

February 26, 2021

Governor's Energy Office
62 State House Station
Augusta, Maine 04333

Brookfield Renewable¹ appreciates the work of the Governor's Energy Office (GEO) on coordinating the development of the State of Maine Renewable Energy Goals Market Assessment (RPS Study), as required by LD 1494, *An Act to Reform Maine's Renewable Portfolio Standard*. Brookfield Renewable's comments are intended to assist the GEO as it considers the RPS Study results and determines appropriate policy priorities to advance Maine toward achieving its laudable near-term and long-term RPS and greenhouse gas reduction goals.

RPS Assumptions and Procurement

The RPS Study assumes that RECs from resources procured through the Maine PUC's Class IA procurements, including Tranche 1, will be relied upon to meet Maine's RPS requirements throughout the study period.² However, given that the vast majority of Tranche 1 awards were energy-only contracts³, it cannot be assumed that RECs from these resources will be sold for Maine RPS compliance. In fact, as the RPS Study describes, Maine's Class I/IA pricing has historically been lower than Class I markets in other New England states, and should this trend continue, the RECs from resources procured in Tranche 1, and possibly Tranche 2, will be sold for compliance in other markets. Similarly, because the Net Energy Billing program does not require the transfer or retirement of RECs, the RECs associated with new Net Energy Billing resources may not be sold for Maine RPS compliance.

¹ Throughout Maine Brookfield Renewable owns and operates 46 hydropower stations totaling 622MW of installed capacity, 219MW of windpower and a 20MW battery located in Millinocket. Brookfield Renewable has over 100 employees in Maine and supports 275 indirect jobs across the State. Each year, Brookfield Renewable invests millions of dollars in capital projects in Maine, with plans to invest more than \$300 million over the next 20 years to maintain and optimize our existing Maine fleet. Brookfield Renewable pays more than \$20 million in property taxes in Maine annually, which provides critical funds for local schools, fire departments and public services.

² RPS Study at p. 24

³ <https://www.maine.gov/mpuc/electricity/rfps/class1a2020/>

Acknowledging these dynamics suggests that a Class I/IA shortfall is likely to occur earlier than the timeline suggested in the RPS Study (2026). The potential for a near-term Class I/IA shortfall, despite significant new build expectations, reinforces the important role that existing Maine renewable resources, including existing hydropower, are providing to meet Class I/IA mandates. The GEO should consider these implications in its analysis of future RPS policy and procurement timelines and requirements, and should encourage i) prioritizing contracting for existing and repowered renewable resources in order to optimize operational resources and ii) identifying additional existing in-state renewable resources, including Class II hydropower, that could be transitioned to Class I/IA.

The RPS Study does identify REC-only contracts as a possible component to future procurement, and specifically details the framework established in New York as a consideration for Maine.⁴ The GEO should consider that this same framework appropriately recognizes the need to retain existing in-state renewable resources that are approaching end of operating life by enabling repowered wind projects the opportunity to obtain long-term REC contracts. Given the age of several of Maine's legacy wind projects, a similar construct should be considered for Maine.

Transmission

The RPS Study appropriately describes the need for new transmission to unlock additional renewable energy opportunities in Maine. What is mostly absent from the RPS Study, however, is the need for transmission or energy storage solutions to address constraints that impact existing renewables. Transmission limitations and loss of load have resulted in significant curtailment of existing renewables, which has in turn reduced the generation available to meet RPS goals. Brookfield Renewable encourages policy and investment priorities that optimize existing renewable resources, including transmission upgrades that enhance existing wind and hydropower in western and northern Maine as well as policies that support the deployment of new energy storage co-located with existing and new renewable projects.

In addition, Brookfield Renewable encourages the GEO to consider the possibility that, due to cost and permitting constraints, new transmission may not be built within the study timeframe. Under this scenario, more can be done to support the retention and redevelopment of existing

⁴ RPS Study at p. 64

renewables, including contracts for existing wind projects in Aroostook County to ensure continued operation and reinvestment. This would serve as a hedge against backsliding on accessing and optimizing Maine's renewable energy resources in the event additional transmission buildout and corresponding project deployment is delayed or restricted, and would support economic activity and near-term and long-term spending commitments that otherwise may not be feasible.

Resource Diversity

Brookfield Renewable acknowledges that Maine must consider more than simply cost implications in its energy policies and planning. Other elements may include job retention and creation, equity considerations and land use restrictions and optimization. One approach that can address several considerations beyond simply lowest cost outcomes is the prioritization of resource diversity, which the RPS Study reviews. A diverse portfolio inclusive of solar, wind, hydropower, and optimized with appropriate transmission planning and energy storage deployment – paired with new solar as the RPS Study analyzes as well as existing hydropower and wind sites – may yield benefits such as more diverse time of day/year generation, grid resiliency, optimal land use/reuse and economic benefits that are geographically diverse and include a variety of supply chains. Brookfield Renewable recommends consideration of these added benefits as additional policies are developed.

Thank you for the opportunity to comment on the RPS Study. Please contact me directly with any questions or comments related to these issues or Brookfield Renewable's work throughout Maine.

Sincerely,



Steve Zuretti
Senior Director, Government Affairs and Policy
Brookfield Renewable
steven.zuretti@brookfieldrenewable.com
323-400-9715

February 26, 2021



Melissa Winne

Governor's Energy Office

By email: melissa.winne@maine.gov

RE: CLEARWAY COMMENTS ON RENEWABLE ENERGY GOALS MARKET ASSESSMENT

Dear Ms. Winne:

Thank you for the opportunity to comment on the State of Maine Renewable Energy Goals Market Assessment, issued February 17, 2021. I write on behalf of Clearway Energy Group, which is one of the largest owner-operators of renewable energy assets in the country, with nearly 5 gigawatts of wind and solar projects in operation and another 9 gigawatts in development.

