

Public Service Company of New Hampshire

d/b/a Eversource Energy

Least Cost Integrated Resource Plan

August 23, 2019

I. INTRODUCTION

On June 19, 2015, Public Service Company of New Hampshire d/b/a Eversource Energy (“Eversource” or the “Company”) submitted its Least Cost Integrated Resource Plan (“LCIRP”) as required by RSA 378:38 and Order No. 24,659 (May 1, 2014), as clarified by the Commission in Order No. 25,676 (June 12, 2015) (the “2015 Plan”). Following a period of review, a settlement agreement relating to that plan was reached between Eversource and the Commission Staff which was filed on January 23, 2017, and approved by the Commission in Order No. 26,050 (August 25, 2017). The settlement agreement relating to the 2015 Plan provided, in relevant part, that at the time it filed its next LCIRP, Eversource would provide the information required by RSA 378:38, as well as additional information sought by the Commission Staff.

Pursuant to RSA 378:38, “each electric and natural gas utility, under RSA 362:2, shall file a least cost integrated resource plan with the commission within 2 years of the commission’s final order regarding the utility’s prior plan, and in all cases within 5 years of the filing date of the prior plan.” In that Eversource’s 2015 Plan filing was made on June 19, 2015, and Order No. 26,050 approving a settlement agreement between Eversource and the Staff relating to that plan was issued on August 25, 2017, that order provided, in relevant part, that Eversource’s next LCIRP would be due within 2 years of that date, or August 25, 2019.

On February 12, 2019, the Commission Staff submitted a long-pending recommendation on grid modernization in Docket No. IR 15-296. That recommendation summarized an extensive review by the Staff of issues relating to grid modernization following on earlier work that had been undertaken by a large stakeholder group, and which had resulted in a report from the Staff’s consultant, Raab Associates, Ltd., on March 20, 2017. Among other things, the Staff’s recommendation proposed that the LCIRP be replaced by a new submission, an Integrated

Distribution Plan or IDP. This new IDP, the form of which is not yet settled, would have some elements of the old LCIRP as well as new requirements. In recognition of the possibility of requiring this new submission for Commission review and approval, the Staff recommended the following:

The IDP will require approximately 12 months to develop, using the comprehensive LCIRP template with the incorporation of the grid modernization initiatives plus an engaged stakeholder process. Eversource and Liberty Utilities are required to file their next LCIRP to the Commission by August 25, 2019, and July 1, 2019, respectively, and Unitil is required to file its LCIRP by January 9, 2020. Staff recommends that, if necessary, the utilities request that the LCIRP filing requirement be waived by the Commission, pursuant to RSA 378:38-a, in order to enable the utilities to submit the more robust, integrated, and transparent IDPs.

February 12, 2019 Staff Recommendation in Docket No. IR 15-296 at 67.

In view of that recommendation, on April 9, 2019, Eversource filed a motion seeking a waiver of the requirement to make an LCIRP filing by August 25, 2019. More specifically, Eversource requested that a waiver “persist until the IDP, or similar, requirement is established” and that when the requirement for the IDP became established “the requirements of the LCIRP statute be waived, as may be necessary, in favor of a submission aligned with those new requirements.” April 8, 2019 Motion of Eversource in Docket No. DE 15-248 at 7.

On June 14, 2019, the Commission issued Order No. 26,262 in Docket No. DE 15-248 and partially granted the waiver requested by Eversource. Particularly, the Commission concluded that in light of its “pending investigation on grid modernization, IR 15-296, and the anticipated timing of an IDP filing. . . a waiver of the August 25, 2019, filing deadline for Eversource will allow a more efficient use of utility resources.” Order No. 26,262 at 5. Accordingly, the

Commission did not require a submission by August 25, 2019 containing the elements of a full LCIRP filing.¹

In granting its waiver, however, the Commission ordered that Eversource make a more limited filing, and that the “purpose of that filing will be to ensure that Eversource is adhering to the commitments made in its prior approved LCIRP.” Id. at 6. More pointedly, the Commission ordered:

Our prior approval of Eversource’s 2015 LCIRP contained a number of specific deliverables and we will require updates of those no later than August 25, as listed below:

- Confirmation that the utility is currently following the process of system planning utilizing those established procedures, criteria, and policies outlined in its 2015 LCIRP, and achieving the objectives included in its 2015 LCIRP;
- A copy of the Eversource-UES and Eversource-NHEC Joint Recommendations Report from each of the most recent joint planning meetings with UES and with NHEC;
- 2019 Organization charts for field distribution operations, planning, and engineering;
- An updated crew complement report (include bucket crews, digger crews, and troubleshooters assigned to each area work center in all five regions) for 2017, 2018, and 2019;
- The Company’s evaluation of targeted energy efficiency solutions for potential projects for 4 & 12 kV substations due to loading;
- An update on the HeatSmart customer recertification results;
- A copy of the most recent list of proposed capital projects which were presented to senior management for consideration of approval; and
- Details regarding the steps taken through each state of the Planning Process Flow for each of the highest-cost distribution capital projects with a status of In Service, Under Construction, or Planned, within the prior two years, and a demonstration of how the LCIRP plan was followed through the planning process.

