



**The following comments were submitted to the Governor's Energy Office in reference to the draft *Distribution System Operator Feasibility Study*.**

# Post Road Foundation

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December 4, 2024

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

RE: DSO Study Comment

Director Burgess:

Thank you for the opportunity to comment on GEO's Distribution System Operator Feasibility Study.

The Post Road Foundation, a 501(c)(3) non-profit dedicated to helping communities nationwide build sustainable infrastructure, has experience with many of the issues outlined in the DSO Study. In particular, as part of the U.S. Department of Energy's "Connected Community" cohort, Post Road is bringing to commercial scale a DER coordination technology that has a local, bottom-up solution to emerging grid challenges, which we call "TESS." This technology, and others developed and implemented by the cohort, could serve many of the DSO functions mentioned in the report. Note that to date a lot of our development work as part of the cohort has been conducted in Maine in partnership with Efficiency Maine Trust. As a result, we are familiar with the unique issues of Maine's electric grid. We have three comments on the study:

**1. The Strategen report correctly discusses DERs as a transformative technology for Maine's electric grid and a driver of job creation.**

We agree with Strategen's report that DERs, particularly rooftop solar, battery storage, and electric vehicle charging, can help Maine achieve its energy and climate goals, including reducing vulnerability to price shocks from global energy markets. DERs, when effectively coordinated with technologies like TESS, would help shift Maine towards a more decentralized and resilient energy system. Deployment of coordinated DERs will also advance Maine's Energy Plan and Governor Mills' goal of doubling clean energy and energy efficiency jobs. For example, deployment of DERs and DER coordination technologies create new employment opportunities for DER installation and DER management.

**2. A subset of the DSO functions listed in the report can be achieved via alternative DER coordination technologies that are available today or under development**

DER coordination technologies, such as TESS, could be the Operating System of a future DSO or they could operate under Maine's existing electricity regulation framework. Importantly, multiple types of these technologies could operate concurrently so that the state of Maine could learn which combination would best meet Maine's needs. DSO functions that could be provided by these technologies include:

- Integrated System Planning

DER coordination can support Integrated System Planning in two ways. First, these technologies generally collect appliance-level load data that can be used to support detailed grid modeling, by for example a digital twin, that can in turn support system level planning. Second, effective coordination can increase the capacity factor of the existing distribution and transmission grid, thereby giving Maine and Maine's utilities more time to plan and implement upgrades needed to meet Maine's aggressive electrification and climate goals. Effective coordination may also be able to lessen the need for these upgrades by helping manage peak conditions as they arise.

- DER Market Administration

Some types of DER coordination can support market mechanisms that enable sharing value creation with DER owners/operators. For example, TESS uses a feeder-specific, auction-based market mechanism, analogous to ISONE's real-time wholesale energy market, to coordinate production and consumption of electricity amongst DERs located on each participating feeder. The market mechanism enables DER coordination to respect DER user preferences and creates a simple way for value creation to be shared, based on these preferences. Market-based DER coordination also facilitates accurate measurement and verification of DER performance, further advancing DSO functions.

- System Operations

The report describes how a bottom-up approach that incorporates real-time data, local energy needs, and DER flexibility may be essential to meeting the 2040 goals set by the state. Effective DER coordination technologies, like TESS, could respond to grid conditions and local energy needs in a decentralized, feeder-level manner.

- T&D Coordination

DER coordination technologies that are based on market principles can also support easy coordination with the transmission system. Because these mechanisms use a market price for coordination, they can be readily integrated into organized wholesale markets, such as ISONE, that also operate on market principles.

DER coordination systems can also provide ancillary services to prevent out-of-band voltage fluctuations and provide frequency support. This use case could reduce the need for dedicated ancillary services at the transmission level, enhancing the overall efficiency and cost-effectiveness of the T&D system.

- Data Access and Management

A high-DER grid necessitates the collection, processing, and sharing of vast amounts of data from various sources, including customer meters, DERs, and T&D equipment. DER coordination technologies can collect and manage this data. Specifically, they can undertake key functions, such as establishing common data standards essential for interoperability and efficient data exchange, protecting customer privacy by obtaining consent before sharing customer data, and implementing security measures for safeguarding sensitive grid data.

### **3. When considering DSO or other DER coordination alternatives, cybersecurity should be prioritized**

Although DER coordination, through a DSO or other mechanism, offers many benefits, it does increase cybersecurity risk, which is not discussed in the report. DERs themselves, the coordinating software, and communication channels between DERs and other stakeholders can be vulnerable. Coordination systems rely heavily on data communication and control, making cybersecurity a key design concern. To manage and reduce this risk, DSOs or DER coordination mechanisms should be designed with cybersecurity in mind.



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Janet T. Mills  
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December 5, 2024

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

RE: DSO Feasibility Study Comments

To the Governor's Energy Office:

The Maine Office of the Public Advocate (OPA) offers the following comments regarding the draft Distribution System Operator (DSO) - Initial Study prepared for the Governor's Energy Office (GEO) by Strategen Consulting and circulated for review on November 18, 2024 (the Initial Study).