Clearway supports the major findings of the assessment, particularly with respect to onshore wind. **The assessment rightly positions onshore wind power as the largest resource in four of the six scenarios studied and wind is included in five of them, due to its low cost and high capacity factor, which is twice as great as solar in Maine.** The base case centered on adding 498 megawatts of onshore wind in Northern Maine, finding this scenario to be among the least expensive. The true potential of cost-effective wind energy in Maine, however, is far greater. The American Clean Power Association has determined that the Pine Tree State has 69,797 megawatts of wind energy potential but currently has only approximately 900 megawatts installed. Thus, Northern Maine wind can play a role in meeting both the 2030 and 2050 climate goals.

It is important to consider the many dimensions of wind energy's value as you plan for Maine's future resource mix. Unlike solar energy, which peaks in the summer afternoons, wind energy typically peaks at night during the winter. With beneficial electrification expected to dramatically increase Maine's electric load in the coming years, wind will have a significantly higher value than solar on a dollar-per-megawatt-hour basis over the next 25 years. To put it simply, making investments in wind facilities now will reduce energy costs now and later. **As your office contemplates new renewable energy procurement legislation, a production-weighted methodology that considers the attributes of each fuel type over time is critical to accurately value each resource.**

We concur that the benefits of wind power development in Northern Maine will extend far beyond meeting climate goals. Aroostook County, in particular, is designated as among the most socially vulnerable in the state, making wind energy investments in the County a critical tool toward addressing a long-term structural inequity. By our analysis, there are at least 3,000 megawatts of renewable energy potential in the County. **The full development of renewable resources in Northern Maine will create hundreds of well-paying jobs, dramatically increase local and state tax revenues, lead to the creation of potentially several Tax Increment Financing (TIF) districts and much more – all while helping to meet climate goals in a cost-effective manner.**

Clearway agrees with the report's most significant conclusion, which is that timely and strategic investments in the transmission system are paramount to meeting Maine's climate goals. **With respect to Northern Maine, we respectfully question the \$779 million cost estimate for a transmission line in Aroostook County.** This figure was provided in ISO-NE's Second Cluster Study several years ago and is significantly higher than estimates produced by competitive transmission providers. Clearway is aware of at least one proposal by a

competitive provider that covers a similar distance as the Cluster Study at approximately half its cost. Clearway also expects that a federal infrastructure bill will be adopted this summer; among the most promising features of this bill is a 15% investment tax credit on transmission construction. If adopted, this federal incentive could further defray costs of a transmission line. Moreover, **while a regional approach that socializes costs across New England should be pursued when possible, generations of Mainers have waited decades for a transmission line to be built in Northern Maine. Maine policy makers have the right tools currently under their control and do not need to wait any longer.** Building a transmission line and generation resources to fill it makes economic sense for Maine on a stand-alone basis today. Doing so also gives Mainers a resources that they can further monetize for even greater savings as opportunities with Southern New England present themselves.

The assessment provides a compelling path forward for Maine at this pivotal juncture. The creation of Competitive Renewable Energy Zones (CREZ) will send a signal to developers that certain wind resources are critical to meeting RPS goals. We support the state issuing dual requests for proposals – one for transmission development, the other for generation – to finally unlock the significant resources of Northern Maine. **Clearway is grateful to the Mills administration for your clean energy leadership and we respectfully encourage your office to file a Governor's Bill that advances this tandem transmission-generation procurement approach.**

Clearway has never been more optimistic about Maine's renewable energy future. For years, Clearway has worked to make significant investments in the Pine Tree State through our County Wind project in Aroostook County. At 400 megawatts, County Wind represents a \$1 billion capital investment in Maine's electric infrastructure, promising significant tax revenues, jobs and much-needed economic development for the region. With your leadership, 2021 could be a transformative year for Northern Maine's economy and long-term prospects. Clearway stands ready to assist your office in whatever way we can to accomplish these shared goals.

Respectfully submitted,



Craig Cornelius
Chief Executive Officer
Clearway Energy Group

Cc: Governor Janet Mills
Senate President Troy Jackson
GEO Director Dan Burgess
GEO Deputy Director Celina Cunningham



Jason N. Rauch
Energy, Environmental & Regulatory Policy Manager

February 26, 2020

Governor's Energy Office
Melissa Winne
melissa.winne@maine.gov

Re: Renewable Energy Markets Assessment Study

Dear Governor's Energy Office:

Central Maine Power Company ("CMP") strongly supports the State's energy goals to decarbonize its fuel sources and utilize beneficial electrification as we seek to mitigate climate change. We are committed to doing our part by building a stronger, more resilient grid.

Thank you for your consideration of the following comments regarding the Renewable Energy Markets Assessment Study.

Sincerely,

Jason N. Rauch, Ph.D.
Energy, Environmental & Regulatory Policy Manager

Central Maine Power Company (“CMP”) offers the following comments on the results and findings of the Governor’s Energy Office (“GEO”) February 2021 State of Maine Renewable Energy Goals Market Assessment report and suggested next steps to most effectively meet Maine’s 2030 Renewable Portfolio Standard (“RPS”) and beyond.

1. Transmission a Key Driver

CMP welcomes recognition in the report that transmission investment will be a key driver for cost-effective renewable generation development in Maine.¹ Even under the scenario of no new transmission infrastructure, the modeling selects significant offshore wind capacity, which while the modeling assumes has no onshore transmission costs,^{2,3} may need additional transmission construction to accommodate the over 500 MW of offshore wind built in that scenario to help meet the 2030 RPS. And even with this assumption, the no new transmission investment scenario is still the second most costly scenario, after the offshore wind scenario, close to 50% more expensive than the base scenario.⁴ As such, transmission investment is needed to deploy cost-effective renewable generation in Maine.

2. Paired Storage

CMP supports cost-effective solutions to renewable generation deployment and welcomes working to integrate renewable resources such as solar paired with storage into the grid. Energy storage is an emerging technology that has the potential to provide various benefits to the grid and customers if manufacturing cost declines are realized as anticipated.

