

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DG 19-126

In the Matter of:

Northern Utilities, Inc.

LEAST COST INTEGRATED RESOURCE PLAN

Direct Testimony

of

Al-Azad Iqbal
Utility Analyst – Gas & Water Division

April 10, 2020

1 **Q. Please state your name, occupation, and business address.**

2 **A.** My name is Al-Azad Iqbal, and I am employed by the New Hampshire Public Utilities
3 Commission (Commission) as a Utility Analyst. My business address is 21 South Fruit
4 Street, Suite 10, Concord, New Hampshire 03301.

5
6 **Q. Please summarize your educational and professional experience.**

7 **A.** My educational and professional background is summarized in Appendix A.

8
9 **Q. What is the purpose of your testimony in this proceeding?**

10 **A.** In July 2019, Northern Utilities (Northern, or the Company) filed a Least Cost Integrated
11 Resource Plan (LCIRP) under RSA 378. That plan addresses Northern's demand forecast
12 for the next five-year planning period (2019/20 through 2023/24), planning standards for
13 determining its resource requirements for that period, and an assessment of its gas-supply
14 resource portfolio.

15
16 My testimony addresses Staff's position regarding the adequacy of Northern's filings
17 regarding demand forecasts, planning standards, and assessment of the overall resource
18 portfolio, including long- and short-term environmental, economic, and energy price and
19 supply impacts. The particular questions that we address are as follows:

20
21 1. Is Northern's demand forecast reasonable, and does it provide an appropriate
22 basis for assessing its supply requirements for the IRP forecast period?

23

2. Are Northern's planning standards (e.g., normal year, design year and design day) reasonable, and do they provide an appropriate basis for assessing the Company's supply requirements for the IRP forecast period?

3. Is Northern's assessment of its resource portfolio needs, including potential environmental, economic, price, and supply impacts, reasonable?

Our evaluation of these aspects of the LCIRP, as filed, including revisions, has been informed by responses to data requests, presentations from the Company, and discussions at Technical Sessions in this matter.

Demand Forecasts

Q. How does Northern forecast the demand that it needs to plan for?

A. The Company uses econometric models for forecasting. The LCIRP modeled use-per-customer and numbers of customers. It then reduced the adjusted volumetric results of its modeling for expected energy efficiency savings. These reductions and adjustments produced a forecast of net demand requirements. The Company made no out-of-model adjustments.

The 2019 LCIRP combines Northern's rate classes into three Customer Segments: Residential Customers; Commercial and Industrial (C&I) Low Load Factor (LLF) Total Customers (i.e., Sales and Transportation), and C&I High Load Factor (HLF) Total Customers (i.e., Sales and Transportation). For each segment, regression of a number of

1 economic and demographic factors against numbers of customers produced a forecast
2 equation for numbers of customers in that segment. Regression of customer use in each
3 segment against weather data produced the use-per-customer equation.

4
5 **Q. What is your opinion of Northern's forecast methods?**

6 **A.** We found the methods and results of the numbers-of-customers and use-per-customer
7 models reasonable. We found the form of the customer-numbers models similar to those
8 of neighboring utilities, and the diagnostics for the regression equations satisfactory. The
9 residential segments showed slight declines in use per customer, and a moderate increase
10 in C&I segments (both LLF and HLF), which generally matches results in comparable
11 areas. The reductions in to reflect anticipated energy-efficiency savings also appeared
12 reasonable.

13
14 **Planning Standards**

15 **Q. How did Northern develop its Normal Year planning standard?**

16 **A.** Northern calculated the average annual number of effective degree days (EDDs) using 30
17 years of EDD data measured at the Portsmouth, New Hampshire weather station (PSM).
18 Normal Year EDDs were calculated by summing the 30-year average billing cycle EDD
19 for each month using data from November 1, 1988 to October 31, 2018. The results
20 produced a Normal Year EDD of 6,955.

1 **Q. How did the Company select a Design Year and a Design Day?**

2 **A.** Northern used a 1-in-30-year design planning standard for both the design year and the
3 design day. The Company selected values of 80.1 EDD for the Design Day, and 7,644
4 EDD for the Design Year. The Design Day calculation employed statistical analysis of
5 the coldest day of each year and the Design Year calculation employed statistical analysis
6 of the total EDDs in each calendar year. In both cases, the Company selected as its
7 planning basis the average plus two standard deviations, which results in a probability of
8 only about 2.5 percent that the selected value would be exceeded in the projected years.

9
10 **Q. What is your opinion of this approach?**

11 **A.** We found Northern's analytical approach to be acceptable. Its method for distributing the
12 Design Year EDDs throughout the year is also appropriate.

13
14 **Q. So what do you conclude about Northern's planning standards?**

15 **A.** We found no concerns with the methods that Northern used to determine its planning
16 standards, or with the results that it obtained.

17
18
19 **Assessment of Resource Portfolio**

20 **Q. What do you understand to comprise Northern's Design-Day gas-supply resources?**

21 **A.** Northern maintains a combined resource portfolio for New Hampshire and Maine. That
22 portfolio includes pipeline transportation capacity, underground storage capacity that has

1 been combined with pipeline capacity in order to deliver withdrawn storage to the
2 Company's system and an on-system LNG storage and vaporization facility.

