts under Section 83A of the Green Communities Act ("GCA") and was the project lead on a study prepared on behalf of DOER for the Massachusetts legislature on the long-term contracting solicitation processes under Section 83 of the GCA. He has advised the New York State Energy Research and Development Authority regarding various rounds of its long-term contracting program for renewable energy attributes and related procurement matters. Mr. Sheingold has also performed an independent evaluator function for renewable energy RFPs in Oklahoma and Hawaii. He has submitted testimony or other assessments on a variety of renewable energy projects and utility procurement-related matters in a number of states and provinces. Mr. Sheingold has a broad electric industry background. Prior to founding NEO, Mr. Sheingold served in a business or legal role for an electric utility company, a power marketer, a power plant developer, and the Federal Energy Regulatory Commission.

Wayne Oliver, President of Merrimack, has served as IE or similar role on over 100 competitive procurement assignments dating back to 1989. His experience in this role has included RFPs for renewable resources, conventional generation options, energy storage projects and demand response and demand-side management resources. Mr. Oliver has reviewed and evaluated thousands of power supply proposals covering all types of technologies, fuel types, and financing and contractual structures.

Dave Andrus is a Vermont-based transmission consultant with over 30 years' experience. Mr. Andrus previously led a national transmission planning and analysis practice that provided consulting services in the areas of asset valuation, condition assessment, due diligence and owners engineer reviews, renewable energy integration analyses, interconnection/delivery/congestion studies, and market rules evaluations.

Patrick Kelleher is a partner in Meaden & Moore's Investigative Accounting Group and is in the firm's Boston office. The Investigative Accounting Group provides insurance services, forensic accounting, fraud evaluations examination assessment, measurement of economic damage and litigation support services among other things. As part of its responsibilities, the Investigative Accounting Group conducts forensic affiliate investigations between different business organization entities.

Appendix B - Key provisions of the 83D RFP

RFP Characteristics/ RFP Section	Summary/Description
Eligible Bid Categories Section 2.2.1.3	There are four eligible bid categories: <ol style="list-style-type: none">3. Proposal to sell Incremental Hydroelectric Generation (including environmental attributes) on a firm basis pursuant to a PPA;4. Proposal to sell new Class I RPS eligible resources (energy and RECs or RECs only) pursuant to a PPA;5. Proposal to sell new Class I RPS eligible resources firmed by Incremental Hydro Generation on a firm basis pursuant to a PPA;6. Any of the foregoing types of PPA proposals packaged with a proposed transmission project with payments to be made under a FERC tariff and service agreement.
Contract term Section 2.2.1.6	The contract term is prescribed by statute—15 to 20 years.
Minimum Contract Size Section 2.2.1.7	20 MW.

Capacity,
Interconnection
and Delivery
Requirements

Sections 2.2.1.8;
2.2.1.9

The Distribution Companies will not purchase capacity under long-term contracts.

However, a proposal must describe the amount of capacity, and the capacity commitment period, for which the bidder expects the generation unit(s) in their proposal to qualify under the Forward Capacity Auction Qualification Requirements under the ISO-NE market rules.

Each project must include a commitment to interconnect to an ISO New England Pool Transmission Facility (“PTF”) at the Capacity Capability Interconnection Standard. Bidders must demonstrate that the proposed point of delivery into ISO-NE, along with the proposed interconnection and transmission upgrades, is sufficient to ensure full dispatch of the proposal’s Clean Energy Generation profile.

Bid fees

Section 1.10

The minimum bid fee is \$7,500 for a 20 MW bid, increased by \$375/MW to a maximum bid fee of \$100,000. For each price offer (above one), the bid fee will increase \$10,000 for projects of less than 100 MW in size and \$25,000 for all others.

Allowable Pricing:
PPAs

Section 2.2.1.4

Proposals to sell Clean Energy Generation and associated environmental attributes from Firm Service Hydroelectric Generation must be priced either (i) on a \$/MWh basis or (ii) indexed at or below the ISO-NE Locational Marginal Price at a defined pricing node on the PTF.

Proposals to sell Clean Energy Generation and/or associated RECs from New Class I RPS eligible resources must be priced (i) on a \$/MWh basis or (ii) indexed at or below the ISO-NE Locational Marginal Price at a defined pricing node on the PTF. Separate pricing must be provided for energy and RECs. If the RECs cease to conform with RPS Class I eligibility criteria, the Distribution Companies may thereafter only pay for energy under the PPA. Pricing for Clean Energy Generation and RECs must closely align with the relative market value of these products.

Alternative bids will be considered in which the Distribution Companies would obtain entitlements to RECs/environmental attributes from a Clean Energy Generation project for the life of the project, with payments to be made over the term of the long-term contract (15-20 years).

Winter Months
Energy Delivery
Guarantee

Class I RPS eligible resources will be required to guarantee 70% of the energy in their delivery profile during the Winter Peak Period (7 am-11 pm, weekdays, excluding holidays, during the months of December through February).

Section 2.2.2.7

Firm Service Hydroelectric generation proposals will be required to submit a delivery profile with no Winter Peak Period hour less than 60% of the highest single hourly delivery proposed by the bidder, with delivery guaranteed during each hour in the Winter Peak Period.

Bidders not satisfying the guarantee will be responsible for liquidated damages for energy and associated RECs and environmental attributes not delivered, and as applicable, associated transmission infrastructure support costs.

Requirements
applicable to
transmission
proposals

Sections 2.2.1.4.ii,
2.2.2.6, 2.2.2.6.1,
2.2.2.6.2, and
2.2.2.6.3

Pricing for a transmission project should be proposed separately under a FERC-filed tariff.

Fixed prices are encouraged; cost of service pricing is allowed, but must include significant cost containment features. Bids that eliminate or limit customer risk to a greater degree will be evaluated more favorably. Cost containment features (protecting ratepayers from cost overruns) may include caps on project construction and capital costs, costs of related system upgrades, interconnection costs, and operations and maintenance costs.

If a transmission project accepted under this RFP is cancelled or abandoned, or its development is otherwise discontinued, the bidder shall be allowed to propose to recover prudently-incurred project-related costs (“abandonment costs”) from the Distribution Companies in accordance with FERC rules and policies except that in no event may a bidder recover abandonment costs if the abandonment was caused directly or indirectly by some act or failure to act of the bidder.

The evaluation process will value more favorably proposals to the extent that the proposals eliminate or minimize ratepayer exposure to abandonment cost risk by not seeking abandonment cost recovery or including significant limitations, such as a proposal agreeing not to seek recovery for abandonment costs incurred prior to the issuance of this RFP, or a date certain to be proposed by the bidder.

In the event that generation as part of a packaged bid with transmission does not show up in accordance with a bidder’s baseline schedule, transmission

payments will be reduced in proportion to the shortfall. The Evaluation Team will consider other mechanisms as proposed by the bidder to mitigate ratepayer risk. The evaluation process will evaluate more favorably proposals that include mechanisms to protect ratepayers from risks associated with payment for transmission costs when any associated expected Clean Energy Generation, as proposed by the bidder, is absent, reduced, or curtailed as compared to the baseline schedule.

Other threshold requirements

Sections 2.2.2 through 2.2.13

Bidders with generation proposals must demonstrate control over the site (which may be by option rights) for the generation project, including rights necessary to access the site. Bidders with transmission proposals must demonstrate a reasonable and achievable plan for obtaining site control for the transmission project.

Bidders must demonstrate the technical and financial viability of their proposed projects.

Bidders must demonstrate that they have sufficient relevant experience and expertise to successfully develop, finance, construct and operate the proposed project.

Bidders must show that the proposed project will “provide enhanced electricity reliability within the commonwealth,” as required by 83D.

Bidders must demonstrate that they can develop, finance, and construct their proposed project within a commercially reasonable timeframe.

Bidders must demonstrate that they will utilize an appropriate tracking system to account for the delivery of clean energy.

Bidders must demonstrate that a long-term contract will facilitate the financing of their proposed project. The bidder may specify how a long-term contract would permit it to finance a proposal that would otherwise not be financeable or assist it in financing of its proposal.

Security

Section 2.2.2.11

For RPS Class I Renewable Generation Units, the required level of contract security is \$20,000 multiplied by the maximum allowable energy delivery in MWh per hour (\$2 million for 100 MW), with 50% due on contract execution and the remaining 50% due after regulatory approval.

For hydroelectric generation, the required security is similar, except additional security may be required after regulatory approval is received based on market exposure.

The required level of security for transmission projects is \$10,000 per MW, with 50% due on selection and 50% due upon FERC acceptance of the rate schedule or tariff and service agreement.

Proposal
evaluation—Stage
Two

Section 2.3

Proposals that meet threshold requirements (Stage One evaluation) will be subject to a quantitative and qualitative evaluation in Stage Two. Stage Two scoring will be based on a 100-point scale, with 75 points for quantitative factors and 25 points for qualitative factors. The product of the analysis will be a relative ranking and scoring of proposals.

Quantitative
Evaluation

Section 2.3.1

The Evaluation Team may conduct an initial screening and may determine (by consensus) that one or more proposals are not economically competitive. Proposals that proceed to the quantitative evaluation will be evaluated on their direct and indirect economic and environmental costs and benefits based on a combination of their direct contract price cost and benefits and other costs and benefits to retail customers where applicable.

Direct costs are the costs to be paid by the Distribution Companies for generation and/or transmission (including upgrade costs associated with transmission). Direct benefits will include the projected revenues from the sale of energy and RECs based on forecasted market prices and any revenue from sales of excess transmission capacity, if applicable.

Other benefits and costs may include but not be limited to:

- The impacts of changes in LMP paid by customers in the Commonwealth and/or impact on production costs;
- The environmental attributes of generation from incremental hydroelectric generation and new Class I RPS eligible resources using an economic proxy value for contribution to GWSA requirements, and any additional impacts on the overall ability to meet GWSA requirements;
- Economic impacts associated with resource firmness; and
- Indirect impacts, if any, for retail customers on the capacity or ancillary services markets with the proposed project in service.

The evaluation process will include an evaluation of benefits using the outputs from an electric market simulation model. For purposes of computing net present value, a discount factor consisting of the weighted average value of the Distribution Companies' cost of capital will be used.

Qualitative Evaluation

The qualitative evaluation will consist of factors mandated by 83D as well as other factors considered important by the Evaluation Team. These include:

Section 2.3.2

- Project viability;
- Extent to which the project can support the Commonwealth's GWSA requirements by delivering Clean Energy Generation and/or RECs or environmental attributes on or before December 31, 2020;
- Siting and permitting;
- Reliability benefits;
- Price risk/price firmness;
- Environmental impacts from siting;
- Economic benefits to the Commonwealth;
- Extent to which proposals combine new Class I renewable resources and firm hydroelectric generation and demonstrate a benefit to low-income ratepayers in the Commonwealth without adding cost to the project.

Following the State Two Evaluation, the Evaluation Team will determine which proposals proceed to the Stage Three evaluation based on the following considerations: (1) the rank order of the proposals at the end of the Stage Two evaluation; (2) the cost effectiveness of the proposals based on the Stage Two quantitative evaluation; and (3) the total annual MWh/year quantities of the proposal(s), relative to the annual procurement target.

Stage Three Evaluation

In Stage Three the Evaluation Team will evaluate the remaining proposals based on the Stage Two evaluation criteria and, at their discretion, the following additional factors:

Section 2.4

Portfolio effect:

- Overall impact of various portfolios of proposals on the Commonwealth's policy goals, as directed by the DOER, including GWSA goals
- Overall cost effectiveness of various portfolios of proposals

Risks associated with project viability of the proposals

Any risks to customers that may be associated with projects proposing to recover transmission costs through transmission rates not fully captured in the Stage Two evaluation

Any benefits to customers that may not have been fully captured in the Stage Two evaluation

Any other considerations, as appropriate, to ensure selection of the proposal(s) which provide the greatest impact and value consistent with the stated objectives and requirements of Section 83D, as set forth in this RFP.

Under Section 83D, if the Distribution Companies are unable to agree on the selection of proposals among themselves, then the DOER, in consultation with the Independent Evaluator, shall make the final binding determination of the winning bid(s).

Contracting Process;
Regulatory
Approvals
Sections 2.5, 2.6

The Distribution Companies will negotiate to contract with selected bidder(s) based on their load ratio share. With regard to any transmission tariff or contract, allocation of rights and obligations will also be based on the Distribution Companies' load ratio share.

The Distribution Companies intend to submit any long-term contract for Department regulatory approval within 45 days of executing a long-term contract; Department regulatory approval is required for the contract to become effective. Any FERC-jurisdictional rate schedule or tariff and service agreement agreed upon by the Distribution Companies will be filed with FERC under Section 205 of the Federal Power Act, which must be accepted by FERC before becoming effective.

RFP Schedule
Section 3.1

The proposed schedule covers a 13-month period, with the following anticipated dates (which are subject to change):

- Issue RFP – 3/31/2017
- Bidders conference – 4/14/2017
- Submit notice of intent to bid—4/21/2017
- Deadline for bidder submission of questions—4/21/2017
- Proposals Due – 7/27/2017
- Selection of projects for negotiation – 1/25/2018

- Finalize contract negotiations – 3/27/2018
- Submit contracts for Department approval – 4/25/2018

Role of the Independent Evaluator The role of the Independent Evaluator is described in Section 1.5 of the proposed RFP.

Section 1.5

Bidder Certification Each bidder is required to certify, with submission of its proposal, that, *inter alia*, it has no knowledge of confidential information associated with development of this RFP and, except as disclosed in relevant portions of its response, the bidder is not an affiliate of any Distribution Company and no Distribution Company has a financial or other affiliate interest in the bidder or the bidder’s proposed project.

Section 1.8

Information Required of Bidders The RFP contains a Bidder Response Package (Appendix B) which contains information requests for bidders; each bidder was required to provide its responses to the Appendix B questions as part of its proposal. Appendix B was been provided with the proposed RFP; a Certification, Project and Pricing data form (Excel format), in which bidders are required to provide proposed pricing and forecasted generation is described but not included in Appendix B and was posted on the RFP website.

Appendix B

Forms of Agreements Forms of PPAs for the three types of generation proposals were posted on the RFP website following Department approval of the issuance of the RFP. Also posted was a document summarizing provisions to be included by bidders for proposed transmission service agreements.

Appendix C;
Appendix B,
Section 15.

PPA bidders were required to state any exceptions and include specific alternative language to the applicable form PPAs.

Transmission bids were required to contain a proposed transmission agreement and contain a summary of material provisions.

Utility Standard of Conduct Eversource and National Grid posted standards of conduct on the RFP website. Generally, they provide for separation, and prohibit communication between, an

Appendix G

Evaluation Team and a Bid Team, with respect to the RFP and solicitation process.

REDACTED

APPENDIX D
LARGE PROJECTS: STAGE 2 EVALUATION

Bid No.	Project	Bidder(s)	Max. Contract Amt. (MW)	Proposal Type	Generator Location	Delivery Zone	Start Date	Proposal Cost (PPA + Transm.)*	GWh/ year	Net Direct Benefit*	Net Indirect Benefit*	Net Total Benefit*	Net Benefit NPV\$ (000)	Quant. Score	Qual. Score	Total Score
40	NECEC Hydro	HRE/CMP	1090	Hydro/transm.	Quebec	ME	12/31/2022	\$59.34	9,555	\$23.23	\$23.24	\$46.47	\$2,049,673	75.00	10.94	85.94
										\$22.26	\$19.92	\$42.18	\$1,664,569	68.08	12.16	80.24
										\$15.41	\$24.32	\$39.73	\$3,875,670	64.12	15.63	79.75
										\$10.31	\$25.87	\$36.18	\$3,890,386	58.38	18.25	76.63
										\$9.63	\$26.08	\$35.71	\$3,284,303	57.62	18.13	75.75
										\$8.97	\$26.08	\$35.05	\$3,223,570	56.56	19.13	75.69
										\$15.40	\$21.07	\$36.47	\$3,557,166	58.86	15.68	74.54
										\$9.63	\$23.99	\$33.62	\$3,606,849	54.25	16.98	71.23
										\$8.55	\$22.72	\$31.27	\$2,876,789	50.47	18.14	68.61
										\$7.89	\$22.72	\$30.61	\$2,816,055	49.41	19.14	68.55
										\$10.27	\$23.24	\$33.51	\$1,477,913	54.08	9.85	63.93
										\$16.21	\$12.59	\$28.80	\$564,722	46.47	12.16	58.63
										\$3.06	\$22.46	\$25.52	\$1,508,211	41.19	9.31	50.50
										\$16.76	\$5.83	\$22.59	\$519,171	36.46	13.69	50.15
										\$15.62	(\$6.86)	\$8.76	\$253,627	14.14	12.79	26.93
										\$12.64	(\$5.52)	\$7.12	\$206,097	11.49	14.04	25.53
										(\$7.30)	\$15.77	\$8.47	\$238,200	13.67	9.75	23.42

* Costs and Net Benefits are in 2017 Real \$/MWh Levelized

REDACTED

APPENDIX E
 SMALL PROJECTS: STAGE 2 EVALUATION

Bid No.	Project	Bidder(s)	Max. Contract Amt. (MW)	Technology	Generator Location	Delivery Zone	Start Date	Proposal Cost (PPA + Transm.)* year	GW/h	Net Direct Benefit* (000)	Net Benefit NPV\$ (000)	Quant. Score	Qual. Score	Total Score
										\$27.89	\$93,359	75.00	12.25	87.25
										\$21.71	\$253,650	58.38	11.00	69.38
										\$17.33	\$119,890	46.60	18.75	65.35
										\$13.71	\$107,547	36.87	10.00	46.87
										\$12.98	\$8,057	34.92	10.00	44.92
										\$9.86	\$760,807	26.51	12.13	38.64
										\$10.34	\$141,781	27.81	10.00	37.81
										\$10.52	\$91,957	28.29	9.25	37.54
										\$9.11	\$35,761	24.51	10.00	34.51
										\$7.25	\$52,054	19.49	10.00	29.49
										\$5.85	\$20,603	15.72	10.00	25.72
										\$2.14	(\$8,189)	5.76	10.50	16.26
										\$1.08	\$21,284	2.91	10.00	12.91
										(\$0.26)	\$22,471	-0.70	10.50	9.80
										(\$0.86)	\$625,904	-2.32	10.25	7.93
										(\$7.79)	\$27,371	-20.96	10.00	-10.96
										(\$18.67)	\$169,744	-50.22	10.00	-40.22
										(\$31.97)	\$227,793	-85.99	7.31	-78.68
										(\$36.68)	(\$5,768)	-98.65	10.00	-88.65
										(\$37.99)	(\$51,283)	-102.17	0.00	-102.17
										(\$48.28)	(\$574,031)	-129.85	10.50	-119.35

* Costs and Net Benefits are in 2017 Real \$/MWh Levelized

REDACTED

APPENDIX F: STAGE 3 PORTFOLIO SUMMARY

Proposal/Portfolio	Portfolio Number/Description	Capacity--MW Installed	Technology	Delivery Location ISO-NE Zone	Start Date	Contract Cost* PPA + Transm.	Annual Energy GWh	Net Direct Benefit*	Net Indirect Benefit*	Net Total Benefit*	Net Benefit NPV \$(000)	Quant. Score	Qual. Score	Total Score	Rank
NECEC Hydro**	Portfolio 6	1090	Hydro	ME	12/31/2022	\$59,05	9,555	\$15,70	\$24,32	\$40,02	\$3,903,686	75.00	15.63	90.63	1
	Portfolio 12							\$15,96	\$22,47	\$38,43	\$3,879,300	72.02	15.50	87.52	2
	Portfolio 3							\$15,59	\$21,89	\$37,48	\$3,900,618	70.24	15.39	85.63	3
	Portfolio 8							\$9,74	\$25,87	\$35,61	\$3,829,761	66.74	18.25	84.99	4
	Portfolio 9							\$8,97	\$26,08	\$35,05	\$3,223,570	65.69	19.13	84.82	5
	Portfolio 7							\$15,69	\$21,07	\$36,76	\$3,585,182	68.90	15.68	84.58	6
	Portfolio 14							\$9,32	\$25,16	\$34,48	\$3,314,317	64.64	18.87	83.51	7
	Portfolio 5							\$9,30	\$23,32	\$32,62	\$3,255,600	61.14	18.55	79.69	8
	Portfolio 10							\$7,89	\$22,72	\$30,61	\$2,816,055	57.38	19.14	76.52	9
	Portfolio 4						8,317	\$17,96	\$11,33	\$29,29	\$2,616,587	54.90	11.45	66.35	10
	Portfolio 2							\$15,70	\$9,91	\$25,61	\$2,550,522	47.99	11.30	59.29	11
	Portfolio 13							\$20,24	\$4,62	\$24,86	\$2,733,562	46.59	11.85	58.44	12
NECEC Hydro Delay	Portfolio 6 Sensitivity	1090	Hydro	ME	12/31/2023	\$57,90	9,555	\$18,65	\$22,81	\$41,46	\$3,854,921				
								\$10,85	\$25,87	\$36,72	\$3,948,938				
								\$10,29	\$25,87	\$36,16	\$3,888,747				
								\$13,16	\$24,89	\$38,05	\$3,892,475				
								\$14,24	\$24,89	\$39,13	\$4,003,083				
* Real Levelized 2017\$/MWh															
Escalating															
** NECEC Hydro	Transmission Rate	1090	Hydro	ME	12/31/2022	\$58,92	9,555	\$15,83	\$24,32	\$40,15	\$3,916,299				
	HQ Deliveries of T10	1200	Hydro	ME	12/31/2022	\$58,92	9,555	\$15,42	\$26,37	\$41,79	\$4,076,609				
*** These evaluations were conducted after selection and would not have affected the ranking of the NECEC Hydro proposal.															
Escalation Transmission Rate: TCR discovered and corrected an error on CMP's escalating transmission rate proposal; this is the proposal reflected in the executed Transmission Service Agreement															
HQ Deliveries of 110 MW: Assumed that HQUS would deliver 110 MW on a baseload basis using its rights on the NECEC transmission line															

REDACTED

APPENDIX G - STAGE 3 PORTFOLIO SUMMARY--SCORING BASED ON ALTERNATIVE \$NPV QUANTITATIVE EVALUATION METRIC AS REPORTED BY DOER														
Proposal/Portfolio	Portfolio Number/ Description	Capacity--MW Installed	Technology	Delivery Location ISO-NE Zone	Start Date	PPA + Transm.	Annual Energy GWh	Net Direct Benefit*	Net Indirect Benefit*	Net Total Benefit*	NPV \$(000)	Quant. Score	Qual. Score	Total Score
								\$10.85	\$25.87	\$36.72	\$3,948,938	75.87	18.25	94.12
								\$9.74	\$25.87	\$35.61	\$3,829,761	73.58	18.25	91.83
								\$14.24	\$24.89	\$39.13	\$4,003,083	76.91	18.00	94.91
								\$13.16	\$24.89	\$38.05	\$3,892,476	74.78	18.00	92.78
								\$10.29	\$25.87	\$36.16	\$3,888,747	74.71	18.25	92.96
NECEC Hydro***	Portfolio 6	1090	Hydro	ME	12/31/2022	\$59.05	9,555	\$15.70	\$24.32	\$40.02	\$3,903,685	75.00	15.63	90.63
NECEC Hydro Delay	Portfolio 6 Sensitivity	1090	Hydro	ME	12/31/2023	\$57.90	9,555	\$18.65	\$22.81	\$41.46	\$3,854,921	74.06	15.63	89.69
								\$15.59	\$21.89	\$37.48	\$3,900,618	74.94	15.39	90.33
	Portfolio 3							\$15.96	\$22.47	\$38.43	\$3,879,300	74.53	15.50	90.03
	Portfolio 12							\$15.69	\$21.07	\$36.76	\$3,585,182	68.88	15.68	84.56
	Portfolio 7							\$9.32	\$25.16	\$34.48	\$3,314,317	63.68	18.87	82.55
	Portfolio 14							\$9.30	\$23.32	\$32.62	\$3,255,600	62.55	18.55	81.10
	Portfolio 5							\$8.97	\$26.08	\$35.05	\$3,223,570	61.93	19.13	81.06
	Portfolio 9							\$7.89	\$22.72	\$30.61	\$2,816,055	54.10	19.14	73.24
	Portfolio 10							\$20.24	\$4.62	\$24.86	\$2,733,562	52.52	11.85	64.37
	Portfolio 13							\$17.96	\$11.33	\$29.29	\$2,616,587	50.27	11.45	61.72
	Portfolio 4							\$15.70	\$9.91	\$25.61	\$2,550,522	49.00	11.30	60.30
	Portfolio 2													
* Real Levelized 2017\$/MWh														
	Escalating Transmission Rate	1090	Hydro	ME	12/31/2022	\$58.92	9,555	\$15.83	\$24.32	\$40.15	\$3,916,299			
	HQ Deliveries of 110 MW	1200	Hydro	ME	12/31/2022	\$58.92	9,555	\$15.42	\$26.37	\$41.79	\$4,076,609			
*** These evaluations were conducted after selection														
Escalation Transmission Rate: TCR discovered and corrected an error on CMP's escalating transmission rate proposal; this is the proposal reflected in the executed Transmission Service Agreement														
HQ Deliveries of 110 MW: Assumed that HQUS would deliver 110 MW on a baseload basis using its rights on the NECEC transmission line														

Exhibit CMP-1.1.1-B
Analysis of Undergrounding the 54 Mile Corridor

Incremental Capital Cost	644,563,669
Incremental Capital Cost (With AFUDC)	767,911,230
Increase in Transmission Rate (\$/KW-Month)	6.50
Net Present Value (2017 \$s) of Revenue	600,980,175
Levelized Revenue (2017 \$s)	85,020,000
Annual Energy (MWhs)	9,450,000
Real Levelized \$/MWh (2107 \$s)	9.00
Net Total Benefit - Independent Evaluator Report	40.02
Net Total Benefit With 54 Miles of Underground	31.02
Net Total Benefit - Rank 8	32.62
Net Total Benefit - Rank 9	30.61

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbs town Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY OF
GERRY J. MIRABILE

March 25, 2019

Regarding

- Project Overview and Issue 3: Alternatives Analysis
 - Responsive to Intervenor Group 6 witnesses Rob Wood, Andy Cutko, and Bryan Emerson on behalf of The Nature Conservancy
 - Responsive to Intervenor Group 10 witness Matt Wagner

I. Project Overview and Issue 3: Alternatives Analysis (Relevant to DEP and LUPC Review)

The Nature Conservancy (TNC) makes much of Central Maine Power's (CMP's) synonymous word choice in its description of the Project's purpose and need in its applications and an information request response. TNC points out that CMP has described the Project purpose and need as:

- "...to deliver up to 1,200 MW of Clean Energy Generation from Québec to the New England Control Area 1 via a High Voltage Direct Current (HVDC) transmission line, at the lowest cost to ratepayers."
- "...allowing CMP to deliver 1,200 MW of the clean energy generation from Quebec to the New England Control Area at the lowest cost to ratepayers."
- "...to deliver clean energy generation from Québec to the New England Control Area."
- "... delivering renewable hydropower energy from Canada to New England..."; and
- "...delivering 1,200 MW of clean energy generation from Quebec to the New England Control Area at the lowest cost to ratepayers..."

There are no inconsistencies between the sections and correspondence cited by TNC. All of the purpose and need descriptions include delivery of clean or renewable hydropower energy from Quebec or from Canada, to New England or to the New England Control Area. Some of these purpose and need descriptions include "lowest cost to ratepayers" as one component of the Project purpose, while others do not. None of these descriptions of Project purpose or need conflicts with any other, and the minor differences in descriptions of the Project's purpose do not amount to or constitute inconsistencies.

On pages 3-4 of his direct testimony, Matt Wagner suggests that non-transmission alternatives may be practicable alternatives to the Project. Mr. Wagner's assertion disregards the important fact that non-transmission alternatives would not accomplish the Project purpose, as stated in CMP's application and supporting materials, and as excerpted above.

II. Conclusion

There are no inconsistencies in the descriptions of Project purpose and need, contrary to TNC's assertion. All descriptions describe the delivery of clean or renewable energy generation from Canada to New England, despite minor differences in word choice. Further, non-transmission alternatives would not accomplish the Project purpose.

Dated: 3/18/2019

Respectfully submitted,

Gerry J. Mirabile
Gerry J. Mirabile

STATE OF MAINE
Kennebec, ss.

The above-named Gerry J. Mirabile did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Dated: March 18, 2019

Before, Alice Richards
Notary Public
Name: Alice Richards
My Commission Expires: Jan. 4, 2025



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbstown Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
MARK GOODWIN

March 25, 2019

Regarding

- Issue 1: Scenic Character and Existing Uses – Buffering for Visual Impacts
 - Responsive to Intervenor Group 2 witness David Publicover

- Issue 3: Wildlife Habitat and Fisheries -- Habitat Fragmentation
 - Responsive to Intervenor Group 1 witness Janet McMahon
 - Responsive to Intervenor Group 2 witness Roger Merchant
 - Responsive to Intervenor Group 4 witnesses, David Publicover, Aram Calhoun and Ron Joseph
 - Responsive to Intervenor Group 6, Rob Wood, Andy Cutko, Bryan Emerson, and Dr. Malcom Hunter, Jr.

I. Issue 1: Scenic Character and Existing Uses – Buffering for Visual Impacts (Relevant to DEP and LUPC Review)

a. Response to Intervenor Group 4 Witness Dr. David Publicover

Dr. Publicover contends that the Project fails the LUPC criteria for special exception approval because it “cannot be buffered from existing uses,” specifically the Appalachian Trail (“AT”). First, the applicable standard is that “the use can be buffered from those other uses and resources within the subdistrict with which it is incompatible.” The NECEC, which will be adjacent to an existing transmission line in a corridor already shared by the AT, is not incompatible with the AT. The widening of the cleared portion of the corridor and the addition of the transmission line will not significantly change the hiking experience in this location. Hikers currently cross an electric transmission line corridor at this location, and that will not change with the addition of the HVDC transmission line.

In addition, as stated in my pre-filed direct testimony, as of March 2014 there were 56 electric transmission line crossings of 230 kilovolts (kV) or more along the length of the AT, equating to one 230kV (or greater) transmission line crossing for every 38 miles of trail length. The number of transmission line crossings of the AT is even larger when considering transmission lines of less than 230kV. In Maine alone, there are five 115kV transmission line crossings of the AT. In fact, the Official Guide to the Appalachian Trail in Maine identifies the presence of two transmission line crossings near Troutdale Road and Joe’s Hole. Because hikers are aware of and expect to see utility corridors, and the Project has been co-located in existing corridor, there will be a negligible change in the visual impact of transmission line structures and overhead conductors to hikers using the trail. Siting the new HVDC transmission line in this

location, instead of an AT crossing location that does not have existing transmission lines, is the least impacting alternative.

The AT crosses the existing CMP transmission line in three locations by easement, and it is CMP – not the National Park Service (NPS) – that holds fee title to the land on which the existing and new transmission line will be located, and to which the NPS AT easement applies.

In any case, the Project can be buffered from AT users. The transmission line design incorporates weathering steel to buffer its visual impact. Further, CMP has agreed to plantings to further buffer the Project from the AT. These measures will provide an adequate buffer and will effectively buffer the Project from nearby uses and resources.

II. Issue 3: Wildlife Habitat and Fisheries -- Habitat Fragmentation (Relevant to DEP Review)

a. Response to Intervenor Group 1 Witness Janet McMahon

Ms. McMahon states on page 4 of her testimony that the Western Maine Mountains “unfragmented forests and complex topography make it a highly resilient landscape in the face of climate change.” The characterization of the Western Maine Mountains as unfragmented forest is inaccurate. The Western Maine Mountains are fragmented by many man-made and natural features including, but not limited to, rivers, streams, highways (Routes 6/15, 16, 27, and 201), the cleared and mowed area along the length of the U.S./Canada border, existing electric transmission corridors, the Central Maine and Quebec Railway, forestry clearcuts and strip cuts, skidder trails, and land management roads used by the forest products industry. Despite these existing fragmentation features, the Western Maine Mountains, as acknowledged by Ms. McMahon on pages 4 and 7 of her testimony, remain “the critical ecological link between the

forests of the Adirondacks, Vermont and New Hampshire and northern Maine, New Brunswick and the Gaspé.”

In the context of landscape-scale resiliency, in 1880 Somerset County was only sixty percent forested.¹ The region has not always had the same large “unfragmented forest” she describes. So assertions that the region must remain forested to retain landscape-scale ecological/wildlife habitat resiliency are not borne out by history.

Ms. McMahon also states on Page 5 of her testimony that it is “worth noting that fragmentation almost always leads to more fragmentation. As access roads are built and corridors are widened over time, as is happening in other parts of the New England Clean Energy Connect (“NECEC”) corridor, these typically create new nodes of development.” This is not accurate when applied to the NECEC Project. Other than improvements proposed to the existing land management roads on either side of the Kennebec River for construction and permanent access to the proposed high voltage direct current (“HVDC”) termination stations, Central Maine Power Company (“CMP”) is proposing only temporary access within the transmission line corridor. These access roads will be allowed to naturally revegetate and, if graded during construction, will be restored to their original contours, which satisfies the minimal alteration standard in Maine Department of Environmental Protection (“DEP”) regulations, Chapter 335, §3(b).

Ms. McMahon’s suggestion that the access roads used to build the Project will lead to additional fragmentation is thus inaccurate, and her concern is misplaced. The primary threat for additional commercial and subdivision development in the Western Maine Mountains is the existing network of land management roads because, by their very nature, they promote vehicular access. The transmission line and its restored, vegetated ROW will not promote

¹ Irland, L.C. 1998. Maine's forest area, 1660-1995: Review of available estimates. Maine Agricultural and Forest Experiment Station Miscellaneous Publication 736.

vehicular access. Further, there will be no development along Segment 1 of the Project resulting from increased access to electricity because the HVDC electricity to be transmitted by CMP will not be available to users along the route because of its high voltage and because it is direct current power rather than alternating current power, and thus not usable by ordinary consumers.

Ms. McMahon's statements on page 8 comparing the Project to a permanent roadway, such as Interstate 95 ("I-95"), are misleading in at least two ways.

First, equating a scrub-shrub vegetated transmission line corridor to a primarily paved interstate or highway corridor is not accurate in terms of the movement of species and ecological flows such as organic matter. While transmission line corridors allow the movement of, and provide habitat for, numerous mammals, reptiles, amphibians, and insects, roads provide very little or no habitat for most species, and in fact create a hazard for those species attempting to walk, crawl, or fly across them because of vehicular traffic, as well as a lack of cover within which to hide from their predators.

Second, the total width of the I-95 turnpike corridor from the outside edges of the southbound to the outside edges of the northbound lanes, including cleared verges, averages approximately 300 feet, not 150 feet, as she states. Ms. McMahon's testimony does not specifically or clearly exclude the forested median in her calculation, and thus gives the misleading impression that the NECEC transmission line corridor is as wide as the entire I-95 corridor, including the median.

The impact of the Project on an already significantly fragmented working forest, restored to and maintained in an early successional scrub-shrub vegetative cover, will be insignificant because it will have neither the negative habitat effects nor the harmful and unsafe species

movement impacts of a human-made, intensively traveled and maintained, and severely habitat-depleted landscape feature such as I-95.

b. Response to Intervenor Group 2 Witness Roger Merchant

The NECEC as proposed avoids forest fragmentation to the extent possible and where some fragmentation is unavoidable CMP has minimized the impact of fragmentation by locating the transmission line in an area that is already significantly fragmented by forestry practices and associated impacts, and by choosing the most direct route from the Canadian border to the closest existing transmission line right of way while avoiding and minimizing impacts to protected and sensitive natural resources along this route. By Mr. Merchant's own admission, on page 3 of his testimony, the proposed alignment of Segment 1 is located in an area with habitat that is already significantly fragmented from forestry practices and an "extensive network of gravel roads." Mr. Merchant's testimony provides a comparison of forest conditions in 1942 to conditions in 2016 and acknowledges that "the extent of continuous forest cover in 2016 has been reduced by a larger, more extensive patchwork pattern from newer forest practices" that "reveals evidence of significant alteration and fragmentation of forest cover." In fact, on page 5 of his testimony Mr. Merchant characterizes the landscape between Coburn Mountain and the Quebec border as a "transitionally fragmented forest."

Mr. Merchant contends that the placement of the Project in an already fragmented landscape is unacceptable. To the contrary, the placement of the transmission line in an area that is already transitionally fragmented will have less impact to wildlife and habitat than the placement of a transmission line through a largely intact forest. As shown on Exhibit CMP-3.1-B and Exhibit CMP-3.1-A (adapted from Figure 8b of Exhibit-5-JSM), the HVDC transmission line has been carefully sited in both an area that already contains significant fragmentation and in

a manner that minimizes its distance from existing forest edges, thereby avoiding habitat and wildlife impacts where possible and minimizing additional habitat fragmentation.

Mr. Merchant states that “fragmented landscapes can facilitate additional fragmentation from commercial development and expanded subdivision.” As mentioned previously in response to the testimony of Group 1 witness Janet McMahon, the Project will not facilitate or encourage any additional fragmentation associated with temporarily constructed access roads or from access to electricity (because the electricity will be unusable direct current power).

c. Response to Intervenor Group 4 Witness Dr. David Publicover

The NECEC Project will not Unreasonably Impact Wildlife Through Habitat Fragmentation.

Dr. Publicover cites multiple sources that recognize the “region” as a large ecologically intact forest region. However, his testimony appears to conflate the Western Maine Mountains region with portions of the Central Mountains and Aroostook Highland biophysical regions and overstates the size and extent of intact forest in the Project area. In contrast, Intervenor Group 2 witness Roger Merchant has accurately testified on page 5 of his pre-filed direct testimony that the Project area in Segment 1 is a “transitionally fragmented forest.”

Although each area that has been harvested does not experience a permanent loss of forest cover (i.e., it is allowed to return to a forested condition for future harvest), the forest in this area is perpetually in this transitionally fragmented state due to the 30- to 50-year harvest cycle that is pervasive throughout the Western Maine Mountains. As Mr. Merchant rightly notes, similar to a newly constructed electric transmission corridor, “Over time, natural or artificial regeneration fills in the harvested space and edges, so the initial fragmentation and edge effects are somewhat mitigated, softened.” CMP’s proposed vegetation clearing and management

practices will encourage the regrowth of early successional vegetation, mitigating and softening the edge effect, thereby further minimizing the impact on wildlife and habitat.

Dr. Publicover contends that the Project will unreasonably harm ecological value and connectivity in the Western Maine Mountains region. The clearing of capable vegetation (i.e., vegetation capable of growing into the conductor safety zone) will not result in habitat loss, but, rather, will convert forest habitat to habitat dominated by early successional woody and herbaceous growth, which will remain permeable to the majority of wildlife species and will remain viable habitat for a wide variety of plant and animal species, and will continue to provide areas for many animal life stages and activities including hunting, browsing, nesting, resting, reproduction, and rearing.

Dr. Publicover states on Page 12-13 of his testimony that “the species most affected” by the reduction in connectivity “are those that avoid large openings or shrub or regenerating forest habitat.” Wildlife in the Western Maine Mountains, however, are frequently exposed to both large openings and shrub or regenerating forest habitat resulting from forestry activities. Yet the Western Maine Mountains remain high in ecological value and connectivity, as well as wildlife species diversity and density. The transmission corridor will not be a barrier, will not unreasonably impede wildlife movement, and will not adversely affect wildlife lifecycles.

Dr. Publicover argues on Page 12 of his testimony that “with the corridor all of this forest will be permanently subject to edge effects, reducing its ability to support interior forest species.” As discussed above in response to Group 2 witness Roger Merchant, the HVDC transmission line has been carefully sited in both an area that already contains significant amounts of fragmentation and in a manner that minimizes its distance from existing forest edges, thereby minimizing additional fragmentation and impacts on habitat and wildlife.

Dr. Publicover contends that in the absence of a transmission line corridor most of the area would potentially be interior forest. The fact is that a significant portion of Segment 1 is not interior forest (i.e., free from the influence of edge effects) due to the existing widespread logging and resulting fragmentation in this area, as noted in my responses to the testimony of Janet McMahon and Roger Merchant. Nor, if current forestry practices continue, would this area be dominated by interior forest in the future.

The NECEC Project will not Unreasonably Impact Jack Pine Forest.

Dr. Publicover states that the Project crosses two populations of Jack Pine Forest, ranked as an S1 natural community by the Maine Natural Areas Program (“MNAP”). Dr. Publicover states on page 17 of his testimony that “the full extent and conditions of these occurrences has not been determined.” Dr. Publicover is correct in this regard.

Botanists and biologists from Tetra Tech Inc., TRC Engineers, and Gilman & Briggs, performed rare plant and unique natural community surveys on behalf of CMP in July of 2018. The results of this survey were provided to the MNAP in September 2018. The surveys identified three Jack Pine communities within an area previously managed as industrial timberland. Recent evaluation of forest stand mapping data identified these areas as “Pine Plantations,” suggesting that these Jack Pine communities were planted and managed as industrial timberland prior to acquisition of the corridor.

Weyerhaeuser maintains an extensive GIS database that contains historic timber management practices (e.g., clearcuts, thinning, spraying, and plantings) in areas managed as industrial timberland. CMP requested from Weyerhaeuser additional information for the portion of ROW where the Jack Pine communities were documented. The information provided

indicated that a large portion, if not all, of these Jack Pine communities are not natural communities but were created through containerized plantings in the 1980s.

MNAP reviewed the survey report and determined that these areas are Jack Pine Forest communities. MNAP did not field verify this conclusion, but based its determination on evaluation of aerial imagery (Exhibit CMP-3.1-C).

Dr. Publicover also states that a “minor relocation of the proposed corridor would eliminate the impact to these rare natural community occurrences.” Dr. Publicover goes on to state that the jack pine communities “were not known when the route was being identified...precluding the opportunity to route the corridor around them.” Understanding that this is industrial timberland, CMP routed the corridor in this area to minimize the impacts to Inland Waterfowl and Wading Bird Habitat and avoid the wetlands around Egg Pond while maintaining as much distance from the Moose River as possible. Relocating the corridor as suggested by Dr. Publicover would increase impacts to IWWH and these wetlands and decrease separation from the Moose River.

Although these Jack Pine communities apparently were artificially created through plantings, and thus are not protected, CMP’s alignment on the south side of the 300-foot-wide corridor, as shown on Exhibit CMP-3.1-C, avoids and minimizes impact, leaving them largely intact. In addition, until it can be conclusively determined that these areas are not in fact unique natural communities, CMP has proposed compensation for unavoidable impact to both the portion of the community directly impacted and to a 250-foot environmental impact zone to address edge effects, as recommended by MNAP, through a contribution to the Maine Natural Areas Conservation Fund of more than \$1.2 million.

The NECEC Project has Avoided, Minimized, and Adequately Mitigated for Unavoidable Impacts.

Dr. Publicover argues that the project has not provided adequate mitigation. To the contrary, CMP has proposed meaningful and significant monetary and conservation land contributions, including the following specific measures to avoid, minimize, or otherwise address habitat fragmentation impacts:

- avoided new habitat fragmentation impacts by co-locating the majority (72%) of the transmission line in existing transmission corridors;
- minimized impact by expanding riparian buffers to distances recommended by DEP and the Maine Department of Inland Fisheries and Wildlife (“DIFW”) to protect both fisheries habitat and water quality and provide travel corridors in riparian areas;
- minimized impact through integrated vegetation management practices and erosion and sedimentation control best management practices;
- avoided impacts to Roaring Brook Mayfly (a state-threatened species) and Northern Spring Salamander (a species of special concern) by proposing structures tall enough to retain full height canopy, as requested by MDIFW, at Gold Brook and Mountain Brook;
- minimized impact by proposing to retain up to 15-foot-tall softwood species in Rusty Blackbird habitat;
- minimized habitat fragmentation impact with the proposed maintenance of 10 deer winter travel corridors in the upper Kennebec River Deer Wintering Area (“DWA”) and by proposing the preservation of lands within the DWA totaling 717 acres; and
- offered nearly \$6 million in in-lieu fees and other fees and contributions, and nearly 2,100 acres of additional land conservation, to offset unavoidable forest habitat conversion of wetlands, Inland Waterfowl and Wading Bird Habitat, Significant Vernal Pool Habitat, and DWA.

d. Response to Intervenor Group 4 Witness Dr. Aram Calhoun

Of the sixty-two (62) significant vernal pools identified near or within the Project area using field survey protocols recommended by the MDEP and the USACE, only 12 are located

within or adjacent to the new corridor (Segment 1). CMP's consultants identified these features, and the Project alignment was designed to avoid or minimize impacts to these habitats.

As a result, three (3) significant vernal pools were completely avoided, with no impacts to either the pool depression or the critical terrestrial habitat; seven (7) pool depressions are located outside of the proposed developed ROW and will have only portions of their critical terrestrial habitats cleared of forest vegetation; one (1) pool depression and its critical terrestrial habitat are only partially within the proposed developed ROW; and one (1) pool depression is entirely within the proposed developed ROW and will be cleared of vegetation but will only have a portion of its critical terrestrial habitat cleared.

The remaining 50 significant vernal pools are located within or near the co-located portions of the Project. In both the new and co-located portions of the Project, the majority of significant vernal pools and their critical terrestrial habitats are within or adjacent to forested areas and will remain so post-construction. As a result, impacts have been avoided and minimized to the extent possible and forest connectivity will be retained.

As noted in Dr. Calhoun's testimony on Page 5, "Pool-breeding amphibians are present in breeding pools for, at most, a few weeks in the spring; and adults and juveniles spend the majority of their lives in the adjacent forests and often use other pools during migration to and from summer, fall, and hibernation habitats in the forest." Dr. Calhoun further states "Destruction of individual pools or clearing of connecting forested habitats for the purpose of utility rights-of-way (ROW) may fragment pools and have a negative impact on populations of pool-breeding amphibians." No significant vernal pools will be destroyed or directly impacted, i.e., filled, as the result of the construction of the Project and the majority of significant vernal pool depressions are located within either existing cleared ROW or in forested

areas not proposed for clearing (i.e., outside of the NECEC ROW). In most cases, the only impact will be the clearing of a portion of critical terrestrial habitat. Further, nearly all of the significant vernal pool critical terrestrial habitats impacted by the Project will remain partially forested and connected, by way of forested and/or early successional vegetative cover, to adjacent forest habitat following construction of the NECEC ROW. As a result, impacts to significant vernal pools from habitat fragmentation will be minimal and will not be unreasonable or adverse.

Dr. Calhoun cites research on page 6 of her testimony that concluded that “pool breeding amphibians need intact forested habitat as far as 1,500 feet (~500 m) from the breeding pool to support a significant portion of the adult population and much longer distances for juvenile dispersal.” As stated previously, forest connectivity, in relation to the spatial distribution of significant vernal pools within the vicinity of the Project, will not be significantly affected by construction, and, in most cases, forested land extends for significant distances on both sides of the proposed ROW. Because the majority of significant vernal pools located within the Project area will not be completely surrounded by non-forested habitat as a result of clearing, the impact on emigration and staging areas for pool-breeding amphibians will be minimal. Portions of most forested significant vernal pool depressions and their forested critical habitats will remain largely intact following construction.

e. Response to Intervenor Group 4 Witness Ron Joseph

Mr. Joseph’s claim is that CMP has not adequately avoided impacts to DWAs. To the contrary, CMP first sited the transmission line within existing corridors to the extent possible (72% of the new transmission line will be co-located) such that additional fragmentation will be avoided or minimized. CMP consulted with MDIFW to understand impacts to DWAs and

develop a mitigation plan for the upper Kennebec River DWA. Through this process, MDIFW informed CMP, during a November 9, 2018 meeting, that co-location of the line was adequate for minimization of impact in the southern portions of the Project because these DWAs were already fragmented, have typical snow depths that are less of an impediment to deer movement than areas farther north and west, experience shorter-duration winter conditions compared to northern reaches of the Project, and have higher deer populations. Conversely, MDIFW specifically requested and had significant input into the development of the deer travel corridors and compensation for impacts in the upper Kennebec River DWA. MDIFW determined that the 10 proposed travel corridors, along with the preservation of seven parcels of CMP-owned land within the DWA, are adequate to avoid undue adverse impacts and to offset unavoidable impacts to the DWA.

f. Response to Intervenor Group 6 Witnesses Rob Wood, Andy Cutko, and Bryan Emerson (herein collectively referred to as TNC Staff), and Dr. Malcolm Hunter, Jr.

TNC staff surmise that because 38 M.R.S. § 480-D(3) mentions “significant wildlife habitat” and “travel corridors” separately, it suggests that mapped deer travel corridors fall under the definition of “significant wildlife habitat.” Under the NRPA, 38 M.R.S. § 480-B(10), the definition of “significant wildlife habitat” includes “high and moderate value deer wintering areas and travel corridors as defined by the Department of Inland Fisheries and Wildlife.” All DWAs crossed by the Project, however, are indeterminate in value and thus do not meet the definition of significant wildlife habitat, so deer travel corridors in these DWAs also do not meet the definition of significant wildlife habitat.

Although TNC staff are mistaken about the significance of DWA travel corridors, CMP is providing mitigation for potential impacts to them. CMP has provided mitigation in the form

of ten (10) maintained or natural deer travel corridors in the upper Kennebec DWA and compensation in the form of preservation of tracts of land within the upper Kennebec DWA in an amount that far exceeds the standard 8:1 preservation ratio.

TNC staff characterize the lands within Segment 1 of the Project as an unfragmented forest block. As discussed in response to witness Janet McMahon, the Western Maine Mountains region is fragmented by a number of natural and non-natural features and forestry practice impacts.

TNC staff note on page 4 of their testimony that “A growing body of research presents findings on the negative impacts of habitat fragmentation, ranging from edge effects (caused by sharp transitions from one habitat to another), to spread of invasive species, to increased pressure from associated uses (such as motorized vehicle use), to changes in species composition and behavior over time from reduced habitat patch sizes.” These concerns are misplaced for the NECEC Project.

The transmission line in Segment 1 of the Project will be allowed to naturally revegetate in a manner that will provide for wildlife travel corridors within and across the ROW. Vegetation in the ROW will resemble a u-shaped pattern, with taller non-capable species on the edges and shorter non-capable species beneath the conductors. In this manner, the corridor will result in a gradual, buffered transition to the forest edge. CMP’s vegetation management practices utilize integrated vegetation management methods promoted by the EPA to enhance wildlife habitat and connectivity and minimize edge effects. In addition, The Habitat Network,² a partnership established between TNC and the Cornell Lab of Ornithology, recognizes the importance of:

- the potential for utility corridors to connect natural landscapes and improve habitat conditions for certain wildlife;

² <http://content.yardmap.org/learn/managing-utility-corridors-wildlife/>

- minimizing hard edge impact on fragmentation by applying soft edge management techniques (i.e., integrated vegetation management) and maintaining “vegetation bridges” for wildlife movement; and
- promoting an arrested shrub layer in utility ROWs, which allows the corridor to act as a habitat connection between isolated plant and/or animal communities.

Severe topography in much of Segment 1 will discourage motorized use of the ROW, thereby limiting the spread of invasive species by recreational vehicles. Equipment used to construct the Project is no more likely to transport invasive species than the equipment used by forestry operations or the recreational vehicles that are already used in the Western Maine Mountains. In fact, they are less likely to do so; Exhibit 10-1 of the Site Law Application contains specific timber mat requirements to reduce the potential for the spread of invasive species.

Dr. Hunter notes on page 6 of his testimony that “the current rarity of invasive plants in the region increases the importance of keeping them out, because after new populations establish in remote locations, they may go undetected and uncontrolled for many years.” CMP has committed to developing and implementing an invasive species survey and control plan to address any post-construction increases or new incidences of invasive species present within areas impacted by construction of the Project. This plan will span multiple years and treatment, if needed, will be designed to control invasive species such that their abundance level is no higher than that identified during pre-construction invasive species surveys.

TNC staff also state on Page 4 of their testimony that “Fragmentation is of particular concern for wildlife species that require mature, closed-canopy forest cover, such as the American marten and many interior forest nesting birds.” Dr. Hunter further notes on page 5 of his testimony that “In Maine there are more than two dozen bird species...that are associated

with forest interiors and are listed as Species of Greatest Conservation Need (“SGCN”).” The NECEC will not adversely impact these species.

According to the 2015 Maine Wildlife Action Plan (“WAP”), northern hardwood and conifer forests, which account for 40% of habitat cover types in Maine, support 153 SGCN. More than two dozen bird species listed as SGCN are found in forest interiors, the majority of the state is forested, and the number is relative to the amount of habitat. While it is true that certain wildlife species require mature, closed-canopy forest, there is no shortage of interior forest habitat in the Western Maine Mountains region to support these species, and the NECEC transmission line will not change that. For perspective, Janet McMahon’s testimony states that the Western Maine Mountains region encompasses a vast area of over five million acres, and Segment 1 of the NECEC will occupy less than 1,000 acres of this region, or less than 0.01% of the Western Maine Mountains region. Ample habitat will remain available for SGCN after Project construction.

TNC staff incorrectly states on Page 4 of their testimony “that CMP has not proposed any measures to avoid, minimize, or compensate for these impacts.” Similarly, Dr. Hunter concludes on page 8 of his testimony that “the proposed mitigation and compensation plan does not adequately address the cumulative impacts to the full array of Maine’s wildlife.” To the contrary, as described in response to Group 2 witness Dr. Publicover above, CMP has proposed numerous measures to avoid, minimize, and compensate for habitat fragmentation impacts. As noted in CMP witness Lauren Johnston’s rebuttal testimony, DIFW has stated, by email dated March 18, 2019, that CMP has “address[ed] the Department’s remaining resource impact concerns for the NECEC project.”

TNC staff also argue on Page 5 of their testimony that “sustainable forestry does not fragment large forest blocks in the same manner as a wide, linear corridor, which bisects the landscape. A 53.5-mile corridor would create 107 miles of new habitat edge, while business-as-usual timber harvesting will result in significantly less edge—and, moreover, timber harvesting edge will change over time, whereas edge from a new transmission corridor will likely be permanent.” TNC staff are incorrect.

Maine Forest Service statistics³ for timber harvests in Franklin and Somerset counties for the period 2015-2017 show that a total of 27,368 acres of forest were clearcut during those three years. For perspective, the linear edge length using the smallest possible edge length for an acre, i.e., a circle, is 740 feet. The distance of edge habitat, using the data provided above for Franklin and Somerset counties, created by clearcutting during this period is equivalent to 3,836 miles, or approximately 36 times the size of edge habitat (107 miles) that would be created by the NECEC Project. The average size of clearcuts reported during this period was 30 acres, and thirty-four of these clearcuts exceeded 75 acres in size.

Timber harvesting edge changes spatially over time, but it remains a persistent impact in the Western Maine Mountains because it is an annual occurrence. The maximum width of the ROW on Segment 1 will be 150 feet, likely far less than the significant widths created by clearcuts of 30 acres or more. If wildlife continue to thrive and remain connected in a region that routinely has new edge created at significant widths and distances, and over a very large area, by the forestry industry, then it is reasonable to conclude that wildlife connectivity will not be unreasonably impacted by a 150-foot-wide vegetated ROW.

³ https://www.maine.gov/dacf/mfs/publications/annual_reports.html

TNC staff and Dr. Hunter both suggest that an expansion of CMP's mitigation strategies is needed to further minimize habitat fragmentation impacts. Specifically, TNC staff identify nine areas they feel merit taller vegetation, in a manner similar to the DWA travel corridors proposed by CMP at the Upper Kennebec River and the taller structures to allow full height canopy at Gold Brook and Mountain Brook. This is not necessary. There will be suitable cover and habitat for wildlife movement across the ROW due to the vegetation management practices that CMP will employ and the riparian buffers that will be maintained. Further, CMP consulted extensively with DIFW on travel corridors and resolved this issue to the satisfaction of the agency.

CMP has adequately avoided, minimized, and proposed appropriate and adequate compensation for impacts associated with habitat fragmentation. CMP has proposed mitigation in the form of compensation for impacts to the upper Kennebec DWA and conversion of forested wetlands, forested significant vernal pool habitat, and forested inland wading bird and waterfowl habitat. There is no basis for the TNC staff's request for between 40,000 and 100,000 acres of preservation lands.

III. Conclusion (Relevant to DEP and LUPC Review)

The conversion of forest habitat to early successional habitat will not unreasonably harm wildlife habitat or unreasonably disturb wildlife through habitat fragmentation. CMP has avoided and minimized impacts to wildlife from habitat fragmentation through siting 72% of the transmission line within existing transmission line corridors, by proposing to use integrated vegetation management techniques, through minimization measures developed in consultation with DEP and DIFW, and through a robust compensation plan to offset unavoidable impacts.

The co-location of new transmission line within a CMP-owned corridor crossed by the AT is consistent with the existing use and with hikers' expectation of crossing a transmission line corridor in the associated P-RR subdistrict. Further, poles will be made of weathering steel to buffer and minimize their visual impact. Proposed plantings at Troutdale Road and Joe's Hole will buffer the view when looking down the corridor. As a result, the proposed transmission line crossing of the P-RR zone satisfies the criteria for special exception.

Exhibits:

CMP-3.1-A: Maine Forested Lands – Distance to Forest Edge-NECEC Overlay

CMP-3.1-B: Existing Transportation Infrastructure Overview Maps

CMP-3.1-C: MNAP Jack Pine Forest Habitat Maps

Dated: 3.19.2019

Respectfully submitted,


Mark Goodwin

STATE OF MAINE
CUMBERLAND, ss.
COUNTY

The above-named Mark Goodwin did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

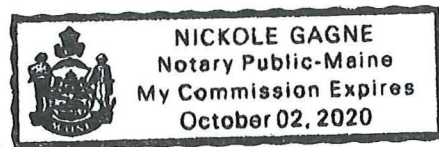
Before,

Dated: 3/19/2019

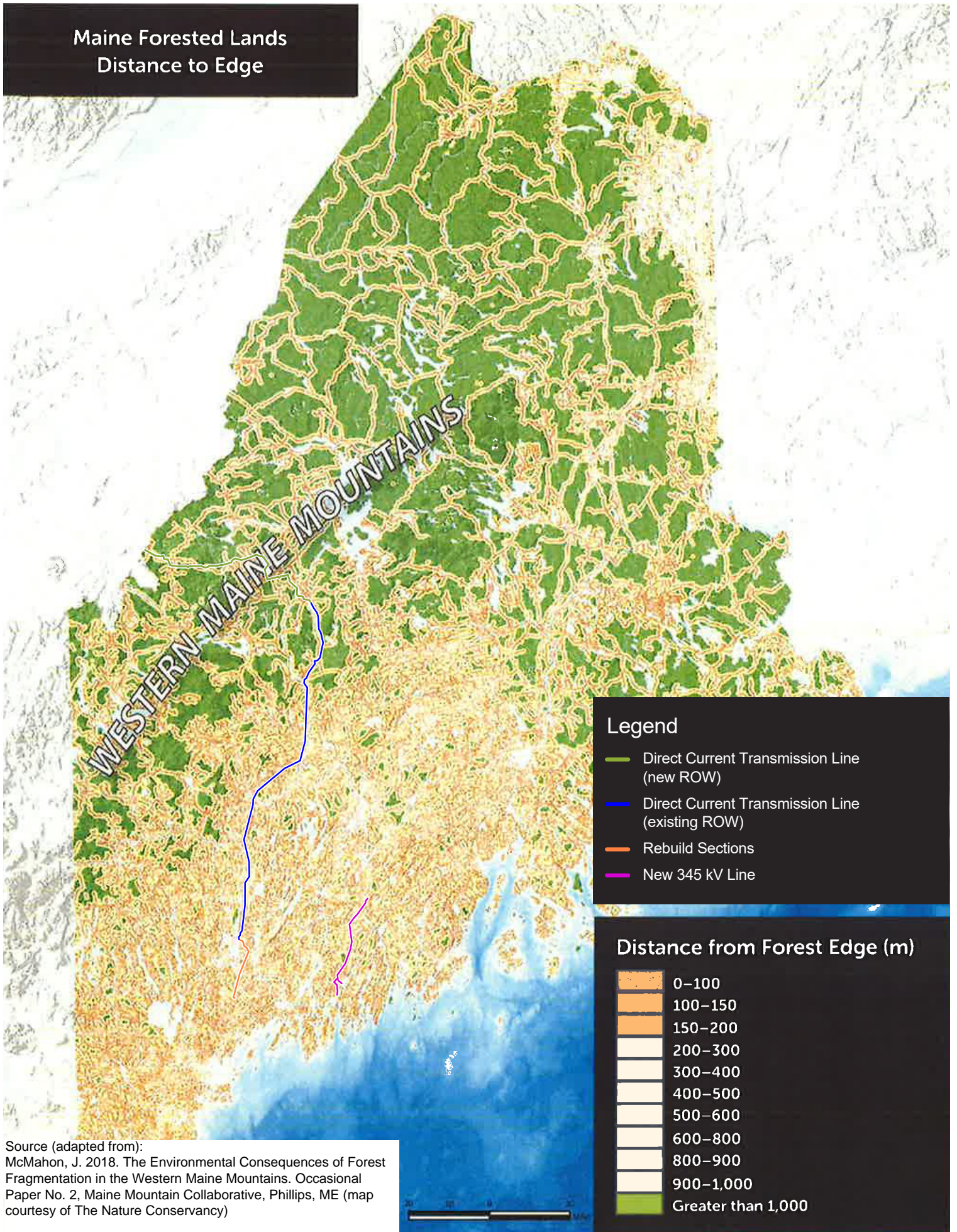

Notary Public

Name: NICKOLE GAGNE

My Commission Expires: 10/2/2020



Maine Forested Lands
Distance to Edge



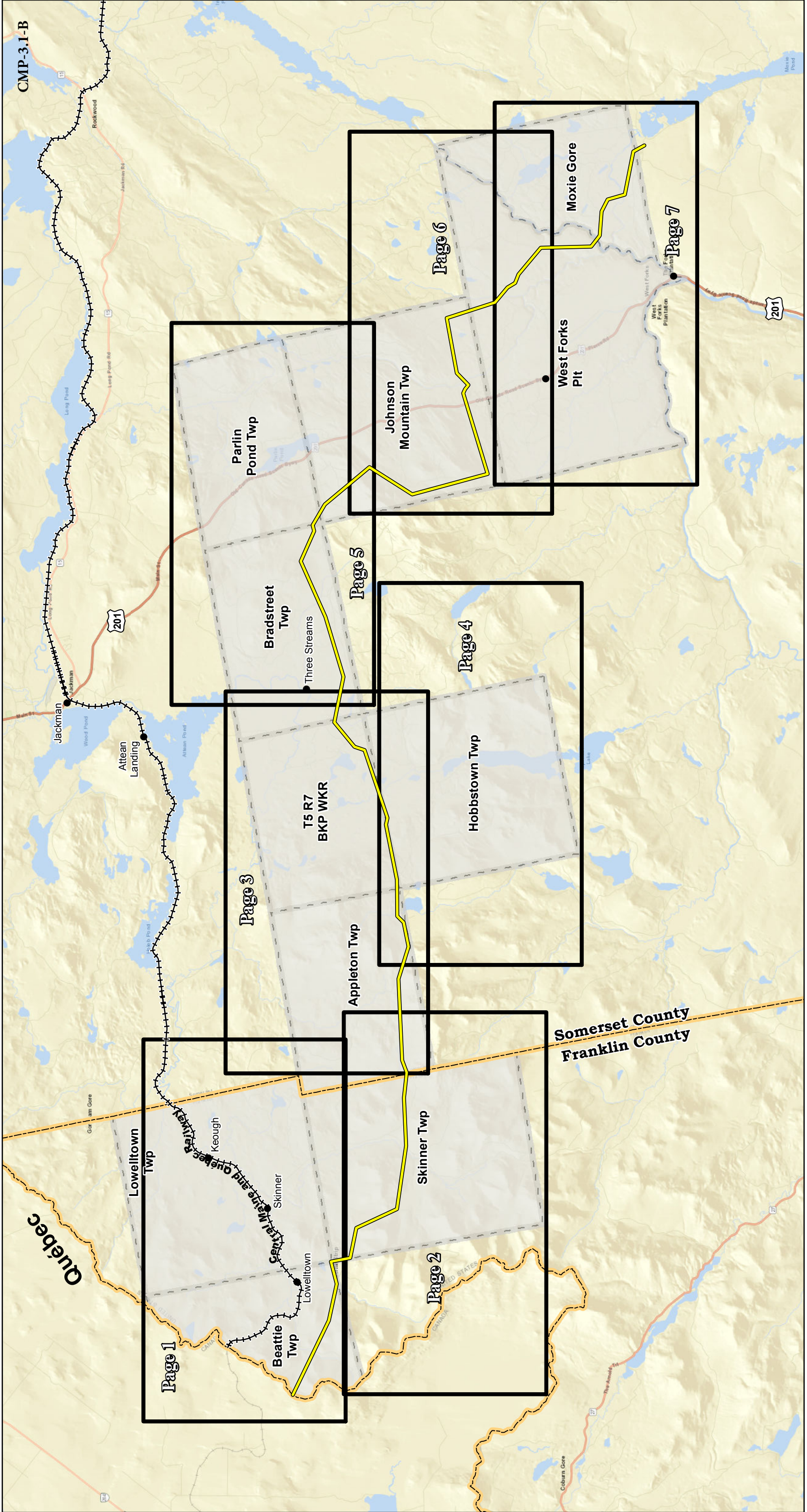
Legend

- Direct Current Transmission Line (new ROW)
- Direct Current Transmission Line (existing ROW)
- Rebuild Sections
- New 345 kV Line

Distance from Forest Edge (m)

	0-100
	100-150
	150-200
	200-300
	300-400
	400-500
	500-600
	600-800
	800-900
	900-1,000
	Greater than 1,000

Source (adapted from):
McMahon, J. 2018. The Environmental Consequences of Forest Fragmentation in the Western Maine Mountains. Occasional Paper No. 2, Maine Mountain Collaborative, Phillips, ME (map courtesy of The Nature Conservancy)



CMP-3.1-B



Legend

- Populated Place
- HVDC (New ROW)
- Township Boundary Crossed by HVDC (New ROW)
- Railroad
- Page Boundary
- County Boundary

Existing Transportation Infrastructure Overview

Franklin and Somerset Counties, Maine

0 1.5 3 6 Miles

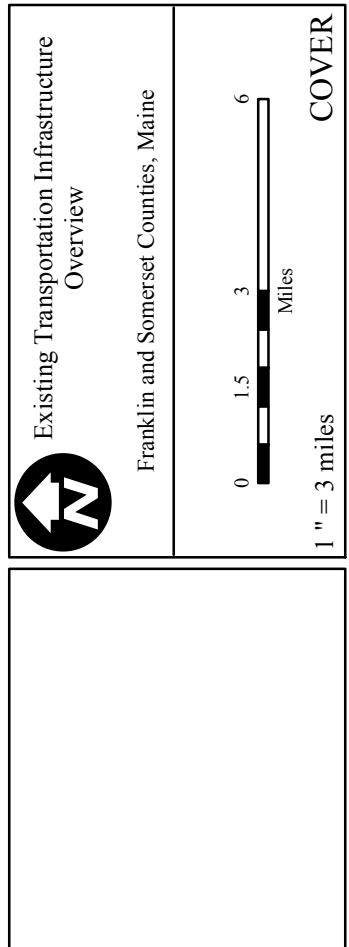
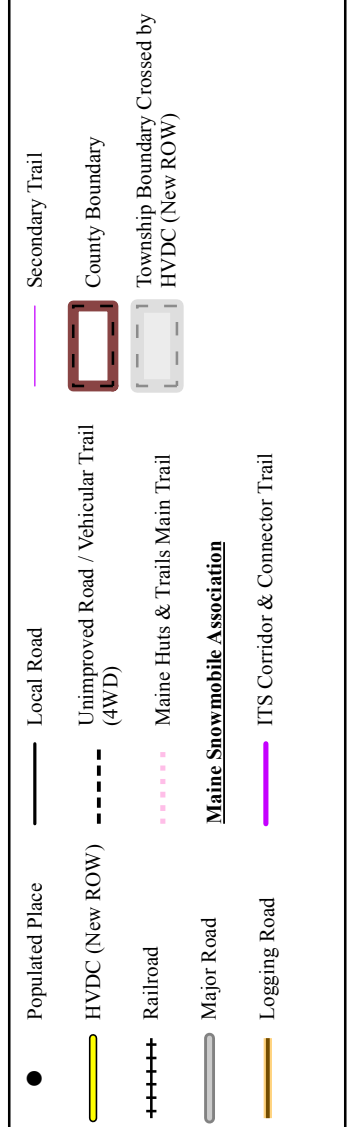
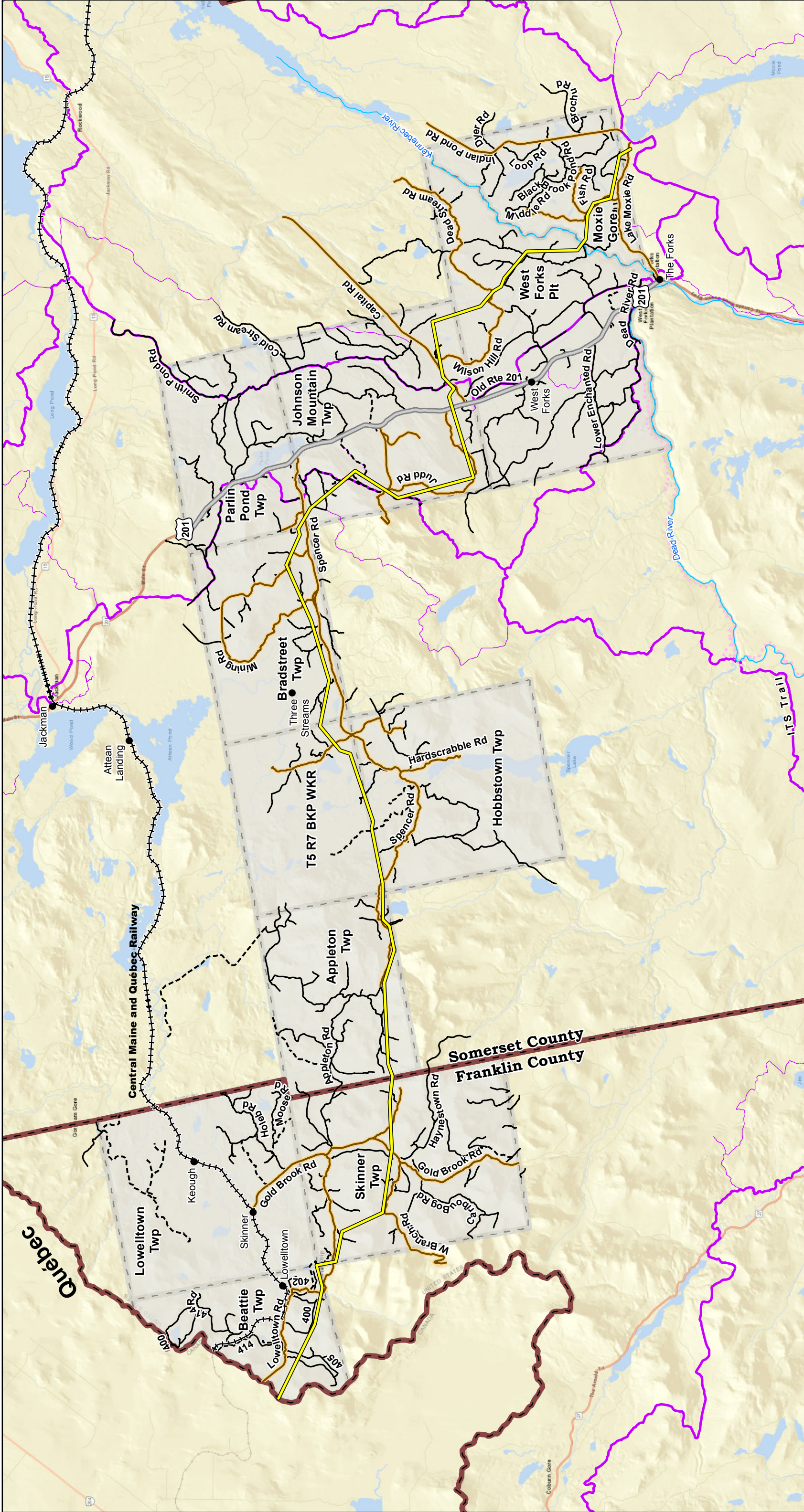
1" = 3 miles

INDEX

Central Maine Power

New England Clean Energy Connect

DATE: 3/20/2019; AUTHOR: AW; PROJECT: 144357

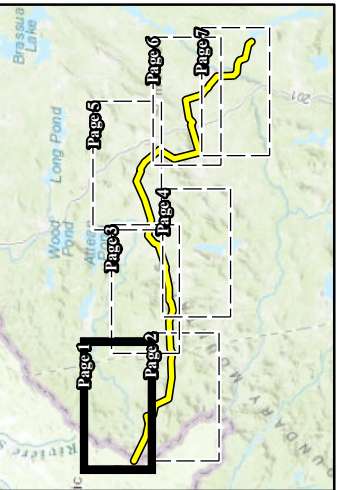


Central Maine Power

New England Clean Energy Connect

NEW ENGLAND CLEAN ENERGY CONNECT

Date: 3/20/2019; Author: AW; Project: 144357



- Populated Place
- HVDC (New ROW)
- ++++ Railroad
- Logging Road
- Local Road
- Unimproved Road / Vehicular Trail (4WD)
- Lake/Pond (NHD)
- Page Boundary
- Township Boundary Crossed by HVDC (New ROW)

Existing Transportation Infrastructure Overview

Franklin and Somerset Counties, Maine

0 2,000 4,000 8,000 Feet

1" = 4,000'

Page 1 of 7

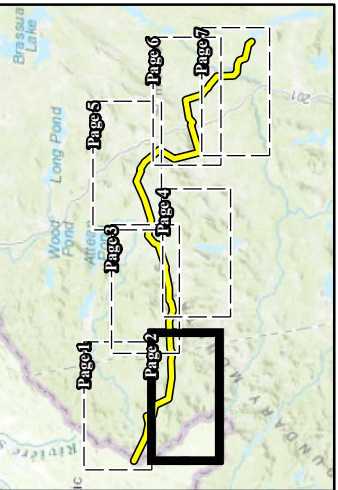
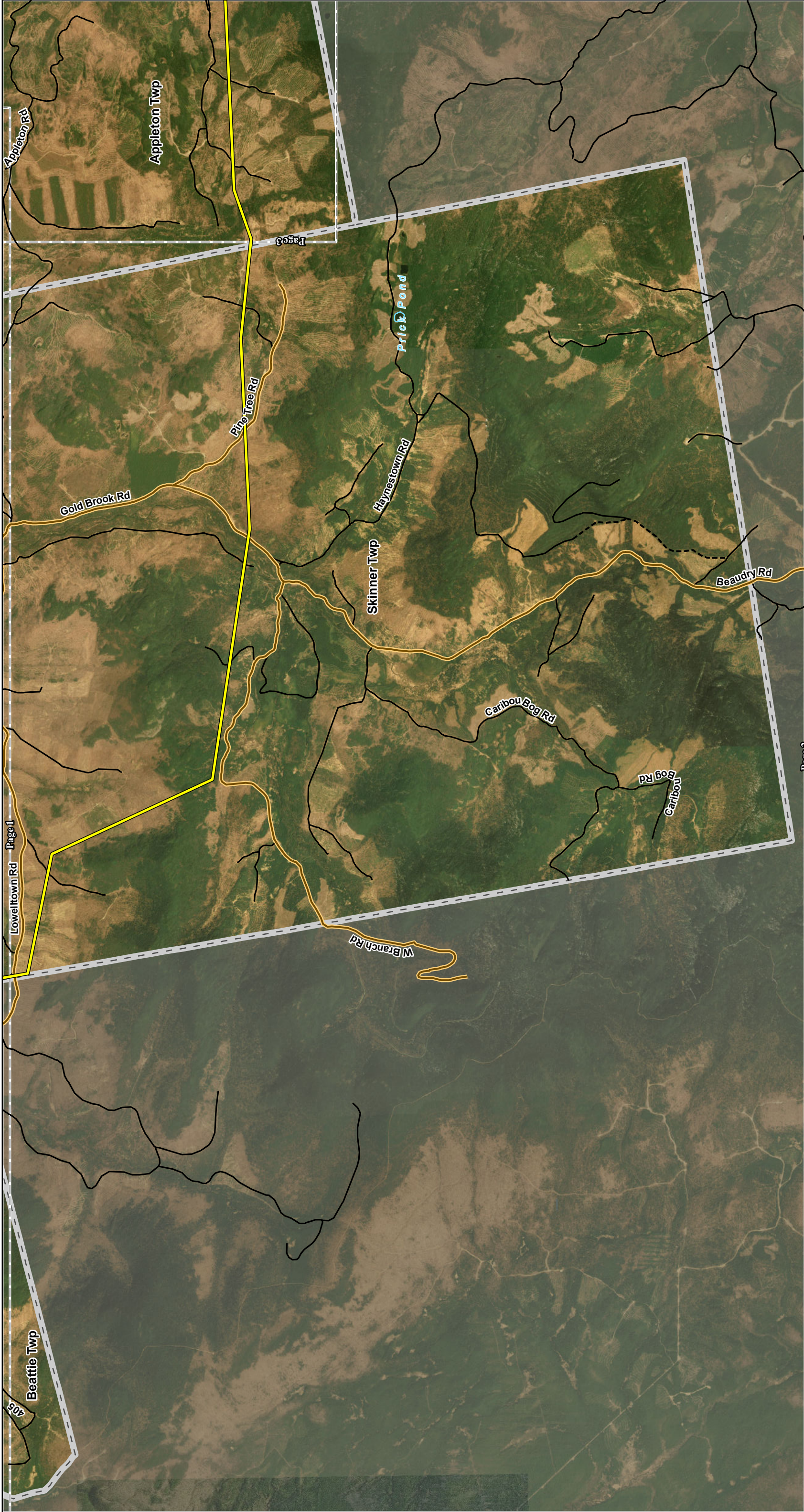
Central Maine Power








New England Clean Energy Connect

CENTRAL MAINE POWER


NEW ENGLAND CLEAN ENERGY CONNECT

Date: 3/20/2019; Author: AW; Project: 144357



-  HVDC (New ROW)
-  Logging Road
-  Local Road
-  Unimproved Road / Vehicular Trail (4W/D)
-  Lake/Pond (NHD)
-  Page Boundary
-  Township Boundary Crossed by HVDC (New ROW)

Existing Transportation Infrastructure Overview
Franklin and Somerset Counties, Maine





0 2,000 4,000 8,000 Feet

1" = 4,000'

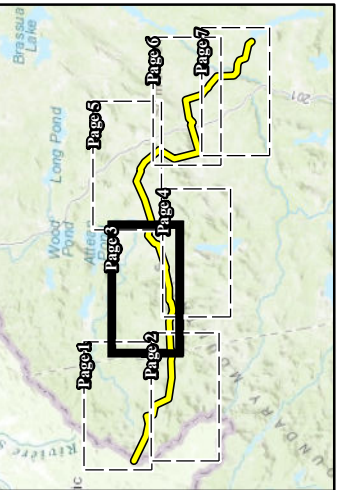
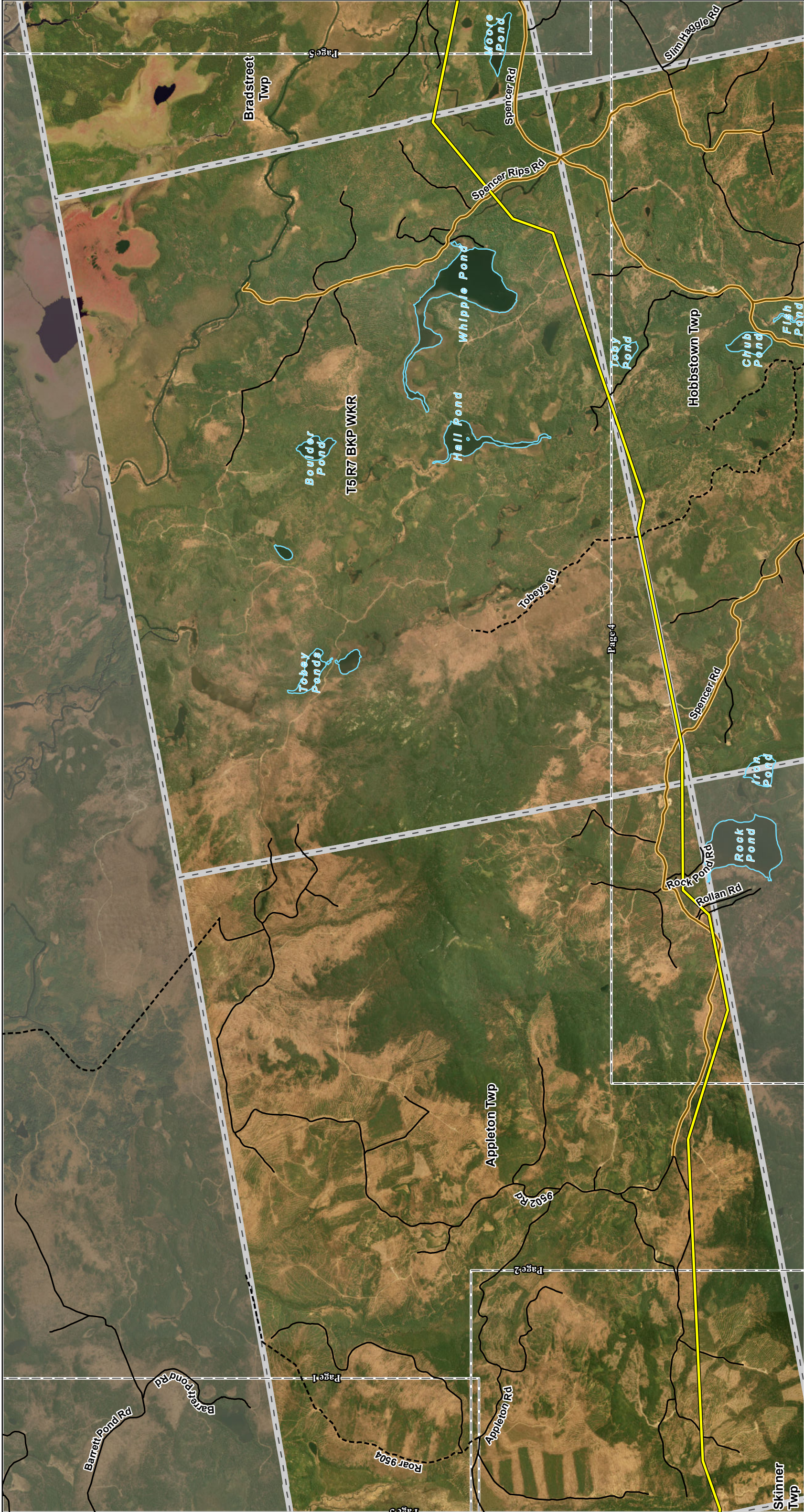
Page 2 of 7

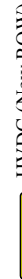


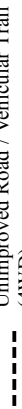

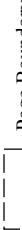

Central Maine Power
New England Clean Energy Connect

 **CENTRAL MAINE POWER**

 **NEW ENGLAND CLEAN ENERGY CONNECT**

Date: 3/20/2019; Author: AW; Project: 144357




-  HVDC (New ROW)
-  Logging Road
-  Local Road
-  Unimproved Road / Vehicular Trail (4W/D)
-  Lake/Pond (NHD)
-  Page Boundary
-  Township Boundary Crossed by HVDC (New ROW)


Existing Transportation Infrastructure Overview

Franklin and Somerset Counties, Maine

1" = 4,000'



0 2,000 4,000 8,000 Feet



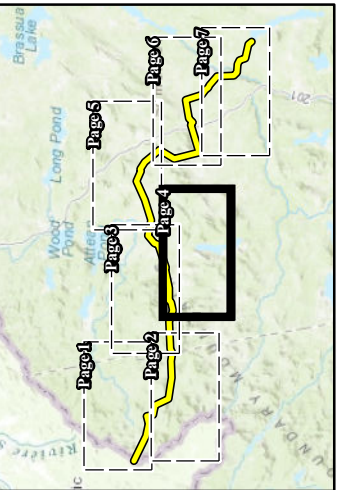
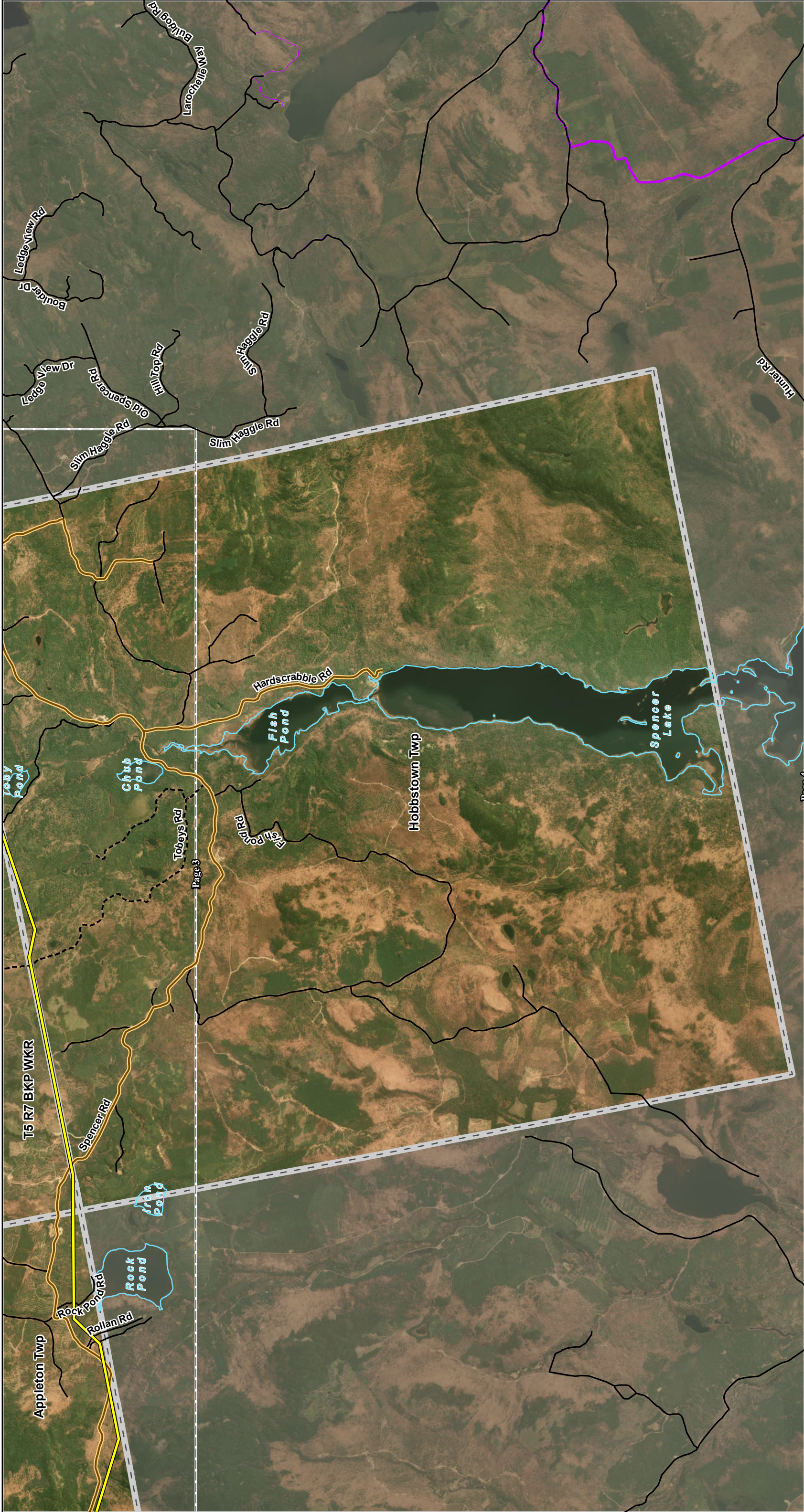
Page 3 of 7

Central Maine Power

New England Clean Energy Connect




DATE: 3/20/2019; AUTHOR: AW; PROJECT: 144357



- Maine Snowmobile Association**
- HVDC (New ROW)
 - Logging Road
 - Local Road
 - Unimproved Road / Vehicular Trail (4W/D)
 - Lake/Pond (NHD)
 - ITS Corridor & Connector Trail
 - Secondary Trail
 - Page Boundary
 - Township Boundary Crossed by HVDC (New ROW)

