CLEAN ENERGY NH
Your Voice in All Energy Matters

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February 1, 2023

Jared Chicoine, Commissioner
Department of Energy,
21 S. Fruit St., Suite 10,
Concord, New Hampshire 03301-2429

RE: IP 2022-001, Investigative Proceeding Relative to Customer-Generator Interconnection
Clean Energy NH Responses to Request for Comments - Set 1

Clean Energy NH (CENH) offers the following comments in response to the NH Department of Energy's (Department) Request for Comments – Set 1 in the Order of Notice issued on December 5, 2022. CENH provides an overarching introduction in an opening letter with the Comments included as an addendum.

Introduction

CENH is a statewide nonprofit organization dedicated to strengthening New Hampshire's economy as we transition to clean, affordable, abundant, renewable energy. We represent the interests of hundreds of business and residential members across the state of New Hampshire, as well as 34 municipal members, representing over 300,000 NH citizens, more than 20 percent of the state's population. They are all looking for affordable, clean energy supplies, particularly at this moment in time, as energy prices are at historic highs and are expected to remain so. Our business members also include more than 20 solar companies with hundreds of NH employees. These companies have collectively installed hundreds of MW of solar power in NH and across the northeast. These business members deliver clean low-cost energy that reduces consumer costs and increases NH's own energy supply. Furthermore, all three of the state's utilities are CENH members.

Over the past year, as default energy supply rates skyrocketed in response to dynamic global energy markets that deeply affected the ISO-New England (ISO-NE) region as electricity prices are highly correlated with national and international natural gas prices. The most powerful policy tool New Hampshire has to dampen these rate shocks and provide long term relief is to reduce the overall demand for energy. The second most powerful tool to deploy is local distributed energy resources (DERs), primarily solar photovoltaics (PV). DERs and renewable energy represent the least cost source of generation that can be constructed currently,[1] which is reflected by the fact that the ISO New England Interconnection queue is approximately 95 percent renewable resources and battery storage,[2] and can easily be installed onto distribution grids.

Solar PV is the fastest source of low-cost electricity generation that can be built to meet New Hampshire's growing needs for clean, affordable power, capable of providing insulation from broader

[1] Lazard's Levelized Cost of Energy Analysis, Version 15.0 available at: https://www.lazard.com/perspective/levelized-cost-of-energy-levelized-cost-of-storage-and-levelized-cost-of-hydrogen/
[2] The latest queue data can be accessed at: https://irtt.iso-ne.com/reports/external.

market forces. Further this resource can benefit residents, businesses, local governments, and manufacturers, improving the competitiveness of the entire state economy. Studies have forecast that a clean energy grid that maximizes distributed energy projects throughout the United States is one which would save $88 billion in energy spending by 2050.[3] As a result of rising energy costs and the effectiveness of solar PV, solar energy developers, working at residential, small commercial, large commercial, and utility scale projects, have seen an explosion of interest by customers seeking affordable energy solutions. This has resulted in an unprecedented number of interconnection applications being filed with the state's electric distribution utilities (EDCs), resulting in understandable delays as they needed to adjust to larger volumes requests. However, the delays continue, slowing the development of projects and raising project costs.

At the same time, some of New Hampshire's EDCs have begun applying new and unapproved DER interconnection standards to projects, which have raised overall project costs. These increased costs can impact the financial viability of DERs projects, and therefore the state's ability to deploy greater electric generation capacity at the precise time when it is needed most. Solar PV is being rapidly deployed in states around us, and this investigation should recognize the value that solar provides to enable a similar scale of investment to come into New Hampshire, growing our workforce, lowering costs for all, and growing the economy as a whole.

CENH offers the following comments, informed by our members, as a first step in this study, which we hope will result in more timely, uniform interconnections, meeting reasonable standards, with costs equitably spread across project beneficiaries. CENH looks forward to reviewing the comments submitted by the other stakeholders in this investigation and engaging in a constructed dialogue. To that end, CENH recommends that, as part of this investigation, the Department hosts at least two technical sessions, and issues at least one draft set of findings for comment by stakeholders before finalizing this report in the fall. We appreciate that the same Department staff leading this investigation are also involved in numerous proceedings before the NH Public Utilities Commission (PUC), the legislature, and are working on developing programs for the Inflation Reduction Act of 2022, but the issue of interconnection is of vital importance to the energy security and economy of the state and a open and interactive process is necessary.

