

**STATE OF NEW HAMPSHIRE**

Inter-Department Communication

**DATE: 20 September 2013**  
**AT (OFFICE): NHPUC**

**FROM:** Tom Frantz – Director, Electric Division

**SUBJECT:** DE 13-215; Petition by Public Service Company of New Hampshire to Waive Puc 305.03, Test Schedules for Watt-hour Meters and Demand Devices

**TO:** Chair Ignatius and Commissioners Harrington and Scott  
Executive Director Howland

On July 17, 2013, Public Service Company of New Hampshire (PSNH) filed a petition pursuant to the New Hampshire Code of Administrative Rules Puc 201.05, seeking a waiver of specific aspects of the Commission's requirements relative to test schedules for watt-hour meters and demand devices under Puc 305.03.

For support of its waiver, PSNH cites Puc 201.05 which states that the Commission shall waive the provisions of any of its rules, except where precluded by statute, upon request by an interested party, or on its own motion, if the commission finds that the waiver serves the public interest and will not disrupt the orderly and efficient resolution of matters before it.

As part of a transition to Automated Meter Reading (AMR) in its service territory, PSNH has begun a meter change out over the next three years that encompasses approximately 540,000 customer meters. The existing meters will be replaced with new AMR meters. The new meters are tested and calibrated before going into the field by the manufacturer. After installation, the new meters will be sample tested in accordance with Puc 305.02, Test and Calibration of Meters. Due to the significant undertaking of the AMR program, PSNH is requesting that the test schedules in Puc 305.03 be waived during the transition period. PSNH states that it be permitted to resume regular meter testing pursuant to Puc 305.03 in October of the year following completion of the AMR installations. PSNH further states that granting the waiver will not disrupt the orderly and efficient resolution of matters before the Commission as the purpose Puc 305.03 is to ensure that the Company inspects and tests meters on a regular basis and remove or repair those meters found deficient. PSNH believes that following the normal testing schedule while it replaces 540,000 customer meters over the next three years would be an inefficient use of its resources and create implementation issues for the AMR program.

Staff agrees that it would be burdensome and an inefficient use of resources to continue testing the existing meters in accordance with Puc 305.03 during the change out of the meters and Staff recommends that the Commission grant PSNH's waiver petition. That

said, Staff does have some concerns about the AMR program. Those concerns were expressed at a meeting Staff had with PSNH before the filing was made and are contained in a letter I sent to the Company on July 24 which I have attached to this memo. PSNH responded to Staff's concerns in a letter dated August 15. I have also attached PSNH's response to this memo.

The PSNH response provides much more detail concerning the analysis and cost effects of the three different metering options it evaluated. According to PSNH, it chose the least costly option and the one that it believes makes the most sense when balancing the costs with the benefits of the three options. Staff understands PSNH's position, but doesn't necessarily agree with it though we do agree with PSNH that the recently passed legislation concerning smart meters that creates an "opt in" provision for smart metering will decrease the overall benefit of smart metering and result, ultimately, in a more costly program. These types of managerial decisions are the province of the utility, but Staff believes the burden of its decision resides with PSNH when and if it seeks to recover these costs from customers.

Staff notes that the OCA filed a petition of participation in this proceeding on August 27. It is Staff's understanding that OCA will file comments on the PSNH waiver request.

Please contact me or Amanda Noonan if you have any questions or would like to discuss this matter.

July 24, 2013

Dan Comer  
Director – Meter Reading and Field Operations  
Northeast Utilities Service Company  
c/o PSNH  
P.O. Box 330  
Manchester, NH 03105-0330

Dear Mr. Comer,

Staff appreciated the opportunity to meet with you and your team on July 17 to discuss issues related to PSNH's metering plans. You requested our position on several metering issues, including a waiver of the PUC's 300 rules that address meter sampling, specifically Puc 305.03, Test Schedules for Watt-hour Meters and Demand Devices, and the intention to move from a 30-minute block demand charge calculation to a rolling 30-minute demand charge calculation for applicable demand-metered Rate G customers. You also requested our opinion on your plans to remotely disconnect and reconnect service using the new meters. Staff will first address your specific issues before making some general observations concerning your change out in meters.