Existing Transportation Infrastructure Overview

Franklin and Somerset Counties, Maine

0 2,000 4,000 8,000 Feet

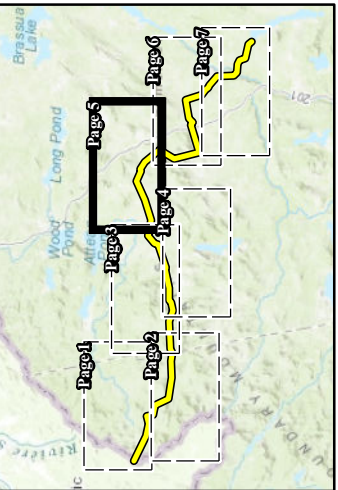
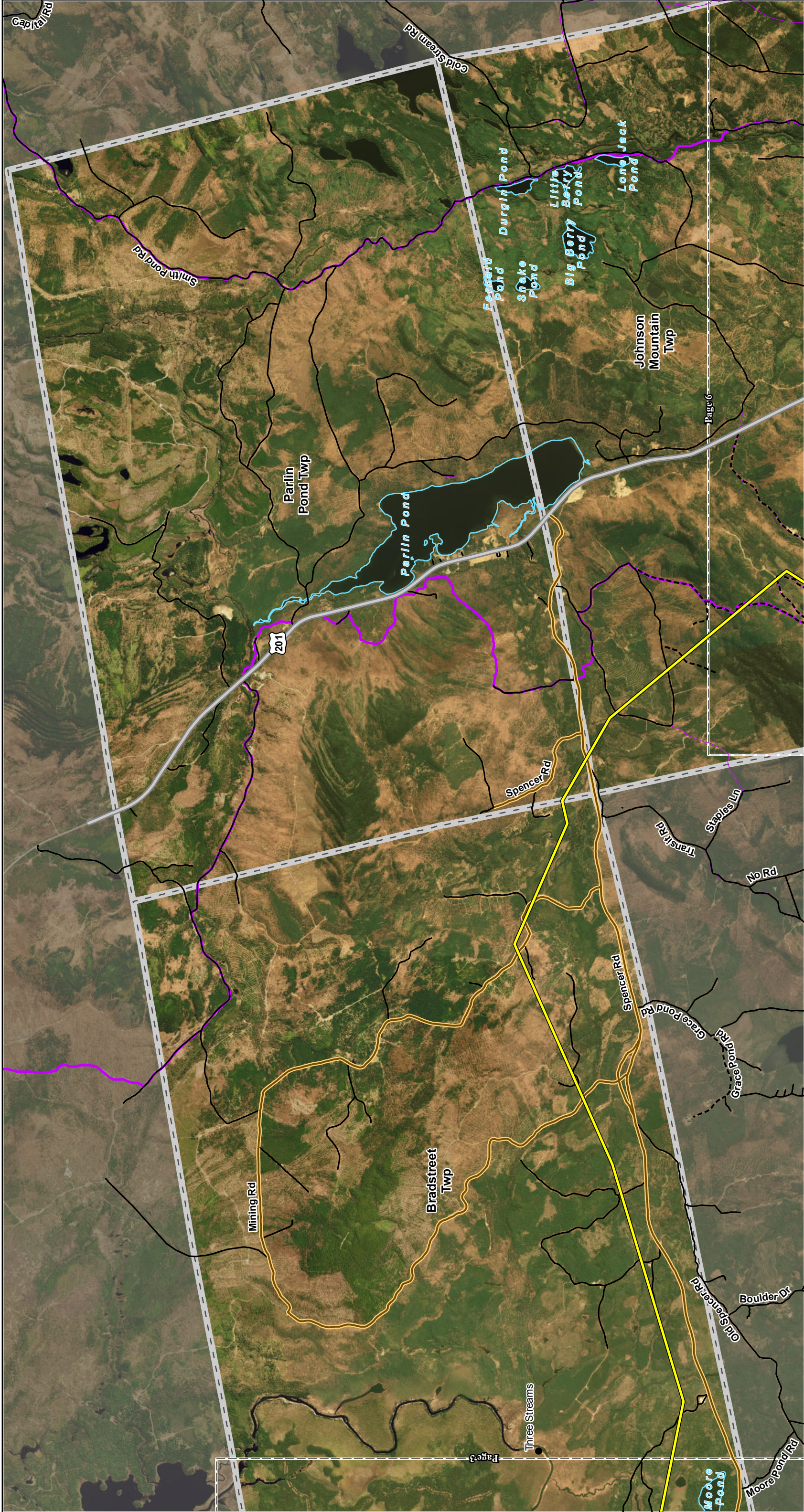
1" = 4,000'

Page 4 of 7

Central Maine Power

New England Clean Energy Connect

DATE: 3/20/2019; Author: AW; Project: 144357

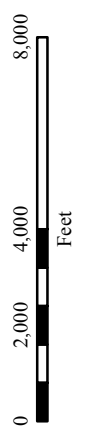


- Populated Place
- HVDC (New ROW)
- Major Road
- Logging Road
- Local Road
- Unimproved Road / Vehicular Trail (4WD)
- Lake/Pond (NHD)
- Maine Snowmobile Association
- ITS Corridor & Connector Trail
- Secondary Trail
- Page Boundary
- Township Boundary Crossed by HVDC (New ROW)



Existing Transportation Infrastructure
Overview

Franklin and Somerset Counties, Maine

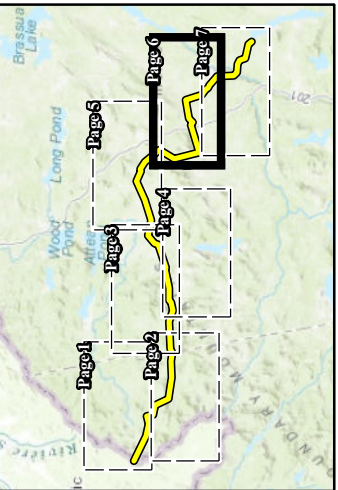
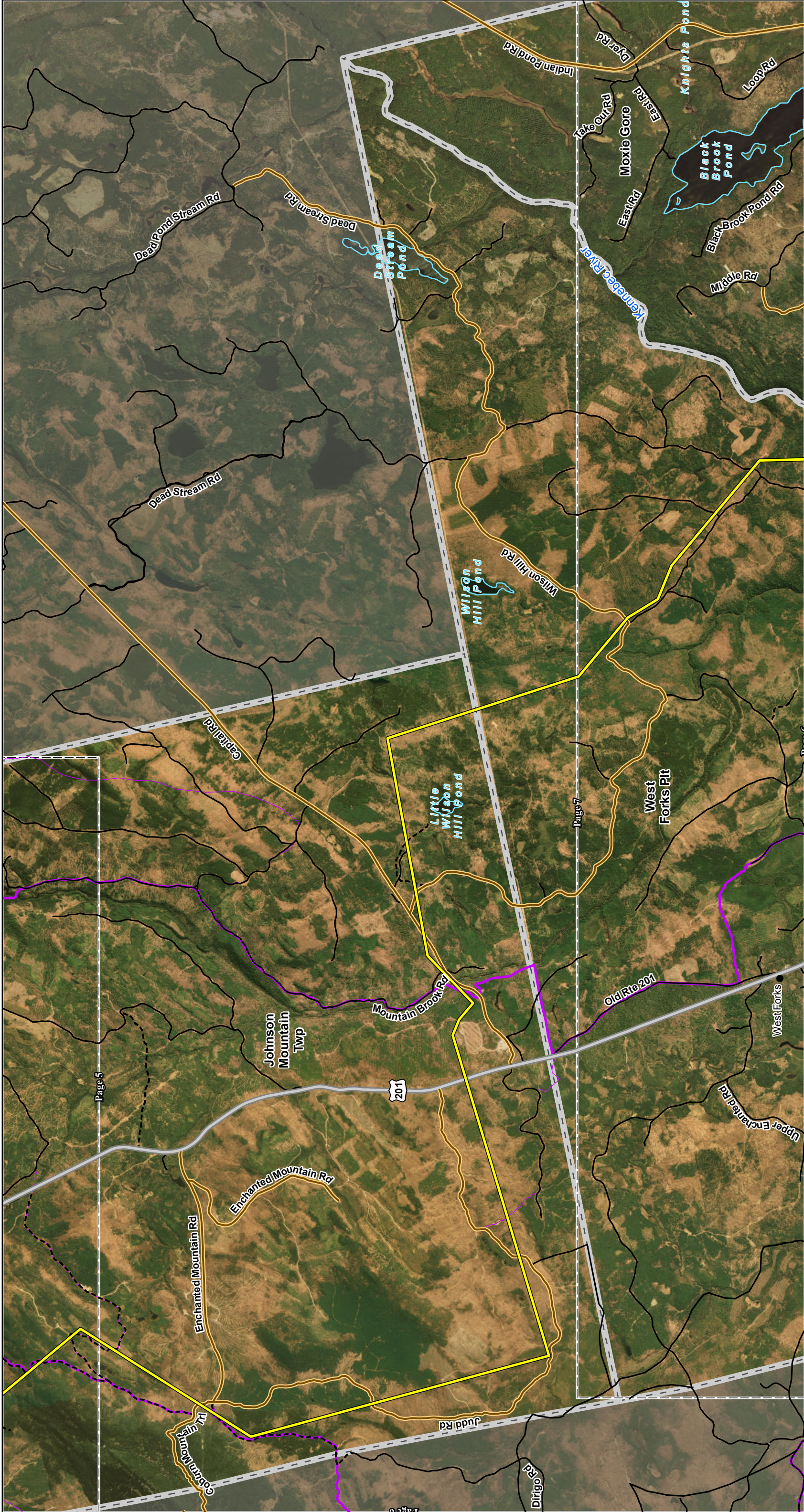


1" = 4,000'

Central Maine Power
New England Clean Energy Connect



Date: 3/20/2019; Author: AW; Project: 144357



- Populated Place
- HVDC (New ROW)
- Major Road
- Logging Road
- Local Road
- Unimproved Road / Vehicular Trail (4WD)
- Lake/Pond (NHD)
- Maine Snowmobile Association
- ITS Corridor & Connector Trail
- Secondary Trail
- Page Boundary
- Township Boundary Crossed by HVDC (New ROW)

Existing Transportation Infrastructure Overview

Franklin and Somerset Counties, Maine

0 2,000 4,000 8,000 Feet

1" = 4,000'

Page 6 of 7

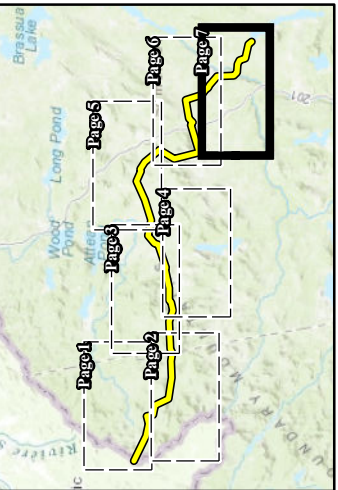
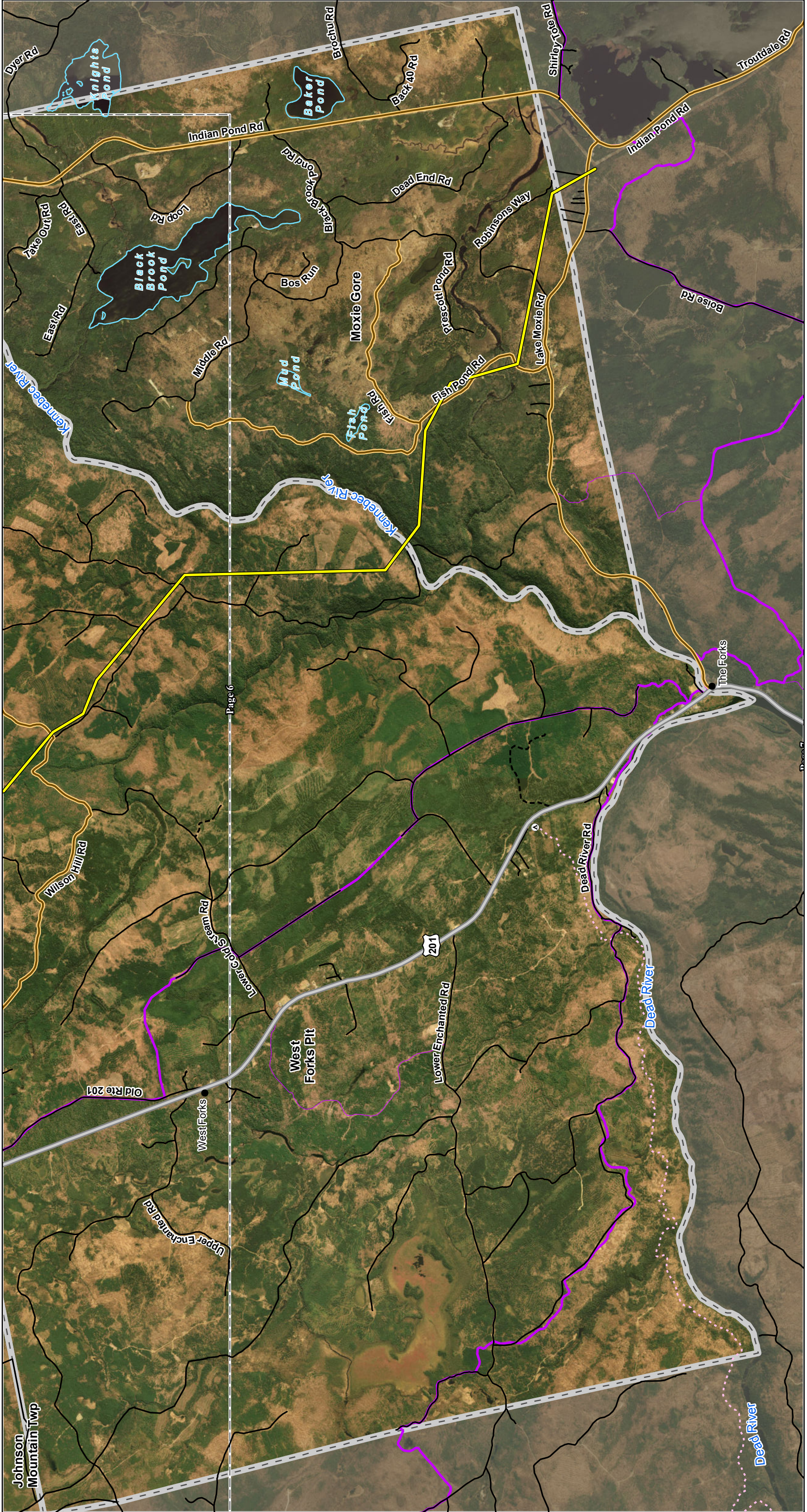
Central Maine Power

New England Clean Energy Connect

CENTRAL MAINE POWER

NEW ENGLAND CLEAN ENERGY CONNECT

Date: 3/20/2019, Author: AW, Project: 144357



Maine Snowmobile Association	
	ITS Corridor & Connector Trail
	Secondary Trail
	Page Boundary
	Township Boundary Crossed by HVDC (New ROW)

Local Road	
	Local Road
	Unimproved Road / Vehicular Trail (4WD)
	Lake/Pond (NHD)
	Maine Huts & Trails Main Trail

Populated Place	
	Populated Place
	Maine Huts & Trails Hut
	HVDC (New ROW)
	Major Road
	Logging Road

Existing Transportation Infrastructure Overview

Franklin and Somerset Counties, Maine

0 2,000 4,000 8,000 Feet

1" = 4,000'

Page 7 of 7

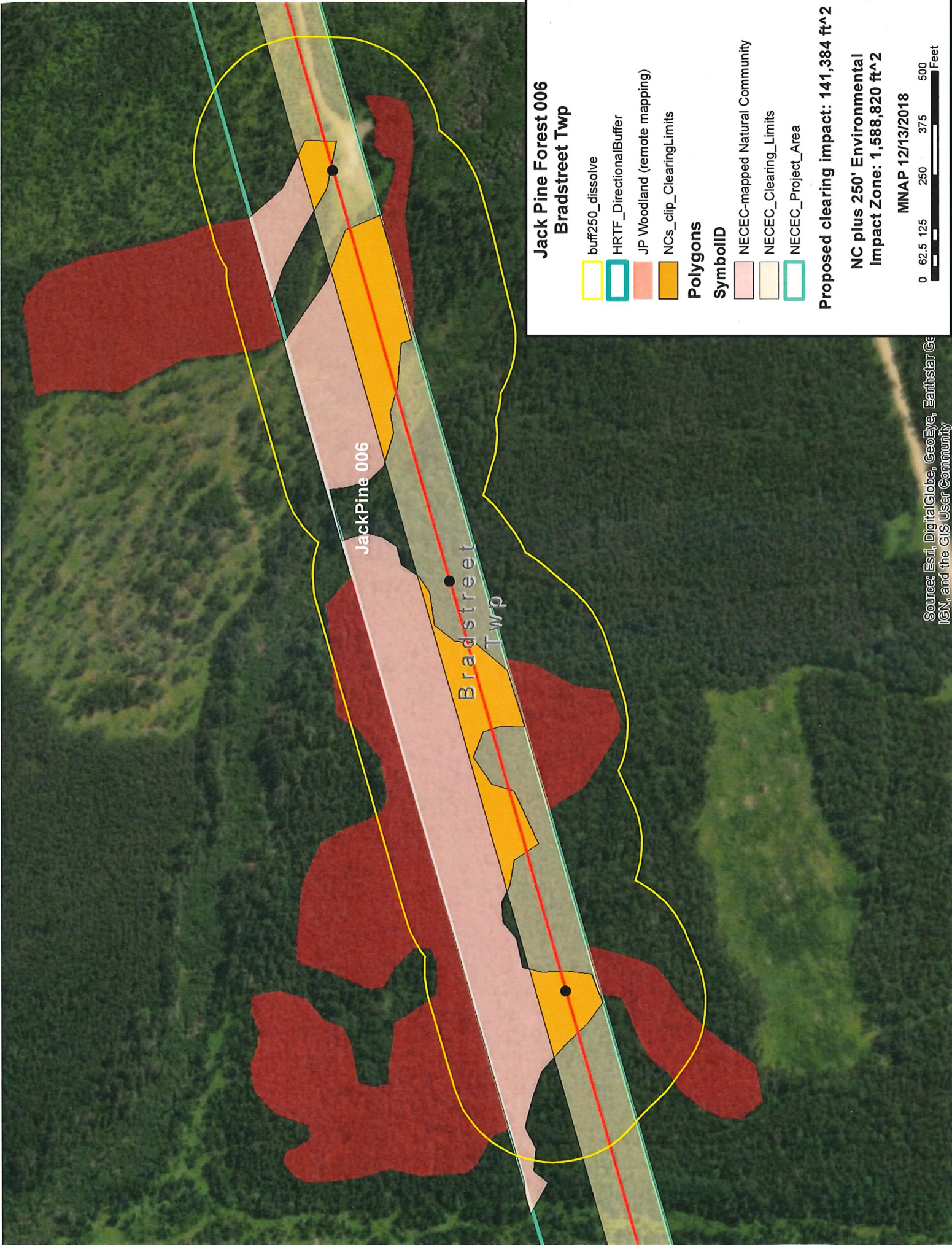
Central Maine Power

New England Clean Energy Connect

CENTRAL MAINE POWER

NEW ENGLAND CLEAN ENERGY CONNECT

Date: 3/20/2019; Author: AW; Project: 144357



**Jack Pine Forest 006
Bradstreet Twp**

- buff250_dissolve
- HRTF_DirectionalBuffer
- JP Woodland (remote mapping)
- NCs_clip_ClearingLimits

Polygons

SymbolID

- NECEC-mapped Natural Community
- NECEC_Clearing_Limits
- NECEC_Project_Area

Proposed clearing impact: 141,384 ft²

**NC plus 250' Environmental
Impact Zone: 1,588,820 ft²**

MNAP 12/13/2018



Source: Esri, DigitalGlobe, GeoEye, Earthstar Ge
IGN, and the GIS User Community

Jack Pine Forest 004 and 005 Bradstreet Twp

buff250_dissolve

HRTF_DirectionalBuffer

JP Woodland (remote mapping)

NCs_clip_ClearingLimits

Polygons

SymbolID

NECEC-mapped Natural Community

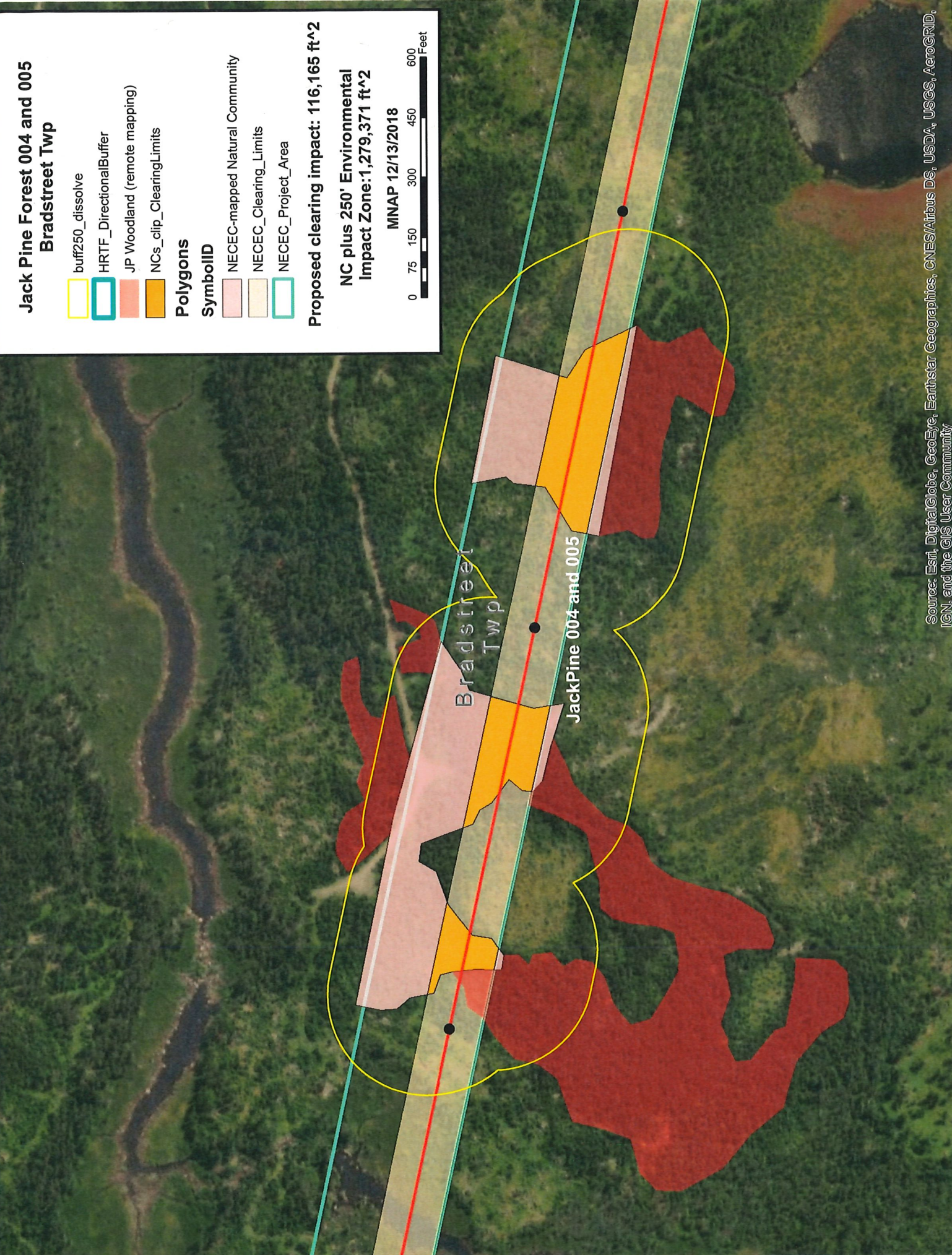
NECEC_Clearing_Limits

NECEC_Project_Area

Proposed clearing impact: 116,165 ft²

NC plus 250' Environmental
Impact Zone: 1,279,371 ft²

MNAP 12/13/2018



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbstown Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
LAUREN JOHNSTON

March 25, 2019

Regarding

- Issue 2: Wildlife Habitat and Fisheries: Brook Trout Habitat, Buffer Strips around Cold Water Fisheries
 - Responsive to Intervenor Group 4, witness Jeff Reardon
 - Responsive to Intervenor Group 4, witness Todd Towle
- Issue 4: Compensation and Mitigation – Cold Water Fisheries Habitat
 - Responsive to Intervenor Group 4, witness Jeff Reardon
 - Responsive to Intervenor Group 4, witness Ron Joseph
 - Responsive to Intervenor Group 4, witness Aram Calhoun
 - Responsive to Intervenor Group 6, Rob Wood, Andrew Cutco, Bryan Emerson

I. Issue 2: Wildlife Habitat and Fisheries: Brook Trout Habitat, Buffer Strips around Cold Water Fisheries (Relevant to DEP Review)

Response to Intervenor Group 4 witness Jeff Reardon

NECEC Project meets the Standards for Brook Trout Habitat and Cold Water Fisheries

Mr. Reardon asserts, citing only to a portion of the Maine Department of Environmental Protection (“DEP”) rules, that the application does not meet the Chapter 375 “standard” that “Proposed alterations and activities will not adversely affect wildlife and fisheries lifecycles,” particularly with respect to brook trout. He says that “The proposed mitigation to address these adverse effects on brook trout is not adequate.” However, the applicable standard under Chapter 375 is “whether the developer has made adequate provision for the protection of wildlife and fisheries” and, in making that determination, “the Department shall consider all relevant evidence to that effect, such as evidence that . . . Proposed alterations and activities will not adversely affect wildlife and fisheries lifecycles.”

The NECEC Project readily meets this standard for two reasons: (1) there will only be a de minimis impact to brook trout habitat; and (2) CMP addressed and incorporated the DEP’s and Maine Department of Inland Fisheries and Wildlife’s (DIFW’s) recommendations regarding fisheries habitat, to the satisfaction of those agencies.

First, CMP provided peer reviewed studies, specific to transmission line development and the indirect impacts of tree clearing on fisheries habitats, that demonstrate that projects like the NECEC Project will have a de minimis impact on brook trout fisheries. As discussed in the NECEC Compensation Plan and addressed in CMP witness Mark Goodwin’s direct testimony, potential indirect impacts to brook trout habitat include sedimentation and turbidity, introduction

of pollutants, and stream insolation. A study by N.C. Gleason¹ on the impacts of power line rights-of-way (“ROW”) on forested stream habitat found that despite the open canopy condition, water temperatures were slightly lower than in off-ROW areas and that none of the water quality parameters was significantly different between the on-ROW and off-ROW study areas.

Gleason’s study also found no correlation between percent canopy cover and mean percentage of fines and found no significant difference in the Benthic Index of Biotic Integrity scores between on-ROW and upstream areas. This study also stated that “it is likely that the streams intersected by rights-of-way have recovered from their initial disturbances.” It is therefore reasonable to conclude that impacts associated with construction activities are in fact temporary, and that vegetation will reestablish a natural regime, supported by CMP’s vegetation management practices and 100-foot riparian buffer protections.

Similarly, a study conducted by Peterson² on the effects of electric transmission line ROWs on trout in forested headwater streams in upstate New York found that stream reaches in electric transmission ROWs were exposed to more light, had denser stream bank vegetation, were deeper and narrower, and had a greater area composed of pools. Peterson’s study found that trout were more abundant in stream reaches within ROWs and concluded that the increase in incident sunshine resulted in a denser forb and shrub root mass, which further stabilized stream banks, resulting in less stream bank erosion, deeper channels, and higher populations of trout. Peterson concluded that electric transmission ROWs do not constitute an adverse effect on headwater trout population densities in forested basins.

¹ Gleason, N.C. 2008. Impacts of Power Line Rights-of-Way on Forested Stream Habitat in Western Washington. Environmental Symposium in Rights-of-Way Management, 8th International Symposium, pages 665-678.

² Peterson, A.M. 1993. Effects of Electric Transmission Rights-of-Way on Trout in Forested Headwater Streams in New York. North American Journal of Fisheries Management, vol. 13 pp. 581-585.

According to DIFW,³ “Maine supports the most extensive distribution and abundance of wild brook trout (*Salvelinus fontinalis*) in their native range within the United States; more than 1,200 lakes and ponds are managed for brook trout, of which approximately 60% are sustained by natural reproduction. In addition, brook trout occur in an estimated 22,248 miles of stream habitat, the vast majority of which are wild.” Maine has a healthy population of brook trout, which are found throughout the state, including in areas disturbed by development activities. Mr. Reardon’s Exhibit 4, which shows nearly the entire state of Maine as having intact sub-watersheds supporting brook trout populations despite the presence of human activity and disturbance on the landscape, provides evidence that not all human activity necessarily causes adverse impact to brook trout or their habitat, especially those that retain natural features.

Second, CMP addressed the recommendations of DEP and DIFW by incorporating additional minimization and compensation recommendations for brook trout habitat, and cold water fisheries generally, into the NECEC Project applications materials, vegetation management plans, and Compensation Plan. CMP did so despite the Project’s de minimis impact to brook trout fisheries.

As described in the application materials, CMP avoided in-stream work (proposing only temporary crossings that completely span the resources for the purpose of constructing the transmission line), expanded riparian buffers to 100 feet for cold water fisheries habitat, and proposed a robust Compensation Plan that includes habitat enhancement measures (e.g. a culvert replacement program), preservation of lands that contain cold water fishery habitat, and monetary compensation to the Maine Endangered and Nongame Wildlife Fund to be used at the discretion of DIFW for cold water fisheries habitat protection.

³ <https://www.maine.gov/ifw/fish-wildlife/fisheries/wild-brook-trout.html>

The avoidance, minimization and best management practices (“BMPs”) CMP proposed for cold water fisheries habitat on the NECEC Project go above and beyond prior accepted practices. For example, they are more restrictive than the proposal that DEP and the U.S. Army Corps of Engineers (“USACE”) approved in 2010 for the Maine Power Reliability Program (“MPRP”) to adequately protect fisheries. At the time, both agencies determined that indirect impacts of tree clearing; along with the avoidance measures (no in-stream work) and implementation of erosion and sedimentation control BMPs, would not adversely or unreasonably affect Atlantic salmon. Because DEP and USACE approved the minimization measures and best management practices for MPRP, and the United States Fish and Wildlife Service (“USFWS”) concluded that there would be no adverse effect to Atlantic salmon, it follows that the more restrictive minimization measures for the NECEC will adequately protect cold water fishery habitat and associated species. Notably, DEP did not require compensation for cold water fishery habitat impacts for the MPRP, despite clearing of riparian areas associated with both Atlantic salmon and brook trout.

The studies by Gleason and Peterson, the prior agency findings on the impact of electric transmission construction using similar but less restrictive best management practices on MPRP, and the avoidance and minimization measures and BMPs proposed for the NECEC Project all support the conclusion that construction of the NECEC will not unreasonably impact cold water fishery habitat or adversely affect Atlantic salmon or brook trout.

The NECEC Project Addresses Mitigation for Atlantic Salmon

Mr. Reardon asserts in multiple locations that “there is no discussion whatsoever of impacts to Atlantic salmon habitat, or mitigation of these impacts.” Atlantic salmon is discussed in the Site Law application. CMP has addressed Atlantic salmon impacts by avoiding in-stream

work for purposes of constructing the transmission line, minimizing the potential for pollution by maintaining a setback for equipment maintenance and refueling, mitigating indirect impacts by maintaining a 100-foot riparian buffer on Atlantic salmon streams, and implementing erosion and sedimentation control BMPs. In fact, CMP has proposed and will develop, and provide to DEP, site-specific erosion control plans for any structures to be located within stream buffers.

NECEC Project Considered Alternatives and Mitigation Measures

With regard to CMP's alternative route evaluation, Mr. Reardon contends on page 12 of his testimony that minor modifications to the route or to the size and location of the structures were not considered. This is inaccurate, as discussed by CMP witness Kenneth Freye in Section VI of his rebuttal testimony. Mr. Freye's rebuttal testimony discusses CMP's evaluation, and land acquisition availability, for each of the stream crossings Mr. Reardon expresses concern for, in particular Gold Brook-Rock Pond, Cold Stream, and Tomhegan Stream.

Furthermore, Mr. Reardon suggests that alternative measures, such as taller poles to maintain full height trees or avoiding the resources by horizontal directional drill ("HDD"), were not but should have been evaluated. He asserts at page 14 that "[i]f these alternatives were reasonable to protect particularly sensitive insect and salamander populations, they could have been used to protect particularly sensitive brook trout." The claim that taller poles were not evaluated is inaccurate. CMP consulted with DIFW beginning in May 2017, numerous times during development of the applications and in multiple consultation working sessions since the applications were filed in September 2017. CMP and DIFW reviewed an extensive list of priority resources, which were identified through DIFW's project review process and by CMP.

The Roaring Brook Mayfly ("RBM") and Northern Spring Salamander ("NSS"), are state threatened and state special concern species, respectively, and were considered for a higher level

of mitigation to protect fragile populations. DIFW recommended avoidance for a particular subset of these species, notably at Mountain Brook and Gold Brook, which surveys confirmed to have one or both RBM and NSS present. CMP agreed to install structures at Mountain Brook and Gold Brook that are tall enough to allow full-height vegetation within their 250-foot riparian buffer management zones at an incremental cost of \$1.9 million.

Brook trout is not a state or federally listed species, and according to DIFW maintain a healthy population in Maine. During CMP's consultations with DIFW, there were no resources or particular areas determined by DIFW to require taller vegetation to address brook trout or cold water fishery concerns.

Mr. Reardon contends at page 18 that a new crossing at the West Branch of the Sheepscot River will have "significant" impact. This section of the river is already impacted by a transmission line crossing and has long been an agricultural field, maintained by the landowner who has agricultural rights in the right-of-way. The 100-foot stream buffer along the river will be cleared of capable species, which are already sparse in this area, in accordance with CMP's Vegetation Construction Practices (Site Law, Exhibit 10-1), and non-capable and shrubby vegetation will be retained to the extent practicable. During its consultation with CMP, DIFW suggested that a buffer planting would be beneficial and would enhance the riparian buffer in this area. CMP provided a buffer planting plan to DIFW and DEP on January 9, 2019.

NECEC Project Included Thorough Agency Consultation

It is also inaccurate to describe CMP's consultations regarding brook trout presence "to have been left very late in the process." As described above, CMP's consultation with DIFW began in May 2017 during the application development process and included multiple consultation working sessions through 2018 and into early 2019. DIFW provided CMP with a

brook trout GIS data layer on July 12, 2017, prior to the application submission. Designated brook trout streams were incorporated into CMP's geodatabase and Site Law Exhibit 7-7 NECEC Waterbody Crossing Table (9/27/2017). In a January 22, 2019 meeting with DEP and DIFW, DIFW notified CMP that the GIS layer previously provided was incomplete and then provided a list of additional identified resources. CMP incorporated the additional resources into the January 30, 2019 Compensation Plan and Exhibit 7-7 NECEC Waterbody Crossing Table.

Mr. Reardon asserts that CMP has not reached agreement with DIFW on various issues, including identification of cold water fisheries and maintenance of buffers. Reardon direct at 20-21. Group 4 witness Ron Joseph inferred in his testimony that CMP's proposed compensation plan does not avoid or minimize impacts to the upper Kennebec River deer wintering area (DWA) to the satisfaction to DIFW guidelines. Joseph direct at 4-5. Mr. Reardon and Mr. Joseph are incorrect.

During the January 2019 meeting CMP, DEP, and DIFW discussed riparian buffer widths, protective measures and restrictions within those buffers for cold water fisheries. The agencies requested that to adequately protect cold water fishery habitat, CMP should apply 100-foot riparian buffers to all streams identified as brook trout habitat, in addition to the resources for which CMP had already agreed to an expanded buffer. In short, CMP agreed with DIFW, after a lengthy, detailed and collaborative consultation process, and made the requested changes to the applicable application documents.

This comprehensive consultation process has allowed DIFW to provide their final comments on the NECEC Project Compensation Plan, in response to a March 11, 2019 email and attachments from CMP requesting "that MDIFW confirm that the attached clarification materials address all of MDIFW's remaining concerns, and that MDIFW is satisfied that the

latest (January 30, 2019) NECEC Project Compensation Plan, as supplemented by these attached clarifications, provides satisfactory mitigation of the NECEC Project's impacts." In its March 18, 2019 response, DIFW thanked CMP "for the March 11 email as a follow-up to address the Department remaining resource impact concerns for the NECEC project," and noting DIFW's appreciation for CMP's "willingness to work with us to finalize the complex fish and wildlife resource issues." DIFW said that CMP's response and explanations were "sufficient to allow DEP to apply applicable natural resource law to the permitting process." The March 11 and 18, 2019 email exchanges, and the attachments to the March 11 email, are attached hereto as Exhibit CMP-4.1-A. This exchange demonstrates that Mr. Reardon and Mr. Joseph are wrong when they say that CMP has not adequately addressed DIFW's concerns.

One remaining housekeeping item is noted in DIFW's final comments. CMP mistakenly reported that Gold Brook only contains Roaring Brook Mayfly, when in fact Gold Brook contains both Roaring Brook Mayfly and Northern Spring Salamander. As noted by DIFW, however, this error did not affect the compensation calculations, but does require correction of Table 1-5.12 of the Compensation Plan. The corrected Table 1-5.12 is attached hereto as Exhibit CMP-4.1-B.

NECEC Project Will Not Increase Risk of Invasive Fish Species to Beattie Pond

With respect to the LUPC certification, Mr. Reardon says he is particularly "concerned that the NECEC corridor will become a pathway for motorized vehicles, including ATV's, and this increased motorized use around Beattie Pond will substantially increase the risk that invasive fish species become established in Beattie Pond, a designated State Heritage Fish Water for brook trout. Mr. Reardon is mistaken about the risk of increased ATV usage because access to

Beattie Pond is gated and controlled by the landowner, and CMP will reinforce this access control by blocking its transmission line ROW with gates or boulders.

Response to Intervenor Group 4 witness Todd Towle

Mr. Towle expresses his concern, at page 5, regarding adverse impacts to Gold Brook. Mr. Towle's comments disregard the taller structures CMP has proposed at Gold Brook to allow full height vegetation within its 250-foot riparian buffer management zone to protect the RBM and NSS; this will allow these species to utilize intact streamside vegetation for feeding and cover during their various life stages, thus avoiding and minimizing impacts to these species. This proposal will also protect brook trout and other cold water fishery species by avoiding and minimizing secondary impacts (tree clearing) within the riparian buffer.

II. Issue 4: Compensation and Mitigation – Cold Water Fisheries Habitat (Relevant to DEP Review)

Response to Intervenor Group 4 witness Jeff Reardon

Mr. Reardon incorrectly states at pages 9-10 of his testimony that the January 30, 2019 Compensation Plan “contains little information regarding brook trout” and that “there is no actual assessment of the impacts to cold water fisheries habitat, of the appropriate scale of mitigation, nor of the cold water fisheries values to be protected, restored, or enhanced by the Compensation Plan.”

The NECEC Potential Compensation Tracts - Natural Resources Survey Results (Exhibit 1-9 of the Compensation Plan) do indeed include assessments of the functions and values of each parcel, including discussions of fisheries habitats. According to the survey results, the parcels proposed for the purposes of cold water fisheries impact mitigation, which are located on the

Dead River, contain perennial and intermittent feeder streams that support known brook trout populations.

Furthermore, although tree clearing for transmission lines does not adversely impact cold water fisheries habitat, CMP worked with DEP and DIFW to determine appropriate and practical compensatory mitigation for impacts to cold water fisheries that cannot be otherwise avoided or mitigated. During the application process, CMP responded to the guidance provided by DEP and DIFW and provided a robust, multifaceted Compensation Plan that uses various compensation tools as mitigation for cold water fishery impacts. CMP worked closely with those agencies to determine the appropriate mitigation for these impacts and incorporated their recommendations into its proposal.

Nevertheless, Mr. Reardon alleges at pages 23-24 that \$200,000 is not sufficient to replace approximately 20-35 culverts. The significance of this commitment is the amount of cold water fisheries habitat connectivity that can be achieved, not the number of culverts whose replacement it will fund. CMP has committed to working with DIFW and cooperating non-governmental organizations (“NGOs”) to conduct a qualitative assessment to determine the most beneficial use of the proposed funding, prior to choosing which projects to undertake. For example, if two or three culvert replacement projects reconnect a larger area of viable cold water fisheries habitat than 20 smaller projects, then it may be better to choose the smaller quantity of qualitatively greater culvert replacements. The program was designed to be flexible because the identification of specific culverts to be replaced, i.e., identification of culverts with the greatest habitat re-connectivity potential, has not yet taken place.

Mr. Reardon asserts at page 21 of his testimony that “Nowhere within the clearing limits of the ROW will there be the mature trees and full canopy closure that are required to provide the

most important buffer functions for brook trout habitat: shading, recruitment of organic matter and large woody debris, and bank stabilization.” This assertion is incorrect. In fact, as noted in the studies cited above, water temperatures have been found to be lower in some cleared runs of streams within rights of way. Organic matter and moderate sized woody debris will be contributed to streams from dense riparian zone herbaceous and woody non-capable vegetation that will remain and will be maintained on the NECEC Project right of way after construction. Further, as also noted in the studies cited earlier, increased insolation in riparian zones cleared of tall trees increases stream bank vegetation and improves stream bank stabilization.

Finally, Mr. Reardon asserts at pages 24-25 of his testimony that the \$180,000 contribution to the Maine Endangered and Nongame and Wildlife Fund, a contribution to be directed to this fund at the request of DIFW, is inadequate. Early versions of CMP’s Compensation Plan proposed to implement “chop and drop” wood addition for the enhancement of cold water fisheries habitat. DIFW indicated that this enhancement proposal was not preferred as a mitigation measure and alternatively recommended a monetary contribution to the Maine’s Non-Game Wildlife Fund. The contribution to this fund will allow DIFW to use this discretionary money for priority projects related to fisheries habitat conservation and/or aquatic passage. DIFW has indicated that this monetary fund contribution is adequate, and CMP trusts that it will be thoughtfully and effectively used by DIFW for cold water fishery habitat enhancement.

Response to Intervenor Group 4, witness Aram Calhoun

Dr. Calhoun states, “A small subset of the 700 potential pools identified on the ROW are included in the compensation calculations.” And, “The Army Corps of Engineers compensation

dollars are based on a square footage estimate of impact times a multiplier based on value. Square footage of impact is not a measure of ecological impact and the ratings of H, M, and L are not based on scientifically defensible science.” Dr. Calhoun’s testimony that relates to Army Corps jurisdictional wetlands are not relevant to DEP’s review; although CMP has fully compensated for both DEP-jurisdictional and Corps-jurisdictional vernal pool impacts, addressing Corps-jurisdictional impacts is beyond the scope of this proceeding.

Dr. Calhoun attempts to cast doubt on the appropriateness of CMP’s use of a 60% adjustment applied to permanent cover type conversion impact (tree clearing) within significant vernal pool habitat. This adjustment was explicitly allowed by DEP in a letter from Michael Mullen, dated April 25, 2017: “During the course of permitting for the Maine Power Reliability Program project, the Department determined in consultation with the Department of Inland Fisheries and Wildlife that impacts to SVPs resulting solely from vegetation conversion from forested to scrub/shrub could be compensated for at a rate of less than 100%. During that project, the Department determined that compensation at a rate of 60% of that required by Chapter 310 Wetlands and Waterbodies Protection rules and the Department’s In-Lieu Fee Compensation Program, would be adequate to offset the loss in functions and values to SVPs for vegetation conversion only. . . . The Department will continue to assess the compensation at a rate of 60% for vegetation conversion within transmission line corridors....” (See Exhibit 1-2 of CMP’s Compensation Plan.) The NECEC’s standards and restrictions for significant wildlife habitat (Exhibit 10-1 VCP and 10-2 VMP) are consistent with standards approved for previous projects, when the 60% adjustment was approved.

Further, Dr. Calhoun states that “The mitigation only compensates for direct impacts to vernal pools that have regulatory or legal status--- a small subset of the overall impacts to pools.

There is no compensation for fragmentation in the form of interruption of migration and dispersal routes, connections among pools, and connections from breeding to post breeding habitats. Therefore, I do not believe that this project meets the no unreasonable adverse impact standard. Its impacts are severe and the applicant's mitigation proposal is inadequate.” Dr. Calhoun is incorrect in her statement that CMP’s compensation plan “only compensates for direct impacts.” The compensation plan includes in-lieu fee (ILF) contributions for both direct (fill) and indirect (tree clearing) impacts to significant vernal pools and their 250-foot critical terrestrial habitat.

The ILF Program (see DEP Fact Sheet – In Lieu Fee Compensation Program (2017)) defines compensation rates and multipliers for compensation for significant vernal pool impacts. CMP applied the appropriate value according to the current (August 2017 to December 2019) DEP ILF Fact Sheet. Additionally, as discussed previously, CMP applied a 60% adjustment for cover type conversion to compensate for a partial loss of habitat associated with tree clearing, as allowed by DEP.

In summary, all direct and indirect impacts to DEP-jurisdictional vernal pools have been appropriately compensated for consistent with DEP and DIFW guidance and formula. This conclusion is further supported by the DIFW communication of March 18, 2019 noted above, which stated in part, that CMP has “address[ed] the Department’s remaining resource impact concerns for the NECEC project.”

Response to Intervenor Group 6 witnesses Rob Wood, Andrew Cutco, Bryan Emerson

Part III of The Nature Conservancy’s (“TNC”) testimony addresses the NECEC’s compensation and mitigation for cold water fisheries habitat. TNC recognizes the benefits of

replacing undersized culverts using Stream Smart principals to improve habitat connectivity, as proposed in CMP's Culvert Replacement Program. An issue similarly raised by Jeff Reardon, Trout Unlimited (Group 4), contends that the proposed funding of \$200,000 is not sufficient to replace 20-35 culverts. As noted above, CMP's culvert quantity range was based on a cost estimate for replacement of typical sized culverts that could be funded with this contribution amount, however it is not the quantity itself that is important, but the habitat re-connectivity results and benefits. CMP is committed to working with DIFW and cooperating NGOs to conduct a qualitative assessment of potential culvert replacement projects and to determine the most beneficial use of funding, prior to choosing which projects to undertake.

TNC's testimony requests that CMP consider DIFW's recommendation to maintain a 100-foot riparian buffer on all streams within the Project Area, in considering cold water fisheries habitat protection. CMP in fact modified its proposal in its January 30, 2019 submission of updated application materials by expanding the buffer to 100 feet for cold water fisheries habitat (i.e., known brook trout streams and Atlantic salmon streams), in addition to the protective measures and restrictions previously proposed. For all other streams a 75-foot buffer is proposed (expanded from a previous proposal of 25 feet). This recommendation was made by DEP and DIFW in a consultation meeting on January 22, 2019 and subsequently incorporated in the application materials submitted on January 30, 2019. As noted above, DIFW has determined that CMP has addressed its remaining resource impact concerns including, presumably, coldwater fisheries water quality and the adequacy of the proposed buffers to maintain and protect this resource.

III. Conclusion (Relevant to DEP Review)

CMP has taken the appropriate steps to avoid, minimize, and mitigate impacts to wildlife and fisheries and, where impacts could not be further mitigated, suitable compensation is proposed.

Exhibits

CMP-4.1-A MDIFW Final Review Comments and Exhibits 3/18/2019

CMP-4.1-B Compensation Plan Table 1-5.12 Revised 3/20/19

Dated: 3/19/19

Respectfully submitted,

Lauren Johnston
Lauren Johnston

STATE OF MAINE
CUMBERLAND, ss.
COUNTY

The above-named Lauren Johnston did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

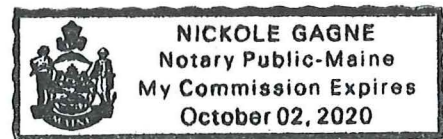
Before,

Dated: 3/19/19

Nickole Gagne
Notary Public

Name: NICKOLE GAGNE

My Commission Expires: 10/2/2020



Beyer, Jim R

From: Connolly, James
Sent: Monday, March 18, 2019 3:13 PM
To: gerry.mirabile@cmpco.com
Cc: Beyer, Jim R; Peabody, Timothy E; Stratton, Robert D
Subject: FW: NECEC 12-21-18
Attachments: Original 6 Comp parcels, Summary of Encumbrances.xlsx; Additional Com parcels, Summary of Encumbrances.xlsx; SOM License Moxie Stream.pdf; S27001.10 Grand Falls, Weyerhaeuser and CMP Reciprocal Access Easement A....pdf; DOC Master License 2011-01-04.pdf; CMP to Western Mountains Charitable Foundation, Trail Agreement, 2008-3-....pdf; 2019-03-11 Responses to MDIFW Questions.docx; 2019-03-10 Compensation Parcels Encumbrance Agreements Summary.docx

Gerry,

Thanks for the March 11 email as a follow-up to address the Department remaining resource impact concerns for the NECEC project. We appreciate your willingness to work with us to finalize the complex fish and wildlife resource issues. We have read your response and accept the explanations provided in the March 11 email as sufficient to allow DEP to apply applicable natural resource law to the permitting process. We would call out one miscommunication on page 7 regarding Roaring Brook Mayfly. The issue we desired to call attention to was the presence of Northern Spring Salamander in Gold Brook in addition to the Roaring Brook Mayfly. The following comment from Department Biologist Beth Swartz prompted our request for full canopy over Gold Brook.

“Gold Brook/unnamed tributaries to Gold Brook: During RBM surveys at this site, Northern Spring Salamander was documented in Gold Brook via photograph in the applicant’s final report. Impact and compensation calculations for this site need to acknowledge presence of both species”.

Including the presence of Northern Spring Salamander in the January 30, 2019 Compensation Plan, Table 1-5.12 ,for Gold Brook and Tributaries would be appreciated, the compensation has been calculated correctly.

I understand you are under a time constraint so I am responding on behalf of Bob Stratton who was away today and unable to provide the response requested.

For those cc-ed other than Gerry I am forwarding separately the second accompanying email from Gerry to complete the communication.

Jim

From: Mirabile, Gerry J. [mailto:Gerry.Mirabile@cmpco.com]
Sent: Monday, March 11, 2019 2:54 PM
To: Stratton, Robert D <Robert.D.Stratton@maine.gov>
Cc: Peabody, Timothy E <Timothy.E.Peabody@maine.gov>; Connolly, James <James.Connolly@maine.gov>; Camuso, Judy <Judy.Camuso@maine.gov>; Matt Manahan <mmanahan@pierceatwood.com>
Subject: RE: NECEC 12-21-18

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Bob –

Thank you for identifying remaining MDIFW resource issues in your December 21 email below, and for working with CMP to resolve these issues. Attached is a summary of those remaining issues, their resolution, and where you can find documentation of those resolutions. We have also included clarifications regarding MDIFW-related issues arising from our January 30, 2019 compensation plan and related discussions. **[Note: due to email file size limitations, the remaining 3 compensation tracts encumbrance documents will be sent in a separate email.]**

To ensure we are all on the same page, CMP requests that MDIFW confirm that the attached clarification materials address all of MDIFW's remaining concerns, and that MDIFW is satisfied that the latest (January 30, 2019) NECEC Project Compensation Plan, as supplemented by these attached clarifications, provides satisfactory mitigation of the NECEC Project's impacts.

Thank you for your continued assistance.



Gerry J. Mirabile
Manager – NECEC Permitting
AVANGRID Networks, Inc.
83 Edison Drive, Augusta, ME 04336
Office 207-629-9717
Cell 207-242-1682
gerry.mirabile@cmpco.com

In the interest of the environment,
please print only if necessary and recycle.

This e-mail, any attachment and the information contained therein may contain information that is privileged, proprietary, confidential and exempt from disclosure and are intended solely for the use of the addressee(s). If you have received this message in error please send it back to the sender and delete it. If you are not the intended recipient, you are notified that unauthorized publication, use, dissemination or disclosure of this message, either in whole or in part, is strictly prohibited.

From: Stratton, Robert D [<mailto:Robert.D.Stratton@maine.gov>]
Sent: Friday, December 21, 2018 2:49 PM
To: Mirabile, Gerry J.
Cc: Peabody, Timothy E; Connolly, James; Camuso, Judy; Matt Manahan; Beyer, Jim R
Subject: NECEC 12-21-18

Dear Gerry,

MDIFW appreciates the time and effort you have spent with us preparing the compensation plan for this project. As we finalize our assessment of the NECEC project, I refer to my email of 12/7/18, in which I indicated that MDIFW has additional issues to review and verify. The December 7 Compensation Plan and supporting documents appear to provide closure on most of the issues under review by MDIFW. We have appreciated your willingness to work with us to resolve them. The items below are the remaining issues currently under review by department staff for verification. We look forward to closure of these as soon as practical.

1. MDIFW is reviewing and verifying available spatial and numerical data that was used to calculate totals related to natural resource impact areas for assessing mitigation needs. The data provided and the details in the

compensation plan have allowed MDIFW to concur with your compensation for deer wintering areas. We are still verifying the impact areas on the following resources to assess appropriate compensation. We look forward to your assistance in finalizing any questions that may arise.

- a. Perennial and Intermittent Stream Buffers.
 - b. IWWH
 - c. RBMF/NSS
 - d. RTE and SC Species
 - e. SVP
2. The discussion of Cold Stream, 3 Significant Vernal Pools (SVPs) and their Critical Terrestrial Habitats needs to be finalized. In previous discussions CMP indicated that a portion of an abandoned road in proximity will be removed and that another portion is currently revegetating with alder. To resolve this MDIFW staff will review the photographs of the regenerating area that you have provided to determine if further plantings are necessary. MDIFW looks forward to reviewing these materials to bring this issue to completion.
 3. MDIFW and CMP agreed to evaluate all riparian areas post-construction and assess the need to augment the natural regrowth of vegetation within the respective buffers. As part of the post construction assessment MDIFW requests that the five streams labeled as PSTR-44-01, 44-01, 45-03, 44-06, 44-07 (kmz pin 12) receive a higher level of consideration for potential plantings as they have elevated value as stream resources. MDIFW does request that CMP provide additional planting plans during this phase of the project for the resources listed below.
 - a. Sheepscot River where Brook Floaters are present
 - b. Montsweag Book where Brook Floaters are present
 4. MDIFW requests CMP provide easement language and any other encumbrances against preservation properties that have been offered as mitigation to impacted resources. We are assuming no further easements will be placed on the properties once we receive that documentation.

We appreciate your assistance in helping us resolve these remaining issues!

Bob Stratton
Environmental Program Manager
Fisheries and Wildlife Program Support Section Supervisor

Maine Department of Inland Fisheries & Wildlife
284 State Street; 41 State House Station
Augusta, Maine 04333-0041
Tel: (207) 287-5659; Cell: (207) 592-5446
mefishwildlife.com

Correspondence to and from this office is considered a public record and may be subject to a request under the Maine Freedom of Access Act. Information that you wish to keep confidential should not be included in email correspondence.

=====

Please consider the environment before printing this email.

If you have received this message in error, please notify the sender and immediately delete this message and any attachment hereto and/or copy hereof, as such message contains confidential information intended solely for the individual or entity to whom it is addressed. The use or disclosure of such information to third parties is prohibited by law and may give rise to civil or criminal liability.

The views presented in this message are solely those of the author(s) and do not necessarily represent the opinion of Avangrid Networks, Inc. or any company of its group. Neither Avangrid Networks, Inc. nor any company of its group guarantees the integrity, security or proper receipt of this message. Likewise, neither Avangrid Networks, Inc. nor any company of its group accepts any liability whatsoever for any possible damages arising from, or in connection with, data interception, software viruses or manipulation by third parties.

=====

**Responses to MDIFW Remaining Issues from December 21, 2018 MDIFW email and Clarification Regarding January 30, 2019 Compensation Plan
March 11, 2019**

Issue 1

MDIFW is reviewing and verifying available spatial and numerical data that was used to calculate totals related to natural resource impact areas for assessing mitigation needs. The data provided and the details in the compensation plan have allowed MDIFW to concur with your compensation for deer wintering areas. We are still verifying the impact areas on the following resources to assess appropriate compensation. We look forward to your assistance in finalizing any questions that may arise.

- a. Perennial and Intermittent Stream Buffers.
- b. IWWH
- c. RBMF/NSS
- d. RTE and SC Species
- e. SVP

Issue 1 Resolution

CMP verified and updated impact areas for all of the above resources, recalculated and reconsidered in-lieu fees and other compensation measures for these resources, and incorporated updated impact areas and associated updated compensation in its January 30, 2019 Compensation Plan, submitted to MDIFW and other parties.

Issue 2

The discussion of Cold Stream, 3 Significant Vernal Pools (SVPs) and their Critical Terrestrial Habitats needs to be finalized. In previous discussions CMP indicated that a portion of an abandoned road in proximity will be removed and that another portion is currently revegetating with alder. To resolve this MDIFW staff will review the photographs of the regenerating area that you have provided to determine if further plantings are necessary. MDIFW looks forward to reviewing these materials to bring this issue to completion.

Issue 2 Resolution

It is our understanding that after reviewing the photos of the regenerating area and the other information contained in Matt Manahan's December 21, 2018 email to you, MDIFW agrees that further plantings are not necessary.

Issue 3

MDIFW and CMP agreed to evaluate all riparian areas post-construction and assess the need to augment the natural regrowth of vegetation within the respective buffers. As part of the

post construction assessment MDIFW requests that the five streams labeled as PSTR-44-01, 44-01, 45-03, 44-06, 44-07 (kmz pin 12) receive a higher level of consideration for potential plantings as they have elevated value as stream resources. MDIFW does request that CMP provide additional planting plans during this phase of the project for the resources listed below.

- a. Sheepscot River where Brook Floaters are present
- b. Montsweag Book where Brook Floaters are present

Issue 3 Resolution

The statement that “CMP agreed to evaluate all riparian areas post-construction and assess the need to augment the natural regrowth of vegetation with the respective buffers” was inaccurate, and has been clarified, as discussed below.

In consultation meetings, one stream complex, PSTR-44-01, 44-01, 45-03, 44-06, 44-07 (kmz pin 12), known as Tomhegan Stream, was discussed and CMP agreed to revisit these areas with MDIFW following construction to determine if plantings were warranted. It was also discussed in the course of these consultation meetings that plantings of non-capable species in stream buffers, particularly in this area of the Project where soils are rocky, may not succeed, and that natural revegetation is likely to out-compete plantings.

After this discussion MDIFW requested that CMP propose planting plans for the West Branch of the Sheepscot River and Montsweag Brook because of the documented presence of the Brook Floater, a State-threatened freshwater mussel. CMP has proposed additional protections for Tomhegan Stream by implementing an expanded 100-foot buffer, which will minimize impact to the riparian area during construction and will allow the natural revegetation and re-establishment of non-capable vegetation, consistent with the VCP and VMP.

In email correspondence on 1/8/2019, Bob Stratton indicated that “brook floaters are present in the Sheepscot River, but are not known to occur in Montsweag Brook. Though Montsweag Brook is a valuable resource, recent communications have incorrectly included it as a resource for this mussel species.” Gerry Mirabile responded on 1/8/2019 via email, “now that MDIFW has determined that the Brook Floater mussel is not known to occur in Montsweag Brook, CMP does not intend to provide a buffer planting plan for Montsweag Brook (we will provide a planting plan for the Sheepscot in the near future).”

The planting plan for the West Branch of the Sheepscot River was provided to MDIFW and MDEP on 1/9/2019. See MDEP web link: [2019-01-09 WEST BRANCH SHEEPSCOT PLANTING.pdf](#)

Issue 4

MDIFW requests CMP provide easement language and any other encumbrances against preservation properties that have been offered as mitigation to impacted resources. We are

assuming no further easements will be placed on the properties once we receive that documentation.

Issue 4 Resolution

CMP provided the requested information on the 7 proposed preservation tracts within the upper Kennebec deer wintering area by email to you and others on January 8, 2019, 8:00 pm. CMP provided this same information for the original 6 offered compensation tracts by email to you and others on January 11, 2019, 6:06 pm.

Brook Trout – Capable Vegetation

Bob Stratton’s email of January 24, 2019 4:16 pm regarding NECEC brook trout resources states as follows: “This opinion is based on CMP’s plan to allow capable vegetation within the ROW to attain heights of up to approximately 10-feet, and higher as conditions allow.” To clarify, CMP’s plan is that where terrain conditions permit (e.g., ravines and narrow valleys) capable vegetation will be permitted to grow within and adjacent to protected natural resources or critical habitats where maximum heights are expected to remain well below the conductor safety zone.

Stream Buffers

- **Does the VMP reflect changes in the Compensation Plan? If not, need to update.**

Yes, Exhibit 10-1 VCP (Section 4.0) and Exhibit 10-2 VMP (pages 6-7) submitted on January 30, 2019, reflect the expanded stream buffers recommended as a result of the CMP, MDEP, and MDIFW January 22, 2019 meeting.

MDEP web links for revised plans:

[2019-1-30 NECEC Site Law Exhibit 10-1 \(Revised\).pdf](#)

[2019-1-30 NECEC Site Law Exhibit 10-2 \(Revised\).pdf](#)

- **Confirm that 100’ buffers will be maintained for streams in compensation tracts.**

This is not necessary. The compensation tracts are proposed for preservation and will be placed in conservation using the MDEP Declaration of Covenants and Restrictions (DOCR) template to be recorded prior to the start of construction activities (see Section 1.2.2 of January 30, 2019 NECEC Compensation Plan). No “work” or impact to stream buffers is proposed or can occur with the DOCR in place. Note that invasive species control is proposed for the Little Jimmie Pond-Harwood Tract (Manchester), but that work will not affect protections afforded to stream buffers. (See 1.2.2.2 of the NECEC Compensation Plan).

MDEP web link: [2019-01-30 NECEC Compensation Plan_final.pdf](#)

- **Quantify stream lengths and stream buffer areas in Grand Falls, Lower Enchanted, and Basin parcels.**

Please refer to Table 8-2 of the NECEC Compensation Parcels Natural Resource Surveys Report (Exhibit 1-9 of the January 30, 2019 NECEC Compensation Plan), summarized here:

Tract	Linear feet/miles
Grand Falls	5,610 ft / 1.06 mi
Lower Enchanted	22,620 ft / 4.28 mi
Basin	35,210 ft / 6.67 mi

CMP quantified the total stream linear length on the compensation parcels, as discussed in the January 22, 2019 meeting with CMP, MDEP, and MDIFW. Quantifying the buffer area was also discussed, but MDEP instructed CMP to quantify streams by linear length to serve as the comparison between project impacts and the compensation offered.

IWWH

- **Provide 25’ buffer for herbicide application from wetlands within IWWH.**

See Exhibit 10-1 VCP Section 6.1.d, which states: “No herbicide use is permitted within 25 feet of any wetland within the mapped IWWH.”

- **Specify that spot herbicide spraying (vs. broadcast spraying) will be done.**

Please refer to Exhibit 10-1 VCP, Section 2.2.m, which states “Herbicide application is done by personnel with low-volume, hand-pressurized (manual) backpacks with appropriate nozzles, to minimize drift, who travel along the transmission line corridor by foot or by all-terrain vehicle and spot treat target specimens.”

Additionally, please refer to Exhibit 10-2 VMP, pages 3-4: “Direct application to individual plant species, as opposed to broadcast spray, will control the targeted woody vegetation allowing low-growing plant communities (the desired shrub and herbaceous species) to thrive....Aerial application will not be used.”

These restrictions apply globally within all habitat types.

- **Exhibit 10-1 VCP, Section 6.d and Exhibit 10-2 VMP-related section, note herbicide setback of 25’ for IWWH. Verify spot-spraying.**

See Exhibit 10-1 VCP, Section 6.1.d: “No herbicide use is permitted within 25 feet of any wetland within the mapped IWWH.”

See Exhibit 10-2 VMP, page 9: “No herbicide use is permitted within 25 feet of any wetland within the mapped IWWH.”

See Exhibit 10-1 VCP, Section 2.2.m and Exhibit 10-2 VMP, pages 3-4, regarding spot spraying (also noted above).

These restrictions apply globally within all habitat types.

Freshwater Wetlands

- **Table 1-1 (57 acres, 440.29 acres), Exhibit 1-4, discrepancy between compensation acreages in Musson Report, and Power report (510.75 acres). Verify and correct as needed.**

The Musson Report (8/10/17), prepared for the USACE for their consideration of the proposed compensation parcels pursuant to 33 C.F.R § 332.3(h), relied on preliminary data contained in Power Engineers' natural resource survey results. The NECEC Potential Compensation Tracts Natural Resources Survey Results Report (8/13/2017) further refined the acreages based on the survey results utilizing GPS data. The Power Engineers Report is the superseding document and a correction to the Musson report is not necessary.

There is no discrepancy between the Compensation Plan Table 1-1, Exhibit 1-4, and the Power Engineers Report. While the preservation parcels contain 510.75 acres of wetlands to be used for wetland preservation, only 497.30 acres of wetland preservation were required to offset permanent fill in wetlands (WOSS and non-WOSS), temporary wetland fill in PSS, and permanent forested wetland conversion impacts. This required compensation amount was determined using the appropriate compensation ratios and adjustments. There was an excess of 13.45 acres provided by the three compensation tracts (FLT, LJPT, PPT). This is described in Exhibit 1-4.

Table 1-1 notes that 57.01 acres of wetland preservation will be used to offset temporary wetland fill (in PSS) and 440.29 acres will be used to offset permanent fill in wetlands (WOSS and non-WOSS) and permanent forested wetland conversion, for a total of 497.30 acres, which is the total acreage required to compensate for wetland impacts.

SVPs

- **Exhibit 7-5, discrepancies between manual totals and “cumulative” totals (31,606 vs. 31,370) – due to rounding? Verify which is correct; check all columns for same issue.**

The “manual totals” (i.e., summation of the columns) are not represented in the Cumulative Impacts section of Exhibit 7-5 and are not intended to be. See *Footnote 4: Cumulative Impacts are calculated by dissolving overlapping polygon areas*. In other words, the summation of the column sums each individual SVPH impact, while the Cumulative Impact portion of the table removes the overlapping buffer areas, thereby avoiding counting twice for an impact in the same location. This issue was discussed in the January 22, 2019 meeting with MDEP and MDIFW, and MDEP agreed this was the appropriate method to calculate impacts to SVPH.

- **Exhibit 10-1 (VCP) 250' buffers vs. Exhibit 10-2 (VMP) 100' buffers. Verify which is correct (or explain rationale for difference).**

Both are correct.

Exhibit 10-1, the Construction Vegetation Clearing Plan (VCP), applies to construction of the NECEC project. The 250-foot buffer, measured from the SVP depression, is intended to offer additional protections to these resources during construction, which is a more intensive management period, with the primary concern being tree clearing. During construction, vegetation clearing of capable species will be completed primarily with mechanical equipment, including motorized equipment. As such, CMP has incorporated expanded protections for SVPs by proposing a 250-foot buffer. Mechanized equipment will not be allowed in the pool depression and hand-cutting will be the preferred method of vegetation clearing within the SVP including its 250-foot critical terrestrial habitat or buffer. Mechanized equipment may be used in certain instances, specifically during frozen conditions or when matted travel lanes and reach-in techniques are implemented. Between April 1 and June 30, no vegetation removal using tracked or wheeled equipment will be performed within the 250-foot buffer. Additionally, no refueling or equipment maintenance will be allowed in these areas, unless done on a public access road.

Exhibit 10-2, the Post-Construction Vegetation Maintenance Plan (VMP), applies to the routine vegetation maintenance requirements within the NECEC transmission line corridors. While providing similar protections to SVPs as the VCP (please refer to exhibits 10-1 and 10-2 for a detailed description of the applicable restrictions), routine vegetation maintenance is a significantly less intensive activity and uses a combination of hand-cutting and selective herbicide applications, typically on a 4-year cycle. Personnel will travel along the transmission line corridor by foot or by all-terrain vehicles (ATVs) and spot-treat target species and specimens with approved herbicides and application methods. In some cases, hand tools (e.g., chain saws) may be used, but typically no heavy logging equipment is necessary because vegetation within the corridor will be younger and smaller, and so will already be controlled.

The activities that will occur during construction of the NECEC and during the post-construction vegetation maintenance cycles are quite different, so additional restrictions within a 250-foot buffer during construction are warranted while a 100-foot buffer is appropriate to protect these resources during post-construction routine vegetation maintenance.

- **Verify and reiterate spot herbicide application vs. broadcast in vicinity of vernal pools.**

See Exhibit 10-1 VCP, Section 2.2.m and Exhibit 10-2 VMP, pages 3-4, regarding spot spraying (also noted above). These restrictions apply globally to all habitat types.

- **Verify 25-foot setback of herbicides from pool depression.**

See Exhibit 10-1 VCP, Section 5.1.e: “No herbicide use is permitted within 25 feet of the SVP pool depression.”

See Exhibit 10-2 VMP, page 9: “No herbicide use is permitted within 25 feet of the SVP pool depression.”

Roaring Brook Mayfly

- **VMP and compensation plan erroneously state that both Gold and Mountain Brook contain RBM – correct this.**

This is not erroneous, because they both contain RBM. Please refer to the NECEC Roaring Brook Mayfly and Northern Spring Salamander Survey Results, submitted to MDEP and MDIFW on October 19, 2018, pages 2-3: “RBM was confirmed as present in Mountain Brook (Johnson Mtn Twp) and Gold Brook (Appleton Twp).”

MDEP web link: [9.4 AIR Attachment F RBM and NSS Survey Results.pdf](#)

This report documents, though, that NSS was discovered in Mountain Brook, and not Gold Brook (page 3).

The results of the survey report submitted on October 19, 2018 are consistent with the January 30, 2019 Compensation Plan, VCP and VMP.

- **Calculations of tributary to Bog Brook has not been updated; IFW calculated 3.13 acres, CMP calculated 1.9 acres. Which is correct?**

The clearing impact within the management area of Tributary to Bog Brook (PSTR-12-07) is 1.9 acres. This is the forested area within the mapped management area polygon. The remainder of this management area is devoid of trees.

The following shapefiles were used to arrive at this result:

NECEC_RBM_and_Salamander_250_area_2018_11.29.shp

NECEC_RBM_and_Salamander_water_feature_area_2018_11.29.shp

Clearing_Limits.shp

Forest_Area.shp

Supporting files can be accessed at the MDEP Web link: [Shapefiles_01_30_2019.](#)

RTE Species

- **CMP agreed in writing to April 20 to June 30 (Rusty Blackbird?) as a no cut period - should be included in VCP and VMP.**

For the Rusty blackbird, CMP agreed in writing in its September 27, 2017 Site Law Application Section 7.4.4.8 “To avoid impacts during the breeding season, the NECEC will avoid clearing activities within the mapped polygon associated with the documented occurrence, as shown on the Natural Resources Maps (Attachment 2) during the nesting season (April 30 through June 30).” This commitment was reiterated in CMP’s response to MDIFW’s 6/29/2018 review comments and again in several consultation meetings with MDIFW. This commitment has not been incorporated into the VCP or VMP, but incorporation into those plans is not necessary because it is part of the MDEP record and CMP will be bound by it.

For the Bicknell's Thrush, in Site Law Application Section 7.4.4.7, CMP committed to "avoid impacts during construction within the Bicknell's thrush habitat, as shown on the Natural Resources Maps (Attachment 2), during the nesting and fledging periods (June 1 through August 15)." Again, this commitment has not been incorporated into the VCP or VMP, but it is part of the MDEP record and CMP will be bound by it.

These time of year restrictions have been incorporated into documents provided to the construction contract bidders as part of the NECEC request for proposals. Further, the granting of a permit by the MDEP will be dependent upon the proposals and plans and supporting documentation submitted by CMP during the application process. CMP will incorporate these restrictions into the VCP and VMP prior to construction.

- **CMP agreed in writing to providing written reports to MDIFW & MDEP - should be in VCP and VMP.**

For the Northern Bog Lemming, CMP agreed to conduct preliminary surveys for suitable habitat conditions and provide those results to MDIFW. CMP conducted surveys in a 1.5-mile survey area identified by MDIFW and determined that the survey area did not contain potential habitat for the Northern Bog Lemming. CMP provided those results to MDIFW on August 9, 2018.

MDEP web link: [2018-08-09 NECEC RBM NBL Habitat Survey Results.pdf](#).

For the Roaring Brook Mayfly and Northern Spring Salamander, CMP agreed to conduct presence/absence surveys in the Project area. CMP worked closely with MDIFW to identify potential habitat for these species. The results of the stream characterization surveys were provided to MDIFW on August 9, 2018. Based on survey results and with guidance provided by MDIFW, CMP conducted presence/absence surveys in September 2018. The results of the presence/absence surveys were provided to MDEP and MDIFW on October 19, 2018 (see weblink above).

Additionally, CMP made the following commitments to survey or provide reports to the MDEP:

- Bald Eagles, Site Law Application Section 7.4.3.1: "CMP will perform an aerial survey each spring prior to construction. These surveys will be used to determine if any new bald eagle nests have been established near the NECEC transmission line corridors and substations. "
- Great Blue Heron colonies, Site Law Application Section 7.4.4.9: "prior to initial transmission line clearing, CMP will complete surveys for heron colonies within or immediately adjacent (within 75-feet) to existing IWWH's within the NECEC Project, between April 20 and May 31 prior to each year of construction. If discovered, CMP will notify and consult with MDIFW biologist."
- Invasive Plant Species, NECEC Compensation Plan (1/30/2019), page 28: "Prior to construction CMP will submit to the MDEP and USACE, for approval, an invasive species plan for the survey, control, and treatment of invasive species on the Project, including the Little Jimmie Pond-Harwood Tract. CMP will implement the control measures approved by the MDEP and the USACE during

the first full growing season following permit issuance and will submit a report by December 31 of that year by documenting the efficacy of the treatment.”

CMP will provide evidence and/or the results of these surveys as they occur.

These commitments to survey and/or provide results of those surveys are part of the MDEP record and it is not necessary to incorporate them into the VCM or VMP because CMP will be bound by them.

DWAs

- **12/7/18 email item -- Include in compensation plan and VMP proposal to install land markers at limits of deer winter travel corridors for benefit of vegetation management crews.**
- **12/7/18 email item -- Include in VMP proposal to offset / vary maintenance schedule for 8 deer winter travel corridors.**
- **Include in VMP proposal to inform MDIFW in advance of planned maintenance of deer winter travel corridors so MDIFW can be present for that work.**

CMP hereby commits to undertake these actions, and will incorporate them into the VCP and VMP prior to construction.

Compensation / Preservation Tracts

- **Provide method of conveyances (fee, easement, lease, MOU, verbal permission, etc.) for snowmobile / ATV trails or any other permissions to use the land. Encumbrance documentation provided by CMP on 1/8/19 (7 DWA tracts) and 1/11/19 (6 original tracts) is not sufficiently clear.**

Attached please find the two spreadsheets from January 8 and 11, updated to provide additional clarity relating to the encumbrances for (1) the six compensation parcels (“Original 6 Comp parcels”) and (2) the seven DWA preservation parcels (“Additional Com parcels”). Also attached are the relevant encumbrance agreements, which apply to the parcels noted below and are further summarized on the attached Word document (Encumbrance Agreements Summary):

- Brookfield White Pine Hydro indenture (Lower Enchanted), SOM 5152-29
- Oxford Paper Co. easements (Lower Enchanted), SOM 2166-1
- Western Mountains Charitable Foundation trail lease (multiple parcels), SOM 3990-137
- State of Maine/DOC, trail use agreement (multiple parcels)
- Forks Area Chamber of Commerce license (multiple parcels)
- Weyerhaeuser/CMP Easement (multiple parcels)
- State of Maine/DOC license (Moxie Stream)

Generally, trails are granted by license on CMP land. Terms and conditions may vary between licenses but they are not permanent encumbrances. Trails will be excluded from the Declaration of Covenants and Restrictions (DOCR) to allow continued use of these trails

without conflicting with the DOCR. If the qualified holder is not the same entity that administers the trail, CMP may grant an easement for the trail to the trail administrator.

Existing easements are permanent encumbrances and therefore will be excluded from the DOCR. However, the fee interest under the easement would be conveyed to the qualified holder if the tract is being conveyed and not retained by CMP (as with the DWA tracts).

Recreational and commercial leases (i.e., camp lots and Maine Huts and Trails land) were excluded from acreage calculations, will not be subject to the DOCR, and will not be conveyed to a qualified holder. CMP will either retain ownership or convey these leased areas to the lessees.

CMP will work with qualified holders before a DOCR is placed on mitigation tracts to ensure traditional recreation uses can continue on the land and that neither the DOCR nor the recreational uses conflict with the qualified holder's management plan.

- **Are backup owners needed if fee not conveyed to BPL or MDIFW, to assure preservation?**

This is not necessary. As CMP stated in the January 30, 2019 supplemental materials, "Per chapter 310.6(F)(2), CMP will use the MDEP DOCR template (Attachment D), tailored for existing uses and encumbrances, and reserving the appropriate rights to CMP to manage vegetation [i.e. invasive species management], and intends to maintain fee ownership of these tracts and to manage them in compliance with the DOCR and associated restrictions (i.e., undeveloped in perpetuity) until such time that the tracts are transferred to (a) qualified holder, i.e., an entity or entities with experience and demonstrated stewardship capabilities." MDEP's DOCR form provides protection because it provides for MDEP enforcer no matter the identity of the owner.

See CMP's response to MDEP's December 28, 2018 Compensation Review Comments, submitted on 1/30/2019. MDEP web link: [2019-01-30 NECEC Response to MDEP Compensation Review Comments.pdf](#).

Sheepscot River Vegetation Planting Plan

- **Verify that plan uses only native species and non-ornamentals (species names included sub-species).**

The plan only uses native species. This was confirmed using the USDA NRCS PLANTS Database (<https://plants.sc.egov.usda.gov/java/>).

NECEC Compensation Parcels – Encumbrance Agreements Summary

Lower Enchanted Parcel (Original 6)

- Indenture between CMP and Brookfield White Pine Hydro LLC, dated March 22, 2017, recorded in Somerset County Registry of Deeds in Book 5152, Page 29.

Under the Flagstaff Storage Project (FERC No. 2612-029) hydropower license issued by the Federal Energy Regulatory Commission, Brookfield was required to acquire rights to improve and maintain emergency and other access to the Dead River easterly of its confluence with Enchanted Stream in Lower Enchanted Stream Township.

The indenture conveys easements to Brookfield for: access for emergency vehicles, non-motorized public access, footpath access to the Dead River, right to construct and maintain a parking area and helipad, right to construct and maintain a gate to control motorized access, and access over the Lower Enchanted and Whiskey Roads.

- Right-of-Way Easement Deed, CMP to Oxford Paper Co, dated December, 22, 1995, recorded in Somerset County Registry of Deeds in Book 2166, Page 1.

Non-exclusive easement for access for forest operations and forestland management activities over a 66' right-of-way on an existing truck road and the construction and maintenance of roads and bridges within the right-of-way.

- Trail Use Lease Agreement between CMP and Western Mountains Charitable Foundation, dated March 31, 2008, recorded in Somerset County Registry of Deeds in Book 3990, Page 137.

Lease for the construction and maintenance of four segments of a 12' wide non-motorized, paved or unpaved, trail on the subject property (approximately 6,570 linear feet, or 1.8 acres). The initial term of the lease expires on June 30, 2025; however, starting on July 10, 2010 and thereafter for the initial term and any subsequent extension, CMP and WMCF will negotiate to extend the lease for a period of 20 years. No other use of the leased premises is allowed without prior written approval of CMP.

Flagstaff Parcel (Original 6)

- Trail Use Lease Agreement between CMP and Western Mountains Charitable Foundation, dated March 31, 2008, recorded in Somerset County Registry of Deeds in Book 3990, Page 137.

Lease for the construction and maintenance of a 12' wide non-motorized, paved or unpaved, trail on the subject property (approximately 31,400 linear feet, or 8.3 acres). The initial term of the lease expires on June 30, 2025; however, starting on July 10, 2010 and thereafter for the initial term and any subsequent extension, CMP and WMCF will negotiate to extend the lease for a period of 20 years. No other use of the leased premises is allowed without prior written approval of CMP.

Grand Falls (Original 6)

- Trail Use Lease Agreement between CMP and Western Mountains Charitable Foundation, dated March 31, 2008, recorded in Somerset County Registry of Deeds in Book 3990, Page 137.

Lease for the construction and maintenance of a 12' wide non-motorized, paved or unpaved, trail on the subject property (approximately 4,550 linear feet, or 1.25 acres). The initial term of the lease expires on June 30, 2025; however, starting on July 10, 2010 and thereafter for the initial term and any subsequent extension, CMP and WMCF will negotiate to extend the lease for a period of 20 years. No other use of the leased premises is allowed without prior written approval of CMP.

Basin Tract (Original 6)

- Reciprocal Easement Agreement between CMP and Weyerhaeuser Co, dated January 15, 2019, recorded in Somerset County Registry of Deeds in Book 5373, Page 1.

Document conveys a non-exclusive 66' wide access easement over the existing road to Weyerhaeuser for forest management, log transport and transportation of other forest products, rock and equipment, and construction/reconstruction/maintenance of the road.

Moxie Stream (Additional DWA)

- Indenture of license between CMP and State of Maine, Dept. of Conservation, dated November 19, 1981.

Though the document is vague as to the allowed use of the CMP property, the original intent was to allow the State to incorporate CMP lands adjacent to the State-owned Moxie Falls parcel into the State's management of its parcel (i.e., trails, observation platforms, etc.). The CMP lands involved are: a 100' wide corridor from the Moxie Road to the Kennebec River (old woods road), two 25' wide strips on either side of Moxie stream and within the State ownership, and that portion of the 1,000 strip along the Kennebec River and adjacent to the State lands.

Either party can terminate the agreement by providing a one year notice to the other party.

Pooler Ponds (Original 6)

- License between CMP and Forks Area Chamber of Commerce, dated January 13, 2005, amended March 1, 2006 to include Old Canada Road Scenic Byway, Inc. as co-licensee.

License is for the development and maintenance of a 12' wide public recreational trail for snowmobile and non-motorized use. No other uses are allowed without prior written approval from CMP. The initial term of the license is 1 year and is renewed annually and perpetually for additional 1 year terms unless either party provides the other with written notice of its intent to terminate the license at least 90 days prior to the end of the then current term.

- Trail Use Agreement between CMP and State of Maine, Dept. of Conservation, dated April 1, 2011.

Agreement provides for the use of CMP property for the construction, maintenance and use of 12' wide public recreation trails, and is primarily used for snowmobile and ATV trails. The initial term of the agreement is 3 years and automatically renews for additional 1 year terms unless terminated by either party giving written notice at least 30 days prior to the end of the then current term.

Local snowmobile/ATV clubs (Northern Outdoors Snowmobile Club in this instance) typically are co-licensees for sections of the trails in their territory. This is the same trail as the trail licensed with the Forks Area Chamber of Commerce.

The Forks parcels (Map 8, Lot 11, Map 11, Lots 2 and 9) (Additional DWA)

- Trail Use Agreement between CMP and State of Maine, Dept. of Conservation, dated April 1, 2011.

Agreement provides for the use of CMP property for the construction, maintenance and use of 12' wide public recreation trails, and is primarily used for snowmobile and ATV trails. The initial term of the agreement is 3 years and automatically renews for additional 1 year terms unless terminated by either party giving written notice at least 30 days prior to the end of the then current term.

Local snowmobile/ATV clubs (Northern Outdoors Snowmobile Club and Lake Moxie ATV Riders) typically are co-licensees for sections of the trails in their territory.

Township	Parcel	Easements	Leases	Rights-of-way	Permissions	Reservations/Exceptions
The Forks	The Forks 8/11 IF&W	Well and Spring Line Easement (SOM 619-131). Water line serving Town Office (SOM 642-131)		Cemetery Road. Mort Bean conveyed to Joseph Durgin right to cross lot known as D.H. Williams lot (SOM 346-364)	Trail Use Agreement with State of Maine, Dept. of Conservation, co-licensee Northern Outdoors Snowmobile Club (not recorded). License is for 12' wide snowmobile trail.	Gravel Pit, area excluded. Joseph Durgin reserved right to take water and maintain pipe from the spring on the hill (SOM 467-547). Water Durgin reserved right to water that furnished houses (SOM 351-356).
	The Forks 11/2 IF&W	50 foot-wide easement to Inn by the River (SOM 2154-291)	CMP Lease 011-009 Cumming, area excluded. CMP Lease 011-009 Peabody, area excluded.	Carry Brook Road (SOM 1921-3229). Carry Brook Road (SOM 2540-34).	Trail Use Agreement with State of Maine, Dept. of Conservation, co-licensee Lake Moxie ATV Riders and Northern Outdoors Snowmobile Club (not recorded). License is for 12' wide ATV and snowmobile trails.	Excepted and reserved to Grantor, heirs and assigns, the right to take water from a spring and right to maintain a pipe for use at house located on excepted lot. Also excepted and reserved to Grantor, heirs and assigns, in common with Grantee and other the right to use the driveway from Lake Moxie Road to the excepted lot (SOM 536-177).
Moxie Gore	The Forks 11/9 IF&W			Undefined rights-of-way, easements and reservations described in 14 earlier deeds (SOM 536-141). William T. Haynes reserved the right to cross 100 foot strip (SOM 343-315). Coburn Land Trust reserved right to cross strip (SOM 401-176 and SOM 343-318). Bingham Lumber Company reserved right to cross 100 foot strip (SOM 401-178 and SOM 343-328) and excepted and reserved Somerset Railway Company r-o-w (SOM 343-328). Clark, Towne and Moore reserved right to cross said strip (SOM 343-305). Gray and Clay reserved right to cross strip (SOM 343-312). Excepting and reserving the Somerset Railway Company r-o-w (SOM 343-312). Gray and Clay reserved the right to cross (SOM 351-572). Coburn Land Trust excepted and reserved the Somerset Railway Company r-o-w (SOM 343-318). Gray, Snow and Clay reserved right to cross strip and Somerset Railway company r-o-w (SOM 343-308). Philbrick reserved right to cross strip and excepted and reserved Somerset Railway Company r-o-w (343-301). Coburn reserved right to cross strip and excepted and reserved Somerset Railway company r-o-w (SOM 343-324).	Indenture of License with State of Maine, Dept. of Conservation (not recorded). Indenture allows the use of CMP land (100' wide strip, two 25' wide strip either side of Moxie Stream, and 1,000' wide strip along Kennebec River) in conjunction with adjacent State Moxie Falls parcel.	Undefined rights-of-way, easements and reservations described in 14 earlier deeds (SOM 536-141). William T. Haynes excepted and reserved standing timber (thought to be resolved) (SOM 343-315). Coburn Land Trust reserved standing timber (thought to be resolved) (SOM 401-176 and SOM 343-318). Bingham Lumber Company reserved standing timber (thought to be resolved) (SOM 401-178 and SOM 343-328). Clark, Towne and Moore reserved standing timber (thought to be resolved) (SOM 343-305). Gray and Clay reserved standing timber (thought to be resolved) (SOM 343-312 and SOM 351-570). Gray, Snow and Clay reserved standing timber (thought to be resolved) (SOM 343-308). Coburn reserved standing timber (SOM 343-324).
	Carry Brook IF&W					Dynamite Road
	Moxie Stream Lower IF&W			Subject to r-o-w in common on former r-o-w of Somerset Railway Company and/or Maine Central Railroad Company (SOM 539-99). Remaining Portion- Camp Road (non-locus). William T. Haynes reserved the right to cross 100 foot strip (SOM 343-315). Bingham Lumber Company reserved right to cross strip (SOM 401-176). Coburn Land Trust reserved right to cross 100 foot strip (SOM 401-178 and 343-328) and excepted and reserved Somerset Railway Company r-o-w (343-328). Clark, Towne and Moore reserved right to cross said strip (SOM 343-305). Gray and Clay reserved right to cross strip (SOM 343-312) and excepted and reserved the Somerset Railway Company r-o-w (SOM 343-312). Gray and Clay reserved the right to cross (SOM 351-572). Gray, Snow and Clay reserved right to cross strip and Somerset Railway company r-o-w (SOM 343-308). Philbrick reserved right to cross strip and excepted and reserved Somerset Railway Company r-o-w (343-301). Coburn reserved right to cross strip and excepted and reserved Somerset Railway company r-o-w (SOM 343-324). Subject to r-o-w in common on former r-o-w of Somerset Railway Company and/or Maine Central Railroad Company (SOM 539-99) (non-locus).	Excepting all land now owned by CMP (SOM 539-99). Dynamite road. On remaining portion- CMP SEC 222 and Harris Dam Road (non-locus). William T. Haynes excepted and reserved standing timber (thought to be resolved) (SOM 343-315). Coburn Land Trust reserved standing timber (thought to be resolved) (SOM 401-176). Bingham Lumber Company reserved standing timber (thought to be resolved) (SOM 401-178 and SOM 343-328). Clark, Towne and Moore reserved standing timber (thought to be resolved) (SOM 343-305). Gray and Clay reserved standing timber (thought to be resolved) (SOM 343-312 and 351-570). Gray, Snow and Clay reserved standing timber (thought to be resolved) (SOM 343-308). Coburn reserved standing timber (SOM 343-324).	
Squaretown	Squaretown IF&W				Unrecorded license to State of Maine dated 11-19-1981	
Indian Stream	Indian Stream IF&W					

Summary of Encumbrances on Original 6 (Compensation I) Comp Properties
January 7, 2019.

