STATE OF MAINE
PUBLIC UTILITIES COMMISSION

MAINE PUBLIC UTILITIES COMMISSION Proceeding to Identify Priorities for Grid Plan Filings Docket No. 2022-00322

Joint Comments of Acadia Center, Conservation Law Foundation, Maine Conservation Voters, Natural Resources Council of Maine, and the Union of Concerned Scientists

September 1, 2023

The above-listed organizations jointly submit these written comments in response to the Public Utilities Commission's ("PUC" or "Commission") August 4, 2023, Procedural Order and Request for Comment.

We reiterate the comments we made in our August 1, 2023, Joint Comments regarding the overall process for this proceeding as we identify priorities and procedural steps to be included in the Commission's planning directive to Maine's investor-owned utilities (IOUs). We urge the Commission not to delay further in hiring independent, qualified technical experts with demonstrated experience in grid planning to support staff in developing both the process and the substantive requirements of integrated grid planning for Maine's utilities.

In light of numerous canceled technical working groups and a lack of a clear timeline for the process, it may be useful to refer to existing examples of other states' efforts for guidance. In addition to the examples listed in our August 1, 2023, Joint Comments, a recent example is Connecticut's Public Utilities Regulatory Authority proposed framework to develop an Integrated Distribution System Planning (IDSP) process over the coming year.[1] PURA, working closely with a technical consultant, recently outlined a detailed process and timeline that will last from September 2023 to November 2024. The end result of the proceeding will be a formal plan for how an IDSP process should be implemented going forward in Connecticut.

While time is of the essence and we may not have another year to spare before issuing a planning directive to Maine's utilities, LD 1959 does not designate a specific deadline by which a planning directive must be delivered to Maine's utilities; rather, the only deadline referred to in

[1] PURA Docket 21-05-15RE03. The proposed process and timeline can be found here: https://www.dpuc.state.ct.us/dockcurr.nsf/4b3c728dd1c0d642852586db0069aa70/4572e825e6365bf285258a0600357bfa/$FILE/21-05-15RE03%20PBR%20REVISED%20Notice%20of%20Docket%20Timeline%20and%20Process.pdf

the statute is that the utilities will have 18 months to develop integrated grid plans once the planning directive has been issued. Connecticut's framework for developing an IDSP process may provide a useful roadmap, but regardless of its usefulness in this proceeding, we believe it will be helpful to set a schedule and retain sufficient support from technical experts in order to develop and implement a robust process as we identify key items to include in a planning directive to Maine's utilities. We urge the commission to take the time needed to ensure a productive process and meaningful stakeholder input before issuing a planning directive.

I. Priorities

While we appreciate Staff's efforts to focus the stakeholder engagement process by ranking the priorities, we would like to note that "Transparency/Stakeholder Input" should not be listed at the same level of priority as the other categories in Section II, Subsection 1 of the August 4, 2023, Procedural Order. Transparency and stakeholder input are foundational principles to the entire process of Integrated Grid Planning, as noted in LD 1959, *An Act Regarding Utility Accountability and Grid Planning for Maine's Clean Energy Future*. That said, every one of the issues listed in the Procedural Order (i.e. Time Series Planning; Ensuring Optimized Utilization of the System; Data and Information Technology; and Enabling Faster DER Integration) are important and must be considered if Integrated Grid Planning is to be successful for Maine.

In terms of transparency and stakeholder input, specifically, we strongly urge the Commission to incorporate a robust process throughout the 18-month planning period (and beyond) to incorporate stakeholder input and feedback. Please refer to our August 1, 2023, Joint Comments that describe other states such as Hawaii that have established formal stakeholder review processes to enable an iterative planning process overall. At minimum, the utilities should be required to file regular updates on progress made. But the example provided in the Procedural Order of "one or more" stakeholder meetings throughout the 18-month planning period is nowhere near sufficient. Once the planning directive is issued, the independent review and input process should not end; rather, it should be a central component throughout the entire planning process.

Like the Hawaii PUC, Staff should establish clear requirements for regular stakeholder input and review, as well as independent evaluation by third-party expertise, during the 18-month utility planning process. The Hawaii PUC required regular meetings for stakeholder review and feedback throughout the planning process from the general public. It also established a permanent stakeholder council, working groups, and a Technical Advisory Panel of independent experts that operated throughout the entire planning process. During the planning period, the utility was required to show at regular intervals how the stakeholder feedback it received informed the next iteration of its planning work. Simply requiring Maine's utilities to

conduct the bare minimum of presentations explaining the work done to date, without building in a formal review and input process, will be a significant missed opportunity.