3. Regional Coordination

CMP agrees that regional coordination can help lower costs and risks of electricity system development. As a next step, further analysis of the supply-demand dynamics of other New England REC markets and Canadian renewable generation development, including projected load growth due to regional beneficial electrification and renewable

¹ “This study highlights that many lower-cost pathways to meet Maine’s RPS requirements in the next decade are achievable through the development of high-quality wind resources in western and northern Maine, which in turn require new transmission investments.” Maine Renewable Energy Market Goals Assessment, p. 2.

² As recognized in the modeling assumptions. “As mentioned in the Key Assumptions section, offshore wind is assumed to be connecting at existing or retired units’ interconnection points close to load centers and hence does not incur significant onshore transmission costs. This is an assumption that underpins all offshore wind results in this study. Although this assumption is in line with ISO-NE’s study that identified the potential for 8 GW of offshore wind interconnecting at similar interconnection points in Massachusetts, Maine-specific analysis is required to accurately estimate offshore wind’s implications on Maine’s transmission system.” Maine Renewable Energy Market Goals Assessment, p. 47.

³ It is also important to note that the modeling appears to assume that distributed generation incurs *de minimis* transmission costs, which may not be the case if the distributed generation is developed in clusters, thus in aggregate triggering the need for transmission upgrades. CMP has experienced clustered distributed generation proposed development to date and is continuing to evaluate impacts.

⁴ Figure 50, Maine Renewable Energy Market Goals Assessment, p. 61.

generation demand as set by Canadian renewable and State RPS targets, would be informative. Such analysis may help better inform how renewable electricity generation built in Maine will serve other New England State RPS targets and how renewable generation built elsewhere but deliverable to Maine (including deliverability from our Canadian neighbors) can help serve Maine's RPS. Sustainable Energy Advantage ("SEA") produces the New England Renewable Energy Market Analysis ("REMO") that provides some evaluation of these REC market dynamics and interplay between various State RPSs and other renewable policies.

For instance, there is 3 GW of certified Maine Class IA renewable generation,⁵ half of which is out of state renewable generation. This certified amount already exceeds the approximately 2 GW total renewable capacity (depending on the scenario and resource mix) needed to meet Maine's RPS in 2040.⁶ Of course, many of these sources deliver their RECs into other markets than Maine, and some are not in operation, but understanding the supply-demand dynamics may help indicate at what point those operating resources may switch and deliver RECs to meet Maine's RPS.

Further, while CMP recognizes the logic of the modeling assumption, the assumption that the LD 1494 long-term contracting for renewable resources produces RECs that are utilized to satisfy Maine's Class IA RPS seems inconsistent with recognition that "recent MPUC procurements primarily selected energy-only contracts."^{7,8} CMP is not aware of a requirement that the RECs produced by these facilities must be sold to satisfy Maine's RPS. Rather it may be that these RECs get sold into other New England REC markets to meet energy supplier RPS obligations in those markets, to maximize the REC value.

4. Scenarios

The six scenarios investigated, Base Case, Unconstrained Land Use, Offshore Wind, Existing Transmission Only, Regional Coordination, and Diverse Portfolio, together provide an indication of potential paths forward to meet the 2030 RPS and beyond.

Regional Coordination is the lowest cost scenario modeled, suggesting any path forward should incorporate a regional perspective. The high cost Offshore Wind and Existing Transmission Only scenarios indicate the need to continue to advance research into driving cost declines in Offshore Wind and the need to accommodate transmission investment in Maine's strategy to reach its renewable generation goals cost-effectively. Also informative is the Diverse Portfolio scenario which costs more but

⁵ <https://www.maine.gov/mpuc/electricity/rps-class-I-list.shtml>

⁶ Figure 48, Maine Renewable Energy Market Goals Assessment, p. 59.

⁷ Maine Renewable Energy Market Goals Assessment, p. 64.

⁸ "Recent Class IA procurements. As mandated by LD 1494, the MPUC is in the process of conducting two rounds of procuring energy from Class IA eligible resources. The first procurement tranche consisted of a minimum of 7% (and no more than 10%) of Maine's retail electricity sales in 2018. The second tranche is for the remaining amount, totaling 14% of Maine's retail electricity sales in 2018 in combination.⁴⁷ The most recent round of procurements secured 546 MW of capacity with contract prices in the range of \$20-\$50/MWh. *It is assumed that RECs from these resources will go towards Maine's RPS compliance throughout the study period.*" Emphasis added. Maine Renewable Energy Market Goals Assessment, p. 24.

adds hard to quantify value in reduced risks. A reasonable balance between seeking out the most cost-effective pathways with consideration to add modest costs in exchange for renewable resource diversity may be the most prudent path forward.⁹ CMP agrees that flexible procurement strategies allow for maximizing value for electricity customers.¹⁰

5. Equity

CMP strongly supports equitable climate change strategies and solutions. Lower income customers should share in the benefits of the renewable energy transition. One area of potential inequity exists with the current approach to net energy billing (“NEB”) compensation for distributed generation, wherein some customers receive payment from other customers for avoiding delivery system costs that are not actually avoided. As noted by the Maine PUC’s November 10, 2020 report to the Maine Legislature on the Effectiveness of Net Energy Billing in Achieving State Policy Goals and Providing Benefits to Ratepayers, and Renewable Distributed Generation Solicitation, “individual ratepayer savings resulting from participation in the NEB program will be offset to a substantial degree by rate increases resulting from lost utility revenues that are ultimately paid for by the general body of ratepayers.”¹¹

CMP wants to enable distributed renewable generation and has put significant resources into processing the recent deluge of interconnection requests. Further, CMP desires to see distributed renewable generation efficiently built out in Maine in a way that is sustainable in the long-term. Therefore, it is very concerning that studies have indicated that NEB policy can act as a regressive tax on lower income households.¹² The Maine Renewable Energy Market Goals Assessment assumes 500 MW of potentially NEB compensated distributed generation is operational by 2025.¹³ This level of distributed generation capacity, per the monthly NEB reports provided by CMP, would result in an estimated cumulative total revenue/rate increase on transmission and distribution (“T&D”) rates of \$74 million annually.¹⁴ These costs are likely to disproportionately fall on low-income customers. Another next step should be to explore

⁹ Other studies have explored the balance between risk and price in electricity generation portfolios in New England. For instance, see Jason N. Rauch, Price and Risk Reduction Opportunities in the New England Electricity Generation Portfolio, *The Electricity Journal*, Volume 27, Issue 8, 2014, Pages 27-36, ISSN 1040-6190, <https://doi.org/10.1016/j.tej.2014.09.002>

¹⁰ “Resource procurements should be structured to ensure ongoing flexibility to choose resources that provide the highest net value to Maine’s ratepayers” Maine Renewable Energy Market Goals Assessment, p. 64.

