BEFORE THE PUBLIC UTILITIES COMMISISON
STATE OF NEW HAMPSHIRE

IR 22-076

ELECTRIC DISTRIBUTION UTILITIES

Investigation of Whether Current Tariffs and Programs are Sufficient to Support Demand Response and Electric Vehicle Charging Programs

June 13, 2023

COMMUNITY POWER COALITION OF NEW HAMPSHIRE

FINAL COMMENTS

The Commission opened IR 22-076 on November 15, 2022, to investigate compliance with the Infrastructure Investment and Jobs Act ("IIJA"), codified as 16 U.S.C. § 2621, and to "consider whether to adopt rate mechanisms or standards concerning such demand response practices and electric vehicle charging programs" pursuant to the directives of 16 U.S.C. § 2621(b), (c), and (d)(20)-(21). The Commission solicited responses to a set of questions relating to these matters, that it intends to consider as part of a future adjudicative proceeding, including:

- What market barriers exist that, to date, have prevented greater demand response management?
- Should New Hampshire continue to leverage the current Electronic Data Interchange (EDI) paradigm, or should a new standard be used?
- What structural reforms could enable a more competitive retail electricity market in New Hampshire and within ISO-NE?

The Community Power Coalition of New Hampshire (CPCNH) provides these final comments in response to the initial and reply comments filed by parties in this proceeding.

We appreciate the insightful and broad scope provided for by the Commission and hope that our contributions to the record go some way towards delivering upon what was requested of the parties to this investigation, with particular reference to the above-cited questions.

1. Introduction

CPCNH, as summarized in our Reply Comments,[1] is a power agency that is fully capable of offering advanced rates and products to customers, which will serve more customers than any other competitive supplier in New Hampshire, with a larger default customer base than either Unitil Corporation or Liberty Utilities.

To supplement and provide additional context for these comments, CPCNH has attached complaint filings recently submitted to the Commission and DOE detailing how Eversource is in violation of Puc 2200 administrative rules (regarding provision of services to Community Power Aggregators, "CPAs"), Order No. 22,919 (5/4/98), RSA 53-E, RSA 362-A:9, II and RSA 374-F:3, XII(c) as well as the express intent of RSA 374-F. Eversource's acts and omission of actions in violation of these laws and PUC order have substantially delayed the launch of CPCNH's power supply service — at the cost of an estimated $4,380,000 in foregone cost savings for New Hampshire ratepayers and communities — and foreclosed CPCNH's ability to offer net metering or advanced rate structures and programs, including to enable demand response and rates to encourage electric vehicle adoptions, to customers on CPA service.

Initiating Community Power supply service has been educational, in terms of providing a clear view of the various structural ways in which utilities have failed to fully enable competitive provision of retail services to customers— and have therefore hampered or entirely foreclosed non-utility provision of, for example, demand response and electric vehicle services.

CPCNH therefore focuses these Final Comments not on specific technologies, or one-of-a-kind products and program design initiatives, but rather the more holistic and structural alignments that will be necessary to enable the provision of retail innovation — inclusive of demand response and electric vehicle services — more broadly. Our recommendations, in part, reference and draw upon the complaints incorporated hereto for the Commission's consideration.

[1] CPCNH Reply Comments, pp. 1-3.

2. Meter Data Management, Billing, and ISO-NE Settlement Services

CPCNH finds that Reply Comments by Eversource[2] and Unitil Corporation[3] regarding consideration of issues relating to Electronic Data Interchange (EDI) and related services are informative but fall short of providing the Commission with sufficient context to inform the purpose of this investigation as it pertains to scoping out structural reforms to enable the competitive market to offer new retail products.

The practical process of retail product innovation (e.g., demand response and electric vehicle rates and services) requires CPAs and CEPS to perform a linear and inter-related sequence of steps across the "retail value chain", which refers to the infrastructure and business processes that span customer-facing functions (metering, data management, rate structures, billing and customer engagement) and flow into wholesale market and network integration functions (e.g. settlement profile construction, non-utility consolidated billing protocols, interconnection standards, integrations to and from Meter Data Management Systems, MDMS, and Advanced Distribution Automation Systems / Distributed Energy Resource Management systems, ADMS / DERMs, etc.).

Non-provision or misalignments of the underlying utility services required to carry out any of these different functions in the retail value chain will foreclose (preclude or raise the cost of to an un-economic degree) market innovation, as a problem in one step will cause unintended consequences or fully block progress in other steps.