The OPA applauds the GEO's diligent efforts to prepare Part I of the Study as directed by Resolves 2023, Chapter 67, "Resolve, to Create a 21st-Century Electric Grid," (the Resolve). The OPA also supports the GEO's initial determination not to pursue Part II of the DSO study, which would entail the formal creation of a DSO design proposal. Finally, the OPA supports the GEO's expressed intent to consider the information and findings contained in Part I of the study to inform future prioritized areas of analysis to support achievement of the broader objectives of the state related to grid planning, infrastructure, and management.

As a general matter, the OPA supports wholeheartedly the implementation of improvements to electric transmission and distribution system planning processes and operational practices that will better integrate distributed energy resources (DERs), energy storage resources (ESRs), and other non-wires alternatives (NWA) to facilitate a more cost-effective electric grid and achievement of the State's climate policy goals. The OPA believes the primary structural changes that the Resolve seeks to advance through the creation of a DSO are already being actively implemented through other existing initiatives. As a result,

efforts to create a DSO may duplicate those efforts or lead to inconsistent recommendations or requirements.

For instance, in 2022, the Legislature enacted An Act Regarding Utility Accountability and Grid Planning for Maine's Clean Energy Future, (P.L. 2021, c. 702. Section 8, now codified at 35-A M.R.S. § 3147(2)). This statute required the Maine Public Utilities Commission (Commission) to initiate a proceeding by November 1, 2022, and every five years thereafter, to identify the priorities for utility grid plans that will assist in the cost-effective transition to a clean, affordable, and reliable electric grid. Pursuant to this statute, the Commission initiated a proceeding to receive input from stakeholders, conducting thirteen meetings and workshops and soliciting input on several topics through written comments. Based upon this extensive record the Commission has now required Maine's investor-owned transmission and distribution utilities to file plans in compliance with identified priorities by January 12, 2026. These priorities include support for the integration and utilization of DERs to enable load flexibility and resilience. (See Docket No 2022-00322).

Further, as noted in the Initial Study, in 2020, the Federal Energy Regulatory Commission (FERC) issued Order No. 2222 to better enable DERs to participate in regional electricity markets. Under FERC's definition, the term "DERs" covers a wide variety of resources, including electric battery storage systems, rooftop solar panels, products like smart thermostats that enable one to reduce power usage, energy efficiency measures, thermal energy storage systems such as ice storage, or electric vehicles and their charging equipment. Since the adoption of Order No. 2222, ISO New England Inc. submitted revisions to its Transmission, Markets, and Services Tariff to specify submetering requirements for "Alternative Technology Regulation Resources," in compliance with the requirements of Order No. 2222. FERC has now accepted these revisions, thereby allowing the revisions to become effective. (See FERC Docket No. ER22-983-009).

The existing grid planning process in Maine also requires the consideration of non-wires alternatives (NWAs). In 2019, the Legislature amended 35-A M.R.S. §§3132 and 3132-A and enacted 35-A M.R.S. §§3132-B, 3132-C, and 3132-D to establish a non-wires alternative coordinator (NWAC) under the administration of the OPA. With certain exceptions, this legislation requires NWA analyses to be conducted for small transmission or distribution projects with costs starting at \$500,000. In conducting its analysis, the NWAC consults with the Efficiency Maine Trust (EMT), which, among other things, analyzes the opportunity for behind the meter resources to help meet the planning need. NWAs may include any resource capable of addressing the identified planning need, and include, without limitation, DERs and ESRs, as well as targeted demand response or energy efficiency initiatives. To date, the NWA review process has resulted in over \$16 million in reduced grid investments through the identification of lower cost alternatives.

As noted in the Initial Study, EMT operates a comprehensive demand management program that dispatches DERs based on ISO-NE system peaks. This includes programs for small battery management, large battery management, commercial curtailment and managed charging for EVs. EMT also uses the *Avoided Energy Supply Components in New England* report as part of its Triennial Plan to incorporate an estimated value for avoided distribution costs.

Given these extensive ongoing efforts, the OPA supports the GEO's initial determination not to pursue Part II of the DSO study. This approach will allow ongoing initiatives by the Commission and Maine's utilities to develop grid plans in compliance with the Commission's Order in Docket No. 2022-00322, the implementation and further development by ISO New England of its tariff provisions permitting the participation of DERs in its markets pursuant to FERC Order No. 2222, and the further development by EMT of its programs compensating DERs for grid services.

Finally, the OPA has not retained a technical expert in connection with the preparation of these comments, and therefore does not offer responses to the enumerated questions posed on page 2 to the cover sheet accompanying the draft Initial Study.

Thank you for the opportunity to provide these comments.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'A. Landry', written in a cursive style.

Andrew Landry  
Deputy Public Advocate

*/s/ Susan W. Chamberlin*

Susan W. Chamberlin  
Senior Counsel



December 5, 2024

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

Dear Director Burgess:

Central Maine Power Company ("CMP") appreciates this opportunity to provide comments on the Distribution System Operator Feasibility Study (the "Study"), which Strategen Consulting ("Strategen") has prepared for the Maine Governor's Energy Office ("GEO") pursuant to Resolve 2023, ch. 67.

CMP supports the GEO's finding that system planning, operation of the entire electric system, administration of a market for distributed energy resources ("DERs") and facilitation of the State's greenhouse gas reduction obligations and climate policies – roles the Resolve would require a third-party DSO to serve – "are not exclusively achievable in the context of a DSO, nor even that a DSO is unequivocally the preferred entity to perform such roles."