¹¹ Maine PUC’s November 10, 2020 report to the Maine Legislature on the Effectiveness of Net Energy Billing in Achieving State Policy Goals and Providing Benefits to Ratepayers, and Renewable Distributed Generation Solicitation, pp 8-9.

¹² For example, see Inzunza, Andres and Christopher R. Knittel, Distributional Effects of Net Metering Policies and Residential Solar Plus Behind-the-meter Storage Adoption, MIT CEEPR Working Paper Series 2020-018, October 2020. <http://ceepr.mit.edu/files/papers/2020-018.pdf>

¹³ Maine Renewable Energy Market Goals Assessment, p. 25.

¹⁴ Assuming 500 MW of the over 800 MW of NEB projects with agreements that are not yet operational (Active Non-Operational) become operational at a proportionally equivalent breakdown of kWh netting and tariff rate agreements. The estimated revenue impact represents an overall T&D rate increase of approximately 10%.

and implement approaches to more accurately compensate distributed generation to reduce the inequitable cost burdens of the existing NEB construct in Maine.

Friday, February 26, 2021

VIA Electronic Filing

GOVERNOR'S ENERGY OFFICE

State of Maine Renewable Energy Goals Market Assessment

EDF Renewables Development Inc. (EDFR) Stakeholder Feedback

I. Overview

EDF Renewables Development Inc. ('EDFR') continues to applaud the climate leadership of the State of Maine in passing LD 1494, "An Act to Reform Maine's Renewable Portfolio Standard" in 2019, completing the required Renewable Energy Goals Market Assessment ('Assessment') for which this feedback relates, and Governor Mills' strong commitment to a clean energy future. As the Governor's Energy Office ('GEO') puts the findings of the assessment into action, **the priority of the State of Maine should be additional tranches of Public Utilities Commission renewable energy procurement for at least 3,630 GWh of bundled energy and Class 1A RECs by the end of 2022.** Supporting this suggested next step for most effectively achieving Maine's 2030 RPS, EDFR offers the following comments on the results and findings of the assessment.

II. Comments**A. Maine has large renewable energy (specifically REC) needs to achieve the 2030 RPS**

While the study results estimate 3,630 GWh of RECs will need to be procured by 2030 with the need starting in 2026, this assumes all of the recently issued energy-only contracts and historical sources of Class 1 REC supply will be available to Maine for RPS compliance.

The only RECs secured from the 2020 Tranche 1 RFP's 1,060 GWh of renewable energy contracts were 33.6 GWh from the existing Androscoggin 3 Hydro – 97% without RECs. If Tranche 2 also results in limited to no REC awards given the Commission's stated preference for energy and an evaluation framework that favors it, another 654.8 GWh could be energy-only. Furthermore, about 400 GWh of energy-only contracts were issued in 2019 with one of those projects also receiving a contract in the Tranche 1 RFP. This suggests over 2,000 GWh of additional REC need if there is some attrition and the projects' RECs leak to the higher value markets in Southern New England. Maine ratepayers could face high REC costs or subsidizing RPS compliance in other states.

On the other hand, the majority (+70%) of Maine Class 1 RECs are supplied by biomass generators that operate discretionally and some of which have been at risk of retirement. The other various sources of historical REC supply could also become unavailable. There is not new qualified hydro that can meet increasing Class 1A RPS demand as has kept Class 1 oversupplied in recent years. If only 10% of the historical supply becomes unavailable, there could be an additional need of over 400 GWh and at 25% over 1,000 GWh. Given these risks to the assessment's 3,630 GWh baseline REC assumption, the 2030 need could be over 3,000 GWh higher than estimated.

Forecasting potential REC needs and long-term planning as recommended in the assessment would be valuable first policy steps. However, 1) energy-only contracts and historical sources of supply should not just be assumed to be available; 2) the forecasts and planning should be tied to future procurement tranches; and 3) the State of Maine needs to act on the assessment's findings of a 3,630 GWh need. The examples noted of California and New York use these as tools to plan procurement. Providing a REC need forecast alone is not enough to incent the development, finance and construction of new renewable energy projects for Maine RPS compliance.

B. Now is the time to procure additional, new Class 1A resources (in 2021/2022)

There should be near term procurement through the expansion of the Tranche 2 RFP and additional tranches issued by the Commission by end of 2021 (Tranche 3) and 2022 (Tranche 4). This call for additional tranches of procurement is consistent with the Maine Climate Action Plan ('Plan'):

"To ensure available resources, it will be necessary to create new or expand existing clean-energy procurements in 2021 and 2022 based on the results from the Governor's Energy Office study due in January 2021." p.58 Strategy C1 December 2020

Moreover, as the assessment outlines, there is a clear need and advantages to acting sooner given interconnection challenges, project development timelines and the step down of the federal production and investment tax credits (ex. "there is need for action well before 2026" p.2).

For the State of Maine to ensure that clean energy resources will incrementally contribute to achieving the RPS, the procurement should be primarily for new resources. Any procurement authority set aside for existing resources would not actually help fill the RPS gap since the RECs are likely already assumed to be part of the REC baseline in the GEO assessment.