Setting aside the principles of transparency and stakeholder input, the other priorities listed by the Commission in its Request for Comments are all important, as well as interrelated. For example, data and information technology are needed for time-series analysis to unlock grid flexibility and identify the solutions that reduce costs by optimizing the system, including by utilizing new and queued DER and controllable loads. The challenge for the Commission is to establish a framework for building incremental capabilities in each of these areas, to ensure that short-term planning priorities put us on track to achieve the longer-term policy goal of establishing a participatory, resilient, affordable, flexible, and decarbonized grid of the future. Given the emphasis on improving DER interconnection in other dockets, this issue may not need to be a top priority in the initial grid planning iteration.

II. Data Access and Granularity

Under existing practice, it appears utilities are not required to publicly file their investment plans. For neither larger projects in excess of $500,000 nor smaller projects are planning documents filed in any consistent way, if at all. In Docket Number 2020-00125, CMP's annual planning studies for smaller projects are filed confidentially, precluding review or engagement by stakeholders, customers, or third-party grid service providers. For example, CMP's Annual Planning Study for the period 2023-2027 was cited in comments filed on September 1, 2023, by the Office of Public Advocate, and would presumably be relevant for the current grid discussion and help provide context for how CMP would apply a solutions evaluation scorecard or determine cost-effectiveness in practice. We urge the Commission to establish requirements for standardized and publicly available filing of utility investment plans, including a level of granularity and data access necessary for identifying cost-effective solutions.

As stated in our August 1 comments, we would encourage staff to look at the substantive requirements of planning directives in other states with experience in grid planning, which could serve as a useful starting point for developing a straw proposal of the filing and data requirements for Maine's utilities. For instance, Minnesota PUC's Order Approving Integrated Distribution Planning Filing Requirements for Xcel Energy (Docket No. E-002/CI-18-251),[2] provides a straightforward list of filing requirements organized into five categories:

[2] MINNESOTA INTEGRATED DISTRIBUTION PLANNING REQUIREMENTS FOR XCEL ENERGY, Docket E002/CI-18-251, August 30, 2018, available online at: https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId=%7bF0 5A8C65-0000-CA19-880C-C130791904B2%7d&documentTitle=20188-146119-01.

A. Baseline Distribution System and Financial Data

B. Hosting Capacity and Interconnection Requirements

C. Distributed Energy Resource Scenario Analysis

D. Long-Term Distribution System Modernization and Infrastructure Investment Plan

E. Non-Wires (Non-Traditional) Alternative Analysis

These categories of data, and the specific substantive requirements within them, are designed to help build a case connecting forecasting to grid needs assessment to capital planning.

In terms of the specific substantive requirements, Xcel is required to file detailed distribution system, financial, and DER data that should be considered by the Data Availability and Collection working group. Distribution system data includes 25 specific items, such as physical elements (# of systems, miles of distribution wires, substation and transfer capacity), costs, and energy savings and peak demand reductions resulting from DER deployment. Financial data includes historical spending in at least seven different categories for the past five years, projected spending in these categories for the next five years, non-Xcel distribution system upgrades and locations, planned distribution capital projects, and a cost-benefit analysis of those projects. In addition, Xcel is required to provide data on current DER deployment by type, size and geographic dispersion, areas of existing or high-forecasted DER penetration, and areas with existing or forecasted abnormal voltage or frequency issues that may benefit from using advanced invertor technology.

Xcel is also required to file:

- An annual hosting capacity analysis that identifies interconnection points and necessary distribution upgrades to support continued DER deployment.
- A DER analysis that includes a base case, medium, and high scenarios for DER penetration that reflect a mix of individual and aggregated/bundled DERs, dispersed geographically across their service territory. They are also required to provide information on the methodologies, processes and tools needed to integrate higher levels of DERs, system impacts and benefits, potential barriers to adoption, the types of system upgrades needed, and the anticipated impacts of FERC Order 841 and FERC Docket RM-18-9-00.
- A long-term distribution system modernization and infrastructure investment plan that includes a 5-year action plan that includes 12 specific elements and a long-term plan that includes a discussion of Xcel's vision for planning, development, and use of the distribution system over the next 10 years based on internal business plans and DER futures scenarios and the anticipated impacts of the 5-year action plan.

