

Northern Utilities, Inc.  
Docket No. DG 14-239  
PUC Staff Data Requests at Technical Conference

ORIGINAL	
N.H.P.U.C. Case No.	DG 14-239
Exhibit No.	6
Witness	Kahl, Wells, Conneely

Date Request Received: 10/14/2014  
Request No. TC-5

Date of Response: 10/21/2014  
Witness: Francis X. Wells

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**Request:**

Estimate the incremental cost incurred by Northern to supply reverse migration (delivery to sales service) load during the 2013-2014 winter in both the New Hampshire and Maine divisions.

**Response:**

There are a number of significant challenges in attempting to estimate the incremental costs incurred to supply reverse migration load during the 2013-2014 winter in both New Hampshire and Maine, not the least of which is that the system is dynamic, and reacts and responds to numerous moving and changing factors and considerations. However, based on the total incremental volume which is retrospectively calculated below as attributable to reverse migration, it is unlikely Northern would have required any incremental resources had this been the only factor impacting Northern's sales service requirements this past winter:

1. As an initial matter, and by way of background, in Docket No. DG 05-080, Northern, the New Hampshire Commission Staff, New Hampshire OCA, Maine OPA and several marketers settled certain issues that had arisen in connection with the allocation of the Company's gas costs between the Maine and New Hampshire divisions that are recoverable through the cost of gas recovery mechanisms. The parties also clarified certain obligations with regard to natural gas unbundling relative to the Maine division. The Stipulation that was subsequently filed and approved by both the Maine and New Hampshire Commissions included use of the modified PR Allocator and the derivation of firm volumes (sales load plus 50% of Maine transportation load; and sales load plus 100% of New Hampshire capacity-assigned transportation load) used to determine each division's allocated share of capacity-related costs, how capacity assignment revenue is allocated to each division, and the assignment of a \$700,000 credit between divisions. Other provisions in the Stipulation resolved issues specific to each division. Finally, the Stipulation included Delivery Service Terms and Conditions which allow for migration of C&I customers between sales and delivery services. In its seasonal COG filings, Northern adheres to the Stipulation in assigning costs between divisions.
2. In Docket No. DG 12-131, Investigation into Maine-New Hampshire Interstate Cost Allocation Matters, the allocation of monthly commodity costs was based on volume dispatched to each division. In its seasonal COG filings, Northern adheres to that method in assigning such costs between divisions.
3. Any attempt to estimate historical daily incremental costs incurred by Northern and attributed specifically to reverse migration in each division requires converting a dynamic daily dispatch to a retrospectively static one is therefore very difficult and time consuming. Northern dispatches its portfolio based on forecasted and actual daily aggregate sales load and available supplies. Northern's dispatch is not influenced by nor does it distinguish between residential and C&I sales customer's loads or between

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C&I sales customer's loads that recently migrated to sales service both with and without assigned capacity. Thus, in order to perform the requested calculation, the Company had to make some simple dispatch assumptions, as described in the methodology below.

4. The calculation requested requires a hypothetically narrowed analysis which concentrates solely on the impact of reverse-migration load and the customers returning to sales service without capacity. It excludes new customer firm sales load, by division, which was added without capacity over the same time period. The Company notes Staff 1-20 Attachment indicates the number of firm sales customers in the New Hampshire division by April 2014 was 1,447 higher than November 2013, while the comparable Maine division number of firm sales customers was only 427 customers higher. If all of these firm sales customers' load were to be included in the analysis, the resulting additional cost to serve all firm sales service customer load added without capacity, by division, would provide a more accurate picture of the comparable costs than that derived and estimated below.
5. Northern experienced higher than forecasted demand in both the Maine and New Hampshire divisions last winter due several reasons, including the addition of new customers, a low estimate of existing customer use and sustained extreme cold weather. All of Northern's customers, including its sales service customers, consumed high volumes of supply due to the fact that 2013-2014 was a design winter. It is also important to note that, because of the extreme price volatility of market supply prices in comparison to the low cost resources offered by Northern to the marketers as mandated in both state's Retail Choice Programs, marketers nominated many of the resources allocated to them. Marketers are not required to take volumes that are allocated to them, so these volumes can vary greatly from year to year.
6. The high demand on the system was not specific to the Maine division, and was widespread in both divisions. Growth that has occurred in the New Hampshire division along the Varney Brook lateral that accesses the Dover, Somersworth, and Rochester areas has significantly altered the portfolio planning and dispatch strategy for New Hampshire division customers. As Northern's system in and north of Portsmouth expands, less Tennessee Gas Pipeline supply is physically able to access those areas, and more supply from the Newington inlet to Granite (Newington-Granite) is required. While both are sourced from highly illiquid pipelines, Newington-Granite supply is even scarcer than Westbrook-Granite supply as it can only be sourced from PNGTS. Westbrook-Granite can be accessed via Maritimes and PNGTS.
7. In a normal winter, the months of November and December typically do not have regular occurrences of peak weather conditions. Last winter, Northern began utilizing W-10 storage in higher than expected volumes when the first cold snap occurred in late November. The 2013-2014 cold snaps were more frequent than experienced in years past, which resulted in a consistently higher utilization of Washington 10 storage to cover the needs of sales service as well as marketers' requirements. In order to preserve both