First, while the Study highlights ongoing efforts around the world, it barely acknowledges the significant progress CMP has made toward achieving outcomes aligned with the Study, such as ongoing efforts with the GEO to implement flexible interconnection options to avoid system upgrades; the successful US Department of Energy Grid Resilience and Innovation Partnerships ("GRIP") award to the GEO, Versant Power, and CMP to implement active network management for DER interconnections; CMP's prior successful GRIP award to deploy smart grid technologies; or CMP's ongoing Grid Model Enhancement Project. These initiatives in many ways parallel those highlighted in the report, but unfortunately they were not considered.

Second, the Study devotes almost exclusive priority to DER integration, and the role of DERs in system planning, operations, administering a market for DERs, and facilitation of the State's greenhouse gas emissions reduction obligations and climate policies. While CMP supports DER integration for both the climate and energy benefits as well as the potential grid services opportunities, we believe that the Study does not adequately consider the full range of methods utilities worldwide employ in providing safe, reliable, affordable service. Many of those methods, as noted above, involve DSO functions that CMP utilizes. The GEO's recent draft *Pathways to 2040* study provides a well-considered suite of options for the State, utilities, generation owners, and customers to adopt in coordination that we believe are more realistic and effective. We believe that the *Pathways* study should inform future prioritized areas of analysis to support achievement of the





State related to grid planning, infrastructure, and management.

We expect discussions around system planning, operations, DER integration, and achieving the State's climate and energy goals to continue in the ongoing stakeholder meetings on rate design, integrated grid planning, and climate change planning that CMP is leading, through dockets devoted to these and other issues at the Public Utilities Commission, and through further discussions around implementing the *Pathways to 2040* report. We look forward to further engagement with the GEO, stakeholders, and our customers on these topics.

Sincerely,

Craig T. Nale  
Director, Regulatory Affairs  
Central Maine Power Company



December 5, 2024

Submitted via email to [geo@maine.gov](mailto:geo@maine.gov)

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

**RE: Natural Resources Council of Maine Comments on the Distribution System Operator Feasibility Study**

Dear Director Burgess,

The Natural Resources Council of Maine (NRCM) appreciates the opportunity to comment on the Distribution System Operator Feasibility Study (Part 1), pursuant to [Resolves 2023, Ch. 67](#) (the Resolve), legislation which NRCM [supported](#).

NRCM has more than 60 years of history working to protect, restore, and conserve Maine's environment on behalf of our 30,000 members and supporters across the state. Climate change poses one of the gravest threats to Maine's environmental resources. The efficient management and operations of and investment in our electricity system will be the essential linchpin for implementing Maine's Climate Action Plan and achieving 100% clean energy by 2040 affordably.

Significant reforms to operations, planning, and market administration are needed to modernize our outdated and misaligned utility sector and to ensure that the revolution in clean distributed energy resources (DERs) maximally benefits Maine homes and businesses, depressing energy costs for all Maine people.

The Resolve was a bold step to addressing the problem head-on, and we commend the authors of Part 1 for producing a thorough survey of core functions, guiding principles, and international experience with distribution system operators (DSOs).

However, without Part 2, the value of this work as it relates to Maine is potentially lost to us.

In communicating its decision not to heed the findings of the report, GEO provides in its cover letter little justification. Its decision also apparently contradicts the language of the Resolve, which states that:

[I]f the consultant's initial study concludes that a DSO can be designed to achieve the objectives set out in section 2 and the office agrees with that conclusion after review and evaluation of the initial study, the office shall authorize the consultant to proceed with the 2nd part of the study in accordance with this section.<sup>1</sup>

In its letter, GEO does not conclude that it *disagrees* with the consultant's conclusion that a DSO can achieve the stated objectives. Instead, GEO alludes to alternative, potentially preferable entities that can perform the same functions and roles of a DSO but does not identify what those alternative approaches might be.<sup>2</sup>

We remain unconvinced that there are obvious alternative contenders for creating an impartial operator and market administrator for the distribution system in Maine – certainly none were proposed in the hearings of the Joint Committee on Energy, Utility, and Technology when the bill was under discussion. And we are concerned that more half-hearted reforms will risk preserving the current regulatory asymmetries and misaligned interests to deleterious effect for ratepayer costs.

Take for example the state of various, uncoordinated DSO-adjacent programs in Maine:

- The non-wires alternative (NWA) process, established in 2019, has yet to produce a single project.
- Integrated grid planning, established in 2022, gives system operations, planning, and investment functions to the utilities with no mechanism for coordinated deployment and utilization of DERs and little opportunity for regulatory oversight.
- DERs continue to be subject to unpredictable costs and long interconnection delays, incomparable to schedules in other utility jurisdictions in the region.<sup>3</sup>
- Advanced metering infrastructure (AMI), now deployed in both service territories, remains underutilized.
- Statutory service standards and metrics for DER interconnection have not been implemented.<sup>4</sup>
- Inadequate resilience planning has led to escalating storm response costs, adding \$190 million to rates in CMP territory in 2023 alone.<sup>5</sup>

The concern that continued piecemeal implementation will jeopardize Maine's climate goals again comes to the fore when considering the Department of Energy's recent Grid Resilience and

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<sup>1</sup> The objectives as set out in Section 2 are as follows: 1. A demonstrable reduction in electricity costs for customers; 2. Improved electric system reliability and performance in the State; and 3. Accelerated achievement of the State's climate goals and growth of distributed energy resources. See Resolves 2023, Ch. 67, at <https://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP0599&item=4&snum=131>

<sup>2</sup> Nor was it the task of the consultant to compare and contrast alternative approaches.