This is precisely what has happened in New Hampshire. CPCNH's complaints detail how Eversource's tariff and supplier service agreements deviate from NH EDI requirements, in interrelated ways that make it practically impossible for CEPS and CPAs to fully serve NEM and TOU customers from an operational perspective. We plan to file complaints to address the similar, often identical, violations by Liberty Utilities and Unitil Corporation.

CPCNH, in joint comments filed with the Office of the Consumer Advocate (OCA) and Clean Energy New Hampshire (CENH), first brought this matter to the Commission's attention during the CPA rulemaking: " . . . all of the utilities' competitive supplier agreements and

[2] Eversource Reply Comments, pp. 3-5.
[3] Unitil Reply Comments, pp. 2-3.

associated terms and conditions appear to be non-compliant with the standards and guidelines made by the Electronic Data Interchange Working Group report made effective by PUC Order No. 22,919 (May 4, 1998) and other applicable regulations of the PUC. [Footnote: *See* PUC Order No. 22,919: https://www.puc.nh.gov/regulatory/Orders/1998ords/22919e.html. *See also* EDI Standards: https://www.puc.nh.gov/electric/edi.htm]."[4]

On that basis, CPCNH, OCA and CENH also urged the Commission to reconvene the NH EDI Working Group.[5] More recently, and citing to CPCNH data request responses from Unitil, the NRG Retail Companies (representing Direct Energy Services, LLC; Direct Energy Business, LLC; Direct Energy Business Marketing, LLC; Reliant Energy Northeast LLC; and XOOM Energy New Hampshire, LLC) protested against Unitil's non-compliance with NH EDI Standards and called upon the Commission to "reconstitute the New Hampshire EDI Working Group, and require [Unitil] to complete the appropriate change control process and related protocols germane to the State of New Hampshire."[6]

CPCNH appreciates that the Commission included consideration of EDI, and of the broader structural reforms required to enable a more competitive retail electricity market, in this investigation. When establishing the subsequent adjudicative docket, CPCNH recommends that the Commission consider:

- How to structure the NH EDI Working Group, which should be reconvened as soon as possible, including consideration of:
    - A compliance review regarding the various ways in which the utilities current practices diverge from NH EDI standard requirements;
    - Responsibilities for the Working Group extending beyond EDI into the related business process and technical areas of utility service required to enable retail innovation in practice (e.g., to permit identification and resolution of barriers to

[4] Docket # 21-142, CPCNH Reply Comments, p. 26. Available online: https://www.puc.nh.gov/regulatory/Docketbk/2021/21-142/LETTERS-MEMOS-TARIFFS/21-142_2022-03-28_CPCNH_OCA_CENH-COMMENTS.PDF
[5] *Ibid.*, p. 31.
[6] Docket # DE 23-002, NRG Retail Companies Comments, pp. 8-9. Available online: https://www.puc.nh.gov/regulatory/Docketbk/2023/23-002/COMMENTS/23-002_2023-06-09_NRG_COMMENTS.PDF

customer services that EDI should enable, but cannot at present, due to non-alignments in utility Meter Data management Systems, billing / Customer Information Systems, ISO-NE settlement services, etc.); and

- Implementation of mechanisms to monitor and ensure that the utilities maintain compliance going forward.

- How to standardize the utilities' tariffs and supplier service agreements regarding provision of services to CEPS, including to incorporate and comply with Puc 2200 rules and the requirement that CPAs should be able to register as suppliers with the utilities; this should include a compliance review focused on the various instances in which:
  - Current utility business practices do not provide the level or scope of services the utility is committed to supporting pursuant to their tariffs and/or service agreements; and
  - Utility tariffs and/or supplier service agreements conflict with statutory and rule requirements and prior Commission orders, both on an individual basis and when considered side-by-side (e.g., because there are instances where the tariffs may appear compliant but service agreements — which may not have been previously approved by the Commission — render the utility non-compliant).
- How the different Meter Data Management Systems (MDMS) or metering information database of each utility could be leveraged to provide alternative means of meter data access to CPAs and CEPS, initially by confirming what each is <u>functionally</u> capable of enabling in this regard. This should be considered, in part, in the context of the above recommendations. For example, since utilities are not transmitting time-of-use period usage and excess generation / negative usage data to CPAs and CEPS via EDI (and may continue to represent that this data isn't readily available in their billing systems), configuration of routine, one-way transmittals of this data directly from the MDMS to one or more secure servers configured for permissioned access by (and potentially hosted by) CPAs and CEPS may prove to be the more cost-effective and expeditious means to enable transmission of interval data, potentially for lower-latency transmittal (e.g., day after, intra-day, etc.) of more 'real time' data as the NH retail market evolves over time.