We will not require Eversource to update its distribution automation plan or its customer engagement platform in the August 25, 2019, filing. Although those items were included in the order approving the 2015 LCIRP, they will be covered in more detail in the IDP.

¹ The Commission also declined to waive the 5-year requirement of RSA 378:38, but that conclusion does not bear upon this submission.

Id. at 6-7. Consistent with the Commission's directive in Order No. 26,262, Eversource includes in this submission the updated information required by the Commission.

II. UPDATED DELIVERABLES

1) Confirmation that the utility is currently following the process of system planning utilizing those established procedures, criteria, and policies outlined in its 2015 LCIRP, and achieving the objectives included in its 2015 LCIRP

The 2015 LCIRP, was limited to Eversource's distribution and transmission planning and stated the following with regard to the objectives of the plan:

Eversource serves more than 500,000 homes and businesses in New Hampshire and is primarily responsible for the provision of safe and reliable electric service to its retail customers. Additionally, the Company also provides wholesale delivery service to the New Hampshire Electric Cooperative (NHEC), Unitil Energy Systems (UES) and several municipal electric companies. Under the distribution section of this Plan, Eversource describes how it fulfills its responsibility to provide service to all of its distribution customers, operate and maintain its distribution system, connect new customers, plan and build distribution plant for customers' peak demand requirements, and offer energy efficiency and demand side management opportunities to its customers. The distribution section also outlines the Company's system peak load forecasting methodology and how the forecast is used to assess future system needs.

2015 Plan in Docket No. DE 15-248 at 1.

With respect to the distribution system, the merger of Northeast Utilities and NSTAR in 2012 to form what is now Eversource Energy has provided an opportunity for the operating entities in New Hampshire, Massachusetts and Connecticut, including the Company, to evaluate their distribution planning criteria and work toward developing standards across all companies that provide a more reliable and resilient electric distribution system. Through this process, which continues today, Eversource has adopted various company-wide procedures and criteria, including SYSPLAN 010 – Bulk Distribution Substation Assessment Procedure, SYSPLAN 008 – Calculation and Documentation of Bulk Distribution Transformer Ratings, and an econometric

load forecast methodology. As with the previous methods that were specific only to Eversource in New Hampshire, each of these company-wide procedures, criteria, and policies support Eversource's overall goal of designing and operating an electric system that safely meets the needs of customers of all types at the lowest reasonable cost. Where new company-wide procedures have not yet been developed, the planning criteria referenced in the 2015 LCIRP continue to be applied.

On the transmission system, in May 2015, ISO New England began implementing changes to the regional and interregional transmission planning process to comply with the directives in Order No. 1000 issued by the Federal Energy Regulatory Commission ("FERC"). That order established new electric transmission planning and cost allocation requirements for public utility transmission providers across the country. Additional information can be found at <https://www.iso-ne.com/committees/key-projects/implemented/order-no-1000>. Eversource complies with all FERC and ISO-NE Transmission Planning processes.

Within Eversource, the project approval process has been enhanced since 2015 such that distribution substation projects are now reviewed by committees that include subject matter experts from across the Eversource Energy system. A project is first presented at the Solution Design Committee ("SDC") for a technical review and challenge of the project. The make-up of the SDC may change from project to project, but will generally include management personnel from the following departments: Protection and Control Engineering, Substation Design Engineering, System Planning, Transmission Business and Quality Assurance, Transmission Line Engineering, Substation Technical Engineering, Project Management, Asset Management, System Operations, and Siting and Construction Services. Once a project has been approved by the SDC the project is submitted to the Eversource Project Approval Committee ("EPAC") for

financial approval. Distribution Line projects are reviewed from a technical and financial basis by the New Hampshire Project Approval Committee which consists of members from multiple engineering and operational disciplines. Both substation and line projects are approved by designated levels of management based on the total estimated cost of the project. This approval is documented in the PowerPlan software system.

Ultimately, funding of distribution projects must be coordinated and approved through the annual budget approval process which has not changed from what was provided in the 2015 LCIRP proceedings. It should be noted that the project approval process has evolved since 2015 and therefore the processes, form titles, and committee titles have been modified over this period. Please see pages 5 – 14 of the May 28, 2019 testimony of Erica Menard in the Company's rate case in Docket No. DE 19-057 for a detailed description of the capital planning and approval process both before and after 2015.