<sup>3</sup> Testimony before the Maine Public Utilities Commission from Maine Renewable Energy Associate and the Coalition for Community Solar Access, Docket No, 2023-00236 (November 3, 2023) at 4:22.

<sup>4</sup> 35-A M.R.S. §301 (1-A)(A)(4) at <https://legislature.maine.gov/statutes/35-A/title35-Asec301.html>.

<sup>5</sup> Office of the Public Advocate Motion to File Testimony on Minimizing Storm Outages, Docket No. 2023-00282, filed May 2, 2024.

Innovation Partnership (GRIP) award to Maine to deploy Active Network Management (ANM) across Versant and CMP territories. (Note that the Draft Study should be updated on page 89 to reflect GEO's successful applicable.) Without a robust process to establish a regulatory framework to offer ANM to new interconnecting customers, the investment will likely not live up to its potential to integrate more DER more quickly and cheaply for both ratepayers and developers.

In light of a decision not to proceed, Section 8 of Part 1 on "Maine Context" should provide a more thorough examination of the current functions and responsibilities, and the limitation therein, of Maine's existing entities, with an eye to the lessons proffered by the international experience that the authors have surveyed. We encourage the consultant to provide a discussion of actionable priorities for Maine to advance the objectives of a DSO without its establishment under alternative grid development pathways.

In conclusion, we remain concerned that GEO's decision not to pursue Part 2 in some form represents a missed opportunity to proactively consider an institutional redesign that pulls together Maine's disaggregated electric sector functions – currently dispersed across the two investor-owned utilities and four government bureaucracies (i.e., the Public Utilities Commission, Efficiency Maine Trust, the Office of the Public Advocate, and GEO) – to steer the state's energy sector into the future.

Thank you again for this opportunity to provide input.

Respectfully,



Rebecca Schultz  
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Maine Grid Works is a Maine-based study-action group, focused on making Maine's public energy systems cleaner, resilient to climate warming, more reliable and affordable

Comments by Maine Grid Works Steering Committee  
to the Governor's Energy Office (State of Maine)  
on the draft Distribution System Operator Feasibility Study  
conducted by Strategen Consulting  
November 2024

December 3, 2024

Comments on the Directive Letter Attached to the Initial Study Report

1. The GEO has already determined not to pursue further study based on the work done thus far, prior to any public input on the Initial Study. What then is the purpose for submitted comments? Clarification about the actual purpose of soliciting public input would be appreciated.
2. Paragraph 4 states:  
"However, it is clear from the Draft Feasibility Study that designing and implementing DSO entities requires a significant investment of resources and collaboration, beyond what was contemplated in the Resolve . . ."  
The foundation for this assertion is unclear. Who made this determination, and on what basis?
3. Limiting the request for submitted comments to the areas specifically outlined on Page 2 of the Directive Letter is a practical approach from the perspective of the GEO, but not really very welcoming to the public who may wish to comment on other sections or aspects of the entire communication and study, such as we are doing here. It's telling everyone right up front what will and will not be acceptable as comments on this very important initiative on the part of the people of Maine, as represented by their legislators.

Comments on the Assumptions and Methodological Approach (Part 4)

1. We applaud the approach taken by Strategen as outline in this section, as both thorough and in-depth, identifying the breadth of resources available for consideration.
2. As implied by several comments in this study, DSOs are the future of public energy systems and will come to replace some existing component of our current system (ISO, Transmission & Distribution systems). This appears to make the determination not to proceed premature.
3. Energy systems are undergoing rapid changes, and are being constrained by the requirements of the Investor-Owned Utility model. These constraints create dysfunctions in the current system, and dissatisfaction among the ultimate energy users and consumers. There is too much investment in "the way we were" and "the way we are" for the existing owners and operators

of transmission, generation and overall system operation to change at the rate required. The current system – and its components – have already demonstrated beyond any doubt that they will not provide the required new resources and new system components that will meet legislatively established climate goals. DSOs can help change that.



December 5, 2024

Submitted via E-mail: [geo@maine.gov](mailto:geo@maine.gov)

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

**Re: Conservation Law Foundation's Comments on "Distribution System Operator (DSO) Initial Study"**

Director Burgess:

To meet Maine's climate and clean energy requirements in a timely and cost-effective manner, the state must modernize its electric grid, including the distribution system, and must maximize the use of economical resources, including distributed energy resources (DERs). The Governor's Energy Office's (GEO) November 2024 "Distribution System Operator (DSO) Initial Study" examines the importance of an enhanced distribution system and of increased DER integration within Maine's distribution system in a manner that can provide benefits for the wider electric system.<sup>1</sup> Even if the DSO model is not pursued, the study provides invaluable information on how the state can reduce electricity costs, improve reliability and meet the state's climate objectives.<sup>2</sup> Conservation Law Foundation (CLF) commends the GEO and its consultant for their work on the study and provides the following comments for consideration.