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Washington 10 storage and peaking supply so that Northern was not exposed to the spot market, Northern made a baseload purchase of 5,000 dth/day for January 2014. Because of the substantial growth that had occurred on the system in the areas of the New Hampshire division that are further north, Northern needed PNGTS-delivered supply in order to facilitate deliveries to the Newington-Granite inlet and to the Westbrook-Granite inlet. Had this incremental supply only been required to cover the Maine division, Northern might have purchased supply on Maritimes, had that been a lower cost resource.

8. In the beginning of last winter, Northern made an incremental supply purchase for the purpose of maintaining the operational integrity of the Lewiston LNG plant. Going into the winter, Northern had only purchased 10,000 dth of LNG supply for Lewiston in order to cover boiloff. It was determined later that additional LNG supplies were needed to cover future winter season boiloff requirements. Thus, an additional 10,000 dth of LNG was contracted for. This contract would have been required, whether or not any customers had returned to sales service from delivery service. Therefore, no portion of the demand costs was attributed to demand from customers returning to sales service from delivery service. However, as discussed in the methodology below, LNG was, from time to time, the marginal commodity resource for the system and so these commodity costs were considered in the analysis.

Holding the above-described concerns and considerations aside, in order to perform the requested calculation, Northern utilized the following methodology:

1. Reverse migration daily loads for customers returning to sales service from delivery service were estimated based on weighting bill cycle consumption by Effective Degree Days.
2. Incremental volumes attributable to reverse migration were calculated by comparing the daily loads for customers returning to sales service from delivery service to their aggregate TCQ. Volumes up to the aggregate TCQ were included in Northern's 2013-2014 resource plan and therefore no incremental resources were required for this portion of consumption.
3. The marginal resource unit cost was determined by reviewing daily dispatch of the portfolio and taking a weighted average of the monthly contribution of each of the named marginal resources. The system average cost was based on calendar month commodity costs, reconciled to Northern's general ledger.
4. To determine the incremental cost attributable to reverse migration sales service customer loads in excess of their aggregate TCQ, the incremental unit cost was determined by subtracting the system average unit cost from the marginal resource unit cost. Under Northern's current, approved commodity cost allocation methodology, commodity costs are allocated on a system average unit cost basis. This analysis

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shows how the commodity cost allocation would change if the incremental volumes attributable to reverse migration were allocated on a marginal resource unit cost basis.

5. The incremental volumes attributable to reverse migration were then multiplied by the Incremental Unit Cost to derive the Total Incremental Cost by Division. The allocation of Divisional Total Incremental Costs, assigned through the approved commodity allocation process, was then calculated, by applying the monthly commodity allocation factor.

Based upon this methodology, Northern was able to calculate an estimated "incremental cost attributable to reverse migration load" in the Maine division, for 45,684 Dth, for the 2013-2014 winter of approximately \$343,000. Of this amount, approximately \$153,000 was allocated to the New Hampshire Division. Also, Northern calculated an estimated "incremental cost attributable to reverse migration load" in the New Hampshire division, for 141 Dth, for the 2013-2014 winter of approximately \$2,100. Of this amount, approximately \$900 was allocated to the New Hampshire Division. Please refer to CONFIDENTIAL Attachment TC-5, which provides more detailed calculations of Northern's marginal cost estimates.

To put these estimated volumes and costs in perspective, pursuant to the annual reconciliation submitted as Schedule 15 of the COG filing, the actual volume of supply dispatched by Northern during the 2013-2014 Winter Period Reconciliation was 10,396,742 Dth. Of this amount, 4,494,431 Dth was dispatched to the New Hampshire division and 5,902,311 was dispatched to the Maine division. A load of 45,684 Dth represents 0.44% of Northern's total aggregate supply dispatched or less than 1 day of the daily average volume. The associated estimated supply cost of \$152,736 represents 0.25% of Northern's total 2013-2014 Winter Period Reconciliation supply cost of \$60,046,858.