Sincerely,

Sam Evans-Brown
Executive Director

[3] VCE (2020). Why Local Solar For All Costs Less: A New Roadmap for the Lowest Cost Grid, Executive Summary , https://www.vibrantcleanenergy.com/wp-content/uploads/2020/12/WhyDERs_ES_Final.pdf, Accessed February 1, 2023

Addendum - Clean Energy NH Responses to Request for Comments - Set 1
RE: IP 2022-001, Investigative Proceeding Relative to Customer-Generator Interconnection

CENH Responses

1. ***How to create transparent, consistent, and reasonable engineering standards for interconnection, with special consideration given to established best practices used by other states as set forth in the Interstate Renewable Energy Council's (IREC) 2019 Model Interconnection Procedures.***

   a. ***Please identify the applicable existing, and pending, interconnection codes, statutes, standards, and procedures that apply to the interconnection KW thresholds for various Distributed Energy Resource (DER) technologies (Battery, Wind, Solar, etc.). Include Federal, State, and Local requirements.***

      CENH members noted that when utilities complete interconnection application reviews, size does matter as the incremental impact on the distribution circuit can be negligible for small scale DER technologies and as distribution circuit DER utilization grows can be significant for larger DER technologies requiring detailed study processes. Similar to sizing, a DER technologies management of the resources operations utilizing limited export control functions have streamlined interconnection processes for these resources as the impact on the grid is materially less.

      As states are now starting to adopt smart inverter functions like Hawaii and California, there is additional opportunity to streamline interconnection processes, making them more customer friendly and more efficient for the utility to interconnect. While FERC's pro forma Small Generator Interconnection Procedures[4] was the initial template utilizing "Fast Track" processes for resources 2 MW or less, many jurisdictions have expanded beyond these procedures to make interconnection processes better for smaller DER resources and more efficient for utility engineers to manage interconnection processes. A few examples include, but are not limited to Massachusetts, New York, Maryland, Illinois, Colorado, New Mexico, California, and Hawaii all of which incorporate interconnection KW thresholds for different review processes based on resource size.

   b. ***Please provide feedback on the IREC 2019 Model Interconnection Procedures.***

      CENH Members' General Response

      CENH members noted that the IREC model is a good model in terms of statutory timelines for studies, published interconnection queues, and energy storage provisions. The more transparency there is across the entire development process the more efficiently we can develop and deploy renewable energy projects across New Hampshire. At the end of the day, interconnection issues can be drawn out, costly and provide a high degree of uncertainty and risk when developing a project.

[4] FERC (2018). Pro forma Small Generator Interconnection Procedures, Federal Energy Regulation Committee, https://www.ferc.gov/sites/default/files/2020-04/sm-gen-procedures.pdf, Accessed on February 1, 2023.

Include responses to the following questions:

i. Have any entities adopted this model?

CENH members are not aware of any jurisdiction that has updated interconnection rules over the past six years incorporating energy storage and not incorporating processes that take into account DER technologies limited export control functions.

The IREC 2019 Model Interconnection Procedures attempted to standardize terminology and processes for jurisdictions updating rules for energy storage and DER technologies control export functions. In many jurisdictions there is a regulatory lag in approving new interconnection procedures and jurisdictions take varying approaches in how rules are updated. Most recently the interconnection procedures in Illinois and New Mexico have largely aligned to IREC's terminology for limited export controls, but have streamlined interconnection review processes beyond what is recommended within IREC 2019 Model Interconnection Procedures.

Members further noted than an investigation may also have been taking place in Vermont, and may be worthy of further investigation.

ii. Is there interest in adopting this model in the future?

Some of CENH members expressed the belief that IREC's terminology for limited export allowances and streamlined interconnection for resources using DER control functions is a good basis for rule updates.

However, procedures should allow for expedited interconnection and encourage benefits that enabling smart inverter functions can provide to enhance distribution system hosting capacity at the circuit and customer service domains.

iii. If there is interest, are there any procedures that need to be addressed to respond to directives or goals of SB 262?