CLF is a public-interest advocacy organization focused on protecting New England's environment and safeguarding the health of our communities. CLF advocates for laws, policies and projects that advance clean energy and reduce energy demand, while saving families and businesses money and creating jobs. CLF works to reduce the region's reliance on fossil fuels and to modernize the region's electricity grid to better serve the needs of our changing society.

**I. The GEO should accept comments on the entire "DSO Initial Study" and provide more detailed reasoning for its determination not to pursue the DSO design proposal.**

In its Determination and Request for Comment, the GEO requests comments on future prioritized areas of analysis, potential next steps and a specified list of questions pertaining to

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<sup>1</sup> GEO, Distribution System Operator (DSO) Initial Study, Final Draft, November 2024, <https://www.maine.gov/energy/sites/maine.gov/energy/files/2024-11/DSO%20draft%20study%20results%20Nov%202024.pdf>, at 17, 101.

<sup>2</sup> Resolves 2023, Chapter 67, June 22, 2023, <https://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP0599&item=4&snun=131>, at § 2.

Sections 4, 5, 7 and 8 of the study.<sup>3</sup> Under Resolves 2023, Chapter 67 (Resolve), the Legislature directed the GEO to conduct a study and to “ensure meaningful opportunities for stakeholder engagement to inform the consultant’s work at appropriate times during each part of the study.”<sup>4</sup> There were two one-hour stakeholder meetings regarding the study, one on June 20, 2024 and one on November 26, 2024, and one written comment period, closing on December 5, 2024. To ensure opportunities for engagement are meaningful, the GEO should accept and consider stakeholder comments concerning the entire study, not just four of the study’s nine sections.

The 103-page “DSO Initial Study” is the culmination of the GEO consultant’s work to prepare an initial DSO feasibility study as described in Section 2 of the Resolve. On November 18, 2024, the GEO indicated its determination not to pursue the formal creation of a DSO design proposal as described in Section 3 of the Resolve. The determination is just one paragraph long and indicates that designing and implementing DSO entities requires significant investment of resources and collaboration beyond what was contemplated in the Resolve, the DSO functions and roles are not exclusively achievable in the context of a DSO and certain roles or outcomes for which a DSO may be designed to achieve may also be achieved through alternative means. Given the breadth and significance of the issues addressed in the study, the GEO should provide additional details on its determination, including, for example, what DSO functions are not exclusively achievable and what alternative means exist for achieving DSO outcomes.

In addition to providing a more robust rationale for its determination, the GEO should provide greater detail on its plans for how it will use the DSO study. The GEO indicates in its determination that it “intends to consider the information and findings contained in the initial study to inform future prioritized areas of analysis to support achievement of the broader objectives of the state related to grid planning, infrastructure, and management.” The GEO should explain its intentions, including specific steps on how the study will be used to inform development and finalization of the GEO’s Maine Energy Plan and implementation of the Maine Public Utilities Commission’s (PUC) Integrated Grid Planning and Climate Change Protection Planning, and the Maine Climate Council’s Climate Action Plan. Given their overlap, the GEO should help organize these various planning efforts into a comprehensive power-sector transformation effort. As discussed below, the study should also inform PUC regulation of Maine’s electric distribution utilities.

## **II. The “DSO Initial Study” identifies important economic, grid and climate opportunities presented by recent and future trends in Maine’s evolving distribution system.**

At the outset, and throughout, the study recognizes the transformative shift that is underway within Maine’s electricity sector and that is aimed at modernizing the grid to improve performance, manage energy costs, and achieve climate objectives, including Maine’s

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<sup>3</sup> GEO, DSO Feasibility Study, Determination and Request for Comment, November 18, 2024.

<sup>4</sup> Resolves 2023, Chapter 67, June 22, 2023, at § 1.



Renewable Portfolio Standard (RPS) and required greenhouse emissions reductions.<sup>5</sup> The study also accurately recognizes that DERs are a significant component of the state’s changing electricity system that provide significant affordability, reliability, resilience and environmental benefits.<sup>6</sup> The study also finds that the objectives of the distribution system need to be expanded to support the more diverse and complex set of needs presented by the 21st-century electricity system that integrates growing amounts of DERs, accommodates bidirectional power flows and unlocks the greatest benefits of DERs.<sup>7</sup>

The study concludes that a DSO can achieve the Resolve’s stated objectives of ensuring a more reliable and cost-effective clean energy future for Maine.<sup>8</sup> This conclusion is based on the study’s assessment of “whether the functions specified for the DSO, if effectively implemented, can support cost-effective integration of DER and promote further growth of DER in a way that aligns with the objectives in the Resolve.”<sup>9</sup> Specifically, the study finds that:

- DERs present a valuable alternative by enhancing electric service reliability, especially for end users and critical community services. ... DERs offer new methods to improve traditional grid reliability through sectionalization.
- By placing distributed generation and storage closer to demand centers, DERs help decrease transmission reliance, presenting cost savings by reducing infrastructure needs for peak-load transmission and distribution upgrades.
- These [DERs], which both generate and manage energy locally, represent a resilient and feasible path to achieving the State’s renewable energy goals within the timelines required for effective climate action.<sup>10</sup>

In its determination, the GEO makes no specific indication about whether it agrees with the study’s conclusion that a DSO can achieve the Resolve’s stated objectives. Rather, as discussed above, the GEO indicates that the DSO “functions and roles” are not exclusively achievable in the context of a DSO, and that certain “roles or outcomes” for which a DSO may be designed to achieve may also be achieved through alternative means. The determination should be expanded to explain whether there are any of the Resolve’s stated objectives that the DSO would be unable to achieve or that would be better achieved through alternative means.