3 The current portfolio does not fully satisfy Northern's Planning Load requirements, so
4 Northern supplements its long-term capacity portfolio with short-term supplies delivered
5 by suppliers to its distribution system or to Granite State Gas Transmission's pipeline
6 interconnects. Current long term resources (comprised of pipeline, storage, and LNG)
7 provide a maximum daily quantity of 72,128 Dth which is expected to increase to 99,558
8 Dth in 2022, compared to the design day capacity requirement of 163,465 Dth in 2019-
9 20, which represents an increase of approximately 1.5% per year. The long-term
10 resources are supplemented with Delivered Supplies that are typically contracted for on a
11 short-term basis in order to meet Northern's winter period sales service load
12 requirements.

13
14 **Q. What conclusions did Northern reach with respect to Resource Assessment, as**
15 **addressed in its LCIRP?**

16 A. Northern concluded that its Long-Term Capacity Portfolio is insufficient to meet its
17 Planning Load under Normal Year, Design Year and Design Day conditions throughout
18 the Planning Period, from the 2019/20 winter season through the 2023/24 winter season.
19 The addition of Pending Capacity Resources (Atlantic Bridge and Portland XPress)
20 beginning November 2020 and Proposed Capacity Resources (Westbrook XPress)
21 beginning November 2022 are expected to reduce the gap between Expected Long-Term
22 Portfolio utilization and Planning Load. However, additional capacity resources are
23 needed. In this context, Northern intends to renew all existing Capacity Resources.

1 **Q. Has Northern acted on any of these options since the preparation of the LCIRP?**

2 A. Northern received regulatory approval in Commission Order No. 26,309, issued in
3 Docket DG 19-116, for Precedent Agreements pertaining to the proposed Westbrook
4 Xpress Phase III Project, which will add 10,000 Dth of capacity to its portfolio.
5

6 **Q. What is your opinion of the Resource Assessment segment of the LCIRP?**

7 A. The Company utilizes an elaborate analytical framework to inform its portfolio
8 decisions regarding the adequacy of the portfolio and the appropriateness of potentially
9 available incremental resources to meet identified resource needs. It performs a landed
10 cost analysis to compare various resource project options. Northern performs qualitative
11 analysis to address feasibility, viability, potential environmental, economic, and health-
12 related impacts, and contribution to portfolio flexibility and diversity, location of
13 delivery, renewal rights, other contractual issues, etc. after potential projects are
14 identified and the attributes and terms of the related supply options are known. Then the
15 Company models those factors in Sendout® to determine total delivered portfolio costs,
16 utilization rates for proposed new resources, and impacts on utilization rates of other
17 resources. We found Northern's structured approach to support its analysis and to
18 justify its conclusions to be appropriate.
19

20 **Environmental Assessment Requirements**

21 **Q. Did Northern address statutory environmental assessment requirements?**

22 A. In its initial filing, the Company addressed all statutory factors required to be assessed
23 under RSA 378:38, V, and VI. RSA 378:38, V to a certain extent. The statute requires an

1 “assessment of plan integration and impact on state compliance with the Clean Air Act of
2 1990, as amended, and other environmental laws that may impact a utility’s assets or
3 customers.” Subsection VI requires an “assessment of the Plan’s long- and short-term
4 environmental, economic, and energy price and supply impact on the state.” RSA 378:39
5 states, in part, that when “deciding whether or not to approve the utility’s plan, the
6 commission shall consider potential environmental, economic, and health-related impacts
7 of each proposed option.”

8
9 After reviewing the Company’s responses to data requests, Staff identified a number of
10 concerns regarding the LCIRP’s environmental assessment. In a technical session held on
11 December 11, 2019, parties discussed that assessment and suggested that the Company
12 file a revised plan addressing the concerns raised in the technical session. The Company
13 agreed and subsequently filed a revised LCIRP on February 24, 2020.

14
15 **Q. What was Staff’s conclusion on these issues?**

16 **A.** After reviewing the revised plan and related responses to data requests, Staff believes that
17 the Company has adequately addressed environmental as well as health-related aspects of
18 supply options in its filings. Staff believes the information provided is responsive to the
19 statutory requirements, given the absence of clear guidelines.

20
21 **Q. Does that complete your testimony?**

22 **A.** Yes.
23

Educational and Professional Background

Al-Azad Iqbal

I am employed by the New Hampshire Public Utilities Commission (PUC) as a Utility Analyst. My business address is 21 S. Fruit Street, Suite 10, Concord New Hampshire, 03301.

I received my Bachelor degree in Architecture (B. Arch) from Bangladesh University of Engineering and Technology. Later, I received my Master's (MS) in Environmental Management from the Asian Institute of Technology and another Master's in City and Regional Planning (MCRP) from Ohio State University. I was a Doctoral Candidate at the City and Regional Planning Department at Ohio State University. After joining the PUC in 2007, I participated in several utility related training courses including marginal cost training by NERA; Advanced Regulatory Studies at the Institute of Public Utilities, Michigan State University; and depreciation training through the Society of Depreciation Professionals. Prior to joining the PUC, I was involved in teaching and research activities in different academic and research organizations. Most of my research work was related to quantitative analysis of regional and environmental issues.