- A non-wires alternatives analysis that identifies all projects in the next five years with a total cost of greater than $2 million and to provide an analysis of how NWAs compare on viability, price, and long-term value.

Connecticut's Non-Wires Solution (NWS) program provides another useful example. The Public Utilities Regulatory Authority (PURA) requires electric distribution companies in Connecticut to file a robust set of annual distribution system, financial, and DER deployment data, as described in Exhibit A of the Non-Wires Solution Process Design Document.[3]

III. CMP's Proposed Solution Evaluation Criteria

The proposed Solution Evaluation Scorecard that Central Maine Power (CMP) filed on July 17, 2023 includes the following categories: Capital Costs, Avoided Costs, Reliability, System Hardening and Resiliency, Efficacy, Land Use and Equity, Environmental Impact, Execution and Schedule Risk, Electrification Readiness, and DER and Renewables Integration.

We would appreciate greater detail on how exactly CMP defines each of these categories, especially Efficacy, Land Use and Equity, and Environmental Impact, and how each criterion would be derived. It would also be helpful to hear more detail about why "Execution Complexity" and "Community Impact" are listed in the same general category.

The Commission and stakeholders should also consider whether to incorporate a specific measure of greenhouse gas (GHG) emission reduction impact, given the decarbonization objective of the grid plans. Other performance considerations might be added related to technical requirements, operational lead time, lifetime efficacy, etc. It may also be valuable to consider how this compares with the current cost-benefits analysis undertaken through Maine's Non-Wires Alternative process pursuant to 35-A MRSA section 3132-C.

Any solutions evaluation methodology should be capable of evaluating combined, multi-party interventions. These might include, for example, active and passive load control through time-varying rates, smart chargers for electric vehicles, and advanced distributed energy resource management systems (aDERMS), solar and storage DER, and energy efficiency upgrades. We would appreciate detailed specification on the set of solutions, both conventional grid infrastructure and grid alternatives, that will be included in the review, and examples of how this scorecard would be used to evaluate multi-party NWA-type solutions that combine interventions that are grid-based/utility-owned with those that are not.

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[3] NON-WIRES SOLUTIONS PROCESS DESIGN DOCUMENT, Docket No. 17-12-03RE07, November 9, 2002, online at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/59e888f10a5de7d2852588f5005b106c/$FILE/171203RE07-110922%20Appendix%20A%20-%20NWS%20Process%20Design%20Document.pdf.

IV. Grid Plan Scenarios

In its July 17, 2023 filing, CMP proposed three grid plan scenarios: Baseline, High-Penetration, and High-Certainty. It is not clear what the difference is between the "Baseline" and "High-Certainty" scenarios, nor what additional insights a "High-Certainty" scenario would provide. For comparison, the Hawaii Integrated Grid Plan included 10 scenarios to help identify grid needs (see our August 1, 2023 joint comments for more detail), which may serve as a model for consideration, even though not all may not be relevant to Maine as a restructured state. It may be more useful for scenario analyses to consider specific conditions, such as fuel costs, technology price declines, consumer costs, rate designs, supporting policies, etc., that would potentially affect adoption rates, locations, and technologies, and in turn affect grid needs. Ideally this work would build on existing modeling efforts and align with related assumptions, whether as part of the Maine Climate Council update to the Climate Action Plan or the Pathways to 2040 study underway at the Governor's Energy Office, which was discussed in Stakeholder Workshop 2 on March 23, 2023. In contrast, CMP's slides #5-8 seem to suggest that high priority should be assigned to no regrets or high-certainty futures in which DER are adopted, and electrification is advanced, more slowly than current state goals would necessitate.

Additionally, the planning context for the various components discussed in CMP's July 17, 2023, filing (i.e., scenario analysis, grid needs, scorecard, evaluation criteria, etc.) needs definition. The Commission should develop and distribute for stakeholder feedback a decision-making framework to explain these components, what they are and how they work together, in advance of a workshop to discuss CMP's straw proposal. Questions such as the following need clarity before CMP's proposal can be evaluated:

1. What modeling and modeling tools will the scenario analyses employ?
2. How will the modeling exercises move us toward dynamic time-series analysis (which many parties agree is needed to identify tailored, cost-effective solutions)?
3. How will the scenario analysis results be used to inform an assessment of grid needs?
4. What "solutions library" or what categories of solutions will be considered to address grid needs?
5. How are non-wires solutions accounted for?
6. How will the criteria in the "scorecard" be measured?
7. How would the proposed "scorecard" be used to prioritize projects for capital planning?
8. How would this work in practice using an illustrative example?
9. How will the output of this planning exercise feed into current capital planning policies and practices and into future rate cases?