Maine will not gain much by waiting to ensure that sufficient renewable generation will be online and operational. The need to act within the next year is heightened by the potentially looming REC supply challenges discussed in EDFR's first comment. As a renewable energy developer and asset owner with regional and global experience, we are deeply familiar with the numerous development risks and multi-year timelines for bringing projects online that support contracting in 2021/2022 for supply by 2026.

C. Maine should prefer a bundled product in near term procurement

To complete the combination of securing the state 2030 RPS policy and procurement tranches, EDFR strongly supports the recommendation that Maine should design an RFP to procure a bundled product of energy and RECs.

The policy section in the assessment report finds that bundled contracts provide price certainty that can support successful renewable energy project development in Maine and lower the cost of PPAs and RPS compliance for ratepayers:

Recent MPUC procurements primarily selected energy-only contracts. The REC attribute associated with those contracts could be sold to any qualifying REC market including those outside Maine. The state could evaluate policy that requires renewable energy procurement through bundled contracts – procurement of both energy and RECs. Bundled contracts provide long-term REC price certainty to developers and could be helpful in securing financing to build large-scale renewable energy projects. Such certainty would have the benefit of providing support to renewable development in Maine and could also result in lower-cost power purchase agreements (PPAs) and RPS programs, as developers would not have to shoulder the risk of REC price uncertainty (p.64).

Also note the assessment's suggested alternative of REC-only contracts such as those in New York. NYSERDA's new Index REC structure is an all-in strike price inclusive of energy, RECs and capacity. Its historical Fixed REC only contracts have faced delays, attrition and higher costs so much so that NYSERDA is currently offering a one time Index REC transition opportunity to those projects ([Request for Interest RESVCO2021](#)). Therefore, a bundled product should be the foundation of procurement in Maine.

EDFR strongly supports the suggestion of near-term procurement being for 20-year bundled contracts (p.64). From our own development experience, this approach has significant potential to benefit Maine ratepayers in the face of REC price uncertainty and lower costs.

III. Conclusion

Thank you for your leadership and the opportunity to provide these comments to you and your team. EDFR is available at anytime to discuss the contents of our submission.

Moreover, we would be available to share our thoughts on how future RFPs can be designed to increase competition, lower project delivery risk, and secure more in-state economic benefits.

Sincerely,

David Thornton
Manager, Regulatory and Public Affairs



February 26, 2021

Melissa Winne
Governor's Energy Office
62 State House Station
Augusta, Maine 04333

RE: State of Maine Renewable Energy Goals Market Assessment

Dear Ms. Winne,

Thank you for the opportunity to comment on the "State of Maine Renewable Energy Goals Market Assessment" ("Report").

EDP Renewables North America LLC ("EDPR") is the fourth-largest owner and operator of wind energy in the United States and around the world. With 53 operating wind farms and 8 solar parks across North America, our team of more than 800 developers, engineers, wind technicians, and other experts are eager to help Maine tap into its valuable wind energy resources, among the best in the eastern U.S.

We applaud the Governor's Energy office for modelling different ways to meet its climate and clean energy goals. The Report findings provide a thorough perspective on the opportunities and challenges facing Maine.

As indicated in the report, Maine's most desirable on-shore wind energy resources are in hard to reach areas of Maine, such as Aroostook County. EDPR started our initial development efforts in Aroostook County about 20 years ago – signing leases with landowners and testing the wind speeds. Since then, we have developed a top-notch wind farm, the Number Nine Wind Farm, that if built to its full potential could produce enough power to meet all of Maine's clean energy targets through 2030.

But, this project has been stalled – for essentially two decades – for one very simple reason: The County lacks the electrical infrastructure to bring clean energy to the grid and ultimately to electricity consumers.

To access these resources, new transmission build-out is critical. These wind and transmission projects can take many years to study and develop and many more to permit and construct. Therefore, action is needed now in order for Maine to access these renewable resources before its projected shortfall in 2026.

Once constructed, a transmission line to Aroostook County can offer the state many benefits for decades to come. It would provide a pathway for more generation – wind, solar, biomass, hydro,

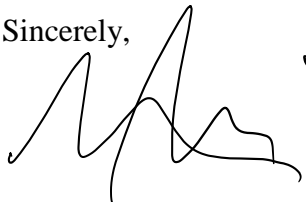
and storage. It would bring major new economic benefits, tax revenue and jobs to Maine and particularly Aroostook County. And, new transmission lines are the highway for Maine to export its clean energy resources to help other New England states meet their climate goals.

As the Report confirmed, more investment in the transmission system from northern Maine is the most cost-effective way to meet the long-term needs of the state, and region. But, we don't have time to waste. This transmission build-out has been contemplated – but repeatedly deferred – for many years. The time to act is now.

The Report encourages the state to launch a “state sponsored anticipatory transmission planning process” and to coordinate with other states in New England to ensure Maine's transmission plan accounts for the added demand from other states. These are good ideas. However, they could easily lead us further down the road of inaction. Laws have been passed and studies have been done. We know the demand for clean energy is growing and we need a pathway to meet this demand. ISO-NE has modelled various transmission upgrades – all too substantial for one project to shoulder alone.

The recent actions of Governor Mills, her administration, and the legislature give us hope that the solution to this age-old problem is in sight. The Governor and her allies have an extraordinary opportunity to enable the build-out of Maine's renewable energy resources in Aroostook County to help meet the state's clean energy goals and revitalize the economy in this important area of the state. EDPR stands ready to support the Governor and the rest of the state's leadership in this effort. We encourage Maine to avoid further delays and take action now.

Sincerely,

A handwritten signature in black ink, appearing to read 'Miguel Prado', with a stylized, flowing script.

Miguel Prado
Chief Executive Officer
EDP Renewables North America LLC



Dan Burgess, Director
Governor's Energy Office
62 State House Station
Augusta, Maine 04333

February 26, 2021

Dear Director Burgess,

The Coalition for Community Solar Access (CCSA) thanks you and your staff for your work on the release of the *State of Maine Renewable Energy Goals Market Assessment*. Maine's climate policy goals are establishing the state as a regional and national leader in advancing the clean energy economy. CCSA appreciates this opportunity for final public comment during this process. The way to successfully achieving these ambitious goals is not easy, as the report prudently states. However, CCSA believes that through the hard work of an administration and an industry that is dedicated to its success, the challenge of achieving these goals can be met. We look forward to working together with the Governor's Energy Office (GEO) in the policy decisions that will be made as a result of this report.