2) A copy of the Eversource-UES and Eversource-NHEC Joint Recommendations Report from each of the most recent joint planning meetings with UES and with NHEC

As noted in Eversource's 2015 Plan (page 11), an Eversource - UES Joint Recommendations Report is generated each year. Eversource and NHEC, however, do not generate such reports annually, but will meet periodically and perform joint planning when mutually agreed. Please see the 2018 Eversource-UES Joint Planning Report attached as Attachment A.

With respect to NHEC, a joint planning report with NHEC has not been generated. Regular contact and coordination have been maintained and specific studies are performed on an ad hoc basis. Below are examples of planning interactions with NHEC since the time of the 2015 Plan. Coordination between field engineering personnel of both companies occurs on a regular basis as well as:

2016 – NHEC Moultonborough PV Interconnection study;

2016 – Discussed 377 line regulators and NHEC Raymond substation rebuild;

2017 – Loading data provided to NHEC for Beebe River and North Woodstock Substations;

2017 – NHEC shared its Long Range System Plan with Eversource;

2018 – NHEC and Eversource Planning reviewed the loading on the 355 line for NHEC customer growth;

2018 – Reviewed possible new metering point on one of the White Lake lines to split existing NHEC White Lake load.

3) 2019 Organization charts for field distribution operations, planning, and engineering

Please see the organization charts included as Attachments B and C to this submission.

4) An updated crew complement report (include bucket crews, digger crews, and troubleshooters assigned to each area work center in all five regions) for 2017, 2018, and 2019

Please see Attachment D included with this submission for the information. Please note that the supplied crew count report does not include authorized open positions which Eversource is working to fill.

5) The Company's evaluation of targeted energy efficiency solutions for potential projects for 4 & 12 kV substations due to loading

Each year the company identifies non-bulk transformers that are loaded above 85% of the TFRAT or long-term emergency rating. A growth rate is applied (typically the same growth rate as the bulk substation that provides the supply) to determine if the transformer is expected to exceed its TFRAT rating within the next 10 years. For each transformer that is forecasted to exceed its TFRAT rating, it is determined whether load served by the transformer is a candidate

for targeted energy efficiency which could be implemented to defer capital investment. Most of the transformers are not forecasted to exceed the TFRAT rating within the next ten years. A few of the transformers will be addressed with projects that are associated with asset condition and reliability. The results of this effort are summarized in the spreadsheet attached (Attachment E) with an explanation of whether targeted energy efficiency is a viable alternative to a more traditional investment.

Also, as described in the July 31, 2019 testimony of Charlotte Ancel in Docket No. DE 19-133,² the Company has reviewed the potential for targeted energy efficiency in the context of its Westmoreland Clean Innovation Project. That review was not specifically undertaken to address loading, but as part of a more comprehensive solution to a reliability concern. Nonetheless, there review did include a review of targeted energy efficiency solutions. Additional detail on the review and the associated proposal for targeted efficiency can be found in Ms. Ancel's testimony.

Additionally, in 2019, the Company received approval to implement a demand reduction pilot program targeting Commercial & Industrial ("C&I") customers as part of its energy efficiency programs. As with the Westmoreland project, this proposal was not intended to address loading issues, but to avoid costs associated with peak demand. Information on that pilot proposal can be found in the January 18, 2019 filing Docket No. DE 17-136.

6) An update on the HeatSmart customer recertification results

Beginning in late 2015 and continuing through early 2016, the Company began the process of circulating letters (Attachment F, page 1) and recertification forms (Attachment G) to

² Ms. Ancel's testimony was initially submitted on May 28, 2019 testimony in the Company's rate case in Docket No. DE 19-057, but was subsequently removed from the rate case filed as a separate docket, Docket No. DE 19-133.

customers. There were 3,074 letters and recertification forms sent and the Company received 2,497 completed forms from customers. Approximately 580 customers (10%) did not respond to the first request and were sent a second letter (Attachment F, page 2) in the 2nd through 4th quarters of 2016.

Of the customers who were notified and responded, approximately 2,100 customers were recertified for the HeatSmart program by confirming they have an approved back-up heating source and those customers remained on the HeatSmart program. The company will continue periodic review following the current HeatSmart summer period, including outreach to customers who have not completed the recertification process.