Township	Parcel	Net Acres	Easements	Leases	Rights-of-Way	Permissions	Reservations/Exceptions
Pierce Pond	Basin Tract	695	Reciprocal Easement Agreement w/Weyerhaeuser (SOM 5373/1). Conveys 66' wide access easement over existing road.				Kennebec Land Company reserved timber rights in the deed to CMP (SOM 413-221). These expired July 1931. Kennebec Land Company reserved right to land logs on bank of Dead River in the same deed (SOM 413-221).
Lower Enchanted	Enchanted Stream	225	Indenture with Brookfield White Pine Hydro LLC (SOM 5152/29). Conveys easement to Brookfield to improve and maintain emergency and other access to Dead River near confluence of Enchanted Stream. Also assigns perpetual easement to Brookfield (same as from OPC to CMP, SOM 2165-348) extending from Route 201 to Easement Area. Emergency Access area is excluded from comp parcel. Easement to Oxford Paper Company (SOM 2166/1). Conveys 66' wide access easement over land of CMP in Lower Enchanted Twp.	Trail Use Lease Agreement with Western Maine Charitable Foundation (SOM 3990/137). Trail Use Lease Agreement with Western Maine Charitable Foundation (SOM 3990/137). construction/maintenance of a 12' wide non-motorized trail (31,400 linear feet) on CMP property. Lease with WMCF for day use area, parking, huts and storage buildings on CMP property on July 1, 2005. Lease was then amended twice (March and October 2007). area excluded from comp parcel. Recreational Camp Lot Lease and access thereto- Enman, area excluded from comp parcel.			Snow reserved timber for one year in the deed to CMP in June 1922 (SOM 373-250). Snow reserved right to land logs on bank of Enchanted Stream and Dead River in the same deed (SOM 373-250).
Carrying Place Town Twp. and Flagstaff Lake Dead River Twp.		770					
Spring Lake	Grand Falls	117		Trail Use Lease Agreement with Western Maine Charitable Foundation (SOM 3990/137). construction/maintenance of a 12' wide non-motorized trail (4,550 linear feet) on CMP property. Lease (SOM 3700/279) with Western Mountains Foundation for a campsite, canoe portage and access roads, and amended on 3-1-2007, 10-19-2007, and 8-1-2009. area excluded from comp parcel. Recreational Camp Lot Lease and access thereto- Powers, area excluded from comp parcel. Camp Lot Lease and access thereto- Staples, area excluded from comp parcel.		Trail Use Agreement with State of Maine, Dept. of Conservation, co-licensee Arnold Trail Snowmobile Trail Club (not recorded). License is for 12' wide snowmobile trail. Northern Forest Canoe Trail (document not found).	
Manchester	Little Jimmie Pond (no encumbrances found)	110					
The Forks	Pooler Ponds	80					
		1997					

Blue text for areas to be excluded from the compensation parcel.

1997 Acres scaled from Google Earth Imagery

INDENTURE

THIS INDENTURE made and entered into this 22 day of March, 2017 by and between **CENTRAL MAINE POWER COMPANY**, a Maine corporation having its principal place of business at 83 Edison Drive, Augusta, Maine 04336 (together with its successors and assigns, "**CMP**") and **BROOKFIELD WHITE PINE HYDRO LLC**, a Delaware limited liability company, formerly known as FPL Energy Maine Hydro LLC, whose mailing address is 150 Maine Street, Lewiston, Maine 04240 (together with its successors and assigns, "**Brookfield**"),

WHEREAS, the hydropower license issued by the Federal Energy Regulatory Commission ("**FERC**") to Brookfield for the Flagstaff Storage Project (FERC No. 2612-029) (the "**Project**") and related recreation plan approved by FERC Order issued May 19, 2014 (147 FERC ¶ 62,136) requires that Brookfield acquire rights to improve and maintain emergency and other access to the Dead River easterly of its confluence with Enchanted Stream in Lower Enchanted Stream Township, Somerset County, Maine;

WHEREAS, Brookfield, CMP and others are party to that certain First Amended and Restated Asset Purchase Agreement, dated as of April 7, 1999 (the "**ARAPA**"), which specifies at Section 7.18(j) that Brookfield's sole responsibility to pay a purchase price for the rights conveyed by CMP hereunder is to pay \$1.00 and that all other purchase price shall be collectible by Seller only from Benefited Hydro Developers other than Brookfield under that certain Kennebec Headwaters Benefits Agreement, dated as of July 19, 1988, by and among CMP and others, as approved by FERC Order issued May 21, 1992 (59 FERC ¶ 82,182);

WHEREAS, certain of the rights and easements conveyed hereby are located on a certain parcel of land located in Lower Enchanted Stream Township, Somerset County and State of Maine, that is more particularly delineated and described in Exhibit A, attached hereto (the "**Easement Area**");

WITNESSETH:

A. Grant of Easements. **CMP**, for and in consideration of One Dollar, receipt of which is hereby acknowledged, hereby GRANTS to **BROOKFIELD**, its successors and assigns, with QUITCLAIM COVENANT, the following rights and easements:

1. **Vehicle Access.** The perpetual, non-exclusive right and easement on, over and across the private access road in the Easement Area between Whiskey Stream Road and the northerly side of the Dead River (as it may be relocated in accordance with the provisions of the Indenture, the "**Access Road**"), in common with CMP and others, for ingress and egress by vehicles as follows: (a) emergency vehicles operated by emergency response personnel; and (b) vehicles of any type operated by Brookfield, its employees, agents and contractors for purposes of inspecting, constructing, replacing and maintaining the Access Road and the parking area and helipad described in Paragraph 4 below (the "**Vehicle Access Easement**").

2. **Public Access.** The perpetual, non-exclusive right and easement on, over and across the Access Road, in common with CMP and others, for ingress and egress by the general public on foot or by wheel chair (whether or not motorized), bicycle or other non-motorized vehicle of a width that can bypass the Entrance Gate described in Paragraph 5 below (the "**Public Access Easement**").

3. Path from Easement Area to Dead River. The perpetual, non-exclusive right and easement on, over and across the existing footpath between the southerly bound of the Easement Area and the northerly bank of the Dead River, approximately at the location depicted on Exhibit A (the "Footpath"), in common with CMP and others, for ingress and egress by (a) Brookfield, its employees, agents and contractors for purposes of inspecting, constructing, replacing and maintaining the Footpath; (b) emergency response personnel; and (c) the general public on foot or by wheel chair (whether or not motorized), bicycle or other non-motorized vehicle of a width that can bypass the Entrance Gate described in Paragraph 5 below (the "Footpath Easement").

4. Parking Area and Helipad. The perpetual, **exclusive** right and easement to construct, replace, maintain, operate and use a parking area and helipad at a location within the Easement Area and of a size and dimensions to be determined by Brookfield after reasonable consultation with CMP (as it may be relocated in accordance with the provisions of the Indenture, the "Parking Area") for: (a) parking and loading emergency vehicles; (b) landing, parking and loading of helicopters; and (c) parking of vehicles and equipment operated by Brookfield, its employees, agents and contractors (the "Parking Easement").

5. Entrance Gate. The perpetual, right and easement to construct, replace, maintain and operate a gate across the Access Road, more specifically described below (the "Entrance Gate"), to control access by motor vehicles over the Access Road at a location near the intersection of the Access Road with Whiskey Stream Road to be determined by Brookfield after reasonable consultation with CMP (the "Entrance Gate Easement" and, together with the Vehicle Access Easement, the Public Access Easement, the Footpath Easement, the Parking Easement and the rights described in Paragraphs 5, 6 and 7, the "Granted Easements").

6. Access Road and Footpath Maintenance. The perpetual right, but not the obligation, in common with CMP, to improve, maintain, repair and reconstruct the Access Road and the Footpath, together with such ditches, culverts, bridges and other structures within the Easement Area and in the immediate vicinity of the Footpath as may be necessary or convenient in the conduct of such improvement, maintenance, repair or reconstruction.

7. Whiskey Road and Lower Enchanted Stream Road. In accordance with the rights granted to CMP in that certain Right-of-Way Easement Deed given by Oxford Paper Company to CMP, dated December 22, 1995, and recorded in the Somerset County Registry of Deeds, Book 2165, Page 348 (the "Right-of-Way Easement Deed"), the perpetual, non-exclusive right and easement: (a) on, over and across the portions of Whiskey Stream Road and Lower Enchanted Road that afford access between the Easement Area and US Route 201 in Forks Plantation, in common with CMP and others, for ingress and egress by (i) Brookfield, its employees, agents and contractors for purposes of administration, forest operations and forestland management as defined in the Right-of-Way Easement Deed; and (ii) emergency response personnel for purposes of emergency safety access as provided in the Right-of-Way Easement Deed; and (b) to install, maintain, remove and replace directional signs within the right of way of Lower Enchanted Road at the intersection between Lower Enchanted Road and US 201 to direct emergency personnel to the Easement Area.

8. Clearing of Trees, Brush, Etc. The perpetual right to clear trees, brush and other vegetation in the vicinity of the Access Road, the Parking Area, the Footpath and the Entrance

Gate as reasonably necessary or desirable for the maintenance or use of such facilities as contemplated hereby.

9. FERC Compliance. The perpetual right to take such other actions within the Easement Area or the vicinity of the Footpath as may be reasonably necessary or desirable for Brookfield's compliance with the terms and provisions of (a) any FERC license for the Project; (b) any present or future order or directive issued by FERC; and (c) any recreational or other plan or agreement to which Brookfield is now or hereafter becomes a party in accordance with the terms and provisions of any such FERC license, order or directive.

10. Relocation of Granted Easements. Brookfield shall have the right to relocate all or part of either or both of the Access Road and the Parking Area and the related the Granted Easements from time-to-time; provided that (a) the rights of CMP and others with rights to use the Granted Easements shall not be materially impaired by such relocation; (b) Brookfield shall give CMP at least one hundred twenty (120) days' advance written notice of such relocation; (c) the location of the relocated facility and related Granted Easement shall be subject to the approval of CMP, which approval shall not be unreasonably delayed, conditioned or denied; and (d) Brookfield shall pay for all costs of such relocation including but not limited to reconstruction of any road, parking area or other improvement in the Easement Area that must be relocated as a result of the relocation of any Granted Easement.

11. Construction and Operation of Entrance Gate. Brookfield covenants and agrees to maintain the existing Entrance Gate in good condition in accordance with the following terms and provisions: (a) the Entrance Gate will be a locked metal gate; (b) large rocks will be place on each side of the Entrance Gate at locations that will allow passage by the public on foot or by wheel chair (whether or not motorized), bicycle or other non-motorized vehicle of a width of 40 inches or less; (c) each of Brookfield, CMP, local emergency responders designated by Brookfield (the "Designated Responders") and others with rights of access over the Access Road will have the keys, combination or other means to unlock the Entrance Gate for purposes of allowing access on, over and across the Access Road as contemplated hereby; and (d) neither CMP nor Brookfield will have the right to change the lock on the Entrance Gate without giving the other party, the Designated Responders and others with rights of access over the Access Road the means to unlock the Entrance Gate and use the Easement Area as contemplated hereby.

12. Appurtenant Rights. The rights and easements conveyed by CMP to Brookfield by this Indenture are intended to be (a) appurtenant to, benefit and run with Brookfield's leasehold and other rights and interests in lands comprising the Project, including but not limited to the land located within the FERC project boundary as delineated on certain Project Plans recorded in the Somerset County Registry of Deeds, in Plan File No. 49, pages 36 through 40, and conveyed by CMP to Brookfield under and pursuant to that certain Deed Indenture between CMP and Brookfield, dated April 7, 1999 and recorded in said Registry of Deeds, Book 2540, Page 1; and (b) burden and run with the land included in the Easement Area.

13. Compliance and Laws. Brookfield will promptly obtain and comply with, at its sole expense, all local, state and federal permits, and will comply with all laws, ordinances, rules, regulations and requirements of all federal, state and local governments and appropriate departments, commissions, boards and officers thereof which now or in the future may be applicable to the exercise of the rights herein granted.

14. Release and Indemnification. Brookfield agrees to release, indemnify, defend and hold harmless CMP, its parent corporation and affiliates and its and their directors, officers, employees, contractors, agents, successors and assigns from and against all costs (including attorney's fees), claims, demands and actions arising out of the exercise of the rights herein granted or other use of the Easement Area by Brookfield or its successors and assigns, agents, contractors, invitees or others pursuant to this Indenture or otherwise. Notwithstanding this agreement, Brookfield does not herein waive the immunities, defenses and limits of liability provided to it pursuant to State law, including but not limited to the provisions of the Maine Tort Claims Act, 14 M.R.S.A. §8101 Et. Seq, if applicable. Brookfield shall provide proof that its contractor has general liability insurance in the amount of one million dollars (\$1,000,000) naming CMP as additional insured thereon, for the period of construction on CMP's property, and proof that the contractor has bonds as required by law.

[End of Page. Signature Pages Follow.]

IN WITNESS WHEREOF, Central Maine Power Company has caused this instrument to be executed on its behalf by its duly authorized representative, as of this 28 day of March, 2017.

SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF:

CENTRAL MAINE POWER COMPANY, a
Maine corporation

[Signature]
Witness

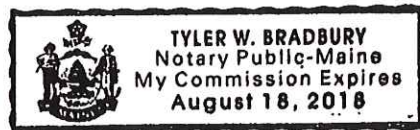
By: [Signature]
Alice Richards, Supervisor, Real Estate
Services

STATE OF Maine
County of Kennebec ss.

March 28th, 2017

Then personally appeared the above-named Alice Richards, Supervisor, Real Estate Services of Central Maine Power Company, and acknowledged the foregoing instrument to be her free act and deed in her said capacity, and the free act and deed of said Central Maine Power Company.

Before me,
[Signature]
Notary Public
Printed Name: _____
Commission expires: _____



SEAL

IN WITNESS WHEREOF, Brookfield White Pine Hydro LLC has caused this instrument to be executed on its behalf by its duly authorized representatives as of this 22 day of March, 2017.

SIGNED, SEALED AND DELIVERED IN THE PRESENCE OF:

BROOKFIELD WHITE PINE HYDRO LLC, a Delaware limited liability company

[Signature]
Witness

By: C. Todd Wynn
Name: C. TODD WYNN
Its: V.P. NORTHEAST

Witness

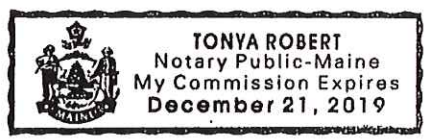
By: _____
Name: _____
Its: _____

STATE OF Maine
County of Androscoggin, ss.

March 22, 2017

Then personally appeared the above-named C. Todd Wynn, VP Northeast of Brookfield White Pine Hydro LLC, a Delaware limited liability company, and acknowledged the foregoing instrument to be his/her free act and deed in said capacity, and the free act and deed of said Brookfield White Pine Hydro LLC.

Before me,
[Signature]
Notary Public
Printed Name: Tonya Robert



SEAL



EXHIBIT A

Attached to and being a part of Indenture (Somerset County) from Central Maine Power Company to Brookfield White Pine Hydro LLC, dated March 22, 2017

The Easement Area is depicted on the plan attached as Exhibit A-1, and is bounded and described as follows:

A certain lot or parcel of land situated on the southerly side of the Whiskey Springs Road, so called, in Lower Enchanted Township, County of Somerset, State of Maine and being more particularly described as follows:

Beginning at a 3/4" iron rebar with identification cap found on the southerly side of the Whiskey Springs Road;

Thence an azimuth of 291°01' along said Whiskey Springs Road, a distance of 255.9 feet to a similar rebar found;

Thence an azimuth of 242°57', a distance of 23.3 feet to a point in the thread of a 4-foot wide brook;

Thence an azimuth of 104°55' along said thread of said brook, a distance of 23.3 feet to a point;

Thence an azimuth of 213°52' along said thread of said brook, a distance of 25.6 feet to a point;

Thence an azimuth of 211°54' along said thread of said brook, a distance of 192.4 feet to a point;

Thence an azimuth of 250°44' along said thread of said brook, a distance of 146.7 feet to a point;

Thence an azimuth of 269°57' along said thread of said brook, a distance of 380.4 feet to a point;

Thence an azimuth of 251°44' along said thread of said brook, a distance of 284.2 feet to a point;

Thence an azimuth of 343°22', a distance of 6.7 feet to a 12" fir tree;

Thence an azimuth of 274°30', a distance of 82.0 feet to a 12" spruce tree;

Thence an azimuth of 265°00', a distance of 152.4 feet to a 2" fir stump;

Thence an azimuth of 265°00', a distance of 89.1 feet to a point;

Thence an azimuth of $146^{\circ}20'$, a distance of 348.8 feet to 5/8" iron rebar with identification cap #2157 set;

Thence an azimuth of $207^{\circ}09'$, a distance of 327.15 feet to a similar rebar set;

Thence an azimuth of $106^{\circ}58'$, a distance of 187.3 feet to a similar rebar set;

Thence an azimuth of $67^{\circ}27'$, a distance of 161.6 feet to a 5" blazed poplar tree found;

Thence an azimuth of $330^{\circ}21'$, a distance of 118.4 feet to a similar rebar found;

Thence an azimuth of $15^{\circ}49'$, a distance of 173.8 feet to similar rebar found;

Thence an azimuth of $81^{\circ}01'$, a distance of 204.1 feet to similar rebar found;

Thence an azimuth of $80^{\circ}24'$, a distance of 788.8 feet to similar rebar found;

Thence an azimuth of $17^{\circ}35'$, a distance of 415.4 feet to the point of beginning.

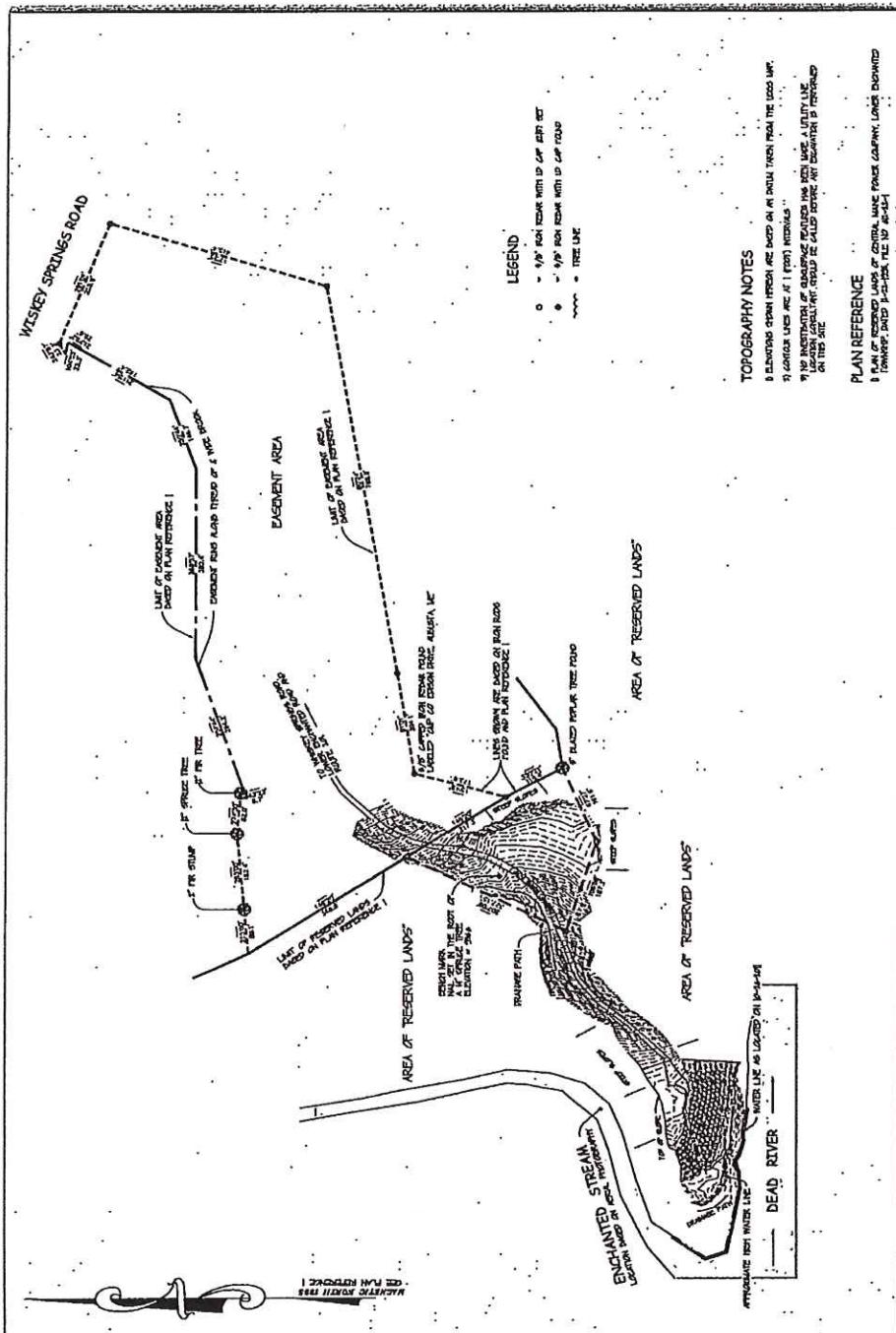
The azimuths referenced above are based on a magnetic observation in 1995.

The above-described Easement Area is a portion of certain property, a one-half interest in which was conveyed to CMP by Oxford Paper Company by Indenture, dated December 22, 1995, and recorded in said Registry of Deeds, Book 2165, Page 339, and another one-half interest was conveyed to Central Securities Corporation by deed of Willie D. Snow, dated May 1, 1923, and recorded in said Registry of Deeds, Book 373, Page 250.

Reference is made to a Plan of Reserved Lands of Central Maine Power Company, Lower Enchanted Township, Somerset County, Maine, dated December 22, 1995, by Central Maine Power Company, File No. 612-22-1, as recorded in said Registry of Deeds, Plan File B-95, Page 132.

The rights and easements in, on and across the Easement Area granted hereby are subject to the rights and easements granted to Oxford Paper Company, its successors and assigns, by Right-of-Way Easement Deed, dated December 22, 1995, and recorded in said Registry of Deeds, Book 2165, Page 348.

EXHIBIT A-1



TRANSFER TAX PAID

RIGHT-OF-WAY EASEMENT DEED

CENTRAL MAINE POWER COMPANY, a Maine corporation having its principal offices in the City of Augusta, County of Kennebec, State of Maine, with a mailing address of 83 Edison Drive, Augusta, Maine 04336, (hereinafter "Grantor"), in consideration of One Dollar (\$1.00) paid and other good and valuable consideration given to Grantor by Oxford Paper Company, the receipt whereof is hereby acknowledged, does hereby grant to **OXFORD PAPER COMPANY**, a Delaware corporation having a place of business in the Town of Rumford, County of Oxford, State of Maine, with a mailing address of Boise Cascade Corporation, Rumford Mill, Rumford, Maine 04276, (hereinafter "Grantee"), and its successors and assigns, with QUITCLAIM COVENANTS, perpetual non-exclusive easements and rights-of-way for people, vehicles, equipment and materials to pass and repass over and across certain roads located on certain lands of Grantor in Somerset County, Maine to Grantee's lands as more particularly located and described on Exhibit A, annexed hereto.

10075

Said easements and rights-of-way are in common with Grantor and others. Said easements and rights-of-way, or portion(s) thereof, are collectively referred to herein as "Rights-of-Way," and are subject to, the rights, restrictions, terms and conditions contained more fully hereinafter set forth:

RIGHTS, RESTRICTIONS, TERMS AND CONDITIONS

(1) Purpose: The said easement and a right-of-way over and across the Rights-of-Way is for the purpose of ingress, egress, and regress on foot and in vehicles, to, from, and for the use and enjoyment of certain lands now of Grantee, to which the same shall be deemed

RESEARCH/RECORDS SERVICES



1127460

256.02

appurtenant for the purposes of Grantee's administration forest operations and forestland management activities.

“Administration” shall mean activities necessary to conduct, direct and manage business, including, but not limited to, the emergency safety access of the shores of the Enchanted Stream, the Dead River, the Kennebec River and other water bodies.

“Forest operations” shall mean timber harvesting and associated activities, and road construction and maintenance.

“Forestland management” shall mean property maintenance, forest management (both extensive and intensive), forestland resource protection, research activities, and other activities normally associated with traditional forestland management functions.

The purposes encompassed by administration, forest operation, and forestland management activities exclude, but the exclusion is not limited to residential developments; commercial and non-commercial recreational uses; installation of utilities; and public access.

(2) Grantor Reservation: Grantor reserves to itself the ownership of the roads and the right to use the Rights-of-Way at any time and for any corporate purpose, including but not limited to all purposes deemed necessary for the protection, administration, management and use of Grantor's lands and resources, so long as Grantor's activities do not unreasonably interfere with the use of the Rights-of-Way by Grantee.

(3) Grantee's Use: The Rights-of-Way shall be sixty-six (66) feet in width. Grantee shall have the right to pass over and across the Rights-of-Way (subject to Grantee's compliance with applicable laws, ordinances, and regulations), and to construct, reconstruct, use, improve and maintain roads, bridges, culverts, ditches, and other facilities and structures (other than utilities), within the Rights-of-Way and such additional widths as may be required on

intermittent segments of the Rights-of-Way to accommodate and protect cuts, fills, turnouts, drainage devices, and lateral ditches. Grantee shall not be obligated to construct, reconstruct, relocate, improve and maintain the roads except as is specifically provided for herein. Grantee shall exercise its rights in a way which do not unreasonably interfere with Grantor's or any other persons' lawful uses of any roads within the Rights-of-Way. It is further understood and agreed that this conveyance by Grantor to Grantee shall not restrict Grantor's right, at Grantor's expenses, to construct, reconstruct, use, relocate, improve, or maintain any roads within the Rights-of-Way or lawfully to abandon or to discontinue maintenance of roads within any Right-of-Way.

Grantee shall not leave litter or refuse on the Rights-of-Way.

(4) Grantee's Maintenance: Grantee shall provide Grantor with reasonable advance written notice of Grantee's commencement and suspension of the regular use of any Right-of-Way for forest products transportation. When any of the Rights-of-Way are being used by either Grantor or Grantee, and are not being used concurrently by the other party, then the using party shall maintain, during its use, and upon completion of its use of the Rights-of-Way so used, restore, the same in a condition no less than substantially equivalent to their condition immediately preceding the commencement of its use, or as subsequently improved.

When any of the Rights-of-Way are being used by Grantor and Grantee concurrently, both parties shall apportion the maintenance costs for such concurrent use based on the respective volume of products and distances hauled on the Rights-of-Way, or based on some other mutually agreed upon formula or method of apportionment. The specific method of calculating the pro rata share of maintenance costs shall be agreed upon by the parties prior to the commencement of concurrent regular use. The pro rata share of maintenance costs for concurrent regular use shall be settled on an annual basis.

Reasonably contemporaneously with the suspension of Grantee's use, Grantee shall take such steps as are reasonably or legally required to prevent sedimentation of water courses and soil erosion with respect to any Right-of-Way after such suspension, but in no event shall Grantee be responsible for sedimentation of water courses and soil erosion occurring more than twenty-four (24) months following its notification to Grantor of Grantee's suspension of regular use. With respect to a Right-of-Way of which Grantee has notified Grantor of its suspension of regular use, Grantor may cause an inspection of such Right-of-Way to be performed within thirty (30) days after Grantee's suspension of use, however, Grantor's failure to conduct such inspection shall not relieve Grantee of its obligations herein. Grantee shall promptly take such steps as are reasonably or legally required to remedy any non-fulfillment of such obligations.

Subject to the above, neither Party shall be obligated to maintain the Rights-of-Way under the terms of this Grant except to the extent that such maintenance relates to use of such Rights-of-Way by the obligated party.

Notwithstanding all of the above, Grantor and Grantee shall not be required to maintain the Rights-of-Way in a condition greater than the generally accepted standard of the day, in the Northeast, for off public highway hauling of timber.

(5) Usage Requirements: The exercise of the rights of Grantee under this Grant shall be in accordance with Grantor's reasonable road usage requirements and those requirements that a prudent landowner would adopt, including, but not limited to, speed limits, weight limits, fire protection, seasonable use, time of day use, use by off highway recreational vehicles, and public access.

(6) Post and Gate: Grantor retains the right, at its discretion, to post, gate and close the Rights-of-Way, except that Grantee shall have the right to pass through the gate for Grantee's

administration, forest operations and forestland management purposes in accordance with Grantor's gate closing policy, and said posting, gating and closure shall not unreasonably restrict the rights of Grantee for said purposes under this Grant. Grantee shall not obstruct or gate the Rights-of-Way without Grantor's prior written consent and shall not have the right to restrict entry or access by others.

In addition, the Rights-of-Way may be gated or otherwise posted with mutual consent of Grantor and Grantee when weather conditions and/or road conditions make passage unsafe or damaging to the roads, or as otherwise mutually agreed upon. The party desiring to install a gate shall bear the cost thereof. In the event that the fee owner of the land and Grantee should disagree as to the location of the gate, the location selected by the fee owner of the land shall determine the exact site of said gate. The party installing the gate shall insure that any other parties having a right to use said roads are provided with the lock's key or combination. This right to install a gate shall not unreasonably interfere with Grantor's or any other person's lawful uses of roads within the Rights-of-Way.

(7) Relocation: With respect to the rights assigned herein, Grantee agrees to use the existing roads within the Rights-of-Way where practicable. If not practicable and if relocation of the road granted herein over and across the Rights-of-Way or portion thereof, is deemed necessary by Grantee, or if a road or portion thereof, does not exist and if construction of a road granted herein over and across the Rights-of-Way or portion thereof, is deemed necessary by Grantee, Grantee shall seek the prior written approval of Grantor, which approval shall not unreasonably be withheld or delayed. Such a request shall specify the proposed construction of the road and the design criteria to be applied to the road. If approved by Grantor any such proposed road or portions thereof, may be constructed by Grantee at its sole expense, subject to

all applicable laws, ordinances and regulations and to any reasonable restrictions, construction techniques and construction materials as required by Grantor. Such constructed road or portions thereof, shall become the property of Grantor and then be deemed to be "Rights-of-Way" and governed by the provisions of this Grant.

(8) Gravel Option: Grantee shall have the option of acquiring gravel without cost to Grantor (to the extent gravel is available; and Grantor has sufficient gravel to meet Grantor's own needs) from pit(s) located upon Grantor's land contiguous to a portion of the Rights-of-Way with the prior written permission of Grantor:

(i) at no charge to Grantee, if for the maintenance or improvement of the roads within the Rights-of-Way located upon land of Grantor; or

(ii) at a fair market value charge to Grantee, if for the construction of roads within the Rights-of-Way located upon land of Grantor; or for construction, maintenance or improvement of roads located upon land of Grantee; the quantity and fair market value of the gravel shall be agreed upon between the parties prior to removal of gravel. In the absence of a price agreement, the price shall be deemed to be the average price at which Grantor has, according to available records, purchased or sold gravel of similar grade within the previous one year period.

(9) Notice and Governmental Approval: Grantee shall not perform any construction, reconstruction, relocation, improvement or maintenance on the Rights-of-Way or gravel extraction on land of Grantor without thirty (30) day prior written notice to Grantor. It is specifically understood and agreed that Grantee, unless otherwise mutually agreed upon, shall

have the full responsibility of giving notification or obtaining any and all Federal, State or local governmental approvals, permits, authorizations, or licenses. Grantee shall fully comply with all laws, rules, regulations and requirements of any and all Federal, State or local government, authority, agency, commission or regulatory body, insofar as any of the same may apply to the use of the land for the purposes herein granted and particularly (but without limitation) as such laws, rules, regulations, and requirements may relate to protection of the environment, water and air, land use, and the prevention of forest fires. Grantee shall not commence any construction, reconstruction, relocation, improvement or maintenance on the Rights-of-Way or gravel extraction on land of Grantor until after Grantee has given such notification and applied for and obtained any such governmental approvals, permits, authorization, or licenses required for such action and copied same to Grantor, if any. Any application of chemicals on land of Grantor shall be with the prior written approval of Grantor. Grantee shall hold Grantor harmless for any and all claims, exactions, penalties, or legal actions resulting from acts by or for Grantee to which this provision applies.

(10) Prudent Use: If use of the Rights-of-Way by Grantee or its invitees results in damage thereto arising from accidents, negligence or use in a manner not consistent with use by a reasonably prudent long-term user, Grantee shall be solely responsible for repairing such damage promptly.

(11) Reserved Timber: Grantor reserves the right to all timber now growing or which may hereafter grow on the Rights-of-Way, provided Grantee shall have the right to cut and remove timber from the Rights-of-Way to the extent necessary for the construction, reconstruction, improvement, maintenance and snowplowing of the roads. Said timber, unless

otherwise agreed, shall be cut into standard merchantable lengths and bunched or piled at the Rights-of-Way edge for disposal by Grantor.

(12) Transfer: Grantor may grant to others easements in common with Grantee.

This Grant may be assigned or transferred only as follows:

(A) Reservation of Grantor's Right to Transfer Its Title.

Grantor may transfer title to any part of the property over which a portion of the Rights-of-Way is located, subject to the terms of this Grant. Upon such transfer, the obligations of Grantor hereunder with respect to that portion of the Rights-of-Way shall cease and shall devolve upon Grantor's successors in title.

(B) Assignment/Transfer by Grantee.

The rights of Grantee hereunder shall be appurtenant to the lands within specific townships currently owned by Grantee, or in the case of Lower Enchanted to be conveyed to Grantee by Indenture of even date herewith, as indication in the following table:

Rights-of-Way Across Grantor's Lands (Servient Estate) in		Grantee's Benefitted Lands (Dominant Estate)
Lower Enchanted (T2R5 BKP WKR)	are appurtenant to	Lower Enchanted (T2R5 BKP WKR)
Carrying Place Plt. (T1R3 BKP WKR)	are appurtenant to	Carrying Place Plt. (T1R3 BKP WKR) & Carrying Place (T2R3 BKP WKR)

Said Rights may be assigned only in connection with the sale or transfer of all or any substantial part of such lands. Upon such transfer, the obligations of Grantee hereunder with respect to that portion of the Rights-of-Way shall cease and shall devolve upon Grantee's successors in title.

(13) Indemnification:

(A) Grantee's Use of Rights-of-Way, Indemnity: Grantee and its successors and assigns with respect to the rights herein granted, by acceptance of this Deed, agree to hold Grantor harmless from and indemnify Grantor against any and all claims, demands, expenses, judgments, and awards asserted against, incurred by or imposed upon Grantor arising in any manner in connection with claims made by Grantee, its employees, agents, independent contractors and invitees, arising out of Grantee's use, construction, or maintenance of the road or other rights under this Grant; this obligation is absolute notwithstanding acts, omissions or negligence of Grantor. To the extent necessary to give effect to this obligation to indemnify Grantor and hold Grantor harmless, Grantee expressly waives any immunity or exemption from liability for the personal injury or death of Grantee's employees that may exist under, or any right to receive contribution from Grantor created by the workers' compensation laws of Maine. This provision shall not apply to concurrent use of Rights-of-Way as described in 13 (C) below.

(B) Grantor's Use of Rights-of-Way, Indemnity: Grantor, by giving this Deed, agrees to hold Grantee harmless from and indemnify Grantee against any and all claims, demands, expenses, judgments and awards asserted against, incurred by or imposed upon Grantee arising in any manner in connection with claims made by Grantor, its employees, agents, independent contractors, and invitees, arising out of Grantor's use, construction or maintenance of the road or

other rights reserved under this Grant; this obligation is absolute notwithstanding acts, omissions, or negligence of Grantee. To the extent necessary to give effect to this obligation to indemnify Grantee and hold Grantee harmless, Grantor expressly waives any immunity or exemption for liability for the personal injury or death of Grantor's employees that may exist under, or any right to receive contribution from Grantee created by the workers' compensation laws of Maine. This provision shall not apply to concurrent use of Rights-of-Way as described in 13 (C) below.

(C) Concurrent Use of Rights-of-Way: In the event of concurrent use of the Rights-of-Way resulting in any event which gives rise to one or more claims of liability on the part of either or both parties, then each party will be responsible for that percentage or proportion of damages assigned to it in the judgment establishing such liability; provided, that in the event of such concurrent use, each party shall be solely responsible for, and shall be required to, indemnify the other party against and hold the other party harmless from any claim by any agent, licensee, or independent contractor of the party so indemnifying.

To the extent necessary to give effect to this obligation to indemnify Grantee and hold Grantee harmless, Grantor expressly waives any immunity or exemption for liability for the personal injury or death of Grantor's employees that may exist under, or any right to receive contribution from Grantee created by the workers' compensation laws of Maine.

(14) Definitions: "Construction" or "construct" shall mean undertaking the work necessary to build, shape, cut, grade, level, fill, drain, install and form the Rights-of-Way or

portions thereof, road, road surface, bridge, culvert, ditch or other appurtenant facility or structure to provide satisfactory and safe road services for the purposes herein authorized in compliance with all applicable laws and regulations.

"Maintenance" or "maintain" shall mean undertaking the work necessary to preserve or keep, as nearly as possible, the Rights-of-Way or portions thereof, road, road surface, bridge, culvert, ditch or other appurtenant facility or structure in a condition no less than substantially the equivalent to their condition immediately preceding the commencement of a use, or as subsequently improved, to provide satisfactory and safe road services for the purposes herein authorized in compliance with all applicable laws and regulations. Such terms shall further mean and include dust control, the control of roadside brush, the plowing of snow from, and the sanding of the roadway within the Rights-of-Way.

"Improvements" or "improve" shall mean the reconditioning or replacing of the Rights-of-Way or portions thereof, road, road surface, bridge, culvert, ditch or other appurtenant facility or structure to a standard higher or greater than that prevailing at the time immediately preceding the commencement of use, or as subsequently improved.

(15) Not A Public Way: Notwithstanding any other provision of this Grant, the Rights-of-Way may not be used as a "public way", nor does this Grant entitle the general public to use the Rights-of-Way or to operate any vehicle of any kind on any portion of the Rights-of-Way.

(16) Benefited Parties: This Grant shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns, to the extent any such assignment has been authorized in this Grant. For the purposes of this Grant, "Grantor" shall mean and include Grantor's successors and assigns, and their respective officers, employees, servants,

agents, licensees, contractors, permittees and lessees, and "Grantee" shall mean and include Grantee's successors and those assigns authorized by Paragraph 12(B) to succeed to the rights herein granted, and their respective officers, employees, servants, agents, licensees, contractors, permittees and lessees.

(17) Understanding: This Grant, (and the Exhibit(s) attached hereto) set forth the final and complete understanding and agreement of the parties concerning the subject matter hereof. It is understood and agreed that there are no representations made or implied with respect to the Rights-of-Way, the properties subject to this Grant, or the Grant itself, whether arising in law or in equity, other than as provided in this Grant. This Grant may be modified only by a writing signed and acknowledged by both parties, duly authorized, and recorded in the Somerset County Registry of Deeds.

Except as specifically otherwise expressed herein, wherever Grantor has reserved the right to approve or authorize any act or thing, Grantor shall have the right to withhold such approval or authorization for any reason or for no reason.

IN WITNESS WHEREOF, the said **Central Maine Power Company** has caused this deed to be executed upon its behalf by David T. Flanagan, its President, thereunto duly authorized, this 22nd day of December, 1995.

Central Maine Power Company

Laure E. Halligan
Witness

By: David T. Flanagan
David T. Flanagan
Its President



STATE OF MAINE
Lennette, SS.

Then personally appeared before me the said David T. Flanagan and acknowledged the foregoing instrument to be his free and voluntary act and deed in his said capacity and the free and voluntary act and deed of Central Maine Power Company, this 21 day of December, 1995.

Karla E. Swasey
Notary Public, Maine

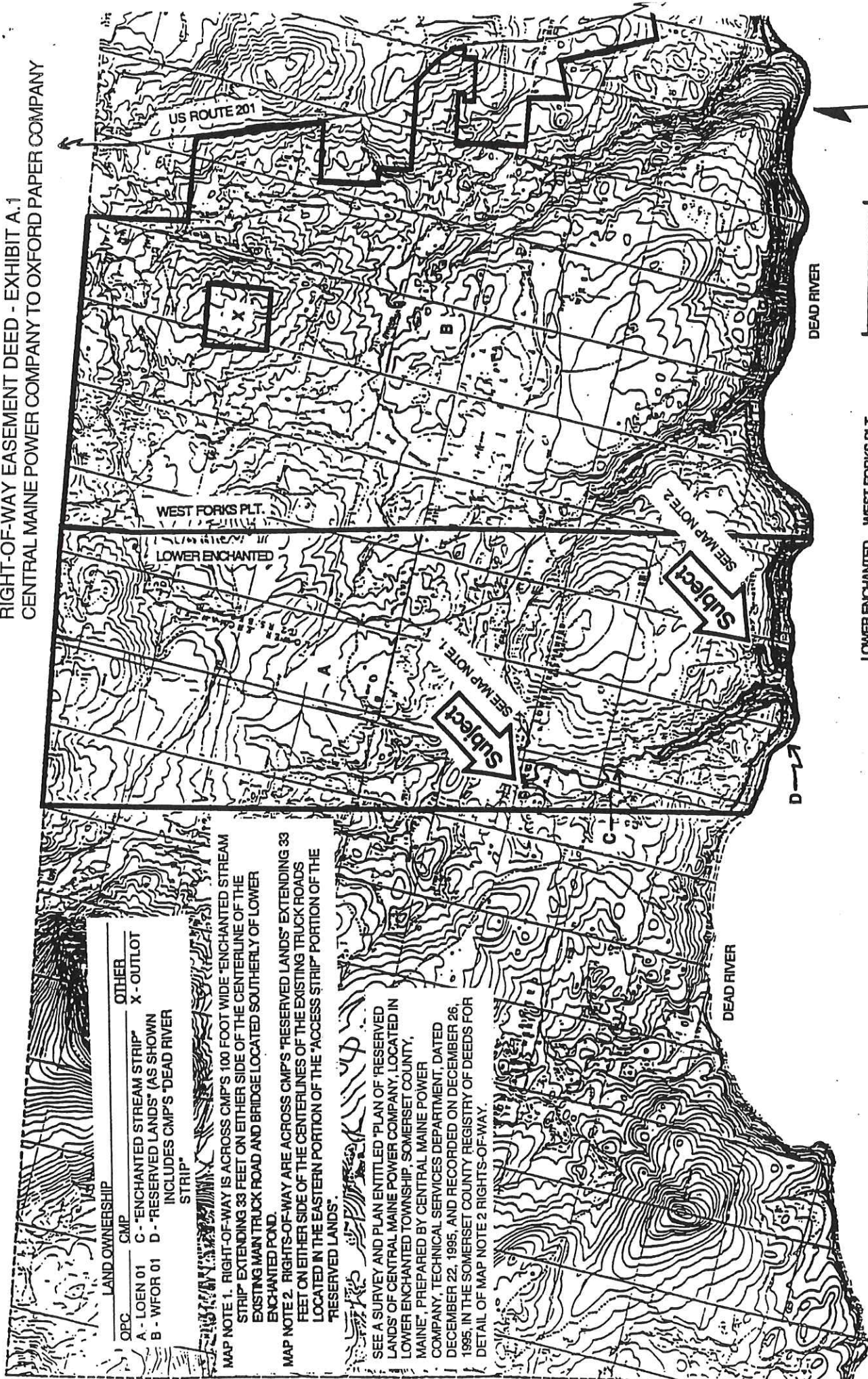
My Commission Expires

H:\CLIENTS\BOISE\ENCHANT2.DEE

KARLA E. SWASEY
Notary Public, Maine
My Commission Expires April 1, 2001

SEAL

RIGHT-OF-WAY EASEMENT DEED - EXHIBIT A.1
 CENTRAL MAINE POWER COMPANY TO OXFORD PAPER COMPANY



LAND OWNERSHIP		OTHER
OPC	CMP	X - OUTLOT
A - LOEN 01	C - "ENCHANTED STREAM STRIP"	
B - WFOR 01	D - "RESERVED LANDS" (AS SHOWN)	
		INCLUDES CMP'S "DEAD RIVER STRIP"

MAP NOTE 1. RIGHT-OF-WAY IS ACROSS CMP'S 100 FOOT WIDE "ENCHANTED STREAM STRIP" EXTENDING 33 FEET ON EITHER SIDE OF THE CENTERLINE OF THE EXISTING MAIN TRUCK ROAD AND BRIDGE LOCATED SOUTHERLY OF LOWER ENCHANTED POND.

MAP NOTE 2. RIGHTS-OF-WAY ARE ACROSS CMP'S "RESERVED LANDS" EXTENDING 33 FEET ON EITHER SIDE OF THE CENTERLINES OF THE EXISTING TRUCK ROADS LOCATED IN THE EASTERN PORTION OF THE "ACCESS STRIP" PORTION OF THE "RESERVED LANDS".

SEE A SURVEY AND PLAN ENTITLED "PLAN OF 'RESERVED LANDS' OF CENTRAL MAINE POWER COMPANY, LOCATED IN LOWER ENCHANTED TOWNSHIP, SOMERSET COUNTY, MAINE", PREPARED BY CENTRAL MAINE POWER COMPANY, TECHNICAL SERVICES DEPARTMENT, DATED DECEMBER 22, 1995, AND RECORDED ON DECEMBER 26, 1995, IN THE SOMERSET COUNTY REGISTRY OF DEEDS FOR DETAIL OF MAP NOTE 2 RIGHTS-OF-WAY.

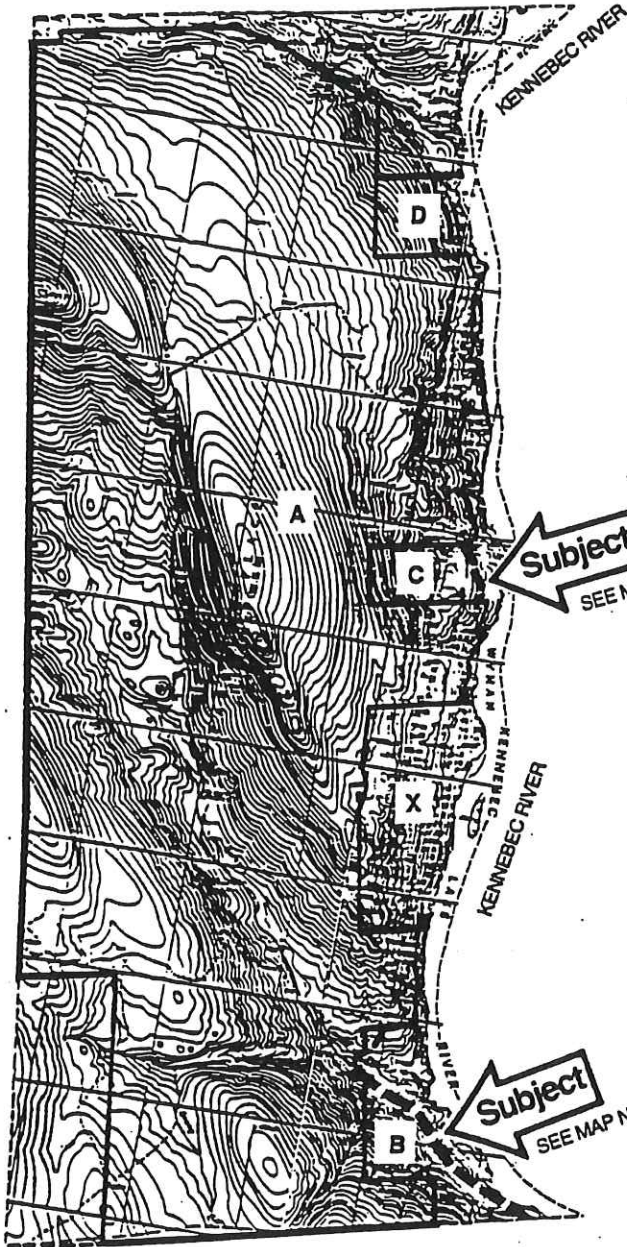
LOWER ENCHANTED WEST FORKS PLT.
 T2R5 BKPWKR

COMPOSITE OF PORTIONS OF VARIOUS USGS 7.5
 TOPOGRAPHIC MAPS, PROVISIONAL ED. 1989

SOMERSET COUNTY, MAINE

LB & KF 12/95

RIGHT-OF-WAY EASEMENT DEED - EXHIBIT A.2
 CENTRAL MAINE POWER COMPANY TO OXFORD PAPER COMPANY



MAP NOTE 1. RIGHTS-OF-WAY ARE ACROSS CMP'S LOTS 1 & 2 EXTENDING 33 FEET ON EITHER SIDE OF THE CENTERLINES OF THE EXISTING TRUCK ROADS.
 MAP NOTE 2. RIGHT-OF-WAY IS ACROSS CMP'S BELOW 580' ELEV. LOTS 6 & 7, & LOT 8, EXTENDING 33 FEET ON EITHER SIDE OF THE CENTERLINE OF THE EXISTING TRUCK ROAD.

LOTS ARE AS INDICATED ON THE PLAN AND SURVEY OF THE TOWN OF CARRYING PLACE PLANTATION.

Subject
 SEE MAP NOTE 2.

Subject
 SEE MAP NOTE 1.

RECEIVED SOMERSET SS
 RECORDED FROM ORIGINAL

95 DEC 26 PM 12:28

Margaret P. Libby
 REGISTER

LAND OWNERSHIP	
OPC	CMP
A - T1R3 01	B - LOTS 1 & 2; & BELOW 580' ELEV. LOT 3
	C - BELOW 580' ELEV. LOTS 6 & 7; LOT 8; & BELOW 580' ELEV. LOTS 9 - 14
	D - LOTS 15 & 16

OTHER
 X - OUTLOT

COMPOSITE OF PORTIONS OF VARIOUS USGS 7.5' TOPOGRAPHIC MAPS, PROVISIONAL ED. 1989



CARRYING PLACE PLANTATION
 T1R3 BKPWKR

SOMERSET COUNTY, MAINE



LB & KF 12/95

TRAIL USE LEASE AGREEMENT

THIS TRAIL USE LEASE AGREEMENT (the “**Agreement**”) is made this 31st day of MARCH, 2008, by and between **CENTRAL MAINE POWER COMPANY**, a Maine corporation having its principal place of business at 83 Edison Drive, Augusta, ME 04336 (“**CMP**”) and **WESTERN MOUNTAINS CHARITABLE FOUNDATION**, a Maine not-for-profit corporation with a mailing address of 308 North Main Street, Kingfield, Maine 04947, (“**WMCF**”). **CMP** hereby grants to **WMCF** the right to use, for the purposes described below, the following described premises under the following conditions:

Section One Premises

For the purpose of this Trail Use Lease Agreement the Premises are a certain strip of land, being about twelve (12) wide across four noncontiguous parcels and further described as follows and shown on Exhibit A attached hereto and made a part hereof. Trail 1, 2, 3 and 4 are each the “**Premises**” and collectively, the “**Premises.**” All Exhibits referenced herein are incorporated by reference and made a part hereof.

Trail 1-Flagstaff Area

A trail located in the Towns of Carrying Place Town Twp, T2 R3 BKP, WKR and Dead River Twp, T3 R3 BKP, WKR, Somerset County, Maine, located easterly of the westerly line and lying above the 1150-foot elevation contour line. More particularly described as a certain strip of land, except for crossing roads, being twelve (12) feet wide, a distance of 31,400’, containing about 8.3 acres, and being shown on Exhibit A as Trail 1 (“**Trail 1**”) and as shown on Exhibit B and described in Exhibits B2 and B-3 attached hereto and made a part hereof. Trail 1 is subject to the terms and conditions of a Lease between **CMP** and Western Mountains Foundation, dated July 1, 2005 (“**Lease 1**”) and recorded by Memorandum of Lease in Book 3700, Page 282 in said Registry and any amendments thereof. The term for this Agreement shall run consecutively with the term of said Lease. The land subject to the lease is shown on Exhibit B as “**CMP Flagstaff Lease Area**” and described in Exhibit B-1.

Also included in this Agreement are the rights to use certain easements appurtenant to Trail 1 and reserved by **CMP** in a deed to **FPL Energy Maine Hydro LLC** dated April 7, 1999 and recorded in Book 2540, Page 1 in said Registry.

Trail 2-Grand Falls Dam Lot

A trail located in T3 R4, BKP, WKR Spring Lake Township, Somerset County, Maine, being a portion of the Grand Falls Dam Lot, so called, in the north part of said Township, lying on both sides of the Dead River. That certain strip of land, except for crossing roads, being twelve (12) feet wide, a distance of about 4,550 feet, containing about 1.25 acres, and being shown on Exhibit A as Trail 2 (“**Trail 2**”) and as shown on Exhibit C and described in Exhibit C-1, attached hereto and made a part hereof. Trail 2 is subject to the terms and conditions of a Lease between **CMP** and Western Mountains Foundation, dated July 1, 2005 (“**Lease 2**”) and recorded by Memorandum of Lease in Book 3700, Page 279 in said Registry and any amendments thereof. The term for this Agreement shall run consecutively with the term of said Lease.

Trail 3-Enchanted Stream Lot

Four noncontiguous trails located in T2 R5 BKP WKR Lower Enchanted Township, Somerset County, Maine as more particularly described as a certain strip of land, except for crossing roads, each trail being twelve (12) feet wide, a distance of about 6,570 feet, containing about 1.8 acres, and being shown on Exhibit A as Trail 3 (“**Trail 3**”) and as shown on Exhibit D and described in Exhibit D-1, attached hereto and made a part hereof.

Trail 4-Durgin Brook Lot

A trail located in West Forks Plantation, Somerset County, Maine, and more particularly described as a certain strip of land except for crossing roads, being twelve (12) feet wide, a distance of about 2,070 feet, containing about .57 acres, and being shown on Exhibit A as Trail 4 (“**Trail 4**”) and as shown on Exhibit E and described in Exhibit E-1, attached hereto and made a part hereof.

Section Two Term and Rent

The initial term of this Agreement shall commence on the date of execution as stated in paragraph one and shall expire June 30, 2025 unless sooner terminated as provided herein. On July 10, 2010 and every five years thereafter for the Initial Term and any subsequent extension thereof, CMP and the WMCF will negotiate to extend the lease for a period of twenty (20) years (“**Subsequent Term**”). The Subsequent Term will begin in the year in which the Subsequent Term is agreed to (e.g. the fifth, tenth, fifteenth year, etc.) and end on July 11th twenty years thereafter. In no event shall the term be short of this Agreement, whether Initial or Subsequent, be shorter than any term set forth in the Lease 1 or Lease 2. The Parties intend that the terms of this Agreement and Lease 1 and Lease 2, be coterminus.

CMP shall receive recognition for its contribution in granting use of the Premises on signs erected on the Premises and in printed material that publicizes the Trail. In the event CMP provides WMCF with recognition signs, WMCF will place them in appropriate locations along the Trail.

No payment or consideration other than the mutual covenants contained herein shall be paid for this Agreement.

Section Three Leasehold Mortgages

A. WMCF and every successor and assign of WMCF is hereby given the right by CMP in addition to any other rights herein granted, without CMP's prior written consent, to mortgage its interests in the Lease, or any part or parts thereof, on such terms and conditions as WMCF may desire under one or more leasehold mortgages and to enter into any and all extensions, modifications, amendments, renewals, replacements and refinances thereof as WMCF may desire and to assign this Lease, or any part or, parts thereof, and any sublease or subleases as collateral security for such mortgage(s), upon the condition that all rights acquired under such mortgages shall be subject to each and all of the covenants, conditions and restrictions set forth in this Lease, and to all rights and interests of CMP herein, none of which covenants,

conditions or restrictions is or shall be waived by CMP by reason of the right given so to mortgage such interest in this Lease, except as expressly provided herein. No leasehold mortgage given by WMCF under the provisions of this Section shall be deemed to be an assignment of this Lease so as to relieve WMCF of its obligations and liabilities under this Lease or to require the assumption of said obligations and liabilities by the holder(s) of such mortgage.

B. CMP agrees that in the event of termination of this Lease by reason of any default by WMCF that the mortgagee will have the right to continue this Lease in effect, provided:

i. Said mortgagee(s) or its nominee(s) shall make payment to CMP of sums then due to CMP under this Lease.

ii. Said mortgagee(s) or its nominee(s) shall pay to CMP at the time of the request to continue this Lease in effect any and all sums which would at the time of the execution and delivery thereof be due pursuant to this Lease but for such termination, and in addition thereto, any expenses, including reasonable attorneys' fees, to which CMP shall have been subjected by reason of such default.

iii. Said mortgagee(s) or its nominee(s) shall perform and observe all covenants herein contained on WMCF's part to be performed and shall further remedy any other conditions which WMCF under the terminated lease was obligated to perform under the terms of this Lease.

Section Four Specific Use

WMCF's use of the Premises shall not endanger health, create a nuisance, or be incompatible with CMP's use of the Premises in its business as a public utility.

WMCF may only use the Premises for a twelve (12) foot wide paved or unpaved public recreational Trail ("Trail"). The Trail shall be designed and designated so that it will not be used by motorized vehicles such as snowmobiles, ATV's, dirt bikes and other off-road vehicles. This use restriction is not intended to preclude use by motorized wheelchairs and by motorized vehicles engaged in construction, maintenance or repair of the Trail, as provided below. The Premises shall not be used for camping or for any other use without prior written approval from CMP.

WMCF may install improvements such as culverts, small bridges, safety barriers and signs, provided that they do not interfere with CMP's operations, as determined solely by CMP. WMCF, or its agents, may use necessary motorized vehicles for installation of Trail improvements and for Trail maintenance as outlined in Section Six herein.

WMCF's rights under this Agreement are subject to any rights CMP has granted to third parties, even if such rights interfere with WMCF's use of the Premises. CMP also reserves the right to grant rights to third parties for use of all or part of the Premises, even if such rights interfere with WMCF's use of the Premises. However, CMP and its assignees shall work with WMCF to minimize the impact on the Trail, and shall undertake reasonable care not to disturb or damage the Trail or its components. Neither CMP nor CMP's assignees shall be liable to WMCF for any damage to WMCF's property or interference with WMCF's use of the Premises.

CMP may close or relocate the Trail, or portions thereof, on a temporary basis to maintain, repair, replace, or rebuild its utility facilities or to perform necessary land management. WMCF agrees to relocate the trail upon reasonable notice by CMP provided an alternative location acceptable to WMCF is available on CMP lands.

Upon written approval of the Trail location and design by CMP, WMCF shall provide CMP with a plan showing centerline location of the Trail, all improvements to be constructed by WMCF, and the location of CMP's existing poles and guy anchors, if any, located within the above described parcel of CMP ("Trail Plan"). The Trail Plan shall be attached and become part of this Agreement.

Section Five Approval and Timing

Upon execution of this Agreement, WMCF shall promptly seek and make reasonable effort to obtain all necessary federal, state and local approvals, Agreements and permits. WMCF shall not undertake any construction or installation until WMCF has procured all necessary permits or governmental approvals. WMCF also will assure that its use of the Trail is in compliance with all applicable regulations, including, but not limited to, Department of Environmental Protection wetland regulations.

Prior to the cutting or trimming of any trees on the Premises, WMCF will notify appropriate CMP Vegetation Management personnel and subsequently comply with all requirements and conditions of said tree work and removal as set forth by said CMP representatives.

No signs, Trail markers, reflectors, or notices of any kind will be attached to CMP structures.

No portion of said Trail shall pass between poles on a multi-pole structure, or within 15' of any pole or guy wire. However, if in its final design and layout, any portion of the Trail is found to pass within 15' of a transmission pole or guy wire, the WMCF must construct barriers between said pole or guy wires and the Trail which are adequate to protect them from damage. Said barriers shall be approved with respect to design, composition, and installation in writing by appropriate CMP representatives prior to their installation. The construction and maintenance of said barriers, as well as any relocation by CMP of its transmission poles or guy wires to accommodate the provisions of this Agreement shall be at the WMCF's sole cost and expense.

Prior to any excavation of the Premises, WMCF will notify the Dig Safe Call Center at 1-888-DIG-SAFE and comply with the provisions of both the Maine Dig Safe Statute, M.R.S.A., Title 23, Section 3360-A and the Overhead High-Voltage Line Safety Act, M.R.S.A., Title 35A, Section 751, et seq., Chapter 7-A. In the event that WMCF does not receive any necessary permits or approvals within two (2) years of the commencement of this Agreement, and the parties have not previously agreed to an extension of this time frame, this Agreement shall be null and void and CMP and WMCF shall have no further obligations to each other with respect to the subject matter of this Agreement, except for WMCF's obligations under Section Ten below.

Section Six Waste

WMCF shall take all reasonable precautions to ensure that construction, operation and maintenance of the Trail and all associated uses will occur in a manner that will protect the scenic, recreational, and environmental values of the Premises.

WMCF will not make or suffer any waste of the Premises.

Section Seven Operation and Maintenance

WMCF shall perform or arrange for the performance of routine and major maintenance and repair of all improvements related to the construction and use of the Trail located on the Premises, so that they remain orderly and safe. WMCF shall also take reasonable steps to keep the Premises free of litter, such as cans and paper goods. WMCF shall also maintain the Trail in a safe condition, including grading, bridge and culvert construction, maintenance of vegetation affecting the Trail and maintenance of all non-CMP mandated signs. WMCF shall, through its regular publications to its members and public notices relating to the Premises, inform its members and the public of the uses of the Premises permitted under this Agreement. WMCF shall also, through its stewardship program, make reasonable efforts to enforce compliance with such uses and prevent harm or damage to the Premises, including dumping.

CMP may periodically inspect the Premises to determine if maintenance may be necessary and shall notify WMCF within a reasonable time period after discovery by CMP of any necessary maintenance to be performed by WMCF.

In event that WMCF fails promptly to perform its obligations under this Section, CMP may, fourteen (14) days after mailing written notice to WMCF, perform the obligation and invoice WMCF for the reasonable cost of performing the obligation, which costs WMCF shall promptly pay. CMP is under no obligation to perform WMCF's obligations.

Section Eight Requirements of Law

WMCF and CMP shall comply with all governmental laws, orders, ordinances and regulations and with any lawful order of any public officer or officials.

Section Nine Surrender of Premises

Upon expiration of the term or other termination of this Agreement, whether by reason of lapse or time or WMCF's default or otherwise, WMCF shall quit and surrender the Premises, together with all improvements thereon, to CMP in as good order and condition as they are in or may be put into by CMP or WMCF, except for ordinary wear and tear.

Section Ten Insurance

WMCF covenants and agrees, at its sole cost and expense, to obtain, keep, and maintain in full force and effect for the term of this Agreement and any extension thereof for the mutual benefit of CMP and WMCF, a comprehensive general liability insurance policy against claims for damage to persons and property arising out of the use and occupancy of the Premises or any part or parts thereof, with a combined single limit of One Million Dollars (\$1,000,000.00) with no more than a Ten Thousand Dollar (\$10,000.00) deductible.

All insurance required under this Section shall name CMP as an additional insured and shall be issued by an insurer rated B+13 by the latest Best's rating guide. WMCF shall provide CMP with a Certificate of Insurance prior to the commencement of this Agreement. Such Certificate shall state that no material change or cancellation of the insurance coverage can be effective unless and until ten (10) days prior written notice has been given to CMP for cancellation for non-payment and thirty (30) days prior written notice for all other reasons for change or cancellation. Should any policy be canceled during the term of this Agreement and WMCF fails to immediately procure equivalent insurance, CMP shall have the right, at its option but without any duty to do so, to: (1) cancel this Agreement at the lapse of the policy; or, (2) to procure such insurance and to pay the premiums therefore, and all such premiums paid by CMP together with interest from the time of payment until repaid by WMCF, shall be repaid to CMP on demand as additional rent, and, without limiting CMP's remedies, WMCF's failure to repay the same, shall constitute a default under this Agreement.

Section Eleven – Release Indemnification

WMCF is fully familiar with the physical condition of the Premises. CMP has made no representations of whatever nature in connection with the condition of the Premises and WMCF accepts the Premises "as is". Without limiting the foregoing, CMP does warrant and represent that it has sufficient interest in all or any part of the Premises for WMCF to exercise the rights described herein. CMP shall not be liable for any latent or patent defects therein.

Neither CMP, nor its parent company or their affiliates, and its and their directors, officers, employees, agents, contractors, successors and assigns shall be liable for, and WMCF hereby releases them from, all claims of any kind or nature, including but not limited to claims for loss of life, personal injury or damage to property sustained by WMCF or any person claiming through WMCF resulting from any accident, occurrence or condition in or upon the Premises or related to this Agreement, except for damage caused solely by negligent acts or omissions of CMP.

WMCF shall be responsible for any and all damage and related costs caused by the existence of any toxic or hazardous matter, substance or waste caused or allowed, with knowledge of the WMCF, to be brought onto the Premises by WMCF or its employees, members, officers, directors, contractors, agents or invitees during the term of this Agreement or any extension thereof, unless placed there by CMP or occurring on the Premises prior to the date hereof, and shall indemnify and hold harmless CMP and its parent company or their affiliates, and its and their directors, officers, employees, agents, contractors, successors and assigns from and against all claims, actions, damages, liability and expense, including attorneys' fees, arising from or out of the existence of such hazardous matter, substance or waste.

Each party shall be liable for their own attorneys' fees in litigating any matter arising between the parties concerning the enforcement or interpretation of this Agreement.

The provision of this Section shall survive cancellation or termination of this Agreement.

**Section Twelve
Default**

WMCF shall be deemed to be in default under the Agreement if it fails to fully comply with any term or condition of this Agreement within thirty (30) days after receipt of written notice from CMP of any such failure to correct the conditions specified in the notice; provided that if such condition cannot reasonably be cured within thirty (30) days, WMCF shall not be in default if it promptly commences the cure and continues diligently. However, WMCF may be required to correct the condition causing the breach in less than thirty (30) days if necessary to protect the public health or safety, abate a nuisance, or prevent damage to the Premises.

If an event of default occurs as described above, CMP shall have the option to pursue one or more of the following remedies, without notice or demand, in addition to any other remedies provided in this Agreement, in equity or at law:

- a. terminate this Agreement; and
- b. recover from WMCF all damages proximately resulting from the breach, which damages shall be deemed to include without limitation, damages to the Premises, the cost of recovering the Premises, and CMP's reasonable attorney's fees necessary to enforce obligations under this Agreement.

**Section Thirteen
Notices**

Any notice under this Agreement shall be in writing and shall be deemed to be delivered when mailed by registered or certified mail, postage prepaid, addressed to the address of such party set forth below.

WMCF

Western Mountains Charitable Foundation
375 Main Street
Kingfield, Maine 04947
Attn: Larry Warren

CMP

Central Maine Power Company
CMP Real Estate Services
83 Edison Drive
Augusta, ME 04336

Either party may change its above address by giving notice of the change to the other party of such change of address to become effective for all purposes hereunder three (3) days after such notice is given.

**Section Fourteen
Contact Person**

In order to facilitate communication between CMP and WMCF, each party will designate a contact person for communications necessary under this Agreement other than formal notices, which notices shall be sent in accordance with the written notice provisions of this Agreement.

**Section Fifteen
No Waiver**

Failure of CMP to complain of any act or omission on the part of the WMCF, no matter how long the same may continue, shall not be deemed to be a waiver by said CMP of any of its rights hereunder. No waiver by CMP at any time, express or implied, of any breach of any provision of this Agreement, shall be deemed a waiver of such provision or of a subsequent breach of the same of any other provision.

**Section Sixteen
Assignment**

WMCF shall not assign this Agreement or its rights hereunder nor sublet the Premises or any part thereof without the prior written consent of CMP.

**Section Seventeen
Authorization**

WMCF hereby warrants and represents that the execution of this Agreement and the carrying out of all acts required of WMCF by the terms of this Agreement have been properly and effectively approved and authorized by WMCF in accordance with the Maine State Constitution, the Maine Revised Statutes, and the Articles of Incorporation and Bylaws of WMCF.

**Section Eighteen
Miscellaneous Provisions**

If any covenant, provision or condition of this Agreement or the application thereof to any person or circumstances shall be declared to any extent to be invalid or unenforceable, the remainder of this Agreement, or application thereof shall remain in full force and effect.

This Agreement shall inure to and be binding upon the respective successors and permitted assigns of the parties.

No waivers, alterations or modifications of this Agreement shall be valid unless in writing and duly executed by both parties.

This Agreement shall be governed by and constructed in accordance with the laws of the State of Maine.

The captions appearing in this Agreement are inserted only as a matter of convenience and in no way define, limit, construe or describe the scope or intent of the paragraphs of this Agreement or in any way affect this Agreement.

The covenants, provisions and conditions contained in this Agreement constitute the entire agreement between the parties and shall supersede all previous communications, representations, or agreements either verbal or written between the parties with respect to the subject matter of this Agreement.

IN WITNESS WHEREOF, the parties have caused their duly authorized representatives to execute this Agreement on their behalf as of the date first written above.

CENTRAL MAINE POWER COMPANY

By: *Kenneth H. Freye*
Kenneth H. Freye
Manager, Real Estate Services

WESTERN MOUNTAINS CHARITABLE FOUNDATION

By: *Larry Warren*
Name: LARRY WARREN
Its PRESIDENT

STATE OF MAINE
Kennebec, ss.

March 31, 2008

The above named Kenneth H. Freye, Manager, Real Estate Services, personally appeared before me and acknowledged the foregoing Agreement to be his/her free act and deed in his/her said capacity and the free act and deed of said CENTRAL MAINE POWER COMPANY.

Deresa Despres **SEAL**
Notary Public
Notary Public, Maine
Commission Expires August 17, 2013

STATE OF MAINE
FRANKLIN, ss.

March 28, 2008

The above named LARRY WARREN personally appeared before me and acknowledged the foregoing Agreement to be his/her free act and deed in his/her said capacity and the free act and deed of said WESTERN MOUNTAINS CHARITABLE FOUNDATION. **SEAL**

Barbara Nickerson
Notary Public
BARBARA NICKERSON
C.M. Exp. JUNE 25, 2014

EXHIBIT A



EXHIBIT B

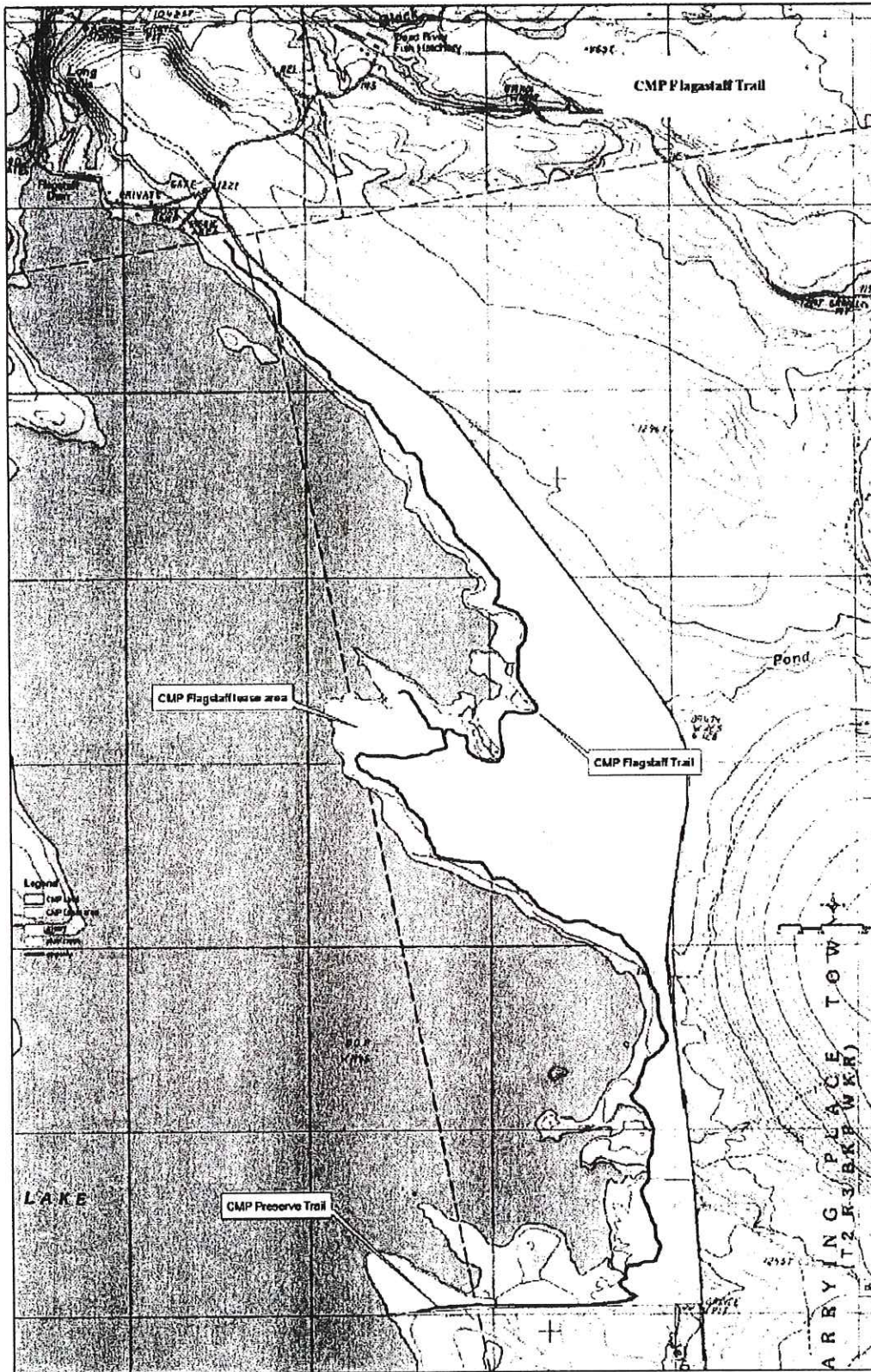


EXHIBIT B-1

Central Maine Power Company
Lease to
Western Mountains Foundation
75 acres

A certain lot or parcel of land situated on a peninsula on the southeasterly shore of Flagstaff Lake in the Townships of Carrying Place Town (T2 R3 BKP WKR) and Dead River (T3 R3 BKP WKR) in the County of Somerset and State of Maine bounded and described as follows, to wit:

Beginning on the southeasterly shore of Flagstaff Lake on the 1150 foot contour (USGS Datum – NGVD29 FEET) at a point having a north coordinate of N 16,420,852.28 and an east coordinate of E 1,336,550.87 Datum UTM Zone 19 FEET NAD83;

Thence, northerly, easterly and southerly, or as the course may be, along the 1150 foot contour an approximate distance of eight thousand one hundred fifty-five (8155) feet to an unmonumented point located at a north coordinate of N 16,421,547.82 and an east coordinate of E 1,338,451.45 Datum UTM Zone 19 FEET NAD83;

Thence, westerly on a course of S 69°-53'-58" W through land of Central Maine Power Company a distance of two thousand twenty-three and eighty-six hundredths (2023.86) feet to the point and place of beginning. Containing 75 acres of land, more or less.

EXHIBIT B-2

CMP Flagstaff Trail

A certain lot or parcel of land being a lease area twelve (12) feet in width situated easterly of, but not abutting, the southeasterly shore of Flagstaff Lake and westerly of, but not abutting, Long Falls Dam Road in the townships of Carrying Place Town (T2 R3 BKP WKR) and Dead River (T3 R3 BKP WKR), Somerset County, Maine, the centerline of said lease is as follows:

Beginning at an unmonumented point (having a north coordinate of N 16,430,541 and an east coordinate of E 1,333,966 Datum UTM Zone 19 FEET NAD83) located on the southerly line of land leased by the State of Maine;

Thence, southerly through land of Central Maine Power Company on the following courses and distances:

S 46°-00'-18" E two hundred one and seventy hundredths (201.70) feet;
 S 03°-44'-46" E two hundred ten and sixty hundredths (210.60) feet;
 S 31°-22'-23" E one hundred twenty and fourteen hundredths (120.14) feet;
 S 54°-16'-21" E one hundred seventy-five and sixty-six hundredths (175.66) feet;
 S 49°-09'-59" E one hundred thirty-three and ninety-two hundredths (133.92) feet;
 S 72°-30'-43" E one hundred ninety-one and forty-eight hundredths (191.48) feet;
 S 50°-32'-48" E three hundred thirty-eight and fifty-nine hundredths (338.59) feet;
 S 24°-51'-49" E one hundred sixty-nine and fifty-eight hundredths (169.58) feet;
 S 04°-15'-14" E three hundred three and fifty-six hundredths (303.56) feet;
 S 02°-07'-16" E one hundred thirty-five and nineteen hundredths (135.19) feet;
 S 45°-35'-05" E three hundred forty-six and seventy-five hundredths (346.75) feet;
 S 35°-04'-39" E three hundred forty-three and ninety-two hundredths (343.92) feet;
 S 58°-45'-03" E three hundred one and forty-two hundredths (301.42) feet;
 S 45°-50'-33" E two hundred forty and sixty-two hundredths (240.62) feet;
 S 07°-51'-12" E one hundred nine and eighty-six hundredths (109.86) feet;
 S 53°-44'-46" E one hundred sixteen and thirty-four hundredths (116.34) feet;
 S 39°-13'-32" E seventy-nine and twelve hundredths (79.12) feet;
 S 63°-18'-09" E two hundred forty-two and twenty-three hundredths (242.23) feet;
 S 48°-10'-47" E one hundred ninety-one and thirty-five hundredths (191.35) feet;
 S 69°-48'-20" E two hundred thirty-one and ninety-two hundredths (231.92) feet;
 S 29°-56'-18" E two hundred seventy-five and seventy-one hundredths (275.71) feet;
 S 35°-45'-39" E three hundred thirty-six and six hundredths (336.06) feet;
 S 60°-35'-04" E one hundred thirty-four and ninety-nine hundredths (134.99) feet;
 S 28°-31'-06" E one hundred thirty-one and fifty-four hundredths (331.54) feet;
 S 84°-59'-13" E one hundred eighty-three and twenty-three hundredths (183.23) feet;
 S 42°-09'-45" E one hundred ninety-four and forty-one hundredths (194.41) feet;
 S 00°-17'-01" E one hundred sixty-one and seventy-two hundredths (161.72) feet;
 S 10°-08'-09" E one hundred forty-five and fifty-eight hundredths (145.58) feet;
 S 11°-02'-47" E two hundred four and seventy-four hundredths (204.74) feet;
 S 26°-58'-22" E one hundred and sixty-one hundredths (100.61) feet;
 S 51°-38'-55" E two hundred seventy-eight and seventy hundredths (278.70) feet;
 S 33°-22'-51" E four hundred fifty-two and fifty-three hundredths (452.53) feet;
 S 07°-58'-11" W eighty and eighty-four hundredths (80.84) feet;
 S 37°-24'-19" E two hundred five and sixty hundredths (205.60) feet;

S 51°-56'-44" E four hundred twenty-six and zero hundredths (426.00) feet;
 S 37°-03'-52" E one hundred eighty-eight and sixty-two hundredths (188.62) feet;
 S 36°-29'-55" E two hundred seventy-one and eighty-eight hundredths (271.88) feet;
 S 48°-41'-29" E one hundred five and fifty-one hundredths (105.51) feet;
 S 03°-17'-21" W two hundred seventy-nine and six hundredths (279.06) feet;
 S 32°-49'-43" W one hundred forty-seven and sixty-seven hundredths (147.67) feet;
 S 68°-52'-49" E one hundred ninety-nine and ninety-seven hundredths (199.97) feet;
 S 71°-51'-43" E two hundred forty-four and thirty-one hundredths (244.31) feet;
 S 33°-46'-56" E two hundred seventy-six and forty-four hundredths (276.44) feet;
 S 12°-38'-32" E eighty-seven and seventy-nine hundredths (87.79) feet;
 S 10°-41'-32" W one hundred sixteen and fifty-one hundredths (116.51) feet;
 S 02°-07'-16" E sixty-four and eighty-nine hundredths (64.89) feet;
 S 37°-52'-30" W two hundred nineteen and seven hundredths (219.07) feet;
 S 04°-11'-06" E one hundred sixty-four and fifty-six hundredths (164.56) feet;
 S 02°-47'-07" W one hundred forty-eight and twenty-eight hundredths (148.28) feet;
 S 03°-07'-30" W one hundred ninety-five and thirty-one hundredths (195.31) feet;
 S 26°-01'-44" E one hundred seventy-one and twenty-one hundredths (171.21) feet;
 S 35°-37'-40" E two hundred three and fifty-seven hundredths (203.57) feet;
 S 40°-59'-09" E two hundred twenty-two and eighty-five hundredths (222.85) feet;
 S 18°-51'-11" E fifty-nine and seventy-four hundredths (59.74) feet;
 S 18°-55'-29" W fifty-one and two hundredths (51.02) feet;
 S 74°-03'-17" W eighty and thirty-one hundredths (80.31) feet;
 S 78°-50'-47" W one hundred twenty-eight and eighteen hundredths (128.18) feet;
 N 80°-21'-56" W eighty-two and twenty-four hundredths (82.24) feet;
 N 79°-36'-10" W one hundred fifty-two and eighty-one hundredths (152.81) feet;
 S 86°-12'-16" W one hundred thirty-three and ninety-three hundredths (133.93) feet;
 S 38°-09'-26" W one hundred seventy-two and three hundredths (172.03) feet;
 S 00°-00'-00" W two hundred forty-six and thirty-nine hundredths (246.39) feet;
 S 09°-15'-09" E two hundred fifteen and ten hundredths (215.10) feet;
 S 09°-15'-09" E sixty-six and eighty-seven hundredths (66.87) feet;
 S 02°-14'-04" W sixty-six and forty-four hundredths (66.44) feet;
 S 06°-34'-55" W thirty-six and nine hundredths (36.09) feet;
 S 32°-18'-23" W seventy and seventy-two hundredths (70.72) feet;
 S 41°-29'-47" W eighty-five and eighty-seven hundredths (85.87) feet;
 N 89°-23'-26" W one hundred sixteen and twenty-six hundredths (116.26) feet;
 N 70°-45'-02" W one hundred sixty-five and six hundredths (165.06) feet;
 N 68°-22'-09" W one hundred fifty-four and thirty-four hundredths (154.34) feet;
 N 54°-26'-42" W one hundred twenty-six and sixty-three hundredths (126.63) feet;
 N 19°-37'-53" W one hundred five and sixty-six hundredths (105.66) feet;
 N 11°-34'-49" E eighty and forty-four hundredths (80.44) feet;
 N 16°-56'-05" W one hundred six and thirty-nine hundredths (106.39) feet;
 N 85°-06'-03" W eighty-six and eighty-nine hundredths (86.89) feet;
 N 67°-22'-48" W ninety-six and forty-seven hundredths (96.47) feet;
 N 47°-54'-39" W one hundred three and thirty-three hundredths (103.33) feet;
 N 87°-05'-20" W ninety-four and twelve hundredths (94.12) feet;
 S 27°-05'-44" W one hundred nineteen and ninety-six hundredths (119.96) feet;
 S 17°-46'-17" E two hundred three and forty-two hundredths (203.42) feet;
 S 65°-25'-58" W ninety-five and fifty-eight hundredths (95.58) feet;

S 79°-19'-49" W one hundred seventy-four and thirty-eight hundredths (174.38) feet;
S 53°-36'-56" W one hundred seventeen and twenty-three hundredths (117.23) feet;
N 84°-48'-20" W one hundred nine and seventy-three hundredths (109.73) feet;
S 78°-12'-57" W three hundred forty-four and seventeen hundredths (344.17) feet;
N 77°-30'-12" W two hundred fifty-two and seventy-three hundredths (252.73) feet;
S 78°-26'-24" W eighty-seven and seventy-two hundredths (87.72) feet;
N 88°-47'-19" W two hundred fifteen and fifty-four hundredths (215.54) feet;
N 79°-02'-45" W one hundred two and seventy-eight hundredths (102.78) feet;
N 76°-11'-42" W one hundred seventeen and thirty-two hundredths (117.32) feet;
S 36°-08'-21" W one hundred twenty-two and fifty-four hundredths (122.54) feet;
S 17°-35'-12" E one hundred fifty-two and ninety-eight hundredths (152.98) feet;
S 36°-13'-08" E fifty-seven and thirty hundredths (57.30) feet;
S 66°-57'-23" E ninety-four and eighty hundredths (94.80) feet;
S 86°-29'-47" E thirty-one and ninety-six hundredths (31.96) feet;
S 50°-23'-43" E one hundred sixty-six and forty-seven hundredths (166.47) feet;
N 83°-11'-55" E seventy-one and forty-seven hundredths (71.47) feet;
S 65°-41'-44" E eighty-eight and fifty-eight hundredths (88.58) feet;
S 70°-52'-29" E eighty-five and forty-five hundredths (85.45) feet;
S 49°-21'-04" E eighty-four and ninety-five hundredths (84.95) feet;
S 56°-34'-45" E one hundred fifty-three and sixty-six hundredths (153.66) feet;
S 27°-40'-52" W forty-four and eighty-five hundredths (44.85) feet;
S 54°-41'-20" E ninety-five and seventy-four hundredths (95.74) feet;
S 26°-44'-14" E ninety-six and ninety-five hundredths (96.95) feet;
S 23°-27'-58" E one hundred eighty-three and eleven hundredths (183.11) feet;
S 58°-27'-55" E one hundred thirty-four and forty-four hundredths (134.44) feet;
S 46°-28'-53" E two hundred thirteen and sixty-eight hundredths (213.68) feet;
S 19°-11'-29" E one hundred twenty-four and seventy-seven hundredths (124.77);
S 06°-42'-35" E fifty-five and seventy-two hundredths (55.72) feet;
S 08°-07'-48" E eighty-two and eighty-six hundredths (82.86) feet;
S 26°-59'-45" E one hundred sixteen and seventeen hundredths (116.17) feet;
S 29°-00'-55" E one hundred eighty-three and eighty-nine hundredths (183.89) feet;
S 05°-49'-35" W thirty-two and seven hundredths (32.07) feet;
S 17°-06'-10" E fifty-three and thirteen hundredths (53.13) feet;
S 61°-05'-13" E one hundred twenty-seven and ninety-two hundredths (127.92) feet;
S 80°-25'-33" E three hundred twenty-eight and eighty hundredths (328.80) feet;
S 84°-07'-15" E two hundred eighty-six and one hundredths (286.01) feet;
N 84°-24'-30" E ninety-three and fifty-four hundredths (93.54) feet;
S 55°-57'-15" E fifty-eight and fourteen hundredths (58.14) feet;
S 33°-31'-50" E one hundred twenty-nine and sixty-five hundredths (129.65) feet;
S 34°-33'-45" E seventy-one and fifteen hundredths (71.15) feet;
S 36°-43'-04" E one hundred forty-seven and one hundredths (147.01) feet;
N 59°-08'-45" E fifty-eight and thirty-nine hundredths (58.39) feet;
S 86°-37'-13" E one hundred sixty-five and sixty-five hundredths (165.65) feet;
S 61°-00'-56" E one hundred three and forty-five hundredths (103.45) feet;
S 49°-06'-36" E one hundred fifty-four and sixteen hundredths (154.16) feet;
S 34°-29'-02" E seventy-eight and nineteen hundredths (78.19) feet;
S 71°-38'-18" E one hundred sixty-one and twenty hundredths (161.20) feet;
S 30°-04'-07" E one hundred fourteen and thirty-five hundredths (114.35) feet;

S 44°-16'-07" E one hundred eight and nineteen hundredths (108.19) feet;
S 38°-14'-02" E one hundred nine and forty-one hundredths (109.41) feet;
S 60°-23'-25" E one hundred thirty-seven and four hundredths (137.04) feet;
S 62°-49'-28" E one hundred sixty-three and ninety-three hundredths (163.93) feet;
S 74°-03'-17" E one hundred four and twenty-seven hundredths (104.27) feet;
S 45°-58'-16" E one hundred eight and sixty-six hundredths (108.66) feet;
S 80°-19'-36" E one hundred sixteen and twenty-four hundredths (116.24) feet;
N 77°-25'-01" E seventy-four and seventy-one hundredths (74.71) feet;
N 88°-34'-04" E seventy-eight and fifteen hundredths (78.15) feet;
N 80°-43'-39" E ninety-six and ninety-seven hundredths (96.97) feet;
S 71°-52'-11" E seventy-seven and forty-one hundredths (77.41) feet;
S 58°-56'-13" E one hundred ninety-three and five hundredths (193.05) feet;
S 71°-50'-34" E one hundred twenty-seven and forty-four hundredths (127.44) feet;
S 64°-21'-57" E one hundred ninety-seven and fourteen hundredths (197.14) feet;
S 77°-26'-18" E one hundred twenty-two and seventy-three hundredths (122.73) feet;
S 30°-57'-50" E two hundred one and twenty hundredths (201.20) feet;
S 50°-26'-00" E one hundred seventy-nine and eighty-nine hundredths (179.89) feet;
S 63°-08'-17" E fifty-six and nineteen hundredths (56.19) feet;
S 35°-47'-51" E two hundred fifty and forty-three hundredths (250.43) feet;
S 15°-47'-51" E one hundred thirty-eight and seventy hundredths (138.70) feet;
S 16°-33'-05" E one hundred sixty-nine and twelve hundredths (169.12) feet;
S 10°-18'-17" E fifty-eight and twenty-three hundredths (58.23) feet;
S 29°-18'-53" E two hundred thirty-six and sixty-nine hundredths (236.69) feet;
S 09°-41'-20" E one hundred sixty-two and forty-seven hundredths (162.47) feet;
S 04°-20'-24" W one hundred forty-six and twenty-five hundredths (146.25) feet;
S 13°-31'-35" E two hundred eighty-three and ninety-two hundredths (283.92) feet;
S 30°-40'-26" E one hundred fifty-four and forty-two hundredths (154.42) feet;
S 06°-22'-25" E one hundred twenty-three and sixteen hundredths (123.16) feet;
S 34°-48'-26" W two hundred thirty-one and fifty-three hundredths (231.53) feet;
S 65°-27'-44" W sixty-five and eighty-four hundredths (65.84) feet;
S 34°-44'-35" W forty-nine and twelve hundredths (49.12) feet;
S 62°-31'-32" W seventy-three and thirty-eight hundredths (73.38) feet;
S 54°-34'-37" W one hundred thirteen and forty-five hundredths (113.45) feet;
S 17°-06'-47" W two hundred sixty-seven and seventy-one hundredths (267.71) feet;
S 29°-16'-05" W sixty-seven and ninety-one hundredths (67.91) feet;
S 13°-42'-25" W one hundred thirty-seven and thirty-eight hundredths (137.38) feet;
S 08°-29'-20" W forty-four and ten hundredths (44.10) feet;
S 39°-37'-24" W seventy-eight and sixty-one hundredths (78.61) feet;
S 44°-29'-02" W one hundred two and twenty hundredths (102.20) feet;
S 37°-08'-19" E one hundred eleven and seven hundredths (111.07) feet;
S 49°-49'-37" E one hundred three and ninety-five hundredths (103.95) feet;
S 55°-20'-41" E one hundred seventeen and ninety-three hundredths (117.93) feet;
S 24°-19'-56" E two hundred seventy-six and fifty-two hundredths (276.52) feet;
S 24°-42'-47" E one hundred twenty-six and fourteen hundredths (126.14) feet;
S 06°-41'-43" W one hundred fifty and seventy-seven hundredths (150.77) feet;
S 04°-01'-10" W two hundred forty-one and forty-eight hundredths (241.48) feet;
S 23°-31'-13" W one hundred thirty-seven and four hundredths (137.04) feet;
S 20°-04'-55" W sixty-four and forty-seven hundredths (64.47) feet;

S 05°-11'-40" W thirty-five and ninety-five hundredths (35.95) feet;
S 00°-32'-26" E sixty-nine and one hundredths (69.01) feet;
S 19°-14'-58" E forty-three and forty-four hundredths (43.44) feet;
S 10°-18'-17" E twenty-nine and twelve hundredths (29.12) feet;
S 11°-44'-19" W fifty-one and twenty hundredths (51.20) feet;
S 10°-11'-29" E fifty-eight and eighty-seven hundredths (58.87) feet;
S 05°-11'-40" W twenty-one and fifty-seven hundredths (21.57) feet;
S 31°-13'-06" W twenty-five and twelve hundredths (25.12) feet;
S 34°-45'-04" W one hundred twenty-six and seventy-eight hundredths (126.78) feet;
S 31°-41'-27" W eighty-seven and ninety-nine hundredths (87.99) feet;
S 11°-27'-32" E ninety-eight and thirty-one hundredths (98.31) feet;
S 13°-51'-40" E fifty-one and sixty-three hundredths (51.63) feet;
S 24°-58'-26" E fifty-two and forty-three hundredths (52.43) feet;
S 27°-37'-03" E one hundred ten and ninety-five hundredths (110.95) feet;
S 16°-10'-43" E two hundred nineteen and sixty-four hundredths (219.64) feet;
S 28°-05'-41" E one hundred nine and eight hundredths (109.08) feet;
S 39°-59'-13" E twenty-one and seven hundredths (21.07) feet;
S 06°-18'-03" E two hundred fifty-one and fifty-two hundredths (251.52) feet;
S 37°-45'-07" E one hundred forty-eight and eighty-seven hundredths (148.87) feet;
S 21°-33'-00" W two hundred seventy-eight and thirty-four hundredths (278.34) feet;
S 53°-03'-16" W twenty-three and forty-two hundredths (23.42) feet;
S 88°-26'-24" W one hundred ninety-one and forty hundredths (191.40) feet;
S 56°-18'-36" W ninety-five and fifty-eight hundredths (95.58) feet;
S 85°-41'-02" W two hundred one and twenty-nine hundredths (201.29) feet;
S 24°-22'-35" W eighty-eight and seventy hundredths (88.70) feet;
S 10°-53'-08" W sixty-six and eighty-five hundredths (66.85) feet;
S 05°-16'-47" E seventy-seven and four hundredths (77.04) feet;
S 62°-51'-54" W thirty-two and twenty-five hundredths (32.25) feet;
S 71°-33'-54" W forty-four and twenty-four hundredths (44.24) feet;
S 46°-43'-12" W sixty-three and fifty-three hundredths (63.53) feet;
S 12°-31'-44" E fifty-eight and nineteen hundredths (58.19) feet;
S 50°-25'-48" E two hundred thirty-five and eighty-two hundredths (235.82) feet;
S 68°-39'-15" E one hundred seventeen and ninety-one hundredths (117.91) feet to an unmonumented point (having a north coordinate of N 16,411,750 and an east coordinate of E 1,341,312 Datum UTM Zone 19 FEET NAD 83).