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<sup>5</sup> GEO, DSO Initial Study, November 2024, at 4, 77-78, 99-100.

<sup>6</sup> *Id.* at 13.

<sup>7</sup> *Id.* at 29.

<sup>8</sup> *Id.* at 13, 101. Pursuant to § 2 of the Resolve, the relevant objectives are:

1. A demonstrable reduction in electricity costs for customers;
2. Improved electric system reliability and performance in the State; and
3. Accelerated achievement of the State’s climate goals and growth of distributed energy resources.

<sup>9</sup> GEO, DSO Initial Study, November 2024, at 97.

<sup>10</sup> *Id.* at 99-101 (emphases added).

The three objectives set forth in the Resolve are significant not only because the Legislature identified them for consideration in the context of the DSO study, but also because they align with Maine public policy enunciated by the Legislature in other statutes, including that electric utilities must furnish safe, reasonable and adequate service, that electricity rates must be just and reasonable and that Maine must meet its RPS and emissions reductions targets.<sup>11</sup> These objectives have also been identified as priorities by the Legislature and the PUC in the context of Integrated Grid Planning at the distribution system level.<sup>12</sup> Given the significance of the Resolve’s stated objectives, the GEO should expand on its determination and help ensure that the study’s findings are used to inform all planning efforts concerning Maine’s distribution system.

**III. Regardless of whether a DSO is pursued in Maine, the “DSO Initial Study” highlights aspects of the state’s electric distribution system that can and must be improved.**

As Maine’s electric grid evolves to support an affordable, reliable and equitable clean energy transition, its components must be modernized, whether through a DSO or through existing entities, particularly Maine’s electric distribution system utilities. The study provides a roadmap for how to advance the transition, including through improved operational visibility, flexible connections, bottom-up resource planning and coordinated market mechanisms. These steps must be pursued, whether through a DSO or otherwise—indeed, the study finds that these are “essential functions that need attention under any plausible grid development path.”<sup>13</sup>

The study also provides insights into how Maine could utilize distribution-connected renewable generation to provide a substantial share of clean energy and accelerate the state’s clean energy objectives, and could include market mechanisms that involve a larger definition of DERs that includes front-of-the-meter assets such as solar plus storage hybrid generators that can export energy to the system in addition to ancillary grid services.<sup>14</sup> The study also emphasizes the importance of data access and management and transmission and distribution coordination in a high-DER system.<sup>15</sup> Again, these features are raised in the context of a DSO, but are areas that must be modernized in Maine regardless of whether the state pursues a DSO—arguably, these aspects of the grid are even more important in the absence of a DSO.

As with the three objectives identified in the Resolve, and discussed above, the grid functions, services and benefits examined in the study reflect and align with legislative and regulatory priorities. For example, the PUC has initiated an Integrated Grid Planning (IGP) process, at the direction of the Legislature, and the priorities identified for that process align with the DSO study, including improving distribution system reliability and resilience and promoting

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<sup>11</sup> 35-A M.R.S. § 301, 35-A M.R.S. § 3210, 38 M.R.S. § 576-A.

<sup>12</sup> 35-A M.R.S. § 3147(2); PUC, Proceeding to Identify Priorities for Grid Plan Filings, Order, July 12, 2024, <https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/ViewDoc.aspx?DocRefId={E0F4A790-0000-C41D-A4B4-93D007E98F0D}&DocExt=pdf&DocName={E0F4A790-0000-C41D-A4B4-93D007E98F0D}.pdf>, at 22-23.

<sup>13</sup> GEO, DSO Initial Study, at 5.

<sup>14</sup> *Id.* at 9, 11, 30-31.

<sup>15</sup> *Id.* at 12-13, 32-33.

flexible management of consumers’ resources and energy consumption through, among other things, DER adoption.<sup>16</sup> In addition to outlining these priorities, the PUC indicated that the grid plans will include information regarding technology, integration, and systems investments that support state climate and clean energy objectives, and that such investments should seek to promote, among other things promote effective and efficient interconnection of DERs.<sup>17</sup> The GEO and PUC should coordinate to ensure that the IGP process is informed by the DSO study.

The grid functions, services and benefits examined in the study can and must be advanced by Maine’s electric distribution system utilities and the PUC, regardless of whether a DSO is implemented. The assessments and findings in the study should be used by the utilities and the PUC to satisfy their service and oversight obligations, respectively. The IGP process is a natural place to start using the study, but because the process is already underway and because the study covers issues beyond the scope of the process, the utilities and the PUC should use the study to inform additional aspects of their service and oversight.

