

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: June 6, 2024

AT (OFFICE): New Hampshire Department of Energy

FROM: Staff

SUBJECT: North Conway Memorial Hospital Alternative Metering Method Adjustment Request

TO: Jared Chicoine, Commissioner

Executive Summary:

The Department of Energy (Department) received a request to modify an existing alternative metering method used to quantify useful thermal energy production of a Renewable Fuel Oil (RFO) boiler facility at North Conway Memorial Hospital (Memorial Hospital) under Puc 2506.06 and Puc 2006.04 (f). This alternative metering method was approved by the Public Utilities Commission (Commission) in docket REC 19-103. With the creation of the Department in July 2021, these duties were transferred from the Commission to the Department.

Memorial Hospital is seeking to adjust the approved alternative metering method by changing the documented accuracy of Flow Meter 1 (FM 1) and Flow Meter 2 (FM 2) due to difficulties arising from calibrating the meters, in the field, on an operating system, to that tolerance.

On May 29, 2024, Department Staff had received all information needed to review the proposed modification to the alternative metering method.

Staff recommends that the Department approve the proposed modification to alternative metering method.

Background:

The Memorial Hospital biomass fuel facility is located at 3073 White Mountain Highway, North Conway, New Hampshire. The facility consists of two 6.695 MMBtu/hour steam boilers with a total combined capacity of 13.39 MMBtu/hour (3.924 MW equivalent). The facility first operated using Renewable Fuel Oil (RFO) as a fuel in 2014 and in 2015 for Boiler #1 and Boiler #2 respectively.

In a letter received by the Commission on May 31, 2018, a request was submitted for preliminary designation under N.H. Code Admin. Rules Puc 2505.03, which include a requested review and approval of a proposed alternative metering method for the facility. Staff reviewed this submittal and requested additional information from the applicant including a more detailed explanation of the alternative metering method. The final necessary documentation, including a more detailed rationale as to why an alternative metering method was necessary, was received on April 23, 2019.

Staff recommended on June 3, 2019, that the Commission approve the proposed alternative metering method for the Memorial Hospital thermal facility and the Commission granted approval of the alternative metering method by secretarial letter on June 6, 2019.

Beginning in March 2024 Memorial Hospital representatives worked with Department staff informally to prepare a request to adjust the alternative metering method and filed a formal request with the Department on May 29, 2024.

The Flow Meters (FM) for this facility operate in a series, with Flow Meter 1 and Flow Meter 2 (FM 1 and FM 2 respectively) combined, moving 100% of the feedwater in the system. Flow Meter 3 (FM 3) returns make up water from the system. Thus, the current operating system is FM 1 and FM 3 or FM 2 and FM 3. The originally approved alternative metering methodology required FM 1 and FM 2 to each meet $\pm 1\%$ accuracy and FM 3 to meet $\pm 2\%$ accuracy, which is the stated accuracy of the meter manufacturer, for a total discount factor for metering accuracy of $\pm 3\%$. (FM 1 at $\pm 1\%$ plus FM 3 at $\pm 2\%$ or FM 2 at $\pm 1\%$ plus FM 3 at $\pm 2\%$)

Memorial Hospital has found, and confirmed by the independent monitor, that achieving the accuracy of the meter under field conditions on an operating system is a difficult criterion to meet. Memorial Hospital is requesting to change the total discount factor for metering accuracy from $\pm 3\%$ to $\pm 4\%$, with FM 1 and FM 2 each changed to $\pm 2\%$ with FM 3 to remain at $\pm 2\%$.

Analysis:

Staff reviewed the proposed modification to the approved alternative metering method. After review, Staff concluded that the request meets the requirements for "Alternative Method for Measuring Thermal Energy," as specified in Puc 2506.06 and the requirements of Puc 2506.4 (e)(3), which requires "...the accuracy of any such method is $\pm 5.0\%$ or better, and provided that a professional engineer licensed by the state of New Hampshire and in good standing confirms that the source implemented the alternative method as approved by the commission and certifies that the alternative method achieves the stated accuracy of $\pm 5.0\%$ or better." As part of the submission provided to the Department, a professional engineer licensed by the state of New Hampshire and in good standing confirmed this to be the case.

As noted above, the Flow Meters (FM) operate in a series, with FM 1 and FM 2 combined, moving 100% of the feedwater in the system. FM 3 returns make up water from the system. The proposed modification of the operating system would be FM 1 and FM 3 ($\pm 2\% + \pm 2\%$), or FM 2 and FM 3 ($\pm 2\% + \pm 2\%$). This would change the accuracy of the system from $\pm 3\%$ to $\pm 4\%$. As noted above, Puc 2506.4 (e)(3) requires an accuracy of $\pm 5.0\%$ or better, meaning that the proposed modification to the approved metering method meets that standard.

Conclusion

As the proposed modification to the approved metering method would not exceed the standard set in Puc 2506.4 (e)(3), staff recommends that the Department approve the proposed modification to the alternative metering method for the Memorial Hospital thermal facility.