EXHIBIT B-3

CMP - Preserve

A certain lot or parcel of land being a lease area twelve (12) feet in width situated westerly of, but not abutting, Long Falls Dam Road in Dead River Twp (T3 R3 BKP WKR), Somerset County, Maine, the centerline of said lease is as follows:

Beginning at an unmonumented point (having a north coordinate of N 16,411,750 and an east coordinate of E 1,341,312 Datum UTM Zone 19 FEET NAD83);

Thence, westerly as the course may be along the centerline of an existing trail on the following courses and distances:

S 64°-05'-09" W one hundred fifty and sixteen hundredths (150.16) feet;
S 81°-15'-14" W two hundred eighty-five and eighty-six hundredths (285.86) feet;
S 82°-52'-30" W three hundred fifty and forty-five hundredths (350.45) feet;
S 89°-01'-44" W four hundred twenty-seven and forty-nine hundredths (427.49) feet;
N 89°-15'-39" W one thousand one hundred twenty-three and zero hundredths (1123.00) feet;
N 89°-15'-56" W five hundred sixty-five and twelve hundredths (565.12) feet;
S 87°-06'-31" W seven hundred eighteen and thirteen hundredths (718.13) feet;
S 78°-03'-21" W three hundred eighty-five and five hundredths (385.05) feet to an unmonumented point (having a north coordinate of N 16,411,496 and an east coordinate of E 1,337,338 Datum UTM Zone 19 FEET NAD83)

EXHIBIT C

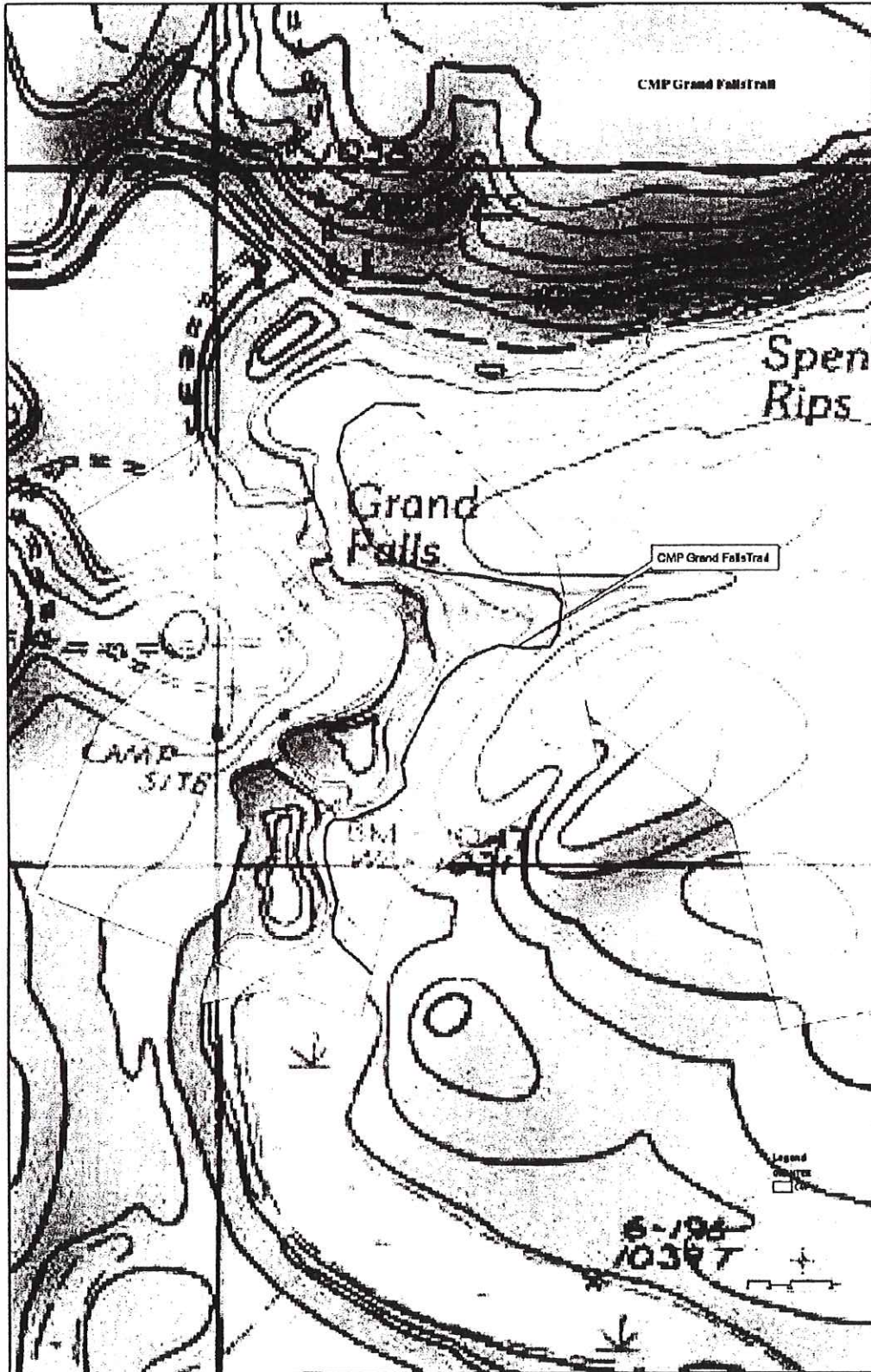


EXHIBIT C-1

CMP Grand Falls

A certain lot or parcel of land being a lease area twelve (12) feet in width situated easterly of, but not abutting, Dead River in Spring Lake Township (T3 R4 BKP WKR), the centerline said lease area being as follows:

Beginning at an unmonumented point (having a north coordinate of N 16,459,534 and an east coordinate of E 1,326,569 Datum UTM Zone 19 FEET NAD83) located on the easterly line of land of Central Maine Power Company (Grand Falls Parcel);

Thence, southerly and easterly as the course may be along the centerline of an existing trail through land of Central Maine Power Company on the following courses and distances:

N 87°-47'-51" W two hundred eleven and fifty hundredths (211.50) feet;
 S 55°-37'-11" W one hundred eighty-seven and fourteen hundredths (187.14) feet;
 S 13°-14'-26" W one hundred forty-one and ninety-six hundredths (141.96) feet;
 S 17°-44'-41" E two hundred thirteen and thirty-seven hundredths (213.37) feet;
 S 23°-57'-45" E two hundred forty and eighteen hundredths (240.18) feet;
 S 57°-59'-41" E one hundred fifty-three and thirty-seven hundredths (153.37) feet;
 S 75°-57'-50" E two hundred one and nine hundredths (201.09) feet;
 S 85°-25'-34" E two hundred three and eighty-seven hundredths (203.87) feet;
 S 79°-12'-57" E three hundred forty-seven and fifty-four hundredths (347.54) feet;
 S 40°-36'-05" E seventy-four and ninety-four hundredths (74.94) feet;
 S 07°-07'-30" W one hundred thirty-one and seven hundredths (131.07) feet;
 S 26°-33'-54" W ninety and eighty-eight hundredths (90.88) feet;
 S 85°-54'-52" W one hundred fourteen and nine hundredths (114.09) feet;
 N 82°-52'-30" W one hundred thirty-one and seven hundredths (131.07) feet;
 S 68°-11'-55" W one hundred seventy-five and ten hundredths (175.10) feet;
 S 46°-10'-29" W one hundred sixty-four and seventy-seven hundredths (164.77) feet;
 S 27°-57'-03" W three hundred thirty-nine and thirty-seven hundredths (339.37) feet;
 S 23°-07'-53" W eighty-five and sixty-six hundredths (85.66) feet;
 S 12°-26'-22" E one hundred six and fifty-one hundredths (106.51) feet;
 S 47°-29'-22" W one hundred twenty-four and forty-nine hundredths (124.49) feet;
 S 67°-17'-40" W sixty-three and zero hundredths (63.00) feet;
 S 66°-36'-53" W one hundred twenty-three and thirty-one hundredths (123.31) feet;
 S 89°-00'-44" W eighty-eight and seventy-two hundredths (88.72) feet;
 S 43°-36'-10" W forty-four and thirty-six hundredths (44.36) feet;
 S 10°-50'-25" W seventy-three and nineteen hundredths (73.19) feet;
 S 03°-10'-47" E eighty-two and seventy-two hundredths (82.72) feet;
 S 15°-41'-24" E one hundred forty-one and thirty-nine hundredths (141.39) feet;
 S 11°-46'-06" E seventy-four and ninety-nine hundredths (74.99) feet;
 S 12°-14'-20" W seventy-two and fifteen hundredths (72.15) feet;
 S 00°-00'-00" E eighty-two and fifty-nine hundredths (82.59) feet;
 S 38°-30'-02" E eighty-five and ninety-nine hundredths (85.99) feet;
 S 50°-26'-25" E ninety-one and twenty-six hundredths (91.26) feet;

S 44°-18'-35" E eighty-nine and seventy-seven hundredths (89.77) feet to an unmonumented point (having a north coordinate of N 16,456,845 and an east coordinate of E 1,326,333 Datum UTM Zone 19 FEET NAD83) located on the easterly line of land of Central Maine Power Company.

EXHIBIT D

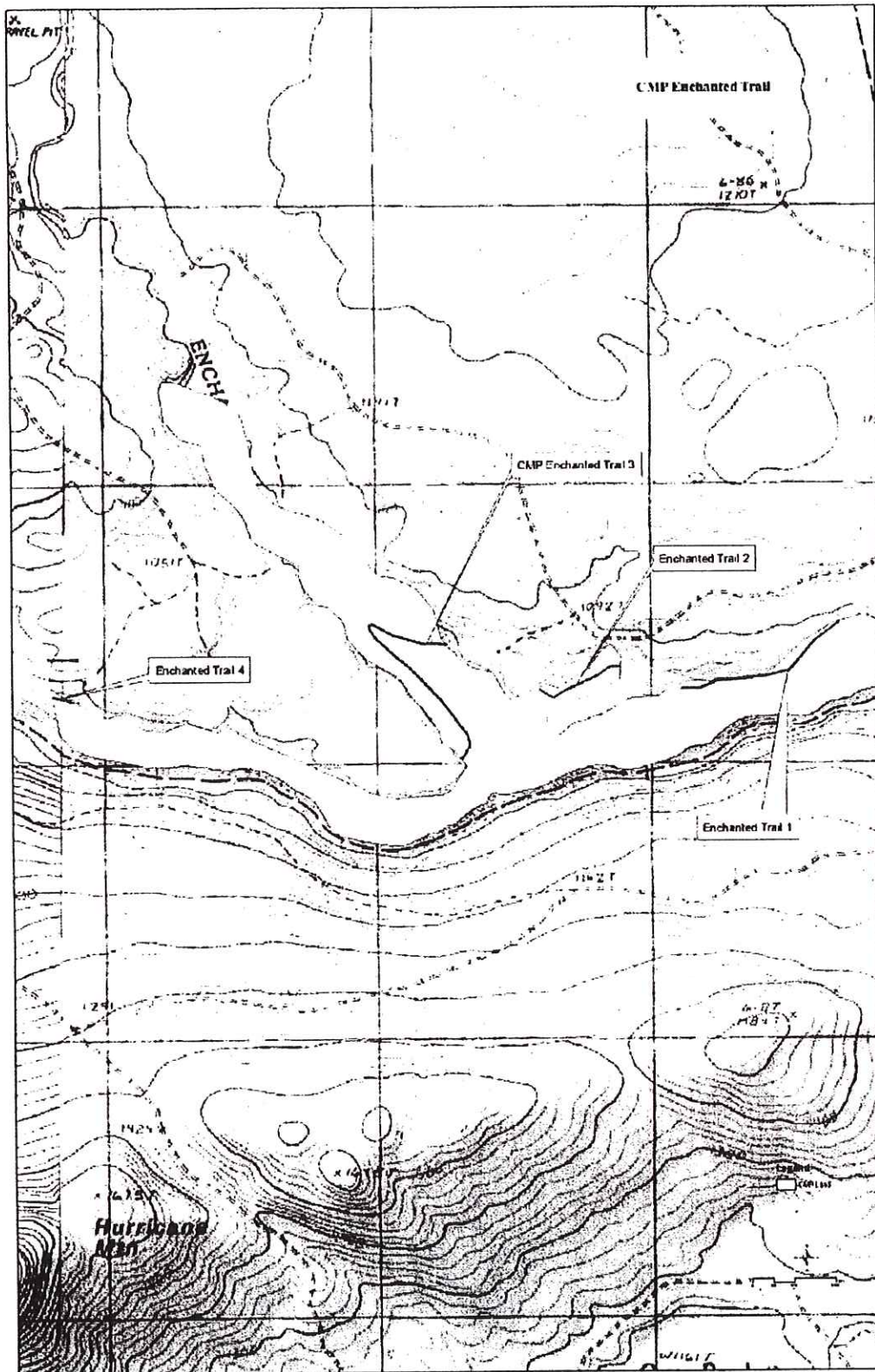


EXHIBIT D-1

Four certain lots or parcels of land being lease areas twelve (12) feet in width situated westerly of, but not abutting, U.S. Route 201 and northerly of, but not abutting, Dead River in Lower Enchanted Township, Somerset County, Maine, the centerline of each lease area being further described as follows:

CMP Enchanted 1

Beginning at an unmonumented point (having a north coordinate of N 16,472,156 and an east coordinate of E 1,360,669 Datum UTM Zone 19 FEET NAD83) located on the northerly line of land of Central Maine Power Company (reference a deed dated May 1, 1923 and recorded in the Somerset County Registry of Deeds in Book 373 Page 250);

Thence, southerly and westerly along the centerline of an existing trail on the following courses and distances:

S 55°-00'-29" W three hundred seventy-four and thirty-five hundredths (374.35) feet;

S 41°-23'-30" W four hundred eighty-two and thirty-seven hundredths (482.37) feet;

S 77°-20'-51" W three hundred eight and two hundredths (308.02) feet;

S 84°-35'-17" W five hundred eighty-five and thirty hundredths (585.30) feet;

S 67°-14'-56" W two hundred six and eighteen hundredths (206.18) feet;

N 90°-00'-00" W two hundred twenty and eighty-one hundredths (220.81) feet to an unmonumented point (having a north coordinate of N 16,471,377 and an east coordinate of E 1,358,749 Datum UTM Zone 19 FEET NAD83) located on the northerly line of land of Central Maine Power Company.

CMP Enchanted 2

Beginning at an unmonumented point (having a north coordinate of N 16,471,635 and an east coordinate of E 1,358,031 Datum UTM Zone 19 FEET NAD83) located on the easterly line of land of Central Maine Power Company;

Thence, westerly and southwesterly along the centerline of an existing trail on the following courses and distances:

N 86°-49'-13" W one hundred ten and fifty-seven hundredths (110.57) feet;

S 54°-51'-57" W two hundred two and fifty hundredths (202.50) feet;

S 66°-22'-14" W four hundred twenty-eight and forty-seven hundredths (428.47) feet;

S 59°-44'-37" W one hundred seventy and forty-two hundredths (170.42) feet;

N 56°-49'-17" W one hundred ninety and fifty-four hundredths (190.54) feet to an unmonumented point (having a north coordinate of N 16,471,371 and an east coordinate of E 1,357,056 Datum UTM Zone 19 FEET NAD83) located at or near the northerly line of land of Central Maine Power Company.

CMP Enchanted 3

Beginning at an unmonumented point (having a north coordinate of N 16,471,898 and an east coordinate of E 1,355,951 Datum UTM Zone 19 FEET NAD83) located on the northeasterly line of land of Central Maine Power Company being northeasterly of Enchanted Stream;

Thence, northwesterly and southwesterly crossing Enchanted Stream at one point on the following courses and distances:

N 79°-19'-49" W eighty-six and fifty hundredths (86.50) feet;
N 90°-00'-00" W one hundred ninety-nine and fifty-seven hundredths (199.57) feet;
N 73°-44'-23" W three hundred sixty-nine and fifty-seven hundredths (369.57) feet;
N 61°-35'-41" W two hundred seventy-four and fifty hundredths (274.50) feet;
S 65°-08'-11" W fifty-five and sixty-seven hundredths (55.67) feet;
S 27°-17'-03" E one hundred thirty-one and sixty-eight hundredths (131.68) feet;
S 47°-53'-19" E three hundred eighty and twenty-seven hundredths (380.27) feet;
S 50°-13'-59" E two hundred thirty-three and ninety-nine hundredths (233.99) feet;
S 42°-53'-38" E five hundred one and fifty-eight hundredths (501.58) feet;
S 37°-17'-17" E four hundred twelve and five hundredths (412.05) feet;
S 36°-09'-29" E ninety-six and eighty-five hundredths (96.85) feet;
S 14°-22'-53" E one hundred twenty-one and nine hundredths (121.09) feet;
S 30°-31'-47" W one hundred thirty-six and seventeen hundredths (136.17) feet;
S 42°-52'-44" W fifty-seven and forty-six hundredths (57.46) feet to an unmonumented point (having a north coordinate of N 16,470,553 and an east coordinate of E 1,356,112 Datum UTM Zone 19 FEET NAD83) located at or near the northeasterly line of land of Central Maine Power Company.

CMP Enchanted 4

Beginning at an unmonumented point (having a north coordinate of N 16,471,248 and an east coordinate of E 1,351,442 Datum UTM Zone 19 FEET NAD83) located at the easterly line of land of Central Maine Power Company;

thence, westerly through land of Central Maine Power Company on the following course and distance:
N 73°-32'-53" W two hundred thirty-six and sixty-two hundredths (236.62) feet to an unmonumented point (having a north coordinate of N 16,471,315 and an east coordinate of E 1,351,215 Datum UTM Zone 19 FEET NAD83) located on the easterly line of land conveyed to Western Mountains Foundation by a deed from Penobscot Forest LLC dated December 28, 2005 and recorded in the Somerset County Registry of Deeds in Book 3651 Page 074.

EXHIBIT E

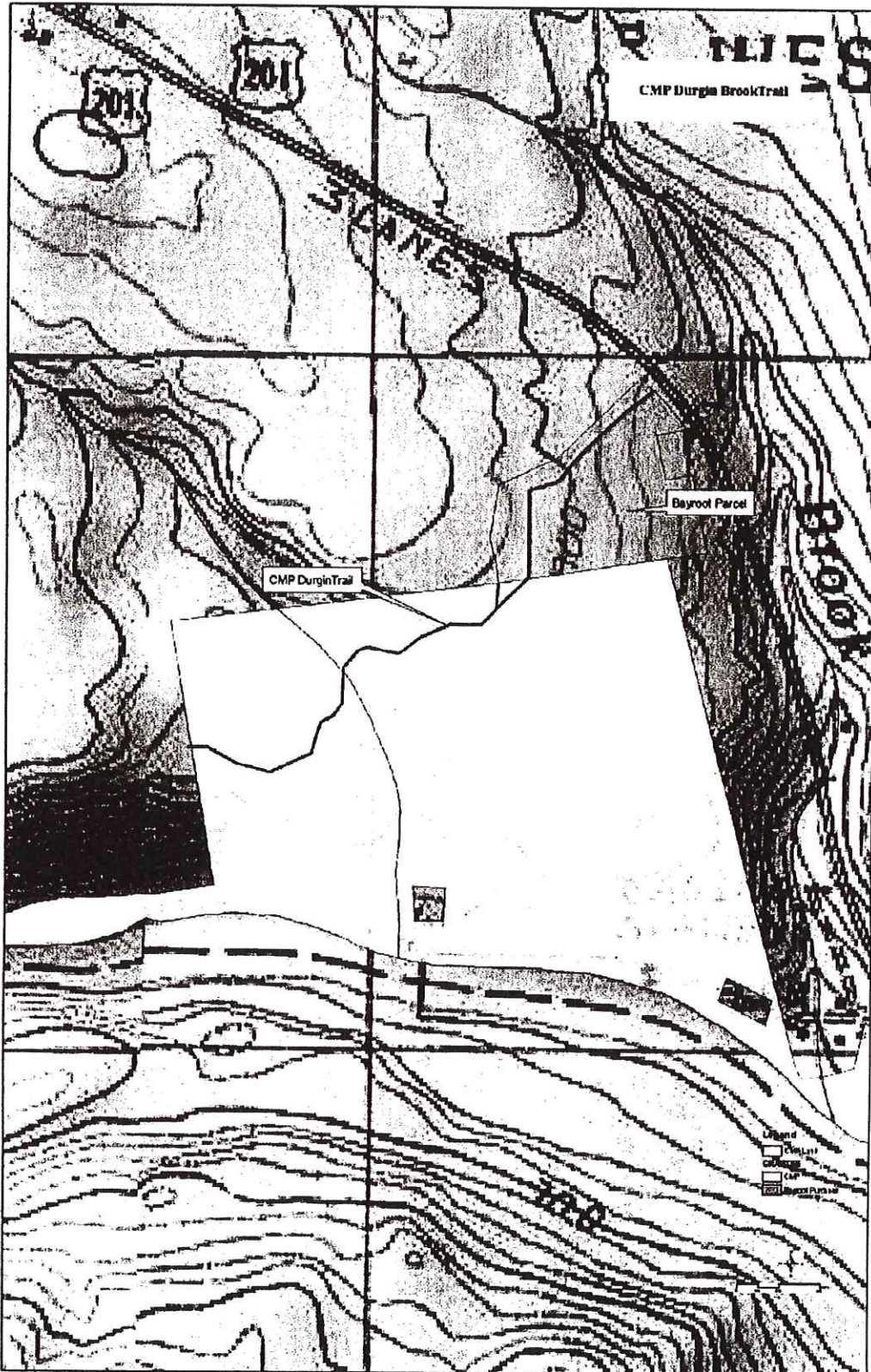


EXHIBIT E-1

CMP Durgin

A certain lot or parcel of land being a lease area twelve (12) feet in width situated westerly of, but not abutting, U.S. Route 201 in West Forks Plantation, Somerset County, Maine, the centerline of said lease area is as follows:

Beginning at or near the southerly boundary line of land conveyed to Bayroot, LLC by a deed dated November 21, 2003 and recorded in the Somerset County Registry of Deeds in Book 3237 Page 181 (having a north coordinate of N 16,479,411 and an east coordinate of E 1,385,357 Datum UTM Zone 19 FEET NAD83);

Thence, southerly, southwesterly and westerly or as the course may be, along the centerline of an existing trail on the following courses and distances:

S 05°-30'-16" W one hundred twenty-five and ten hundredths (125.10) feet;
S 44°-17'-58" W one hundred two and forty-seven hundredths (102.47) feet;
N 89°-03'-34" W one hundred forty-five and eighteen hundredths (145.18) feet;
S 65°-13'-36" W one hundred fifty-six and ninety-four hundredths (156.94) feet;
S 54°-18'-14" W one hundred twenty-nine and eighty-eight hundredths (129.88) feet;
N 78°-54'-29" W one hundred fifty-seven and fifty hundredths (157.50) feet;
S 65°-14'-17" W forty-eight and nineteen hundredths (48.19) feet;
S 41°-42'-09" W ninety-nine and sixty-one hundredths (99.61) feet;
S 03°-08'-33" W one hundred seventy-four and sixty-six hundredths (174.66) feet;
S 36°-41'-09" W seventy-two and five hundredths (72.05) feet;
S 62°-21'-06" W sixty-four and sixty-six hundredths (64.66) feet;
S 20°-45'-21" W sixty-two and seventy-three hundredths (62.73) feet;
S 15°-20'-12" W ninety and seventy-two hundredths (90.72) feet;
S 65°-44'-42" W two hundred eighteen and fourteen hundredths (218.14) feet;
N 76°-19'-11" W one hundred sixty-nine and twenty-four hundredths (169.24) feet;
N 60°-58'-30" W one hundred fifty-nine and forty-two hundredths (159.42) feet;
S 87°-42'-29" W ninety-five and seventy-four hundredths (95.74) feet to an unmonumented point at or near the westerly line of land of Bayroot, LLC (having a north coordinate of N 16,478,518 and an east coordinate of E 1,383,748 Datum UTM Zone 19 FEET NAD83).

Received
Recorded Register of Deeds
Apr 24, 2008 01:42P
Somerset County
Diane M Godin

TRAIL USE AGREEMENT

THIS TRAIL USE AGREEMENT is made this 1st day of April, 2011 between and among CENTRAL MAINE POWER COMPANY, a Maine corporation having its principal place of business at 83 Edison Drive, Augusta, ME 04336 ("CMP") and the STATE OF MAINE, ACTING THROUGH THE DEPARTMENT OF CONSERVATION, BUREAU OF PARKS AND LANDS, OFF-ROAD VEHICLE DIVISION with a mailing address of 22 State House Station, Augusta, ME 04333-0022 ("MDOC") and its delegate(s), as permittee(s) under Section Sixteen hereof, including all Licensees listed in Schedule B ("Co-Licensees") who shall have the duty to abide by all the obligations and responsibilities of this license pertaining to Licensee. (MDOC and Co-Licensees are collectively referred to herein collectively as "Licensee" unless otherwise expressly provided.) Schedule B to be attached hereto and made a part of this agreement may be amended from time to time by the parties hereto to add or delete Co-Licenses in accordance with the terms of this Trail Use Agreement. CMP hereby grants to Licensee a revocable right to use, for the purposes described below; the following described premises ("Premises") under the conditions set forth herein.

Section One - Premises

The Premises shall consist of so much of CMP's lands and rights of way lying within six (6) feet on either side of the centerline of the public recreational trail, together with the necessary side slopes; drainage rights, culverts, bridges and bridge abutments (collectively the "Trail") as shown on Schedule A plans, which shall be provided to CMP by Licensee as set forth below. Provided further that whenever the term Premises is used herein with respect to Licensee's obligations hereunder, the Premises shall include so much of CMP's lands and rights of way as Licensee may from time to time use, traverse upon or otherwise impact in connection with its construction, maintenance and use of the Trail. The Trail location will be shown on the Plans using GPS "tracks" or comparable technology in the location agreed to by CMP and MDOC. Schedule A may be amended from time to time by the parties hereto to add or delete Trails in accordance with the terms of this Trail Use Agreement. CMP and MDOC agree that within twenty-four (24) months of the execution of this Trail Use Agreement, MDOC will provide Plans to CMP for trail locations currently licensed under existing agreements ("Existing Licenses"). Upon providing such Plans, an amended Schedule A, reflecting the new Plans, will be attached and made a part of this Trail Use Agreement and the pertinent Existing License shall become null and void.

Attached hereto as Schedule B is a listing, as of the date of this Trail Use Agreement, of those organizations currently maintaining portions of the Trail together with a designation indicating which portion(s) of the Trail the organization is maintaining. No less frequently than annually, MDOC shall provide CMP with an updated listing of organizations using and maintaining portions of the Trail pursuant to this Trail Use Agreement, and designating therein the portions of the Trail so used and maintained by each said organization. Submission of Schedule B, as from time to time updated by MDOC, shall constitute a further representation by MDOC that each organization listed on Schedule B has agreed to be bound by the terms of this Trail Use Agreement.

Section Two - Term, Consideration

2.1. Term.

The term of this Trail Use Agreement is for three (3) years commencing on the date of execution of this Trail Use Agreement unless sooner terminated as provided herein. Provided the Licensee is not then in default, as defined in Section Twelve, herein, CMP will automatically renew this Trail Use Agreement for


additional one year terms unless either party gives the other written notice of its intent to terminate this Trail Use Agreement at least thirty (30) days prior to the end of the then current term.

2.2. Consideration.

The mutual covenants contained herein will constitute the consideration for this Use Agreement. CMP shall not be paid a fee for the permission granted hereunder.

Section Three - Specific Use

3.1. Permitted Uses.

 The purpose of this Trail Use Agreement is to provide revocable permission for limited public recreational access across the Premises, to the extent of CMP's fee ownership or permitted under CMP's rights of way and easements. Subject to any restrictions pertaining to any such fee ownership, right of way or easement of CMP, Licensee may only use the Premises for a 12-foot wide recreational access Trail for recreational use by pedestrians, bicycles, snowmobiles and/or All Terrain Vehicles ("ATV") in accordance with and subject to the terms, conditions and restrictions contained in this Trail Use Agreement. For the purpose of this Trail Use Agreement, an ATV is defined as a motorized, off-road, recreational vehicle having 3 or 4 wheels, being 60 inches or less in width. For the purpose of this Trail Use Agreement, a snowmobile is defined as a tracked motorized vehicle with two parallel skis located at the front of the vehicle. Said vehicle shall not exceed 60 inches in width. Certain ATVs modified with tracks may be registered as snowmobiles and are permitted if they meet the width restrictions. The Licensee will designate the specific Trail on plans to be submitted and approved by CMP, which plans shall be incorporated into or attached to Schedule A. The design of the Trail will not accommodate road-licensed vehicles, and Licensee shall post the Trail to specifically prohibit use of the Trail by dirt bikes, motorcycles and road-licensed vehicles. Additionally, Trails designated for snowmobile use only shall be posted for "No ATV" use. These use restrictions are not intended to preclude use by motorized vehicles engaged in construction, maintenance or repair of the Trail, as provided below. Licensee shall not be permitted to pave any of the Trails without the prior written consent of CMP, which consent may be withheld at CMP's discretion. Licensee has the right to temporarily halt or revoke the use of any or all Trails, or sections thereof, licensed under this Trail Use Agreement over the Premises, or any portion thereof if, in its sole discretion, it determines that conditions, including but not limited to weather, have caused or will cause environmental damage to the Premises or waters contained therein.

3.2. Camping Prohibited Without CMP Consent.

Licensee shall not use any portion of the Premises for camping or for any use other than specified in Section 3.1 without the prior written consent of CMP which consent may be withheld at CMP's discretion.

3.3 Improvements.

Licensee may install improvements such as culverts, small bridges, safety barriers and signs, provided that they do not interfere with CMP's operations, as determined solely by CMP and are in strict compliance with Section Four below. Licensee, or its agents, may use, as necessary, motorized vehicles for installation of Trail improvements and for Trail maintenance.

Section Four – Licensee Obligations and Restrictions

4.1. Improper Activities.

Licensee shall not use the Premises in any manner that will endanger health, create a nuisance, or be incompatible with CMP's use of the Premises in its business as a public utility. Each Licensee shall use the Premises in a safe manner and comply with all applicable federal, state and local laws, including without limitation, any laws pertaining to the use and operation of recreational vehicles (e.g., 12 M.R.S.A. § 13001 et seq, 13101 et. seq., 13151 et. seq. and 13157-A. Licensee shall take reasonable measures to inform any person using the Trail about Licensee's obligations under this section and require such users to strictly adhere to the obligations hereunder.

4.2. Notification to Abutting Landowners.

Prior to the initiation of any Trail construction and the proposed use of any new portion of the Trail, Licensee or Co-Licensees will provide written notification of the proposed Trail to all abutting landowners of record along the affected Premises. Licensee shall investigate at its expense any landowner objections resulting from such notification(s), or any complaints arising from the ensuing use of the Trail. The resolution of such objections or complaints shall be determined to the reasonable satisfaction of CMP, Licensee and said landowner(s).

4.3. Trail Location.

Licensee shall obtain CMP's prior written approval to the location(s) of any additions and modifications to the trails authorized by this Agreement. To the extent practicable and in accordance with State of Maine laws, including but not limited to laws and regulations related to ATV and snowmobile operation, the Trail will be located along the outer edge of CMP's lands, unless otherwise approved in writing by CMP and subject to Section 6.3 below. Co-Licensee shall mark the proposed Trail with flagging prior to CMP inspecting the Trail location. Licensee or Co-Licensee may have a representative(s) accompany the CMP inspector on the site visit. CMP inspector will conduct a post-construction inspection when notified of completion of construction.

4.4. Trail Construction and Excavation Work.

Licensee shall perform any construction, maintenance and excavation work in compliance with (i) any and all applicable federal, state, and local laws, and (ii) any applicable CMP standards regarding work conducted within its rights of ways which standards shall be provided by CMP to Licensee in advance of any such work. At least ten (10) business days prior to commencement of any Trail construction, maintenance or excavation involving the use of heavy equipment on the Premises, Licensee will contact the line superintendent of CMP's Transmission Department at (207) 626-9562, or such other contact person as CMP may from time to time designate. Without limiting the generality of the foregoing, or the provisions of Section Five below, Licensee shall comply with the following standards, rules and restrictions:

4.4.1 All notification requirements under the Dig Safe Call Center at 1-888-DIG-SAFE and comply with the provisions of both the Maine Dig Safe Statute, M.R.S.A., Title 23, Section 3360-A as from time to time amended, and any rules and regulations pertaining thereto.

4.4.2 The Overhead High-Voltage Line Safety Act, M.R.S.A., Title 35A, Section 751, et seq., Chapter 7-A, as from time to time amended, and any rules and regulations pertaining thereto.

Art Brown
Elec.
Maint.
Eng

★ 4.4.3. Licensee will not allow any vehicle, equipment or machinery to come within an area in which any part of it, including but not limited to any arm, bucket, blade or knuckle, has the capability, even if improbable, of extending to within fifteen (15) feet of CMP's overhead wires on the Premises.

★ 4.4.4. Licensee shall permit no excavation or construction on the Premises unless all necessary permits or any necessary third-party consents and approvals have been obtained and Licensee has complied with the foregoing provisions. When excavation is required and approved, a CMP inspector may be required to be present during such excavation at the sole cost and expense of the Licensee or Co-Licensee. Excavation work that does require the presence of an inspector will be performed Monday through Friday from 7:00 AM to 5:00 PM.

4.4.5. No portion of the Trail may pass between poles on a multi-pole structure, or within 25 feet of any pole, guy wire or substation fence. In the event that any portion of the Trail is found to pass within 25 feet of a transmission pole, guy wire or substation fence, CMP may, subject to the provisions of paragraph 4.12.1 below, (i) require Licensee to remove or relocate the Trail, (ii) require Licensee to construct, between said pole, guy wires or fence and the Trail, barriers that are adequate to protect said poles and guy wires from damage, or (iii) relocate its transmission poles or guy wires in order to accommodate the provisions of this Trail Use Agreement, (iv) Trails constructed prior to the date of this Agreement that are at least 15 feet from structures, may not be required to meet the 25 foot restriction. Licensee shall not install any such barrier without first obtaining CMP's written approval of the design, composition and installation thereof, and the construction and maintenance of said barriers, as well as any relocation of transmission poles or guy wires, will be at the Licensee's sole cost and expense.

4.5. Changes in Trail Plans.

At such time as Licensee shall obtain any written approval by CMP for a new Trail or a change in an existing Trail location and design, Licensee will provide CMP with a plan showing centerline location of the Trail, all improvements to be constructed by Licensee and the location of CMP's existing poles and guy anchors, if any, located within the Premises. As set forth above any new Trail plan will be attached and become part of Schedule A and shall become subject to the terms of this Trail Use Agreement.

4.6. Vegetation Management.

Licensee may only cut vegetation and timber to the extent required to establish and maintain the Trail. Prior to the cutting, pruning or trimming of any trees of 10 feet or higher on the Premises, Licensee will notify appropriate CMP Vegetation Management personnel by calling (207) 621-3943 and subsequently comply with all requirements and conditions as set forth by said CMP representatives, as well as in accordance with all State and municipal laws and requirements. At no time will Licensee pile or burn any trimmed vegetation on the transmission corridor. All vegetative waste will be chipped on site or hauled away. Licensee shall use only CMP pre-approved contractors for the cutting or trimming of any trees of 10 feet or higher. CMP assumes no obligation or liability under this Trail Use Agreement to trim or cut trees in and around the Trails for purposes of establishing and maintaining the Trail. Nothing contained herein shall limit or compel CMP to perform at its discretion vegetation management. Any CMP Vegetation Management performed by CMP shall be for CMP's sole benefit.

4.7. Signs and Postings.


Licensee may erect signage as needed to identify the Trail and its appropriate use in accordance with the guidelines and procedures adopted by the State of Maine, Department of Conservation, Bureau of Parks & Lands. No signs, Trail markers, reflectors, or notices of any kind will be attached to CMP structures.

Licensee will recognize CMP's grant of this Trail Use Agreement on any signs erected by the Licensee on the Premises and through any printed materials of Licensee that publicize the Trail. In the event CMP provides Licensee with recognition signs, and provided the signs are not otherwise contrary to any applicable law or regulation, Licensee will place them at trailheads and in other appropriate locations along the Trail. Upon written request, CMP shall have the right but not the obligation to review and approve all written materials and signage relative to CMP used by Licensee in connection with the Trail.

4.8. Joint ATV/Snowmobile Trails.

Operation of ATVs on the Trail is prohibited when the Trail is groomed for snowmobile use and during the post-winter period of saturated soils (mud season). Licensee will determine when soils along the Trail are no longer saturated and ATV operation may resume at that time. Licensee shall not allow, and shall undertake reasonable measures to prevent, the use of any portion of the Trail by ATV's until such time as ATV usage will not impair the Premises or cause soil erosion or run off.

4.9. Damage Repair.

 Licensee agrees to assume responsibility and all costs associated with any repairs resulting from damage to the Premises and CMP's facilities caused by Licensee's use of the Premises. Licensee agrees to stabilize the surface soils and flora in accordance with best management practices for trails, as reasonably as possible and consistent with CMP's use, to avoid further erosion of the soils or damage on or to the Premises.

4.10. Waste.

Licensee will not make or suffer any waste of the Premises. Licensee will also take reasonable steps to keep the Premises free of litter and debris, including but not limited to cans, paper goods, tires, appliances, construction materials, etc., whether caused by Licensee or otherwise.

4.11. Gate Installation.

Licensee agrees, upon reasonable request by CMP, to install and maintain gates or barricades across the Trail at public road crossings to prevent access to the Trail by road-licensed vehicles. Gate opening must be a minimum of 14 feet in width. All gates will include an interlocking key system. Such gates and their installation and maintenance will be at the sole cost of the Licensee. At the time of erecting any gate, Licensee shall provide CMP, and upon request any state or local emergency agency, access to the interlocking key system. **Maine Dig Safe Statutes as mentioned in paragraph 4.4.1 shall apply.**

4.12. Notification and Right to Terminate Trail Use Agreement.

4.12.1. Prior to undertaking any activity on the Premises for which CMP will seek reimbursement from Licensee, CMP shall provide Licensee with reasonable written notice of the intended activity and the associated costs. CMP and Licensee agree to work in good faith to limit any and all costs arising out of this Trail Use Agreement, and when alternative activities are available, Licensee shall have the discretion to choose the least expensive alternative.

4.12.2. MDOC shall notify CMP in the event that MDOC loses authority to administer the Off Road Vehicle Division or its funding for such program, at which time, MDOC and CMP shall each have the right to terminate this Trail Use Agreement immediately upon giving written notice to the other party of termination. Nothing herein shall be construed to limit CMP's right to revoke the license granted under this Trail Use Agreement for any other reason. Nothing in this Agreement shall obligate MDOC or the State to fund any obligation for which there are no appropriated funds.

Section Five – Permits & Requirements of Law

5.1. Permits and Approvals.

Upon execution of this Trail Use Agreement, Licensee will promptly seek and make reasonable effort to obtain all necessary federal, state and municipal approvals, licenses and permits. Licensee will not undertake any construction, improvements or installations until Licensee and CMP (if necessary) have procured all necessary permits or governmental approvals. Licensee will also assure that its use of the Trail is in compliance with all applicable laws and regulations, including, but not limited to, Department of Environmental Protection wetland regulations. Payment of any fines assessed by any agency for failure of Licensee to comply with any regulation or obtain necessary approvals, licenses and permits under this Trail Use Agreement will be the sole responsibility of the Licensee. Licensee and CMP will comply with all governmental laws, orders, ordinances and regulations and with any lawful order of any public officer or officials.

In the event that CMP approves of the construction or use of a new Trail, but Licensee or CMP, as the case may be, has not received the necessary permits or approvals within one (1) year after such approval, and the parties have not previously agreed to an extension of this time frame, said approval will be null and void.

5.2. CMP Rights of Way – Limitation/Need for Third-Party Permission.

To the extent it is determined that any portion of the Premises is subject to any use restrictions which would prohibit Licensee's use of the Premises or any Trail located within the Premises, in the manner contemplated hereunder, CMP shall have the right to restrict Licensee's use thereof, and Licensee shall either promptly relocate or discontinue the Trail, or obtain any necessary third-party consents or releases.

5.3. Abutting Property.

Licensee acknowledges and agrees that in any place that the Trail leaves the Premises and enters other private property, landowner permission has been or will have been acquired by Licensee or Co-Licensee in compliance with all laws and the provisions of this Trail License Agreement.

Section Six - Rights and obligations of CMP

6.1. CMP Rights of Way Limitations.

Licensee's rights under this Trail Use Agreement are subject to any rights CMP has, prior to execution of this Trail Use Agreement or at any time during the term or any renewal term hereof, granted to third parties, even if such rights interfere with Licensee's use of the Premises. CMP also reserves the right to grant rights to third parties for use of all or part of the Premises, even if such rights interfere with Licensee's use of the Premises. The foregoing notwithstanding, CMP agrees to take reasonable efforts to not interfere and to prevent such third parties' interference with Licensee's use of the Premises to the extent permitted under any such third-party license. Neither CMP nor CMP's assignees will be liable to Licensee for any lawful interference with Licensee's use of the Premises. Licensee acknowledges and agrees that CMP shall have the right to terminate in whole or in part the license granted hereunder in the event that Licensee's use of the Premises interferes with the use of the Premises by CMP or any such third-party.

6.2. Trail Closure/Relocation.

CMP may close the Trail, or portions thereof, on a temporary basis to maintain, repair, replace, or rebuild its utility facilities. CMP will make a reasonable effort to provide a new location for any section of Trail, or portions thereof, that has been closed to facilitate the construction of new electrical transmission or distribution lines. Any work associated with relocating the Trail shall be at Licensee's cost.

6.3. CMP Use of Premises.

This Trail Use Agreement does not in any way affect the right of CMP or its representatives to enter upon the Premises at any and all times for any need arising out of its utility, land management or other business purpose, or for purposes permitted under any third-party license agreement. This right includes the right for CMP, its employees, agents or assignees to operate ATVs on snow-covered Trails groomed for snowmobile use. CMP has the right to use and enjoy fully in accordance with their capacity any improvements whatsoever that are, or may be, placed on the Premises by the Licensee. CMP reserves the right to specify the size and load-bearing capacity of any bridges installed by Licensee so that those bridges may accommodate CMP maintenance vehicles, provided, however Licensee shall not be responsible for any costs associated with accommodating CMP maintenance vehicles including without limitation construction or maintenance costs.

6.4. Right to Halt or Revoke Trail Use Agreement.

CMP has the right, but not the obligation, to temporarily halt or revoke the use of any or all Trails, or sections thereof, licensed under this Trail Use Agreement over the Premises, or any portion thereof if, in its sole discretion, it determines that conditions, including but not limited to weather, have caused or will cause excessive environmental damage to the Premises or waters contained therein.

Section Seven - Waste & Environmental

7.1 Avoidance of Waste and Environmental Impact.

Licensee will take all reasonable precautions to ensure that construction, operation and maintenance of the Trails and all associated uses will occur in a manner that will protect the scenic, recreational, and environmental values of the Premises.

7.2 Hazardous Conditions.

CMP and its authorized representatives have the right to enter upon the Premises for any purpose and to inspect the Premises and to close any Trail, or portions thereof, without prior notice, if it is believed, in the sole opinion of CMP, that a hazardous or dangerous condition exists and/or there may be immediate and serious danger to the public. In such instances, CMP will immediately notify Licensee of the closure and the nature and cause of the closure. CMP assumes no obligation hereunder to conduct any such inspection or make any such closure. CMP shall not be liable to Licensee, any person claiming through Licensee or any person permitted by Licensee to use the Premises, for CMP's closure or failure to close the Trails.

Section Eight - Operation and Maintenance by Licensee

8.1 Repairs and Maintenance of Trail/Compliance with Rules.

Licensee will perform or arrange for the performance of routine and major maintenance and repair of all improvements related to the construction and use of the Trail located on the Premises, including without

limitation gates, so that they remain orderly and safe. Licensee will also maintain the Trail in a safe condition, for example grading, bridge and culvert construction, maintenance of vegetation affecting the Trail and maintenance of all approved signs. Licensee will take reasonable measures to inform the public of the uses of the Premises permitted under this Trail Use Agreement. Licensee will also make reasonable efforts to enforce compliance with such uses and prevent harm or damage to the Premises, including but not limited to dumping.

8.2 Inspections.

CMP and its authorized representatives may periodically inspect the Premises to determine if maintenance may be necessary and will notify Licensee within a reasonable time period after discovery by CMP of any necessary maintenance to be performed by Licensee.

In the event that Licensee fails to perform its obligations under this Section within a reasonable period of time, CMP may, fourteen (14) days after mailing written notice to Licensee, terminate this Trail Use Agreement, or the use of specific Trails or sections thereof licensed under this Trail Use Agreement.

Section Nine - Surrender of Premises

Upon revocation, expiration of the term or other termination of this Trail Use Agreement or the use of specific Trails or sections thereof licensed under this Trail Use Agreement, whether by reason of lapse of time or Licensee's default or otherwise, Licensee will quit and surrender the affected Premises, together with all improvements thereon, to CMP in as good order and condition as the Premises currently exists or may be improved except for ordinary wear and tear.

Section Ten - Insurance and Liability

10.1 Recreational Use Only/Licensor Limitation of Liability.

Licensee agrees to conduct activities on said lands in a prudent manner and to take every reasonable precaution to prevent accidents of any nature. As aforesaid, the parties intend that any use permitted under this Trail Use Agreement shall be for recreational use only and therefore liability for injuries and/or damages suffered on the Trails is limited by Title 14, MRSA Chapter 7, Section 159-A of the revised Maine Statutes "Limited Liability for Recreational or Harvesting Activities", or in the case of the State the limitations of the "Maine Tort Claims Act" and other applicable laws.

10.2 Insurance Obligations.

Notwithstanding the foregoing, the parties agree as follows:

(i) The MDOC shall maintain liability insurance under its standard "Self-Insurance Fund" policy, which identifies CMP as an additional insured but does not expand or abrogate any applicable limitations of the Maine Tort Claims Act and/or Title 14 M.R.S.A. Section 159-A beyond provided insurance. Said insurance shall have a limit of liability of not less than \$500,000 per occurrence.

(ii) As a precondition to the undertaking of any major construction and excavation activity under Section 4.4 hereof, the MDOC and CMP may require that the contractor and, to the extent practical, the Co-Licensee, obtain insurance coverage upon terms and in such amounts as are customarily obtained for such construction work. Said insurance coverage shall identify the MDOC and CMP as additional insureds.

(iii) If a Co-Licensee maintains liability insurance with respect to its use of the trails, Co-Licensee shall, upon reasonable request, arrange for such policy to identify the MDOC and CMP as additional insureds.

(iv) Upon request by the MDOC or CMP, each Co-Licensee, will provide a certificate of insurance or other evidence of insurance demonstrating that the aforementioned insurance is in full force and effect.

The parties intend that solely with respect to the MDOC, any third party liability claim shall be addressed by, but only to the extent of, the insurance coverage purchased or required to be purchased pursuant to this Section. CMP disclaims all liability for any claims, suits, damages, or causes of action for damages resulting from any injury to person or property or loss of life sustained on the Premises.

10.3 MDOC Limitation of Liability.

Notwithstanding anything in this Agreement to the contrary, to the extent not covered under any insurance policy, as required hereunder or otherwise, the obligations of MDOC with respect to (i) any claim, suit, damage, or cause of action for damages resulting from injury to person or property, and (ii) obligations of MDOC shall be limited to available funding within the MDOC Off Road Vehicle Division, and such other funding or appropriation applicable to the MDOC's administration of this Trail Use Agreement. In no event shall the MDOC be liable hereunder in violation of any applicable laws or beyond appropriated funding for this purpose.

Section Eleven – Release / Indemnification

11.1. Condition of Premises/Ownership.

CMP has made no representations of any nature in connection with the title to or condition of the Premises and Licensee accepts the Premises "as is". Without limiting the foregoing, CMP does not warrant or represent that it has sufficient interest in all or any part of the Premises for Licensee to exercise the rights described herein. CMP will not be liable for any latent or patent defects therein.

11.2. Release and Indemnity.

Neither CMP nor its parent company or their affiliates, nor its and their directors, officers, employees, agents, contractors, successors and assigns will be liable for, and Licensee hereby releases and, except as to the state of Maine indemnifies them, to the extent permitted by law and the policy limits noted above in Section 10 of this agreement, from and against, all claims of any kind or nature, including but not limited to claims for loss of life, personal injury or damage to property sustained by Licensee or any person claiming through Licensee resulting from any accident, occurrence or condition in or upon the Premises or related to this Trail Use Agreement, except for damage caused solely by the willful acts of CMP.

Licensee acknowledges that notwithstanding any action undertaken by CMP in connection herewith, including without limitation any review, suggestions for changes in design or approvals regarding the Trail, coordination of work, or provision of assistance in connection with the design, construction or maintenance of the Trail, neither CMP nor any of its officers or employees, assumes any responsibility or other obligation to the Licensee or its assignees, including those permitted to use the Trail by or through Licensee, concerning the design and location of the Trail, quality of the Trail construction or maintenance, or the Licensee's compliance with local, state or federal laws, codes, zoning requirements, handicap accessibility requirements or any other applicable laws and regulations as a result of or in connection with or applicable to the Trail and the uses permitted under this Trail Use Agreement. Licensee acknowledges that any actions by CMP in connection with the design, location, construction or

maintenance of the Trail are solely for its intended benefit and relate to its operation of the transmission line. Licensee assumes all obligations and responsibility to design, build, maintain, oversee and administer the use of the Trail in compliance with federal, state and local, environmental laws, codes, zoning requirements, handicap accessibility requirements and any other applicable laws and regulations and assumes responsibility for the quality of construction and maintenance thereof. Moreover, Licensee hereby waives any and all rights, claims or other actions against CMP. Co-Licensee, not including the state of Maine, agrees to indemnify, defend and hold CMP harmless against any and all claims, demands, actions, law suits, costs and expenses (including reasonable attorneys' fees) arising out of or in connection with the Trail. Notwithstanding the foregoing, the obligations of the state of Maine MDOC under this Section 11.2 shall be subject to and limited by Section 10 hereof.

The provisions of this Section will survive cancellation or termination of this Trail Use Agreement

Section Twelve - Default

Licensee shall be in default ("Default") under this Trail Use Agreement if it breaches or fails to fully comply with any term or condition of this Trail Use Agreement within thirty (30) days (the "Cure Period") after receipt of written notice from CMP of any such failure to correct the conditions specified in the notice; provided that CMP may consent in writing to a longer Cure Period, with such consent not to be unreasonably withheld, if such condition cannot reasonably be cured within thirty (30) days, and Licensee has (i) promptly commenced within the Cure Period and diligently pursues curing the Default, and (ii) has undertaken corrective measures, including any measures set forth in Section 4.9, to protect the public health or safety, abate a nuisance, or prevent damage to the Premises.

In the event a Default occurs, CMP shall at its option, subject to the limitations contained in this Trail Use Agreement, have one or more of the following remedies, without notice or demand:

- a. termination of this Trail Use Agreement and immediate revocation of the permission granted hereunder;
- b. any remedies specifically provided in this Trail Use Agreement; and
- c. any remedies available in law or in equity, provided that any such remedy shall in the case of the MDOC be subject to the limitations set forth in Section 10.3 hereof.

Section Thirteen - Notices

Any notice under this Trail Use Agreement will be in writing and will be deemed to be delivered when mailed by registered or certified mail, postage prepaid, addressed to the address of such party set forth below.

LICENSEE

Maine Department of Conservation
Bureau of Parks & Lands—Off-Roads Vehicle Division
22 State House Station
Augusta, Maine 04333

CMP

Central Maine Power Company
Real Estate Services
83 Edison Drive
Augusta, ME 04336

Either party may change its above address by giving notice of the change to the other party of such change of address to become effective for all purposes hereunder three (3) days after such notice is given.

Section Fourteen - Contact Person

In order to facilitate communication between CMP and Licensee, each party will designate a contact person for communications necessary under this Trail Use Agreement other than formal notices, which notices will be sent in accordance with the written notice provisions of this Trail Use Agreement.

Section Fifteen - No Waiver

Failure of CMP to complain of any act or omission on the part of the Licensee, no matter how long the same may continue, will not be deemed a waiver by CMP of any of its rights hereunder. Any waiver by CMP, express or implied, of any breach of this Trail Use Agreement, will not be deemed a waiver of any provision of this Trail Use Agreement or of any subsequent breach of the same or other provision of this Trail Use Agreement. If any action by either party shall require the other's consent or approval, such consent or approval on any particular occasion shall not be deemed a consent or approval of any other action on any subsequent occasion.

Section Sixteen - Assignment & Co-Licensee

The purpose of this Trail Use Agreement is to provide public access on the Premises for recreational use under the terms, restrictions and conditions set forth herein. MDOC may assign this License in its entirety with the consent of CMP, said consent may be withheld for any reason including without limitation for any reasons associated with the safe and reliable operation of CMP's facilities as a public utility, or if the assignee cannot demonstrate sufficient resources to comply with the terms and conditions of this Trail Use Agreement. However, MDOC may delegate the construction, maintenance and/or oversight of the Trail, or portions thereof, to one or more Co-Licensee(s). A Co-Licensee may be an organized incorporated recreational club, municipality, quasi-municipal corporation or 501-3C not-for-profit corporation. Any delegation to a Co-Licensee will be made subject to the terms and conditions of this License and such delegation will not relieve MDOC from its obligations of this Trail Use Agreement. It will remain the responsibility of the MDOC to oversee and enforce compliance with all provisions and conditions of this Trail Use Agreement.

Section Seventeen - Authorization

Licensee hereby warrants and represents that the execution of this Trail Use Agreement and the carrying out of all acts required of Licensee by the terms of this Trail Use Agreement have been properly and effectively approved and authorized by Licensee in accordance with the Maine State Constitution, and the Maine Revised Statutes.

Section Eighteen - Miscellaneous Provisions

18.1. Validate.

If any covenant, provision or condition of this Trail Use Agreement or the application thereof to any person or circumstance shall be declared to any extent to be invalid or unenforceable, the remainder of this Trail Use Agreement, or application thereof will remain in full force and effect. Provided that if any provision limiting CMP liability under Section 10.1 of this Trail Use Agreement or otherwise herein is declared invalid or unenforceable, then CMP shall have the right to immediately terminate this Trail Use Agreement and revoke any future uses of the Premises by Licensee.

18.2. Modifications and Waivers.

No waivers, alterations or modifications of this Trail Use Agreement will be valid unless in writing and duly executed by both parties.

18.3. Choice of Law/Venue.

~~This Trail Use Agreement will be governed by and constructed in accordance with the laws of the State of~~
Maine. Any action brought in connection herewith shall be brought in the State of Maine in Kennebec County or Cumberland County.

18.4. Captions.

The captions appearing in this Trail Use Agreement are inserted only as a matter of convenience and in no way define, limit, construe or describe the scope or intent of the paragraphs of this Trail Use Agreement or in any way affect this Trail Use Agreement.

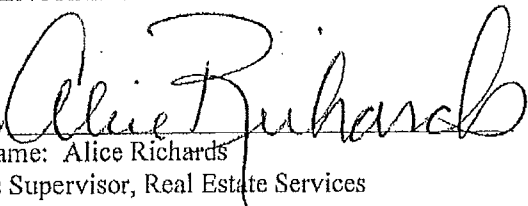
18.5. Entire Agreement.

The covenants, provisions and conditions contained in this Trail Use Agreement constitute the entire agreement between the parties and will supersede all previous communications, representations, or agreements either verbal or written between the parties with respect to the Premises and subject matter of this Trail Use Agreement. This Trail Use Agreement may be executed in any number of counterparts, each of which when executed by all parties to this License Agreement shall be deemed to be an original, and all of which counterparts together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties have caused their duly authorized representatives to execute this Trail Use Agreement on their behalf as of the date first written above.

CENTRAL MAINE POWER COMPANY

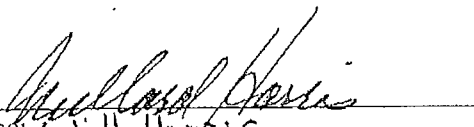
By


Name: Alice Richards

Its Supervisor, Real Estate Services

STATE OF MAINE
DEPARTMENT OF CONSERVATION
BUREAU OF PARKS & LANDS
OFF-ROAD VEHICLE DIVISION

By:

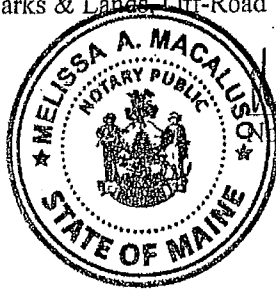

Name: Will Harris

Its Director BP+L

STATE OF MAINE
Kennebec, ss.

4-7-11, 2011

The above named Willard R Harris, Director Bureau of Parks & Lands
personally appeared before me and acknowledged the foregoing Trail Use Agreement to be his/her free
act and deed in his/her said capacity and the free act and deed of said State of Maine, Department of
Conservation, Bureau of Parks & Lands, Off-Road Vehicle Division.



Melissa A. Macaluso
Notary Public

MELISSA A. MACALUSO
Notary Public • State of Maine
My Commission Expires February 7, 2018

STATE OF MAINE
Kennebec, ss.

April 1, 2011

The above named Alice Richards, Supervisor, Real Estate Services, Central Maine Power Company,
personally appeared before me and acknowledged the foregoing Trail Use Agreement to be her free act
and deed in her said capacity and the free act and deed of said Central Maine Power Company.

Paul Forteau

Notary Public
Paul Forteau, Notary Public
State of Maine
My Commission Expires 1/24/2012

AMENDMENT TO LICENSE

This Amendment to License is made as of this 1st day of March, 2006 between Central Maine Power Company, a Maine corporation with an office at 83 Edison Drive, Augusta, Maine 04336 ("Licensor") and Forks Area Chamber of Commerce ("Licensee").

WITNESSETH

WHEREAS, Licensor and Licensee entered into a certain License dated January 13, 2005, and

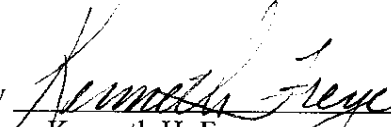
NOW, THEREFORE, Licensor and Licensee desire to amend said License to add Old Canada Road Scenic Byway, Inc., as a co-licensee.

Except as specifically amended herein, all terms and conditions of the original License shall remain in full force and effect including but not limited to the original License, dated January 13, 2005.

IN WITNESS THEREOF, the parties hereto have caused this Amendment to License to be executed by its duly authorized agent as of the date first written above.

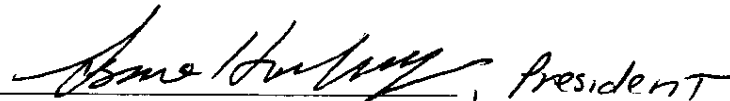
CENTRAL MAINE POWER COMPANY

By


Kenneth H. Freye
Manager, Real Estate Services

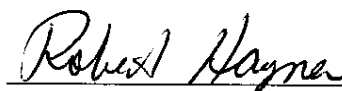
FORKS AREA CHAMBER OF COMMERCE

By


SUZANNE HOCHMEYER
PRESIDENT

OLD CANADA ROAD SCENIC BYWAY, INC.

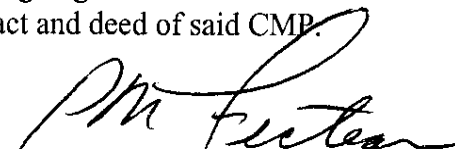
By


Robert Haynes
Coordinator

STATE OF MAINE
Kennebec, ss.

3/1, 2006

The above named Kenneth H. Freye, Manager, Real Estate Services, CMP, personally appeared before me and acknowledged the foregoing License Amendment to be his free act and deed in his said capacity and the free act and deed of said CMP.

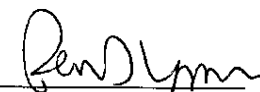


Notary Public
Paul Fecteau, Notary Public
State of Maine
My Commission Expires 1/24/2012

STATE OF MAINE
Somerset, ss.

2/28, 2006

The above named Suzanne Hockmeyer, President, Forks Area Chamber of Commerce, personally appeared before me and acknowledged the foregoing License Amendment to be her free act and deed in her said capacity and the free act and deed of the said Forks Area Chamber of Commerce.




Notary Public **PETER G. LYMAN**
COMM. EXPIRES 6/11/09

STATE OF MAINE
Somerset, ss.

2/28, 2006

The above named Robert Haynes, Coordinator, Old Canada Road Scenic Byway, Inc., personally appeared before me and acknowledged the foregoing License Amendment to be his free act and deed in his said capacity and the free act and deed of said Old Canada Road Scenic Byway, Inc.



Notary Public **PETER G. LYMAN**
COMM. EXPIRES 6/11/09

LICENSE

THIS LICENSE is made this 13th day of January, 2005 by and between **CENTRAL MAINE POWER COMPANY**, a Maine corporation having its principal place of business at 83 Edison Drive, Augusta, ME 04336 ("CMP") and the Forks Area Chamber of Commerce ("Licensee"). CMP hereby grants to Licensee the right to use, for the purposes described below, the following described premises ("Premises") under the following conditions:

Section One - Premises

The attached map identifies the general location of the Trail. A more detailed description will be forwarded to CMP no later than June 30, 2005 after the Trail has been GPS'd by the Licensee.

Section Two - Term and Rent

The term of this License is for one (1) year commencing on the date of execution of this License. This License shall be renewed perpetually for additional one- (1) year terms unless either party gives the other written notice of its intent to terminate the License at least ninety (90) days prior to the end of the then current term.

CMP shall receive recognition for its contribution in granting use of the Premises on signs erected on the Premises and in printed material that publicizes the Trail. In the event CMP provides Licensee with recognition signs, Licensee will place them in appropriate locations along the trail.

No payment or consideration other than the mutual covenants contained herein shall be paid for this License.

Section Three - Specific Use

Licensee's use of the Premises shall not endanger health, create a nuisance, or be incompatible with CMP's use of the Premises.

Licensee may only use the Premises for a 12-foot wide public recreational trail ("Trail"). The Trail shall be designed and designated so that it will not be used by certain motorized vehicles such as ATV's, dirt bikes and other off-road vehicles. Seasonal snowmobile use, however, will be permitted along designated segments of the Trail. This use restriction is not intended to preclude use by motorized wheelchairs and by motorized vehicles engaged in construction, maintenance or repair of the Trail, as provided below. The Premises shall not be used for camping or for any other use without prior written approval from CMP.

Licensee may install minor improvements such as culverts, bridges, observation decks with railings, safety barriers and signs, provided that they do not interfere with CMP's operations, as determined solely by CMP. Licensee, or its agents, may use necessary motorized vehicles for installation of trail improvements and for trail maintenance as outlined in Section Six herein.

Licensee's rights under this License are subject to any rights CMP has granted to third parties, even if such rights interfere with Licensee's use of the Premises. CMP also reserves the right to grant rights to third parties for use of all or part of the Premises, even if such rights interfere with Licensee's use of the Premises. However, CMP shall work with Licensee to minimize the impact on the Trail. Neither CMP nor CMP's assignees shall be liable to Licensee for any damage to Licensee's property or interference with Licensee's use of the Premises.

Section Four – Approval and Timing

Upon execution of this License, Licensee shall promptly seek and make reasonable effort to obtain all necessary federal, state and local approvals, licenses and permits. Licensee shall not undertake any construction or installation until Licensee and CMP (if necessary) have procured all necessary permits or governmental approvals. Licensee also will assure that its use of the Trail is in compliance with all applicable regulations, including, but not limited to, Department of Environmental Protection wetland regulations.

Prior to the cutting or trimming of any trees on the Premises, Licensee will notify appropriate CMP Vegetation Management personnel and subsequently comply with all requirements and conditions of said tree work and removal as set forth by said CMP representatives.

No signs, trail markers, reflectors, or notices of any kind will be attached to CMP structures located in the areas where the Trail will cross State Route 201 and Moxie Dam Road.

No portion of said Trail shall pass between poles on a multi-pole structure, or within fifteen (15') feet of any pole or guy wire. However, if in its final design and layout, a portion of the Trail is found to pass within 15' of a transmission pole or guy wire, the Licensee must construct barriers between said pole or guy wires and the Trail which are adequate to protect them from damage. Said barriers shall be approved with respect to design, composition, and installation in writing by appropriate CMP representatives prior to their installation. The construction and maintenance of said barriers, as well as any relocation by CMP of its transmission poles or guy wires to accommodate the provisions of this License shall be at the Licensee's sole cost and expense.

Prior to any excavation of the Premises, Licensee will notify the Dig Safe Call Center at 1-888-DIG-SAFE and comply with the provisions of both the Maine Dig Safe Statute, M.R.S.A., Title 23, Section 3360-A and the Overhead High-Voltage Line Safety Act, M.R.S.A., Title 35A, Section 751, et seq., Chapter 7-A. In the event that Licensee or CMP does not receive any necessary permits or approvals within one (1) year of the commencement of this License, and the parties have not previously agreed to an extension of this time frame, this License shall be null and void and CMP and Licensee shall have no further obligations to each other with respect to the subject matter of this License, except for Licensee's obligations under Section Ten below.

Section Five - Waste

Licensee shall take all reasonable precautions to ensure that construction, operation and maintenance of the Trail and all associated uses will occur in a manner that will protect the scenic, recreational, and environmental values of the Premises. Licensee will not make or suffer any waste of the Premises.

Section Six - Operation and Maintenance

Licensee shall perform or arrange for the performance of routine and major maintenance and repair of all improvements related to the construction and use of the Trail located on the Premises by or for Licensee, so that they remain orderly and safe. Licensee shall also take reasonable steps to keep the Premises free of all litter, such as cans and paper goods. Licensee shall also maintain the Trail in a safe condition, including grading, bridge and culvert construction, maintenance of vegetation affecting the Trail and maintenance of all non-CMP mandated signs. Licensee shall, through its regular publications to its members and public notices relating to the Premises, inform its members and the public of the uses of the Premises permitted under this License. Licensee shall also, through its stewardship program, make reasonable efforts to enforce compliance with such uses and prevent harm or damage to the Premises, including dumping.

CMP may periodically inspect the Premises to determine if maintenance may be necessary and shall notify Licensee within a reasonable time period after discovery by CMP of any necessary maintenance to be performed by Licensee.

In event that Licensee fails promptly to perform its obligations under this Section, CMP may, fourteen (14) days after mailing written notice to Licensee, perform the obligation and invoice Licensee for the reasonable cost of performing the obligation, which costs Licensee shall promptly pay. CMP is under no obligation to perform Licensee's obligations.

Section Seven - Requirements of Law

Licensee and CMP shall comply with all governmental laws, orders, ordinances and regulations and with any lawful order of any public officer or officials.

Section Eight - Surrender of Premises

Upon expiration of the term or other termination of this License, whether by reason of lapse or time or Licensee's default or otherwise, Licensee shall quit and surrender the Premises, together with all improvements thereon, to CMP in as good order and conditions as they are in or may be put into by CMP or Licensee, except for ordinary wear and tear.

Section Nine - Insurance

Licensee covenants and agrees, at its sole cost and expense, to obtain, keep, and maintain in full force and effect for the term of this License and any extension thereof for the mutual benefit of CMP and Licensee, a comprehensive general liability insurance policy against claims for damage to persons and property arising out of the use and occupancy of the Premises or any part or parts thereof, with a combined single limit of One Million Dollars (\$1,000,000.00) with no more than a ~~Five~~ ^{Ten} Thousand Dollar (\$10,000.00) deductible.

RH

All insurance required under this Section shall name CMP as an additional insured and shall be issued by an insurer rated B+13 by the latest Best's rating guide. Licensee shall provide CMP with a Certificate of Insurance prior to the commencement of this License. Such Certificate shall state that no material change or cancellation of the insurance coverage can be effective unless and until ten (10) days prior written notice has been given to CMP for cancellation for non-payment and thirty (30) days prior written notice for all other reasons for change or cancellation. Should any policy be canceled during the term of this License and Licensee fails to immediately procure equivalent insurance, CMP shall have the right, at its option but without any duty to do so, to: (1) cancel this License at the lapse of the policy; or, (2) to procure such insurance and to pay the premiums therefor, and all such premiums paid by CMP together with interest from the time of payment until repaid by Licensee, shall be repaid to CMP on demand as additional rent, and, without limiting CMP's remedies, Licensee's failure to repay the same, shall constitute a default under this License.

Section Ten – Release / Indemnification

Licensee is fully familiar with the physical condition of the Premises. CMP has made no representations of whatever nature in connection with the title to or condition of the Premises and Licensee accepts the Premises "as is". Without limiting the foregoing, CMP does not warrant or represent that it has sufficient interest in all or any part of the Premises for Licensee to exercise the rights described herein. CMP shall not be liable for any latent or patent defects therein.

Neither CMP, nor its parent company or their affiliates, and its and their directors, officers, employees, agents, contractors, successors and assigns shall be liable for, and Licensee hereby releases them from, all claims of any kind or nature, including but not limited to claims for loss of life, personal injury or damage to property sustained by Licensee or any person claiming through Licensee resulting from any accident, occurrence or condition in or upon the Premises or related to this License, except for damage caused solely by negligent acts of CMP.

Licensee shall be responsible for any and all damage and related costs caused by the existence of any toxic or hazardous matter, substance or waste caused or allowed, with knowledge of the Licensee, to be brought onto the Premises by Licensee or its employees, members, officers, directors, contractors, agents or invitees during the term of this License or any extension thereof, unless placed there by CMP, and shall indemnify and hold harmless CMP and its parent company or their affiliates, and its and their directors, officers, employees, agents, contractors, successors and assigns from and against all claims, actions, damages, liability and expense, including attorneys' fees, arising from or out of the existence of such hazardous matter, substance or waste.

Licensee shall also pay all costs, expenses and reasonable attorneys' fees that may be expended or incurred by CMP in successfully enforcing the terms of this License.

The provision of this Section shall survive cancellation or termination of this License.

Section Eleven - Default

Licensee shall be deemed to be in default under the License if it fails to fully comply with any term or condition of this License within thirty (30) days after receipt of written notice from CMP of any such failure to correct the conditions specified in the notice; provided that if such condition cannot reasonably be cured within thirty (30) days, Licensee shall not be in default if it promptly commences the cure and continues diligently. However, Licensee may be required to correct the condition causing the breach in less than thirty (30) days if necessary to protect the public health or safety, abate a nuisance, or prevent damage to the Premises.

If an event of default occurs as described above, CMP shall have the option to pursue one or more of the following remedies, without notice or demand, in addition to any other remedies provided in this License, in equity or at law:

- a. terminate this License; and
- b. recover from Licensee all damages proximately resulting from the breach, which damages shall be deemed to include without limitation, damages to the Premises, the cost of recovering the Premises, and CMP's reasonable attorney's fees necessary to enforce obligations under this License.

Section Twelve - Notices

Any notice under this License shall be in writing and shall be deemed to be delivered when mailed by registered or certified mail, postage prepaid, addressed to the address of such party set forth below.

LICENSEE

The Forks Area Chamber of Commerce
P.O. Box
The Forks, Maine 04920

CMP

Central Maine Power Company
CMP Real Estate Services
83 Edison Drive
Augusta, ME 04336

Either party may change its above address by giving notice of the change to the other party of such change of address to become effective for all purposes hereunder three (3) days after such notice is given.

Section Thirteen - Contact Person

In order to facilitate communication between CMP and Licensee, each party will designate a contact person for communications necessary under this License other than formal notices, which notices shall be sent in accordance with the written notice provisions of this License.

Section Fourteen - No Waiver

Failure of CMP to complain of any act or omission on the part of the Licensee, no matter how long the same may continue, shall not be deemed to be a waiver by said CMP of any of its rights hereunder. No waiver by CMP at any time, express or implied, of any breach of any provision of this License, shall be deemed a waiver of such provision or of a subsequent breach of the same of any other provision.

Section Fifteen - Assignment

Licensee shall not assign this License or its rights hereunder nor sublet the Premises or any part thereof without the prior written consent of CMP.

Section Sixteen - Authorization

Licensee hereby warrants and represents that the execution of this License and the carrying out of all acts required of Licensee by the terms of this License have been properly and effectively approved and authorized by Licensee in accordance with the Maine State Constitution, the Maine Revised Statutes, and the Articles of Incorporation and Bylaws of Licensee.

Section Seventeen - Miscellaneous Provisions

If any covenant, provision or condition of this License or the application thereof to any person or circumstances shall be declared to any extent to be invalid or unenforceable, the remainder of this License, or application thereof shall remain in full force and effect.

This License shall inure to and be binding upon the respective successors and permitted assigns of the parties.

No waivers, alterations or modifications of this License shall be valid unless in writing and duly executed by both parties.

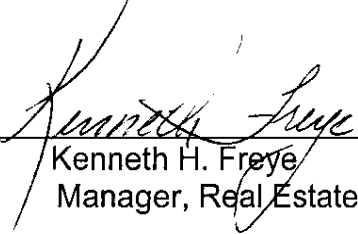
This License shall be governed by and constructed in accordance with the laws of the State of Maine.

The captions appearing in this License are inserted only as a matter of convenience and in no way define, limit, construe or describe the scope or intent of the paragraphs of this License or in any way affect this License.

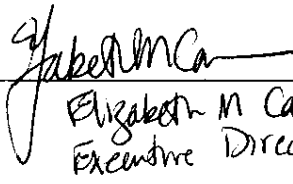
The covenants, provisions and conditions contained in this License constitute the entire agreement between the parties and shall supersede all previous communications, representations, or agreements either verbal or written between the parties with respect to the subject matter of this License.

IN WITNESS WHEREOF, the parties have caused their duly authorized representatives to execute this License on their behalf as of the date first written above.

CENTRAL MAINE POWER COMPANY

By: 
Kenneth H. Freye
Manager, Real Estate Services

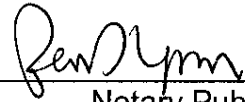
THE FORKS AREA CHAMBER OF COMMERCE

By: 
Name: Elizabeth M. Caruso
Executive Director

STATE OF MAINE
SOMERSET, ss.

1/31, 2005


The above named ELIZABETH M. CARUSO personally appeared before me and acknowledged the foregoing License to be his free act and deed in his said capacity and the free act and deed of said The Forks Area Chamber of Commerce.

 Peter G. Lyman
Notary Public COMM. EXPIRES 6/11/2009

STATE OF MAINE
Kennebec, ss.

1-13, 2005

The above named Kenneth H. Freye, Manager, Real Estate Services, Central Maine Power Company, personally appeared before me and acknowledged the foregoing License to be his free act and deed in his said capacity and the free act and deed of said Central Maine Power Company.


Notary Public
ERIC D. ROACH
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES:
FEBRUARY 4, 2009

RECIPROCAL EASEMENT AGREEMENT

This Reciprocal Easement Agreement (this “**Agreement**”) is effective as of the 15th day of January, 2019, (the “**Effective Date**”) by and between **WEYERHAEUSER COMPANY**, a Washington corporation, (“**Weyerhaeuser**”), and **CENTRAL MAINE POWER COMPANY**, a Maine corporation with an address of 83 Edison Drive, Augusta, Maine 04364 (“**CMP**”). Weyerhaeuser and CMP are sometimes referred to herein individually as a “**Party**”, and collectively as, the “**Parties**”.

RECITALS

Weyerhaeuser owns certain real property located in Somerset County, Maine and more particularly described in the attached Exhibit A, Sheets 1 through 3 (“**Weyerhaeuser’s Property**”).

CMP owns certain real property located in Somerset County, Maine and more particularly described in the attached Exhibit B, Sheets 1 and 2 (“**CMP’s Property**”).

Weyerhaeuser desires to grant CMP a perpetual, non-exclusive easement over a certain road located on Weyerhaeuser’s Property that provides access to CMP’s Property.

CMP desires to grant Weyerhaeuser a perpetual, non-exclusive easement over a certain road located on CMP’s Property that provides access to Weyerhaeuser’s Property.

AGREEMENT

NOW, THEREFORE, in consideration of TEN and NO/100 DOLLARS (\$10), and the mutual covenants of the Parties set forth in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties, intending to be legally bound, agree as follows:

1. Grant of Easements.

1.1 Subject to the terms hereof, Weyerhaeuser, for and in consideration of the reciprocal easement granted in subsection 1.2 below, hereby grants and conveys to CMP a private, perpetual, non-exclusive right of way easement (“**CMP’s Easement**”) fifty (50) feet in width, being twenty-five (25) feet on either side of the center line of the existing road located upon Weyerhaeuser’s Property (“**Weyerhaeuser Road**”). CMP’s Easement and the Weyerhaeuser Road are located approximately as shown on the map attached hereto as Exhibit A, Sheets 1 through 3. CMP’s Easement shall be subject and subordinate to all liens, leases, easements, servitudes, rights-of-way, prescriptive rights, reservations, conveyances and any and all other matters of record or apparent encumbering Weyerhaeuser’s Property (“**Weyerhaeuser’s Permitted Encumbrances**”), it being distinctly understood and agreed by the Parties that Weyerhaeuser, by this grant, grants no greater rights than it is permitted to grant in view of any of Weyerhaeuser’s Permitted Encumbrances.

1.2 Subject to the terms hereof, CMP, for and in consideration of the reciprocal easement granted in subsection 1.1 above, hereby grants and conveys to Weyerhaeuser a private, perpetual, non-exclusive right of way easement (“**Weyerhaeuser’s Easement**”) sixty-six (66) feet in width, being thirty-three (33) feet on either side of the center line of the existing road located upon CMP’s Property (“**CMP’s Road**”). Weyerhaeuser’s Easement and CMP’s Road are located approximately as shown on the map attached hereto as Exhibit B, Sheets 1 and 2. Weyerhaeuser’s Easement and CMP’s Easement are sometimes hereinafter collectively referred to as the “**Easements**” and Weyerhaeuser’s Road and CMP’s Road are sometime hereinafter collectively referred to as the “**Roads**”. Weyerhaeuser’s Easement shall be subject and subordinate to all liens, leases, easements, servitudes, rights-of-way, prescriptive rights, reservations, conveyances and any and all other matters of record or apparent encumbering CMP’s Property (“**CMP’s Permitted Encumbrances**”), it being distinctly understood and agreed by the Parties that CMP, by this grant, grants no greater rights than it is permitted to grant in view of any of CMP’s Permitted Encumbrances.

2. **Purpose of Easements.** CMP’s Easement is conveyed by Weyerhaeuser for the purpose of providing CMP vehicular ingress and egress over and across Weyerhaeuser’s Property solely for the purpose of forest management, log transport and the transportation of other forest products, rock and equipment, and construction, reconstruction or maintenance of Weyerhaeuser’s Road. Weyerhaeuser’s Easement is conveyed by CMP for the purpose of providing Weyerhaeuser vehicular ingress and egress over and across CMP’s Property solely for the purpose of forest management, log transport and the transportation of other forest products, rock and equipment, and construction, or reconstruction and/or maintenance of CMP’s Road.

3. **Permittees.** Weyerhaeuser, its subsidiaries, and affiliates and all of their employees, agents, contractors, licensees, lessees, invitees, and assigns are sometimes referred to herein collectively as the “**Weyerhaeuser Permittees**”. CMP’s employees, agents, contractors, licensees, lessees, invitees, and assigns are sometimes referred to herein collectively as “**CMP Permittees**”. The term “Respective Permittees” is used herein to refer to the Weyerhaeuser Permittees for Weyerhaeuser and the CMP Permittees for CMP.

4. **Reservation of Rights.** Weyerhaeuser reserves for itself and the Weyerhaeuser Permittees the right at all times for any purpose, to cross and re-cross Weyerhaeuser’s Roads in any manner that will not unreasonably interfere with the rights of CMP. CMP reserves for itself and the CMP Permittees the right at all times for any purpose, to cross and re-cross CMP’s Roads in any manner that will not unreasonably interfere with the rights of the Weyerhaeuser.

5. **Nonexclusive Easement; Third Parties.** Weyerhaeuser may grant to third parties including (without limitation) the Weyerhaeuser Permittees, upon such terms Weyerhaeuser may choose in Weyerhaeuser’s reasonable discretion, the rights to use the Weyerhaeuser Road; provided that use of the Weyerhaeuser Road by such third parties and the Weyerhaeuser Permittees shall not unreasonably interfere with the rights granted to CMP in this Agreement. CMP may grant to third parties including (without limitation) the CMP Permittees, upon such terms CMP may choose in CMP’s reasonable

discretion, the rights to use the CMP Road; provided that use of the CMP Road by such third parties and the Weyerhaeuser Permittees shall not unreasonably interfere with the rights granted to the Weyerhaeuser in this Agreement.

6. **Road Maintenance.** The cost of road maintenance and resurfacing shall be allocated between the Parties on the basis of respective uses of the Roads. When any Party uses one or both Roads, that Party shall perform or cause to be performed, or contribute or cause to be contributed, that share of maintenance and resurfacing occasioned by such use as hereinafter provided. During periods when the Roads or portions thereof are solely used by one Party, such Party shall maintain all or portions of the Roads so used to the standards existing at the time use is commenced. During periods when more than one Party is using the Roads or portions thereof, the Parties hereto shall meet and establish necessary maintenance provisions. Such provisions shall include, but shall not be limited to (a) the appointment of a maintainer, which may be one of the Parties hereto or any third party, who will perform or cause to be performed at a reasonable and agreed upon rate the maintenance and resurfacing of the Roads or portions thereof being used; and (b) a method of payment by which each Party using the Roads or portions thereof, shall pay its pro rata share of the cost incurred by the maintainer in maintaining or resurfacing the Roads or portion thereof. For purposes of this Agreement, maintenance is defined as the work normally necessary to preserve and keep the roadway, road structure and road facilities as nearly as possible in their present condition or as hereafter improved.

7. **The Parties Responsibilities.** Each Party shall:

7.1 Take all reasonable precaution to prevent unauthorized persons from using the Roads;

7.2 Keep all existing gates, and any that may be installed on the Roads in the future, closed and locked; provided, however, that the Parties may, from time to time leave gates (if any) on the Roads open for reasonable extended periods during regular business hours in order to facilitate active timber harvest of the Parties;

7.3 Not drive with excessive speed upon the Roads;

7.4 Immediately report to each other any dangerous or defective condition with respect to any portion of the Roads;

7.5 Ensure that each Party and their Respective Permittees comply with all applicable local, state and federal laws, rules and regulations (collectively, "**Applicable Laws**") with respect to the use of the Roads;

7.6 Ensure that any exercise of rights under this Agreement by itself and its Respective Permittees shall not unreasonably obstruct, interfere with or prevent the use and enjoyment of the other Party's Property (including but not limited to the Parties' respective Easements and Roads) by such Party or its Respective Permittees; and

7.7 Comply with all reasonable road rules, regulations and restrictions (“**Road Rules**”) that each Party may, from time to time, promulgate in its sole and absolute discretion, including (without limitation) restrictions on weight, speed and use during adverse weather or fire conditions reasonably necessary to protect the Roads and adjacent timber, provided that the other Party is given a prior written notice of such Road Rules and such Road Rules do not materially impair the other Party’s use of the Roads.

8. **Gate Keys and Combinations.** Each Party shall provide another with combination to any gate that must be opened to access the Roads by entering a combination. Should the locks to the gate require a key, each Party shall provide another with a key to such a gate. Each Party may change the gate combinations or key locks at any time, for any reason, or may, at the sole cost of the initiating Party, modify the gate to accommodate a dual lock system; provided, however, that prior to changing the combinations or keys or modifying the gate, each Party shall notify another of the new combination or the need to obtain a new key or the pending modification.

9. **Indemnity.** Each Party agrees to defend, indemnify, save, protect and hold harmless the other Party for, from and against all causes of action, litigation, cost, loss, liability, damage and expense (including attorneys' fees) for injury or death to persons, whomsoever, and damage to or loss of property, to whomsoever belonging, including (without limitation) the Parties’ Respective Permittees, arising out of or in any way connected with the use of the Easements or Roads by such Party and its Respective Permittees; unless such causes of actions, litigation, cost, loss, liability, damage and expense results from the sole negligence of the other Party.

10. **Timber.** Each Party reserves to itself all timber now on or hereafter growing within the portion of the Easements located on their respective properties.