Staying on track to achieve 2026 and 2030 RPS goals depends on protecting existing NEB projects

The report states that Maine is on track to achieving its 2026 goals through the deployment of its existing and procured clean energy resources, including 500 MW of distributed generation. In addition, the report acknowledges that in order to reach the 2030 goal of 80% renewable resources, 800-900 MW of additional generation will be needed, and planning and development for those resources must start long before they start generating RECs in 2026 and later. In order to stay on track for 2026 and create the runway for 2030, it is imperative to protect existing investments in NEB projects. While the current NEB queue includes much more than the 500 MW needed to reach the 2026 goal, attrition rates as high as 50% are not implausible due to interconnection or other challenges. Just as important, making program changes that are effective retroactively will have a substantial chilling effect on the market far beyond the impact on individual projects. This will slow the pace of investment going forward and jeopardize the 2030 goal, not to mention dampening the ability of the renewable energy industry to be an engine of growth as Maine's economy recovers from the COVID crisis.

We agree with the report's finding that transmission is a primary constraint – and that distributed generation can help

CCSA agrees with the finding from the report's scenario analysis that distributed generation increases in importance in future scenarios where new transmission faces cost and/or implementation challenges. While distributed solar resources are currently facing significant interconnection headwinds, community solar-scale projects routinely invest hundreds of thousands of dollars per project in grid upgrades that have benefits beyond interconnecting that specific project. Improving reliability and resiliency will only grow in importance as Maine increasingly faces extreme weather, and CCSA looks forward to engaging with the GEO and other stakeholders in developing policy recommendations that incorporate a locational value for distributed resources and/or increase transparent information regarding hosting capacity. However, in order to realize the benefits of distributed generation for the grid, updates to the interconnection process must be made now to ensure that existing and future projects can interconnect with reasonable schedules and costs.

On a further note related to locational value of distributed resources, Section 5.4 of the report, which details the policy implications of the study for distributed generation, rightly states that “[T]o get maximum value from distributed generation projects, the projects should interconnect at locations with available capacity on the existing distribution and transmission system” (page 70). However, the Public Utilities Commission's current interpretation of what constitutes a “discrete facility” under NEB explicitly makes it more difficult for distributed generation developers to focus on locations with existing interconnection capacity. Defining projects located on separate parcels as discrete facilities would support the intent of existing legislation and make the most of Maine's existing grid infrastructure.

Energy storage should be incentivized to realize the benefits of solar paired with ES

CCSA fully supports the report's conclusion that storage paired with solar can provide value. Storage paired with solar will maximize the amount of clean energy that can be delivered to the grid within a constrained amount of interconnection capacity, and help to alleviate interconnection challenges by deferring some distribution and transmission upgrades. It will also help to levelize system peaks, particularly as beneficial electrification expands. Furthermore, recent events related to extreme weather nationwide have highlighted the need for an increased focus on grid resilience, which is another area where energy storage provides significant value. CCSA encourages the GEO to support policies that encourage the growth of solar paired with storage to help provide these greater benefits to all Maine ratepayers. Specifically, the addition of a small storage incentive to existing programs such as Net Energy Billing and the RPS and DG procurements would be enough to make storage economic, and therefore to make paired solar + storage systems the norm, rather than the exception.

Distributed generation and community solar in particular will help alleviate the energy equity challenges raised in the report

We agree with the report's findings that distributed generation has a significant positive equity impact in that it more broadly distributes the benefits of improved energy reliability and resiliency, and clean energy employment and community investment. We also appreciate the report's focus on the energy equity challenges facing Maine's more vulnerable citizens. CCSA is dedicated to increasing access to clean energy and expanding the benefits of solar to those who are most burdened by the cost of energy and experience other forms of social vulnerability. Community solar is uniquely suited to fulfill this role, by providing access to clean, lower-cost energy to renters, low-income homeowners, and others who are unable to invest in clean energy on an individual basis. CCSA strongly encourages GEO to continue to support the growth of community solar along with the broader growth of distributed solar generation. Community solar policies not only help the growth of distributed solar, but they ensure that all citizens are able to participate in their state's progress, and also directly benefit from the clean energy economy.

Thank you for considering these comments as you take the results of the *State of Maine Renewable Energy Goals Market Assessment*. We look forward to continuing to work with you on the refinement of these programs and policies, and to helping Maine and the region reduce greenhouse gas emissions, increase grid reliability and resiliency, and advance the clean energy economy to benefit Maine now and for decades to come.

Sincerely,

Kaitlin Kelly O'Neill
Northeast Regional Director
Coalition for Community Solar Access



February 26, 2021

Dan Burgess, Director
Governor's Energy Office
62 State House Station
Augusta, Maine 04333

Dear Director Burgess,

The Maine Renewable Energy Association values the excellent work by your office on the “State of Maine Renewable Energy Goals Market Assessment.” As it relates to Maine’s clean energy future, we appreciate the report’s efforts to closely examine the opportunities and challenges that lay ahead, but we know we must be successful in order to transform our economy, energy mix, and protect the environment and our public health.