CPCNH is prepared to devote technical resources in the forthcoming proceeding, drawing upon the service providers and staff experts operating our power agency to ensure that the Commission is provided with a holistic view of the realignments and structural reforms — across the interrelated functional aspects of the competitive retail and wholesale market structures — that will be necessary to enable CPAs and CEPS to offer innovative rates and products to all customers in New Hampshire.

3. Enabling Transactive Energy Rates

CPCNH believes that Transactive Energy Rates could be deployed over the relative near-term to broadly incentivize demand flexibility on a year-round basis across New Hampshire. To date, utility comments have framed the opportunity for demand flexibility as mostly available during only the summer peak months. Eversource's comments on CLF's suggestion of targeting peaks during non-summer months suggested that there is "little to no system or ratepayer benefit" associated with demand response except during "summer-peaking months." They continued to caution that one of the utility's affiliates "ran a winter DR program in Massachusetts for two seasons in 2019-2020 and 2020-2021, but it ceased to offer the program after that because it was not cost-effective."[7]

CPCNH views Eversource's demand response program design as artificially constrained, by focusing only on generation capacity savings, and as such, economically disadvantageous for customers. Similarly, in response to party comments that view utility managed charging as the only means to manage or mitigate distribution grid upgrades driven by EV load growth, CPCNH opposes such utility proposals at this time, concurs with OCA's caution that "not all customers will be amendable to having the utility control their EV charging equipment through a managed charging program", and generally cautions the Commission and all parties against continuing to rely upon utilities, rather than the market, to determine the pace and extent of retail innovation.

Given the need to more holistically enable demand flexibility, including for customers (with or without EVs) served by CPAs and CEPS, CPCNH agrees with OCA, as well as CLF and Unitil, that the Commission should adopt "standards to address 16 U.S.C. § 2621(d)(20)(A) or (B)(i) related to "promote the use of demand-response and demand flexibility practices by

[7] Eversource Reply Comments, p. 2.

commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand" and to "establish rate mechanisms allowing an electric utility subject to the Commission's ratemaking authority to timely recover the costs of promoting demand response and demand flexibility practices."[8]

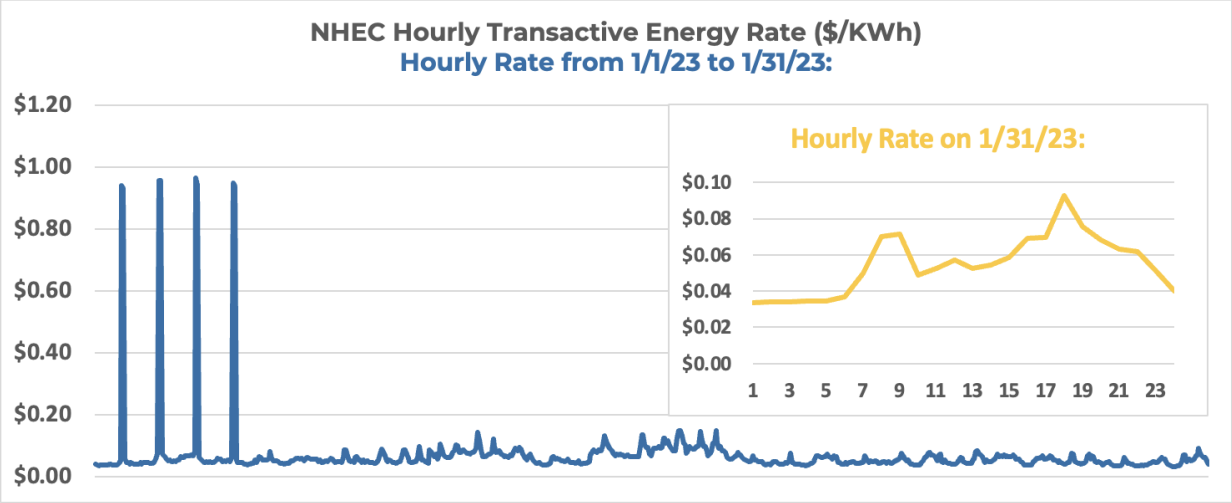
CPCNH also strongly concurs with OCA's subsequent recommendation that the state should leverage the advanced monitoring and control technologies embedded in EVs and EV supply equipment (EVSE), coupled with time-varying price signals, to maximize price-responsive demand flexibility to lowers system costs for all ratepayers.[9]