11. **Insurance.** The Parties shall maintain for themselves and their Respective Permittees, policies of insurance with companies maintaining an AM Best Rating of A-VII or better in the following minimum amounts:

Automobiles		
	Bodily Injury	\$1,000,000 Each Occurrence
	Property Damage	\$1,000,000 Each Occurrence
Commercial General Liability		
	Bodily Injury	\$1,000,000 Each Occurrence- \$2,000,000 Aggregate
	Property Damage	\$1,000,000 Each Occurrence \$2,000,000 Aggregate
	Or Combined Single Limits	\$1,000,000 Each Occurrence

Minimum amounts of insurance shall be subject to such other limits as the Parties hereto may agree upon in writing from time to time. Commercial general liability insurance shall include coverage for: operations and completed operations; independent contractors; blanket contractual liability (including liability assumed under the indemnification paragraph of this Agreement); and automobile liability insurance covering owned, hired and non-owned vehicles (including, if applicable, the "pollution from autos endorsement," 150 Form No. CA 99 48). Each Party shall also maintain at all times State or private industrial accident insurance covering such Party and their Respective Permittees which shall fully comply with State and Federal employment and workers' compensation laws. Each Party shall deliver to another a certificate or certificates (as applicable) from their respective insurer or insurers stating that all applicable insurance required hereunder is in full force and effect, and that the insurer or insurers (as applicable) will give to another Party thirty (30) days written notice prior to any cancellation or modification of the applicable insurance together with evidence that all owned, non-owned vehicles to be used by a Party are covered by such insurance. The aggregate limits shall be specific to this Agreement. A one million dollar (\$1,000,000) Umbrella Policy may be used in lieu of per project aggregate. Upon the request of either Party, the road user shall deliver to the requesting Party certificates from the road user's insurance carrier evidencing the insurance coverage required under this Section. Prior to permitting its Respective Permittees to exercise any rights granted herein for commercial purposes, each Party agrees it will require its Respective Permittees to first obtain, and maintain at all times while operating under this Agreement, insurance coverage in the amounts not less than described above. Each Party further agrees it will require its Respective Permittees to have available upon request a certificate from the insurer evidencing that such coverage is in force. Neither Party shall allow the coverages set forth in this Section to be cancelled or modified without giving each Party at least ten (10) days' written notice prior to any cancellation or modification of such coverage.

12. **Assignment.** Each Party may assign its rights and obligations under this Agreement without the prior written consent of the other Party.

13. **Title.** Neither Party warrants the title to the land traversed by the other Party pursuant to this Agreement; neither Party shall have liability of any kind or nature to the other in the event of failure of the title

14. **Land Uses and Practices.** CMP recognizes that Weyerhaeuser's lands in the area are managed for commercial forestry including logging, slash burning, other fire control, silvicultural site preparation, forest roads, aerial and ground application of forest chemicals, and other silvicultural practices which often create noise, dust, visual impacts and other alterations of the forest environment. In conducting such operations Weyerhaeuser will comply with all laws and regulations applying in commercial forest areas. No additional restrictions shall be imposed on Weyerhaeuser's forest management operations because of proximity to any uses of CMP's lands dependent on or facilitated by the rights of CMP under this Agreement.

15. **Environmental Matters.** The Parties are prohibited from managing, using, transporting, generating and disposing of any Hazardous Substance in violation of Environmental Laws or substances deemed illegal under Applicable Laws on the Easements, Roads, or the Parties' respective properties. For purposes of this Agreement, the term "**Environmental Laws**" means any federal, state, local law, statute, ordinance, regulation or order and all amendments thereto pertaining to human health, environmental conditions or Hazardous Substances applicable to Weyerhaeuser's Property and CMP's Property, including (without limitation) the Endangered Species Act, 16 U.S.C. § 1531-1544 (1998) and any Amendments thereto (the "**ESA**"). For purposes of this Agreement, the term "**Hazardous Substance**" shall mean any hazardous or toxic substances, materials or wastes, or pollutants or contaminants as defined, listed or regulated by any Environmental Laws or by common law decision including, without limitation, chlorinated solvents; petroleum products or by-products; asbestos; and polychlorinated biphenyl. In addition to all other indemnities set forth herein, each Party shall save, protect, defend, indemnify, and hold harmless the other Party, its respective property and Respective Permittees, from and against any and all loss, damage, cost, expense, or liability (including reasonable attorney fees) and the reasonable costs of repairs and improvements necessary to return the Easements, Roads, the respective property or any other lands owned by such Party to the physical condition existing prior to undertaking any activity related to any Hazardous Substance to the extent arising out of or attributable to the indemnifying Party's use, manufacture, storage, release, or disposal of a Hazardous Substance or other illegal substance thereupon in violating Applicable Laws, including (without limitation) Environmental Laws. This indemnity shall survive the expiration or earlier termination of this Agreement.

16. **Road Damage and Improvements.** Each Party using any portion of the Roads shall repair, or cause to be repaired, at its sole cost and expense, that damage to the Roads occasioned by it which is in excess of that which it would cause through normal and prudent usage of the Roads. Should inordinate damage to the Roads occur which is not caused by an authorized user of the Roads, the Parties hereto shall meet to agree upon the cost of replacement, the Party to undertake the replacement, and the shares of replacement cost to be borne by each user of the Roads. Unless the Parties hereto agree in writing to share the cost of improvements in advance of such improvements being made, such improvements shall be solely for the account of the improver.

17. **Fire Suppression and Control.** Each Party warrants, represents and covenants that it shall:

17.1 Maintain as part of its operation in good and useable condition all the tools and equipment necessary to prevent and suppress fires as required by all Applicable Laws;

17.2 Dispose of all slashings and debris created by a Party on the Roads or their respective properties in a commercially reasonable manner;

17.3 Maintain the Roads free of inflammable debris; and

17.4 Upon discovery of fire in the vicinity of the Roads or a Party's operations, immediately notify appropriate governmental agencies, the other Party and the nearest official forest officer in charge of forest fire control.

18. **Independent Contractor.** It is agreed that neither Party hereto is the agent, servant, or employee of the other Party for any purpose whatsoever.

19. **Counterparts.** This Agreement may be executed in any number of counterparts, whether by facsimile transmission, electronic .pdf version or otherwise, each of which shall be deemed to be an original but all of which together shall constitute one and the same instrument.

20. **No Third-Party Beneficiaries.** Nothing in this Agreement, express or implied, is intended to confer on any person other than the Parties hereto and their respective successors and permitted assigns any rights, remedies, obligations or liabilities under or by reason of this Agreement.

21. **Force Majeure.** The Parties shall be free from any liability to one another for delays in delivery or failure to perform due to the failure, fault, or bankruptcy of a third party, acts of God, acts of default of any carrier, acts of any governmental authority, terrorism, suspension of any shipping facility, wars, riots, revolutions, strikes and other labor disputes, port congestion, fires, floods, perils of the sea, sabotage, nuclear incidents, earthquakes, storms, epidemics, or any other contingency of any similar nature beyond the control of either Party. The foregoing shall apply even though any of such causes exist as of the date of this Agreement or occurs after performance is delayed for other causes.

22. **Amendment; Successors and Assigns.** This Agreement may be modified or amended only by a written agreement signed by the Parties, or their applicable permitted successors or assigns. All terms, conditions, representations, and covenants of this Agreement shall be binding upon and inure to the benefit of the Parties, their heirs, successors and assigns. The rights of CMP hereunder shall be appurtenant to and for the benefit of CMP's Property and any conveyance of CMP's Property shall include a conveyance of CMP's Easement, regardless of whether CMP's Easement is specifically identified in the instrument of conveyance. The rights of Weyerhaeuser hereunder shall be appurtenant to and for the benefit of the Weyerhaeuser's Property and any conveyance of CMP's Property shall include a conveyance of the Weyerhaeuser's Easement, regardless of whether the Weyerhaeuser's Easement is specifically identified in the instrument of conveyance.

23. **Prior Rights.** This grant and all rights hereunder are subject to all liens, easements, servitudes, rights of way, oil, gas, and mineral leases, and all other grants or reservations either of record or on the ground affecting the Weyerhaeuser Property. By this grant, Weyerhaeuser grants no greater rights than it is permitted to grant in view of such encumbrances.

24. **Severability; Relation to Existing Law.** If any provision of this Agreement is invalid, illegal or incapable of being enforced by any rule of law, or public policy, all other conditions and

provisions of this Agreement shall nevertheless remain in full force and effect so long as the economic or legal substance of the transactions contemplated hereby is not affected in any manner adverse to any Party. Upon any such determination, the Parties hereto shall negotiate in good faith to modify this Agreement so as to affect the original intent of the Parties as closely as possible in an acceptable manner to the end that transactions contemplated hereby are fulfilled to the extent possible. Notwithstanding any other provision of this Agreement, the invalidation of any provision herein relating to the Parties' remedies shall not be interpreted to prevent an injured Party from seeking actual damages. If subsequent to the date of this Agreement valid State or Federal laws or regulations governing the relationship between Weyerhaeuser and CMP take effect, this Agreement shall be considered to incorporate such laws or regulations so long as they shall be effective, and any provision of this Agreement in conflict therewith shall during such period be void.

25. **Waiver.** No failure of either Party to exercise any power given hereunder or to insist upon strict compliance with any obligations specified herein, and no custom or practice at variance with the terms hereof, shall constitute a waiver of any Party's right to demand strict compliance with the terms hereof; provided, however, that any Party may, at its sole option, waive any requirement, covenant or condition herein established for the benefit of such Party without affecting any of the other provisions of this Agreement.

26. **Subordination.** Any mortgage or deed of trust affecting any portion of the Weyerhaeuser's Easement or CMP's Easement shall at all times be subject and subordinate to the terms and conditions of this Agreement, and any party foreclosing any such mortgage or deed of trust, or acquiring title by deed in lieu of foreclosure or trustee's sale, shall acquire title subject to all the terms and conditions of this Agreement.

27. **Entire Agreement; Construction.** This Agreement sets forth the entire and complete agreement between the Parties with respect to the subject matter hereof. Any prior agreements, commitments, or representations, express or implied, between the Parties are superseded by this Agreement. This Agreement may be altered, amended, or repealed only by a written instrument executed by both Parties. No provisions of this Agreement shall be construed against or interpreted to the disadvantage of any Party hereto by any court or governmental or jurisdictional authority by reason of such Party having been deemed to have structured, written, drafted or dictated such provisions. The Recitals to this Agreement and the Exhibits attached to this Agreement are incorporated herein by this reference. The captions and headings of this Agreement are for convenience only and shall not define, limit, or describe the applicability, scope, meaning, or intent of any provision of this Agreement. Capitalized terms which are defined in the recitals hereof shall have the meaning given.

28. **Attorneys' Fees.** In the event any arbitration, action, suit or legal proceeding is instituted by either Party to this Agreement, the prevailing Party shall be entitled to recover from the non-prevailing Party both reasonable attorney fees and reasonable expert witness fees as determined by the court or arbitration panel, both at trial and on appeal or review and in bankruptcy, whether

or not the matter in dispute involves an issue peculiar to federal bankruptcy law. Attorney fees and expert witness fees shall be in addition to other costs and disbursements allowed by law. “**Prevailing Party**” shall be determined by the arbitrator, or any court, as the true prevailing party (not statutorily prevailing party) after taking into consideration any settlement offers made by the Parties and the number and importance of issues to be determined.

29. **Disputes.** If disputes arise under this Agreement, the Parties will first attempt to negotiate a solution through the following process: (a) the initiating party will present a written explanation of the dispute and the remedy requested; (b) within 14 business days after receiving such a statement, the other party will respond by either agreeing to the requested remedy, counter-proposing a different remedy, or explaining why the issue does not justify any remedy; and (c) if the matter is not settled within 10 days after the response is received by the initiating party, the dispute shall be settled by binding arbitration. If the Parties are not able to promptly agree on an arbitrator and the arbitration rules to be used, the initiating party may offer a list of at least 5 candidates for arbitrator and the arbitration rules each candidate would use if selected, and the responding party will chose the arbitrator from that list. Each candidate must have at least 15 years of real estate law experience and special training or experience in arbitration of business disputes. The arbitration award shall be final and binding on the parties and judgment on any award may be enforced in any court having jurisdiction thereof.

30. **Notices.** All notices required or permitted to be given hereunder, or given in regard to this Agreement by one Party to the other, shall be in writing and the same shall be given and be deemed to have been served, given and received (i) if delivered by hand, when delivered in person, (ii) if sent by reputable overnight courier (such as Federal Express or UPS), on the next business day following the date on which the notice was sent, or, or (iii) if mailed, when placed in the United States mail, postage pre-paid, by certified mail, return receipt requested, addressed to the Party at the address hereinafter specified. Any Party may change its address or facsimile number for notices by giving five days advance written notice to the other Party hereto in the manner provided for herein. Until changed in the manner provided herein, the Parties’ respective addresses and facsimile numbers for notices hereunder are as follows:

If to Weyerhaeuser:

Weyerhaeuser Company
Ben Dow
49 Mountain Ave.
Fairfield, Maine 04937-0089

With a copy to:

Weyerhaeuser Company
Law Dept. HQ7
220 Occidental Avenue South
Seattle, Washington 98104

If to CMP:

Central Maine Power Company
Att. Brian Berube
Real Estate Service
83 Edison Drive
Augusta, Maine 04336

31. **Governing Law; Venue.** This Agreement shall be governed by, and construed in accordance with, the laws of the State of Maine. In addition, the Parties agree that in the event of any dispute concerning this Agreement, venue for any cause of action arising out of, or having to do with, this Agreement shall be, and is, in State or Federal Court in the county in which the Weyerhaeuser Property is located.

[Signatures and notary acknowledgments appear on the following pages]

IN WITNESS WHEREOF, this Agreement is executed on the date of the acknowledgment below but shall be effective for all purposes as of the Effective Date.

Central Maine Power Company:



Printed Name: Brian Berube

Title: Manager – Avangrid Real Estate Services

STATE OF MAINE

COUNTY OF KENNEBEC

Personally, appeared the above-named Brian Berube, Manager – Avangrid Real Estate Services, in his said capacity and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of CENTRAL MAINE POWER COMPANY.

Before me,

Date: December 13, 2018


Notary Public

Printed Name

My Commission expires:

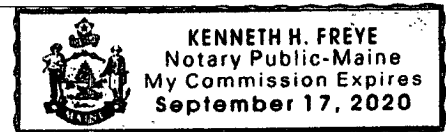
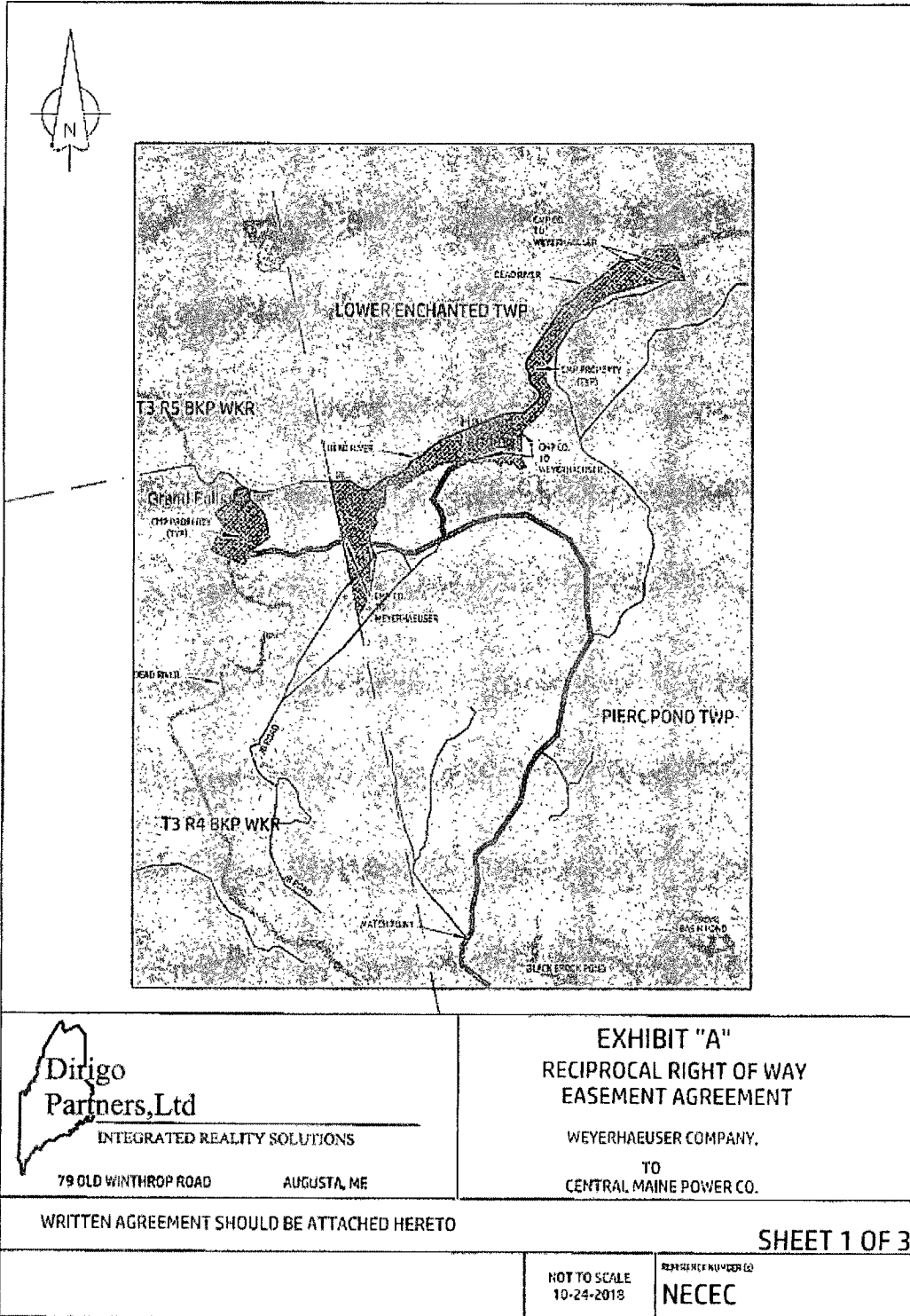


EXHIBIT A

Weyerhaeuser's Property, Weyerhaeuser' Road and CMP's Easement





Dirigo Partners, Ltd
 INTEGRATED REALTY SOLUTIONS
 79 OLD WINTHROP ROAD AUGUSTA, ME

EXHIBIT "A"
RECIPROCAL RIGHT OF WAY
EASEMENT AGREEMENT

WEYERHAEUSER COMPANY,
 TO
 CENTRAL MAINE POWER CO.

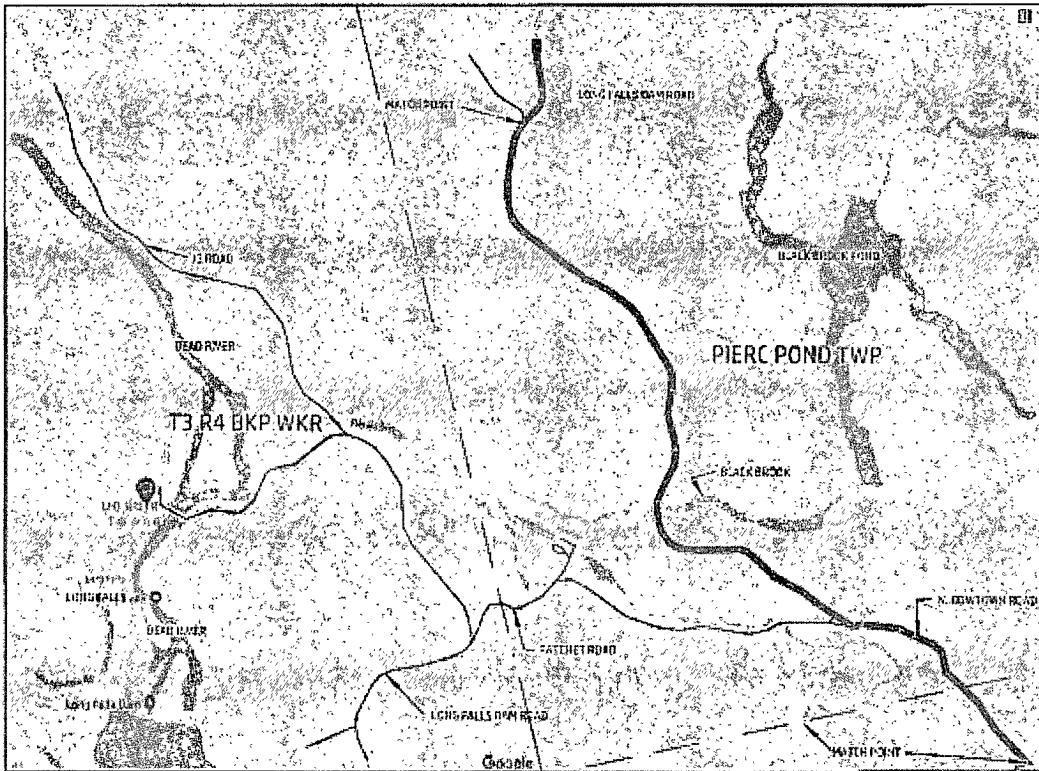
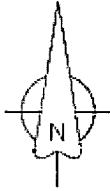
WRITTEN AGREEMENT SHOULD BE ATTACHED HERETO

SHEET 1 OF 3

NOT TO SCALE
10-24-2018

REFERENCE NUMBER (s)
NECEC

EXHIBIT A: Weyerhaeuser's Property



Dirigo Partners, Ltd
 INTEGRATED REALITY SOLUTIONS
 79 OLD WINTHROP ROAD AUGUSTA, ME

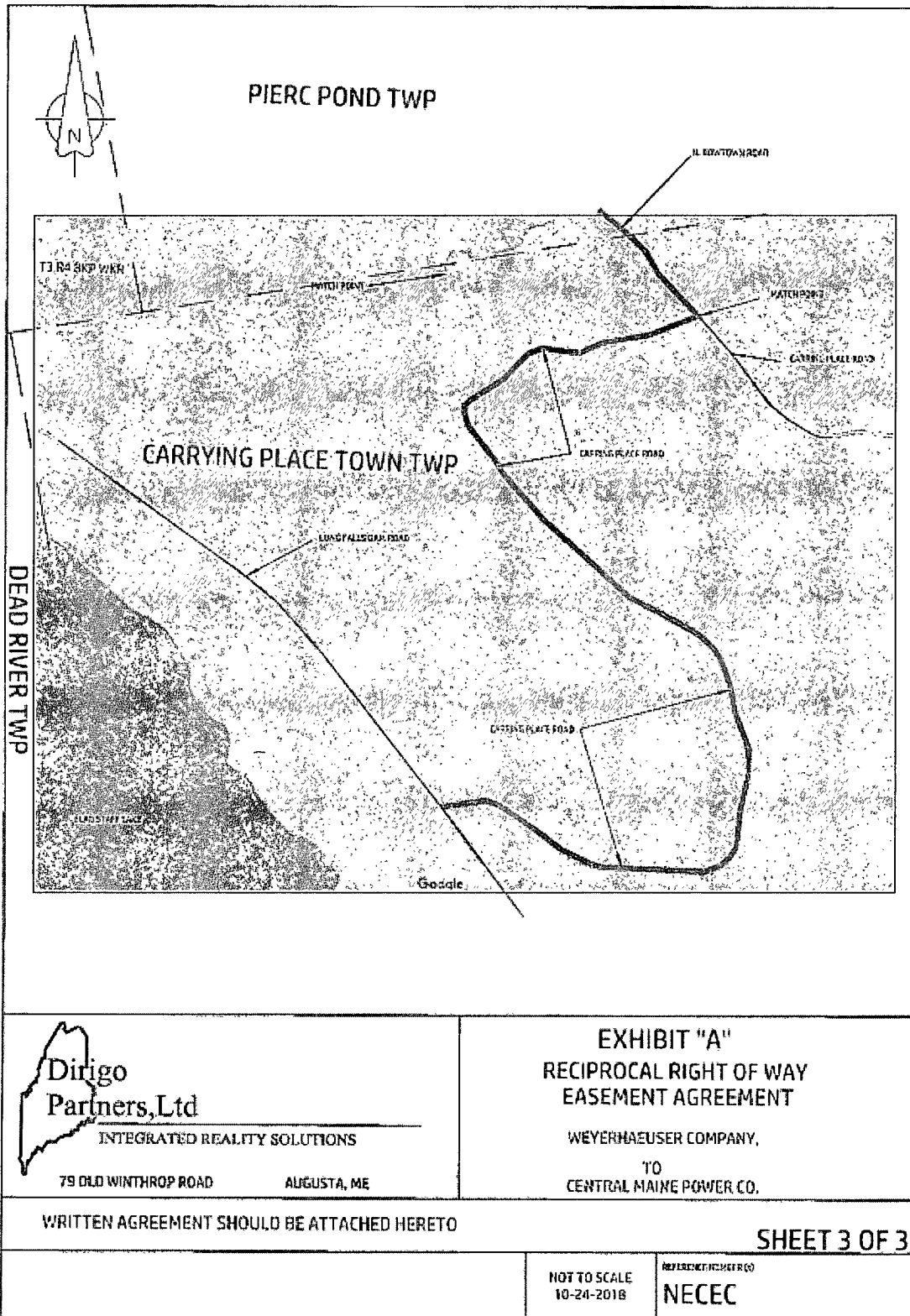
EXHIBIT "A"
RECIPROCAL RIGHT OF WAY EASEMENT AGREEMENT
 WEYERHAEUSER COMPANY,
 TO
 CENTRAL MAINE POWER CO.

WRITTEN AGREEMENT SHOULD BE ATTACHED HERETO SHEET 2 OF 3

E

NOT TO SCALE
10-24-2018

REFERENCE NUMBER(S)
NECEC



Dirigo Partners, Ltd
 INTEGRATED REALITY SOLUTIONS
 79 OLD WINTHROP ROAD AUGUSTA, ME

EXHIBIT "A"
RECIPROCAL RIGHT OF WAY EASEMENT AGREEMENT
 WEYERHAEUSER COMPANY,
 TO
 CENTRAL MAINE POWER CO.

WRITTEN AGREEMENT SHOULD BE ATTACHED HERETO SHEET 3 OF 3

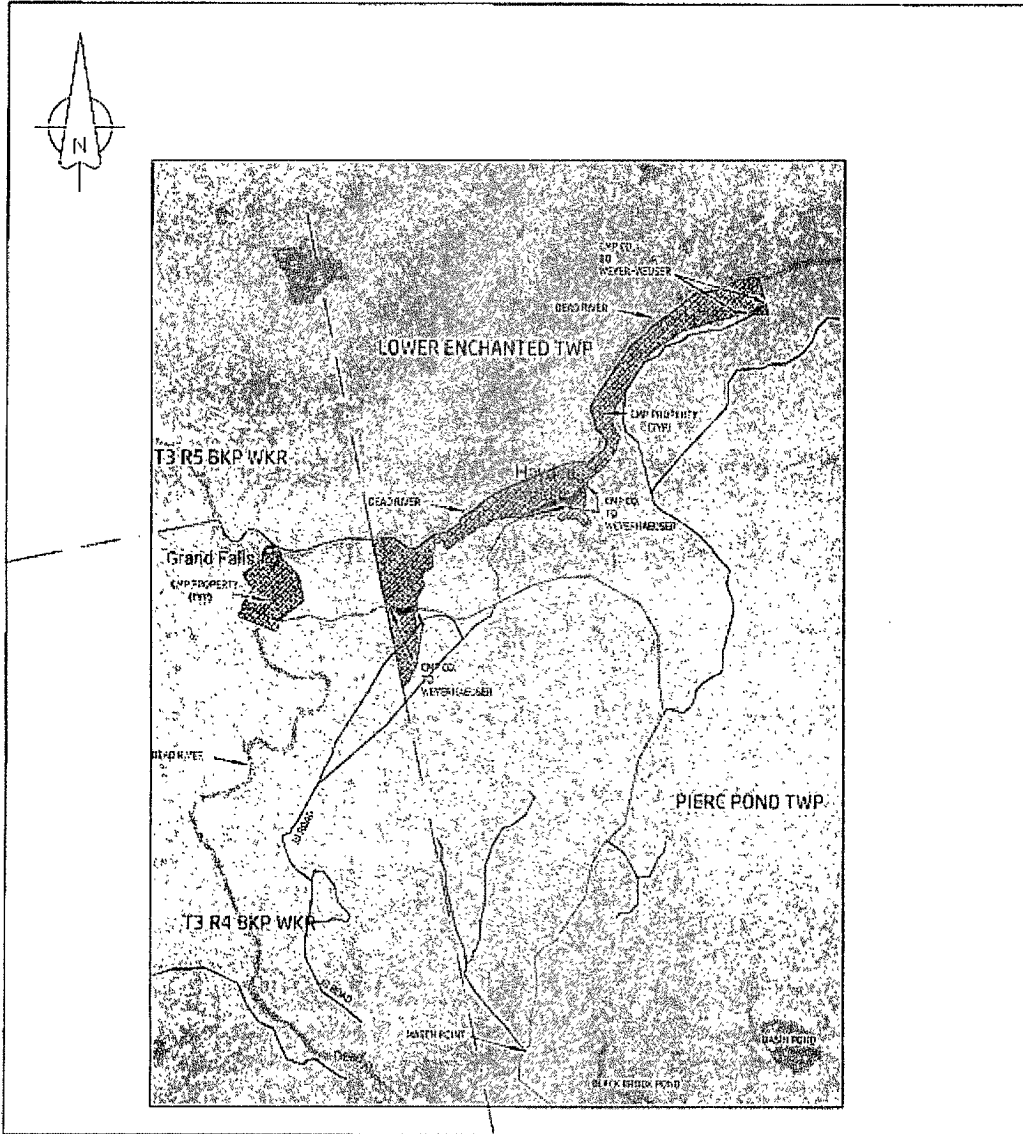
NOT TO SCALE
 10-24-2018

REFERENCE NUMBER
NECEC

EXHIBIT A: Weyerhaeuser's Property

EXHIBIT B

CMP's Property, CMP's Road and Weyerhaeuser's Easement




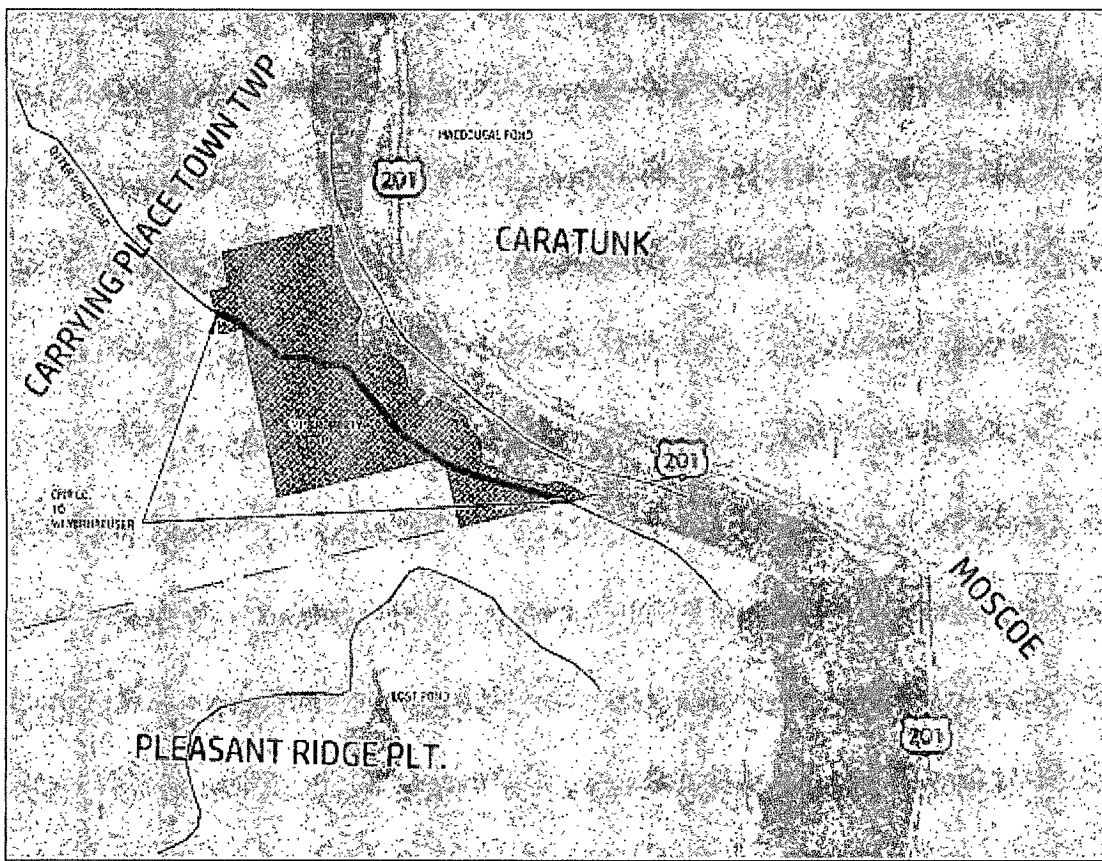
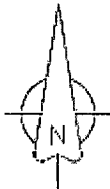
 <p>Dirigo Partners, Ltd INTEGRATED REALITY SOLUTIONS 79 OLD WINTHROP ROAD AUGUSTA, ME</p>	<p>EXHIBIT "B" RECIPROCAL RIGHT OF WAY EASEMENT AGREEMENT CENTRAL MAINE POWER CO. TO WEYERHAEUSER COMPANY,</p>
<p>WRITTEN AGREEMENT SHOULD BE ATTACHED HERETO SHEET 1 OF 2</p>	
<p>NOT TO SCALE 10-24-2018</p>	<p>REFERENCE NUMBER IS NECEC</p>

EXHIBIT B: CMP's Property



Dirigo
Partners, Ltd

INTEGRATED REALITY SOLUTIONS

79 OLD WINTHROP ROAD

AUGUSTA, ME

EXHIBIT "B"
RECIPROCAL RIGHT OF WAY
EASEMENT AGREEMENT

CENTRAL MAINE POWER CO.
TO
WEYERHAEUSER COMPANY,

WRITTEN AGREEMENT SHOULD BE ATTACHED HERETO

SHEET 2 OF 2

E

NOT TO SCALE
10-24-2018

REFERENCE NUMBER 64

THIS INDENTURE OF LICENSE made this 19th day of November, 1981 by and between CENTRAL MAINE POWER COMPANY, a Maine corporation having its principal office at Edison Drive, Augusta, Maine 04336 hereinafter sometimes called the "Licensor", and the STATE OF MAINE, by and through its Department of Conservation, having its principal office at Station 19, Augusta, Maine 04333, hereinafter sometimes called the "Licensee".

W I T N E S S E T H

In consideration of the rent and covenants herein contained, the Licensor does hereby grant permission to the Licensee, its agents and invitees, in common with the Licensor and others entitled to use the same, to enter upon and occupy in the manner and subject to the terms, conditions, restrictions and limitations herein contained, the following described premises situated on the northerly side of the Moxie Road in the Township of Moxie, County of Somerset, bounded and described as follows:

1. A certain strip of land being one hundred (100) feet in width, the center of which is located as follows: Commencing at an iron pipe in the northerly line of the Moxie Road, so-called, which iron pipe is one hundred eighty and four tenths (180.4) feet westerly from post numbered seventy-one (71) on the north side of said road and seventy-five and five tenths (75.5) feet northerly from post numbered seventy (70) on the south side of said road. (The above numbered posts were given in back-up deed from Louise H. Coburn, et al to Coburn Lands Trust dated January 15, 1920 and recorded in Somerset County Registry of Deeds, Book 351, Page 564); thence north twenty-three degrees forty-five minutes east (N. 23° 45' E.) four hundred thirteen (413) feet to an iron pipe in the ground; thence north twenty degrees thirty-one minutes west (N. 20° 31' W.) five hundred fifty-nine (559) feet to an iron pipe in the ground; thence continuing in the same course north twenty degrees thirty-one minutes west (N. 20° 31' W.) six hundred eighty-seven and nine tenths (687.9) feet to an iron pipe in the ground; thence north twenty-six degrees forty-four minutes west (N. 26° 44' W.) three hundred seventy-two and six tenths (372.6) feet to an iron pipe set in the ground; thence north forty-eight

degrees twelve minutes west (N. 48° 12' W.) one thousand eighty-one and five tenths (1,081.5) feet to an iron pipe set in the ground; thence north forty-eight degrees twelve minutes west (N. 48° 12' W.) four hundred seventy-nine and three tenths (479.3) feet to an iron pipe in the ground; thence north eight degrees ten minutes west (N. 8° 10' W.) about two hundred eighty-three and five tenths (283.5) feet to the east line of the one thousand (1,000) foot strip of land, so-called, owned by this Licensor and being the same parcel of land delineated on plan numbered Eighteen A (No. 18-A), Plan of Highway Revision from Moxie Road to Site F, East Branch of Kennebec River, dated September 15, 1920, said plan being a revision of Plan Eighteen (18) filed by Fidelity Trust Company, Trust Company, Trustee, December 20, 1919, recorded in Plan Book 6 in the Somerset County Registry of Deeds, and described in paragraph first of the additional descriptions filed and recorded therewith.

Excepting and reserving to the Licensor, its successors and assigns, the perpetual right and easement to pass and repass on foot and with vehicles over, along and across a road as now located on the one hundred (100) foot strip of land to enable the Licensor, its successors and assigns, to obtain access to other land of the Licensor. The cost of maintaining and repairing said road shall be shared equitably, based on use, among the Licensor, the Licensee, and other parties entitled to use the same. Any improvements to the road required by the Licensee shall be subject to the prior approval of the Licensor and shall be made by the the Licensee at its sole expense.

2. Upon foot only upon two certain lots or parcels of land situated on either side of Moxie Stream, each being a strip of land twenty-five (25) feet from the high water line of said stream in its natural condition, bounded and described as follows: Beginning at the easterly line of the said one thousand (1,000) foot strip at a point twenty-five (25) feet northerly measured at right angles from the high water mark on the northerly side of Moxie Stream; thence easterly, southerly and north-easterly parallel with the said high water mark and distant twenty-five (25) feet therefrom to the northeasterly line of land of the Licensee; thence

southerly along the northeasterly line of land of the Licensee crossing said Moxie Stream to a point on the southerly side of said stream twenty-five (25) feet distant southerly at right angles from said high water mark; thence southwesterly, northwesterly and westerly parallel with the high water mark on the southerly side of said stream and distant twenty-five (25) feet therefrom to the easterly line of said one thousand (1,000) foot strip; thence northerly crossing the said Moxie Stream on the said one thousand (1,000) foot strip to the point of beginning.

Excepting and reserving to the Licensor any right, title and interest it may have below the high water line of Moxie Stream.

3. Also granting to the Licensee the right to construct foot trails on the said one thousand (1,000) foot strip bounded on the south by the northerly line of the public lot and on the north by the southerly side of Moxie Stream. The location, clearing, trimming and maintenance of said foot trails to be subject to mutual agreement of the Licensor and Licensee and subject to regulations of the Maine Land Use Regulation Commission and all other applicable authorities.

Also excepting and reserving to the Licensor, its successors and assigns, the perpetual right and easement to overflow and flood any or all of the above-described premises directly or indirectly by backflow, seepage, erosion, inundation or otherwise as the same may be overflowed and flooded by means of any dam or dams that may be constructed now or hereafter and maintained across the Kennebec River or any of its tributaries, including without limitation Moxie Stream. In addition, the Licensor, its successors and assigns, shall not be held liable to the Licensee for the uneven handling of the waters of Moxie Stream.

Also excepting and reserving to the Licensor, its successors and assigns, the right to require the owner or owners of standing timber on all or any portion of the above-described premises within the limits of the one thousand (1,000) foot strip of land, so-called, to remove, at the sole cost and expense of said owner or

owners, said standing timber from such portions of the premises as are to be used by the Licensor, its successors and assigns, for construction purposes, within three (3) months from the date of notice to remove said timber, and from the remainder of said premises within one (1) year from the date of notice to remove said timber.

Yielding and paying therefor the sum of one dollar (\$1.00) payable on the date of the execution of this Indenture.

In consideration of the mutual covenants and agreements herein contained to be kept and performed by the parties hereto, it is agreed as follows:

(1) The Licensee will quit and deliver up the premises to the Licensor, or its attorney, peaceably and quietly at the termination of this license in as good order and condition (reasonable use and wearing thereof or inevitable accident excepted) as the same are now or may be put into by the Licensor or Licensee and will not make or suffer any strip or waste thereof nor assign or underlet the premises or any part thereof or erect any building or structure on the premises without the written consent of the Licensor. The Licensee will post the premises to prohibit camping and the building of fires.

(2) This License is granted on the express condition that the Licensee will purchase and keep in full force and effect general public liability insurance, with minimum coverage of \$500,000 for each occurrence, to protect the Licensor from any liability incurred as a result of the herein described premises as a public recreation area, excepting, however, liabilities incurred as a result of willful acts or negligence of the Licensor.

(3) The Licensor shall not be liable for any personal injuries or property damage suffered by the Licensee, its successors or assigns, agents, employees, independent contractors or invitees, while using above-described property.

(4) This License may be terminated and cancelled at the sole discretion of either party at any time by either party giving to the other party one year's notice in writing of the intent to cancel and terminate this license.

(5) All notices shall be deemed sufficient if sent by mail, postage prepaid to the Licensor at Edison Drive, Augusta, Maine 04336, and to the Licensee at State House Station 19, Augusta, Maine 04333.

(6) This License shall be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.

IN WITNESS WHEREOF, the said Central Maine Power Company has caused its corporate name to be signed and its corporate seal af- fixed by Matthew Hunter, its Vice President hereunto duly authorized, and the said State of Maine, has hereunto set its hand and seal, all as of the day and year first above written.

Signed, Sealed and Delivered
in presence of

CENTRAL MAINE POWER COMPANY

J. Robert Curtis

By: Matthew Hunter
Vice President

STATE OF MAINE

Herbert Hartman

By: Herbert Hartman

Approved as to form:
Paul G. [unclear] 11/14/81

CENTRAL MAINE POWER COMPANY
APPROVED AND LEGAL
BY <u>[Signature]</u>
DATE <u>11/14/81</u>

Table 1-5.12 Compensation for Conversion in Roaring Brook Mayfly and Northern Spring Salamander Conservation Management Areas

Township	County	Stream Name	Feature ID	Surveyed? (Y/N)	Species Present ¹	Clearing Impact within the Management Areas ² (ac)	Clearing Impact (sq ft)	Assessed Land Value (\$/sq ft) ³	Resource Multiplier Applied to Fee ⁴	Calculated Fee
Skinner Twp	Franklin	S. Branch Moose River	PSTR-09-11	Y	RBM	1.84	80,107	0.03	8	\$19,225.64
Skinner Twp	Franklin	Trib to Bog Brook	PSTR-11-01	Y	NSS	2.75	119,659	0.03	8	\$28,718.24
Appleton Twp	Somerset	Trib to Bog Brook	PSTR-12-07	Y	NSS	1.90	82,590	0.04	8	\$26,428.72
Appleton Twp	Somerset	Gold Brook	PSTR-15-06	Y	RBM/NSS					
Appleton TWP	Somerset	Trib. to Gold Brook	PSTR-16-07	N	RBM/NSS					
Appleton TWP	Somerset	Trib. to Gold Brook	PSTR-16-10	N	RBM/NSS					
Appleton TWP	Somerset	Trib. to Gold Brook	PSTR-16-15	N	RBM/NSS					n/a, mitigation being proposed ⁵
Appleton Twp	Somerset	Baker Stream	PSTR-17-07	Y	NSS	3.10	135,036	0.04	8	\$43,211.52
Appleton Twp	Somerset	Baker Stream	PSTR-17R-04	Y	NSS					
Bradstreet TWP	Somerset	Unnamed Stream	PSTR-24-02	N	RBM/NSS	0.06	2,788	0.04	16	\$1,784.22
Bradstreet TWP	Somerset	Trib. to Horse Brook	PSTR-26-05	N	RBM/NSS	1.32	57,456	0.04	16	\$36,771.61
Johnson Mtn TWP	Somerset	Mountain Brook	PSTR-33-01	Y	RBM/NSS					
Johnson Mtn TWP	Somerset	Mountain Brook	PSTR-EM-34-01	Y	RBM/NSS					
Johnson Mtn TWP	Somerset	Trib to Mountain Brook	PSTR-EM-34-02	Y	RBM/NSS					n/a, mitigation being proposed ⁵
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-02	Y	NSS	4.30	187,308	0.04	8	\$59,938.56
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-06	Y	NSS					
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-10	Y	NSS	2.25	97,792	0.04	8	\$31,293.50
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-15	Y	NSS	1.86	80,891	0.04	8	\$25,885.09
Johnson Mtn TWP	Somerset	Trib. to Cold Stream	PSTR-40-07	N	RBM/NSS	4.08	177,855	0.04	16	\$113,827.51
Johnson Mtn TWP	Somerset	Trib. to Cold Stream	PSTR-41-04	N	RBM/NSS					
Bradstreet TWP	Somerset	Trib to Piel Brook	PSTR-SRD1-02	N	RBM/NSS	1.48	64,599	0.04	16	\$41,343.67
Bradstreet TWP	Somerset	Unnamed Stream	PSTR-SRD1-28-02	N	RBM/NSS	1.48	64,599	0.04	16	\$41,343.67
Bradstreet TWP	Somerset	Unnamed Stream	PSTR-SRD1-28-05	N	RBM/NSS					
Total Impact						26.416 Acres	1,150,681 Sq. ft.			\$469,771.95

¹ For those streams outside of CMP's ownership and on lands which permission to survey was not granted from landowners, and unless the waterbody is hydrologically connected to another stream which presence/absence surveys were conducted, the presence of both species is assumed.

² The clearing impact includes the area extending 250 feet on both sides of the stream channel. The management areas were mapped according to "Notes on Mapping Protocol for Roaring Brook Mayfly Habitat Polygons in ETSC (12/22/10)" provided by MDIFW. This mapping protocol was applied to RBB and NSS waterbodies, as recommended by MDIFW. Where mapped management area polygons overlapped, the impact area was combined.

³ Source: MDEP Fact Sheet- In Lieu Fee Compensation Program (rev 2017).

⁴ On 11/8/2018, MDIFW recommended a resource multiplier of 8 be applied to the fee calculation for each species present, where both species are present a multiplier of 16 was applied.

⁵ CMP will retain full height vegetation in the CMA's for these resources.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbstown Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
AMY SEGAL

March 25, 2019

Regarding

- Issue 1: Scenic Character and Existing Uses – I. Project Visibility
 - Responsive to Intervenor Group 2 witness Elizabeth Caruso
 - Responsive to Intervenor Group 10 witness Noah Hale
- Issue 1: Scenic Character and Existing Uses – II. Old Canada Road Scenic Byway
 - Responsive to Intervenor Group 1 witness Roger Haynes
- Issue 1: Scenic Character and Existing Uses – III. Effect on Appalachian Trail
 - Responsive to Intervenor Group 4 witness David Publicover
- Issue 1: Scenic Character and Existing Uses – IV. Effect on Kennebec River
 - Responsive to Intervenor Group 2 witness Greg Caruso

- Responsive to Intervenor Group 10 witnesses Eric Sherman and Edwin Buzzell
- Issue 1: Scenic Character and Existing Uses – V. Effect on Other Scenic Resources
 - Responsive to Intervenor Group 10 witnesses Eric Sherman and Edwin Buzzell
 - Responsive to Intervenor Group 2 witness Elizabeth Caruso
 - Responsive to Intervenor Group 1 witness Robert Haynes
- Issue 1: Scenic Character and Existing Uses – VI. Evaluation of Scenic Resources
 - Responsive to Intervenor Group 2 witness Elizabeth Caruso
- Issue 1: Scenic Character and Existing Uses – VII. Winter Recreation Survey
 - Responsive to Intervenor Group 2 witness Elizabeth Caruso
- Issue 1: Scenic Character and Existing Uses – VIII. Market Decisions Survey
 - Responsive to Intervenor Group 2 witness Elizabeth Caruso
- Issue 1: Scenic Character and Existing Uses – IX. Structure Lighting
 - Responsive to Intervenor Group 2 witnesses Elizabeth Caruso and Greg Caruso
 - Responsive to Intervenor Group 10 witness Noah Hale
- Issue 1: Scenic Character and Existing Uses – X. Elevated Viewpoints
 - Responsive to Intervenor Group 2 witness Roger Merchant
- Issue 1: Scenic Character and Existing Uses – XI. Effect on Use
 - Responsive to Intervenor Group 10 witness Kathy Barkley

I. Issue 1: Scenic Character and Existing Uses – Project Visibility (Relevant to DEP and LUPC Review)

The testimony of Kathy Barkley (p. 1, lines 12-22) is representative of the hyperbolic sentiment that the Project will be highly visible throughout northwestern Maine: *“The corridor created by NECEC will forever destroy the northwestern Maine scenic views tourists and locals alike value and enjoy. No amount of buffering or pole color or design can change the fact that in a forested or natural area this corridor will be an eyesore. No one travels Route 201 and our access roads to view a powerline with poles higher than most trees and 150-foot corridor that scars the landscape.*

The testimony of Roger Merchant includes a similar narrative in his Comments on Non-Hearing Topics (p. 13): *“CMP’s line will chop up a vast and beautiful forest*

landscape, eroding and degrading remote scenic viewsheds like Attean View, Coburn and Sally Mountains, Greenlaw Cliffs, The Notch, No. 5 and Tumbledown, all in the Upper Moose River Basin. There will be similar impacts at the Kennebec Gorge and Lake Moxie, adjacent to Bald Mountain and the Appalachian Trail.”

Response

1. Transmission Structure Color. As seen in the photosimulations prepared to support the VIA, the use of self-weathering steel monopoles, which will weather to a dark brown color over time, is an effective mitigation measure when used in a wooded landscape, especially when the Project may be seen from elevated viewpoints.

2. Views from Route 201 (Relevant to DEP Review Only). While the transmission corridor may be visible to varying degrees at five locations along the Old Canada Road Scenic Byway (Route 201), motorists will cross the 150-foot corridor at only two locations (i.e., Johnson Mountain Twp. and Moscow), separated by approximately 30 miles (or 40 minutes driving time). The crossings occur in areas that are either recently harvested or that contain existing transmission lines; neither location epitomizes the scenic views that draw people to the area. Views points like the Attean View Rest Area will be minimally affected, due to the effect of distance, vegetative patterns, and the use of self-weathering steel monopole structures.

3. Views from Access Roads. Describing private timber roads as “our roads” and the commercial timberlands as “our forests” and “our hills” shows a lack of understanding about the nature of property ownership and land management activity that surrounds the Project. We recognize the long tradition of public access, which allows recreational use on working timberlands. However, the majority of the road crossings are

on private property and do not constitute the type of public viewpoints that are regulated by the state.

See, for example, the testimony of Group 5 witness Mike Novello, who states that Wagner Forest Management does not want DEP or LUPC to consider “views from any private land or private roads in evaluating whether or not the CMP project will have an adverse effect on scenic character.” This testimony demonstrates that any impact from these lands cannot be considered to be unreasonable if the landowner is not concerned about such an impact. See also the February 21, 2019 letter to DEP from Christopher Fife of Weyerhaeuser, which owns much of the land described in Mr. Merchant’s comments. In any case, our photosimulations show that the effect on the Project’s surrounding area will not be unreasonable.

II. Issue 1: Scenic Character and Existing Uses – Effect On Old Canada Road Scenic Byway (Relevant to DEP Review)

Robert Haynes, Coordinator, Old Canada Road Scenic Byway (OCR), notes that Chapter 315 regulations define several categories of scenic resources that must be considered in a VIA. He highlights four of these categories, and includes some resources in each of these categories where he apparently believes there may be views of the Project (see response to V. Effect on Other Scenic Resources, below). In his conclusion, Mr. Haynes states that “*It is evident to OCR that CMP has not made sufficient effort to allow the construction to blend into the existing natural environment or shown that the towers wouldn’t negatively affect existing uses and scenic character.*” Mr. Haynes states that “*OCR asserts that CMP has made no effort to minimize project effects within sight of OCR or any of the scenic land-marks along the Spencer Road...*”

Response. The Project will be visible from OCR Scenic Byway in only five locations over a distance of 30 miles: a) Johnson Mtn Twp, where it crosses the Byway, b) a 1,000-foot section in Parlin Pond Twp, c) the Attean View Rest Area, d) a second crossing near Wyman Dam in Moscow, and e) filtered views from Bingham.

Many steps were taken to site the Project to minimize visibility and potential impact to the 49-mile segment of the Byway that is within the study area. First, the initial layout for the transmission line was purposely designed to avoid visual impacts to the lakes, ponds, scenic vistas, and historic sites that characterize the OCR Byway. Second, CMP determined that the use of self-weathering steel monopoles would result in the least amount of color contrast where the line may be visible. Third, the two locations where the Project crosses the Byway are in areas that are at or near transportation or transmission corridors. Fourth, the crossing in Johnson Mountain Twp is between Weyerhaeuser's Capital Road and Judd Road, and near the existing Jackman Tie Line transmission line corridor intersection with Route 201. Fifth, the crossing in Moscow is within an existing transmission corridor and 2,300 feet north of another crossing with two existing transmission lines.

Motorists on the Byway will encounter the Project for relatively short periods of time; the locations where the Project may be visible are separated by considerable distances. At the Johnson Mountain Twp crossing the Project will be visible for up to 80 seconds for northbound motorists and approximately 30 seconds for southbound traffic traveling at 45 MPH. The two points where the Project crosses the Byway (a new crossing in Johnson Mountain Twp and in the existing transmission corridor in Moscow) are separated by 30 miles.

The Project will not be visible to northbound motorists on the 1,000-foot section of the Byway in Parlin Pond Twp, due to the viewing angle from the road. Southbound motorists will have approximately 15 seconds of filtered views of the transmission line in the midground as it crosses the lower slopes of Colburn Mountain. At the Attean View Rest Area, the Project will be seen at a distance of over 7 miles. The Project will not be apparent to the average observer, due to the effect of distance, existing vegetation patterns, and the minimal contrast produced by the self-weathering steel monopole structures. In Bingham, northbound motorists during leaf-off conditions will have approximately 45 seconds of filtered views of the expanded transmission line at a distance of 0.4 to 0.8 mile.

While the Project will be visible to varying degrees, it is seen in context with commercial forest operations; in no location will it dominate the landscape seen from the road. The presence of the transmission line will not result in an unreasonable adverse visual impact on the Byway.

Spencer Road is a private road owned and maintained by Weyerhaeuser for its use in managing its commercial timberland. It is not a State or federally designated trail. The public has traditionally been allowed to use the road to access nearby ponds and private camps. By definition, it is not a scenic resource. However, CMP has taken many steps to minimize Project effects along Spencer Road: use of elevated structures to cross Gold Brook, and preserving full height vegetation; use of tapered vegetation management adjacent to a section of the road in Appleton Twp. to minimize Project views both from the road and from Rock Pond; aligning the corridor to avoid Project views from the

majority of lakes and ponds near the corridor; and maintaining a setback from Spencer Road wherever possible.

III. Issue 1: Scenic Character and Existing Uses – Effect On Appalachian Trail (Relevant to DEP and LUPC Review)

David Publicover states in his testimony *“The widening of the corridor and the addition of a second transmission line with taller towers would increase the exposure of hikers to the open corridor and intensify the experience of being in a developed rather than backcountry environment. The Applicant’s Visual Impact Assessment (Application Chapter 6 pp. 6-43 to 6-44) rates the impact as “minimal to moderate.” The Applicant also states (Application Chapter 25, Section 25.3.1.3) that there would be a “negligible” change in visual impact. However, these conclusions are contradicted by the revised Chapter 6 Appendix F (Scenic Resources Chart, 1/30/19) that rates the impact as “Moderate/Strong”. The Applicant also states (Application Chapter 6 p. 6-50), “The Project should not negatively affect the hikers’ experience or their continued use and enjoyment of the Appalachian Trail.” The statement that the project will not negatively affect hikers’ experience is made without any supporting evidence, and is contradicted by the revised impact rating of Moderate/Strong and the Applicant’s recognition of the need to mitigate this impact through vegetative screening.”*

Response. As northbound hikers descend Pleasant Pond Mountain toward Troutdale Road, they no longer have the experience of being in the backcountry. In its present configuration, hikers encounter the existing 150-foot wide transmission corridor, approximately 900 feet of Troutdale Road, and several residences adjacent to the road. Approximately 450 feet of the trail is located on a section of Troutdale Road that is zoned

D-RS: Residential. Northbound hikers on the road currently see the overhead conductors through the trees lining the road for approximately 91 seconds. With widening of the corridor, hikers will have views of the transmission lines for an additional 16 seconds. Hikers will be in the 225'-wide corridor for 51 seconds. Considering the limited number of places where the Project may be visible between Pleasant Pond Mountain and Bald Mountain (a distance of approximately 7.6 miles), the presence of the existing transmission corridor, and the limited viewing time for a hiker to see the expanded line, the overall visual impact will be minimal to moderate. The apparent rating discrepancy noted by Mr. Publicover is the difference between the assessment of the overall effect that the Project would have on this section of the AT, and the specific experience of hikers at Joe's Hole.

As seen in the photosimulation at Joe's Hole, where the northbound hiker will see the expanded corridor for 16 seconds, the additional clearing will have a moderate-strong visual effect on the view from the trail. Subsequent to filing the initial application and as part of the consideration of potential impacts on the AT, we evaluated various ways to minimize the view of the expanded clearing. The native planting buffer being proposed along the Troutdale Road section of the trail grew out of that discussion, and adequately addresses the effect so that the impact is minimized.

Regarding hiker expectation, The Official Map and Guide to the Appalachian Trail in Maine notes that there are at least two transmission line crossings in the vicinity of Joe's Hole. Hikers are aware of the presence of the line, and the location of the trail on a road. It is unrealistic to assert that an incremental change in the transmission line, resulting in 16 seconds of additional visibility and a widened corridor, will have a

significant effect on trail use patterns or the experience of being on the Appalachian Trail.

IV. Issue 1: Scenic Character and Existing Uses – Effect On Kennebec River (Relevant to DEP and LUPC Review)

Testimony of Eric Sherman (p. 2, line 22 and p. 3, lines 1-2) states *“I have concerns for the experiences of the guests who book raft trips on the Kennebec River,...”* And he states further (page 6, lines 5-17) that *“The company I’ve worked for since 2001, Moxie Outdoors Adventure, has a lunch site just upstream of where the proposed lines will cross either over or under the river. In either scenario, those lines will be visible from our lunch site, and will be an eyesore that detracts from the wilderness experience of my guests, the other guests, the other guides, and me.”*

Eric Sherman (page 6, line 22, page 7, line 3) states, *“The other river view of the power lines that CMP/Avangrid/Iberdrola has not addressed are from downriver looking back upriver. Once the lines are passed, there’s a left turn in the river, a straight stretch where the confluence of Moxie Stream is passed, then a right turn in the river, and a long straight stretch from which the power lines will be able to be seen.”*

Edwin Buzzell (page 4, line 23, page 5, line 1) states, *“Cutting to the river’s edge will destroy the natural wonder on a particularly scenic section of the [Kennebec] river.”*

Greg Caruso (page 3, lines 7-8, page 5, line 1-2, page 7, lines 9-10) states, *“There has never been anyone that said... ‘We need some red balls hanging over this awesome gorge!’”*; *“CMP’s proposed project will likely have significant negative impacts on existing whitewater rafting,..”*; *“The project will cross and degrade the scenically and recreationally significant Kennebec Gorge.”*

Response. CMP has proposed to use horizontal directional drilling (HDD) to locate the Project underground below the upper Kennebec River to eliminate visual impact from the river. The NECEC will not cross over the upper Kennebec River. CMP's design of the HDD crossing of the Kennebec River was presented in the NECEC Kennebec River HDD Site Law and NRPA Application Amendments, submitted on October 19, 2018 in response to the September 4, 2018 MDEP/LUPC Information Request.

The termination stations will be set back from the edge of the river by approximately 1,400 and 1,440 feet. The termination stations and the transmission structures leading to the stations on either side of the river will not be visible from the river due to the existing riparian vegetation and the preserved forested buffer within the NECEC corridor on both sides of the river. The preserved vegetated buffers (1,450 feet and 1,160 feet on the east and west sides of the river, respectively), which average 75 feet in height, will screen views of the termination stations and all other HDD components from users on the river.

The Moxie Outdoors Adventure picnic area on the Kennebec River is located northeast of the Project corridor. CMP completed an assessment of termination station visibility and found that the existing forest buffer will screen the stations and all other HDD components from the picnic area.

All of the lunch sites in the Kennebec Gorge and related river areas are owned by CMP, which allows the commercial rafting outfitters and general public to use the sites without charge. The "our lunch site" characterization incorrectly implies an ownership

right that does not exist. CMP would allow Moxie Outdoors Adventure, or any other outfitter, to use one of the vacant sites if it wanted to do so.

V. Issue 1: Scenic Character and Existing Uses – Effect on Other Scenic Resources (Relevant to DEP and LUPC Review)

a. No. 5 Mountain And Williams Mountain

Eric Sherman (page 2, lines 14-19), states that *“The Project will be visible from Williams Mountain and Number 5 Mountains. Should the NECEC be approved, these are just two of the dozens of negative visual impacts it will cause.”* Mr. Sherman states (page 4, lines 1-5) that *“Number Five Mountain top views- Will affect me as will others as a detriment to the Natural Scenic Beauty. The Transmission Corridor would deter me from climbing No. 5 Mountain as I have many times in the past. I would not recommend the hike to others if the proposed corridor was built. It would destroy the natural element that makes No 5 Mountain a special place.”*

Response. CMP included an assessment of potential visual impact to No. 5 Mountain within the Leuthold Preserve, owned by The Nature Conservancy. The closest visible portion of the Project corridor will be 3.9 miles from the summit. As seen in Photosimulation 4, the corridor clearing will be intermittently visible from the summit and will result in a minimal visual impact to hikers. The transmission structures will not be visible to the casual observer due to the effect of distance and the use of self-weathering steel, which will minimize their color contrast with the surrounding commercial forestland.

Williams Mountain is located 6.4 miles northeast of the Project within the Moosehead Region Conservation Easement in Misery Twp, outside the 5-mile Area of

Potential Effect (APE) for elevated viewpoints that was approved by the MDEP. The Maine Bureau of Parks and Lands developed a new trail to the abandoned fire tower on Williams Mountain in July 2017. The primary views appear to be toward the south, toward Cold Stream Pond. At a distance of 6.4 miles, the Project corridor will be minimally noticeable and will not result in an adverse visual impact.

b. Rock Pond

Edwin Buzzell (page 4, lines 6-8) states that “*Rock Pond – Will affect me as I would not fish at or near Rock Pond as views of the transmission line would affect the existing scenic views.*”

Response. CMP has proposed three mitigation measures to reduce the visual impacts to Rock Pond:

- 1) Self-weathering steel structures to minimize contrast with the wooded background,
- 2) Non-specular conductors to reduce the glare from the conductors when viewed from the pond, and
- 3) Tapered vegetation management for the section of the corridor on the shoulder of Tumbledown Mountain, to reduce the appearance of the cleared corridor when viewed from the pond.

While portions of the Project may be visible, the presence of the line will not unreasonably interfere with the general public’s ability to fish, hike, snowmobile, or enjoy other scenic or aesthetic uses on Rock Pond.

c. Moxie Stream

Edwin Buzzell (page 5, lines 2-5) states, “ *I travel there [Moxie Stream] on a regular basis and I recommend to my guests to travel to almost the exact spot of the proposed transmission line crossing and hike down to Moxie Falls. Many other waterfalls exist between the crossing points and Moxie Falls. (See Exhibits 3A through 3D)*”

Response. The Project crosses Moxie Stream approximately 500 feet west of the former Fish Pond Road bridge. The “exact spot” that Mr. Buzzell is referring to is owned by CMP (the 80-acre Lower Dam Lot). All the land along Moxie Stream (25 feet, both sides) is also owned by CMP. The hike down to Moxie Falls that Mr. Buzzell refers to is across 1.25 miles of other private land. While the bridge over Moxie Stream is gone (only the rip-rap remains), the site is still accessible by car over the road. The Project was sited in this location to specifically avoid impacts to the waterfalls on Moxie Stream.

d. Coburn Mountain

Edwin Buzzell (page 5, lines 9-11) states, “*View from own home – I have a direct view of Coburn Mountain from my home in Moxie Gore. At about 1,300 feet I will be able to witness the destruction of my view from my own house.*”

Elizabeth Caruso (page 5, lines 15-17) states that “*On a busy day, hundreds of tourists snowmobiling to Coburn Mountain’s 3800’ observatory would be staring 360 degrees down at the vastness of this destructive corridor.*”

Elizabeth Caruso (page 14, lines 21-24) also states that “*Coburn Mountain, with its 360-degree spectacular view, is the major lure of snowmobile riders from Eustis,*

Jackman, Greenville and Bingham. Wrapping industrial infrastructure all around Johnson and Coburn mountains will turn away these riders.

Response. The view from the Coburn Mountain Public Land is an example of how CMP has responded to potential visual impacts. While the view from Coburn Mountain is a tapestry of natural and man-made patterns, the proposed transmission corridor would create a new line noticeable in the mid-ground viewing distance, especially during winter months. As a mitigation measure, CMP is proposing tapered vegetation management to reduce the contrast between the corridor and the surrounding commercial forest land.

This approach is illustrated with a wintertime photosimulation that shows how tapering vegetation would effectively narrow the visual presence of the line. The transmission structures and conductors will not be highly visible due to the distance involved and the use of self-weathering steel structures, and the impact will not be unreasonable.

The photographs of Coburn Mountain taken from the Buzzell home in West Forks show a patchwork pattern of commercial timberland on the shoulder of Coburn Mountain where the Project will be located. The photographs appear to be taken with a telephoto lens that greatly enlarges the mountain views beyond what a person normally experiences. The Buzzell home appears to be over 12 miles from Coburn Mountain and will have a minimal view of the Project.

The Project will not wrap around Johnson and Coburn mountains, nor will it be visible for 360 degrees from Coburn Mountain, as claimed by Elizabeth Caruso. The closest and most visible portion of the Project will be one to three miles from the summit

and seen over approximately 24 degrees (or 6.6%) of the 360-degree view to the southeast. To minimize potential visual impacts, this section of the transmission corridor will employ tapered vegetation management to reduce the visual prominence of the corridor, as shown in Photosimulation 44, dated January 8, 2019. The remainder of the Project view to the southeast (between 3 and 5 miles) will be screened by Johnson Mountain.

While there will be some Project visibility in other directions from the summit, the views are mostly perpendicular to the viewer's direction and located at distances greater than 2.5 miles. If the corridor is visible at all, it will be seen as an intermittent line moving through the landscape, visually interrupted by vegetation, clear cuts, and topography. The dark brown self-weathering steel structures will blend with the vegetation patterns that characterize the surrounding commercial forestland. See Exhibit CMP-5.1-A, which shows where the Project will be blocked by topography and where it will be visible in the midground (1 to 3 miles), where tapered vegetation management will be used in the midground, and where the Project will be minimally visible in the background (> 3 miles from the summit).

While portions of the Project will be visible from Coburn Mountain, the presence of the line will not unreasonably interfere with the general public's ability to snowmobile or enjoy other scenic or aesthetic uses on the Coburn Mountain Public Land.

e. #5 Bog

Mr. Haynes lists the #5 Bog as an example of an outstanding natural or cultural feature.

Response. The open water of No. 5 Bog is approximately 3.2 miles north of the

Project. Public access to the bog is limited to private roads off the Attean to Holeb Portage Trail. While viewshed analysis indicates the Project may be visible from the Bog, field work indicates Project visibility will be extremely limited from within the Bog due to the shoreline vegetation and viewing distance, and will not result in an unreasonable adverse visual impact.

f. ITS snowmobile trails

Mr. Haynes lists ITS snowmobile trails as an example of a State or federally designated trail.

Response. Most of the ITS snowmobile trails with views of the Project are on private lands, and therefore are not considered scenic resources. As noted above, both Wagner and Weyerhaeuser have stated that they are not concerned about the Project's potential scenic impacts to the surrounding lands they own and manage.

g. Spencer Lake Prisoner of War Camp

Mr. Haynes identifies this site as a property on or eligible for inclusion on the National Registry.

Response. The site is not on or eligible for inclusion on the National Register of Historic Places. The Spencer Lake Prisoner of War Camp is the site of the WWII POW Camp, approximately 1.3 miles south of the Project, on the south side of Spencer Road east of Chubb Pond in Hobbstown Twp. None of the 22 buildings that comprised the camp remains. The site today serves as a small auto-accessible campsite. The transmission line will not have any visual impact on the site.

h. Moore Pond Public Land

Mr. Haynes includes the Moore Pond Public Land as an example of a public land visited by the general public in part for the use, observation, enjoyment, and appreciation of natural or cultural visual qualities.

Response. This 180-acre parcel, known as Bradstreet Township South Lot, encompasses most of 47-acre Moore Pond. The Upper Kennebec Region Management Plan (Department of Agriculture, Conservation and Forestry, Bureau of Parks and Lands, 2018) indicates that a few boats are stored at the southern shoreline (the pond is rated as significant for its fishery resource). Fieldwork and cross section analysis confirmed that there will be no view of the Project from Moore Pond due to intervening vegetation.

i. Number Five Mountain Trail

Mr. Haynes includes the Number Five Mountain Trail as an example of a public natural resource or public land visited by the general public in part for the use, observation, enjoyment, and appreciation of natural or cultural visual qualities.

Response. Number Five Mountain is in the Leuthold Preserve, which is managed collaboratively by The Nature Conservancy, Forest Society of Maine, and the Maine Bureau of Parks and Lands as an ecological reserve. As seen in Photosimulation 4, the transmission corridor will be noticeable from the summit of No. 5 Mountain at a closest distance of 3.9 miles. The self-weathering steel monopoles will be difficult to see against the wooded background of the commercial forest land due to their dark brown color.

The summit is fairly open with several large areas of exposed ledge with 360-degree views of the surrounding area. An old fire tower on the summit of No. 5 Mountain allows hikers to gain a view above the tree line, but since there is no

observation deck on the tower the views are from the tower stairs. The view of the Project from the summit of No. 5 Mountain is partially screened by No. 6 Mountain.

VI. Issue 1: Scenic Character and Existing Uses – Evaluation of Scenic Resources (Relevant to DEP and LUPC Review)

Elizabeth Caruso (page 9, lines 11-15) states that *“The peer reviewer said, The question remains – why is there not a full accounting of potential scenic resources and a documented evaluation of all those with potential visibility? There does not even appear to be a process to attempt a full accounting.”*

Response. CMP has submitted a full accounting of the process of evaluating all scenic resources within the Study Area of the Project. CMP’s October 19, 2018 response to the September 4, 2018 MDEP/LUPC Information Request included Attachment G, which presented the following:

- 1) A methodology for evaluating potential impacts to road crossings and a table summarizing the results of the evaluation (Road Buffer Evaluation Summary);
- 2) A rationale for scenic resource / photosimulation selection; and
- 3) Scenic Impact Rating forms for photosimulations (completed on August 10, 2018 for leaf-on; January 30, 2019 for leaf-off snow cover).

CMP’s December 7, 2018 Response to the November 5, 2018 Additional Information Request also included Attachment F, which contains the following:

- 1) An updated Summary of Scenic Resources Chart, a 22-page summary of all scenic resources, and the process we used to evaluate these scenic resources (updated January 30, 2019);

2) A Summary of eligible structures identified by SEARCH for inclusion on the National Register of Historic Places; and

3) A description of roads with scenic quality and cultural character.

CMP's December 7, 2018 Response to the November 5, 2018 Additional Information Request, also included Attachment E, which describes the following:

1) Potential impacts to recreational users; and

2) An evaluation of river and stream visibility (updated January 11, 2019).

VII. Issue 1: Scenic Character and Existing Uses – Winter Recreation Use Survey (Relevant to DEP and LUPC Review)

Elizabeth Caruso (starting on p. 5, line 18) describes a “Winter Recreation Impact Survey” that was conducted by Sandra Howard. Ms. Caruso states: *“We are sure that, had the applicant conducted an analysis of the snowmobile recreation users of the area of the new corridor, the data would show an overwhelming opposition to industrialized infrastructure in this scenic area. As guides and guests have attested, 100’ poles, red blinking lights and 150-300’ scars across the mountains, valleys, streams and ponds are simply horrific to recreationists and tourists traveling to encounter a natural setting.”*

Response. The results of the Howard survey provided by Ms. Caruso do not include any methodology to indicate how it was formulated, tested, administered, or evaluated. It is our understanding that the survey was distributed through social media channels, specifically to people who visit Facebook sites that are run by groups opposed to the Project. Thus there is a built-in bias on the part of the respondents who may have seen the survey as a way to register their opposition to the Project. While the survey may accurately represent the views of those 163 individuals who took the survey, there is no

way of telling if it is representative of the general population as a whole. Contrary to Ms. Caruso's assumptions about widespread opposition by snowmobilers, the Maine Snowmobile Association supports the NECEC Project.

The Howard survey asked respondents to "look at the scenic photos and GIS simulation photos that show a 150-wide cleared corridor with 100-foot transmission towers." The images used in the survey are not photographs; the "GIS simulation photos" are actually screen shots from Google Earth, with a computer-generated model of a transmission line superimposed. The images used in the survey are not photosimulations. The yellow color seen in the images is used to make the edges of the transmission corridor legible; in most instances, especially at distances greater than 3 miles, the corridor will be seen as a subtle change in vegetation color and minimally noticeable.

Ms. Caruso makes reference to "red blinking lights and 150-300' scars across the mountains, valleys, streams, and ponds..." As noted elsewhere, aviation warning lights will not be required for the Project (with the possible exception of a section near the Bowman Airfield in Livermore). In the northern section containing new line, the Project will be sited in a cleared corridor 150 feet in width, not 300 feet as stated by Ms. Caruso.

Professionally developed intercept surveys (such as the one used by CMP to evaluate the effect of an overhead transmission line on the upper Kennebec River) rely upon accurate photosimulations to test respondents' reactions to potential changes in the visual landscape. The images used in the Howard survey show a highly exaggerated view of the Project and are not representative of the actual visual effect that the Project would have.

Some of the questions in the Howard survey show an inherent bias against the Project. For example “What visual impact would a 150-foot wide cleared corridor with 90-foot transmission towers have on your wilderness snowmobile experience?” It is unclear whether the respondents are meant to answer this question after having viewed the photographs and Google Earth images from Coburn Mountain, or whether this is a hypothetical question that would put motorized vehicles in a wilderness setting. If the question is meant to elicit comments about Coburn Mountain, it is very obvious from the images in the survey that the surrounding area is commercial forest land, with ample evidence of intensive management activities. If the question is meant to probe a snowmobiler’s experience, the term ‘wilderness’ is misleading. Wilderness is generally assumed to be land that is maintained essentially in its natural state, without the introduction of roads, buildings, motorized vehicles (like snowmobiles), and other intrusive elements. Maine has two designated Wilderness Areas; snowmobiling is prohibited in all congressionally designated wilderness areas.

VIII. Issue 1: Scenic Character and Existing Uses – Market Decisions Survey (Relevant to DEP and LUPC Review)

In Exhibit 5 of Elizabeth Caruso’s testimony, she asked the following rhetorical question (superimposed on a page from the Market Decisions’ Kennebec River Rafting Experience Survey): *“The majority of respondents said that power lines on hillsides would be negative. How will this impact their decision to return to this area for a wilderness experience in the future?”*

Response. Respondents to the Market Decisions’ survey were asked to rate the impact of various types of human activity that may be seen from rivers in Maine. The

respondents rated views of industrial facilities, views of parking lots, and views of power lines as having the largest negative impact on their potential experience on the river.

Views of motorized boats and residential development were also seen in a negative light.

Ms. Caruso's question (ignoring the mischaracterization of the rafting trip as a 'wilderness experience') is addressed in the analysis of survey questions 13 and 15: *After reviewing the images in the survey, respondents were still likely to indicate they would enjoy the rafting trip (rating 5.8 on the 7 point scale) and would be likely to return to raft in the future (rating their likelihood as 6 on the 7 point scale). While the respondents that saw the image of the powerlines rated the scenic value much lower than the group that did not see the powerlines, they were just slightly less likely to indicate they would enjoy the rafting trip and return in the future after seeing the images.*

In any case, CMP has proposed to construct the Project beneath the upper Kennebec River, so no portion of the Project will be visible from that location. Other Kennebec River crossings will be co-located with existing transmission lines.

IX. Issue 1: Scenic Character and Existing Uses – Structure Lighting (Relevant to DEP and LUPC Review)

Several of the interveners expressed concern about impacts from lighting that they believe would be associated with the Project. See Testimony of Elizabeth Caruso: p. 3, line 20; p. 5, line 28. See Testimony of Noah Hale: p. 2, line 15. See Testimony of Greg Caruso: p. 3, line 6; p. 10, lines 16-19.

Response. Since none of the proposed transmission structures associated with the Project will exceed 200 feet in height, the Federal Aviation Administration will not require aviation hazard lighting. (FAA Advisory Circular No. 70/7460-1L, dated

12.04.15.) The only part of the Project that may require aviation hazard lighting is in the vicinity of Bowman Airfield in Livermore where, due to proximity to the airfield, the existing transmission line near the landing strip already has FAA lighting and marker balls in compliance with FAA regulations.

X. Issue 1: Scenic Character and Existing Uses – Elevated Viewpoints (Relevant to DEP and LUPC Review)

In Mr. Merchant’s Comments on Non-Hearing Topics, he states: “*CMP photo-simulations tend to focus on lower elevation lakeside views that minimize the visual impact. These photos speak directly to the viewshed impacts that the NECEC project will have from multiple viewpoints within the Upper Moose River Basin.*”

Response. The VIA illustrates the effect the Project will have on characteristic landscapes throughout the study area. Of the 33 photosimulations that were provided with the initial VIA, 8 were from elevated viewpoints (e.g., Bald Mountain, Pleasant Pond Mountain, Mosquito Mountain, Coburn Mountain, No. 5 Mountain, and Attean Rest Area). They are representative and do not minimize the visual impact of the Project.

XI. Issue 1: Scenic Character and Existing Uses – Effect On Use (Relevant to DEP and LUPC Review)

Kathy Barkley notes in her testimony (p. 1, lines 12-22) that “*The proposed NECEC corridor will negatively affect the existing uses of every area of northwestern Maine it runs through. Hikers, hunters, fisherman, photographers, campers, non-motorized boaters, folks out for a drive, snowshoers, x-country skiers, ATV riders,*

snowmobilers, mountain bikers, and leaf peepers do not travel into our forests and onto our hills to enjoy a powerline scarring the land.”

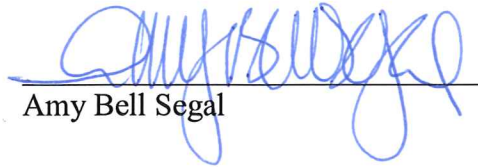
Response. Standard 1 in Section 480-D of the NRPA requires an applicant to demonstrate that a proposed activity will not unreasonably interfere with existing scenic and aesthetic uses. Similarly, LUPC’s rules allow utility facilities within P-RR subdistricts provided that the use can be buffered from other uses and resources within the subdistrict. LUPC Reg. 10.23,I(3)(d)(8). While portions of the Project may be visible, the line will not unreasonably interfere with anyone’s ability to fish, drive, hike, snowmobile, or enjoy other recreational or scenic or aesthetic uses. It has been adequately buffered from those other uses.

Exhibits

Exhibit CMP-5.1-A (Coburn Visibility Map and Pan Photos)

Dated: 3/22/19

Respectfully submitted,

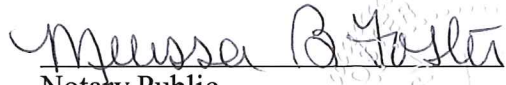

Amy Bell Segal

STATE OF MAINE
Cumberland, ss.

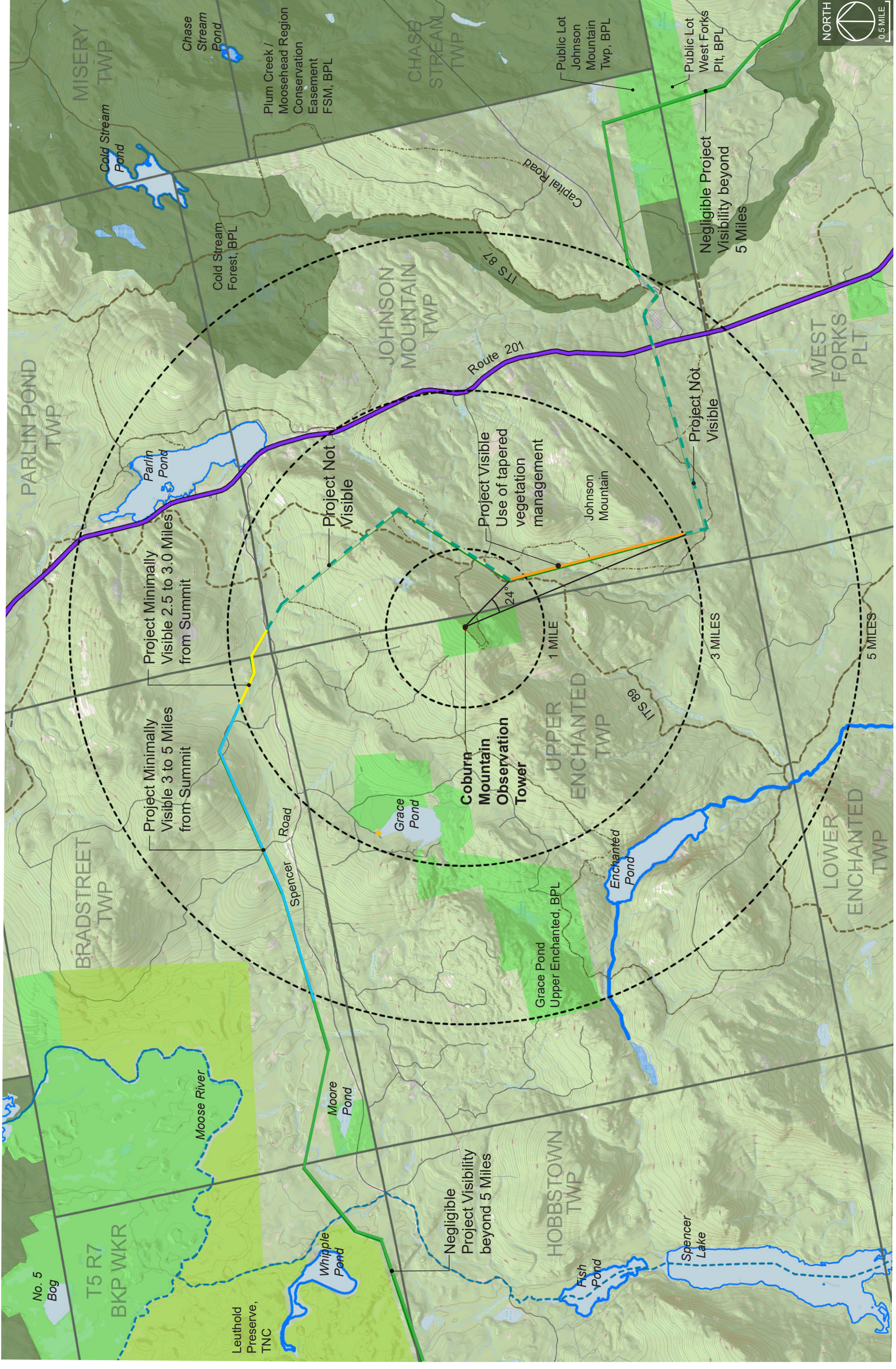
The above-named Amy Bell Segal did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: March 22/2019


Notary Public
Name:
My Commission Expires:

MELISSA B. FOSTER
Notary Public State of Maine
My Commission Expires July 23, 2023



PROJECT VISIBILITY FROM COBURN

- Negligible Project Visibility beyond 5 miles
- - - Project Not Visible Screened by topography
- Project Minimally Visible in Background
- Project Minimally Visible in Midground
- Project Visible Use of tapered vegetation management (See PSIM 44)

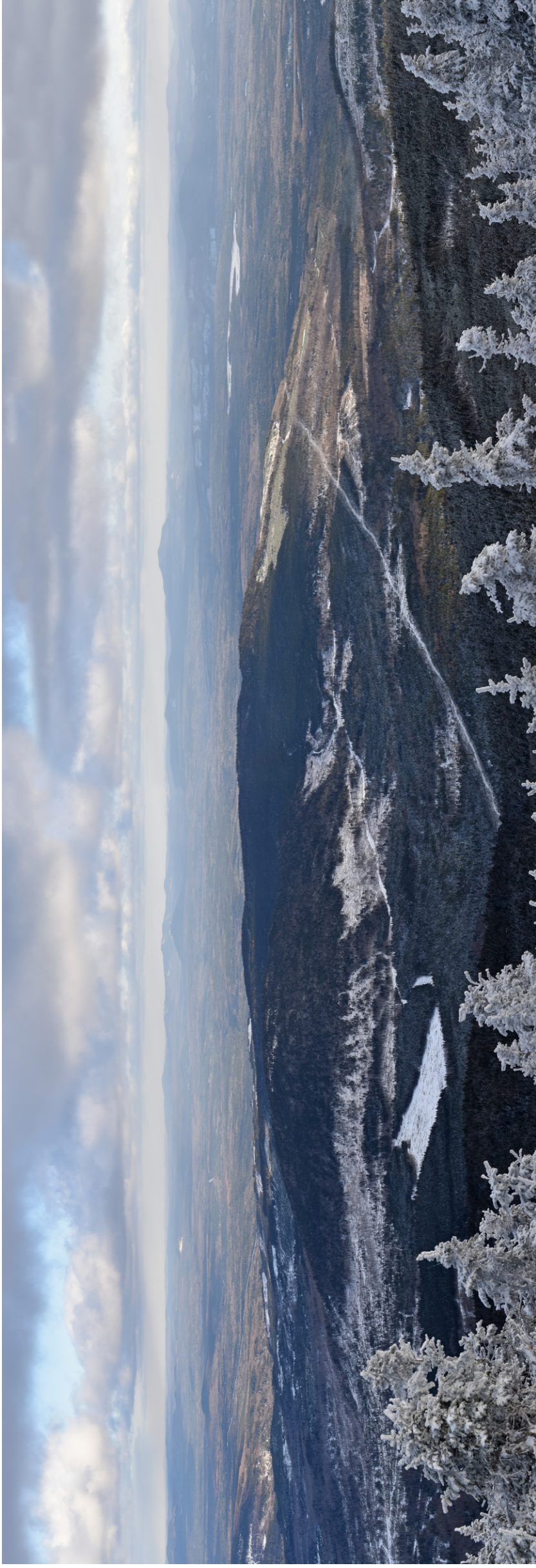
MAP LEGEND

- Municipal Boundaries
- Conservation Lands
- Conservation Lands - Harvesting permitted
- The Nature Conservancy Lands
- ITS - Interconnected Trail System
- Old Canada Road National Scenic Byway
- Remote Pond
- Great pond (rated as "Outstanding" or "Significant"), scenic rivers and streams

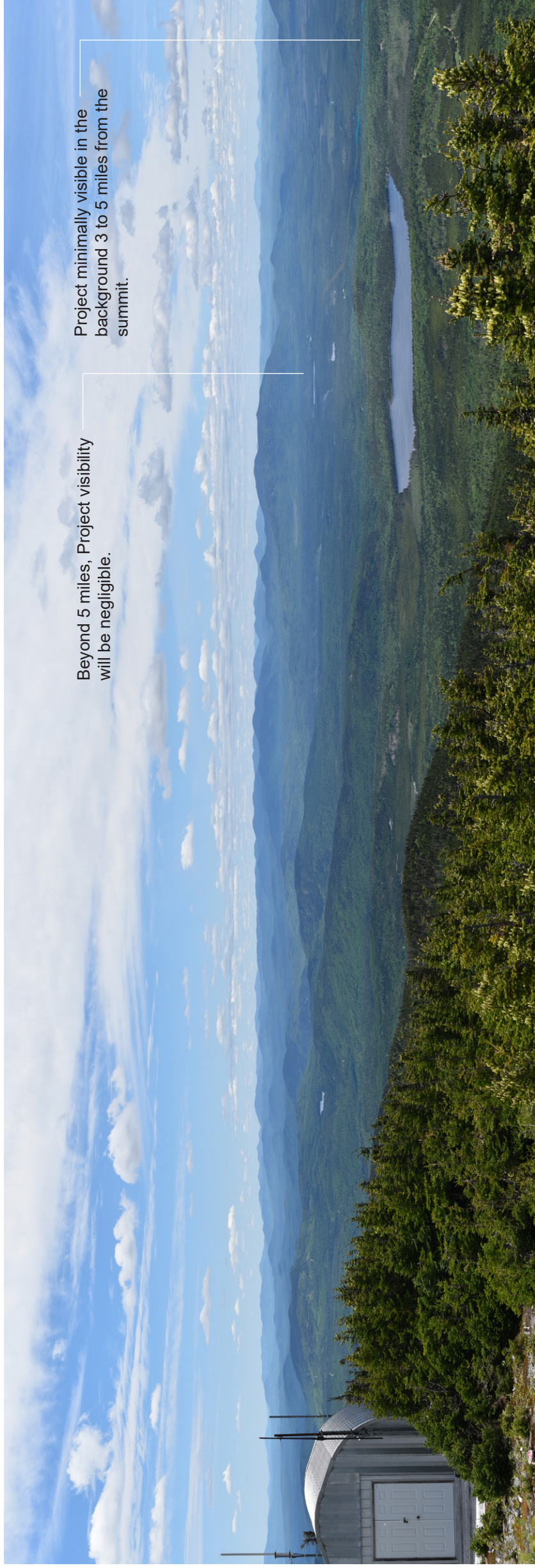




Photomontage 8: Leaf-on panoramic view looking east to south from the summit of Coburn Mountain toward the proposed HVDC transmission line. Portions of the new 150' wide corridor clearing will be visible in the midground on the west side of Johnson Mountain and minimally in the background (beyond 5 miles) to the southeast. The closest visible structure will be 1.2 miles from this viewpoint.