We wish to share a few high-level thoughts about the report that we hope will be helpful as you move toward conclusion:

- RPS compliance for planned projects, even those with fully executed contracts, is not a given if new projects – distributed generation and grid-scale – are unable to interconnect and deliver their energy to market. Further, given the uncertainties about which markets these generators may select for their RECs, it is possible that the number of new RECs necessary to achieve compliance will be much larger than the study envisions.
- There are many unknowns in the development process of a new clean energy supply, but perhaps most notable is our relatively weak grid infrastructure and how that impacts the ability for projects to move from the drawing board to reaching commercial operation. If we are to achieve our policy goals it is entirely knowable that we will need to both invest in and transform our grid. We must send appropriate signals to the marketplace that Maine is taking seriously our responsibility to prepare the grid to meet the needs of this decade, the next, and the one after that. This is not only critically important for the introduction of new supply, but it is equally true for existing renewable resources. Currently, a number of generators are faced with curtailment due to substantial transmission constraints, which impedes their ability to serve Maine consumers with their cost-effective supply. As we aim to develop a grid capable of absorbing new supply, we must also make investments in the system that will reinforce other areas allowing those curtailed resources to deliver their full benefits to consumers.
- This assessment appropriately identifies future deadlines by which additional supply must come online in order to meet the RPS demand. It is important to note that over the last

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two decades – and especially in the last two years – we have made considerable progress toward transforming our energy mix. However, importantly, the study points out that we should not be satisfied with or complacent regarding this progress – in a best case scenario we will need new supply by 2026, and if generators select different REC compliance markets, curtailments grow, interconnection challenges remain, or resources go offline we may need additional supply even sooner. As generation and transmission developers need ample notice to prepare their projects to participate in ISO markets and state or regional procurements many years in advance, they must see consistent market signals from elected officials and regulators so they can justify the expenditures necessary to be able to be responsive.

- There are also timeliness considerations as it relates to federal tax benefits that will help Maine consumers realize greater benefits sooner; in pursuit of maximizing said benefits, we believe additional procurements are critical for the future development and realization of new clean energy sources. As the report indicates, the success of the PUC-administered tranches, as required by the passage of LD 1494, makes clear that a similar competitive process will deliver important economic and environmental benefits. Further, during the Covid19-induced recession the job and investment potential could not be more well-timed. We respectfully suggest your office and the report itself consider endorsing such an approach to be pursued and signed into law in 2021.
- Lastly, the importance of ocean energy to Maine’s clean energy future is clear, but the report neglects to account for the essential role tidal energy also plays in that sector. Over the last decade, the tidal energy project in Eastport has grown by leaps and bounds – the Maine-based approach has evolved to the point where they are exporting their technology and expertise both domestically and internationally. In order to properly encapsulate the full benefits from ocean energy, we recommend the report give due consideration to also including tidal energy’s potential.

Thank you, your staff, and especially Governor Mills for the administration’s valuable leadership on these critical issues. Please let me know if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Payne", with a large, stylized loop at the end.

Jeremy N. Payne
Executive Director



John Ferland

PRESIDENT

254 Commercial St., Suite 119B
Portland, ME 04101

CELL 207 798 0230

OFFICE 207 772 7707

jferland@orpc.co

February 26, 2021

Melissa Winne
Energy Policy Analyst
Governor's Energy Office
62 State House Station
Augusta, Maine 04333

Dear Melissa,

Thank you for this opportunity to provide feedback to the *Governor's Energy Office Renewable Energy Goals Market Assessment*. Our company supports the efforts of the Governor's Energy Office to help strengthen the role of renewable energy in the years ahead to benefit the state's economy. We look forward to working with the Governor's Energy Office on the Assessment report recommendations regarding the need to strengthen the grid and to ensure that Maine continues to benefit from a diverse portfolio of renewable energy resources.

We feel we are well-positioned to assist the GEO with many of the energy innovations required to meet your office's goals.

Ocean Renewable Power Company, Inc. (ORPC), is based in Portland, with a marine operations center in Eastport and an engineering and electronics laboratory in Brunswick. We develop underwater power systems that generate electricity from ocean, tidal and river currents without use of a dam or impoundments. ORPC's RivGen® Power System is the longest operating device of its type in the Americas, currently providing baseload power to a remote Alaskan village as part of an energy solution that includes energy storage and smart grid controls.

The Maine Ocean Energy Act of 2010 was an historic legislative and regulatory accomplishment that created the foundation for a new in-state industry based on Gulf of Maine-generated resources. As a result of the Act, ORPC competed for and was awarded an up to 5 MW allocation of tidal energy generation by the Maine Public Utilities Commission. Uniquely, the PUC-approved 20-year power purchase agreement requires ORPC to establish a Maine-based ocean energy industry with an in-state supply chain, host community partnerships and R&D participation by the university system.

ORPC has spent over \$40 million in Maine in recent years, including about \$6 million in Washington County. We employ 18 people directly in our Maine locations and maintain an extensive multi-county supply chain including a concentration of contractors and services providers in the Eastport area. We are long-time partners with the University of Maine School of Marine Sciences and UMaine's College of Engineering.

Letter to Melissa Winne
Governor's Energy Office

PAGE 2 OF 2

With Eastport as an economic development partner, our tidal energy development plans for Western Passage include a smart microgrid initiative, whereby ORPC's tidal energy devices, paired with an energy storage system and smart grid controls, would provide predictable baseload power to the rural regional grid, enhance the ability to use less predictable renewable energy sources, and improve the grid performance for a region of Maine historically at the end of the line. We are excited to advance this effort because we feel it is consistent with your vision for Maine and aligns with recommendations contained in the State of Maine Climate Action Plan, clean energy economy plan and renewable energy market assessment.

Thanks again for opportunity to comment on the assessment report. ORPC looks forward to continued collaboration with the Governor's Energy Office to help Maine achieve its renewable energy goals.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Ferland". The signature is stylized with a large, loopy initial "J" and "F".

John Ferland

Renewable Energy Goals Market Assessment Feedback

Sent via email on February 23, 2021

From: Ian Leavesley <leavesleyim@gmail.com>

Sent: Tuesday, February 23, 2021 1:58 PM

To: Winne, Melissa <Melissa.Winne@maine.gov>

Cc: Rose, Cassaundra <Cassaundra.Rose@maine.gov>; dcostello@nrcm.org

Subject: Feedback - energy goals market assessment

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.

Melissa

Excellent report - thank you.

I have three comments:

1) fixed offshore wind is not discussed at all even though based on the report statements, it represents 17+ GW of potential. Presumably this is with higher capacity factor than onshore. It seems odd this much potential is not even mentioned. Why is that?