10. What are the implications of this decision-making framework for customer and third-party participation, ownership models, and innovation generally?

V. Cost-Effectiveness

The *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources* (NSPM) is a comprehensive 300-page guide for developing cost-effectiveness tests for conducting benefit-cost analyses (BCAs) of distributed energy resources that could provide a valuable resource for this proceeding.[4] The manual was developed in 2020 by leading national experts and informed by an advisory group of more than 40 representatives from federal and state agencies and regulatory commissions, utilities, non-profit organizations, consumer advocates, and businesses. It provides information and use case examples for conducting BCAs for different kinds and combinations of DERs including energy efficiency, demand response, distributed generation, distributed storage, electric vehicles, and increased electrification of buildings including heating and cooling systems.

While the manual gives examples of several different BCA tests and where they are used in different states, it does not recommend a specific cost-effectiveness test or policy. Instead, it includes a 5-step process for specific jurisdictions to develop their own BCA test that draws on a core set of principles and aligns with a jurisdiction's policy goals and objectives. One of those steps involves identifying and deciding which non-utility system impacts to include in the BCA test that are important for achieving state policy goals. Examples include host customer impacts, low-income impacts, other fuel and water impacts, emissions impacts and/or other societal impacts. A subsequent step highlights the importance of ensuring that benefits and costs are properly addressed by treating them symmetrically and consistently across DER types, avoiding double counting, and including relevant and material impacts, even if they are hard to quantify. The final step highlights the importance of establishing comprehensive and transparent documentation and clear reporting requirements.

This manual was used extensively by the Michigan Public Service Commission's Electric Distribution Planning Workgroup to develop their distribution planning BCA over a series of five meetings, covering a six-month period.[5] Maine could follow a similar process that uses information from the manual and other sources to determine whether existing BCA

[4] National Standard Practice Manual For Benefit-Cost Analysis of Distributed Energy Resources, August 2020, online at: https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs_08-24-2020.pdf.

[5] MI Power Grid: Electric Distribution Planning. Reconvened Workgroup Meeting: Distribution Planning Benefit Cost Analysis, November 3, 2021, online at: https://www.michigan.gov/mpsc/-/media/Project/Websites/mpsc/workgroups/elec-dist-planning/110321_BCA_presentation_final.pdf.

methodologies used by Maine's utilities, Efficiency Maine Trust, and others are sufficient or whether additional elements should be added that are important for meeting state policy goals.

The Connecticut Non-Wires Solution Process Design Document mentioned above also includes a Benefit-Cost Analysis Framework that is worth considering and comparing to similar frameworks used for Maine's NWA program.[6] The main elements of Connecticut's framework are recognized by the Connecticut Department of Energy and Environmental Protection, PURA, and the Connecticut Green Bank. The benefits used in the primary utility cost test include: electric energy savings and energy demand-reduction induced price effects (DRIPE), electric wholesale generation capacity and capacity DRIPE, avoided T&D costs, avoided regional transmission costs from ISO-NE Pooled Transmission Facilities tariff, and a monetized benefit for reliability and resilience. They also have a modified utility cost test that includes avoided oil, oil DRIPE, and propane costs, and a Total Resource Cost Test that includes additional benefits for non-electric fuel savings, avoided water costs, and emissions benefits. All of these benefits are valued on a 15-year levelized basis, as illustrated in a table on p. 22 of the document.

Connecticut's framework explicitly recognizes that electric distribution company (EDC) investments are not solely a distribution system cost and frequently provide other kinds of benefits. For example, energy storage systems can provide a wide range of stackable benefits including energy resilience benefits in avoiding or reducing the duration of customer outages. Other EDC investments can lower line losses, which reduces other system costs.

VI. Incorporation of Maine's Climate Action Plan and Other Energy Plans

In its additional request for comment issued on August 18, 2023, the Commission requested clarification on the statutory requirement that the grid plans:

> Reference and incorporate, as appropriate, all relevant analysis conducted as part of the State's climate action plan under Title 38, section 577 and relevant information from reports and analysis completed by other state agencies and quasi-independent state entities.