Staff supports your interest in waiving the testing requirements of Puc 305.03 during the change out period. It would be inefficient to spend resources complying with the sample requirements of Puc 305.03 when you expect to change approximately 1,000 meters per day. We do, however, expect that PSNH will test the new meters in accordance with all applicable Puc 305 rules and that all customer complaints regarding meter accuracy will be addressed on a timely basis. When the change over to the new meters is completed, estimated to occur sometime in the first quarter of 2016, we expect you will resume periodic testing in accordance with the rules.

Staff also supports the movement to a rolling demand calculation so long as it remains at the 30-minute interval currently in effect. We agree that no tariff change is needed. to implement the new demand billing calculation.

Regarding the capability to remotely disconnect and reconnect electrical service which will result from PSNH's AMR project, Staff would not object to remote service disconnection and reconnections as described further below. Ideally, two processes would be implemented – remote disconnections and reconnections from a central location for customer requested turn on and turn off orders and curbside disconnections for collection related disconnections. Based on the discussion at our meeting on July 17, Staff understands that, absent AMI technology, PSNH cannot implement two different methodologies for remote disconnection. Instead, it must select one method for all customers. In light of that, Staff would support the curbside method for remote service disconnections and reconnections to allow for the collection calls at the door prior to any service being disconnected.

While we have addressed your specific issues associated with your move to AMR, we must state that we have concerns about it. We only yesterday received the benefit-cost analysis and we have not reviewed it, yet, though we intend to do so in the near future. We have not seen any information about the ability of PSNH to integrate these new meters into the various PSNH/NU systems, especially a new outage management system. Technology

**can play an important role in reducing customer outage time, so your choice of meters and their capabilities or limitations will have effects beyond meter reading, shut-offs and reconnects. Their effect on public safety should be considered. You also mentioned that there are some "wire-line" technological improvements that the company could make now that could improve outage response and reliability. We believe there is no reason not to make those improvements now; they are not dependent upon metering and if they improve outage response at a reasonable cost, Staff supports their deployment.**

**Finally, you stated that it is "a corporate decision" to not move to AMI. We are concerned that the AMR system may not be upgradable and will not be able to "adapt" to future changes and the potential benefits of a "smarter grid." Those risks will be on the company when it seeks to recover the costs of the new meters.**

**Again, Staff appreciated the ability to meet with you to discuss your metering plans. We look forward to continued discussions with the Company about changes that can improve customer service, reliability and outage response.**

**Sincerely,**

**Thomas C. Frantz  
Director – Electric Division  
New Hampshire Public Utilities Commission**



**Public Service  
of New Hampshire**

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August 15, 2013

The Northeast Utilities System

Thomas C. Frantz  
Director – Electric Division  
NH Public Utilities Commission  
21 South Fruit Street, Suite 10  
Concord, NH 03301-2429

Dear Mr. Frantz,

Thank you for your letter of July 24, 2013 in which the Staff supported our requests related to several items in PSNH's upcoming Automated Meter Reading (AMR) project. In that letter, you also expressed some concerns related to the lack of integration of the new meters into our future Outage Management System (OMS), and potential risk to the company related to cost recovery for the AMR meters that are not upgradable to a full AMI system in the future. The purpose of this letter is to provide some background on both of those issues to alleviate the concerns of Staff as best we can.

As you know, the AMR meters that we plan to install will not communicate with our new OMS system, just as our current manual meters would not. PSNH will continue to rely upon customers to call us to report power outages at their locations. Although this process of outage notification will remain, there are other enhancements that are being developed and implemented that will improve information flow within the Company and with our customers and that are targeted towards improving outage restoration. These enhancements include the Geographic Information System (GIS) which will serve as the foundation for the OMS, as well as an engineering and reliability analysis tool. The GIS project continues to make substantial progress and will be completed by the fourth quarter of 2013. PSNH has also made substantial improvements to its Trouble Reporting /Trouble Analysis System (TRS & TAS) designed to automate the processing of incoming trouble information to expedite the analysis and planning for a timely and safe restoration effort in the event of a major storm.