Assuming only 5% of this is easily accessible and contiguous enough to cost effectively use, that would represent 860 MW of potential at a LCOE less than floating since it is existing and proven technology. That might serve as a lower cost offshore "bridge technology" from now to 2030/2035 until floating costs can be brought down. I don't know if mixing floating and fixed within a single area is possible, but they share major elements of the cost structure - transmission and the turbines themselves.

At a minimum, change text and labels from "offshore" to "floating offshore"

2). Net present value is expressed incorrectly. From wikipedia: NPV is determined by calculating the costs (negative cash flows) and benefits (positive cash flows) for each period of an investment (https://en.wikipedia.org/wiki/Net_present_value)

Since you didn't attempt to assign a value to the benefits, all the NPV's presented would be negative values. This would obviously be confusing to non-financial people, so perhaps wording such as "cumulative investment (2019 dollars)" would be more appropriate.

3) regarding transmission constraints - keep in mind that 345 kV connect points are accessible from the offshore "area of interest". They are on the NH side of the Maine / NH border (Piscataqua River) with two very rarely used power plants right on the river a few miles from the mouth of the river. This might help with the bottleneck at Suroweic.

Let me know if you want to discuss

Ian Leavesley

Eliot ME

317-313-7068

Quotes from text used to calculate fixed potential:

there is about 156 GW of offshore wind technical potential off the coast of Maine

Analysis shows that 89% of Maine's offshore wind potential is in deep waters

Renewable Energy Goals Market Assessment Feedback

Received via email on February 26, 2021

From: Tim Charette, International Energy Partners, LLC (via email: tcharette@IEPartners.us)

Melissa,

I apologize for not appropriating enough time to fully delve into this report; as we heard of the opportunity to provide feedback this morning on the local news.

From skimming through this report, it seems as though the delivery cost were not fully taken into consideration as a portion of the energy costs. Policy and programs such as the current NEB rules are, in my opinion, unsustainable. The unsustainability aspect pushes greater delivery charges to the remaining customers, not only as an effect of load reduction but also as stranded costs resulting from the purchase of energy greater than the current market. Transmission costs have been on a parabolic trajectory in both the NMISA and ISO-NE regions which exacerbates the cost shifting resulting from the current NEB rules. Distributed generation will require changes to distribution systems and utility operations which eventually will increase wires charges and the overall energy rate paid by the consumer.

Additionally the award of long term contracts at a fixed price has in our opinion a detrimental effect on the electric wholesale market. Generation facilities with fixed long term contracts have the benefit of submitting daily offers into the ISO-NE market system at \$0 price, distorting the economic clearing price, along with the forward electric market. The long term fixed price contracts undermine the efficiency of the market based rate. It is our opinion that this type of distortion, played a role in the recent blackouts that occurred in ERCOT.

We also feel that policy should and should have been coordinated, at a minimum, across the region and states within ISO-NE control area. While Maine seems to have the most ambitious decarbonization schedule, the impact will disproportionately hurt the Maine rate payer and taxpayers. It will also be an additional burden to attract new economic activity and business to the area already suffering from low income. An overall regional energy policy would provide beneficial planning while possibly minimizing the economic impact of moving toward a low carbon region and could provide direction on diversity of technology. One other aspect for which thought needs to be given is capacity. Solar and wind resources have low available capacity and is the capacity that provides resource and system reliability.

Should you have questions, please feel free to reach out to IEP.



Tim Charette
International Energy Partners, LLC
207.492.1013 (office)
207.492.1020 (fax)
207.227.0036 (mobile)
tcharette@iepartners.us
www.iepartners.us

Renewable Energy Goals Market Assessment Feedback

Received via email on February 26, 2021

From: Kristin Vines of Limestone, Maine (cheshire71@gmail.com)

I could not agree with this statement more:

The assessment says Stakeholders identified that Aroostook County needed a higher share of development in generation, transmission, and distribution.

We definitely need to shift our future into a more sustainable way of living which would include renewable energies such as wind or solar. Our planet is in peril and we have waited entirely too long to make these changes. We have to begin now while we still have a chance.

Thank you,
Kristin Vines
Limestone, Maine

Renewable Energy Goals Market Assessment Feedback

Received via email on February 25, 2021

From: Thomas Page from Auburn, Maine (Thompage326@outlook.com)

Ms. Winne,

This letter is in response to the solicitation for comments regarding the report and accompanying webinar on the recently presented Renewable Energy Goals Market Assessment. Please consider:

1. How does the State reconcile the need for more transmission capacity with the reality of increasing opposition to such lines? The recent opposition to the NECEC line, despite the Governor's support, is a case in point. As the presenter, Saamrat, points out, it's difficult to model such contingencies but, accepting they exist is a reality. How to proactively deal with such opposition, or acceptance, will be an issue for the Governor and the State in general. The Legislature will need to allow a more liberal application of the use of existing Right of Way laws among other things.
2. Increasing the network of Distributed Generation will only accentuate the issue of a transmission bottleneck. (Not to mention the inherent problem with points of connection along the shore to connect new Offshore Wind)
3. The classification of Renewable Power (Class 1,1a, etc...) seems like more a political construct than a pragmatic assessment of Energy Generation. The State desires to rely more on renewable power culminating in a 100% dependance on such as of 2050. However, it doesn't acknowledge excess capacity that already exists from dependable, baseload, and current sources. One example of this is the 5,000 MW of hydropower available through Hydro-Quebec. The Maine Statute limits the use of such power to less than 100MW. Why? Allowing even a small portion of that unused capacity to flow onto the Grid would alleviate the need for much of the anticipated construction and cost inherent in such an ambitious undertaking. Perhaps a reclassification of renewable resource is in order?

I hope you will consider these comments. The goal of decreasing our collective carbon footprint is admirable but it needs to be aligned with the practical aspects of a functioning economy.

Respectfully,

Thomas Page
Auburn, ME