The objectives identified in the Resolve and the opportunities assessed in the DSO study are not new, and Maine’s utilities and PUC can and should draw on experiences in other jurisdictions. While it may be true that, as the study indicates, Maine is the first jurisdiction in the United States to conduct an exploration of the feasibility of a DSO, the functions and roles of a DSO are being explored elsewhere. For example, the California Public Utilities Commission has initiated a “High DER Future Grid Proceeding,” which includes, among other things, an assessment of Distribution System Operator Roles and Responsibilities.<sup>18</sup> Similarly, the New York Public Service Commission has been assessing the concepts of Distribution System Platforms and Distribution System Platform Providers, as part of its longstanding and ongoing Reforming the Energy Vision (REV) process.<sup>19</sup> Two of the utilities, New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation, and their parent, Avangrid, are assessing a Distribution System Operator as part their Distribution System Implementation Plans.<sup>20</sup>

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<sup>16</sup> Maine Public Utilities Commission, Proceeding to Identify Priorities for Grid Plan Filings, Order, July 12, 2024, <https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/ViewDoc.aspx?DocRefId={E0F4A790-0000-C41D-A4B4-93D007E98F0D}&DocExt=pdf&DocName={E0F4A790-0000-C41D-A4B4-93D007E98F0D}.pdf>, at 22-23.

<sup>17</sup> *Id.* at 30.

<sup>18</sup> California Public Utilities Commission, “Distribution Planning, High DER Future Grid Proceeding,” <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/distribution-planning#:~:text=Future%20Grid%20Study,solutions%20in%20overcoming%20these%20barriers>.

<sup>19</sup> New York Department of Public Service, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, <https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=14-M-0101&CaseSearch=Search>; Trabish, Herman, “New York’s landmark Reforming the Energy Vision framework remains both vital and unfinished, analysts say,” (Dec. 9, 2021), <https://www.utilitydive.com/news/new-yorks-landmark-reforming-the-energy-vision-framework-remains-both-vita/610015/>.

<sup>20</sup> New York State Electric & Gas and Rochester Gas and Electric, “2023 Distributed System Implementation Plan,” June 20, 2023, <https://www.nyseg.com/documents/40132/5899056/2023+DSIP+Report+FINAL.pdf/f6925aab-526f-df67-155c-9ed737160040?t=1704483131642>, at 7-11.

#### **IV. Responses to specific requests for comments**

In addition to the comments above, CLF provides the following comments for consideration by the GEO and its consultant.

##### **Comment on the Assumptions and Methodological Approach utilized in the Draft Feasibility Study (Part 4).**

The study properly assumes that the evaluation of the DSO is “inherently centered on examining DER integration and orchestration within Maine’s distribution system,” and, given this centrality of DER to the DSO study, the study properly determines that to comply with the Resolve, the study examines:

whether the Resolve-specified DSO functions, if well-implemented and irrespective of any specific DSO Structure Design, could help to enable cost-effective DER integration and to facilitate further DER growth in a manner that meets the Resolve’s stated objectives.<sup>21</sup>

Further, given the evaluation process established by the Legislature in the Resolve, the study properly assumes a focus on DSO Grid Functions and assesses DSO Function Objectives (“What”) and DSO Function Design Elements (“How”) for each of the DSO functions.<sup>22</sup>

As the study indicates, the initial feasibility study was directed to proceed on a relatively short timeline, in contrast to studies in other countries that have unfolded over the course of several years.<sup>23</sup> Despite these time constraints and recognizing the significant amount of work that went into conducting discovery and stakeholder interviews and preparing the study, the GEO and its consultant should have provided additional opportunities to weigh in, to help meet the legislative directive to “ensure meaningful opportunities for stakeholder engagement to inform the consultant’s work at appropriate times during each part of the study.”<sup>24</sup>

##### **Comment on the Functional Analysis (Part 5).**

###### **a. To what extent, if any, are the functions identified achievable through alternative approaches other than establishment of a DSO?**

The Functional Analysis in Part 5 of the report thoroughly reviews the key principles, capabilities and processes for each DSO grid function, and appropriately assesses the interrelationship of core DSO functions and the way the processes associated with each DSO function contribute to integrating and utilizing DERs. The functional analysis also appropriately

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<sup>21</sup> GEO, DSO Initial Study, at 17-19.

<sup>22</sup> *Id.* at 21-22, 28-29.

<sup>23</sup> *Id.* at 21.

<sup>24</sup> Resolves 2023, Chapter 67, June 22, 2023, at § 1.

extends to two additional functions that are applicable across the three core functions identified in the Resolve: transmission and distribution coordination and data access and management.

While most of the grid functions and associated capabilities and processes are arguably achievable through alternative approaches other than establishment of a DSO, it is significant that many of these functions are not currently being performed to the extent described in the study. Indeed, the study indicates that

[e]ach of these functions has been historically performed by the distribution utilities and other entities. A key premise for considering a DSO is that these functions should be enhanced to better support the integration and utilization of DERs.<sup>25</sup>

Maine's distribution utilities and/or the PUC may be able to enhance the performance of these functions under the existing legal and physical frameworks of Maine's electric distribution system, but the fact that many of the functions are not being adequately performed indicates a lack of sufficient legal and/or financial incentive to do so.

In the section on system operations, Part 5.4, the study identifies five key capabilities and processes: flexible connections, grid services, operational network visibility, DER orchestration and transmission and distribution coordination. The study finds that flexible connections are a "foundational strategy to more rapidly and cost-effectively integrate more DERs using existing system capacity."<sup>26</sup> But as the study also finds, in Part 8.1, neither IOU in Maine has implemented flexible interconnection to date.<sup>27</sup> The other capabilities are being implemented by utilities to a certain extent, but that implementation must be enhanced if the function of system operations is to be achieved in a manner that contributes to integrating and utilizing DERs.