The Maine Climate Council is required by law to update the state's climate action plan every four years.[7] As the Maine Climate Council now prepares to renew the plan, updated inputs, assumptions, and strategies for the electric sector should be incorporated into the integrated grid plans to the extent possible. In its 2020 plan, the Maine Climate Council engaged consultant

[6] NON-WIRES SOLUTIONS PROCESS DESIGN DOCUMENT, Docket No. 17-12-03RE07, November 9, 2002, online at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/59e888f10a5de7d2852588f5005b106c/$FILE/171203RE07-110922%20Appendix%20A%20-%20NWS%20Process%20Design%20Document.pdf.

[7] https://legislature.maine.gov/statutes/38/title38sec577.html.

Synapse Energy Economics for energy sector analysis including modeling of the transportation, buildings, and electric sectors, which the Council used in developing strategies to incorporate into Maine's Climate Action Plan. The 2020 modeling results are reported online on the public website,[8] and the Commission should request additional input, data and information related to previous work and the upcoming update from the Governor's Office of Policy Innovation and the Future (GOPIF) which oversees this work.

Also highly relevant to the grid plans is the Pathway to 2040 work currently underway at the Governor's Energy Office (GEO), with an expected completion date of early 2024.[9] GEO has retained as consultants the Brattle Group and Evolved Energy Research to conduct modeling and analysis to identify state energy planning strategies to achieve 100 percent clean electricity by 2040. Electrification of end-uses across Maine's residential, commercial, industrial and transportation sectors feature prominently in the scenario analyses, and utilities' grid plans, forecasts and scenarios, should reflect recommended pathways and underlying assumptions. The Commission should work with staff at GEO and its consultants to identify the most pertinent data, analysis and information related to both the supply- and demand-side assumptions to ensure effective cross-agency coordination for climate planning.

With respect to the supply-side assessments, the Commission should refer to GEO and the studies it has undertaken on relevant topics such as renewable energy markets, energy storage, offshore wind, transportation, and distributed energy resources, including: [10]

- Maine Energy Storage Market Assessment, Published March 2022[11]
- Maine Offshore Wind Roadmap, Published February 2023[12]
- State of Maine Renewable Energy Goals Market Assessment, Final Report Published February 2021[13]
- State of Maine Clean Transportation Roadmap, Published December 2021[14]

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[8] Synapse Energy Economics, Volume 3: Mitigation Modeling Consolidated Energy Sector Modeling Results, Updated November 9, 2020, https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/ERG_MCC_Vol3_MaineEmissionsAnalysisSynapse_11-9-2020.pdf.

[9] https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/energyplan2040

[10] https://www.maine.gov/energy/studies-reports-working-groups/completed-reports

[11] https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/energy-storage-assessment

[12] https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/Maine_Offshore_Wind_Roadmap_February_2023.pdf

[13] https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/renewable-energy-market-assessment

[14] https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/clean-transportation-roadmap

- Final Report of the Distributed Generation Stakeholder Group, Published January 2023.[15]

Note that Maine's statutory goal for offshore wind as established by LD 1895 enacted July 2023 is three gigawatts by 2040.[16]

On the demand-side, the Commission should incorporate relevant goals, forecasts and assumptions related to Efficiency Maine Trust's Fifth Triennial Plan.[17] For example, Appendices D and N specify statutory and programmatic targets for heat pumps, peak load reduction, and transportation electrification. Additionally on transportation, Maine's Plan for Electric Vehicle Infrastructure Deployment (PEVID) from the Department of Transportation was updated in 2023 as part of the formula funding requirements for National Electric Vehicle Infrastructure Deployment (NEVI).[18]

We appreciate the opportunity to provide our responsive comments and look forward to continuing to support this effort to reform Maine's grid planning practices to address the climate crisis.

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[15] https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/Final%20Report%20of%20the%20DG%20Stakeholder%20Group_with%20appendix.pdf
[16] http://www.mainelegislature.org/legis/bills/display_ps.asp?ld=1895&PID=1456&snum=131
[17] https://www.efficiencymaine.com/triennial-plan-v/
[18] https://www.maine.gov/mdot/climate/docs/pevid-2022.pdf and https://storymaps.arcgis.com/stories/bf20945d750b47ef8513863e28cbf648.

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