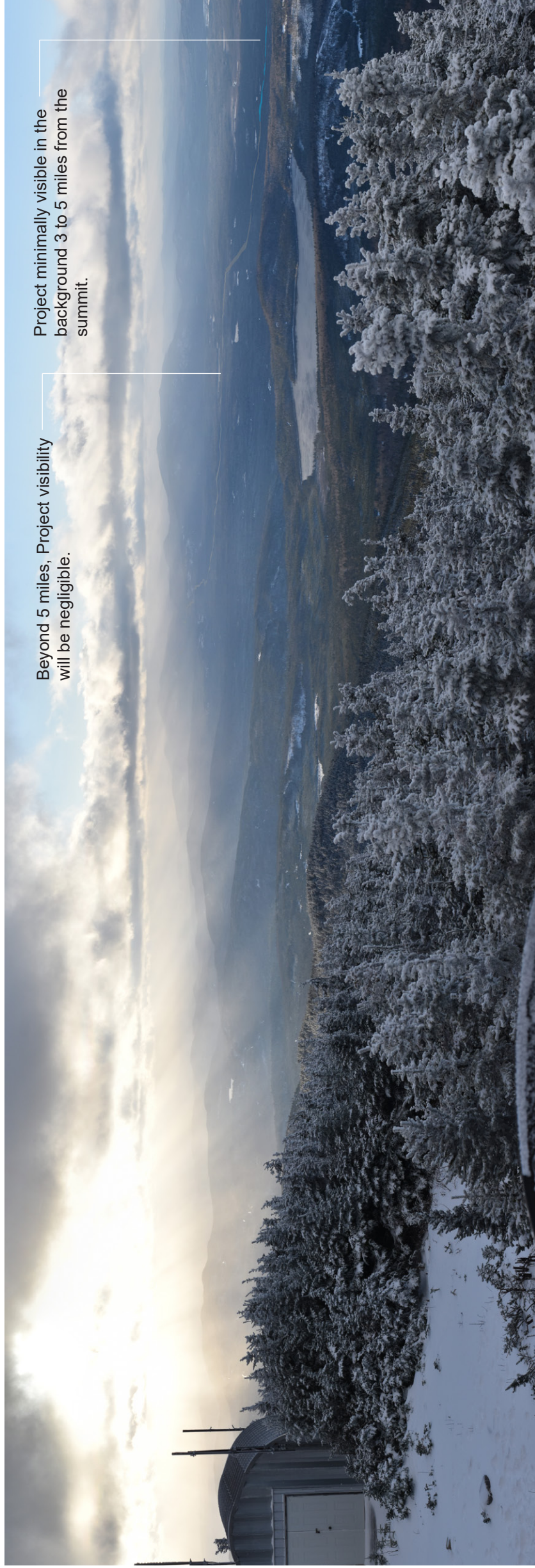
Photomontage 44: Leaf-off / snow cover panoramic view looking east to south from the observation tower at the summit of Coburn Mountain in Upper Enchanted Twp toward the proposed HVDC transmission line. The visible portions of the proposed 150 ft wide corridor clearing will be maintained with tapered vegetation management to minimize the visibility of the corridor. The closest visible structure will be 1.0 mile from this viewpoint. The corridor will be seen in context with the active timber harvesting areas and haul roads that are typical in a working forest.



Beyond 5 miles, Project visibility will be negligible.

Project minimally visible in the background 3 to 5 miles from the summit.

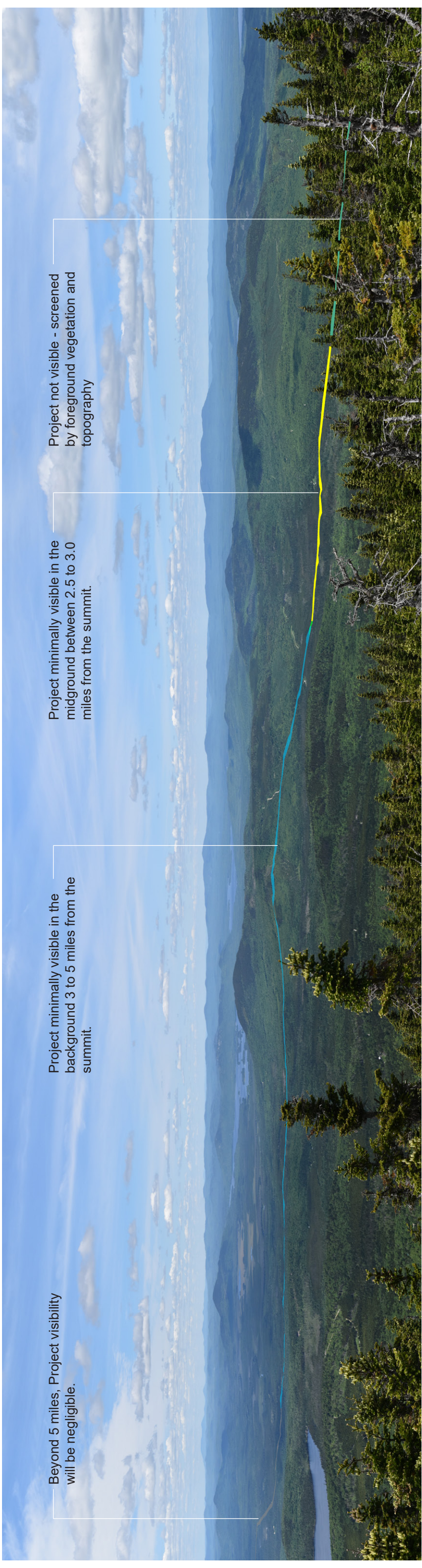
Leaf-on: View looking southwest to west from observation tower at the summit of Coburn Mountain. Grace Pond is visible in the midground. In this direction, the proposed HVDC transmission line will be beyond 5 miles with minimal to negligible visibility.



Beyond 5 miles, Project visibility will be negligible.

Project minimally visible in the background 3 to 5 miles from the summit.

Leaf-off: View looking southwest to west from observation tower at the summit of Coburn Mountain. Grace Pond is visible in the midground. In this direction, the proposed HVDC transmission line will be beyond 5 miles with minimal to negligible visibility.



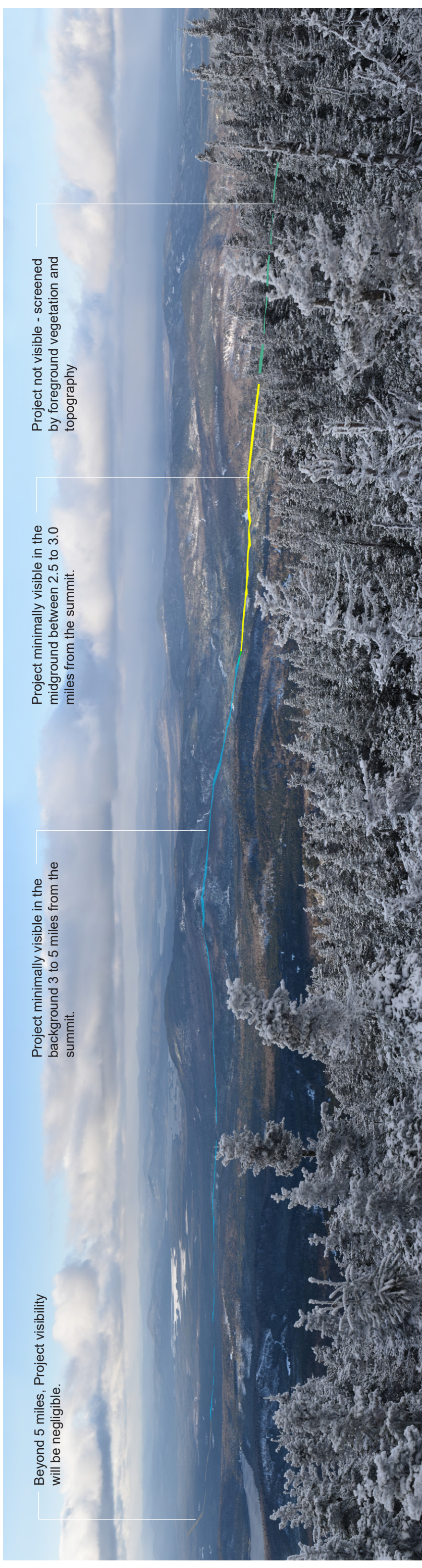
Beyond 5 miles, Project visibility will be negligible.

Project minimally visible in the background 3 to 5 miles from the summit.

Project minimally visible in the midground between 2.5 to 3.0 miles from the summit.

Project not visible - screened by foreground vegetation and topography

Leaf-on: View looking west to north from observation tower at the summit of Coburn Mountain.



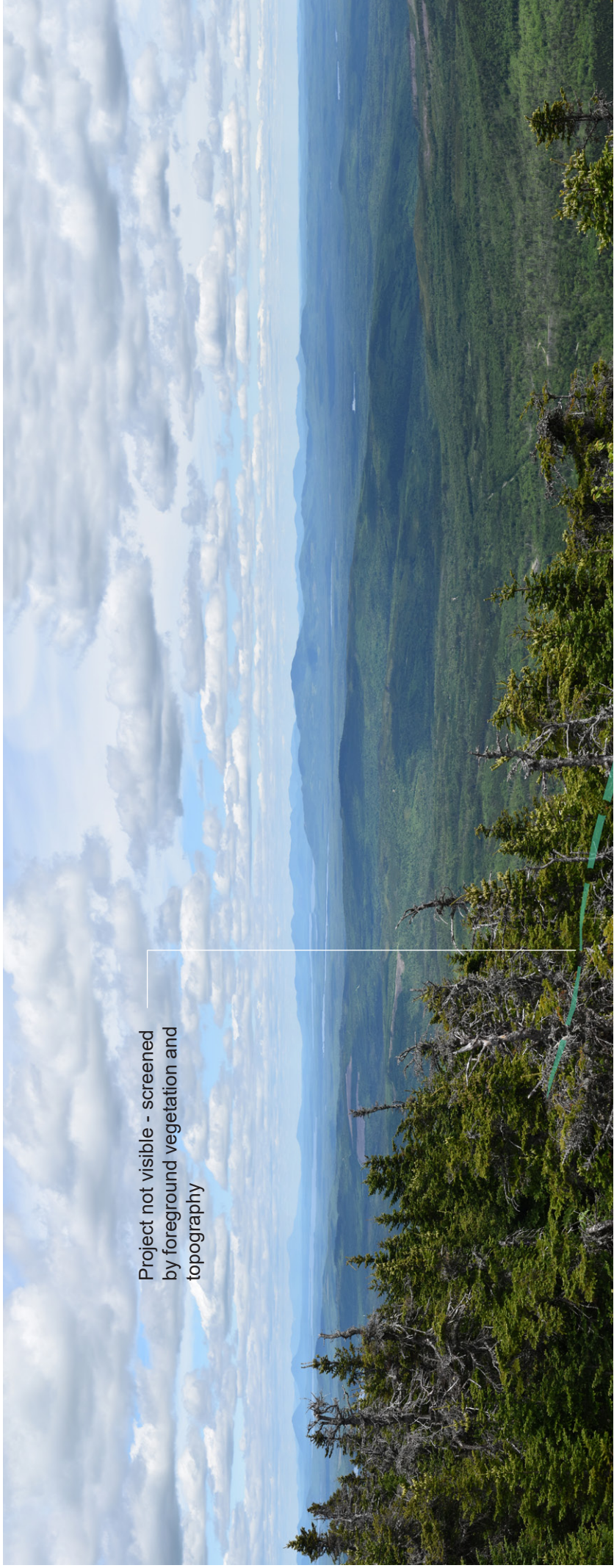
Beyond 5 miles, Project visibility will be negligible.

Project minimally visible in the background 3 to 5 miles from the summit.

Project minimally visible in the midground between 2.5 to 3.0 miles from the summit.

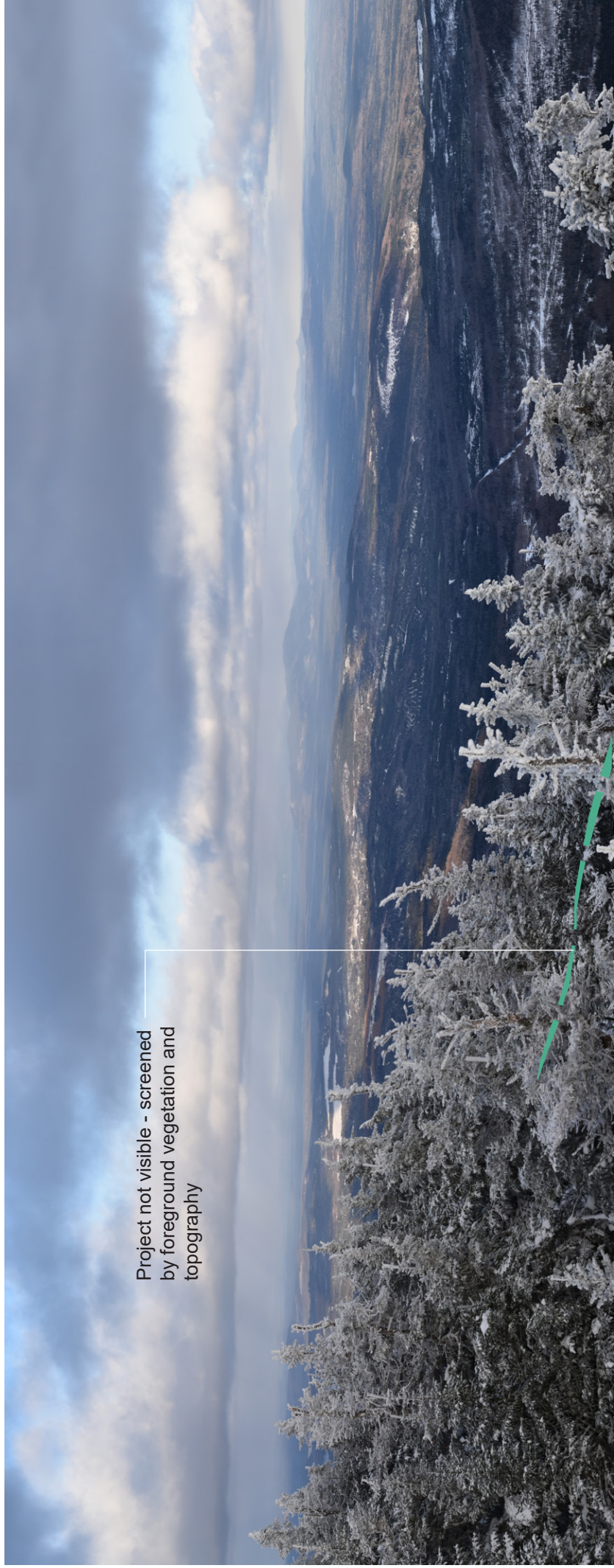
Project not visible - screened by foreground vegetation and topography

Leaf-off: View looking west to north from observation tower at the summit of Coburn Mountain.



Project not visible - screened
by foreground vegetation and
topography

Leaf-on: View looking northeast to east from observation tower at the summit of Coburn Mountain.



Project not visible - screened
by foreground vegetation and
topography

Leaf-off: View looking northeast to east from observation tower at the summit of Coburn Mountain.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbstown Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY OF
TERRENCE J. DEWAN

March 25, 2019

Regarding

- Issue 1: Scenic Character and Existing Uses

I. Summary of Testimony (Relevant to DEP and LUPC Review)

I hereby adopt the Rebuttal Testimony of Amy Bell Segal as if it were my own.

Dated: March 22 2019

Respectfully submitted,




Terrence J. DeWan

STATE OF MAINE
Cumberland, ss.

The above-named Terrence J DeWan did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: March 22/2019



Notary Public
Name:
My Commission Expires:

MELISSA B. FOSTER
Notary Public State of Maine
My Commission Expires July 23, 2023

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbstown Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
PEGGY DWYER

March 25, 2019

Regarding

- **Issue 1 (Scenic Character and Existing Uses): Buffering for Visual Impacts and Recreational and Navigational Uses**
 - Responsive to Intervenor Group 10 witness K. Barkley at 2:18
 - Responsive to Intervenor Group 10 witness E. Buzzell at 4:2 and 6; 4:23; 5:1; 5:6
 - Responsive to Intervenor Group 2 witness E. Caruso at 9-10
 - Responsive to Intervenor Group 4 witness J. Reardon at 7

I. Discussion (Relevant to DEP and LUPC Review)

Issue 1 (Scenic Character and Existing Uses): Recreational and Navigational Uses

- Responsive to Intervenor Group 10 witness K. Barkley at 2:18
- Responsive to Intervenor Group 10 witness E. Buzzell at 4:2 and 6; 5:6

The testimony of the above-cited Group 10 witnesses, to the effect that the New England Clean Energy Connect (NECEC) Project (Project) will unreasonably interfere with existing recreational uses, is overbroad, subjective, and incorrect. Objectively, the Project creates no impediment to the referenced recreational activities. The witness may exercise a choice to recreate elsewhere, but access and opportunity are unchanged as a result of the Project. In fact, the Project will not unreasonably interfere with existing recreational or navigational uses in any way; the only such impact will be some visual effect and, as established elsewhere that impact is not unreasonable and it does not interfere with existing uses.

To support this statement, consider the ongoing example of CMP's existing transmission line corridors, which are widely utilized year-round for private and commercial recreational activities including hunting, fishing, and foraging; hiking, biking, skiing, and snowmobiling; and birding and boating. The National Park Service chose to build a portion of its nationally recognized Appalachian Trail on an existing transmission line corridor. Similarly, access and opportunity for recreational pursuits in the new corridor portion of the Project will be unchanged. Other landowners own and maintain all the roads west of Route 201, thereby maintaining effective control of all recreational access outside the corridor.

Issue 1 (Scenic Character and Existing Uses): Buffering for Visual Impacts and Recreational and Navigational Uses Specific to the P-RR Subdistrict

- Responsive to Intervenor Group 10 witness E. Buzzell at 4:23; 5:1
- Responsive to Intervenor Group 2 witness E. Caruso at 9-10
- Responsive to Intervenor Group 4 witness J. Reardon at 7.

Witnesses Buzzell and E. Caruso describe negative impacts of an overhead crossing, orange marker balls, and clearing to the edge of the Kennebec River. The Project has incorporated an underground crossing of the Kennebec River. There will be no clearing near, or other impacts detectable from, the Kennebec River in that location. There simply are no recreational or navigational impacts associated with the Kennebec River crossing, and no visual impact, as discussed in the direct and rebuttal testimony of CMP witnesses Amy Segal and Terry DeWan.

Finally, witness Reardon expresses concern that the transmission line corridor will become a pathway for motorized vehicles, including ATVs, increasing the risk of invasive species introduction. However, access to Beattie Pond will remain unchanged because there are no existing trails for off-road vehicles, nor will any be constructed as a result of the Project. The CMP corridor in Lowelltown Township is subject to existing access restrictions and a gate agreement limiting vehicular access near Beattie Pond. Exhibit CMP-7.1-A, Gate Agreement, provides that "...in the event that CMP develops a temporary or permanent road from Lowelltown Township T1R8 WBKP to Beattie Township T2 R8 WBKP, CMP agrees to place a gate and/or barrier across such road and manage the same as necessary to prevent vehicle access to Beattie Pond."

II. Conclusion (Relevant to DEP and LUPC Review)

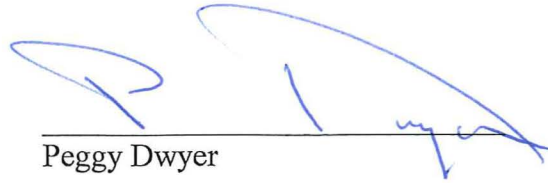
The Project will not adversely affect, nor will it unreasonably interfere with, existing recreational or navigational uses. The Project is adequately buffered from recreational and navigational uses within the Land Use Planning Commission's Recreation Protection (P-RR) subdistrict.

Exhibits:

CMP-7.1-A: Gate Agreement

Dated: March 18, 2019

Respectfully submitted,

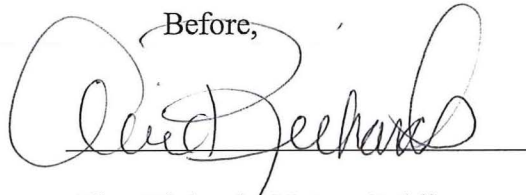


Peggy Dwyer

STATE OF MAINE
Kennebec, ss.

The above-named Peggy Dwyer did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Dated: March 18, 2019

Before,


Alice Richards, Notary Public

My Commission Expires: Jan. 4, 2025



AGREEMENT FOR USE OF GATES

This AGREEMENT, by and between **E.L. CARRIER, INC.** a Maine corporation having a mailing address of P.O. Box 489, Jackman Maine 04945, hereinafter called "Carrier" and **CENTRAL MAINE POWER COMPANY**, a Maine corporation having a mailing address of 83 Edison Drive, Augusta, Maine 04336, hereinafter called "CMP".

WITNESS

WHEREAS, Carrier granted to CMP certain easement rights over and across roads located in Beattie Township T2 R8 WBKP in a Road Access Easement Agreement dated April 14, 2017 and recorded in the Franklin County Registry of deeds in Book 3902, Page 340 (the "Easement"); and

WHEREAS, Item 7 "Use of Gates" in the Easement provides for access by CMP through gates across certain roads of Carrier by the use of a dual lock system; and

WHEREAS, Carrier and CMP desire to define the rules and obligations for the use of such gates.

NOW THEREFORE, Carrier and CMP, for consideration of the mutual covenants contained herein, agree as follows:

Rules for use of gates located on E.J. Carrier ownership in Beattie Township T2 R8 WBKP

1. Central Maine Power Company (CMP) will at its own cost, and consulting with E.J. Carrier (EJC), modify all existing gates across the access roads shown on a plan dated February 16, 2017 and recorded on April 18, 2017 in the Franklin County in plan file 6088 such that the gates can accommodate a dual locking system with one lock for the exclusive use of CMP, its employees, contractors, agents or those working for or through CMP (the CMP Users) and one lock for the exclusive use of EJC, its employee, contractors, agents, lessees or those working for or through EJC (the EJC Users).
2. The CMP Users will use the CMP lock only and will not have access to combinations or keys for the EJC lock.
3. The main gate into Beattie / Merrill Strip at the town line is kept open from June 1st to September 30th. Other than this period, the main gate and all other gates should remain closed and locked unless written permission is received to keep the gate open.
4. In the instances where the gate can be left unlocked, the gate should be in the locked open position if provisions have been made to do so and under all situations the CMP lock must be kept locked to prevent theft of the lock.
5. When the main gate is open between June 1st and September 30th, anyone may access the area behind the main gate by foot or with motorized vehicles (but not the areas behind secondary gates which remain locked). Other than this period, CMP Users will access the areas behind the locked gates only for work purposes. Possession of a key to the CMP lock does NOT grant the right of access through the gates for non-work purposes. Anyone caught driving through any gate for non-work purposes will be considered a trespasser and will be summonsed and prosecuted. (Walking and non-motorized bicycle riding past all of the gates for non-work purposes is permitted.) There are two hunting leases on the E.J. Carrier land in Beattie and Gorham Gore that grant exclusive hunting rights to the lessees so no one else is allowed to hunt on the property.
6. Damage to the gates, regardless of the cause, shall be reported as soon as reasonably possible to CMP as defined in Item 8. Photographs of the damage should be taken if possible and submitted with the report of the damage. There are surveillance cameras at some gates and the cameras are to be left alone. If a camera is visible from a gate, please report this to CMP.

7. Any new gate installed by EJC or EJC Users on the above referenced access roads will be built to accommodate a dual lock system. CMP may install new gates only with the written permission of EJC and such gates will be built to accommodate a dual lock system. Notwithstanding the above, in the event CMP develops a temporary or permanent road from Lowelltown Township T1 R8 WBKP to Beattie Township T2 R8 WBKP, CMP agrees to place a gate and/or barrier across such road and manage the same as necessary to prevent vehicle access to Beattie Pond.

8. Notice to CMP:

Alice Richards, Supervisor
Real Estate Services
Central Maine Power Company
alice.richards@cmpco.com
207 242-0873 or 207 629-2173
With a copy to:
Legal Department
Central Maine Power Company
83 Edison Drive
Augusta, Maine 04336

9. Notice to EJC:

Bill Jarvis, Agent
Jarvis Forest Management
thetreeguy1999@gmail.com
207 668-9516
With a copy to:
Larry Carrier, President
E.J. Carrier, Inc
P.O. Box 489
Jackman, Maine 04945

10. This Agreement may only be modified in writing with the consent of both parties.

11. This Agreement shall be interpreted, construed and enforced according to the laws of the State of Maine.

In Witness Whereof, E.J. Carrier and Central Maine Power Company have set their hands and seals on this Agreement this 27th day of September, 2018.

Dense Conrad
Witness

[Signature]
Witness

E.J. Carrier, Inc.

[Signature]

Larry R. Carrier, President

Central Maine Power Company

[Signature]

Alice D. Richards
Supervisor, Real Estate Services

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbs town Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
KENNETH FREYE

March 25, 2019

Regarding

- **Issue 3 (Alternatives Analysis)**
 - Responsive to Intervenor Group 4 witness Dr. David Publicover
 - Responsive to Intervenor Group 2 witness Elizabeth Caruso, Town of Caratunk
 - Responsive to Intervenor Group 4 witness Jeff Reardon, Trout Unlimited

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Kenneth Freye. I am a Maine resident and a partner at Dirigo Partners, Ltd., a Maine company that provides real services and project support primarily to electric utilities. I

have over thirty years of experience siting, acquiring, managing, and selling real estate associated with electric utilities. I also have over twelve years of experience as a forester and land transaction manager with an industrial forest landowner. My formal education consists of a BS degree in Forest Management and a MS degree in Forest Management and Economics, both from Michigan State University. I am a licensed forester and real estate broker in Maine. My resume is attached as Exhibit CMP-9-A.

II. Discussion (Relevant to DEP and LUPC Review)

Response to Intervenor Group 4 witness Dr. David Publicover

On page 3, beginning on line 16, the Dr. Publicover states that the “project would significantly degrade the experience of Appalachian Trail users at the crossing” and again on page 26, beginning on line 13, he states that “the new line would make the situation worse.” These statements are entirely subjective, incorrect, and are undermined by the language of the February 18, 1987 easement (Easement) that CMP granted to the United States of America for the Appalachian Trail (AT) to cross CMP’s land. See Exhibit CMP-9-B (Easement recorded in the Somerset County Registry of Deeds in Book 1324, Page 19).

The recitals in the Easement state that its intent was to acquire “lands or interest in lands within the right-of-way of the Trail [the Appalachian National Scenic Trail] sufficient to assure perpetual use and protection for the purposes provided by the Act [the National Trails System Act, Public Law 90-543 (82Stat. 919) as amended].” However, the Easement specifically reserves CMP’s right to construct electric transmission lines in the corridor that the AT crosses.

It states as follows, on pages 2-3:

the above-granted right and easement shall not be interpreted or exercised to, in any way, interfere with the Grantor [CMP], its successors and assigns, erection, construction, maintenance, repair, rebuilding, respacing, replacing, operation, patrol and removal of electric transmission, distribution and communication lines

consisting of suitable and sufficient poles and towers with sufficient foundations, together with wires strung upon and extending between the same for the transmission of electric energy and intelligence, together with all necessary fixtures, anchors, guys, crossarms, and other electrical equipment and appurtenances, or the clearing and keeping clear Tract 108-04 [the Easement area] of all trees, timber and bushes growing on said tract only by such means as the Grantor, its successors and assigns, may select which do not interfere with the footpaths continuity or endanger hiker's passing along the footpath.

Clearly, the U.S., through the National Park Service (NPS), anticipated and agreed to the construction by CMP of additional electric transmission lines, and related clearing, in the CMP-owned corridor that the AT crosses. This language demonstrates that the U.S. acquiesced in these actions, and did not believe them to be inconsistent with the purpose of the Easement, as stated in the recitals. Neither the NPS nor the Appalachian Trail Conservancy (ATC), its agent, has stated that CMP's proposed use of the Easement area is inconsistent with the purpose of the Easement. While Dr. Publicover may believe the Project will degrade the experience of hikers, this opinion is not supported by – and in fact is contradicted by – the visual impact analysis, the Easement, and NPS. In fact, the impact – to the extent it exists – cannot be considered unreasonable, given that the impact is to a use that occurs on CMP's land, with the understanding that the use is allowed only with the possibility that an additional transmission line could be constructed in this location.

On page 3, line 20, Dr. Publicover states, “the opportunity exists to improve rather than degrade the user's experience.” On page 28, line 4, he states that the AT should be relocated. The decision to relocate the AT rests with the NPS, assuming it can arrange sufficient alternative property rights. It is not within CMP's control. Nevertheless, CMP engaged with the ATC and Maine Appalachian Trail Club (MATC) in discussions concerning the possibility of relocating the AT footpath (the traveled way) to minimize the number of times it crosses the existing corridor, in which the Project will be located. Alternative alignments or locations of the

transmission line, on the other hand, would not be reasonable or reasonably available because they would result in crossings of the AT in one or more locations where there are no existing transmission line corridors, thus having greater impact on the AT.

The AT footpath crosses CMP's existing corridor containing a 115 kV transmission line in three locations adjacent to Moxie Pond and Trestle Road in Bald Mountain Township. See Exhibit CMP-3-D; CMP-8-J. CMP has had several meetings with members of the ATC and MATC to discuss possible relocations of these short portions of the AT footpath:

- A relocation of the trail that would avoid the first west-to-east crossing and the second east-to-west crossing (Troutdale Road) by rerouting the AT footpath across a camp lot on the west side of Troutdale Road. However, the ATC and MATC elected not to pursue this option because it would pass within view of the cottage on the camp lot. They considered that less desirable than leaving the trail in the current location.
- A relocation of a portion of the AT footpath on the east side of Baker Stream, where the footpath currently parallels or is within CMP's corridor for about 1,000 feet before crossing the currently cleared portion of the CMP corridor. Re-routing the AT footpath slightly to the west of the existing CMP corridor, but staying within the AT-owned land until the footpath approaches the existing crossing point, could be done at the discretion of the agencies without the need for anything from CMP. CMP believes the ATC and MATC are willing to pursue this relocation and CMP will support the cost of doing so if the ATC and MATC elect to move forward with this relocation, and if the National Park Service approves of it.
- A relocation of the eastern-most crossing of the corridor, at which point the AT footpath is south of Joe's Hole and east of Baker Stream. However, the ATC and MATC elected not to pursue this option, and instead asked if CMP would consider adding plantings of non-capable species to provide visual screening along the open section of the footpath as it crosses CMP's corridor. ATC and MATC members reviewed the plant species CMP proposed for buffering near Joe's Hole and Troutdale Road, and they consider those appropriate for this location as well. CMP is willing to add these plantings should MATC and ATC so request. The screening effects of these plantings will minimize the view of the existing transmission line and the NECEC transmission line from the AT footpath.

In any event, as noted above and as discussed in the pre-filed direct testimony of CMP witnesses Gerry Mirabile, Mark Goodwin, and Amy Segal, CMP has proposed planted

vegetative buffers along both sides of Troutdale Road (co-located with the AT in this area) to minimize the Project's visual impact on the AT. Those plantings provide sufficient buffering for the AT, given the current use of the corridor by an existing transmission line.

On page 19, beginning on line 10, Dr. Publicover alleges that CMP could bury the NECEC transmission line along the edge of the Spencer Road to avoid forest fragmentation, and on page 20, beginning on line 3, he states that such burial would have less environmental impact than the proposed corridor. But this is not a practicable alternative, nor is it reasonably available to CMP.

Spencer Road is not a public road. It was built and is maintained for the management of the industrial forest landowners whose land is accessed by that road. Plum Creek Maine Timberlands LLC (PCT), the then-primary forest landowner along Spencer Road, did not want and would not agree to any alignment of a transmission line that would adversely affect the management of its land. It specifically did not want a transmission line located along the Spencer Road because a transmission line located along the road, whether overhead or underground, would limit the landowner's ability to ditch, blast, create, and use landings, operate heavy equipment, or relocate the road. Construction activity, particularly for an underground transmission line located close to the road, would create congestion and limit the industrial forest landowners' ability to transport timber and access their land.

Thus, routing the Project along Spencer Road is not an available alternative. In addition, as discussed elsewhere in CMP's testimony, burying the NECEC transmission line in these locations is not reasonably available or practicable.

In summary, the statements that the NECEC transmission line will degrade the Appalachian Trail corridor are incorrect and subjective. The NPS anticipated the construction of

additional lines and additional clearing when it acquired the easement for the Trail. There is no objective evidence to indicate that the NECEC transmission line conflicts with the intent of the National Trails System Act. Further, placing the NECEC line either underground or overhead next to the Spencer Road conflicts with the landowner's use of its property. It was not possible to obtain rights for the transmission line in that area.

Response to Intervenor Group 2 witness Elizabeth Caruso, Town of Caratunk

On page 6, beginning at line 4, Ms. Caruso states “there already exists a corridor from the Quebec border on the other side of Route 201. CMP could easily have used this corridor. It's quite simple and is even listed in the MOU with Western Mountains and Rivers Corporation.” This statement is incorrect. Because of the lack of specificity as to the location of this mystery corridor and the reference to the memorandum of understanding (MOU) with Western Mountains and Rivers Corp. (WMRC), I will attempt to address all of possible misconceptions.

First, CMP does not own a corridor that connects to Quebec in the upper Kennebec River area, other than the Preferred Route of the proposed NECEC transmission line. There is a distribution line from Harris Dam to the village of Jackman (the Jackman Tie Line or JTL). The JTL extends west from Harris Dam to a point on Route 201 in West Forks Plantation south of the Johnson Mountain town line. From that point to the Town of Jackman, about 18 miles, the JTL is a standard roadside distribution line located within the highway limits of Route 201. The JTL originally diverged from Route 201 about 1.5 miles south of the intersection of Routes 201 and 6/15 in the village of Jackman, and was located on a 100-foot wide easement for about 1.75 miles to the termination on Coburn Avenue in Jackman. That cross-country section was abandoned, however, and the JTL is now entirely roadside, terminating on Route 6/15.

This could be the corridor that Ms. Caruso mistakenly believes connects to Quebec. It does not; the JTL terminates in Jackman about 16 miles from the Canadian border. Not only would new corridor need to be acquired through the towns of Jackman and Moose River, but corridor would need to be acquired along Route 201, a designated scenic highway, for the entire distance from Jackman to West Forks Plantation. In addition, the JTL corridor between Harris Dam and Route 201 would need to be expanded through two conservation easements and across the State-owned Cold Stream Forest.

The other possibility, based on the MOU between WMRC and CMP, dated May 30, 2018, is the reference to the “Old Rail Bed from Indian Pond to Route 15 in Rockwood,” which is a potential donation parcel. This 99-foot-wide parcel does not connect to the transmission line that terminates at Harris Dam; there are over nine miles and two conservation easements between Harris Dam and the southern end of the old rail bed. The entire old rail bed is less than eight miles long and the north end terminates over thirty miles from the Canadian border. The old rail bed does not have sufficient width for the NECEC transmission line and much of the distance is subject to an easement for a major logging road. The old rail bed is the only linear parcel referenced in this agreement.

On page 6, line 8, Ms. Caruso references burying the NECEC line in a pre-existing corridor along Route 201 or under pre-existing dirt roads. As stated above, there is no corridor along Route 201; the existing distribution line is within the highway limits. Further, aside from cost and environmental issues, excavation near any electric line, and particularly next to distribution lines because of their low ground clearance, is extremely dangerous. Additional width along this designated scenic highway would need to be acquired and cleared to facilitate a

buried transmission line. Please see my rebuttal testimony to Dr. Publicover, above, for a discussion on the use of private roads for siting transmission lines.

In summary, there is no CMP corridor connecting the Province of Quebec with CMP transmission lines in the upper Kennebec River area other than the preferred route of the NECEC Project. CMP does not own a transmission line corridor along Route 201, and acquiring one would not be practicable or reasonably available. Statements to the contrary are wrong and misleading.

Response to Intervenor Group 4 witness Jeff Reardon, Trout Unlimited (Relevant to DEP Review Only)

Gold Brook & Rock Pond Area

On page 14, on the continuation of item 1, Mr. Reardon states that all of the impacts to Gold Brook and Rock Pond could have been avoided if the NECEC corridor had been located one-half a mile to the north or south to avoid Gold Brook and Rock Pond. This statement ignores both the land ownership in this area or the topography.

The first constraint in this area is the land ownership. The Nature Conservancy (TNC) acquired a large parcel of land on the north side of Spencer Road beginning at approximately the north end of Rock Pond and extending west nearly two miles. This parcel was either under contract or in serious consideration for sale when CMP began discussions with PCT in 2014, and one of PCT's concerns was to avoid any effect on the proposed sale to TNC. I contacted Tom Rumpf at TNC very early in the siting of the corridor. He stated that TNC would not object to a transmission line corridor abutting the TNC land but would not allow a transmission line corridor to cross TNC land. This constraint alone precluded moving the NECEC corridor to the north.

PCT sold the land to TNC in a deed dated June 24, 2015 and recorded in the Somerset County Registry of Deeds in Book 4923, Page 231. The subsequent alignment of the NECEC corridor avoided TNC land. Further, it was my understanding at the time that PCT was contemplating selling additional land to TNC, and PCT's desire was to keep the NECEC transmission line corridor as close as possible to the T7 R5 BKP WKR (Raytown) / T4 R6 BKP WKR (Hobbstown) town line.

Moving the corridor north to avoid Gold Brook would not have been possible because of TNC ownership.

Aside from TNC ownership, the land on the north side of Spencer Road in the area where the corridor crosses Gold Brook is very steep, with some area having nearly sheer rock faces. It would be impracticable, if not impossible, to construct in this area. Given the topography, the corridor also would be more visible from Rock Pond.

Moving the corridor to the south any distance also has terrain problems, and does not eliminate the stream crossings to which Mr. Reardon objects. Gold Brook flows from the southwest to the northeast between Three Slide and Tumbledown mountains. Depending on the distance the corridor would be moved to the south, but not exceeding the half-mile suggested by Mr. Reardon, the corridor would cross both Gold Brook and a major tributary to Gold Brook, would be above the 2700-foot elevation, would cross open sub-alpine areas, and would be visible from virtually all of Rock Pond and Iron Pond. The corridor would also need to cross Baker Stream and the associated inland waterfowl and wading bird (IWWH) zone south of Rock Pond. Exhibit CMP-9-D shows the Gold Brook – Rock Pond area.

I made substantial efforts to avoid and minimize potential impacts to the stream habitats in siting this corridor. However, I also had to weigh the availability of alternative routes, other

non-stream impacts of other routes, as well as the fact that other routes could impact the same stream habitats. In some cases, the stream habitat impacts of alternate routes would have been greater than the route selected. As with the other suggestions in the prefiled testimony to improve the location of the corridor, the person making the suggestion has no experience with siting linear infrastructure, glosses over the physical and social constraints, and only partially considers even the consequences directly relevant to their specific concern.

Lower Enchanted and Basin Tracts

Mr. Reardon states on page 22, in items 5 and 6, that the conservation value of the Lower Enchanted Tract and Basin Tract is limited because it protects only one shore of the Dead River, and that there is no protection of the watershed along Enchanted Stream upstream of the Lower Enchanted Tract. These statements are both misleading and incorrect.

Except for the CMP Lower Enchanted proposed compensation parcel, the north side of the Dead River between Grand Falls and Salmon Stream, which is just upstream from the West Forks Plantation village, is owned by Western Mountains Charitable Foundation and protected by a conservation easement held by Maine Bureau of Parks and Lands. The Lower Enchanted Tract being offered as compensation by CMP completes the protection of the north side of the Dead River in this roughly 12¼-mile segment of river. The north end of the Lower Enchanted Tract extends along Enchanted Stream to virtually the southern end of a 275 +/- acre IWWH zone that provides protection to Enchanted Stream and Lower Enchanted Pond, upstream of the Lower Enchanted Tract.

CMP is proposing preservation of the Basin Tract is located on the south side of the Dead River because the north side is protected by the above-mentioned Western Mountains Charitable

Trust conservation easement. The preservation of the Basin Tract will complete the protection of both sides of the Dead River for 4.8 miles. See Exhibit CMP-9-E

Cold Stream Crossing

Mr. Reardon comments on page 11, item 3, that the location where the NECEC corridor crosses Cold Stream in Johnson Mountain Township is particularly impactful due to proximity to feeder streams and the proximity to Weyerhaeuser Company's private road, generally known as the Capital Road. These statements are misleading. The unnamed feeder stream on the east side of Cold Stream, while on CMP land, is not in the NECEC transmission line corridor and will not be cleared. The "feeder stream" on the west side of Cold Stream is a wetland with no stream channel present, as determined by a qualified wetland scientist. I have personally inspected this area and concur that the mapping is correct. This is also an area where an adjustment was made to the corridor to place the angle structure outside of the wetland.

The location where the NECEC corridor crosses Cold Stream is very open. The entire stream channel is visible on aerial imagery, due in part to the current location of Capital Road on the south side of the NECEC corridor and the former location of the Capital Road on the north side of the corridor. Tree cover between the two roadways is sparse and, based on ground inspection of the former location of the Capital Road, the area will revegetate quickly with alders and other non-capable species to provide stream-side cover and shade along the edges of Cold Stream. Indeed, regrowth of this type of vegetation has already begun.

The language and structure of the deed for the Cold Stream Forest (CSF) parcel makes placing transmission lines on or across the CSF very difficult. PCT, which was in the process of selling the CSF lands to the State of Maine in late 2015 (the conveyance occurred on March 10, 2016, Somerset County Registry of Deeds, Book 5012, Page 292), advised CMP that PCT would

not entertain any alignment that affected the pending sale of the CSF. Had the parties to the acquisition of the CSF been open to an alignment across the CSF, CMP would have seriously considered expanding the existing 100-foot-wide Jackman Tie Line corridor, which crosses Cold Stream about $\frac{3}{4}$ of a mile downstream of the NECEC corridor. However, the restrictions placed on crossing the CSF made the gap at the Capital Road crossing the only viable location for the NECEC transmission line corridor. See Exhibit CMP-9-F

Tomhegan Stream Crossing

Likewise, Mr. Reardon states on page 12, item 4, that no alternative was considered for the location where the NECEC corridor crosses Tomhegan Stream in West Forks Plantation. In fact, alternative locations were considered where the NECEC transmission line corridor crosses Tomhegan Stream.

The proposed corridor location is the result of several adjustments to the corridor location. In the very early stages of the siting process, an alignment to the east was considered, but rejected, because the alignment would have crossed both the outlet stream from Wilson Hill Pond and Tomhegan Stream. The corridor was moved approximately 2,000 feet west to substantially its current location prior to commencing wetland mapping. In the wetland mapping process, the extensive wetlands in this area were noted and the tangent was shifted approximately 100 feet to the southwest to minimize the wetland impacts.

This is an area where Tomhegan Stream consists of one primary channel and a number of braided channels flowing through an area with sparse tree cover. Moving the NECEC transmission line any substantial distance to the southwest would place the NECEC corridor close to or over the outlet stream from Little Wilson Hill Pond. See Exhibits CMP-9-G and CMP-9-H for an overview and detail of the Tomhegan Stream area.

Summary

In summary, the relocations recommended by Mr. Reardon in the Gold Brook – Rock Pond area are impractical from both a physical and social standpoint, and are neither practicable nor reasonably available. The proposed relocations would involve placing the NECEC transmission line corridor over protected lands and/or on steep slopes. In some situations, the corridor would be more visible from Rock Pond. Mr. Reardon’s testimony offers no evidence that the current location, with the modifications to structure height, does not provide sufficient protection to Gold Brook and Rock Pond.

Mr. Reardon’s characterization of the Basin Tract and Lower Enchanted Tracts fails to consider how these parcels integrate with the surrounding lands that are currently protected with conservation easements and protective zoning. He offers no evidence that protecting only one side of a stream does not provide environmental benefits.

Finally, the stated issues with the Cold Stream and Tomhegan Stream crossing locations do not accurately consider the physical and landownership constraints that exist. The statement that the perceived impacts could have been avoided is subjective, unfounded, and not supported by an examination of the land ownership and resources.

III. Conclusion (Relevant to DEP and LUPC Review)

The above referenced testimony of Dr. Publicover, Ms. Caruso, and Mr. Reardon is subjective, incorrect, and misleading. All three witnesses do not consider, or gloss over, factual information, physical conditions, and social constraints. Contrary to their contentions, and as demonstrated by my testimony and the testimony of other CMP witnesses, there are no practicable or reasonably available alternatives to the Project locations; the Project has been carefully sited to minimize environmental and visual impacts.

Exhibits:

CMP-9-A: Resume of Kenneth Freye

CMP-9-B: CMP to USA Easement

CMP-9-C: Appalachian Trail Location

CMP-9-D: Gold Brook – Rock Pond Area, Appleton Township

CMP-9-E: Dead River Compensation Tracts, Spring Lake, Pierce Pond and Lower Enchanted Townships

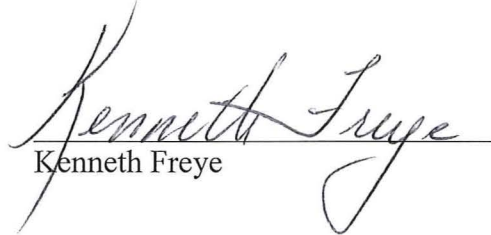
CMP-9-F: Cold Stream Area, Johnson Mountain Township

CMP-9-G: Tomhegan Stream Area Overview, West Forks Plantation

CMP-9-H: Tomhegan Stream Area Detail, West Forks Plantation

Dated: March 13, 2019

Respectfully submitted,

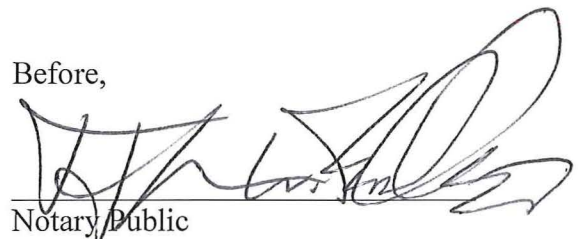

Kenneth Freye

STATE OF MAINE
Kennebec, ss.

The above-named Kenneth Freye did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Dated: March 13, 2019

Before,


Notary Public

Name:

My Commission Expires:

Tyler W. Bradbury
Notary Public, State of Maine
My Commission Expires August 18, 2025



✓



Ken Freye

Expertise

- Project Management
- Resources & Real Estate Management
- Land Acquisition
- Negotiations
- Contracts

Education

- BS Forest Management, Michigan State University
- M.S. Forest Management & Economics, Michigan State University

Registration

- Licensed Real Estate Broker, State of Maine (current)
- Licensed Forester, State of Maine (current)

Professional Experience

Dirigo Partners Ltd.
2013 – present

Burns & McDonnell
2010 – 2013

Central Maine Power Company
1988 – 2010

International Paper Company
1976 - 1988

Experience

Dirigo Partners, Ltd.

Maine, 2013-present

Ken manages the capital projects for Dirigo Partners and is a partner in the firm. His experience as a corporate real estate manager gives him insight into our clients' needs. He has demonstrated proficiency in financial and economic analysis, project development and management, and real estate, contract, and land use issues. Ken has extensive knowledge of utility real estate ownership and needs, and has a solid working knowledge of electrical transmission and substation design and corresponding real estate needs. He is a Licensed Real Estate Broker and Forester in the State of Maine.

Burns & McDonnell

Maine, 2010-2013

Ken was a project manager at Burns & McDonnell (BMCD) where he continued to work on the more complex real estate issues of Central Maine Power Company's Maine Power Reliability Program, as well as electric transmission projects in Oklahoma and Pennsylvania (see below). Ken was also involved in siting and project cost / resource planning for projects in the Indiana and Utah-Colorado-Wyoming.

Central Maine Power Company

Maine, 1988 - 2010

As Manager of Real Estate Services, Ken completed all transmission, substation, service facility, and communication site acquisition projects. He was a leader of the Land Team, responsible for the team charged with all real estate due diligence, translation of electrical diagrams into real estate documents, contract negotiations, and preparation of real estate documents. He further managed portfolios of timberland, recreation properties, residential and commercial properties, utility facilities, and rights-of-way.

International Paper Company

Alabama, Vermont, Maine, 1976 - 1988

Progressed from Forester to Manager, Economics and Real Estate. Evaluated large tracts of commercial timberlands for potential sale including the gathering of timber growth and inventory information for wood products marketing projections; experienced in statistical sampling techniques. Negotiated the purchase or exchange of commercial timberlands with the largest tracts exceeding 50,000 acres. Developed economic analysis models for evaluating timberland transactions and land exchanges. Responsible for the sale of surplus lands and facilities.

Select Projects

New England Clean Energy Connect, Central Maine Power Company

Maine, 2014 - present

Ken managed the siting, acquisition, survey, and wetlands mapping for a new 50+ mile corridor and associated substation sites connecting existing Central Maine Power Company (CMP) transmission lines with the Province of Québec, Canada. The project involved complex negotiations with public agencies as well as private and

Ken Freye (continued)



industrial forest landowners, in addition to managing subcontractors for aerial imagery, surveys, and environmental work. The corridor acquisition phase of this project is complete and has entered engineering design and permitting, where Ken and Dirigo Partners continue to be significant contributors.

Pittsfield to Keene Road, 345kV, Maine Electric Power Company, Inc. *Maine, 2015 - present*

Ken managed the siting and acquisition of a new 345 kV corridor approximately 70 miles long involving greenfield and co-location with over 170 acquisition parcels. He developed acquisition protocols, documents, target acquisition cost tables and project metrics, and manages the ongoing efforts of the acquisition team. Currently 96% of parcels are secured. This project is a collaborative effort of CMP and Emera Maine through their wholly owned subsidiary, Maine Electric Power Company, Inc.

Susquehanna to Roseland Project, PPL Electric Utilities *Pennsylvania, 2012 - 2013*

While with Burns & McDonnell (BMcD), Ken joined the construction management team on a 100-mile 500 kV transmission line link between Pennsylvania and New Jersey, focusing on obtaining Highway Occupancy Permits from PennDOT, quality assurance/ quality control of all land rights, licenses, and access rights obtained by PPL, and evaluation of existing rights for fiber optic communications. BMcD was able to update and create real estate layers in its GIS system as a result of the QA/QC process. Ken also assisted in resolving encroachments and landowner access issues, and improving stakeholder relations.

Maine Power Reliability Project, Central Maine Power Company *Maine, 2007 - 2014*

Ken first managed this program as the manager of CMP's real estate department and then as a project manager working for BMcD. The 450-mile, 4000+ parcel Maine Power Reliability Project consisted of both corridor expansion, new corridor, and construction/reconstruction within existing corridors. As the CMP real estate manager, Ken was responsible for overseeing all real estate related activities, including rights and restrictions investigation, options, acquisitions, encroachments, licensing, valuation, property inspection, relocation, and property management. Ken continued on this project as project manager for BMcD, focusing on acquisition strategy, quality assurance, condemnation strategy and execution, affiliate transactions, and the transfer of mitigation parcels. Ken also was a member of the team that resolved A/C voltage and current issues related to parallel occupancy and crossings of pipelines, communication cables, and railroads within the Extremely High Voltage transmission line corridor.

Oklahoma 345 kV Projects, Oklahoma Gas & Electric (OG+E), *Oklahoma, 2011 - 2012*

Ken was Program Coordinator for BMcD on real estate issues on the three OG+E 345 kV projects, providing insight and solutions with a focus on reducing condemnations and improving stakeholder relations.

BK 1324 PGO 18

GRANT OF EASEMENT

01477

THIS INDENTURE, made this 18th day of February,

1987, by and between CENTRAL MAINE POWER COMPANY, a corporation organized and existing under the laws of the State of Maine, and having its principal place of business at Edison Drive, Augusta, Maine 04336, hereinafter referred to as the GRANTOR, and the UNITED STATES OF AMERICA, Washington, DC 20240, hereinafter referred to as the GRANTEE.

WITNESSETH: WHEREAS, the National Trails System Act, Public Law 90-543 (82 Stat. 919), as amended, hereinafter referred to as the ACT, designated the Appalachian National Scenic Trail, hereinafter referred to as the TRAIL, as a part of a national system of trails in order to provide for the ever-increasing outdoor recreational needs of an expanding population and in order to promote public access to, travel within, enjoyment of, and appreciation for the outdoor areas of the Nation, and to provide for the conservation and enjoyment of the nationally significant scenic, historical, natural and cultural qualities of the Trail; and,

WHEREAS, Section 7 of the Act authorizes the Secretary of the Interior, hereinafter referred to as the SECRETARY, to acquire lands or interests in lands within the right-of-way of the Trail sufficient to assure perpetual use and protection for the purposes provided by the Act; and,

WHEREAS, the Secretary, acting by and through the National Park Service, has determined that it is necessary in order to preserve and protect the Trail for the purposes provided in the Act to acquire interests in this certain real property owned by the Grantor;

BK1324 PG020

NOW THEREFORE, the Grantor, in consideration of the sum of ELEVEN THOUSAND FIVE HUNDRED AND NO/100 DOLLARS (\$11,500.00), the receipt and sufficiency whereof are hereby acknowledged, does hereby grant, bargain, sell and convey with WARRANTY COVENANTS unto the said Grantee and its assigns, forever, a perpetual, exclusive, and assignable right and easement consisting of the right to control and manage the land only in accordance with the provisions and intent of the National Trails System Act, to construct, manage, use, and maintain the Trail primarily as a public footpath including the right to permit members of the public to traverse the area, and for other purposes as may be required in connection with the construction, management, development, use, and maintenance of said Trail.

IT IS CONCLUSIVELY presumed that any and all rights and uses not specifically hereinafter reserved to the Grantor are to become vested in the United States of America, excepting from the operation of this easement ONLY those rights as may be specifically hereinafter reserved.

Provided, however, the above-granted right and easement shall not be interpreted or exercised to, in any way, interfere with the Grantor, its successors and assigns, erection, construction, maintenance, repair, rebuilding, respacing, replacing, operation, patrol and removal of electric transmission, distribution and communication lines consisting of suitable and sufficient poles and towers with sufficient foundations, together with wires strung upon and extending between the same for the transmission of electric energy and intelligence, together with all

BK1324 PGO21

necessary fixtures, anchors, guys, crossarms, and other electrical equipment and appurtenances, or the clearing and keeping clear Tract 108-04 of all trees, timber and bushes growing on said tract only by such means as the Grantor, its successors and assigns, may select which do not interfere with the footpaths continuity or endanger hiker's passing along the footpath.

The Grantee and its assigns, agree that it will not erect or maintain any building or other structure, or authorize the erection or maintenance of any building or other structure, of any kind or nature, upon Tract 108-04, and will not place, or authorize any material of any kind or nature to accumulate on or be removed from Tract 108-04, any or all of which, in the opinion of the Grantor, its successors and assigns, would endanger or interfere with the operation or maintenance of said line or lines constructed along and across Tract 108-04.

This conveyance is subject to the terms and conditions of the Grantor's license from the Federal Energy Regulatory Commission designated as Project No. 2142, Indian Pond Project, including, but not limited to the Grantor's right to take reasonable remedial action to correct any violation of the terms and conditions of the license.

It is understood and agreed that no mechanized or motorized equipment or vehicles of any nature are allowed on the herein described property except in conjunction with such uses as may be specifically reserved, or for emergency purposes.

BK 1324 PG 022

The Grantor, for itself, its successors and assigns, covenants and agrees that ONLY the following uses are hereby reserved to itself, its successors and assigns, on the lands herein designated as Tracts 109-03/21.

The use of the above-described property for noncommercial, passive recreational purposes. It is understood and agreed that no structures are to be erected and no articles of personal property are allowed to be placed on the premises.

It is further understood and agreed that no mechanized or motorized equipment or vehicles of any nature are allowed on the herein described property except in conjunction with such uses as may be specifically reserved, or for emergency purposes.

THE GRANTOR, its successors and assigns, reserves the right to use the land described below in connection with the Wyman Project, Project No. 2329. This includes, but is not limited to, the right to use, lower and control the waters of the Kennebec River or any of its tributaries, as the Grantor, its successors or assigns, may see fit in its or their uncontrolled discretion without liability of any kind or nature on the part of the Grantor, its successors or assigns, to the Grantee and its assigns, and their licensees and permittees, for the uneven handling or control of said waters.

THE GRANTOR also reserves to itself, its successors and assigns, the perpetual right and easement to overflow and flood the interests described below, directly or indirectly by backflow, seepage, erosion, inundation or otherwise, as the same may be overflowed or flooded by the operation, control and discharge of the waters of the Kennebec River, or any of its tributaries, by means of any dam or dams owned or controlled

BK1324 PG023

by the Grantor, its successors and assigns, as the same are now or hereafter may be constructed across the Kennebec River, without liability on the part of the Grantor, its successors and assigns, to the Grantee, and its assigns.

This conveyance is subject to the terms and conditions of the Grantor's license from the Federal Energy Regulatory Commission designated as Project No. 2329, Wyman Project, including but not limited to the Grantor's right to take reasonable remedial action to correct any violation of the terms and conditions of the license.

The land in which the above interest and estate is conveyed is described as follows:

Tract 108-04

All that certain tract or parcel of land lying and being situated in Bald Mountain Township, T2, R3, B.K.P. E.K.R. and Caratunk Township, Somerset County, State of Maine, and being more particularly described as follows:

BEGINNING at a point on the western property line of subject owner, said point being a corner common to lands, now or formerly, of Skylark, Inc., and Scott Paper Company, and being located North 76° 04' 37" East, 56.89 feet from an iron pin and South 76° 04' 37" West, 7.55 feet from an iron pin, the first-mentioned iron pin being on the common property line between said Scott Paper and said Skylark; thence, with the property line of said Scott Paper, North 30° 29' 30" West, 627.90 feet to a point on the Bald Mountain, T2, R3, B.K.P. E.K.R./Caratunk Township Line, said point being located North 11° 20' 45" West, 34.78 feet from a stake and stones on said Township Line; thence, continuing with the property line of said Scott Paper, North 30° 29' 30" West, 610.21 feet to a point on the property line of said Scott Paper, said point being located South 42° 26' 08" West, 235.37 feet from an iron pin near utility pole number 179; thence, severing the land of subject owner, re-crossing said Township Line, North 68° 26' 00" East, 303.68 feet to a point on the property

BK 1324 PG 24

line of other lands of said Scott Paper, said point being located South 63° 19' 40" East, 138.32 feet from said iron pin near utility pole number 179; thence, with the property line of said Scott Paper, South 30° 29' 30" East, 1,180.00 feet to a point on the westerly side of a Scott Paper Company gravel haul road; thence, continuing with the property line of said Scott Paper, crossing said road, South 30° 29' 30" East, 2,220.00 feet to another point on the property line of said Scott Paper; thence, again severing the land of subject owner, South 59° 30' 30" West, 300.00 feet to a point on the property line of the first-mentioned Scott Paper; thence, with the property line of said Scott Paper, in part with the property line of said Skylark, North 30° 29' 30" West, 2,209.00 feet to the point of beginning.

Containing 23.58 acres, more or less, of which 5.70 acres, more or less, lies within Joe's Hole.

The above-described parcel, designated as Tract 108-04, Appalachian National Scenic Trail, is a portion of the same land acquired by Central Maine Power Company from Hollingsworth and Whitney Company by deed dated October 22, 1954 and recorded October 27, 1954 in Deed Book 561, Page 466 and a portion of land acquired from Great Northern Paper Company by deed dated October 30, 1953 and recorded November 19, 1953 in Deed Book 554, Page 474. The above documents are of record in the Somerset County Registry of Deeds, State of Maine.

BEARINGS REFER TO MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE.

Tract 109-03

All that certain tract or parcel of land lying and being situated in Lots 17 and 18 of Carrying Place Plantation, Township 1, Range 3, B.K.P., W.K.R., Somerset County, State of Maine, and being more particularly described as follows:

All that land lying East of the 580 foot contour line of the following described tract:

The North 1,000 feet of Lot 17, Range 1 and the South 1,000 feet of Lot 18, Range 1 of Carrying Place Plantation, Township 1, Range 3, B.K.P., W.K.R.

Containing 32.74 acres, more or less.

The above-described parcel, designated as Tract 109-03, Appalachian National Scenic Trail, is a portion of the same land acquired by Central Maine Power Company from Leona E. Sterling by deed dated August 10, 1959 and recorded August 28, 1959 in Deed Book 615, Page 76; is a portion of Parcel Two acquired from Oscar Clark, et al, by deed dated November 6, 1936

BK 1324 PG 25

and recorded in Deed Book 435, Page 389 and is a portion of the same land acquired from Central Securities Corporation by deed dated July 31, 1935 and recorded September 20, 1935 in Deed Book 434, Page 79, all documents are of record in the Somerset County Registry of Deeds, State of Maine.

Tract 109-21

All that certain tract or parcel of land lying and being situated in Caratunk Plantation, Somerset County, State of Maine, and being more particularly described as follows:

BEGINNING at the northwest corner of the lot conveyed by Archie W. and Oscar H. Clark to Walter E. York by deed dated June 8, 1935, recorded Somerset Registry, Book 427, Page 24, which corner is also the southwest corner of the N. P. Brown lot, so called; thence south $31^{\circ} 50'$ east along said Brown's southerly line about 320 feet to a post; thence south 40° east 97 feet to a post; thence south $26^{\circ} 30'$ west to, and passing through, a post on the northerly bank of Pleasant Pond Stream about 846 feet to said Pleasant Pond Stream; thence westerly down said Stream to Kennebec River; thence northerly of Kennebec River to the point of beginning.

Containing 13.06 acres, more or less.

The above-described parcel, designated as Tract 109-21, Appalachian National Scenic Trail, is all of the same land acquired by Central Maine Power Company from Walter E. York by deed dated November 1, 1938 and recorded in Deed Book 445, Page 525, in the Somerset County Registry of Deeds, State of Maine.

THESE INTERESTS in land are being acquired for the National Park Service of the United States Department of the Interior.

SUBJECT to existing easements for public roads and highways, public utilities, railroads and pipelines.

TO HAVE AND TO HOLD the herein-described estates in land and rights unto the Grantee and its assigns forever.

THE SAID GRANTOR covenants that it has the right to convey such interests in land; that it has done no act to encumber the same; that the said Grantee shall have quiet and peaceful possession of the same, free and clear from any and all encumbrances; that it will warrant generally the estates in the land hereby conveyed; and that it, the said Grantor, will execute such further assurances of the said land as may be requisite.

BK 1324 PG 026

IN WITNESS WHEREOF, Central Maine Power Company, has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Dustin W. Creamer, its duly authorized Asst. Vice President Administrative Services, and the same to be duly attested by William M. Finn, its Secretary, on this the day and year first above written.

SIGNED, SEALED AND DELIVERED IN THE PRESENCE OF:

CENTRAL MAINE POWER COMPANY

Mary M. Nelson
WITNESS

By: [Signature]
Dustin W. Creamer
Assistant Vice President
Administrative Services

Judith Sargent
WITNESS

Attest: [Signature]
William M. Finn
Secretary



CORPORATE SEAL

STATE OF MAINE)
) ss.
COUNTY OF KENNEBEC)

February 18, 1987

Then personally appeared the above named Dustin W. Creamer, Asst. Vice President its Administrative Services of Central Maine Power Company and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

A E Newell III
Notary Public



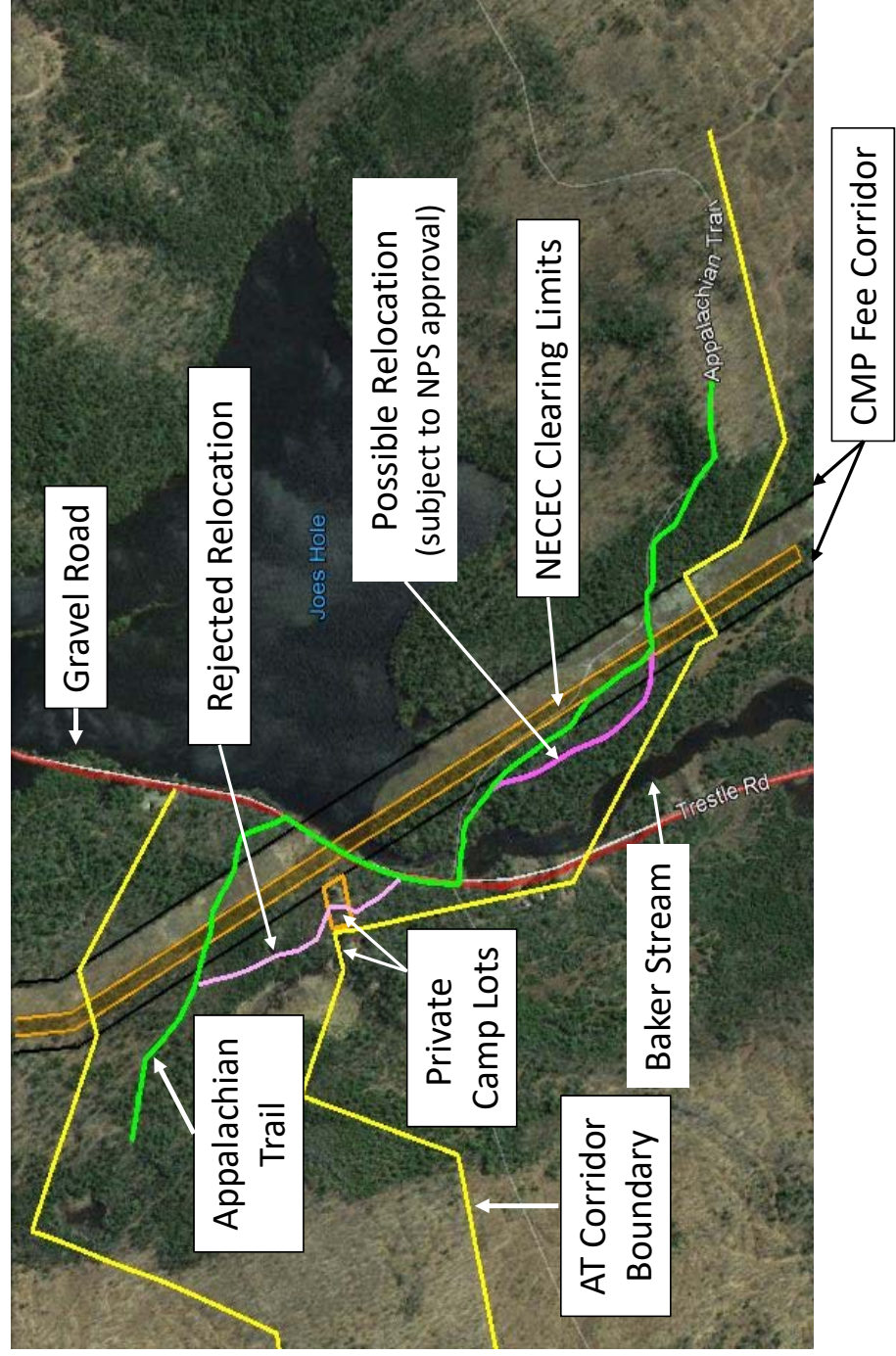
My commission expires:

A. E. NEWELL III
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES MAY 20, 1987

This deed was prepared by the National Park Service, Appalachian Trail Land Acquisition Office, Martinsburg, West Virginia. The precise name and address of the herein-named Grantee is: United States of America, Washington, DC 20240.

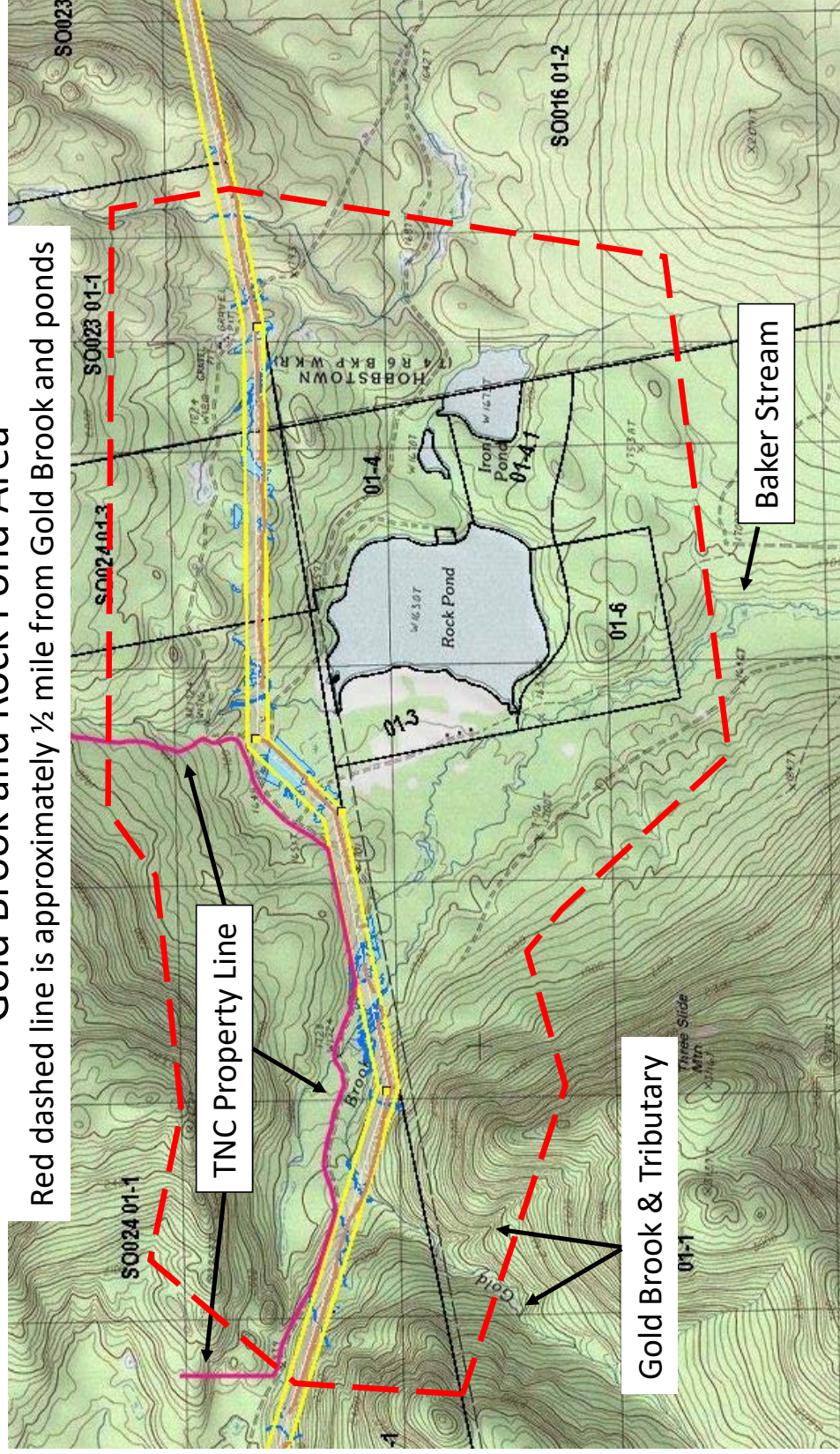
RECEIVED SOMERSET SS
1987 FEB 18 PM 3:00
RECORDED FROM ORIGINAL

Potential Appalachian Trail Relocations Caratunk & Bald Mountain Township, Maine



Gold Brook and Rock Pond Area

Red dashed line is approximately 1/2 mile from Gold Brook and ponds



TNC Property Line

Gold Brook & Tributary

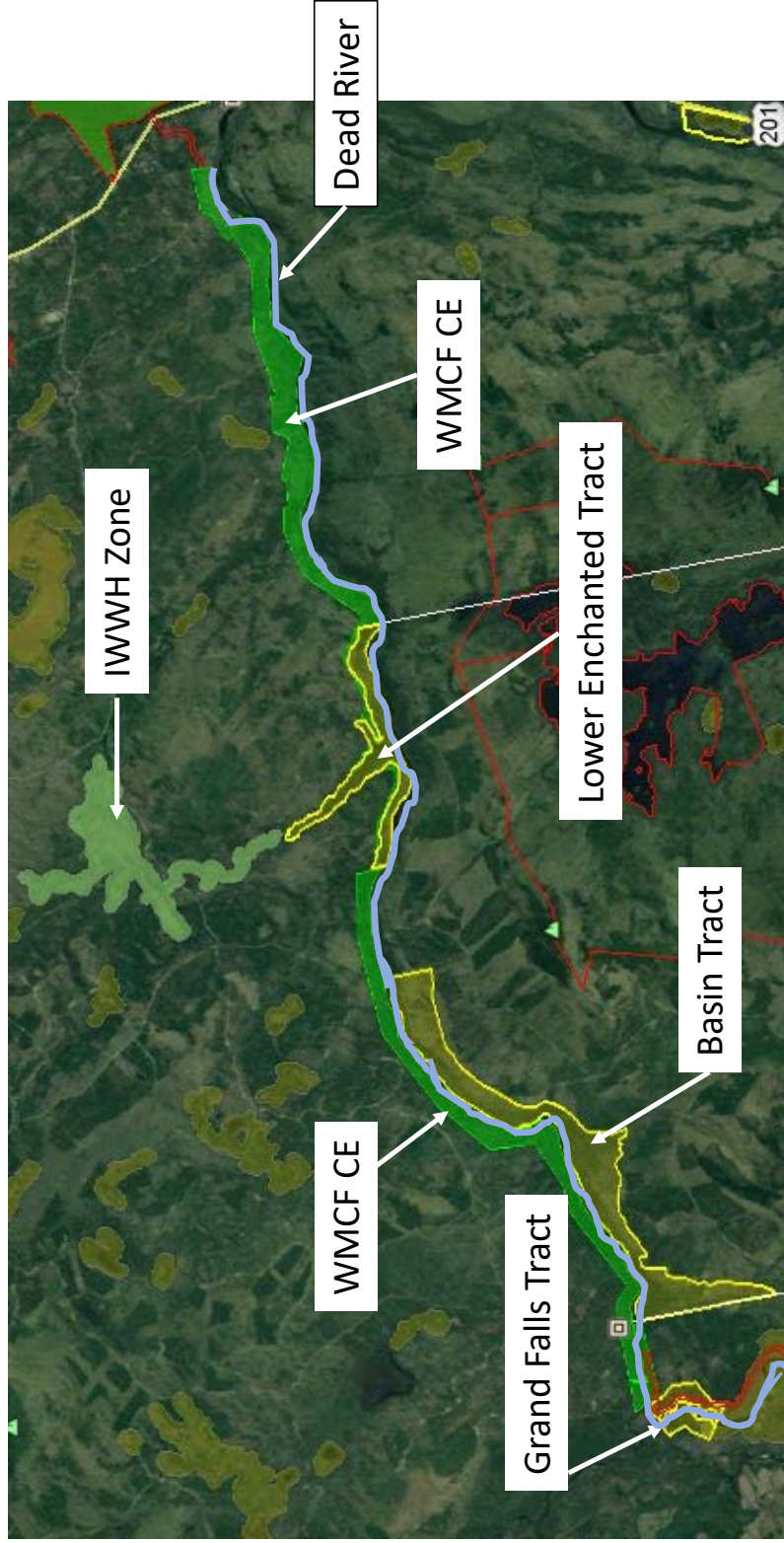
Baker Stream

CMP-9-E

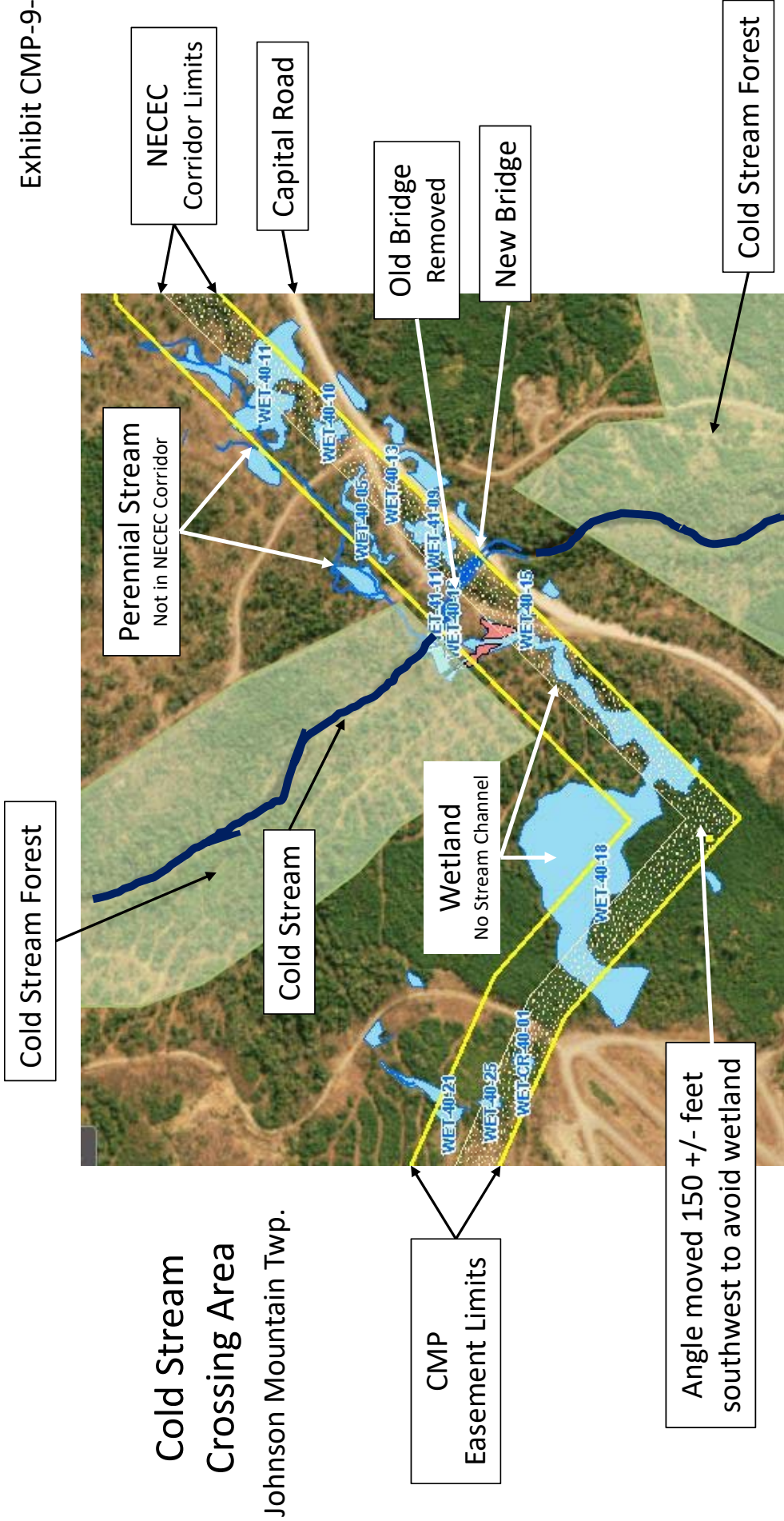
Dead River Compensation Tracts

Spring Lake, Pierce Pond & Lower Enchanted Twp.

Exhibit CMP-9-E



CMP-9-F



Cold Stream Crossing Area

Johnson Mountain Twp.

CMP Easement Limits

Angle moved 150 +/- feet southwest to avoid wetland

Perennial Stream
Not in NECEC Corridor

NECEC Corridor Limits

Capital Road

Old Bridge Removed

New Bridge

Cold Stream Forest

Cold Stream Forest

Cold Stream

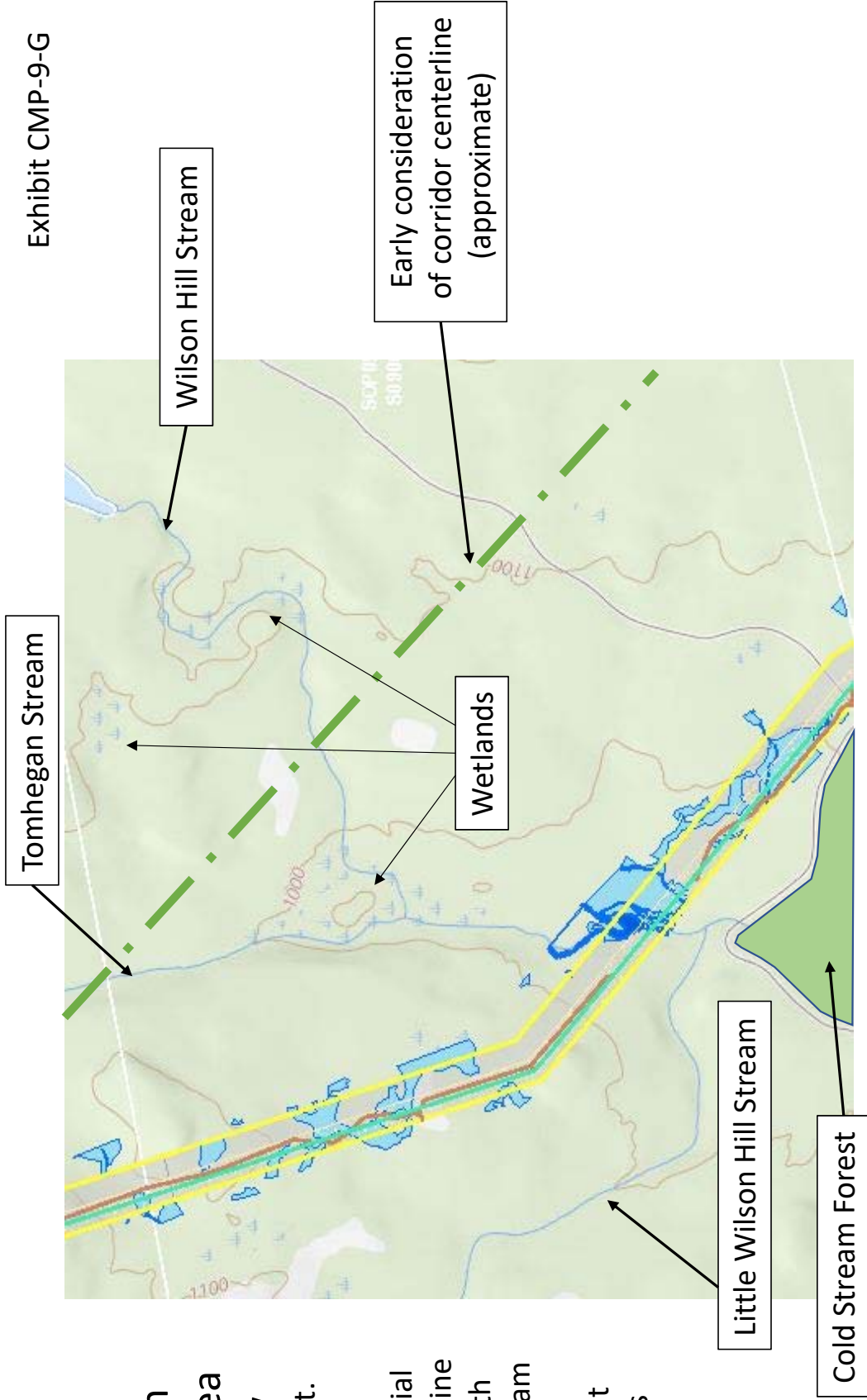
Wetland
No Stream Channel

CMP

Easement Limits

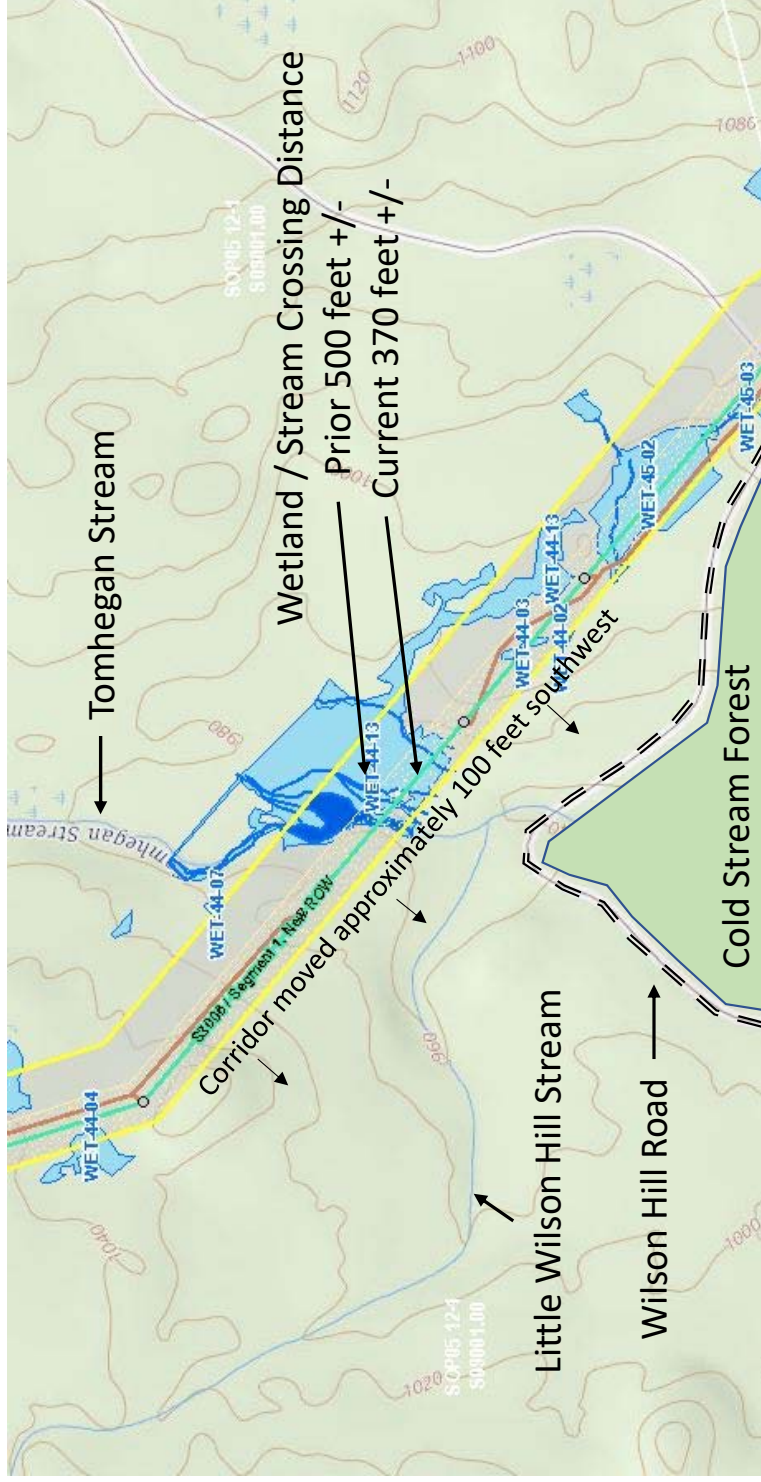
Tomhegan Stream Area Overview West Forks Plt.

An early potential corridor centerline would cross both Wilson Hill Stream and Tomhegan Stream. Current corridor crosses only Tomhegan Stream.



Tomhegan Stream Crossing Detail

West Forks Plt.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbs town Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
JUSTIN TRIBBET

March 25, 2019

Regarding

- Issue 3: Alternatives Analysis
 - Responsive to Intervenor Group 8 (NextEra) witness Christopher Russo
 - Responsive to Intervenor Group 2 (Town of Caratunk) witness Elizabeth Caruso

This testimony is in response to the direct testimony of Christopher Russo on behalf of NextEra Energy Resources (NextEra) and Elizabeth Caruso on behalf of the Town of Caratunk.

I. Witness Qualifications (Relevant to DEP and LUPC Review)

I am a Substation Design Engineer with a background in execution of energy projects and am the President at Engineering Leaders, Inc. I am currently the Engineering Manager for the New England Clean Energy Connect (NECEC) Project (Project). I graduated summa cum laude from the University of Maine at Orono with a Bachelor of Science in Electrical Engineering in 2006. Prior to starting Engineering Leaders, I worked in various engineering roles for over nine years at Central Maine Power Company, starting as an Associate Substation Design Engineer and ultimately as the Substation Engineering Manager. My CV is attached hereto as Exhibit CMP-10-A.