7) A copy of the most recent list of proposed capital projects which were presented to senior management for consideration of approval

Please see the project list included as Attachment H to this submission

8) Details regarding the steps taken through each state of the Planning Process Flow for each of the highest-cost distribution capital projects with a status of In Service, Under Construction, or Planned, within the prior two years, and a demonstration of how the LCIRP plan was followed through the planning process.

Documentation is provided for the following three projects: Webster/Daniel Substation

Upgrade; Emerald Street Substation Upgrade; and Rochester 4kV Conversion

i) Webster/Daniel Substation Upgrade (Distribution Cost \$19.69 million)

The need to address loading on the Webster substation was identified in distribution planning ten-year studies as early as 2008 and was included in every ten-year study report which followed. A Webster Substation Study was conducted in 2015 to consider alternatives and determine the preferred solution. A Project Authorization Form (“PAF”) was presented to the

Eversource Project Approval Committee (“EPAC”) in March of 2016. A final Supplement Request Form was presented and approved at EPAC in August of 2018 which documented the basis for costs which exceeded the estimate presented in the PAF.

This project was placed in-service in 2018 and consisted of replacing three smaller 1950’s vintage transformers with two larger transformers within the existing Webster Substation. The project also created a 34.5kV switching station with two station capacitor banks, a normally open bus-tie switch, an automatic bus restoral scheme, new transformer and line circuit breakers (which replaced oil circuit breakers), and a dedicated circuit breaker to serve the NHEC Webster substation. Additional details are included in Attachments I, J and K which are referenced above and demonstrate how Eversource adhered to its planning principles as described in the 2015 Plan throughout the process of developing this project.

ii. Emerald Street Substation Upgrade (Distribution Cost (est.) \$17.635 million)

The Emerald Street Substation Upgrade project is the second phase of a comprehensive area solution in the Keene area. Transformer loading concerns were identified in annual loadflow studies as early as 2008. Asset condition, reliability, circuit breaker interrupting ratings, and forecasted load issues at the Emerald Street Substation (also referred to as the Keene Substation) prompted the Keene Area Distribution System Study in 2012. The North Keene Substation was constructed and placed in service in 2016 as the first phase of the area solution. Because essentially all load in that area was, at the time, served out of the Emerald Street Substation, it was necessary to construct a new substation to allow for the rebuild of the existing Emerald Street Substation while maintaining reliable electric service to the customers served in that area. Additionally, the second substation provided a redundant source for the area, and the

ability to shift or redirect load and supply flows, resulting in significant reliability benefits for the area.

A Technical Authorization Form (“TAF”) was submitted and approved in November of 2016 for the rebuild of the Emerald Street Substation. With this approval, initial funding for engineering was authorized. A PAF for long lead time material was submitted and approved in March of 2017. A PAF for full funding was submitted and approved in September of 2017. While developing the Outage and Energization plan, a change in scope was required to address unacceptable levels of risk resulting from outages during construction. As a result, a Solution Selection Form (“SSF”) with the new project scope was submitted and reviewed by the Solution Design Committee in January of 2019. A Supplement Request Form which included the revised scope and cost estimate was submitted and approved at EPAC in May of 2019. In addition to the project covering the substation assets, a PAF was also submitted and approved in March of 2018 for distribution line work associated with constructing the getaway cables and risers for each of the circuits emanating from the new switchgear. Additional details are provided in Attachments L through R which are referenced above and demonstrate how Eversource adhered to its planning principles as described in the 2015 Plan throughout the process of developing this project. This project is under construction with an estimated in-service date of December 2020.

iii. Rochester 4kV Conversion (Distribution Cost \$11.532 million)

The Rochester 4kV Conversion is a project that encompasses three non-bulk substations and the conversion of 4kV circuits in Rochester, New Hampshire. The project was initiated primarily for asset condition of the Signal Street 34.5 – 4.16 kV 1954 vintage transformer. Other drivers included protection limitations, lack of transformer or circuit capacity under

contingency, and limitations of 4kV distribution. A comprehensive area study was completed in January of 2017. The recommended solution included changing a dual voltage distribution transformer at Portland Street Substation from 4.16kV to 12.47 kV, rebuilding Twombly Street Substation with a larger transformer, converting the 4kV circuits to 12kV, and retiring the Signal Street Substation.

A TAF was submitted and approved in January of 2017 for the proposed substation and distribution line upgrades. A PAF for the distribution line 4kV conversion work was approved in February of 2018 at the New Hampshire Project Approval Committee. A PAF for the Twombly Street Substation Rebuild project was approved in May of 2019 at the EPAC. Additional details are included in Attachments S through V which are referenced above and demonstrate how Eversource adhered to its planning principles as described in the 2015 Plan throughout the process of developing this project. This project is under construction with an estimated in-service date for the Twombly Substation of June 2020.