As noted in its opening remarks, CENH believes there is sufficient time to develop a robust report to the legislature through a thorough and iterative process. This can be facilitated through stakeholders filing comments and proposing updates to interconnection procedures over the coming months. Following stakeholders' submission of proposed rule changes, a formal working group process to find alignment between stakeholders might be helpful or simply additional comments and stakeholders' interconnection procedure refinements based on comments filed will be sufficient for the Department to develop a study report. We recommend the draft study report be made available for stakeholders within this investigative proceeding four to eight weeks before the report is filed with the legislature, so that stakeholder input can be incorporated.

iv. Are there other preferred model interconnection procedures and, if so, what are they?

CENH members have noted that as more states start to adopt smart inverter functions and varying procedures that have been developed within recent interconnection proceedings, we believe it will be more helpful to have stakeholders file model interconnection rules for consideration and discussion. Model interconnection procedures from Illinois, New Mexico, and Colorado might align well with rule updates needed in New Hampshire, but will not take into account benefits provided by smart inverter functions.

2. ***How to ensure timely, consistent, and reasonably-priced interconnection studies.***

   a. ***Please identify issues, concerns, and impediments to completing timely interconnection evaluations/studies.***

      CENH members noted that as rules have been updated in jurisdictions over the past 6 years, study processes for small DER interconnection are largely avoided within the interconnection procedures. Small DERs cannot afford study costs, are negligible, and better accounted for within utility distribution planning hosting capacity study process and incorporated as a forward looking DER cluster within study processes for large scale resources.

   b. ***To the extent possible, please identify the issues and KW thresholds that impact the level of effort, and therefore the schedule and cost of completing interconnection evaluations/studies.***

      CENH members that developed smaller projects, note that these projects less likely to require major utility upgrades (e.g., substation upgrade, medium voltage conductor upgrades) should be reviewed differently than for larger projects. For instance, currently a 150 KW solar project currently requires the same level of system impact study as a 1000 KW project. Small project developers noted, the smaller project very rarely needs anything more than a transformer upgrade at the point of interconnection, whereas the larger project often needs other more expensive work. There should be more increments of different project sizes and the associated required studies.

      Looking at it in more detail, members noted that, depending on existing distribution planning processes and interconnection procedures, it is reasonable to study the impacts of aggregated DERs and associated calculated daytime minimum load as a proxy threshold to determine when a planning or interconnection study is needed. At low levels of DER utilization on a distribution circuit such as less than 67 percent of calculated daytime minimum load, no study should be required except for larger resources of 1 MW and larger.

3. ***How to ensure just and reasonable pricing of grid modernization upgrades mandated by the distribution utility for interconnection of distributed energy resources, including transparency and consistency in pricing guidelines and appropriate cost-sharing among parties benefitting from such upgrades.***

<u>CENH Members' General Response</u>

In terms of costs, costs are spread across utility customers based on their pro-rata usage of electricity. The costs for transitioning to renewable energy in order to address climate change are going to be borne by everyone but it's not going to be cheap.

   a. ***Please identify issues and concerns, if any, regarding the transparency of interconnection cost estimates and schedules.***

      CENH members noted that interconnection rule updates such as those incorporated into IREC's 2019 Model Interconnection Procedures allow for a DER to change their modes of operation to avoid triggering upgrades and the utilization of smart inverter functions can

further negate the need for upgrades. When upgrades are needed, cost estimates should clearly detail the reason for upgrade, the associated mitigation solution, cost estimate, and timeline to complete required upgrades.

CENH's business members have observed that some EDCs are attempting to impose costly new interconnection standards for locally generated electricity and are doing so without having gone through any sort of approval process before the Department or the PUC. Such a process should have been helped allow a thorough investigation of the reliability, environmental, economic, and health-related impacts of those standards.

CENH questions whether these newly required improvements are necessary for system reliability, and whether they are just and reasonable. CENH members have raised the concern that issues external to New Hampshire are driving these changes, and New Hampshire projects are being forced to comply with other states' standards. This is a substantial change from prior practice and is currently underway without prior notification and approval from the Department or the PUC.

Multiple developers of DERs in New Hampshire have relayed to CENH that Eversource, in particular, has begun requiring interconnection studies that analyze both a primary and secondary path to market for DERs that interconnect onto their distribution grid. It has also subsequently been requiring the developer to fund distribution system improvements to be installed along both paths. This policy of requiring contingent paths essentially doubles the number of paths that may be affected during interconnection, and this can have negative cost impacts for all ratepayers.