II. Discussion (Relevant to DEP and LUPC Review)

A. THE FACT THAT OTHER PROJECTS PROPOSED DIFFERENT CONSTRUCTION METHODS DOES NOT MEAN THAT THOSE METHODS ARE A REASONABLY AVAILABLE SOLUTION FOR THE NECEC.

Mr. Russo contends that because other projects proposed in the Northeast or completed around the world included underground or submarine cable, it must be reasonable for CMP to implement an underground solution. In particular he makes references to one project that Avangrid Networks considered in New York (Connect New York); two projects that were proposed in response to the Massachusetts 83D request for proposals to bring clean energy from Québec to New England (the New England Clean Power Link proposed by Transmission Developers Inc., which would be located in Vermont. and the Northern Pass transmission project proposed by an Eversource affiliate, which would be located in New Hampshire); and one project that was bid into the Connecticut Zero Emissions RFP (the Vermont Green Line transmission project proposed by a National Grid affiliate, which would be located in New York and Vermont). Three of these four projects also are cited by Ms. Caruso in her testimony, with similar arguments to those made by Mr. Russo.

The circumstances of those projects do not extend or apply to the NECEC. Mr. Russo's assertions ignore the following facts:

- There are site-specific reasons that an overhead line may not be appropriate in other situations, but is appropriate for the NECEC, given the very careful siting and design work performed to ensure that the NECEC Project would meet all applicable approval standards. Other projects have different siting and design considerations (e.g., federal parklands) and requirements that may make overhead lines unfeasible from a scenic, environmental, or cost perspective. It is not sufficient to simply say, "they did it, so CMP can and should do it, too." Each project is distinct with respect to setting, engineering constraints, cost considerations, and approval criteria.
- None of the other projects mentioned above has demonstrated that it is economically feasible. In fact, none of them has secured long-term transmission service agreements. For the two other projects cited above that participated in the Massachusetts 83D request for proposals, the fact that they were not able to secure long term contracts in that solicitation demonstrates that those projects would not fulfill their purpose which, similar to the NECEC as described in Mr. Berube's pre-filed direct testimony, is to deliver clean energy generation from Québec to New England at the lowest cost to ratepayers. The Vermont Green Line project, which was bid into the Connecticut Zero Emissions RFP, also failed to win that contract.

In short, the fact that these other cited projects proposed significant underground portions does not undermine the conclusion that undergrounding of additional portions of the NECEC is not a practicable or reasonably available alternative, as additional undergrounding would not allow the Project to meet its purpose. In fact, the NECEC Project has already absorbed nearly \$42 million in added costs from the DEP process alone, for the Kennebec River undergrounding

(at an incremental cost of \$31 million) and other environmental compensation and mitigation (nearly \$11 million), all additional to the original Project cost calculations.

Specifically, in several locations CMP has agreed to and proposed significant and costly design modifications to avoid and minimize impacts to protected and sensitive natural resources, including: 1) in Greene (Segment 3), rebuild of two existing co-located transmission line segments and redesign and relocation of a 1.5-mile segment of the new DC transmission line in this area to avoid tree clearing and associated impacts near a single occurrence of small whorled pogonia, a state-endangered orchid; 2) adjacent to Gold Brook (Appleton Township, Segment 1) and Mountain Brook (Johnson Mountain Township, Segment 1), increased structure heights to allow full height woody vegetation to remain within the conservation management areas of these streams to protect populations of Roaring Brook Mayfly (state threatened species) and Northern Spring Salamander (species of special concern); 3) In Moxie Gore and West Forks Plantation (Segment 1), retention of two natural winter deer travel corridors and maintenance of eight additional winter deer travel corridors within the transmission line right of way by selective vegetation management; and 4) in Parlin Pond Township (Segment 1), maintenance of 10- to 15-foot tall spruce fir within the transmission line corridor to protect the habitat of rusty blackbird (species of special concern). Numerous rare plant locations have also been avoided, or impacts to them minimized, by relocation of transmission structures and routing of access roads around them.

As part of the Maine Public Utilities Commission (PUC) settlement process the Project's costs have increased even further, as stated in Mr. Dickinson's rebuttal testimony. Additionally, as stated by Justin Bardwell in his rebuttal testimony, an underground solution may not be less damaging to the environment, including in the specific locations mentioned by Ms. Caruso,

given that the Project’s current siting and design already avoid, minimize, and mitigate for its environmental impacts, even more now considering the design changes that have been implemented in many locations. CMP anticipated the sensitivity around the upper Kennebec River in developing the Project and modeled the potential undergrounding under the river as a contingency. Having made that change and the additional compensation measures discussed here (taller structures, tapering, in-lieu fees, etc.), CMP has exhausted the ability to incur additional costs without compromising the viability of the Project.

To demonstrate this point, I have developed a cost comparison table to illustrate the incremental Project cost for (1) undergrounding of the entire line utilizing the currently proposed route, (2) undergrounding of the entire line utilizing an alternative route, and (3) undergrounding only in the new 53.5-mile corridor portion utilizing the currently proposed route. The results are provided here (values in billions of USD unless otherwise noted):

Alternative Option	Overhead-(Baseline)	Underground-Proposed Route (Alternative)	Underground-Alternative Route (Alternative)	Underground-New 53.5-mile Corridor Proposed Route (Alternative)
Existing Project Cost	0.95	0.69 ¹	0.69 ¹	0.85 ¹
Alternative Underground Cost	0	1.88 ²	2.07 ³	0.75 ⁴
Overhead Mitigation Value Removed ⁵	0	-0.01	-0.01	-0.01
Total	0.95	2.56	2.75	1.59
Incremental Alternative Cost	NA	1.61	1.8	0.64
Incremental Alternative Cost (%)	NA	169%	189%	67%

¹ NECEC Existing Project Cost minus overhead portions that would be replaced with underground.

² See testimony of Justin Bardwell, Exhibit CMP-11-B.

³ See testimony of Justin Bardwell, Exhibit CMP-11-D.

⁴ See testimony of Justin Bardwell, Exhibit CMP-11-C.

⁵ Overhead Mitigation Value Removed line item addresses the removal of the agreed upon overhead line mitigation costs noted above.

In addition, CMP's proposed overhead transmission line for the NECEC Project is consistent with existing transmission facilities throughout the state. CMP owns and operates over 2,800 miles of overhead transmission and only 16 miles of underground transmission, or 0.6%, most of it located in urban areas, mainly Portland. When properly and thoughtfully sited and designed, overhead transmission lines are a reasonable and accepted component of Maine's landscape.

B. OVERHEAD HVDC TRANSMISSION LINES ARE COMPATIBLE WITH VSC HVDC CONVERTER TECHNOLOGY.

Mr. Russo makes several assertions implying that Voltage Source Converter (VSC) technology is somehow incompatible with overhead HVDC lines. In fact, as part of the request for proposal process for the NECEC Project, multiple AC to DC converter vendors confirmed the engineering viability of the proposed NECEC design.

Mr. Russo references and provides incorrect and misleading statistics related to the number of above ground HVDC VSC transmission projects. For example: "CMP's HVDC vendor, Siemens, indicated that, between those projects that are already in-service or planned, only 1 out of 14 HVDC VSC transmission lines of any length are aboveground in the world."⁶ In fact, there are at least two additional examples of such projects, in service or planned, that utilize VSC converter technology with overhead HVDC transmission lines.⁷ CMP has extensive experience with similar AC transmission lines, and the Project design meets all engineering standards.

⁶ See page 3 of Pre-Filed Testimony of Christopher Russo.

⁷ Maritime Link: <https://new.abb.com/systems/hvdc/references/maritime-link>

Caprivi Link: <https://new.abb.com/systems/hvdc/references/caprivi-link>

C. SNOWMOBILING CAN AND DOES OCCUR IN THE VICINITY OF OVERHEAD LINES.

As noted above, CMP alone operates and maintains over 2,800 miles of overhead transmission lines and associated corridors in Maine. Throughout the state, overhead lines cross and are co-located with snowmobile trails. Based on CMP's records, over 600 miles of snowmobile trail segments co-exists within CMP's existing overhead transmission corridors, approximately 22% of the snowmobile trail system (2,700+/- miles of the 12,000+/- miles of trails) in Maine involve some portion of CMP's existing transmission line corridors. There are just under 100 locations within CMP corridors where the Interstate Trail System (ITS) intersects or co-exists within CMP transmission corridors. In fact, in Ms. Caruso's own exhibit CRTK-9, Slide Number 2 ITS 87, has a segment of co-location within an existing CMP 34.5kV line corridor for approximately 0.8 mile, demonstrating further that co-location of snowmobiling and overhead line corridors can and already does exist while still maintaining this profitable tourism industry, as described in Ms. Caruso's testimony.

III. Conclusion (Relevant to DEP and LUPC Review)

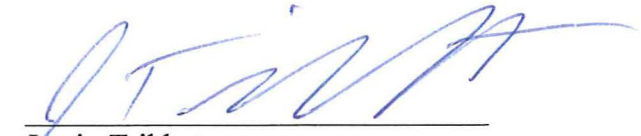
For the foregoing reasons, undergrounding of additional portions of the NECEC is not a practicable or reasonably available alternative, as additional undergrounding would not allow the Project to meet its purpose.

Exhibits:

Exhibit CMP-10-A: Tribbet CV

Dated: March 18, 2019

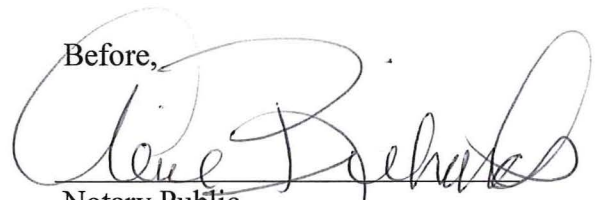
Respectfully submitted,


Justin Tribbet

STATE OF MAINE
Kennebec, ss.

The above-named Justin Tribbet did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Dated: March 18, 2019

Before,

Notary Public
Name: Alice Richards
My Commission Expires: Jan. 4, 2025



Justin Tribbet, P.E.



Employment: President at Engineering Leaders

Experience: 12 years of experience in power and control engineering, 9 years at Central Maine Power Company/AVANGRID

Registration: Professional Engineer in Maine

Education: Bachelors of Science in Electrical Engineering, University of Maine at Orono

Personal Skills

- Engineering management (more than 20 employees across two states)
- Project scoping and estimating
- Owner's engineering
- Substation design
- Outage and construction sequencing
- Protection and control design
- Network modeling and protective relay settings
- Engineering studies and calculations
- Standards development
- Generator interconnections
- Utility operations and maintenance support
- Testing and commissioning
- Regulatory filings

Example Project Experience

Vineyard Wind Proposal - FERC 1000 Project | 2017

Engineering support for onshore components of Vineyard Wind response to Massachusetts Clean Energy RFP (83C). Project scope included offshore wind turbine generators, offshore substation(s), submarine and onshore cables, onshore substation elements, and associated onshore network upgrades. Responsible for technical components of the expandable transmission elements of the bid including: scoping and estimating, RFP section 15 (expandable transmission) response, engineering drawing review and approval, and supporting transmission planning study process.

New England Clean Energy Connect Proposal (NECEC) - FERC 1000 Project | 2016-2017

Engineering lead for bid response preparation of HVDC transmission project in response to Massachusetts Clean Energy RFP (83D). Project scope included DC transmission and converter stations, 345kV AC interconnection, and associated network upgrades including addition of new STATCOM devices. Responsible for all technical aspects of the effort including: bid price input, budgetary bid specification creation and evaluation, operations and maintenance cost forecast,

RFP section responses, engineering drawings, loss calculations, and transmission planning process alternatives evaluation.

Maine Clean Power Connection Proposal (MCPC) - FERC 1000 Project | 2016-2017

Engineering lead for bid response preparation of transmission elements of a wind generator AC interconnection in response to Massachusetts Clean Energy RFP (83D). Project scope included 345kV AC transmission for wind collection as well 345kV AC interconnection and associated network upgrades including addition of new STATCOM devices. Project responsibilities similar to NECEC as noted above.

AVANGRID 115/69kV Substation Design Library | 2017

Project manager and engineering lead for implementation of a 115/69kV substation standard design template to be used for all four operating companies of AVANGRID. Project was completed on time and implemented a common physical drawing approach to be used for all future projects at AVANGRID.

Maine Renewable Energy Interconnect Proposal (MREI) - FERC 1000 Project | 2015-2016

Engineering lead for bid document preparation of transmission elements of a wind generator AC interconnection in response to Tristate Clean Energy RFP. Project scope included 345kV AC transmission for wind collection as well 345kV AC interconnection and associated network upgrades. Project responsibilities similar to NECEC as noted above.

Coopers Mills 345kV STATCOM Addition | 2015-2016

Owner's Project Engineer for scoping and EPC specification for a 345kV +/-200MVAR STATCOM. Project scope included the STATCOM addition and the necessary breaker and a half 345kV rung expansion at the existing Coopers Mills Substation. Responsible for STATCOM EPC specification development, technical review of bids and final qualification of STATCOM bidders, technical support for the STATCOM contract negotiation and 345kV rung expansion design to the issue for bid level.

Waterville Winslow Area Upgrades- New County Road Substation | 2015

Owner's Project Engineer during scoping phase. Project scope included a completely new 115/34kV substation to replace the existing Rice Rips Substation, additional 115kV transmission line and associated remote ends. County Road Substation scope included two 115kV line terminals, two 115/34kV power transformers, four 34kV line terminals, one 34/12kV power transformer and associated 12kV distribution circuits. Provided review and oversight for all required technical details for Maine Public Utility Commission (MPUC) filing as well as support for technical responses to oral data requests.

New Gloucester Area Project (Lakes Region Phase 2) | 2015

Owners Project Engineer supporting MPUC filing documentation. Project Scope included new and rebuilt 115kV and 34kV lines, New Gloucester greenfield substation with three 115kV line terminals, one 115/34kV power transformer, one 34kV line terminal, Webbs Mills Road greenfield substation with three 34kV line terminals, two 34kV capacitor banks, one 34/12kV power transformer and associated 12kV distribution circuits.

FERC Brightline Project | 2015

Owner's Project Engineer providing initial scope and estimate review of over 20 new and expanded substations ranging in voltage from 115kV down to 12kV.

Skowhegan Area Reinforcements- New Lakewood 115/34kV Substation | 2013-2014

Owner's Project Engineer during conceptual phase. Project scope included a new 115kV line and a complete station rebuild in place with the final configuration including two 115kV line terminals (one new), two 115/34kV transformers (one new), four 34kV line terminals, and one 34kV capacitor bank. The project also included remote end relay upgrades. Provided subject matter expert testimony during the regulatory proceeding at the MPUC regarding the project scope and cost development.

Capitol Street Hydrogen Fuel Cell Pilot | 2013-2014

Project Manager and Project Engineer for all phases of the project through scoping to closeout. Project scope included installation of a 24 and 48VDC proton exchange membrane fuel cells for the purposes of extended battery backup during a prolonged AC outage. Performed programming and setup of fuel cell devices onsite.

New Searsport 34/12kV Substation | 2013-2014

Owner's Project Engineer completed conceptual engineering and detailed engineering RFP, supported owner reviews through a majority of the engineering effort. Project scope included one 34kV line terminal, one 34/12kV power transformer and two 12kV distribution lines.

Guilford 34kV Capacitor Bank Addition and Station Rebuild | 2013

Outage Coordination, construction sequencing and temporary substation design largely on wood poles for Guilford project. Temporary substation design scope included one 115kV line terminal, one 115/34kV power transformer, four 34kV line terminals, one 34kV capacitor bank, one 34/12kV power transformer and associated 12kV distribution circuits.

New Woolwich 34/12kV Substation | 2013

Owner's Project Engineer completed conceptual engineering and detailed engineering RFP. Project scope included one 34kV line terminal, one 34/12kV power transformer and two 12kV distribution lines.

New Mobile Substations | 2012-2015

Owner's Project Engineer for all phases of mobile project including scoping, detailed design and procurement. Project scope over the years included four mobile units with unique design challenges. Mobile #12 design included a single 115kV line termination, 34 or 12kV line termination and 115/34 or 12kV power transformers with associated SF6 circuit breakers and relay protection. Mobile #13 design included a 34kV or 12kV Gas Insulated Switchgear (GIS) with five line terminal positions. Mobile #14/15 were sister units each with one 34kV and one 12kV GIS buses supporting: one 34kV line terminal, one 34/12kV power transformer, three 12kV line terminals. After project was over provided ongoing support for mobile procurement at other operating units at AVANGRID.

Mason Substation Breaker Replacement and Protection and Control Upgrade | 2011-2012

Owner's Project Engineer for engineering and construction phases of the project. Project scope included replacement of seven 115kV circuit breakers and a control system migration from a retired power plant to a new control house.

Asset Management Breaker Replacements | 2011-2012

Owner's Project Engineer through entire project. Project scope included four power transformers, both 115/34kV and 34/12kV, and fifteen breaker replacements at 115/34kV voltage levels.

Spruce Mountain Generator Interconnection | 2010-2011

Owner's Project Engineer through entire project. Project scope included a new 34kV distribution line and associated termination at the existing Woodstock 115/34kV Substation. Performed review and oversight of collector substation design and commissioning efforts.

Section 241 New 115kV Line- Wyman Hydro Terminal Upgrade | 2010-2012

Owner's Project Engineer through entire project. Project scope included one 115kV line terminal and associated protection and control upgrades including a major control house expansion at Wyman Hydro and associated remote end work at Heywood Road Substation.

Park Street- 115/34kV Transformer Replacement | 2009-2010

Owner's Project Engineer through entire project. Project scope included a replacement 115/34kV power transformer and new 115kV circuit switcher.

Kibby Wind Generator Interconnection | 2008-2009

Owner's Project Engineer through detailed engineering, construction, commissioning and closeout. Project scope included a complete brownfield rebuild of Bigelow Substation with three 115kV line terminals (one new), one 115/34kV power transformer and associated 34kV distribution circuits. In addition, one 115kV line terminal and two 115kV capacitor banks were added at the existing Wyman Hydro Substation, an existing 115kV line section was re-rated and 34kV capacitor banks were installed at three brownfield substations. In addition to role as project engineer performed review and oversight of generator collector substation design and commissioning efforts.

Heywood Road – New 115kV Substation | 2008-2009

Owner's Project Engineer for construction, commissioning and closeout. Project scope included a new 115kV breaker and a half substation with four line terminals and one 115kV capacitor bank and various remote end relay and fault duty upgrades. Performed detailed modifications of relay settings files, participated in relay testing and end-to-end commissioning onsite. In addition, self-performed all aspects of design related to two circuit switcher upgrades including a custom electrical design and commissioning upgrades onsite.

New 115/34kV Woodstock Substation | 2008-2009

Commissioning Assistant during test phase of the project effort. Project scope included a new 115/34kV substation including four 115kV line terminals, two 115/34kV power transformers, three 34kV line terminals and one 34kV capacitor bank.

Work Experience

President | Engineering Leaders | January 2018 to Present | Richmond, Maine

- Responsible for all commercial and technical functions of the company

Manager of Substation Engineering | AVANGRID | June 2014 to January 2018 | Augusta, Maine

- Responsible for all of substation engineering at former Iberdrola USA operating companies of AVANGRID (Rochester Gas and Electric, New York State Electric and Gas and Central Maine Power Company).
- Responsible for management over 20 total engineers spread across two states and three operating companies
- Member of ISO-NE System Design Task Force

Supervisor of Substation Engineering | Central Maine Power/Iberdrola USA | July 2010 to June 2014 | Augusta, Maine

- Duties similar to manager above except limited to CMP

Associate Engineer (Projects) | Central Maine Power | October 2008 to July 2010 | Augusta, Maine

- See sample project assignments above

Test Director/Work Control Representative | Portsmouth Naval Shipyard (US Navy nuclear submarine overhaul facility) | May 2006 to October 2008 | Kittery, Maine

- Responsible for onboard commissioning of non-nuclear systems on the Los Angeles class submarines for US Navy, in addition participated onboard three sea trials events
- Responsible for tag out of non-nuclear electrical and mechanical systems to allow work to commence

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbs town Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY AND EXHIBITS OF
JUSTIN BARDWELL

March 25, 2019

Regarding

Issue 3: Alternatives Analysis

- Responsive to Intervenor Group 8 (NextEra) witness Christopher Russo
- Responsive to Intervenor Group 2 witnesses Elizabeth Caruso, Justin James Presiendorfer, and Garnett Robinson
- Responsive to Intervenor Group 6 Witnesses Rob Wood, Andrew Cutco, and Bryan Emerson

This testimony is in response to the direct testimony of Christopher Russo on behalf of NextEra Energy Resources (NextEra), and portions of the direct testimony of Elizabeth Caruso, Justin James Presiendorfer, Garnett Robinson, Rob Wood, Andrew Cutco, and Bryan Emerson relating to installation of portions of the NECEC Project transmission line underground.

I. WITNESS QUALIFICATIONS (RELEVANT TO DEP AND LUPC REVIEW)

I am the Manager for Underground Transmission at Black & Veatch. I am currently engaged as the Technology Consultant for Underground Transmission for the New England Clean Energy Connect (NECEC) Project (Project). I graduated from Kansas State University with a Bachelor of Science in Electrical Engineering in 2005. I have been employed as an engineer or engineering manager for underground and submarine transmission for Black & Veatch since 2005. I attach my CV as Exhibit CMP-11-A.

II. DISCUSSION (RELEVANT TO DEP AND LUPC REVIEW)

Christopher Russo, Elizabeth Caruso, Justin James Presiendorfer, Garnett Robinson, Rob Wood, Andrew Cutco, and Bryan Emerson have provided testimony to the Department of Environmental Protection (DEP) and the Land Use Planning Commission (LUPC) that asserts that during the planning of CMP's Project there was a "failure to consider undergrounding the New England Clean Energy Connect ("NECEC") high voltage direct current ("HVDC") transmission line."¹ Furthermore, Mr. Russo asserts that "Failure to evaluate an undergrounded the [sic] HVDC transmission line means that CMP has failed to establish that 'there is no alternative site which is both suitable to the proposed use and reasonably available to the

¹ See page 2 of Pre-Filed Testimony of Christopher Russo.

applicant' as required for portions of the NECEC Project within the Commission's P-RR subdistrict."² Mr. Russo and the other witnesses are mistaken.

In fact, the proposed overhead HVDC transmission line is consistent with all applicable statutes, regulations, and standards, including those that apply within the LUPC's P-RR (Recreation Protection) subdistrict. After a thorough review, CMP determined that undergrounding any additional segments of the NECEC transmission line is not a practicable, or a suitable or reasonably available alternative, due to the extremely high cost, limited environmental benefits, increased risk and impacts during construction, and potential adverse operational impacts. It was so clear that undergrounding would not meet the Project purpose or otherwise be practicable, suitable, or reasonably available, in fact, that CMP did not initially include it as an alternative in the application materials filed with DEP and LUPC.

A. DESCRIPTION OF UNDERGROUND ALTERNATIVES

To respond to the specific points raised by the witnesses identified above, a summary of underground transmission methods, potential alternate routes, estimated costs, anticipated environmental and public impacts, and additional risk during construction are provided below.

1. Construction Methods

In order to meet the power transfer and reliability requirements for the Project an underground installation would require two cables per pole, with an installed spare, for a total of five polymer insulated power transmission cables and two fiber optic cables. (In specific areas with limited trenchless installations a single cable per phase is sufficient to meet the load, but to connect two cables per pole to one cable per pole requires construction of above grade terminal

² See page 2 of Pre-Filed Testimony of Christopher Russo.

stations; construction of terminal stations would have significant additional cost and natural resource impacts.) The cables are limited to approximately 2,500-foot shipping lengths, requiring the cables to be jointed or spliced approximately every 2,200 feet. Jointing the cable requires weather- and humidity-controlled enclosures. Installing the entire line underground would require an estimated 390 jointing locations with five joints at each location.

a. Direct Burial

The lowest cost underground installation method is direct burial. In this type of installation, a trench the full length of the cable shipping length is opened using an excavator. In areas with shallow bedrock, trenching will require blasting, hoe ram, or similar excavation methods. The cables are placed in a single row in a sand bedding layer approximately one foot deep in the bottom of the trench. Above the sand bedding layer a protective concrete slab would be poured and the trench above the slab would be backfilled with native soil. A typical trench would be approximately five feet wide at the bottom with sloping sides for a minimum surface width of 12 feet, increasing when trench depth increases. The cables would be installed with a minimum depth of 60 inches to the top of bedding layer for a minimum depth of six feet to the bottom of the trench. In areas where the cable crosses other below ground infrastructure the cable would need to be deeper.

At each jointing location a large excavation, approximately 60 feet long, 20 feet wide, and seven feet deep would be opened. A concrete pad would be poured in the bottom of the excavation. Temporary structures would be erected over the jointing locations. Once the cables have been jointed, precast concrete enclosures approximately 12 feet long and 4 feet wide would be placed over each joint for additional protection and the jointing pit would be backfilled with sand and native soil.

The direct burial installation method requires several thousand feet of trench and a clear work area approximately 75 feet wide to stay open while the cable is installed and jointed. This generally makes direct burial unsuitable for installation within roadways due to the impacts to users of the road, large installation area, and insufficient protection from damage due to future utility or road construction.

Excavation would require management and disposal of the spoils excavated from the trench. Only part of the excavated soil would be returned to the trench. During excavation temporary stockpiles would be maintained beside the trench and spoils not able to be reused as backfill would require disposal off site. Stockpiles would need to be stabilized and protected to prevent erosion and sedimentation.

b. Concrete Encased Duct Bank

In roadways, shared right-of-way, or other exposed areas cable systems are typically installed in concrete encased duct bank. In this type of installation, several hundred feet of trench is opened using an excavator. In areas with shallow bedrock, trenching would require blasting, hoe ram, or similar excavation methods. Polyvinyl Chloride (PVC) conduits would be installed using spacers in the bottom of the trench, and concrete would be used to encase the conduits. Above the concrete the trench would be backfilled and topped with pavement.

Duct bank would include five conduits for the power cables, two conduits for the fiber-optic cables, and one spare conduit installed in two rows of four conduits. The trench would be approximately five feet wide. Trenches for duct bank are typically shored, keeping the width the same at the top and bottom. The duct bank would be installed with a minimum of 60 inches to the top of the concrete encasement. The encasement would be approximately two feet deep for a

minimum trench depth of eight feet. In areas where the cable crosses other below ground infrastructure the cable would need to be deeper.

At each jointing location a pair of precast jointing bays, approximately 33 feet long, 10 feet wide, and 10 feet deep (roughly the size of a school bus) would be buried. The jointing bays would be buried completely, with access provided by two 30-inch manhole entries per vault. Additional smaller handholes, approximately two feet wide by four feet long, would be required for the installation of the fiber optic cables at the jointing locations.

Duct bank construction typically requires a 30-foot wide work area along with space for an access road. At the jointing locations the work area would need to be approximately 10 feet wider to allow for installation of the jointing bays.

Excavation would require management and disposal of the spoils excavated from the trench. Only a portion of the excavated soil would be returned to the trench. During excavation temporary stockpiles would be maintained beside the trench and the spoils not able to be reused as backfill would require disposal off site. Stockpiles would need to be stabilized and protected to prevent erosion and sedimentation.

Once the duct bank system is complete the cable would be pulled into the duct bank system from the jointing bays. Cable installation does not require re-excavating at the jointing bays. The cable would then be jointed in the vaults.

c. Trenchless Installation

In areas where surface obstacles such as highways, railroads, sensitive wetlands, or waterways would prevent installation by direct buried or trenched duct bank, trenchless installation methods such as Horizontal Directional Drilling (HDD) can be used. While there are other trenchless methods available, HDD is the lowest impact trenchless method for the

conditions present on the NECEC Project. Trenchless installation methods are two to 10 times more expensive than trenched installations, and trenchless installation methods are susceptible to disruption due to variable, unfavorable, and unexpected subsurface conditions such as rock, boulders, or cobbles. As discussed below, trenchless installation for the Project is expected to be at the higher end of the cost range due to access constraints, subsurface conditions, and required site preparation.

HDD uses a guided drill rig to open a pilot bore 8 to 12 inches wide. Additional passes with progressively larger reamers would be used to enlarge the hole to the diameter required to install the pipe (conduit) bundle into the borehole.

Drilling fluid, primarily a combination of water and bentonite clay, is used to lubricate the drill, stabilize the sides of the borehole, and carry the cuttings out of the borehole. Bentonite clay is a naturally-occurring non-toxic mineral. The drilling fluid is captured at the borehole entry and exit points, filtered/cleaned, conditioned, and re-used as much as possible.

Once the borehole is open and stable, a bundle of fused or welded pipe would be pulled into the borehole by the drilling machine. For shorter crossings the pipe would be high-density polyethylene (HDPE) heat-fused into a single length. On longer crossings with higher installation forces fusible PVC pipe may be used. The displaced drilling fluid is contained and disposed of off-site.

The HDD operation will require a temporarily-cleared work area on each side to the obstacle, approximately 100 feet wide and 250 feet long. The pipe to be pulled into the HDD would need to be assembled into a single string in a clear, mostly straight area the length of the crossing and approximately 30 feet wide.

All drilling fluid solids (bentonite clay) and cuttings will be contained and settled in tanks or sediment traps, which will be disposed of at an approved facility. Water used in the drilling fluid would be recovered and reused during HDD operations after filtering out cuttings. Surplus drilling water would be properly disposed of. To prevent “inadvertent returns,” which occur if drilling fluids leak through an unidentified weakness, or fissure or fractures in the soil or underlying rock, CMP will implement a drilling fluid management plan such as described in the “Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for HDD Operations” for the upper Kennebec River HDD crossing, filed with the DEP on October 19, 2018.

HDD installations would typically be connected by duct bank to nearby joint bays before continuing as either duct bank or direct buried installation.

d. Termination Stations

When transitioning between overhead and underground transmission, termination stations will be required to terminate the underground cable and connect to the overhead lines. Termination stations for this Project would be approximately 135 feet square and include overhead line dead-end structures, surge arrestors, and termination stands. These stations would appear similar to a substation, with fencing and aggregate pavement surfacing, and on the majority of the route, including the upper Kennebec River crossing, the termination stations would include structures approximately 95 feet tall. In areas where increased structure height is being used to minimize clearing area the termination station structures would be taller, up to 170 feet in some areas.

Routing the cable up a monopole structure and mounting the cable terminations on the structure as is done at lower voltages would not be acceptable for this installation due to the size

and weight of the cable terminations and difficulty in conducting maintenance and repair work due to the height of the transmission structures.

2. Description of Current Route

Starting from the HVDC Converter Station in Lewiston, Maine the route heads north following the overhead transmission line right-of-way (ROW) for approximately 92 miles. The route crosses State highways 133, 17, 156, and 148, many secondary roads, and many waterways and wetlands. From East Moxie Township the route runs east-west for approximately 53 miles before reaching the Canadian border. Underground construction using the current route would be expected to be mostly direct burial with HDD installations used for major highway, waterway, and wetlands crossings.

3. Description of Alternate Underground Route

To evaluate a lowest environmental impact alternate specific to underground construction methods an alternate route has been developed revising the northern portion of the line to minimize additional clearing. This alternate route seems to be similar to the one described by Ms. Elizabeth Caruso but it has been modified to meet the border crossing location agreed to with Hydro Quebec Transenergie.

Starting from the HVDC Converter Station in Lewiston, the route heads north following the overhead transmission line right-of-way (ROW) for approximately 89 miles. Construction in this section would be expected to be mostly direct burial with HDD installations used for major highway and waterway crossings. The route crosses State highways 133, 17, 156, and 148, many secondary roads, and many waterways and wetlands. From East Moxie Township the route follows State Rt. 201 before turning west along Spencer Rd. for a total of 59 miles before reaching the Canadian border. The construction method in the roads would be concrete encased duct bank with several HDD crossings.

The alternate route relies heavily on State Rt. 201 and Spencer road. CMP has not had discussions with the Maine Department of Transportation (MDOT) about installing duct bank in highways, but in general installations requiring manhole entries are not permitted within existing or potential travel lanes of highways in Maine.³ Thus MDOT is unlikely to permit this installation, but it is possible a waiver or expansion within the road ROW could be obtained.

Spencer road is a privately-owned road. The owner of this road has stated opposition to installations within the travel lanes of the road due to the impacts it may have on operating and maintaining the roadway.⁴

4. Estimated Costs for Underground Line Construction

Installing transmission lines underground is much more expensive than overhead. During the Public Utilities Commission (PUC) proceeding on the Certificate of Public Convenience and Necessity (CPCN) for the NECEC Project, CMP witness Mr. Christopher Malone testified that the cost of undergrounding is “roughly three to four times the cost of overhead.”⁵ Additionally, during the PUC proceeding NextEra’s own expert witness Mr. Dan Mayers acknowledged the substantial costs of burying transmission line.⁶

This significant cost factor is further supported by “Overall Cost Comparison Between Cable and Overhead Lines,” by Robert Benato and Domenico Napolitano, published in *Electra*, dated December 2012. In that study, the minimum incremental costs are shown to be about three

³ Maine Department of Transportation, Utility Accommodation Rules, Section 10, Page 47.

⁴ Kenneth Freye Rebuttal, March 21, 2019.

⁵ See footnote 181 on page 61 of CMP’s PUC Reply Brief at: <https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2017-00232>

⁶ See page 61 of CMP’s PUC Reply Brief at: <https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2017-00232>

times more for underground installation compared to overhead installation based on direct burial; costs for undergrounding can be higher depending on the project complexity.

The preceding sources are based on general information. To better characterize the impacts on the NECEC Project in this specific case Black & Veatch on behalf of CMP has prepared conceptual level estimates for installing the line underground on the proposed route and an alternate underground route that uses existing overhead corridor and existing roadways as much as possible. To install the line underground on the proposed route would cost approximately \$1.9 billion.⁷ To install the 53.5-mile new corridor portion of the Project underground along the proposed route would cost approximately \$750 million.⁸ To install the line underground on the alternate route would cost approximately \$2.1 billion.⁹ This is approximately 5 to 7 times the expected cost of overhead transmission construction.

These are preliminary estimates and do not include costs for the convertor station, interconnecting lines, upgrades to other transmission and substation assets, and indirect costs such as CMP and Avangrid personnel. Total project cost for installing the Project with underground lines would be \$2.6 billion on the current route or \$2.8 billion on the alternate underground route, approximately three times the currently estimated Project cost. The total project cost for constructing the new corridor portion of the proposed route underground, as noted above, would be \$1.6 billion.

⁷ Underground Cost Estimate, Proposed Route, attached as Exhibit CMP-11-B.

⁸ Underground Cost Estimate, New Corridor Only, attached as Exhibit CMP-11-C.

⁹ Underground Cost Estimate, Underground Alternate Route, attached as Exhibit CMP-11-D.

5. Environmental Impacts

Underground transmission installations have different impacts from overhead transmission. Specific impacts are heavily dependent on the protected and sensitive resources present at specific locations. Underground transmission requires less clearing width than overhead transmission, but still requires a significant area to be cleared. For the NECEC Project a width of 150 feet is required for overhead lines and 75 feet is required for underground lines. In addition, the surface disruption caused by underground transmission line construction is continuous along its length rather than intermittent at each overhead structure installation location. The additional surface disruption will require additional control measures for soil erosion, sedimentation, and dust generation during construction, and poses a risk that those control measures could be damaged during an extreme weather event.

Clearing width for overhead transmission is determined based on electrical clearances and vegetation management. In underground transmission applications, clearing width is determined based on a combination of maintenance operation requirements, preventing damage due to root growth, and preventing future vegetation impacts to line capacity. In both installations shorter vegetation is not a concern.

Maintenance and repair of underground transmission lines requires access to every jointing location along the route. This requires permanent access roads to be maintained to each jointing location. Typically these access roads follow the right-of-way, but the roads may need to route around surface obstacles such as protected or sensitive natural resources like wetlands and streams. For overhead lines, permanent access roads to each structure are not normally required. CMP typically maintains permanent access roads every few miles with temporary matting being used for repair work. The inspection and potential maintenance and repair requirements for underground installations require permanent access to each jointing location.

Preventing damage due to root growth and preventing future impacts to the line capacity of underground transmission lines are both driven by the roots of large trees. The roots of large trees will remove moisture from the soils and under drought conditions can increase the thermal resistance of the soils, causing an unacceptable temperature rise in the cables. While it varies with the species of tree, most trees have a root area of impact similar to the crown spread (drip-line) of the tree. Maine has several species of trees with crown spreads exceeding 70 feet.¹⁰

Surface disruption during construction for overhead transmission includes access roads and work sites at each structure, with minimal impacts between structures. Surface disruption during construction for underground transmission is continuous and at the full 75-foot wide work area unless higher cost and higher risk trenchless methods are used.

Overhead lines can generally avoid or minimize direct wetland impacts by locating structures outside of wetlands. Underground transmission installation being continuous can only avoid wetlands and waterways by using higher cost and higher risk trenchless methods.

6. Impacts to the Public

In general, impacts due to construction of underground transmission lines will have a larger impact on the general public than overhead transmission lines. This is particularly significant when the line is being installed in public roadways.

Underground transmission line construction in roadways will have significant impacts to the public. Most of the roads in the Project area are two lane roads. Underground construction would require closure of half the road, resulting in alternating one-way traffic.

¹⁰ Forest Trees of Maine, Maine Department of Agriculture, Conservation and Forestry.

Underground transmission line construction is slower than overhead construction with significantly more construction activity along the route. Construction at each splicing location would require 2-3 weeks of continuous activity. Direct buried cable sections would require continuous work along the 2,200-foot-long trench for approximately three weeks. Duct bank construction would advance at approximately 200 feet per day. HDD operation duration would depend heavily on the subsurface conditions and length of the crossing, with each drilling location being occupied 8 to 24 weeks.

7. Additional Risks During Construction for Underground Lines

Underground transmission construction is particularly susceptible to cost and productivity impacts due to unforeseen subsurface conditions, such as shallow bedrock, boulders, cobbles, and unstable soil or bedrock conditions. While overhead transmission construction allows targeted soil sampling and borings at each proposed structure location, underground transmission is continuous and it is therefore impossible for borings to identify all subsurface conditions.

The most common risk for below grade construction is encountering bedrock shallower than expected. In areas with shallow bedrock, trenching would require blasting, hoe ram, or similar excavation methods.

Trenchless construction methods in particular are very susceptible to unforeseen pockets of gravel or cobbles which may collapse into the boring, binding the drill tooling or conduit piping.

The amount of excavation required for underground transmission makes progress and productivity particularly susceptible to extreme rain events.

8. Additional Risks During Operation of Underground Lines

Overhead faults are often due to debris (e.g., limbs, trees) that is dislodged during the fault or quickly removable, allowing the line to return to service quickly. When a fault occurs on an overhead transmission line it would automatically be isolated at the HVDC converter stations. The overhead line would be then be drained of any remaining energy and within seconds the line would automatically be restored to service, assuming the fault was temporary. This automatic return to service process is referred to as reclosing the line. With an underground cable good utility practice necessitates not reclosing on the cable segment, because most underground cable faults result from inherent damage to the cable insulation and require repair before being restored to service. This practice helps to avoid additional damage to the cable and prevents public exposure to potentially energized cable which has been exposed and damaged due to improper excavation by a third party.

When overhead and underground segments are combined in a single transmission line a typical solution to allow reclosing would be to establish larger cable termination stations with a full local protection system that can accurately determine the location of the fault and prevent the line from automatically reclosing if the fault is expected to be in the buried cable segment. Operation of such protection and monitoring equipment requires AC electrical station service to supply power. The cost of establishing AC station service may be excessively high, and thus not practicable, due to the distance from existing AC electrical distribution service.

As an alternative approach to such local protection equipment, remote monitoring equipment could be used to estimate the fault location. These estimates of the fault location are not precise. CMP would need to block automatic reclosing for faults near the underground portion, including some length of the overhead line. Estimates from converter vendors indicate

that the length of overhead line where faults would not be able to be reclosed would be approximately one mile on each side of the underground cable, or two miles in total.

This configuration would prevent CMP from quickly restoring the line in the case of faults in the overhead portions of the line adjacent to underground sections, reducing overall line availability and reliability. CMP has accepted this reduction in reliability for the upper Kennebec River underground cable section, but every additional section of underground would add more segments of overhead transmission line that would not automatically reclose for temporary faults, which would prevent quick restoration of the line and would therefore be inconsistent with the Project's purpose.

Also, while cable faults are less likely with underground cable than overhead lines, they typically result in more significant damage to the cable system, preventing a return to service without difficult repairs. Underground faults are very costly and time-consuming to identify, isolate, and repair, and usually require dispatching heavy equipment to the affected section to repair or replace the cable. The repair time of an underground fault increases in cold weather climates, with access limitations due to winter ground conditions.

Outages in an overhead line are often restored in a few hours, while outages in underground cables typically require 2 to 5 weeks to restore.

B. P-RR SUBDISTRICT UNDERGROUND ALTERNATIVES

The P-RR subdistrict crossings at issue are the upper Kennebec River crossing, Joe's Hole/Troutdale Road Appalachian Trail (AT) crossing, and in the vicinity of Beattie Pond. CMP has performed an analysis of alternate underground alternatives at each location.

1. Upper Kennebec River Crossing

The crossing location at the upper Kennebec River Crossing does not have an existing overhead transmission line and sees a large number of recreational visitors due to river rafting

tourism. CMP originally proposed an overhead HVDC line crossing of the upper Kennebec River. Based on the outreach efforts in the area CMP modified its design to underground the approximately 1-mile long segment of transmission line to eliminate the visual impacts of NECEC Project at this particularly sensitive location at which there is no existing transmission line and where other visual mitigation methods would be largely ineffective.

The underground line is being installed mostly by HDD at the estimated cost provided by Mr. Tribbet (in his rebuttal testimony) of \$31 million, approximately 15 times the originally planned overhead crossing.

2. Joe's Hole/Troutdale Road Appalachian Trail Crossings

The current location and route of the Appalachian Trail (AT) is within and adjacent to an approximately 3,500-foot-long segment of existing CMP transmission line corridor. The AT crosses this existing corridor, which currently contains a 115 kV overhead transmission line, in three locations adjacent to Moxie Pond and Trestle Road in Bald Mountain. See Exhibit CMP-3-D; CMP-8-J.

CMP has given due consideration for both underground and overhead line alternatives in this area. CMP has worked extensively to evaluate overhead line alternatives to minimize impacts. Due to co-location of the new transmission line within the existing ROW, the Project as proposed will cause a negligible change in visual impact to hikers using the trail.

An underground alternative would require construction of termination stations within sight of the trail, along with a trenchless crossing of Joe's Hole and the three AT crossings, approximately 3,500 feet long. Costs for this underground alternative would be approximately

\$28.9 million,¹¹ which would be an incremental cost to the Project of \$28 million when removing the associated overhead line costs. Construction activities would require approximately 10 months in close proximity to the AT crossings for the trenchless crossing, construction of the termination stations, and cable installation.

Horizontal directional drilling rigs used for long crossings are built into a trailer frame and are approximately 45 feet long. The rig is powered by an external diesel powered hydraulic power plant. The rigs generate noise of approximately 110 decibels continuously while in operation. In the case of the upper Kennebec River crossing the drill rig would be over 1,000 feet from the Kennebec River and associated recreational users. In contrast, for the AT crossings the rig would be within 200 feet.

As described in Mr. Freye's rebuttal testimony, CMP engaged with the Appalachian Trail Conservancy (ATC) and Maine Appalachian Trail Club (MATC) in discussions concerning the possibility of relocating the AT to reduce the number of times it crosses the existing corridor, in which the Project will be located. ATC and MATC indicated that they prefer maintaining the current AT location. The easement allowing the AT in CMP's corridor includes provisions for additional overhead lines, but does not contemplate underground installations, so CMP would need to seek such rights from the National Park Service to allow underground installation.

Given the presence of the existing 115 kV transmission line, the very high cost of undergrounding in this location, and the fact that the underground alternative would have additional environmental and public impacts, undergrounding is not practicable or suitable to the

¹¹ Underground Cost Estimate, Appalachian Trail Crossing, attached as Exhibit CMP-11-E.

proposed use and is not reasonably available to the applicant within this P-RR subdistrict. Thus, there is no alternative which is both suitable to the proposed use and reasonably available to CMP.

3. Beattie Pond

Undergrounding the line in this area would consist of installing termination stations just outside of the P-RR subdistrict and connecting them with approximately 1.2 miles of direct buried cables, including three jointing locations. Two sets of wetlands and a perennial stream have been identified within the proposed route. These wetlands would require crossing by approximately 1,000-foot long HDD installations.

Underground construction would require clearing and continuous surface disruption in the P-RR subdistrict and would cost approximately \$15.3 million.¹² This would be an incremental cost to the Project of \$13.2 million when removing the associated overhead line costs.

Beattie Pond is a controlled access area with limited ingress points. To maintain access to the jointing locations CMP would need to add alternate access points and secure them against third party access.

This proposed short underground cable segment of the NECEC HVDC transmission line at Beattie Pond would create operational problems for CMP. As discussed previously, with an underground cable good engineering practice is to not automatically reclose on the cable segment. To address this concern CMP would need to implement local protection and monitoring

¹² Underground Cost Estimate, Beattie Pond, attached as Exhibit CMP-11-F.

systems that require AC station service to identify if a system fault is in the underground portion. Due to the extreme remoteness of Beattie Pond, approximately 37 miles from Route 201 by private road, the cost of establishing AC station service would be \$3 million and doing so would have additional environmental and public impacts.

Thus, CMP would need to prevent reclosing for faults within one mile of the underground cable, or two miles in total, to account for the limited accuracy of the remote fault locating methods discussed previously. CMP has accepted this reduction in reliability for the upper Kennebec River underground cable section, but every additional section of underground line would add more segments of overhead transmission line that would not automatically reclose for temporary faults, preventing CMP from restoring the line to service quickly, which is inconsistent with the Project's purpose.

In addition to the reclosing concerns, the remote location of the termination stations in the Beattie Pond area would be a significant operational challenge in the winter months, because logging roads necessary to access this area are not plowed. While CMP accepted some level of risk at the upper Kennebec River underground crossing, Beattie Pond is much farther from paved and maintained roads, and each segment of underground line creates additional operational and maintenance concerns, which undermine achieving the Project's purpose.

As described in Ms. Segal's pre-filed direct testimony, CMP re-engineered the overhead transmission structures near Beattie Pond, including reducing the height of one structure, which substantially reduced and mitigated the visual impacts of the Project as viewed from Beattie Pond.

Due to the limited, if any, benefits and the additional impacts of underground compared to the significant anticipated cost increase, as well as concerns regarding limited winter

accessibility and protracted service restoration timelines, undergrounding the transmission line in this area would not be practicable or suitable to the proposed use, and is not reasonably available, especially when a practicable, reasonable, and reasonably available alternative has been proposed that does not result in an unreasonable impact.

C. ADDITIONAL EVALUATED ALTERNATIVES – GOLD BROOK

Undergrounding the line in this area would consist of installing termination stations in the vicinity of proposed structures 714 and 720. Two HDD installations, with approximate lengths of 3,400 feet and 2,300 feet, would be required to connect them without disturbing the wetlands adjacent to Gold Brook. A jointing location would be required between the drills in the vicinity of currently proposed structure 717. Access to the jointing location would require construction of a permanent bridge over Gold Brook.

Ground conditions in this area are particularly challenging, with steep slopes and shallow bedrock. Additional investigation would be required to confirm the feasibility of the HDD installations in this area. Based on the currently available information, undergrounding this portion of the line would cost approximately \$33.5 million.¹³ This would be an incremental additional cost to the Project of \$30.3 million when removing the associated overhead line costs and agreed upon mitigation measures.

This proposed short underground cable segment of the NECEC HVDC transmission line at Gold Brook would create operational problems for CMP. As discussed previously, with an underground cable good engineering practice is to not automatically reclose on the cable

¹³ Underground Cost Estimate, Gold Brook attached as Exhibit CMP-11-G.

segment. To address this concern CMP would need to implement local protection and monitoring systems that requires AC station service to identify if a system fault is in the underground portion. Due to the extreme remote nature of Gold Brook, approximately 22 miles from Route 201 by private road, the cost of establishing AC station service would be approximately \$2 million, and doing so would create additional environmental and public impacts.

Thus, CMP would need to prevent reclosing for faults within one mile of the underground cable, or two miles in total, to account for the limited accuracy of the remote fault locating methods discussed previously. CMP has accepted this reduction in reliability for the upper Kennebec River underground cable section, but every additional section of underground line would add more segments of overhead transmission line that would not automatically reclose for temporary faults, preventing CMP from restoring the line to service quickly -- which is inconsistent with the Project's purpose.

In addition to the reclosing concerns, the remote location of the termination stations in the Gold Brook area would be a significant operational challenge in the winter months, because the logging roads to access this area are not plowed. While CMP accepted some level of risk at the upper Kennebec River underground crossing, Gold Brook is much farther from paved and maintained roads, and each segment of underground line would create additional operational and maintenance concerns, which undermine achieving the Project's purpose (i.e., transmitting the power to Massachusetts).

Due to the limited, if any, benefits and the additional impacts of underground compared to the significant cost increase, as well as concerns regarding limited winter accessibility and protracted service restoration timelines, undergrounding the transmission line in this area would not be practicable or suitable to the proposed use, and is not reasonably available, especially

when a practicable, reasonable, and reasonably available alternative has been proposed that does not result in an unreasonable impact.

D. CONTRARY TO MR. RUSSO’S CLAIMS, UNDERGROUNDING THE TRANSMISSION LINE IS NOT A PRACTICABLE OR REASONABLY AVAILABLE ALTERNATIVE.

CMP has evaluated constructing the line underground. The purpose of the Project as indicated in Mr. Berube’s testimony is delivering clean energy generation from Québec to New England at the lowest cost to ratepayers. This Project must also meet the requirements of the Transmission Services Agreements resulting from the 83D process. As part of these agreements the line is required to meet a guaranteed availability of 90% every month. For the following reasons undergrounding additional segments of the line would create significant and unacceptable cost, availability, and schedule risk to the NECEC Project. Additional undergrounding of the Project in the P-RR subdistricts, or in other areas, would not meet the Project purpose and would impose unreasonable and unnecessary costs.

1. Cost

Constructing the entire line underground would increase the cost of the transmission portion of the Project by 500% to 700%.¹⁴ This cost increase far exceeds the limited benefits obtained by undergrounding the line.

For the P-RR subdistricts CMP has evaluated each location and agreed to install underground in the one location where these high incremental costs could be justified by the impacts mitigated. The upper Kennebec River aerial crossing would cause substantial visual impacts due to the Project which otherwise would be difficult to mitigate adequately.

¹⁴ Justin Tribbet Rebuttal Testimony.

The additional visual impacts of the proposed overhead design at the Appalachian Trail crossings and in the vicinity of Beattie Pond will be minimal, and in any case are minor compared to the significant incremental additional costs, as well as access and operational challenges associated with transmission line burial in those areas.

Given these much higher costs, undergrounding of the transmission line in areas other than the upper Kennebec River would be cost-prohibitive.

2. Stream, Wetland, and Vernal Pool Impacts

The NECEC overhead HVDC line was carefully designed to avoid impacts to protected and sensitive natural resources such as wetlands and vernal pools. Structures have been located outside of these and other natural resources to the greatest extent practicable, and the proposed HVDC overhead transmission line spans, and hence avoids, most natural resources. Underground construction methods required to entirely avoid impacts to these resources increase cost substantially and would cause other impacts, such as large clearing areas for setup of HDD operations to bore beneath resources.

Other than HDD installations, underground construction requires a continuous trench (rather than placing structures every 800 to 1,000 feet), and because streams and wetlands cannot be spanned, soil must be stockpiled during construction and managed properly to prevent erosion and sedimentation; if not all soil can be returned to the trench, on-site or offsite spoils disposal would be needed. Thus, environmental impacts of underground construction are in many cases greater than overhead construction. Mr. Russo fails to properly identify these impacts of undergrounding.

3. Clearing

Mr. Russo implies in his testimony that undergrounding the HVDC transmission line would have significant clearing benefits: “Significant stakeholder opposition to NECEC clearing the 53-mile greenfield forested corridor due to the clearing’s negative impact on natural resources including scenic and recreation values.”¹⁵

Mr. Russo, again, is mistaken. Undergrounding will not alleviate the need to clear the forested corridor. In order to properly install and maintain an underground cable system, prevent tree root growth into the duct bank, and prevent impacts to cable ratings due to soil moisture content reduction by the trees, the maintained cleared corridor width would need to be 75 feet. Permanent clearing would include access roads, and vegetation would be limited to and maintained in herbaceous growth, shrubs, and small trees. The termination stations also would need to be maintained as aggregate pavement surfacing, creating additional permanent impervious surface impacts.

In short, Mr. Russo fails to properly consider, identify, or quantify the clearing impact of undergrounding.

4. Visual Impacts

Mr. Russo characterizes the proposed routing of the NECEC HVDC line as presenting “unreasonable interference with scenic character, existing scenic, aesthetic, recreational, or navigational uses, and unreasonable impacts to protected natural resources.”¹⁶ In fact, CMP’s proposed route was carefully selected to maximize co-location with existing transmission lines

¹⁵ See page 3 of Pre-Filed Testimony of Christopher Russo.

¹⁶ See page 2 of Pre-Filed Testimony of Christopher Russo.

for 92 miles to minimize such impacts; overall, more than 70% of the NECEC Project transmission line will be co-located with existing transmission lines.

With respect to the new corridor portion of the Project, CMP carefully routed the proposed HVDC transmission line through private working forests and away from public rights of way, high value recreational and scenic areas, and conserved lands to minimize impacts. Weyerhaeuser, the owner of most of the land adjacent to the proposed NECEC corridor, has stated its position that it “does not want regulators, including DEP, to consider views from our land (including photosimulations from photos taken from our land) in deciding whether the CMP project will have an adverse effect on the scenic character of our land. We have no concerns about our ability to continue our sustainable management of our adjacent timberlands. Any scenic impact on Weyerhaeuser’s land from the CMP project will be minor, reasonable, and in keeping with the working forest.”¹⁷ This statement demonstrates that the major landowner in the vicinity of the Project is not concerned about the Project’s potential impact to its working forest lands.

In addition, the termination stations used to transition between overhead and underground transmission present substantially different visual impacts, and have significantly larger footprints, than the overhead transmission structures. Being constructed similar to a substation requires additional structures for supporting the terminations, surge arrestors, and auxiliary equipment along with fencing to prevent access.

In short, Mr. Russo fails to properly consider CMP’s siting efforts to locate the Project in a working industrial forest.

¹⁷ See pages 1-2 of February 21, 2019 letter from Weyerhaeuser to the DEP with subject: RE: Adjacent landowner comments regarding the Central Maine Power Co.’s NECEC transmission project.

5. Added Impacts and Risk During Construction

Constructing additional portions of the Project underground would increase environmental and public impacts during construction due to the significantly larger area of disruption during construction and the extended duration of construction activities.

Underground construction methods have higher cost and productivity risk during construction due to rough terrain, subsurface conditions such as unforeseen rock, boulders, and cobbles, and more challenging construction methods required to minimize underground installation impacts.

6. Added Risk During Operation

Also, the need for significant length(s) of underground cable would add to the operational risk of the NECEC Project. The Project has a 90% per month availability contractual requirement. Overhead faults are often due to debris (e.g., trees, limbs) that is dislodged during the fault or quickly removable, allowing the line to return to service quickly. With underground cable, while cable faults are less likely than overhead faults, they are typically caused by, or result in more significant damage to, the cable system, preventing a return to service without difficult repairs. Underground faults are very costly and time-consuming to identify, isolate, and repair, which translates into a reduction in reliability of the Project. Any fault in the cable system would be unable to be repaired within the 2 to 3 days available under the contract requirements. This can only be mitigated the way it has been done at the upper Kennebec River crossing, i.e., by installing a spare cable, substantially increasing installation cost which, as explained before, can only be considered in the locations where the overhead design may result in an unreasonable unavoidable impact.

III. CONCLUSION (RELEVANT TO DEP AND LUPC REVIEW)

CMP has comprehensively analyzed the option of undergrounding all or portions (including the entirety of the new corridor area) of the NECEC Project transmission line, and concluded that this option is not a practicable, reasonably available alternative suitable to the Project purpose that would be less damaging to the environment. The purpose of the Project is delivering clean energy generation from Québec to New England at the lowest cost to ratepayers, which delivery requires availability of at least 90% every month. Underground construction of the line or additional portions of the line would cause exorbitant incremental costs, additional construction challenges compared to the current design, and substantial operational and availability risks.

Underground construction has a limited reduction in clearing and the associated impacts on wetlands and vernal pools compared to overhead construction, while increasing surface disruption outside of wetlands and requiring higher cost and risk installation methods.

Subsequent to its original analysis CMP has worked successfully with several impacted parties, LUPC, and DEP to adjust and modify the overhead design to avoid or minimize its impacts, with particular focus on the P-RR subdistricts at the upper Kennebec River crossing, the Joe's Hole/Troutdale Road Appalachian Trail crossing, and the Beattie Pond area. Constructing the line underground in additional areas would have limited benefits at exorbitant costs, additional impacts during construction, and substantial additional risk during construction and operation.

Outside of the P-RR districts underground construction of the line also would offer few, if any, benefits while still causing additional costs and impacts. In particular at the Gold Brook

crossing, the extremely challenging terrain and conditions would make underground construction extremely costly and risky, with minimal if any benefits.

Contrary to the testimonies of the interveners referred to above, CMP has evaluated underground alternatives in these locations, as the proposed HDD solution for the upper Kennebec River crossing demonstrates. For the locations referenced above, CMP has demonstrated that the limited impact of the designed overhead solution and the limited to non-existent benefits of an underground solution, combined with the additional costs and impacts of underground construction, make underground construction in additional areas, or the Project as a whole, an alternative that is not a practicable or reasonably available.

Exhibits

CMP-11-A: Bardwell CV

CMP-11-B: Underground Cost Estimate, Proposed Route

CMP-11-C: Underground Cost Estimate, New Corridor Only

CMP-11-D: Underground Cost Estimate, Underground Alternate Route

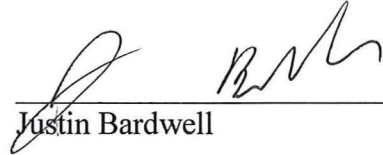
CMP-11-E: Underground Cost Estimate, AT Crossings

CMP-11-F: Underground Cost Estimate, Beattie Pond

CMP-11-G: Underground Cost Estimate, Gold Brook

Dated: 3/18/19

Respectfully submitted,



Justin Bardwell

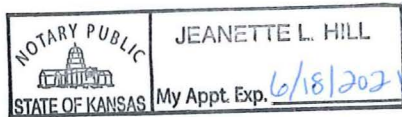
STATE OF KANSAS
Johnston County, ss.

The above-named Justin Bardwell did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 3/18/2019


Notary Public
Name:
My Commission Expires:



Justin R. Bardwell, P.E.

Justin Bardwell is the manager for underground transmission line engineering for Black & Veatch Energy Division's Power Delivery Business Line. His experience includes project coordination, scheduling, estimation, electrical design, underground design, procurement specifications, subcontract specifications, CAD drafting, and construction support.

PROJECT EXPERIENCE

ATC; Straits Cable Replacement; Michigan

2018-In-Progress

Engineering Manager - Black & Veatch. Owner's Engineer for a 138kV submarine cable replacement project. Project is approximately 4 miles long and includes removal of existing self-contained fluid-filled submarine cables, installation of new three-core submarine cables, and modifications to terminal stations. Responsible for cost and schedule estimating, supporting permitting, preparing conceptual design, preparing EPC specifications, reviewing detailed design, and engineering submittals.

Eversource; K Street to Deer Island; Massachusetts

2017-In-Progress

Engineering Manager - Black & Veatch. Project Engineer for a 115kV submarine cable replacement project. Project is approximately 2.5 miles long and includes installation of a new three-core submarine cable, installation of duct bank and cable on land, and shore line crossings by HDD. Responsible for cost and schedule estimating, supporting permitting, preparing conceptual design, preparing detailed design, material, and construction specifications, and reviewing engineering submittals.

WS Development; Massachusetts

2018-In-Progress

Engineering Manager - Black & Veatch. Design Engineer for a 115kV high-pressure fluid filled (HPFF) cable replacement project. Project includes installing approximately 0.5 mile of new pipe and cable intercepting an existing HPFF circuit, including cast in place splicing vaults. Responsible for cost and schedule estimating, supporting permitting, preparing conceptual design, preparing detailed design, material, and construction specifications, and reviewing engineering submittals.

Pepco; White Flint Substation; Washington D.C.

2018-In-Progress

UG T-Line Lead - Black & Veatch. Supervise the coordination of incoming UG transmission lines with the rebuilding of a GIS substation inside a historic structure including cable racking and terminations. Project includes preparation of construction drawings, structural calculations, thermo-mechanical analysis of cable racking, and coordination between the cable and GIS supplier.

Engineering Manager

Expertise:

Cable; Power Delivery;
Transmission; Underground

Education

Bachelor of Science, Electrical Engineering, Kansas State University, 2005

Professional Registration

License, Professional Engineer, Electrical, #53869, Massachusetts, 2017

License, Professional Engineer, General, #81573, Ohio, 2017

License, Professional Engineer, General, #24GE05382100, New Jersey, 2017

License, Professional Engineer, General, #31878, Connecticut, 2016

License, Professional Engineer, Electrical, #6201062411, Michigan, 2015

License, Professional Engineer, Electrical, #46034, Maryland, 2014

License, Professional Engineer, Electrical, #21123, Kansas, 2014

Total Years of Experience

14

Professional Associations

Institute of Electrical and Electronics Engineers - Member

Language Capabilities

English

Office Location

Overland Park, Kansas, USA

Pepco; Mt. Vernon Substation; Washington D.C.

2018-In-Progress

UG T-Line Lead - Black & Veatch. Supervise the coordination of incoming UG transmission lines with the rebuilding of a GIS substation inside a historic structure including cable racking and terminations. Project includes preparation of construction drawings, structural calculations, thermo-mechanical analysis of cable racking, and coordination between the cable and GIS supplier.

Pepco; Harvard Substation; Washington D.C.

2018-In-Progress

UG T-Line Lead - Black & Veatch. Supervise the coordination of incoming UG transmission lines with the rebuilding of a GIS substation inside a historic structure including cable racking and terminations. Project includes preparation of construction drawings, structural calculations, thermo-mechanical analysis of cable racking, and coordination between the cable and GIS supplier.

National Grid and Eversource; Woburn to Wakefield; Massachusetts

2017-In-Progress

Project Engineer - Black & Veatch. Lead a project team completing the detailed design, procurement support, and construction support for a 345kV UG T-line. Project is approximately 4 miles long and includes preparation of construction drawings, specifications, structural calculations, electrical calculations, evaluating proposals, and construction records.

Baltimore Gas & Electric; Fitzell UG Sources; Maryland

2017-In-Progress

Engineering Manager - Black & Veatch. Lead a team preparing a routing, feasibility, and planning report for a double circuit 115kV XLPE UG T-Line. Report includes scoring each route by estimating cost, schedule, environmental impact, social impact, permitting process, and risks.

ITC; Lake Erie Connector; Pennsylvania and Ontario, Canada

2014-In-Progress

UG Engineer - Black & Veatch. Owner's Engineer for a project that includes HVDC convertor stations, 2 miles of 500kV AC cable, 0.5 mile of 345kV AC cable, 10 miles of 320kV HVDC cable on land, 70 miles of 320kV HVDC submarine cable, and 2 shoreline crossings by HDD. Responsible for cost estimating, supporting permitting, preparing conceptual design, preparing EPC specifications, reviewing detailed design, and engineering submittals.

BGE; Westport to Wilkens Avenue; Maryland

2007-2018

Design Engineer/Cable Systems Engineer/Engineering Manager - Black & Veatch. Responsible for conceptual and detail design, including route design, route alignment, manhole design, specification and locating, duct bank design, cable calculations, and cable system specification. This Engineering Services project consisted of two 115kV circuits, approximately 2.2 miles long, from the existing Westport substation to the new Wilkens Avenue substation. The cable was installed in new concrete encased duct bank with multiple auger boring and HDD installations.

Baltimore Gas & Electric; Raphael Road to Joppatowne; Maryland

2013-2018

Engineering Manager - Black & Veatch. Project included construction of a double circuit 115kV XLPE underground transmission line approximately 2.7 miles long between two existing substations. Responsible for coordinating design engineering, permitting support, procurement support, and construction support.

Baltimore Gas & Electric; SW Project; Maryland

2009-2018

Lead Engineer - Black & Veatch. Project included construction of 2 new GIS substations, 5 double circuit 115kV XLPE underground transmission lines totaling 11 circuit miles, and 7 230kV XLPE single circuit transmission lines totaling 9 circuit miles. Responsible for design, specification, and procurement and construction support for duct bank, cable systems, and substation interfaces.

American Transmission Company; Mackinac Straits Restoration Plan; Wisconsin

2016-2017

Principal Engineer - Black & Veatch. Prepared a report detailing the condition of the existing 115kV self-contained fluid-filled submarine cable system, potential failure modes, and corrective actions for each failure mode.

SMECO; Patuxent River Crossing; Maryland

2008-2014

Design Engineer/Cable Systems Engineer - Black & Veatch. Responsible for conceptual and detail design, including route design, route alignment, manhole design, specification and locating, duct bank design, cable calculations and cable system specification. This Engineering Services project consisted of two 230kV circuits, approximately 1.8 miles long, from one side of the Patuxent River to the other. The cable was installed in an approximately 4,300-foot horizontal directional drilled fusible PVC duct bank and 5,300 feet of concrete encased duct bank.

The United Illuminating Company; Grand Avenue Modernization; Connecticut

2009-2013

Design Engineer - Black & Veatch. Turnkey project to replace an existing air-insulated substation with a new GIS substation and transfer all transmission lines to the new substation, including replacing all monitoring and pressurization systems for the underground transmission lines. Responsible for engineering, procurement, and construction to bring 2 existing HPPF pipe-type lines and 1 existing SCFF line to the new switchgear, along with replacement of 2 circulating pressurization plants and remote end termination replacement.

The United Illuminating Company; Union Avenue Substation; Connecticut

2008-2012

Design Engineer - Black & Veatch. Turnkey project to construct a new substation and modify an existing 115kV SCFF underground transmission line to connect to the new substation. Responsible for engineering, procurement and construction of duct bank, cable system, pressurization system, and substation interfaces.

MDU; Memorial Bridge Reroute; North Dakota

2006-2008

Project Engineer/Cable Systems Engineer/UGT Designer - Black & Veatch. Responsible for project coordination, conceptual and detail design, including route design, route alignment, manhole design, specification and locating, duct bank design, cable calculations, and cable system specification. This E&CM project consisted of three circuits at 115kV and 69kV being routed through the enclosed supports of a 1,650-foot-long bridge under construction. Each circuit included a few hundred feet of underground duct bank on each side of the bridge. The circuit included six single pole risers complete with an energized spare cable and terminator systems.

ITC; Bismarck-Troy 345 kV; Michigan

2005-2008

Project Engineer/Cable Systems Engineer/UGT Designer - Black & Veatch. Responsible for conceptual and detail design, including route design, route alignment, manhole procurement and locating, duct bank design, cable calculations, and cable system procurement. This EPC project included 11.2 miles of 345kV Solid Dielectric underground transmission line, and two substation terminations, optical fiber for communication, and remote temperature sensing.

ITC; Erin-Stephens No. 3 120 kV; Michigan

2005-2007

Electrical Engineer/UGT Designer/CAD Operator - Black & Veatch. Responsible for conceptual and detail design, including route design, route alignment, manhole procurement and locating, duct bank design, cable calculations and cable system procurement. This EPC project included 4.5 miles of 138kV Solid Dielectric underground transmission line to be energized at 120kV, and two substation terminations and optical fiber for communications.

Owner **Avangrid** Computed By **N. Thomas**
 Project **NECEC**
 B&V File No. 400319.42.3000
 Title **Underground Cost Estimate, Proposed Route** Checked By **J. Bardwell**
 Estimate Overall Route Length **146.88 Miles** **1 DC Circuits**
775,504 Feet **390 Splices per Circuit** **2 Cables per Pole**

Item	Qty	Unit	Material Unit Cost	Total Mat'l Cost	Labor Unit Cost	Total Labor Cost	TOTAL COST
CABLE SYSTEM FURNISH AND INSTALL							
UG CABLE AND ACCESSORIES SUBTOTAL				\$637,198,300		\$120,015,200	\$757,213,500
COMMUNICATIONS							
CABLE SYSTEM COMMUNICATIONS (FO) SUBTOTAL				\$6,944,924		\$8,170,818	\$15,115,742
CIVIL WORK							
GENERAL SUBTOTAL				\$300,000		\$2,285,947	\$2,585,947
OVERHEAD TO UNDERGROUND SUBTOTAL				\$0		\$0	\$0
SPLICING VAULT SUBTOTAL				\$20,182,500		\$26,325,000	\$46,507,500
DIRECT BURIED							
Direct Buried cost per route foot	\$458.96			\$47,278,180		\$239,802,869	\$287,081,049
HDD INSTALLATION SUBTOTAL				\$42,600,000		\$169,100,000	\$211,700,000
HDD Ductbank cost per route foot(1 Bores)	\$1,411.33						
ESTIMATED LABOR & MATERIAL COST				\$754,503,904		\$565,699,834	\$1,320,203,738
ESCALATION		3 Years @	2.50%	\$56,588,000		\$42,427,000	\$99,015,000
ESCALATED CONSTRUCTION COST				\$811,091,904		\$608,126,834	\$1,419,218,738
Mark-Up		10.0% of Est. Labor & Mat.		\$81,109,000		\$60,813,000	\$141,922,000
ESTIMATED PROJ COST				\$892,200,904		\$668,939,834	\$1,561,140,738
STATE SALES TAX		5.5% of Materials		\$49,071,000			\$49,071,000
ROW ACQUISITION		\$0 per Mile					\$0
MITIGATION							\$0
TOPOGRAPHIC SURVEYING/SOIL EXPLORATION @ 40,000/mi							\$5,875,030
ENGINEERING AND CONSTRUCTION MANAGEMENT							\$31,222,815
CONTINGENCY		14.46% of project cost					\$231,105,299
ESTIMATED TOTAL PROJ COST							\$1,878,414,883
UNDERGROUND PROJECT TOTAL						(rounded)	\$1,878,400,000

Black & Veatch

Owner **Avangrid**

Project **NECEC**

B&V File No. 400319.42.3000

Assumptions - Underground Cost Estimate, Proposed Route

General

- 1 The estimate is based on a 320 kV DC Cable installation 146.88 miles long.
- 2 ROW acquisition costs are not included in the estimate.
- 3 Environmental mitigation costs are not included in the estimate.
- 4 The estimate does not include costs related to contaminated or hazardous soils or water.
- 5 The estimate does not include allowances for existing facility relocations.
- 6 The estimate does not include allowances for work hour/location restrictions.
- 7 The estimate is in 2019 dollars and includes 3 years of escalation at 2.5%
- 8 The estimate includes a 10% allowance for prime contractor mark-up.
- 9 The estimate includes a 14.46% contingency.
- 10 The estimate includes sales tax of 5.5% on materials only.

Cable & Accessories

- 11 The estimate assumes a single +/-320kV DC circuit with 2 cables per pole.
- 12 The cables are estimated as 320kV DC, 2500 sq. mm Cu Cable.
- 13 The estimate includes an installed spare cable the full length of the line.
- 14 The estimate includes (10) AIS cable terminations, and 2 spare terminations.
- 15 The estimate includes (2,340) single-phase cable joints, with 4 spare joints.
- 16 The estimate does not include surge arrestors.
- 17 The estimate does not include optical fiber cable inside the power cable for temperature monitoring.

Communications

- 18 The estimate includes two fiber optic cable systems.
- 19 Fiber-optic cables are estimated as 48 fiber, single mode, loose tube outdoor cable.
- 20 Fiber-optic cables are installed into 1 1/4" HDPE innerducts installed in 4" PVC conduit.
- 21 Separate pull/splicing boxes are included for the fiber-optics.

Temperature Monitoring

- 22 The estimate does not include cable temperature monitoring equipment.

Overhead to Underground Transition

- 23 The estimate does not include termination supports or stands.
- 24 The estimate does not include provisions for overhead transmission connections
- 25 The estimate does not include concrete encased sweeps for the cable

Splice Housings

- 26 The estimate includes (390) jointing locations with (5) 12'x4'x3' precast concrete splice housings at each location.
- 27 Each splice housing is assumed to hold (1) splice.

Duct Bank Installation

- 28 The estimate does not include duct bank.

Direct Buried Installation

- 29 The estimate does not include conduits in the direct buried sections.
- 30 The estimate includes soil erosion and sediment control measures for green spaces.
- 31 The cables are installed in a single 5' wide trench averaging 7' deep.
- 32 The cables are installed in a thermal sand cable bedding material
- 33 The estimate includes a 9" thick concrete cap installed 18" below grade
- 34 The estimate assumes backfilling direct buried sections with native soils.
- 35 The estimate includes vegetation clearing and restoration 50' wide for construction not in roadways.
- 36 The estimate includes allowance for dewatering for 50% of the trench in uplands, and 100% in wetlands.
- 37 The estimate does not include shoring for the trenches.

HDD Installation

- 38 The estimate includes (150) sets of HDD installations in soil, 1000 feet long each.
- 39 Each HDD installation consists of the bundled FPVC or HDPE conduits pulled directly into the boreholes.
- 40 The HDD installations do not include a casing.
- 41 The HDD installations do not include grouting of the bore hole.

Engineering & Construction Management

- 42 The estimate includes surveying, and soil exploration.
- 43 The estimate includes approximate engineering costs.
- 44 The estimate includes construction management based on a 15 month construction duration.

Owner **Avangrid** Computed By **J. Bardwell**
 Project **NECEC**
 B&V File No. 400319.42.3000
 Title **Underground Cost Estimate, New corridor portion of Proposed Route**
 Estimate Overall Route Length **53.50 Miles** 1 DC Circuits
282,480 Feet 143 Splices per Circuit 2 Cables per Pole

Item	Qty	Unit	Material Unit Cost	Total Mat'l Cost	Labor Unit Cost	Total Labor Cost	TOTAL COST
CABLE SYSTEM FURNISH AND INSTALL							
UG CABLE AND ACCESSORIES SUBTOTAL				\$232,095,800		\$39,754,000	\$271,849,800
COMMUNICATIONS							
CABLE SYSTEM COMMUNICATIONS (FO) SUBTOTAL				\$2,536,280		\$2,984,003	\$5,520,283
CIVIL WORK							
GENERAL SUBTOTAL				\$300,000		\$1,118,750	\$1,418,750
OVERHEAD TO UNDERGROUND SUBTOTAL				\$272,718		\$496,809	\$769,527
SPLICING VAULT SUBTOTAL				\$7,400,250		\$11,082,500	\$18,482,750
DIRECT BURIED				\$13,792,593		\$69,955,898	\$83,748,491
Direct Buried cost per route foot	\$458.95						
HDD INSTALLATION SUBTOTAL				\$28,400,000		\$112,850,000	\$141,250,000
HDD Ductbank cost per route foot(2 Bores)	\$1,412.50						
ESTIMATED LABOR & MATERIAL COST				\$284,797,641		\$238,241,960	\$523,039,601
ESCALATION		3 Years @	2.50%	\$21,360,000		\$17,868,000	\$39,228,000
ESCALATED CONSTRUCTION COST				\$306,157,641		\$256,109,960	\$562,267,601
Mark-Up		10.0% of Est. Labor & Mat.		\$30,616,000		\$25,611,000	\$56,227,000
ESTIMATED PROJ COST				\$336,773,641		\$281,720,960	\$618,494,601
STATE SALES TAX		5.5% of Materials		\$18,523,000			\$18,523,000
ROW ACQUISITION		\$0 per Mile					\$0
MITIGATION							\$0
TOPOGRAPHIC SURVEYING/SOIL EXPLORATION @ 40,000/mi							\$2,140,000
ENGINEERING AND CONSTRUCTION MANAGEMENT							\$18,554,838
CONTINGENCY		14.46% of project cost					\$92,426,793
ESTIMATED TOTAL PROJ COST							\$750,139,232
UNDERGROUND PROJECT TOTAL						(rounded)	\$750,000,000

Black & Veatch

Owner **Avangrid**

Project **NECEC**

B&V File No. 400319.42.3000

Assumptions - Underground Cost Estimate, New corridor portion of Proposed Route

General

- 1 The estimate is based on a 320 kV DC Cable installation 53.8 miles long.
- 2 ROW acquisition costs are not included in the estimate.
- 3 Environmental mitigation costs are not included in the estimate.
- 4 The estimate does not include costs related to contaminated or hazardous soils or water.
- 5 The estimate does not include allowances for existing facility relocations.
- 6 The estimate does not include allowances for work hour/location restrictions.
- 7 The estimate is in 2019 dollars and includes 3 years of escalation at 2.5%
- 8 The estimate includes a 10% allowance for prime contractor mark-up.
- 9 The estimate includes a 14.46% contingency
- 10 The estimate includes sales tax of 5.5% on materials only.

Cable & Accessories

- 11 The estimate assumes a single +/-320kV DC circuit with 2 cables per pole.
- 12 The cables are estimated as 320kV DC, 2500 sq. mm Cu Cable.
- 13 The estimate includes an installed spare cable the full length of the line.
- 14 The estimate includes (10) AIS cable terminations, and 2 spare terminations.
- 15 The estimate includes (864) single-phase cable joints, with 10 spare joints.
- 16 The estimate does not include surge arrestors.
- 17 The estimate does not include optical fiber cable inside the power cable for temperature monitoring.

Communications

- 18 The estimate includes two fiber optic cable systems.
- 19 Fiber-optic cables are estimated as 48 fiber, single mode, loose tube outdoor cable.
- 20 Fiber-optic cables are installed into 1 1/4" HDPE innerducts installed in 4" PVC conduit.
- 21 Separate pull/splicing boxes are included for the fiber-optics.

Temperature Monitoring

- 22 The estimate does not include cable temperature monitoring equipment.

Overhead to Underground Transition

- 23 Includes terminations stands, surge arrestor stands and dead-ends for one transition.
- 24 The estimate includes site work and foundations for a 135' square termination station
- 25 The estimate includes ground grid and fencing for a 135' square terminations station.

Splice Housings

- 26 The estimate includes (144) jointing locations with (5) 12'x4'x3' precast concrete splice housings at each location.
- 27 Each splice housing is assumed to hold (1) splice.

Duct Bank Installation

- 28 The estimate does not include duct bank.

Direct Buried Installation

- 29 The estimate does not include conduits in the direct buried sections.
- 30 The estimate includes soil erosion and sediment control measures for green spaces.
- 31 The cables are installed in a single 5' wide trench averaging 7' deep.
- 32 The cables are installed in a thermal sand cable bedding material
- 33 The estimate includes a 9" thick concrete cap installed 18" below grade
- 34 The estimate assumes backfilling direct buried sections with native soils.
- 35 The estimate includes vegetation clearing and restoration 50' wide for construction not in roadways.
- 36 The estimate includes allowance for dewatering for 50% of the trench in uplands, and 100% in wetlands.
- 37 The estimate does not include shoring for the trenches.

HDD Installation

- 38 The estimate includes (100) sets of HDD installations in soil, 1000 feet long each.
- 39 Each HDD installation consists of the bundled FPVC or HDPE conduits pulled directly into the boreholes.
- 40 The HDD installations do not include a casing.
- 41 The HDD installations do not include grouting of the bore hole.

Engineering & Construction Management

- 42 The estimate includes surveying, and soil exploration.
- 43 The estimate includes approximate engineering costs.
- 44 The estimate includes approximately construction management costs.

Owner **Avangrid** Computed By **N. Thomas**
 Project **NECEC**
 B&V File No. 400319.42.3000
 Title **Underground Cost Estimate, Underground Alternate Route** Checked By **J. Bardwell**
 Estimate Overall Route Length **146.88 Miles** **1 DC Circuits**
775,504 Feet **390 Splices per Circuit** **2 Cables per Pole**

Item	Qty	Unit	Material Unit Cost	Total Mat'l Cost	Labor Unit Cost	Total Labor Cost	TOTAL COST
CABLE SYSTEM FURNISH AND INSTALL							
UG CABLE AND ACCESSORIES SUBTOTAL				\$641,818,300		\$104,236,800	\$746,055,100
COMMUNICATIONS							
CABLE SYSTEM COMMUNICATIONS (FO) SUBTOTAL				\$6,944,924		\$8,170,818	\$15,115,742
CIVIL WORK							
GENERAL SUBTOTAL				\$300,000		\$2,285,947	\$2,585,947
OVERHEAD TO UNDERGROUND SUBTOTAL				\$20,036		\$109,973	\$130,009
SPLICING VAULT SUBTOTAL				\$40,755,000		\$92,430,000	\$133,185,000
DUCTBANK INSTALLATION - ROADWAY				\$70,799,627		\$128,321,246	\$199,120,873
Ductbank cost per route foot	\$646.87						
DIRECT BURIED				\$24,011,569		\$121,790,895	\$145,802,464
Direct Buried cost per route foot	\$458.96						
HDD INSTALLATION SUBTOTAL				\$42,600,000		\$169,100,000	\$211,700,000
HDD Ductbank cost per route foot(1 Bores))	\$1,411.33						
ESTIMATED LABOR & MATERIAL COST				\$827,249,455		\$626,445,680	\$1,453,695,135
ESCALATION		3 Years @	2.50%	\$62,044,000		\$46,983,000	\$109,027,000
ESCALATED CONSTRUCTION COST				\$889,293,455		\$673,428,680	\$1,562,722,135
Mark-Up		10.0% of Est. Labor & Mat.		\$88,929,000		\$67,343,000	\$156,272,000
ESTIMATED PROJ COST				\$978,222,455		\$740,771,680	\$1,718,994,135
STATE SALES TAX		5.5% of Materials		\$53,802,000			\$53,802,000
ROW ACQUISITION		\$0 per Mile					\$0
MITIGATION							\$0
TOPOGRAPHIC SURVEYING/SOIL EXPLORATION @ 40,000/mi							\$5,875,030
ENGINEERING AND CONSTRUCTION MANAGEMENT							\$34,379,883
CONTINGENCY		14.46% of project cost					\$254,387,412
ESTIMATED TOTAL PROJ COST							\$2,067,438,460
UNDERGROUND PROJECT TOTAL						(rounded)	\$2,067,400,000

Black & Veatch

Owner **Avangrid**

Project NECEC

B&V File No. 400319.42.3000

Assumptions - Underground Cost Estimate, Underground Alternate Route

General

- 1 The estimate is based on a 320 kV DC Cable installation 146.88 miles long.
- 2 ROW acquisition costs are not included in the estimate.
- 3 Environmental mitigation costs are not included in the estimate.
- 4 The estimate does not include costs related to contaminated or hazardous soils or water.
- 5 The estimate does not include allowances for existing facility relocations.
- 6 The estimate does not include allowances for work hour/location restrictions.
- 7 The estimate is in 2019 dollars and includes escalation at 2.5% for 3 years.
- 8 The estimate includes a 10% mark-up for a prime contractor
- 9 The estimate includes a 14.46% contingency
- 9 The estimate includes sales tax of 5.5% on materials only.

Cable & Accessories

- 10 The estimate assumes a single +/-320kV DC circuit with 2 cables per pole.
- 11 The cables are estimated as 320kV DC, 2500 sq. mm Cu Cable.
- 12 The estimate includes an installed spare cable the full length of the project.
- 13 The estimate includes (10) AIS cable terminations, including 2 spare terminations.
- 14 The estimate includes (2,340) single-phase cable joints, with 12 spare joints.
- 15 The estimate does not include surge arrestors.
- 16 The estimate does not include optical fiber cable inside the power cable for temperature monitoring.

Communications

- 17 The estimate includes two fiber optic cables for communications and monitoring.
- 18 Fiber-optic cables are estimated as 48 fiber, single mode, loose tube outdoor cable.
- 19 Fiber-optic cables are installed into 1 1/4" HDPE innerducts installed in 4" PVC conduit.
- 20 Separate pull/splicing boxes are included for the fiber-optics.

Temperature Monitoring

- 21 The estimate does not include cable temperature monitoring equipment.

Overhead to Underground Transition

- 22 The estimate does not include termination stations or supports.
- 23 The estimate does not include provisions for overhead transmission connections
- 24 The estimate does not include concrete encased sweeps for the cable

Splice Housings

- 25 The estimate includes (780) 33'x8'x10' precast concrete splice vaults.
- 26 Each splice housing is assumed to hold (3) splices

Duct Bank Installation

- 27 The estimate includes 53.8 miles of duct bank.
- 28 The estimate includes (6)8" SCH 40 PVC Conduits for high voltage cable include one spare conduits.
- 29 The estimate includes (2) 4" SCH 40 PVC Conduits for communications.
- 30 The conduits are installed in a common duct bank, 3' wide and 2' high
- 31 The estimate assumes ductbank installation will be under pavement.
- 32 The estimate includes traffic control at 200ft/day.
- 33 The estimate includes soil erosion and sediment control measures for rural streets.
- 34 The estimate assumes a 3' wide trench, averaging 6' deep.
- 35 The estimate assumes the ductbank will be backfilled with FTB to 2' below grade.
- 36 The estimate includes pavement removal and restoration for the entire route length.
- 37 The estimate includes allowance for dewatering for 50% of the trench.
- 38 The estimate includes sheeting and shoring of the trench for 25% of the route length.

Direct Buried Installation

- 39 The estimate includes 60.2 miles of direct buried installation.
- 40 The estimate does not include conduits in the direct buried sections.
- 41 The estimate includes soil erosion and sediment control measures for green spaces.
- 42 The cables are installed in a single 5' wide trench averaging 7' deep.
- 43 The cables are installed in a thermal sand cable bedding material
- 44 The estimate includes a 9" thick concrete cap installed 18" below grade
- 45 The estimate assumes backfilling direct buried sections with native soils.
- 46 The estimate includes vegetation clearing and restoration 50' wide for construction not in roadways.
- 47 The estimate includes allowance for dewatering for 50% of the trench in uplands, and 100% in wetlands.
- 48 The estimate does not include shoring for the trenches.

HDD Installation

- 49 The estimate includes (150) sets of HDD installations in soil, 1000 feet long each.
- 50 Each HDD installation consists of the bundled FPVC or HDPE conduits pulled directly into the boreholes.
- 51 The HDD installations do not include a casing.
- 52 The HDD installations do not include grouting of the bore hole.

Engineering & Construction Management

- 53 The estimate includes surveying, and soil exploration.
- 54 The estimate includes approximate engineering costs.
- 55 The estimate includes approximately construction management costs.

CMP-11-E

Owner **Avangrid** Computed By **J. Bardwell**
 Project **NECEC**
 B&V File No. 400319.42.3000
 Title **Underground Cost Estimate, Appalachian Trail**
 Estimate Overall Route Length **1.00 Miles** 1 DC Circuits
5,280 Feet 2 Splices per Circuit **2 Cables per Pole**

Item	Qty	Unit	Material Unit Cost	Total Mat'l Cost	Labor Unit Cost	Total Labor Cost	TOTAL COST
CABLE SYSTEM FURNISH AND INSTALL							
UG CABLE AND ACCESSORIES SUBTOTAL				\$5,018,700		\$1,430,000	\$6,448,700
COMMUNICATIONS							
CABLE SYSTEM COMMUNICATIONS (FO) SUBTOTAL				\$45,980		\$55,748	\$101,728
CIVIL WORK							
GENERAL SUBTOTAL				\$100,000		\$162,500	\$262,500
OVERHEAD TO UNDERGROUND SUBTOTAL				\$433,123		\$662,510	\$1,095,633
SPLICING VAULT SUBTOTAL				\$209,000		\$474,000	\$683,000
DUCTBANK INSTALLATION				\$192,175		\$552,181	\$744,357
Ductbank cost per route foot	\$418.18						
HDD INSTALLATION SUBTOTAL				\$1,893,000		\$5,234,000	\$7,127,000
HDD Ductbank cost per route foot(1 Bores))	\$2,036.29						
ESTIMATED LABOR & MATERIAL COST				\$7,891,978		\$8,570,939	\$16,462,917
ESCALATION		3 Years @	2.50%	\$592,000		\$643,000	\$1,235,000
ESCALATED CONSTRUCTION COST				\$8,483,978		\$9,213,939	\$17,697,917
Mark-Up		10.0% of Est. Labor & Mat.		\$848,000		\$921,000	\$1,769,000
ESTIMATED PROJ COST				\$9,331,978		\$10,134,939	\$19,466,917
STATE SALES TAX		5.5% of Materials		\$513,000			\$513,000
ROW ACQUISITION		\$0 per Mile					\$0
MITIGATION							\$0
TOPOGRAPHIC SURVEYING/SOIL EXPLORATION @ 40,000/mi							\$40,000
ENGINEERING AND CONSTRUCTION MANAGEMENT							\$2,920,038
CONTINGENCY		30.00% of project cost					\$6,881,986
ESTIMATED TOTAL PROJ COST							\$29,821,941
UNDERGROUND PROJECT TOTAL						(rounded)	\$29,800,000

Black & Veatch

Owner **Avangrid**

Project **NECEC**

B&V File No. 400319.42.3000

Assumptions - Underground Cost Estimate, Appalachian Trail

General

- 1 The estimate is based on a 320 kV DC Cable installation 146.88 miles long.
- 2 ROW acquisition costs are not included in the estimate.
- 3 Environmental mitigation costs are not included in the estimate.
- 4 The estimate does not include costs related to contaminated or hazardous soils or water.
- 5 The estimate does not include allowances for existing facility relocations.
- 6 The estimate does not include allowances for work hour/location restrictions.
- 7 The estimate is in 2019 dollars and includes 3 years of escalation at 2.5%
- 8 The estimate includes a 10% allowance for prime contractor mark-up.
- 9 The estimate includes a 30% contingency to account for potential rock variation.
- 9 The estimate includes sales tax of 5.5% on materials only.