Building upon OCA's recommendation, CPCNH observes that the New Hampshire Electric Co-op (NHEC) recently deployed a Transactive Energy Rate (TER) pilot program, under which controllable devices, rather than entire homes and businesses, can be selectively exposed to retail rates that vary by hour.[10] To do so:

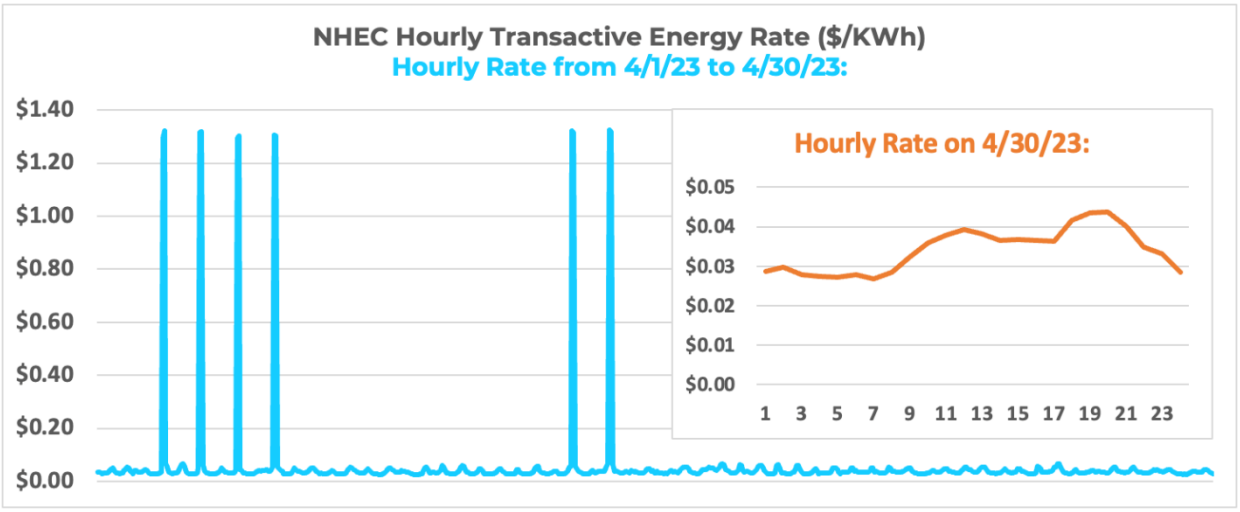
- NHEC is leveraging submetering and communication protocols recently developed in California[11] to access and rely upon the submetering capabilities built into EV / EVSE, home battery storage systems, and additional devices as the program evolves (such as heat pump water heaters, and smart panels connected to a variety of appliances); and
- NHEC is passing-through transmission cost price signals on an hourly basis along with wholesale energy and generation capacity prices.

As shown in the graphs below, the inclusion of transmission price signals is critical to incentivizing demand flexibility year-round, including in the winter and shoulder season months:

[8] OCA Reply Comments, p. 2.
[9] OCA Reply Comments, pp. 4-5.
[10] NHEC Transactive Energy Rate: https://www.nhec.com/energy-management/transactive-energy-rate-program/
[11] CPUC Press Release: https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-decision-makes-california-first-state-in-the-nation-to-allow-submetering-of-electric-vehicles#:~:text=The%20California%20Public%20Utilities%20Commission,a%20technology%20known%20as%20submetering.



In the graph above, the average rate across all 744 hours in January of 2023 was $0.07 per KWh (7 cents/KWh). For the 4 instances of high-priced periods (each lasting for two consecutive hours), the average rate rose to $0.95 per KWh. Excepting the high-priced periods, the residual average rate for the month dropped to $0.061 per KWh.



In the graph above, the average rate across all 740 hours in April 2023 was $0.059 per KWh (5.9 cents/KWh). For the 6 instances of high-priced periods (each again lasting for two consecutive hours), the average rate rose to $1.31 per KWh. Excepting the high-priced periods, the residual average rate for the month dropped to $0.038 per KWh.

As context, transmission costs are allocated to utilities based on demand coincident with network peaks each month. However, at present, New Hampshire's investor-owned utilities recover the costs by charging customers volumetric rates for transmission that are flat year-round completely obscuring the "wholesale" marginal cost price signal. In contrast, NHEC has instead

been forecasting when monthly network peaks are likely to occur, and passing through a series of hourly price signals that combine to reflect actual avoided transmission costs. In other words, devices that respond to all six $1.00 per KWh price spikes in the graphs above would capture the avoided cost of transmission set during the hour of peak demand within the month.