Requiring DERs project developers to fund upgrades for contingent paths has the potential to raise final project costs or make them financially unviable. Based on the experience of these CENH business members, this change can result in a 300 to 400 percent increase in interconnection costs, with one example reported to be an increase in costs to approximately $5 million dollars using Eversource's new unapproved interconnection policy versus a cost of $1 million using the previous standard. In addition, excessive interconnection costs would be reasonably expected to either reduce the number of DER ultimately constructed,or increase the energy price required by the DER that are ultimately constructed, both of which can increase energy costs for New Hampshire ratepayers.

b. Please identify options for appropriate cost-sharing as well as issues and concerns.

CENH members noted that cost sharing is an emerging best practice under investigation by jurisdictions to enable interconnection. Cost sharing procedures being tested in Massachusetts, New York and under consideration in Maryland are targeted at distribution circuit domain upgrades, with small residential DERs not being subject to cost sharing. Connecticut and Maryland are currently investigating solutions (e.g., subsidization or cost sharing) for residential service infrastructure upgrades triggered within utility interconnection review processes, which we recommend consideration of in New Hampshire as these costs paid for by single residential customers can materially impact their ability to move forward and install DERs.

Potential methodologies that could be adopted include studying groups of projects that may affect the same portion of the distribution system, and assigning costs based on relative cost causation. Alternatively, if a DER were to assume full costs for upgrades, additional projects that may interconnect and benefit from the prior upgrades would reimburse the initial project developer or owners for some share of the upgrade.

4. ***How to ensure distribution system upgrades paid for by customer-generators are not claimed as part of the utility rate-base.***

   CENH Members' General Response

   In terms of ensuring distribution system upgrades paid for by customer-generators are not claimed as part of the utility rate-base, CENH members raised the possibility of using Vermont as a template. Such action on the part of EDCs is prohibited in Vermont and state agencies are able to regulate this. Members thought that this should be a transferable model, even if the regulatory schemes aren't the same among the two states.

   a. ***Identify methods for ensuring transparency of how system upgrade costs are applied.***

      CENH members noted that the existing utility networks were not designed and built for the strategic electrification needs of the grid and DERs. In order to meet their state goals, California, Massachusetts do have some grid modernization costs borne by both the utility rate base and by interconnecting customers. This is also being considered in Maryland.

      In terms of the states such as in Massachusetts, where some of the costs are borne by ratepayers, it is not an instance of "subsidization" or "cross subsidization". Instead, it is a matter of costs being allocated appropriately across all beneficiaries. In Massachusetts, stakeholders recognized that a significant portion of the benefits of the utility upgrades necessary for interconnection would go to ratepayers or future projects. To address this, Massachusetts considered how to allocate costs to all the stakeholders that benefit from the upgrades rather than just the developer.

      In this manner, the state and stakeholders found that where *everyone* benefits from a more reliable and clean electric grid, some share of the grid modernization costs are reasonable for inclusion as a utility rate-base investment.

5. ***Whether it is appropriate to establish an "Interconnection Working Group" convened at the Department to regularly assess if interconnection standards need modification.***

   a. ***Identify potential benefits, issues, and concerns on the concept of an "Interconnection Working Group."***

      CENH members, and CENH itself, fully endorsed the development of an Interconnection Working Group. It was felt that such an entity would be generally helpful for establishing clear timelines, objectives, and collaboration across the stakeholders.

      If an Interconnection Working Group is launched, CENH recommends that the group properly orient itself at a first two meeting, to one another and, at a high level, the topics at hand, but then consider moving swiftly into deliberations with group members having an opportunity to file model interconnection rules and applicable interconnection framework(s) prior to the third meeting. Some CENH members noted that, in other states in which they operate, they have seen working groups spending a considerable amount of time investigating what other jurisdictions have adopted before moving to discussion of proposals. As an alternative to this typical process, it may be more efficient and engaging to instead entertain proposals very early on during the process to identify areas of alignment, and disagreement. These foal points can be used to develop a more targeted exploration of how other jurisdictions have addressed similar issues.