Cable & Accessories

- 10 The estimate assumes a single +/-320kV DC circuit with 1 cable per pole.
- 11 The cables are estimated as 320kV DC, 2500 sq. mm Cu Cable.
- 12 The estimate includes an installed spare cable the full length of the line.
- 13 The estimate includes (6) AIS cable terminations, and 2 spare terminations.
- 14 The estimate includes (9) single-phase cable joints, with 2 spare joints.
- 15 The estimate does not include surge arrestors.
- 16 The estimate does not include optical fiber cable inside the power cable for temperature monitoring.

Communications

- 17 The estimate includes two fiber optic cable systems.
- 18 Fiber-optic cables are estimated as 48 fiber, single mode, loose tube outdoor cable.
- 19 Fiber-optic cables are installed into 1 1/4" HDPE innerducts installed in 4" PVC conduit.
- 20 Separate pull/splicing boxes are included for the fiber-optics.

Temperature Monitoring

- 21 The estimate does not include cable temperature monitoring equipment.

Overhead to Underground Transition

- 22 Includes terminations stands, surge arrestor stands and dead-ends for the overhead lines
- 23 The estimate includes site work and foundations for two 135' square termination station
- 24 The estimate includes ground grid and fencing for two 135' square terminations station.

Splice Housings

- 25 The estimate includes (3) jointing locations with (3) 12'x4'x3' precast concrete splice housings at each location.
- 26 Each splice housing is assumed to hold (1) splice.

Duct Bank Installation

- 27 The estimate includes 1,700 feet of duct bank.
- 28 The estimate includes (6)8" SCH 40 PVC Conduits for high voltage cable include one spare conduits.
- 29 The estimate includes (2) 4" SCH 40 PVC Conduits for communications.
- 30 The conduits are installed in a common duct bank, 3' wide and 2' high
- 31 The estimate assumes ductbank installation will be under pavement.
- 32 The estimate includes traffic control at 200ft/day.
- 33 The estimate includes soil erosion and sediment control measures for rural streets.
- 34 The estimate assumes a 3' wide trench, averaging 6' deep.
- 35 The estimate assumes the ductbank will be backfilled with FTB to 2' below grade.
- 36 The estimate includes pavement removal and restoration for the entire route length.
- 37 The estimate includes allowance for dewatering for 50% of the trench.
- 38 The estimate includes sheeting and shoring of the trench for 25% of the route length.

HDD Installation

- 39 The estimate includes (1) HDD installation in mixed soil and rock, 3500 feet long.
- 40 Each HDD installation consists of the bundled FPVC or HDPE conduits pulled directly into the boreholes.
- 41 The estimate includes erection of noise barriers around the HDD sites.
- 42 The HDD installations do not include a casing.
- 43 The HDD installations do not include grouting of the bore hole.

Engineering & Construction Management

- 44 The estimate includes surveying, and soil exploration.
- 45 The estimate includes approximate engineering costs.
- 46 The estimate includes approximate construction management costs.

Owner **Avangrid** Computed By **J. Bardwell**
 Project **NECEC**
 B&V File No. 400319.42.3000
 Title **Underground Cost Estimate, Beattie Pond**
 Estimate Overall Route Length **1.20 Miles** 1 DC Circuits
6,336 Feet 3 Splices per Circuit 1 Cables per Pole

Item	Qty	Unit	Material Unit Cost	Total Mat'l Cost	Labor Unit Cost	Total Labor Cost	TOTAL COST
CABLE SYSTEM FURNISH AND INSTALL							
UG CABLE AND ACCESSORIES SUBTOTAL				\$3,571,600		\$991,800	\$4,563,400
COMMUNICATIONS							
CABLE SYSTEM COMMUNICATIONS (FO) SUBTOTAL				\$57,616		\$68,777	\$126,393
CIVIL WORK							
GENERAL SUBTOTAL				\$100,000		\$165,000	\$265,000
OVERHEAD TO UNDERGROUND SUBTOTAL				\$386,699		\$577,662	\$964,361
SPLICING VAULT SUBTOTAL				\$108,750		\$169,500	\$278,250
DIRECT BURIED				\$252,575		\$1,288,255	\$1,540,830
Direct Buried cost per route foot	3355.36						
HDD INSTALLATION SUBTOTAL				\$289,000		\$1,062,000	\$1,351,000
HDD Ductbank cost per route foot(1 Bores))	\$675.50						
ESTIMATED LABOR & MATERIAL COST				\$4,766,240		\$4,322,994	\$9,089,235
ESCALATION		3 Years @	2.50%	\$357,000		\$324,000	\$681,000
ESCALATED CONSTRUCTION COST				\$5,123,240		\$4,646,994	\$9,770,235
Mark-Up		10.0% of Est. Labor & Mat.		\$512,000		\$465,000	\$977,000
ESTIMATED PROJ COST				\$5,635,240		\$5,111,994	\$10,747,235
STATE SALES TAX		5.5% of Materials		\$310,000			\$310,000
ROW ACQUISITION		\$0 per Mile					\$0
MITIGATION							\$0
TOPOGRAPHIC SURVEYING/SOIL EXPLORATION @ 40,000/mi							\$48,000
ENGINEERING AND CONSTRUCTION MANAGEMENT							\$1,612,085
CONTINGENCY		20.0% of project cost					\$2,543,464
ESTIMATED TOTAL PROJ COST							\$15,260,784
UNDERGROUND PROJECT TOTAL						(rounded)	\$15,300,000

Black & Veatch

Owner **Avangrid**

Project **NECEC**

B&V File No. 400319.42.3000

Assumptions - Underground Cost Estimate, Beattie Pond

General

- 1 The estimate is based on a 320 kV DC Cable installation 146.88 miles long.
- 2 ROW acquisition costs are not included in the estimate.
- 3 Environmental mitigation costs are not included in the estimate.
- 4 The estimate does not include costs related to contaminated or hazardous soils or water.
- 5 The estimate does not include allowances for existing facility relocations.
- 6 The estimate does not include allowances for work hour/location restrictions.
- 7 The estimate is in 2019 dollars and includes 3 years of escalation at 2.5%
- 8 The estimate includes a 10% allowance for prime contractor mark-up.
- 9 The estimate includes a 20% contingency.
- 9 The estimate includes sales tax of 5.5% on materials only.

Cable & Accessories

- 10 The estimate assumes a single +/-320kV DC circuit with 1 cable per pole.
- 11 The cables are estimated as 320kV DC, 2500 sq. mm Cu Cable.
- 12 The estimate includes an installed spare cable the full length of the line.
- 13 The estimate includes (6) AIS cable terminations, and 2 spare terminations.
- 14 The estimate includes (9) single-phase cable joints, with 2 spare joints.
- 15 The estimate does not include surge arrestors.
- 16 The estimate does not include optical fiber cable inside the power cable for temperature monitoring.

Communications

- 17 The estimate includes two fiber optic cable systems.
- 18 Fiber-optic cables are estimated as 48 fiber, single mode, loose tube outdoor cable.
- 19 Fiber-optic cables are installed into 1 1/4" HDPE innerducts installed in 4" PVC conduit.
- 20 Separate pull/splicing boxes are included for the fiber-optics.

Temperature Monitoring

- 21 The estimate does not include cable temperature monitoring equipment.

Overhead to Underground Transition

- 22 Includes terminations stands, surge arrestor stands and dead-ends for the overhead lines
- 23 The estimate includes site work and foundations for two 135' square termination station
- 24 The estimate includes ground grid and fencing for two 135' square terminations station.

Splice Housings

- 25 The estimate includes (3) jointing locations with (3) 12'x4'x3' precast concrete splice housings at each location.
- 26 Each splice housing is assumed to hold (1) splice.

Duct Bank Installation

- 27 The estimate does not include duct bank.

Direct Buried Installation

- 28 The estimate does not include conduits in the direct buried sections.
- 29 The estimate includes soil erosion and sediment control measures for green spaces.
- 30 The cables are installed in a single 5' wide trench averaging 7' deep.
- 31 The cables are installed in a thermal sand cable bedding material
- 32 The estimate includes a 9" thick concrete cap installed 18" below grade
- 33 The estimate assumes backfilling direct buried sections with native soils.
- 34 The estimate includes vegetation clearing and restoration 75' wide for construction not in roadways.
- 35 The estimate includes allowance for dewatering for 50% of the trench in uplands, and 100% in wetlands.
- 36 The estimate does not include shoring for the trenches.

HDD Installation

- 37 The estimate includes (2) sets of HDD installations in soil, 1000 feet long each.
- 38 Each HDD installation consists of the bundled FPVC or HDPE conduits pulled directly into the boreholes.
- 39 The HDD installations do not include a casing.
- 40 The HDD installations do not include grouting of the bore hole.

Engineering & Construction Management

- 41 The estimate includes surveying, and soil exploration.
- 42 The estimate includes approximate engineering costs.
- 43 The estimate includes approximate construction management costs.

Owner **Avangrid**
 Project **NECEC**
 B&V File No. 400319.42.3000
 Title **Underground Cost Estimate, Gold Brook**
 Estimate Overall Route Length **1.15 Miles**
6,072 Feet

Computed By **J. Bardwell**

Checked By

1 DC Circuits
2 Cables per Pole

Item	Qty	Unit	Material Unit Cost	Total Mat'l Cost	Labor Unit Cost	Total Labor Cost	TOTAL COST
CABLE SYSTEM FURNISH AND INSTALL							
UG CABLE AND ACCESSORIES SUBTOTAL				\$5,591,200		\$1,125,000	\$6,716,200
COMMUNICATIONS							
CABLE SYSTEM COMMUNICATIONS (FO) SUBTOTAL				\$56,032		\$66,861	\$122,893
CIVIL WORK							
GENERAL SUBTOTAL				\$100,000		\$164,375	\$264,375
OVERHEAD TO UNDERGROUND SUBTOTAL				\$495,436		\$903,619	\$1,399,054
SPLICING VAULT SUBTOTAL				\$128,750		\$219,500	\$348,250
DUCTBANK INSTALLATION - ROADWAY				\$34,867		\$92,077	\$126,943
Ductbank cost per route foot	\$466.70						
HDD INSTALLATION SUBTOTAL				\$1,628,200		\$8,773,600	\$10,401,800
HDD Ductbank cost per route foot(1 Bores)	\$1,793.41						
ESTIMATED LABOR & MATERIAL COST				\$8,034,484		\$11,345,031	\$19,379,515
ESCALATION		3 Years @	2.50%	\$603,000		\$851,000	\$1,454,000
ESCALATED CONSTRUCTION COST				\$8,637,484		\$12,196,031	\$20,833,515
Mark-Up		10.0% of Est. Labor & Mat.		\$864,000		\$1,220,000	\$2,084,000
ESTIMATED PROJ COST				\$9,501,484		\$13,416,031	\$22,917,515
STATE SALES TAX		5.5% of Materials		\$523,000			\$523,000
ROW ACQUISITION		\$0 per Mile					\$0
MITIGATION							\$0
TOPOGRAPHIC SURVEYING/SOIL EXPLORATION @ 40,000/mi							\$46,000
ENGINEERING AND CONSTRUCTION MANAGEMENT							\$2,291,752
CONTINGENCY		30.0% of project cost					\$7,733,480
ESTIMATED TOTAL PROJ COST							\$33,511,747
UNDERGROUND PROJECT TOTAL						(rounded)	\$33,500,000

Black & VeatchOwner **Avangrid**Project **NECEC**

B&V File No. 400319.42.3000

Assumptions - Underground Cost Estimate, Gold Brook

General

- 1 The estimate is based on a 320 kV DC Cable installation 146.88 miles long.
- 2 ROW acquisition costs are not included in the estimate.
- 3 Environmental mitigation costs are not included in the estimate.
- 4 The estimate does not include costs related to contaminated or hazardous soils or water.
- 5 The estimate does not include allowances for existing facility relocations.
- 6 The estimate does not include allowances for work hour/location restrictions.
- 7 The estimate is in 2019 dollars and includes 3 years of escalation at 2.5%
- 8 The estimate includes a 10% allowance for prime contractor mark-up.
- 9 The estimate includes a 30% contingency to account for the potential rock in the area.
- 9 The estimate includes sales tax of 5.5% on materials only.

Cable & Accessories

- 10 The estimate assumes a single +/-320kV DC circuit with 2 cables per pole.
- 11 The cables are estimated as 320kV DC, 2500 sq. mm Cu Cable.
- 12 The estimate includes an installed spare cable the full length of the line.
- 13 The estimate includes (10) AIS cable terminations, and 2 spare terminations.
- 14 The estimate includes (15) single-phase cable joints, with 2 spare joints.
- 15 The estimate does not include surge arrestors.
- 16 The estimate does not include optical fiber cable inside the power cable for temperature monitoring.

Communications

- 17 The estimate includes two fiber optic cable systems.
- 18 Fiber-optic cables are estimated as 48 fiber, single mode, loose tube outdoor cable.
- 19 Fiber-optic cables are installed into 1 1/4" HDPE innerducts installed in 4" PVC conduit.
- 20 Separate pull/splicing boxes are included for the fiber-optics.

Temperature Monitoring

- 21 The estimate does not include cable temperature monitoring equipment.

Overhead to Underground Transition

- 22 Includes terminations stands, surge arrestor stands and dead-ends for the overhead lines
- 23 The estimate includes site work and foundations for two 135' square termination station
- 24 The estimate includes ground grid and fencing for two 135' square terminations station.

Splice Housings

- 25 The estimate includes (3) jointing locations with (3) 12'x4'x3' precast concrete splice housings at each location.
- 26 Each splice housing is assumed to hold (1) splice.

Duct Bank Installation

- 27 The estimate includes 300 feet of duct bank.
- 28 The estimate includes (6) 8" SCH 40 PVC Conduits for high voltage cable include one spare conduits.
- 29 The estimate includes (2) 4" SCH 40 PVC Conduits for communications.
- 30 The conduits are installed in a common duct bank, 3' wide and 2' high
- 31 The estimate assumes ductbank installation will be under pavement.
- 32 The estimate includes traffic control at 200ft/day.
- 33 The estimate includes soil erosion and sediment control measures for rural streets.
- 34 The estimate assumes a 3' wide trench, averaging 6' deep.
- 35 The estimate assumes the ductbank will be backfilled with FTB to 2' below grade.
- 36 The estimate includes pavement removal and restoration for the entire route length.
- 37 The estimate includes allowance for dewatering for 50% of the trench.
- 38 The estimate includes sheeting and shoring of the trench for 25% of the route length.

HDD Installation

- 39 The estimate includes (2) sets of HDD installations in soil, with a combined length of 5,800 feet.
- 40 Each HDD installation consists of the bundled FPVC or HDPE conduits pulled directly into the boreholes.
- 41 The HDD installations do not include a casing.
- 42 The HDD installations do not include grouting of the bore hole.

Engineering & Construction Management

- 43 The estimate includes surveying, and soil exploration.
- 44 The estimate includes approximate engineering costs.
- 45 The estimate includes approximate construction management costs.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
#L-27625-26-A-N/#L-27625-TG-B-N/)
#L-27625-2C-C-N/#L-27625-VP-D-N/)
#L-27625-IW-E-N)

CENTRAL MAINE POWER COMPANY)
NEW ENGLAND CLEAN ENERGY CONNECT)
SITE LAW CERTIFICATION SLC-9)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,)
Hobbs town Twp, Bradstreet Twp,)
Parlin Pond Twp, Johnson Mountain Twp,)
West Forks Plt, Moxie Gore,)
The Forks Plt, Bald Mountain Twp, Concord Twp)

PRE-FILED REBUTTAL TESTIMONY OF
GARY EMOND

March 25, 2019

Regarding

- Issue 2: Wildlife Habitat and Fisheries, Habitat Fragmentation
 - Responsive to Intervenor Group 4 witness Aram Calhoun

WITNESS QUALIFICATIONS (Relevant to DEP Review)

I have 25 years of experience as a project manager and environmental scientist with extensive knowledge of large energy infrastructure routing and siting, natural resource impact assessment, field studies and surveys, and environmental permitting. I am experienced in managing multidisciplinary projects, designing, coordinating, conducting, and managing field studies, writing reports, and preparing permit applications at the federal, state, and local levels. My scientific expertise encompasses vernal pools, wetlands, stream habitat, special status species, wildlife and fisheries, and vegetation. I have been professionally assessing and mapping vernal pools since 2002 in Massachusetts, and have done so in Maine since 2007.

My CV is attached as Exhibit CMP-12-A.

I. Discussion (Relevant to DEP Review)

Dr. Calhoun makes statements in her testimony regarding emigration routes and staging areas, and allegedly unreasonable adverse effects of the proposed Project on vernal pools.

Examples include:

- Page 11: “In the only peer-reviewed study addressing power line behavior of wood frog juveniles in a controlled experiment, deMaynadier and Hunter (1999) showed that juvenile wood frogs showed an emigration preference for closed-canopy habitat immediately upon metamorphosis, with the highest sampling rates occurring in microhabitats characterized by dense foliage in both the understory and canopy layers. Their results suggest populations of pool-breeding amphibians in vernal pools will likely decline due to fragmentation from power lines.”
- Page 12: “Shrubby habitat that has an understory of thick graminoids may be difficult

for dispersing amphibians to pass through on their way to forested habitat.”

- Page 13: “will result in impacts ranging from devastation for some individual vernal pools to greatly compromised habitat for others”; “There are many factors affecting the resiliency of pool-breeding amphibians in the face of land conversion and many are undocumented or only explained by complex interactions of other environmental factors”.
- Page 14: “What we do know is that populations along the corridor will be compromised, some lost, and some severely degraded. We know that significant numbers of animals will be directly impacted through operations”; “The proposed ROW will be a significant further stressor”.

Dr. Calhoun’s assertions are inconsistent with the results of extensive vernal pool assessment and mapping field surveys and data collection conducted during the springs of 2007 and 2008, associated with the Maine Power Reliability Program (MPRP) project permit applications. Those surveys were conducted in accordance with agency-approved protocol and were consistent with the requirements and recommended optimal indicator species survey times contained in the Natural Resources Protection Act (NRPA) rules chapter 335, Significant Wildlife Habitat. The vernal pool survey protocol followed for the MPRP remain best practices today and are in accordance with the 2014 Maine Association of Wetland Scientists Vernal Pool Survey Protocol used for the NECEC Project.

In those surveys, approximately 620 miles of right of way (ROW), the majority of which had been cleared of trees for 40 or more years, were observed and field-surveyed by biologists. The surveys were performed in eight biophysical regions (McMahon, 1990), including the Central Mountains, Western Foothills, Western Mountains, Central Interior, Penobscot Bay

Region, Southern Interior, Midcoast Region, and the South Coastal Region. Transmission corridors surveyed for the MPRP were typically a few hundred feet wide or less, and many were adjacent to forested habitat. The following summary of these studies was presented in a white paper prepared by TRC Engineers, LLC for Central Maine Power Company (CMP) in March 2009, attached hereto as Exhibit CMP-12-B:

- 200 natural vernal pools were documented within or adjacent to the proposed MPRP transmission corridors.
- Of the 200 natural vernal pools, 88 (44 percent) qualified as significant vernal pools under Chapter 335. This fell in the middle of the Maine Department of Inland Fisheries and Wildlife's (DIFW's) anticipated range of 40 to 50 percent of all vernal pools assessed that would be expected to meet the regulatory definition of "significant."
- All 88 significant vernal pools were located either within or immediately adjacent to transmission corridors that had been maintained in an early-successional shrub-scrub habitat for 40 years or longer.
- 48 (55 percent) of these significant vernal pools' 250-foot critical terrestrial habitats were 51 to 75 percent non-forested, and 87.5 percent of the significant vernal pools' 250-foot critical terrestrial habitats were more than 25 percent non-forested (i.e., had less than 75 percent forested habitat).
- The majority of non-forested land uses within the significant vernal pools' 250-foot critical terrestrial habitats were transmission corridor.
- Habitat conditions permeable to amphibian migration, including the presence of leaf litter, coarse woody debris, mammal burrows, and herbaceous and shrub vegetation cover, were all documented in transmission corridors.

- Significant vernal pools were documented in transmission line corridors within the expected frequency range, and at a greater rate than shown in the DIFW database. Specifically, 44 percent of the natural vernal pools documented within or immediately adjacent to CMP transmission corridors met the regulatory definition of “significant.”
- The average percentage of non-forested land within the 250 critical terrestrial habitat of these significant vernal pools was 44 percent.
- Only 12.5 percent of these significant vernal pools had greater than 75 percent forest habitat cover with their 250-foot critical terrestrial habitat.
- Constructing and maintaining transmission line corridors does not negatively affect vernal pool hydro-period. (Vernal pool hydro-period refers to the duration and frequency of water being present in pools. Hydro-period, an essential element of amphibian breeding success, requires that suitable breeding habitat containing vernal pools must hold water long enough for amphibian larvae to complete their aquatic life phase (Skidds and Golet, 2005).)
- The early-successional (shrub and herbaceous vegetation) habitat associated with transmission line corridors is permeable to amphibian migration.
- The life span of the spotted salamander averages 15 to 20 years. The majority of these corridors have been in existence for 40 or more years, a period which therefore spans multiple generations of spotted salamander (*Ambystoma maculatum*). Literature indicates that mole salamanders (genus *Ambystoma*) have high pool spawning fidelity (i.e., over 90 percent of the time they return to spawn in the pools from which they hatched and emerged). The MPRP data strongly indicate that several generations of spotted

salamanders have successfully reproduced in these vernal pools. It is therefore logical to conclude that their offspring continue to breed in these pools.

- CMP’s management of vernal pools in transmission line corridors complies and is consistent with the significant vernal pool habitat management guidelines and goals contained in Chapter 335. Furthermore, CMP’s management of vernal pools as proposed in applications for the Project incorporates many of the management recommendations contained in Dr. Calhoun’s publication, “Best Development Practices: Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States”. (Calhoun and Klemens.2002), including:
 - Minimize disturbed areas and protect down-gradient buffer areas to the extent practicable;
 - Minimize erosion by maintaining vegetation on steep slopes;
 - Avoid creating ruts and other artificial depressions that hold water. If ruts are created, refill to grade before leaving the site; and
 - Refill perc test holes to grade.

The above findings and proposals demonstrate that maintained transmission line ROWs are compatible with, coexist with, and support healthy and productive significant vernal pools, and do not result in fragmentation. The NECEC will be constructed and the ROW maintained in accordance with NECEC-specific protective measures, restrictions, and guidelines and will support significant vernal pools similar to other transmission line ROWs in Maine, many of which have existed for multiple decades.

On page 14 of her direct testimony, in response to a request for her opinion of CMP’s proposed compensation for vernal pool impacts, Dr. Calhoun states, “In reviewing the data sheet

for state pool designation, I have concerns about 23 of the pools which are stated to be non-significant or only potentially significant.” First, the vernal pool determinations were peer-reviewed under the direction of MDEP, and the information submitted in support of the compensation plan was based on the peer-reviewed data. Second, in accordance with standard protocol, CMP submitted NECEC Project vernal pool survey data to DIFW for their review and determination of “significance.” DIFW, not CMP, made the determinations of the pools labeled “non-significant.” Finally, for purposes of the NECEC Project applications, and to be as protective as possible, those vernal pools identified by DIFW as “potentially significant vernal pools” were treated as significant vernal pools and included in impact calculations and in the Project’s compensation plan.

On page 15, Dr. Calhoun states: “Hence it is risky assessing pool quality based on egg mass abundances over short time periods (i.e., less than 5 years),” and “Assessments of vernal pools for state Significance for fairy shrimp and state-listed species are problematic in that survey times for these animals often do not overlap with survey times for amphibians.” However, all vernal pool surveys for the NECEC Project were conducted in accordance with protocols and procedures developed by the Maine Association of Wetland Scientists in coordination with DIFW, and these surveys complied with the requirements and recommended optimal survey times in DEP Chapter 335, Significant Wildlife Habitat rule.

On Page 16, Dr. Calhoun states “From an ecological perspective, the losses should be well-compensated, not undercompensated, given the level of uncertainty in actual pool numbers and given the level of uncalculated impacts to all vernal pools in the study area.” However, actual pool numbers were obtained by detailed and repeated ground surveys within the Project area as noted above. These pool locations and their significance (i.e., collected vernal pool data)

were considered in the NECEC transmission line siting and routing process, which sought to avoid and minimize impacts to all natural resources, including significant vernal pools. Therefore, there is no “uncertainty in actual pool numbers”, and no “uncalculated impacts” to vernal pools in the Project area. Although the survey corridor area for the NECEC was 500 feet wide for the new corridor portion and typically 300 to 500 feet wide for the proposed co-located portion, the actual maintained width of the proposed NECEC transmission line ROW will be 150 feet within the surveyed area. Furthermore, one reason for surveying a wide corridor rather than just the 150 feet of the final converted right of way is to allow for siting of the ROW, structure locations, and construction access around significant vernal pools as part of impact avoidance. This rerouting was done in multiple locations.

With regard to Dr. Calhoun’s statement about impacts being “undercompensated,” the Project ROW will be a “soft” land use that will be fully vegetated with shrubs, herbaceous plants, and small trees; this is distinct from, for example, an unvegetated road that promotes vehicular access and has little to no habitat value. In fact, the Project ROW will provide valuable vernal pool habitat, as evidenced by the MPRP vernal pool study results, and will not have an unreasonable impact on significant vernal pools or adverse effects to vernal pool species. This has been recognized by DIFW, which has agreed to the adequacy of CMP’s proposed in-lieu fee and proposal for conversion of vernal pool critical wetland and upland habitat from forested to early successional cover type. Thus, the proposed significant mitigation is appropriate and adequate.

II. Conclusion (Relevant to DEP Review)

Based on the foregoing, including vernal pool survey data results associated with the MPRP, the NECEC will not result in fragmentation or adverse impacts to jurisdictional vernal

pools and vernal pool species within or adjacent to the proposed ROW. The NECEC ROW will be a “soft” land use that will remain vegetated with herbaceous plants, shrubs, and woody vegetation, including mature shrubs and small trees. Similar to other transmission line ROWs in Maine, the NECEC ROW will be surrounded by primarily working forested habitat. Thus, to the extent that vernal pool species benefit from forested habitat within a portion of their critical terrestrial habitat, this cover type will continue to be present and available.

Also similar to other transmission line ROWs in Maine, NECEC ROW maintenance activities will create and maintain habitat conditions permeable to amphibian migration, including the presence of leaf litter, coarse woody debris, mammal burrows, and herbaceous and shrub vegetation. CMP is proposing to implement protective measures and restrictions specific to vernal pools in its NECEC-specific Vegetation Clearing Plan (VCP) and post-construction Vegetation Maintenance Plan (VMP). Implementation of these plans will maintain healthy and productive significant vernal pools in and adjacent to the NECEC ROW.

As the MPRP Project vernal pool data demonstrate, maintained transmission line ROWs are compatible with and, in fact, coexist with and support healthy and productive significant vernal pools. Dr. Calhoun’s assertions on potential adverse effects of the NECEC Project on vernal pools are not supported by Maine-specific data or experience, as discussed above.

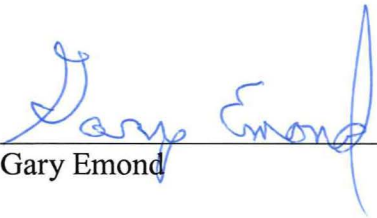
Exhibits:

CMP-12-A: Gary Emond CV

CMP-12-B: Position Paper on the Presence of Significant Vernal Pools in or Adjacent to Transmission Line Corridors

Dated: March 19, 2019

Respectfully submitted,



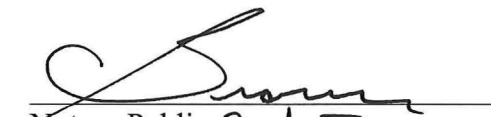
Gary Emond

STATE OF MAINE
Cumberland, ss.

The above-named Gary Emond did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 3/19/19



Notary Public Cindy Brouwer
Name:
My Commission Expires: 12/12/23

CINDY BROUWER
Notary Public, Maine
My Commission Expires December 12, 2023



GARY EMOND

ENVIRONMENTAL PROJECT MANAGER

YEARS OF EXPERIENCE

25

EDUCATION

- B.S., Environmental Studies (Terrestrial Ecosystems), University of Maine-Machias, 1994
- Graduate Studies, Soil Science, University of New Hampshire
- Graduate Studies, Environmental Engineering, University of Alaska

AREAS OF EXPERTISE

- Written and oral expert testimony
- Project management
- Transmission line routing and substation siting, associated permitting and licensing
- NEPA EIS and EA documents
- FERC hydro relicensing
- Wetland delineation and functional assessment
- Wildlife and fisheries assessment and management
- Vegetation sampling and habitat analysis
- Impact mitigation
- Federal, state and local environmental and land use permitting
- Public outreach relations

SPECIAL TRAINING

- OSHA 8-Hour Training
- Stream Restoration Natural Design
- FERC Environmental Training Seminar—Environmental Review & Compliance for Natural Gas Facilities

CERTIFICATION

- Certified Professional in Erosion and Sedimentation Control (CPESC)
- Professional Wetland Scientist #1305

AFFILIATIONS

- Maine Association of Wetland Scientists
- Society of Wetland Scientists
- The Wildlife Society

EXPERIENCE SUMMARY

Mr. Emond is a project manager and environmental scientist with extensive knowledge of routing and siting, resource impact assessment, field studies and surveys, and environmental permitting. He is experienced in managing multidisciplinary projects, designing, coordinating, conducting, and managing field studies, writing reports, and preparing permit applications at the federal, state, and local levels. Mr. Emond is experienced in the NEPA process, including the development of EISs and EAs, and FERC relicensing procedures applied to electrical transmission lines, natural gas pipelines, and hydroelectric facilities. His scientific expertise encompasses wetlands, stream habitat, special status species, wildlife and fisheries, and vegetation. Mr. Emond is also experienced in contract administration and budget development and management. He has extensive experience with projects in the northeast United States.

Sample Project Experience

AVANGRID, BES Program, Maine

Planned, performed, and managed vernal pools assessments and wetlands delineation and mapping for AVANGRID's BES Program in southern Maine. Surveys, assessments, and mapping were performed in approximately 100 miles of existing AVANGRID rights-of-way, and at multiple associated substation sites.

AVANGRID, NECEC, Maine

Planned and managed wetlands delineation and mapping for AVANGRID's proposed NECEC project. Surveys were performed in an approximately 50-mile, 500-foot-wide corridor extending to the Canadian border in western Maine.

Central Maine Power Company, Maine Power Reliability Program, Maine

Co-Environmental Project Manager for the Maine Power Reliability Program, an initiative to hundreds of miles of Central Maine Power's 345 kV, 115 kV, and 34.5 kV transmission lines. Designed, implemented, and managed all environmental routing, siting, and permitting studies (including vernal pools and wetlands) for the 345 and 115 kV transmission line corridor and 17 proposed substations. Managed the permitting effort for obtaining state and federal environmental permits, and worked closely with state and federal regulatory personnel to ensure the development of a thorough, robust, and complete application which would help reduce regulatory review time. Participated in the successful preparation and delivery of environmental permit applications to the Maine Department of Environmental Protection and the U.S. Army Corps of Engineers. Also provided expert written

testimony as part of the Maine Public Utilities review and approval process for the project.

Central Maine Power Company, Maguire Road Transmission Project, Southern Maine

Environmental Project Manager for a routing, siting, and permitting of a 30-mile 115 kV transmission line and an associated 115 and 345 kV switching station. This was a transmission reliability project which involved siting and constructing T&D facilities in a portion of Maine that is known to be rich in rare and uncommon wildlife and habitat resources. A GIS was used to evaluate eight different potential route options. Mr. Emond designed, implemented, participated in, and managed all environmental studies including vernal pool assessments and wetland delineation and mapping. , worked closely with local residents, NGOs, and state and federal regulatory and resource scientists, prepared all local, state, and federal applications, and successfully obtained environmental permits. In addition, Mr. Emond managed all construction compliance efforts.

Central Maine Power Company, Rumford IP 115 kV Substation Capacitor Bank and Line Position Addition, Maine

Permitting Specialist responsible for local permitting on this substation expansion project. Worked closely with the local codes enforcement officer and the Town of Rumford planning board to facilitate the application review process and public involvement, and to ensure the expedited procurement of the permit in order to keep the project construction schedule on track.

Central Maine Power Company, Section 174 69 kV Rebuild and Sections 55 & 58 69 kV Rebuild, Maine

Supervisory Environmental Specialist responsible for compliance of all federal, state, and local permit conditions for a four-mile transmission line project in a highly urban area. Tasks included developing and implementing an environmental permit and compliance awareness training program, providing training to all project construction personnel, reporting to federal and state agencies, providing advice on compliance issues and implementation of erosion control and mitigation measures, providing guidance and oversight of construction activities, and performing public outreach and community relations as needed. For the Sections 55 & 58 Rebuild Project, POWER is a subcontractor to Coutts Brothers, who is the prime contractor (construction) for this work.

Eversource Energy, Seacoast Reliability Project, New Hampshire

Siting Coordinator/Routing Analyst for a 13-mile 115 kV line rebuild which aims to provide additional transmission capacity to the New Hampshire Seacoast area. Portions of this challenging project follow an active rail system, cross under both a state university and a large tidal bay, and run adjacent to an Air Force Base. advised the client on siting considerations, managed and supervised GIS data acquisition and database development, worked with transmission line engineers to identify line design and ROW requirements, performed opportunities and constraints analysis on a number of potential transmission line route options, identified preferred and alternative route options, prepared written pre-filed testimony, and prepared sections of the project certification application to the New Hampshire Site

Evaluation Committee. POWER is providing project siting efforts along with all detailed engineering for overhead, underground, and submarine transmission.

National Grid, Section 125 115 kV Transmission Line Project, Massachusetts

Environmental Project Manager/Lead Scientist responsible for designing, coordinating, and managing a routing alternatives study and environmental surveys, and coordinating and managing the permitting of a 25-mile project in Massachusetts. Performed and managed vernal pool assessments and wetland delineation and mapping. Prepared federal, state, and local permit applications, performed agency consultation, worked with the internal public outreach and communications team, helped prepare for and attend public information meetings, prepared pre-filed testimony for DPU/Energy Facility Siting Board hearings, worked closely with local Conservation Commissions, provided training and environmental permit compliance oversight during construction.

TransCanada, Kibby Wind Power Project, Maine

Lead Scientist and Project Manager responsible for assisting with the environmental siting and permitting of a 132 MW wind farm, and the associated substation and 27-mile 115 kV transmission line. Specific tasks included agency consultation and environmental study design, public outreach support and community relations, siting and routing assessment, coordinating, performing, and managing environmental surveys including wetland and stream delineations, avian migration and tower collision assessments, large mammal movement assessments, and state- and federally-listed rare, threatened, and endangered species surveys. Also prepared sections of the state and federal permit applications and environmental survey results reports. All permits were successfully obtained, and the project was constructed and became fully operational in 2010.

Bangor Hydro Electric Company, Northeast Reliability Interconnect, Maine and Canada

Senior Scientist who performed field studies and assisted in the preparation of state and federal permit applications for a new approximately 80-mile 345 kV transmission line corridor. This line extended into Canada and therefore automatically triggered the need for an EIS and Presidential Permit. All permits were successfully obtained and the project was constructed.

Portland Natural Gas Transmission System, New England & Canada

Environmental Project Manager responsible for designing, coordinating, and managing extensive environmental studies for a 200-mile natural gas transmission pipeline extending through four New England states and into Canada. Participated and helped manage a rigorous routing analysis which involved extensive consultation with state and federal agencies and local governments and citizens. Also conducted FERC and Clean Water Act permitting and prepared environmental reports (ERs). Participated in all facets of obtaining state and federal permits, including the successful acquisition of a Presidential Permit. Performed extensive natural resource mapping and assessment and permitting work in Massachusetts to obtain

federal (Section 404) and wetland impact permits under the Massachusetts Wetlands Protection Act. Attended numerous municipal meetings and worked closely with local Conservation Commissions in communities affected by the project.

Stonyfield Farm, Transmission Line Routing, Londonderry, New Hampshire

Lead Environmental Planner and Wetland Scientist responsible for managing a transmission line routing study for connecting a natural gas-powered electric generation plant to the Public Service of New Hampshire transmission grid. The routing study involved assessing a number of potential route options in a relatively densely populated area. Once a preferred route was identified and approved, Mr. Emond successfully oversaw the wetland mapping and permitting efforts. In addition, Mr. Emond managed the environmental construction compliance effort.

Central Maine Power Company, Various Projects, Maine

Project Manager and Routing Option Specialist for a number of transmission line projects involving over 300 miles of electric transmission corridor and numerous substations. Built experienced project teams, performed thorough routing analyses to identify routing and siting constraints and opportunities, designed and managed environmental studies including visual impact assessments and mitigation, consulted with state and federal agencies, performed community outreach, prepared permit applications and supporting documents and managed permitting efforts, and manage scopes, scope changes and budgets, and provided expert testimony.

New York Power Authority, Niagara Power Project, New York

Senior Scientist and Project Manager who participated in the successful relicensing of the Niagara Power Project (NPP), the largest publicly-owned hydroelectric project in the eastern U.S. A major component of the NPP relicensing involved ecological assessments, fisheries entrainment research and analysis, water fluctuation analysis, and sediment sampling within the Lewiston Reservoir, the 1,500-acre pumped-storage reservoir associated with the NPP.

Overall, Mr. Emond's responsibilities included scoping and performing environmental field studies; reviewing and assessing the project's effects on aquatic and terrestrial habitat and species; working collaboratively with state and federal agencies, non-governmental organizations, and other stakeholders; preparing environmental reports; participating in the negotiation process; and preparing and reviewing major sections of the federal applicant-prepared environmental assessment (EA) document.

Central Maine Power Company, Harris Station Relicensing, Maine

Project Manager who participated in the successful relicensing of Harris Station, a peaking hydroelectric project. Mr. Emond's responsibilities included assessing the project's effects on aquatic and terrestrial habitat and species; working collaboratively with state and federal agencies, non-governmental organizations, and other stakeholders; preparing environmental

reports; participating in the negotiation process; and preparing and reviewing major sections of the FERC relicensing application.

Maine Natural Gas, BNAS Transmission Lateral, Maine

Environmental Project Manager responsible for designing, coordinating, and managing environmental studies for a 12- inch, 25-mile natural gas transmission pipeline being proposed in order to provide natural gas to the former Brunswick Naval Air Station in Brunswick, Maine. Managed a rigorous routing analysis which involved extensive consultation with state and federal agencies and local governments and citizens. Performed extensive natural resource mapping and assessment and permitting work to obtain federal (Section 404) and wetland impact permits under the Maine Natural Resources Protection Act. Attended numerous meetings and worked closely with local officials in communities affected by the project. All permits were successfully obtained, and the project was construction with no environmental violations.

1-7: Position Paper on the Presence of Significant Vernal Pools in or Adjacent to Transmission Line Corridors, TRC Engineers, LLC, March 2009.

**Position Paper on the Presence of Significant Vernal Pools in
or Adjacent to Transmission Line Corridors in Maine**

Prepared by:

TRC Engineers, LLC

Prepared for:

Central Maine Power Company

March 2009

Executive Summary

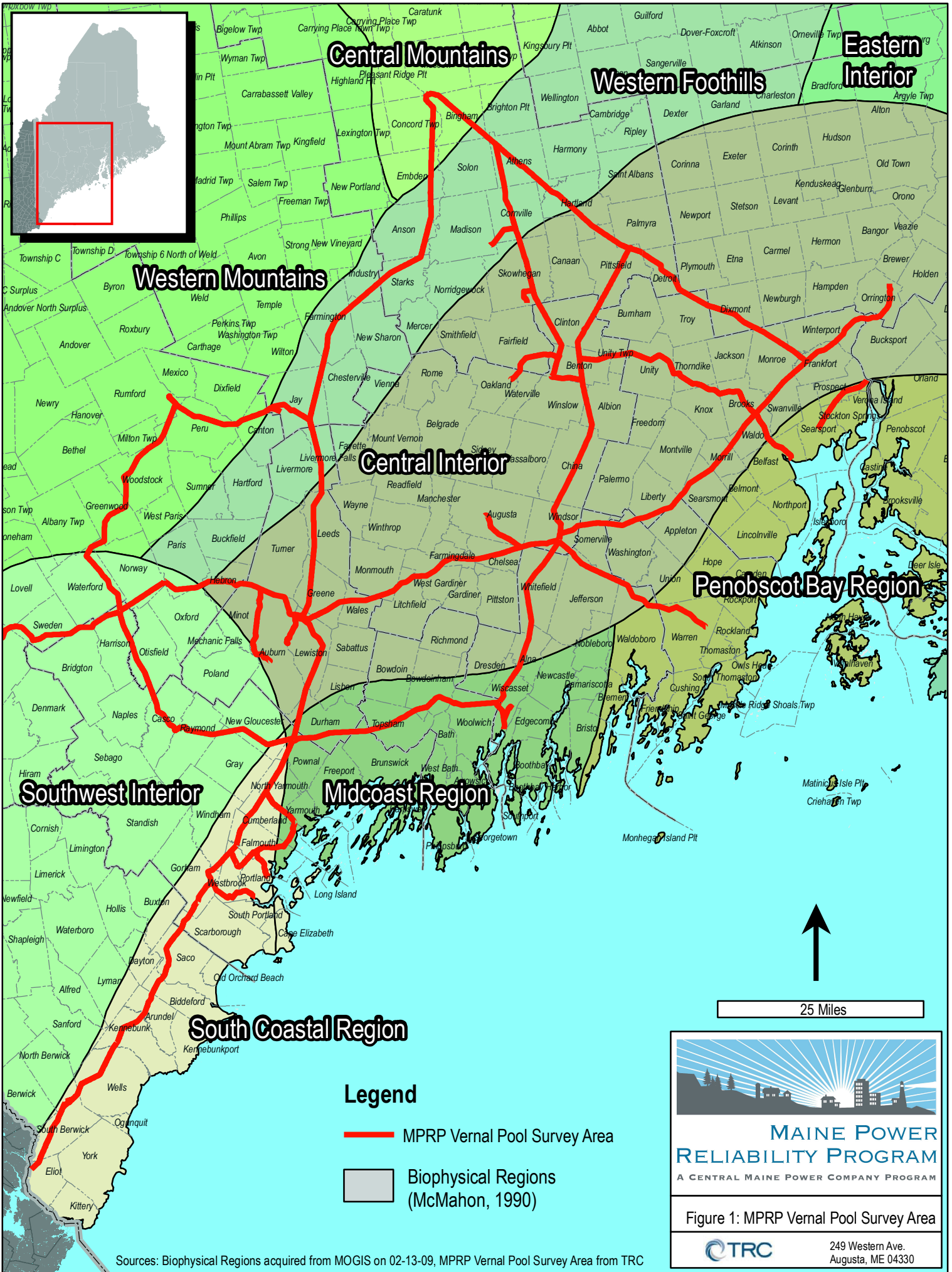
Central Maine Power Company (CMP), in support of its proposed Maine Power Reliability Program (MPRP), conducted extensive vernal pool mapping and assessment surveys along approximately 620 miles of CMP transmission corridor during the springs of 2007 and 2008. These surveys were performed in accordance with an agency-approved protocol and were consistent with the requirements and timeframes presented in the State of Maine Natural Resources Protection Act (NRPA) Chapter 335 – Significant Wildlife Habitat Rules. Central Maine Power documented 200 natural vernal pools and 689 anthropogenic pools within or adjacent to proposed MPRP transmission corridors. *Rana sylvatica*, *Ambystoma maculatum*, *Ambystoma laterale*, and *Eubranchipus sp.* or egg masses of these species were observed in these pools. Of the natural vernal pools, 88 (45 percent) qualified as significant vernal pools under Chapter 335. All of these significant vernal pools were located within, or adjacent to, transmission corridors that have been maintained in an early-successional shrub habitat for 40 years or more. In addition, 48 (56 percent) of these significant vernal pools' critical terrestrial habitat was 51 to 75 percent non-forested. In sum, fully 87.5 percent of the identified significant vernal pools had less than 75 percent forested habitat within their critical terrestrial habitat. Most of the non-forested land use within 250 feet of significant vernal pools was transmission corridor. Habitat conditions permeable to amphibian migration, including the presence of leaf litter, coarse woody debris, mammal burrows, dense herbaceous and shrub vegetation cover, were all observed in transmission corridors.

Based on the results of CMP's investigation, no measurable loss of vernal pool functions is apparent in and along electric utility transmission corridors; in fact, significant vernal pools remain abundant and highly productive in the typical scrub/shrub habitat found in most transmission line corridors, even after multiple decades. Data suggest the very different impacts from "hard" land uses (e.g., paved/commercial development) and "soft" land uses (e.g., transmission line maintenance). Given these results, design, location, and construction strategies should focus on maintaining existing vernal pool functions within transmission line corridors. In-lieu fee or preservation type compensatory mitigation strategies are more appropriate where significant natural resource impacts (i.e., functional loss) occurs, and are thus not appropriate in these situations. As an alternative to compensatory mitigation, research to further evaluate best management practices for vernal pool conservation along transmission corridors, may be appropriate.

1.0 INTRODUCTION

Central Maine Power Company (CMP) is currently proposing to bolster the long-term reliability of its bulk power electrical transmission system through a project known as the Maine Power Reliability Program (MPRP). As part of this process, CMP is proposing a number of transmission line and substation improvements to add reliability and redundancy to its aging 345 kilovolt (kV) and 115 kV transmission system. A component of this overall proposal is the consideration of potential impacts to various natural resources, including significant vernal pools. In order to document and evaluate the potential effects of the MPRP on significant vernal pools, CMP initiated an unprecedented effort in Maine during the springs of 2007 and 2008 to assess and map vernal pool resources within, and in the vicinity of, a number of existing transmission line corridors and substation sites. TRC Engineering (TRC) was hired to manage and perform this vernal pool resource assessment and mapping effort. In total, TRC surveyed over 620 miles of existing CMP transmission corridor and associated substation sites (both newly proposed substations and substation expansions) for the presence of vernal pool resources. CMP's vernal pool investigation resulted in one of the largest vernal pool datasets in the State of Maine. Figure 1 depicts the vernal pool survey area contrasted with the biophysical regions of Maine.

This position paper first identifies issues relevant to vernal pool conservation, regulation, and management along transmission corridors in Maine based on existing regulations and published best management practices. This is followed by a description of CMP's methods of vernal pool investigation, and a discussion of the results of CMP's investigation relative to existing knowledge of vernal pool ecology. In the final section of this paper, the findings of this vernal pool investigation are summarized, and recommendations are made regarding significant vernal pool management and regulation in transmission corridors.



Central Mountains

Western Foothills

Eastern Interior

Western Mountains

Central Interior

Penobscot Bay Region

Southwest Interior

Midcoast Region


South Coastal Region

Legend

- MPRP Vernal Pool Survey Area
- Biophysical Regions (McMahon, 1990)


25 Miles





MAINE POWER
RELIABILITY PROGRAM
A CENTRAL MAINE POWER COMPANY PROGRAM

Figure 1: MPRP Vernal Pool Survey Area



249 Western Ave.
Augusta, ME 04330

Sources: Biophysical Regions acquired from MOGIS on 02-13-09, MPRP Vernal Pool Survey Area from TRC

2.0 ISSUE IDENTIFICATION

In the glaciated northeast, vernal pools are temporary to semi-permanent pools that are located in shallow depressions on the landscape, and that lack permanent hydrologic inlets or outlets and populations of predatory fish (Calhoun and deMaynadier, 2008). Vernal pools provide the primary breeding habitat for several amphibian species (DeGraff and Yamasaki, 2001), as well as other obligate vernal pool species. *Rana sylvatica* (wood frogs), *Ambystoma maculatum* (spotted salamanders), and *Ambystoma laterale* (blue spotted salamanders) spend most of their life cycles in upland or wetland habitats surrounding vernal pools, and migrate to vernal pools for a short part of the year during the spring breeding season (Semlitsch, 2000). Thus, although vernal pools are often small hydrologically isolated wetlands, they share a significant ecological connection to the surrounding landscape.

Regulatory protection is provided to certain vernal pools in Maine by the U.S. Army Corps of Engineers (USACE) under § 404 of the Clean Water Act (33 U.S.C. § 1344) and by the Maine Department of Environmental Protection (MDEP) under the Natural Resources Protection Act. Some municipalities in Maine also regulate impacts to vernal pools in their evaluation of proposed developments (e.g., Town of Falmouth, 2009). In recognition of the ecological connection between vernal pools and the adjacent landscape, federal and state regulations also exert jurisdiction over uplands and wetlands adjacent to vernal pools. Given that vernal pools occur broadly across the landscape in the glaciated northeast (Rheindhardt and Hollands, 2008), vernal pool regulations have significant implications for linear transmission corridor construction, because vernal pools are almost certain to be crossed by transmission corridors which span long distances across the landscape.

Projects reviewed by the USACE, pursuant to the Department of the Army Programmatic General Permit - State of Maine (MEPGP) are evaluated for project impacts within 500 feet of jurisdictional vernal pools. Larger projects being permitted by the USACE may also require review by the U.S. Fish and Wildlife Service (USFWS), which evaluates project impacts within 750 feet of vernal pools. Under NRPA, the MDEP exerts jurisdiction over “significant vernal pool habitat” as one type of regulated “significant wildlife habitat,” which includes significant vernal pools and land within 250 feet of significant vernal pool depressions. Vernal pools qualify as “significant” based on the presence of certain species known to utilize vernal pools for a critical part of their life phase, or by the abundance of egg masses deposited by certain amphibian species (06 096 C.M.R. Ch. 335 § 9(B)). The MDEP does not have jurisdiction over “non-significant” vernal pools. Both federal and state regulations require that applicants attempt to avoid and minimize impacts to these habitats to the greatest extent practicable, and, in some cases, to provide compensation.

Although not a regulatory requirement, some researchers/authors of current best development practices (guidance for avoiding and minimizing effects) for vernal pool

management recommend no impact to the vernal pool depression and minimal disturbance to the habitat within 100 feet of the pool, and maintenance of 75% of the habitat from 100 to 750 feet of the pool as contiguous forest with undisturbed ground cover (Calhoun and Klemens, 2002). These guidelines identify the habitat from 100 to 750 feet of the pool as the “critical terrestrial habitat” for pool breeding amphibians. Chapter 335 of MDEP’s rules defines significant vernal pool habitat as a significant vernal pool depression and that portion of the critical terrestrial habitat within 250 feet of the high water mark of the pool depression.

Due to a lack of published research evaluating vernal pool conservation strategies, the vernal pool best development practices were developed based primarily on years of field observations regarding the effect of land development on pool breeding wildlife populations, (Calhoun and Klemens, 2002). Two recent case studies have demonstrated that residential and commercial development around vernal pools can cause precipitous declines or collapse of vernal pool breeding amphibians (Windmiller et al., 2008). The existing best development practices were based on the limited research regarding vernal pool conservation strategies that was available at the time of their publication, and they should be considered as provisional best-attempts that may need to be modified to meet local or site specific conservation needs (Windmiller and Calhoun, 2008). Despite the provisional nature of these guidelines, the current regulatory standards in the NRPA are predicated on the Calhoun and Klemens (2002) best development practices, and utilize a universal (i.e., “one size fits all”) approach to vernal pool conservation, which may not be appropriate to all classes of land use, or optimal for vernal pool conservation and management.

It is also essential to recognize that the existing best development guidelines regarding conservation strategies for vernal pools are specific to three principal land use classes: residential, commercial, and forest management. The Calhoun and Klemens (2002) best development practice recommendations were designed specifically with respect to “hard” land uses (i.e., clearing, grubbing, grading and paving), including commercial and residential development that result in effectively irreversible and permanent habitat loss. More recent case studies evaluating the effect of land use on vernal pool populations also focus on residential and commercial development (Windmiller et al., 2008). However, “soft” land uses, such as forestry operations or transmission corridor construction, where alteration of habitat via removal of large trees (but not necessarily loss of all vegetation or habitat) occurs, warrants a different set of management guidelines. For example, habitat management guidelines for forestry operations have already been developed, and recommend leaving an undisturbed protection zone immediately adjacent to vernal pools, selected harvesting in a larger radius around vernal pools to maintain some shade and canopy cover, and maintaining uncompacted leaf litter and coarse woody debris on the forest floor (Calhoun and deMaynadier, 2004; deMaynadier and Houlahan, 2008). As with the best development guidelines for residential and commercial development, these habitat management guidelines for forestry operations are preliminary and further research is needed to confirm their effectiveness (deMaynadier and Houlahan, 2008). Very little research or published information exists on the effect of transmission corridor construction and maintenance on vernal pools in the glaciated northeast, and no best

development guidelines for transmission corridors relative to vernal pools have been published.

The lack of data regarding whether transmission corridor construction and maintenance adversely affects vernal pool populations is important to recognize, because the effect of transmission corridors on significant vernal pool habitats is markedly different than that of residential and commercial development, or even forestry operations. Transmission corridor construction through forested areas affects habitat principally via the conversion of forest to shrub and herbaceous cover types, and the presence of utility structures that have a minimal footprint. Paved surfaces, permanent roads, lawns, and buildings characteristic of hard forms of development are not necessary for transmission corridor construction and maintenance. Thus, the habitat and landscape conditions that are required to support significant vernal pools (such as shade, woody debris/organic litter, moisture, suitable non-breeding season habitat, and amphibian migration routes) are all maintained along transmission corridors.

Applying Maine's existing NRPA significant vernal pool regulatory and compensatory mitigation framework to transmission corridor construction does not appear to be justified based on the current and evolving knowledge of the effects of transmission line corridors on vernal pools and vernal pool conservation strategies. There is currently no published data documenting that transmission corridors cause a loss or degradation of vernal pool ecological functions.

As will be discussed below, recent scientific observations during CMP's 2007-08 vernal pool investigations indicate that many of the vernal pools occurring in or adjacent to transmission corridors were documented as significant vernal pools as described in Chapter 335. In the absence of previously published data on the occurrence of vernal pools in managed electric transmission corridors, these recent CMP data are particularly useful in evaluating the impact of long-established transmission line corridors on vernal pools.

3.0 METHOD OF INVESTIGATION

TRC completed vernal pool surveys along existing transmission corridors associated with the MPRP. Many of these corridors have been managed as electric transmission corridors for over 40 years. These surveys were located in the South Coastal, Midcoast, Penobscot Bay, Central Interior, Western Foothill, and Western Mountain biophysical regions of Maine (see Figure 1). The objectives of the vernal pool surveys were to identify potential vernal pools within the program area; to determine if the identified pools were being used by obligate pool species; to determine if any of the pools met the criteria for designation as significant vernal pool habitat in accordance with NRPA standards; and to determine U.S. Army Corps jurisdiction under Section 404 of the Clean Water Act.

Under NRPA regulatory standards (06 096 C.M.R. Ch. 335 § 9(B)) significant vernal pools are defined by either: (1) the abundance criteria, which requires surveying the number of amphibian egg masses belonging to certain species and the presence of fairy shrimp in any life stage; or (2) the rarity criteria, which looks to the documented use of a vernal pool by one or more state-listed threatened (T) or endangered (E) species that commonly require a vernal pool to complete a critical life stage. The specific egg mass abundance criteria that are necessary for a vernal pool to be considered significant include:

<u>Species</u>	<u>Abundance Criteria</u>
Blue spotted salamanders	Presence of 10 or more egg masses ¹
Spotted salamanders	Presence of 20 or more egg masses
Wood frogs	Presence of 40 or more egg masses

In Maine, state-listed threatened or endangered species known to use vernal pools for at least one critical life stage include the following:

<u>Species</u>	<u>Listing</u>	<u>Life Stage(s)</u>
Ringed Boghaunter (dragonfly)	Endangered	Egg laying, Larval Development, Larval Emergence
Spotted Turtle	Threatened	Foraging, Courtship, Mating
Blanding's Turtle	Endangered	Foraging, Hibernation
Ribbon Snake	Special Concern	Foraging
Wood Turtle	Special Concern	Foraging

Thus, field investigations focused on identification and tally of amphibian egg masses, identification of fairy shrimp, identification of threatened and endangered species, and wood frog chorusing surveys. Vernal pool and adjacent habitat characteristics were recorded. Evidence of anthropogenic alteration to the identified vernal pools was also

¹ An egg mass is defined as three or more individual eggs clumped in a gelatinous matrix (06 096 C.M.R. Ch. 335 § 9(B)(4).)

documented. Pools that were created by anthropogenic activities, such as flooded ATV ruts surrounded by soils that were not flooded, were noted as “amphibian breeding areas” in order to distinguish them from non-significant natural vernal pools and significant natural vernal pools.

The timing of vernal pool surveys was also an important consideration. Vernal pool surveys were timed to coincide with the portion of the year when they are used by amphibians and invertebrates for breeding or aquatic phases of their lifecycle. Southern and coastal areas were surveyed first, followed by the western and northern portions of the study area. Egg mass surveys were conducted within the following regional timeframes suggested by the MDEP:

<u>Geographic Region</u> ²	<u>Wood Frogs</u>	<u>Spotted and Blue Spotted Salamanders</u>
Northern Maine	May 1 – May 21	May 10 – May 31
Southern Maine	April 7 – April 21	April 20 – May 21

Field surveys were conducted by teams of two biologists experienced with evaluation of vernal pools of New England. Each team was responsible for documenting observations on a vernal pool data form that had previously been approved by Maine regulatory agencies. The field teams walked along study corridors to identify and assess new vernal pools, as well as to evaluate any potential vernal pools that had been previously identified from existing information. In general, each field team “meandered” within the study corridor to thoroughly assess the corridor and minimize the chances of any vernal pools (both in and outside of the study corridor) being missed.

To be consistent with NRPA protocol requirements and recommendations, amphibian egg mass surveys were conducted under appropriate field conditions and within the recommended daily timeframes for such survey efforts. To the extent possible, egg mass surveys were conducted during the day when the sun was out (typically between 9 am - 4 pm). Polarized sunglasses were generally used to minimize sun glare and to aid in the detection of egg masses. Two biologists conducted surveys beginning from separate ends of each pool and thoroughly searched the entire pool together, including the pool center, to ensure that all egg masses were counted. In order to reduce the possibility of errors or omissions in field observations, field biologist teams collaborated to observe, identify, and count egg masses. When agreement was reached regarding the number and types of egg masses that were present within an individual pool, the field team documented findings on the data form and took photographs. In order to prevent disturbance of breeding amphibians and egg masses, biologists entered and stayed within the pools only long enough to collect the necessary data for vernal pool evaluation, and were careful not to dislodge egg masses from attachment sites.

Wood frog chorusing surveys and fairy shrimp surveys were also completed concurrently with amphibian egg mass surveys. Chorusing wood frogs were noted and used to

² The northern Maine region is considered to be that part of the state north of a line extending from Fryeburg to Auburn to Skowhegan to Calais. The southern Maine region is the part of the state south of that same line (06 096 C.M.R. Ch. 335 § 9(B)(4)).

evaluate whether additional breeding activity could be anticipated within nearby pools and, hence, whether the pools should be revisited at a later date when breeding activity was completed for the season. Fairy shrimp were identified using dip nets, and direct visual observation of fairy shrimp within the water column. View tubes were also occasionally used. Biologists carefully searched sunny patches in the pool, as fairy shrimp often congregate in these areas.

A Geographic Information System (GIS) analysis of land use within the 250 foot critical terrestrial habitat of identified significant vernal pools was completed subsequent to field surveys. Based on aerial photo interpretation and the transmission right-of-way (ROW) boundary, land use was classified into forested and non-forested cover types occurring within and outside of the ROW boundary. Non-forested cover types included scrub-shrub transmission corridor, hayfields, croplands, and developed areas such as roads, houses, and lawns.

4.0 RESULTS AND DISCUSSION

Vernal pools were found to be abundant within and immediately adjacent to CMP's transmission corridors. CMP identified 88 significant vernal pools, 112 non-significant natural vernal pools, and 689 anthropogenically altered or created amphibian breeding areas (Table 1). Thus, of the vernal pools that were identified, 44 percent met the NRPA criteria for significant vernal pools. According to the Maine Department of Inland Fisheries and Wildlife (MDIF&W statement at a Maine Association of Wetland Scientists vernal pool workshop on February 6, 2009), that agency maintains a database of 230 natural vernal pools of which 63 (27 percent) are significant vernal pools. At a February 2009 professional workshop addressing vernal pool protection and management in Maine, agency officials stated that approximately 40 to 50 percent of the natural vernal pools on the landscape were expected to meet the Chapter 335 Significant Wildlife Habitat Rules vernal pool significance criteria. The occurrence of significant natural vernal pools along the transmission corridors surveyed as part of the MPRP (44 percent) falls in the middle of that 40 to 50 range and compares well with regulatory expectations. In addition, the occurrence ratio of significant vernal pools to all natural vernal pools within and along CMP's transmission corridors ($88/200 = 44$ percent) is higher than that of the existing MDIF&W vernal pool database ($63/230 = 27$ percent)

Spotted salamanders, blue spotted salamanders, and wood frogs were among the identified amphibians or amphibian egg masses. Fairy shrimp were also identified in a very limited number of pools. Other than the occurrence of fairy shrimp, no threatened or endangered species were observed within 250 feet of any vernal pools. This dataset is one of the largest vernal pool databases within the State of Maine.

The 689 identified amphibian breeding areas were comprised of pools created by human activities, but that were used by obligate pool breeding amphibians. Amphibian breeding areas were primarily all terrain vehicle (ATV) ruts located in wetlands or uplands, but other types of amphibian breeding areas such as farm ponds were also documented. Vernal pools created by human activities can often serve as ecological traps with insufficient hydroperiods, but some anthropogenic pools may have adequate hydroperiods for breeding success (DiMauro and Hunter, 2002). The ecological function of anthropogenically created amphibian breeding areas along transmission corridors is probably variable, and at this time their suitability as viable vernal pool habitat is unproven.

Table 1 Summary of Vernal Pools Identified Along the MPRP Survey Corridor

Approximate Survey Mileage	Significant Natural Vernal Pools	Non-Significant Natural Vernal Pools	Anthropogenically Altered/Created Amphibian Breeding Areas
620	88	112	689

Among the 88 pools that qualify as significant vernal pools under NRPA standards, 77 have non-forested cover types exceeding 25 percent of their critical terrestrial habitat (within 250 feet of the pool) (Table 2). The average non-forested coverage within 250 feet of significant vernal pools was 44 percent, with a range of 14 to 86 percent non-forested coverage (Table 3). Of these significant vernal pools, 50 currently have 26 to 50 percent non-forested cover types within 250 feet of the pool (Table 2), and 26 have 51 to 75 percent non-forested cover types. Land use within 250 feet of significant vernal pools included utility corridor, forest, agricultural land, and “hard” land uses such as roads, parking lots, houses/subdivisions, and lawns. Existing transmission corridors accounted for the vast majority of non-forested cover types within 250 feet of significant vernal pools. Of note, 87.5 percent of significant vernal pools within the surveyed corridors contained less than 25 percent forested cover types within their critical terrestrial habitat (within 250 feet of the pool depression).

The transmission corridors that the pools are located within or along have been in existence and managed as non-forested, early-successional habitat for nearly half a century or more (Table 2). These data suggest that conversion of forest cover types to utility corridor can support and maintain viable and healthy populations of vernal pool breeding amphibians, even after time periods spanning multiple amphibian generations. However, despite what appears to be robust populations of pool breeding amphibians and abundant pool breeding habitat along transmission corridors in Maine, NRPA standards suggest that existing transmission corridors that have existed for multiple decades may need to be counted toward the 25% non-forested habitat threshold beyond which mitigation is required.

Table 2: Significant Vernal Pool Buffer Habitat Characteristics Along the Survey Corridor

Total Number of Significant Vernal Pools	Approximate Age Range of Existing Utility Corridor (years)	Existing Non-Forested Habitat Cover Within 250 Feet of Significant Vernal Pools							
		< 25%		26-50%		51-75%		76% - 100%	
		n	%	n	%	n	%	n	%
88	40 to 60 plus	11	12.5	50	56.8	26	29.5	1	1

The documented abundance of significant vernal pools and associated wildlife occurrences within the surveyed CMP corridors suggests that the habitat conditions necessary to supporting vernal pool populations are maintained along transmission corridors. This is despite the removal of trees that are required to construct and maintain transmission line corridors in a safe and reliable condition. Among these habitat conditions are sufficient pool hydroperiods (Skidds and Golet, 2005), organic carbon inputs to vernal pool depressions via leaf litter and herbaceous vegetation, landscapes that are permeable to amphibian migration (Calhoun and Klemens, 2002), and suitable non-breeding season habitat (Semlitsch, 2000).

Table 3: Non-Forested Habitat Cover Within 250 Feet of Significant Vernal Pools

Number of Pools	Mean	Range
88	44%	14% to 86%

Hydroperiod, an essential element of amphibian breeding success, requires that suitable breeding habitat containing vernal pools must hold water long enough for amphibian larvae to complete their aquatic life phase (Skidds and Golet, 2005). Soil disturbance, harvest road construction, and tree removal are three activities that have been noted as having the potential to affect pool hydroperiod in managed forests (deMaynadier and Houlahan, 2008). While tree removal activities occur during transmission corridor construction, there are significant differences in their implementation relative to forestry operations. The primary differences and similarities between transmission line corridor establishment and forestry operations are summarized below.

During transmission corridor construction, soil disturbance is minimized by the use of erosion and sediment control measures, routine environmental inspections by utility representatives and consultants, third party environmental inspections, and the use of construction mats in wet areas to prevent soil rutting and compaction. Conversely, these practices are generally neither followed nor required in forest management operations. Permanent harvest roads that can alter local surface drainage patterns are common on managed woodlands. Permanent harvest roads are not constructed within transmission corridors. In addition, on transmission corridor projects, initial tree removal is completed in a relatively rapid, one-time effort. In contrast, soils in managed woodlands are often disturbed by the repeated passage of heavy equipment over time, during one or more forest harvests.

Furthermore, forest harvesting has not been proven to produce long-term effects on seasonal forest pool hydroperiod based on chronosequence investigations (Batzer et al., 2000; Palik et al., 2001). Higher groundwater tables have been documented following harvesting (Sun et al., 2000), suggesting that tree removal will not shorten pool hydroperiod. Other work has revealed only subtle effects on local water tables outside of the immediate post-harvest time period (Bliss and Comerford, 2002). These findings suggest that tree removal related to transmission corridor construction will not have any significant long-term effect on vernal pool hydroperiods.

That vernal pools and evidence of pool breeding wildlife populations were common along existing transmission corridors during 2007 and 2008 vernal pool assessment surveys demonstrates that the hydroperiod of many transmission corridor vernal pools is sufficient for pool breeding amphibians to complete their aquatic life phase. In the glaciated northeast, factors such as surficial geologic setting, landscape position, geomorphic setting, and catchment size may very well be more relevant to vernal pool hydroperiod within transmission corridors than tree removal and other activities related to transmission corridor construction.

Importation of leaves, woody debris, and other organic matter to vernal pool basins by wind, flowing water, or other means provides a source of organic carbon to vernal pool habitats. Such carbon sources may be important to supporting a pool's food web (Battle and Golladay, 2001). These organic matter inputs are derived from vegetation that grows within vernal pools and/or in adjacent uplands and wetlands. Transmission corridors are

maintained to support a completely vegetated shrub cover type. Common plants that were observed within Maine transmission corridor uplands during field surveys include *Juniperus communalis* (common juniper), *Spirea latifolia* (meadowsweet), *Rhus typhina* (staghorn sumac), graminoids, several herbaceous species, and hardwood saplings. In wetlands and vernal pools within transmission corridors *Ilex verticillata* (winterberry), *Alnus rugosa* (speckled alder), *Spirea tomentosa* (steplebush), meadowsweet, *Onoclea sensibilis* (sensitive fern), *Osmunda cinnamomea* (cinnamon fern), and *Scirpus cyperinus* (wool grass) were commonly observed during field surveys. Most vernal pools along the transmission corridor contained significant amounts of organic detritus, which was apparently derived from vegetation within and/or adjacent to the transmission corridor. In addition to providing a source of organic carbon to support secondary production within vernal pools, these plants or their fallen woody branches parts were utilized as amphibian egg mass attachment sites. Subsequent to leaf out, shrub species provide a source of pool shade, as do taller trees adjacent to transmission line corridors.

In order to complete their life cycles and sustain local populations, pool breeding amphibians must be able to successfully migrate across the landscape to suitable non-breeding season habitat (Semlitsch and Skelly, 2008). According to literature, forested settings are the natural and preferred habitat for ambystomatid salamanders and wood frogs (DeGraff and Yamasaki, 2001); however, pool breeding amphibians are known to travel across other non-forested cover types. For example, in one Rhode Island study of golf course fairways, non-forested areas were not a dispersal barrier to spotted salamanders travelling to adjacent forested areas (Montieth and Paton, 2006). The presence of uncompacted leaf litter, coarse woody debris, and shade are important habitat characteristics for pool breeding amphibians (deMaynadier and Hunter, 1995). Areas with high densities of small mammal burrows and cool microclimates have also been found to be preferred by spotted salamanders (Montieth and Paton, 2006).

During field surveys, leaf litter, coarse woody debris, and mammal burrows were all observed within the early-successional cover type of Maine electricity transmission corridors. Shrubs observed in transmission corridors provide shade and organic debris. In addition, many vernal pools within Maine's transmission corridors were found within larger wetland complexes dominated by the scrub-shrub and emergent vegetation cover types. Many of these wetlands spanned the entire transmission corridor, thereby providing a moist environment for amphibians to migrate through as they travel between their breeding pool and adjacent habitat. This demonstrates that transmission corridors are 'permeable' to amphibian migration and movement. This is in contrast to many forms of hard land uses where pavement and construction destroys, removes, or permanently covers burrows, leaf litter, and woody debris, and also introduces the threat of vehicular mortality.

Suitable non-breeding season habitat is also essential for maintaining populations of amphibians that breed in vernal pools. Mean travel distances for spotted salamanders and wood frogs have been calculated at 390 feet and 633 feet, respectively, while maximum travel distances were measured to be 817 feet and 1,549 feet, respectively (numerous studies in Semlitsch and Skelly, 2008).

Transmission corridors surveyed for the MPRP were usually less than a few hundred feet wide; many were less than 150 feet and were adjacent to forested habitat. Therefore, non-breeding season forested habitats adjacent to transmission corridors are well within documented migration distances for pool breeding amphibians. In addition, in Pennsylvania transmission corridors maintained in an early-successional habitat condition were found to provide sufficiently moist microenvironments for salamanders including *Ambystoma jeffersonianum* (Jefferson salamander), *Plethodon cinereus* (red back salamander), and spotted salamander (Yahner et al., 2001). Therefore, it is also plausible that in Maine, the transmission corridor itself may be used as habitat, provided that sufficient leaf litter, burrows, and coarse woody debris, moisture, and shade are present.

5.0 SUMMARY AND RECOMMENDATIONS

In the glaciated northeast, vernal pools have become a focal issue in conservation and land use planning. Regulation of certain vernal pools in Maine has significant implications on the design and permitting of electric transmission corridors and vernal pool management. While existing recommended best development practices for vernal pool conservation are provisional, and were developed to address typically “hard” residential and commercial development, NRPA vernal pool regulations appear to have been developed around these preliminary guidelines and are being applied to a much broader class of land uses (e.g., “soft” land uses including electric transmission line corridors). The most recent literature, however, emphasizes the need for site-specific planning and flexibility for meeting vernal pool conservation needs. Thus, CMP sought to identify vernal pools in its existing transmission corridors and evaluate the implications of the existing regulatory framework on transmission corridor design, permitting, and maintenance. In completing this effort, CMP compiled what is likely one of the largest vernal pool databases in Maine. This new dataset adds to our understanding of vernal pool resources in Maine.

CMP’s investigation demonstrates that vernal pools are ubiquitous in transmission corridors located within its service territory. Even after many decades of being managed as early-successional habitat, anthropogenic, natural, and significant vernal pools were found to be common in these corridors. The vast majority (87.5%) of the identified significant vernal pools that would be subject to NRPA jurisdiction currently have vernal pool critical terrestrial habitat that is less than 75 percent forested within 250 feet of the pool; in other words, more than 25 percent of the existing non-forested critical terrestrial habitat around these identified significant vernal pools is managed as early-successional habitat. Field observations of vegetation cover, leaf litter, and coarse woody debris suggest that transmission corridors support habitats that are permeable to the migration of vernal pool breeding amphibians to and from adjacent forests, and that transmission corridors themselves may be utilized as non-breeding season amphibian habitat. The observed abundance of natural and significant vernal pools that were utilized as breeding habitat by obligate vernal pool breeding species suggests that vernal pools in and along transmission corridors are able to function without loss or significant degradation of their ecological function.

These findings are significant relative to vernal pool management as it pertains to electric transmission corridor construction and maintenance. Data on significant vernal pools within and/or along CMP corridors, existing literature, and regulatory guidelines and requirements all demonstrate that significant vernal pools and transmission corridors (as currently constructed and maintained) are compatible. This is further emphasized by the following summary points:

- Extensive data collected by CMP show that significant vernal pools occur in transmission line corridors within the expected frequency range, and at a greater rate than shown in MDIF&W’s existing database. Specifically, 45 percent of the

natural vernal pools assessed along CMP transmission corridors were significant. This falls in the middle of the agency-expected range of 40 to 50 percent of all pools assessed being significant;

- The average percentage of non-forested habitat within 250 feet of these significant vernal pools was 44 percent;
- Only 12.5 percent of these significant vernal pools had greater than 75 percent forest habitat coverage with their 250 foot buffers;
- Constructing and maintaining transmission line corridors does not negatively affect vernal pool hydroperiod;
- The early-successional (shrub and herbaceous vegetation) habitat associated with transmission line corridors appears to be permeable to amphibian migration and is capable of sustaining highly productive amphibian breeding habitat;
- The life span of the spotted salamander averages 15 to 20 years. Some of these corridors have been in existence for 40 or more years, a time period which spans multiple generations of spotted salamander. Given that the literature suggests that mole salamanders have high pool spawning fidelity (i.e., over 90 percent of the time they return to spawn in the pools from which they hatched and emerged), the data strongly suggests that several generations of spotted salamanders have successfully reproduced in these vernal pools. In addition, their offspring continue to breed in these pools;
- There is no literature demonstrating adverse impacts from transmission line corridors on vernal pools;
- Current regulations are based on studies that focused on “hard” developments, which are very dissimilar to the vegetated conditions present within transmission line corridors; and
- The current management of vernal pools in transmission line corridors is consistent with some of the significant vernal pool habitat management guidelines and goals presented in Chapter 335 and Calhoun and Klemens (2002). These guidelines and how there are wholly or partially met are as follows:
 - (1) *No disturbance within the vernal pool depression.* CMP and other electric utility companies expend a great amount of effort to ensure that vernal pool depressions are not disturbed during construction and maintenance activities. These efforts include (1) providing environmental oversight during the project design phase to ensure that, whenever possible, pole structures are not placed in vernal pools; (2) implementing and maintaining erosion and sediment controls that help prevent siltation of pools; (3) marking vernal pool depression with flagging tape prior to construction; and (4) performing environmental inspections during

construction to ensure that pools are not traversed by vehicles and construction equipment;

- *(2) Maintain a minimum of 75% of the critical terrestrial habitat as unfragmented forest with at least a partly-closed canopy of overstory trees to provide shade, deep litter and woody debris.* Although transmission line corridors cannot be maintained as forest for reliability and safety reasons (in other words, it is not “practicable”), they are maintained as early-successional habitat composed of shrubs and herbaceous plants. This habitat type provides some level of shading, significant litter accumulation (carbon input) from leaf drop and the die-back of herbaceous vegetation, and woody debris;
- *(3) Maintain or restore forest corridors connecting wetlands and significant vernal pools.* Within transmission line corridors, amphibian travel corridors composed of shrubs and thick growth of herbaceous vegetation are often present. Also, the CMP data indicate that transmission line corridors and their early-successional habitat are permeable to amphibian migration. This meets the needs for maintaining forested travel corridors, which are often required in the vicinity of “hard” development;
- *(4) Minimize forest floor disturbance.* With the exception of pole structure locations, transmission line corridors are not grubbed. Rather, trees are cut at ground level and root systems are left in the ground. In addition, mitigation techniques including winter construction and the use of equipment mats are utilized during construction to minimize ground disturbance such as rutting. By virtue of how transmission line corridors are constructed and maintained, ground disturbance is minimized;
- *(5) Maintain native understory vegetation and downed woody debris.* Transmission line corridors are constructed and maintained to encourage the growth of understory vegetation including shrubs and herbaceous plants. Also, downed woody debris from shrubs occurs naturally and is very common in transmission line corridors.

All of this information indicates that transmission line corridors, as they are currently constructed and maintained in Maine, do not cause a loss of the important ecological functions associated with significant vernal pools in Maine.

6.0 REFERENCES

- Battle, J.M. and Golladay, S.W. 2001. Hydroperiod influence on breakdown of leaf litter in cypress-gum wetlands. *American Midland Naturalist* 81:269-295.
- Batzer, D.P., C.R. Jackson, and M. Mosner. 2000. Influences of riparian logging on plants and invertebrates in small, depressional wetlands of Georgia, USA. *Hydrobiologia* 441:123-132.
- Bliss, C.M., and Comerford, N.B. 2002. Forest harvesting influence on water table dynamics in a Florida flatwoods landscape. *Soil Science Society of America Journal* 66:1344-1349.
- Calhoun, A.J.K., and P.G. deMaynadier. 2004. Forestry habitat management guidelines for vernal pool wildlife. MCA Technical Paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- Calhoun, A.J.K., and P.G. deMaynadier. 2008. Science and conservation of vernal pools in northeastern North America. CRC Press, Boca Raton, FL.
- Calhoun, A.J.K., and M.W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- DeGraff, R.M., and M. Yamasaki. 2001. New England wildlife: habitat, natural history, and distribution. University Press of New England, Lebanon, NH.
- Hunter, J.L., Jr. 2008. Valuing and conserving vernal pools as small-scale ecosystems. p. 1-8 In Calhoun, A.J.K. and P.G. deMaynadier (eds.). Science and conservation of vernal pools in northeastern North America. CRC Press, Boca Raton, FL.
- deMaynadier, P.G., and J.E. Houlahan. 2008. Conserving vernal pool amphibians in managed forests. p. 253-279 In Calhoun, A.J.K. and P.G. deMaynadier (eds.). Science and conservation of vernal pools in northeastern North America. CRC Press, Boca Raton, FL.
- deMaynadier, P.G., and M.L. Hunter, Jr. 1995. The relationship between forest management and amphibian ecology: A review of the North American literature. *Environmental Reviews* 3:230-261.
- DiMauro, D., and M.L. Hunter, Jr. 2002. Reproduction of amphibians in natural and anthropogenic temporary pools in managed forests. *Forest Science* 48(2):397-406.

Montieth, K., and P.W.C. Paton. 2006. Emigration behavior of spotted salamanders on golf courses in southern Rhode Island. *Journal of Herpetology* 40(2):195-205.

Palik, B., D.P. Batzer, R. Buech, D. Nichols, K. Cease, L. Egeland, and D.E. Streblov. 2001. Seasonal pond characteristics across a chronosequence of adjacent forest ages in northern Minnesota, USA. *Wetlands* 21:532-542.

Rheinhardt, R.D., and G.G. Hollands. 2008. Classification of Vernal Pools: Geomorphic Setting and Distribution. p. 11-29 In Calhoun, A.J.K. and P.G. deMaynadier (eds.). *Science and conservation of vernal pools in northeastern North America*. CRC Press, Boca Raton, FL.

Semlitsch, R.D. 2000. Principles for management of aquatic-breeding amphibians. *Journal of Wildlife Management* 64:615-631.

Semlitsch, R.D., and D.K. Skelly. 2008. Ecology and conservation of pool-breeding amphibians. p. 105-126 In Calhoun, A.J.K. and P.G. deMaynadier (eds.). *Science and conservation of vernal pools in northeastern North America*. CRC Press, Boca Raton, FL.

Skidds, D.E., and F.C. Golet. 2005. Estimating hydroperiod suitability for breeding amphibians in southern Rhode Island seasonal forest ponds. *Wetlands Ecology and Management* 13:349-366.

Sun, G., H. Riekerk, and L.V. Kornhak. 2000. Ground-water table rise after forest harvesting on cypress-pine flatwoods in Florida. *Wetlands* 20:101-112.

Town of Falmouth, Maine. 2009. http://www.town.falmouth.me.us/Pages/FalmouthME_BComm/VernalPoolInformation. Accessed February 12, 2009.

Windmiller, B., R.N. Homan, J. V. Regosin, L.A. Willitts, D.L. Wells, and J.M. Reed. 2008. Breeding amphibian population declines following loss of upland forest habitat around vernal pools in Massachusetts, USA. p. 41-51 In Mitchell, J.C., R.E. Jung Brown, and B. Bartholomew (eds.). *Urban Herpetology*. Herpetological Conservation No. 3. Society for the Study of Amphibians and Reptiles.

Windmiller, B., and A.J.K. Calhoun. 2008. Conserving vernal pool wildlife in urbanizing landscapes. p. 233-251 In Calhoun, A.J.K. and P.G. deMaynadier (eds.). *Science and conservation of vernal pools in northeastern North America*. CRC Press, Boca Raton, FL.

Yahner, R.H., W.C. Bramble, and W.R. Byrnes. 2001. Effect of vegetation maintenance of an electric transmission right-of-way on reptile and amphibian populations. *Journal of Arboriculture* 27 (1):24-29.

1-8: Vernal Pool Occurrence and Species Distribution within Electrical Transmission Rights-of-Ways in Maine, TRC Environmental, April 2011.

Vernal Pool Occurrence and Species Distribution within Electrical Transmission Right-of-Ways in Maine

Colin P. Duncan, PWS, CPSS, TRC Environmental

Alex Finamore, CWS, TRC Environmental

Adam Slayton, TRC Environmental

Kristen Marcoux, TRC Environmental

Due to the nature of long distance bulk energy transmission, transmission corridors (or right-of-ways (ROWs)) occur in virtually every landscape position and habitat type across the country. ROWs are managed to sustain non-forested vegetation and can be several hundred feet in width and up to several hundred miles in length. Accordingly, they traverse regulated areas such as wetlands and vernal pool habitats throughout the glaciated northeast. Vernal pools and adjacent habitat areas are regulated by both state and federal agencies, each of which having unique criteria for determining thresholds of jurisdiction. A key aspect to “classically-defined” northeast vernal pool ecology and their regulatory definition is the presence of forested uplands around the pools that provide non-breeding adult-stage habitat for primary vernal pool species such as Ambystomid salamanders and wood frogs (*Rana sylvatica*). Therefore, the management of ROWs to allow only non-forested vegetation in and around vernal pools in the ROW presents a potential conflict for sustaining essential vernal pool habitat conditions. The major question that arises from this potential management conflict is whether and to what extent vernal pools are affected by ROWs in overall occurrence, types of species supported, and the potential populations of organisms based partially on the density of yearly egg masses. Due to the individual permitting requirements associated with several large and geographically diverse ROW maintenance and expansion projects in Maine, an evaluation of a large number of vernal pools occurring in and near ROWs was undertaken to evaluate vernal pool occurrence and species distribution within ROWs. It is worth noting that a large number of the ROWs surveyed have been maintained as non-forested corridors for 40 years or more.

Vernal pool habitats occurring within two large ROW maintenance and expansion projects in Maine were identified and evaluated over multiple breeding seasons. The methodology for field data collection was established based on regulatory criteria, and was similar between the projects. Field parameters included amphibian egg mass counts with species identification as well as other key characteristics cited in scientific literature and regulatory definitions. Surveys were scheduled to observe potential pools during and immediately following the period of active ovipositioning, and in most cases pools were observed twice during the breeding season to view the occurrence of different species that produce egg masses in earlier and later portions of the season. It was also noted if pools were entirely or partially within, or adjacent to the maintained ROW corridor by “percent within the ROW” along this continuum. For purposes of this analysis, pools that occurred within at least 75% within the ROW were considered to be fully “ROW” pools. Categories of pools that were 25 to 75% in the ROW were considered transitional and the balance of the observed pools were considered non-ROW pools. Portions of the projects

involving proposed, undeveloped ROW corridors and potential mitigation sites afforded the opportunity to conduct the same surveys to observe and compare pools within undeveloped areas.

Results for all the surveys were tallied and analyzed for 1,834 vernal pools, all of which contained either wood frog or spotted salamander egg masses, or both. Vernal pool occurrence observations indicate that 55.3% of the total pools observed were considered ROW pools and 23.5% of the pools were found in a non-ROW setting. The remaining 21.2% of the pools were in transitional areas. A total of 1,175 identified pools contained wood frog egg masses. Among these pools, 66.7% occurred in the ROW, 23.7% occurred in transition areas and 9.5% in non-ROW areas. A total of 1,301 identified pools contained spotted salamanders. Among these pools 49.5% occurred in the ROW, 19.9% occurred in transitional areas, and 30.6% occurred in non-ROW areas.

In order to determine the relative “productivity” of each pool in terms of the number of egg masses that were present at the point of seasonally highest occurrence, the number of egg masses occurring per pool for each species was categorized into groups of 1 to 9, 10 to 19, 20 to 39 and 40 or greater egg masses. In this way, it is easier to see which pools could meet the Maine Department of Environmental Protection (MDEP) definition for a Significant Vernal Pool (SVP) (see below). For wood frogs, pools in the ROW (i.e., as above, with 75% of pool occurring in ROW) containing 1 to 9 egg masses comprised 63.7% of the total pools, and 21% of the pools contained 20 or more egg masses (9.3% with 40 or more egg masses). For pools outside of the ROW, pools containing 1 to 9 wood frog egg masses comprised 92.1% of the total pools, and 4.4% of the pools contained 20 or more egg masses (2.6% with 40 or more egg masses). For spotted salamanders, pools in the ROW containing 1 to 9 egg masses comprised 79.5% of the total pools, and 9.1% of the pools contained 20 or more egg masses (3.1% with 40 or more egg masses). For pools outside of the ROW, pools containing 1 to 9 egg masses comprised 62.2% of the total pools, and 26.2% of the pools contained 20 or more egg masses (10.2% with 40 or more egg masses).

This large sampling of data provides the opportunity for several observations. First, while the vernal pool observations concentrated on ROWs and their immediate environs versus a broader study that would compare undeveloped land to ROW, vernal pools containing spotted salamanders and wood frogs egg masses occur half and two-thirds of the time, respectively, directly within ROWs relative to transitional or non-ROW settings. Second, for wood frogs, pools that occur directly within the ROW have a higher egg mass count and distribution per pool (36.3% with 10 or more egg masses) as compared with pools in non-ROW settings (7.9% with 10 or more egg masses). This trend is somewhat reversed for spotted salamanders, though not as pronounced. This suggests that the increased amount of sunlight in an open ROW area compared to an area of dense forested canopy, encouraged wood frog breeding, whereas the spotted salamander prefers deeper depressions with slightly longer hydroperiods typically receiving less direct sunlight.

When looking at pools potentially regulated by the Maine Department of Environmental Protection (MDEP), pools were broken down similarly, as above, with bins (percentage categories) including pools in ranges of ROW occupancy ranging from 0-25%, 26-50%, 51-75%,

and 76-100%. Pools with a 100% rating were found to be completely in a woodland setting, conversely pools with a 0% rating were found to be completely in the non-forested ROW. Due to the majority of the project area being located within existing ROW areas, the data summaries indicate that 67% of the pools surveyed on this project were located nearly entirely within the ROW. Eight percent of the pools within the ROW (0-25% forested) were found to have over 40 wood frog egg masses and therefore potentially regulated by the MDEP. Comparatively, 12% were found to have the same abundance in non-ROW (76-100% forested) settings. For spotted salamanders, a 20 egg mass threshold was used to coincide with MDEP regulations. In the ROW setting, 6% of the pools met MDEP *abundance* criteria, while in the non-ROW setting 20% met the criteria.

These findings are congruent with the results found above as that wood frogs do not show a strong preference between pools with a forested canopy and pools within a maintained ROW setting and therefore demonstrate that maintained ROW vegetation does not seem to be a deterrent in the usage of pools in these areas for breeding. Spotted Salamanders are shown to have a higher abundance within a forested setting as opposed to a maintained ROW and similarly have more pools with the potential to be regulated by the MDEP. This may be explained, as discussed above, by a preference for deeper pools with a more forested canopy.

Continued studies of vernal pools within ROWs and adjacent habitats, including adult population analyses, will help to provide further information about the ecology and viability of vernal pools within non- and semi-forested environments.