NHEC's approach to enabling demand flexibility offers a number of compelling advantages for customers, in terms of capital efficiency, and from a market design perspective:

- Customers are fully empowered, in terms of controlling what level of their usage to expose to time-varying prices, and protected, in that price exposure is limited to devices with embedded monitoring and intelligent controls — which mitigates the risk of being 'bill shocked' by unexpectedly high usage in a given month (e.g., due to a broken well pump, or leaking water heater, using significantly more electricity than expected, etc.).
- Transactive Energy markets can be opened without waiting or paying for utilities to roll-out Smart Meters and the accompanying Advanced Metering Infrastructure.
- Customer funds that would otherwise go towards paying for system costs are instead diverted to pay back the cost of customer-owned devices and EVs: NHEC estimates that home storage systems could save ~$1,200 per year, fully electrified homes could save approximately $3,600 per year, and EVs could generate between $3,500 and $4,500 per year (depending on whether a 15KW or 20KW charger, respectively, is used).
- NHEC, as a distribution utility, does not need to invest in the expertise and complexities required to directly control devices, or 'get into the business' of engaging and educating customers directly; instead, aggregators and distributed energy companies are relied upon to do so — and to figure out how to deploy more cost-effective technologies and services for customers – while the utility focuses on maintaining the "poles and wires".
- Non-participating customers also benefit financially, because flexing demand and dispatching storage / generation across multiple hours of high network demand each month (rather than only for the peak hour of system demand in summer) will also lower distribution costs over time.

CPCNH observes here that Eversource, Liberty Utilities, and Unitil Corporation have all deployed, or previously proposed deploying, utility-owned solar and storage projects or utility-

administered customer device programs that capture and monetize the same avoided benefits of energy, generation capacity, and transmission charges:

- Liberty Utilities: for their Battery Storage Pilot customer program, now proposed for expansion in DE 23-039 (the utility's distribution rate case).
- Unitil: for the utility-owned ~4.9 MW battery storage project approved in DE 22-073.
- Eversource: for their Westmoreland Energy Storage Pilot proposal (though the proposal was later withdrawn by the utility, and never built).[12]

A corollary observation is that the calculations and business process changes required to enable Transactive Energy Rates are in fact well established, understood by each utility, and should be readily leveraged to enable CPAs and CEPS to enable demand flexibility — in the same way that NHEC has already done for its customers — for customers on competitive supply.

In fact, this is precisely what will be required to support the CPA and CEPS pilots called for under RSA 362-A:2-b. Pending the resolution of Docket No. DE 23-026, if the PUC determines that it has the same jurisdictional authority other New England states have acknowledged to direct the investor-owned utilities to support market-based compensation for CPAs and CEPS that aggregate customer devices (or contract for distribution-interconnected battery and generation projects) under 5 MW in total capacity, then the next step will be to determine how actual avoided costs will be credited or realized on an operational basis for the pilots.

CPCNH recommends that this be determined by the Commission generically, in a standardized fashion for all projects, either ahead of any pilot proposal (as the utilities initially proposed in IR 22-061 at the pre-hearing conference), or the first time a pilot proposal is submitted to the PUC pursuant to RSA 362-A: 2-b, XI(a). In either case, the calculations required will be straightforward and standardized, such that the utilities should be expected to implement compensation mechanisms (for CPAs and CEPS that extend time-varying rates to

[12] Docket DE 19-057, Eversource Attachment GTEP-3, available online: https://www.puc.nh.gov/regulatory/Docketbk/2019/19-057/INITIAL%20FILING%20-%20PETITION/19-057_2019-05-28_EVERSOURCE_ATT_DTESTIMONY_ANCEL_SCHILLING.PDF

customer devices) that are automated or else require minimal and infrequent manual actions on the part of the utilities:

- The value of energy is realized by the impact of metered output of a pilot on load settlements, which are computed on an hourly basis each day. Utilities are already required to perform this calculation for third-party suppliers that serve net metered customers, to properly account for any excess generation as a reduction in the supplier's net load obligations,[13] and adjusting the settlement processes to also net out the metered energy generated by pilots should not incur much additional expense.
- The value of avoided transmission charges are computed as (1) the metered exports of a pilot to the distribution grid at the monthly hour of system peak multiplied by (2) the RNS and LNS rates (which allocate transmission cost at the hour of monthly peak load across the networks). That could be 12 to 24 calculations per year per pilot (depending on whether monthly RNS and LNS network coincident peaks are coincident with each other or not). There are two mechanisms provided for enabling proper compensation pursuant to RSA 362-A:2-b, XI(a):
    - The first compensation mechanism would continue to charge all ratepayers the same volumetric transmission rates, which would be computed by the utility as though the pilots had not lowered peak demand, to collect additional funds that would then be transferred from the utility to the CPAs / CEPS participating in the pilot.
    - The second compensation mechanism is more efficient and aligned with market principals, in that customers on utility default service would continue to be charged for transmission by utilities without any change in the process thereof, while customers served by CPAs / CEPS participating in the pilot would begin being charged for transmission by their CPAs / CEPS directly. The utility would assign transmission charges to the CPA / CEPS to factor into customer billing, based on their customer demand obligations and subtraction of the metered generation output of the pilot to the distribution grid at the time of the monthly

[13] RSA 362-A:9, II

peak. CPAs/CEPs could also invoice utilities for the benefits that were realized from the peak load reduction after the fact (one to two months later). **CPNCH observes here that this mechanism would have the additional potential benefit of enabling CPAs and CEPS to charge transmission rate components on a time-varying basis to customer devices — and enable market-based demand flexibility in the same way that NHEC has done.**

- For determining avoided capacity costs, the calculation is based on a single metered measurement of exports to the distribution grid at the annual hour of regional coincident peak demand. Utilities would need to adjust the ICAP tags of retail customers served by the CPAs / CEPS participating in the pilot, once per year.

On the basis of the foregoing, CPCNH recommends that an adjudicative docket subsequent to this investigation determine:

- Whether the submetering and communication protocols that NHEC has adopted for its Transactive Energy Rate program should be adopted and relied upon across the service territories of Eversource, Unitil, and Liberty Utilities, or whether an alternative protocol should be authorized to enable device-level submetering; and
- How actual avoided costs will be credited to or otherwise realized by CPAs and CEPS that aggregate customer devices (or contract for distribution-interconnected battery and generation projects) under 5 MW in total capacity as net load reducers, and the timeline by which Eversource, Unitil, and Liberty Utilities will be required to implement the changes required to enable the market mechanisms provided for under RSA 362-A:2-b.

Pending resolution of the above two requirements to open the market, CPCNH is prepared to follow NHEC's lead in offering opt-in Transactive Energy Rates for customers on CPA supply service throughout New Hampshire.

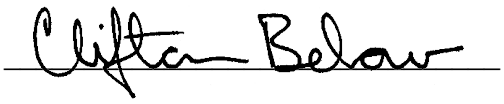
4. Conclusion

Thank you for the consideration of CPCNH's recommendations. The solutions that are coming into focus here are actionable and will no doubt begin the process of a tremendously advantageous and powerful market transformation for New Hampshire.

Our expanding membership of 35 communities, each of which has appointed representatives to actively engage in governing our power enterprise, appreciates the Commission's continuing focus on enabling Community Power Aggregators to "encourage voluntary, cost effective and innovative solutions to local needs with careful consideration of local conditions and opportunities" with the objective of providing "small customers with similar opportunities to those available to larger customers in obtaining lower electric costs, reliable service, and secure energy supplies", as the Legislature originally intended.[14] More broadly the Commission has the opportunity here to better "reduce costs for all consumers of electricity by harnessing the power of competitive markets" and expand "markets for new and improved technologies" by providing "electricity buyers and sellers with appropriate price signals" as called for by RSA 374-F:1.

I look forward to working collaboratively throughout the forthcoming adjudicative proceeding to make that vision a reality, most of all by leveraging our newfound capabilities as the largest and most competitive designed power enterprise in the state in all the ways needed to ensure that utility services are realigned to enable an innovative competitive market for services that create opportunities and new value for our customers, communities, and ratepayers as a whole.

Community Power Coalition of New Hampshire



by CPCNH Chair Clifton Below

Attachments:

1. CPCNH Complaint to PUC Against Public Service Company of New Hampshire d/b/a Eversource Energy (June 13, 2023).
2. Exhibits to CPCNH Complaint to PUC Against Public Service Company of New Hampshire d/b/a Eversource Energy.
3. CPCNH Complaint to DOE Against Public Service Company of New Hampshire d/b/a Eversource Energy (June 13, 2023).

[14] RSA 53:E-1, Statement of Purpose.