Similarly, with respect to integrated system planning, in Part 5.5, the study identifies five key capabilities and processes: planning network visibility, collaboration with local planners, enhanced forecasting, simulation and network model capabilities, holistic and competitive solution vetting process, and coordination across Maine. As the study suggests, these capabilities relate to the need for bottom-up planning and increased collaboration and transparency in planning processes.<sup>28</sup> According to Part 8.3, some, but not all of these capabilities are being implemented by Maine's utilities.<sup>29</sup> That implementation must be enhanced if the function of system planning is to be achieved in a manner that contributes to integrating and utilizing DERs.

Further, in Part 5.6, the study assesses the function of DER market administration and identifies six key capabilities and processes: export of excess energy, DER participation in wholesale market, provision of DER grid services, stacking of grid services, operation of

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<sup>25</sup> GEO, DSO Initial Study, at 29.

<sup>26</sup> *Id.* at 37.

<sup>27</sup> *Id.* at 89-91.

<sup>28</sup> *Id.* at 51-52.

<sup>29</sup> *Id.* at 92-96.

distribution-level market and coordination with bulk-system wholesale markets. As Part 8.2 makes clear, however, neither a DER market design framework nor a DER market operations framework has been developed in Maine.<sup>30</sup> It is possible that the PUC could achieve this function, but not without additional authority and significant additional resources. In this context, the DSO study should serve to inform an assessment of how to establish frameworks for DER market design and market operations.

As the state’s distribution system continues to evolve, it is critical that regulators and stakeholders recognize and maximize the grid functions and services that are and can be provided by Efficiency Maine. One example among many is Efficiency Maine’s demand management programs.<sup>31</sup> As the GEO and others assess whether and which grid functions and associated capabilities and processes are achievable through alternative approaches other than establishment of a DSO, Efficiency Many must be considered.

**Comment on the Draft Feasibility Study’s characterization of potential DSO Benefits (Part 7).**  
**a. To what extent, if any, are the identified benefits relevant to the state?**  
**b. To what extent, if any, are the identified benefits achievable through alternative approaches other than establishment of a DSO?**

In Part 7, the study identifies several benefits of the DSO model, based on the experience of jurisdictions actively embracing the DSO model, which the study accurately identifies as “compelling evidence” of those benefits. The benefits include cost savings, increased network capacity, reduced curtailment, improved data transparency and enhanced planning processes.<sup>32</sup> Further, the study indicates that:

[e]xperience globally has demonstrated that, as the energy transition progresses, the role of DSOs and the effective integration of DER will continue to be an important area of focus for creating a more sustainable, decentralized, and customer-centric energy future.<sup>33</sup>

These benefits are highly relevant to Maine, where the Legislature has directed the state to pursue and achieve climate and clean energy standards. The benefits provide the state an opportunity to achieve its policy objectives in a timely and cost-effective manner.

There may be opportunities to achieve these benefits through alternative approaches other than establishment of a DSO, but not without some reform to the existing electric distribution system in Maine. For instance, for DER integration and its attendant benefits to increase, utilities will have to improve their performance with respect to, among other things, DER

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<sup>30</sup> *Id.* at 92.

<sup>31</sup> Efficiency Maine, “About Demand Management,” <https://www.energymaine.com/demand-management/about/>.

<sup>32</sup> *Id.* at 83-85.

<sup>33</sup> *Id.* at 83 (emphasis added).

interconnection and utilization, dynamic hosting capacity, data sharing and system planning. Absent voluntary improvement, one way to increase performance is through strengthened regulation, in particular, expanded and improved performance-based regulation, or PBR. Another way to accrue these benefits is through a strengthening of the Integrated Grid Planning process currently underway at the PUC.

**Comment on the Draft Feasibility Study’s characterization of existing System Operations, DER Markets, and Integrated System Planning (Part 8).**

To contextualize the examination of DSO grid functions in Part 5, the DSO study examines the current situation with respect to system operations, DER markets and integrated system planning for the investor-owned utilities (IOUs) in Maine. The study notes several areas where the PUC has ordered utilities to take actions and provide information related to the Integrated Grid Planning process.<sup>34</sup> Based on the “Maine Context & Comparison” in Part 8, it is fair to say that the study accurately indicates that:

there may be some aspects of grid functions as they stand in Maine today that are not to the same maturity or sophistication as DSO functions as defined by the Resolve, as articulated in Section V above, or advanced grid functions implemented through other DSO initiatives globally.<sup>35</sup>

Maine’s distribution utilities and the PUC can and must take note of this part of the study, which identifies numerous “gaps and opportunities” for the evolution of grid functions toward those that can support the achievement of the Resolve’s objectives. As discussed above, the Resolve’s objectives align closely with existing legal and regulatory requirements, and this section provides a roadmap for steps toward increased compliance with those existing requirements.

Respectfully,



Phelps Turner  
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Conservation Law Foundation

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<sup>34</sup> *Id.* at 91, 93, 95-96.

<sup>35</sup> *Id.* at 88.