In regards to the issue of why PSNH has chosen to install an AMR system rather than an AMI system or a "hybrid" meter that can potentially be converted to an AMI system in the future, I offer the following information. A team of employees from the NU system began to look at automated metering options for PSNH in October 2012. The team reviewed three primary solutions to the automation of PSNH meter reading.

1. An AMR system
2. An AMR/AMI "Bridge" option
3. A full AMI system

The first and lowest cost option brings PSNH on par with the other NU companies by installing a system utilizing AMR meters and drive-by vehicles to obtain the monthly meter readings. This solution leverages past NU integration efforts which have successfully assimilated the AMR meter data into the NU legacy C2 billing system and MDM. These systems utilize meters that send a low level radio signal that is picked up by a receiver mounted in a vehicle as it drives near the meter. Typically, readings are obtained just once a month in these systems.

The second "Bridge" option reviewed by the study team came to light to address an industry wide cost justification problem. In some areas of the US, certain utilities who installed drive-by AMR systems in the past are now looking to convert from AMR to the more advanced AMI system, capable of 2-way communication. Most of these companies are now facing a situation where they are unable to justify the expense of replacing the AMR meters with AMI meters. CL&P also found this to be an obstacle in the financial justification of AMI when it completed a study in 2010. One meter manufacturer (Itron) is now beginning to develop an option for this situation by creating what is sometimes referred to as a "Bridge" meter. In simplest terms, this meter has the capability to be remotely read like other AMR meters, and when the utility wants to convert to AMI, it can convert the meter to 2-way communications without the cost of replacing the physical meter with a new one. If a company has these "Bridge" meters installed, then the AMI costs at that point become focused on the development of a communications network as well as the necessary internal system upgrades required to the MDM and Billing systems. The residential single phase "Bridge" meters are more than double the cost of the traditional AMR meter. Our research shows NU can purchase a residential AMR meter for about \$38, while the residential "Bridge" meter would be approximately \$81 per meter. This additional cost however, is not offset by any additional short-term savings. The Company does not know if it would ever convert to AMI, or that when it did convert, the best communication technology at that time would be able to interface with these "Bridge" meters. Additionally, this option would commit PSNH to a single meter manufacturer for the foreseeable future. The "Bridge" meter option simply positions the Company to someday convert to AMI, but in the meantime, the additional \$20 million cost for these meters provides no additional benefits to PSNH or its customers.

The third option examined was to install a full AMI system with all of the features available including outage notification, restoration notification, remote disconnect and reconnect capability, the ability to send pricing signals to the meter to reduce load during peak pricing periods, as well as hourly reads for off-peak pricing options, etc. This option is by far the most expensive option due to not only the higher cost of the AMI meters, but also the design, development and deployment of a sophisticated communications network, as well as associated required upgrades to the billing system, MDM, OMS and other system interfaces. The group's research has found that most of the US utilities who have moved into the AMI space have done so either to satisfy regulatory mandates (such as in California and Texas) or because the companies received federal stimulus money (Smart Grid Investment Grants), dramatically reducing the company's share of AMI costs (such as Central Maine Power and the NH Electric Cooperative locally). Additionally, customer opposition to AMI meters is spreading in some areas of the country such as Maine and California, and there is a lack of interest among customers to participate in off peak pricing programs. Furthermore, in deregulated markets such as NH, the Suppliers

have not typically offered Off Peak Pricing or Critical Peak Pricing options in their portfolios, so the hourly usage data available from AMI meters would typically not be utilized for customers served by alternate suppliers. Finally, in NH, legislation passed in June 2012 requires that utilities that install "Smart Meters" must obtain the customer's permission before installing that meter on the home or business. This would be a significant administrative burden to PSNH, and creates an "Opt In" process for AMI. This would significantly reduce the benefits of AMI in NH as the communications network would still be needed and the internal IT costs would still be incurred, but not all customers would participate. For all of these reasons, an AMI solution was not recommended for PSNH.

Below is a table of the estimated costs and savings associated with the 3 options that were analyzed:

<b>PSNH Automated Meter Reading Capital Cost/Benefit Summary (\$000's)</b>			
	<b>AMR</b>	<b>"Bridge"</b>	<b>AMI</b>
<b>Capital Costs</b>			
Meter Installed Costs <sup>1</sup>	\$37,522	\$57,314	\$87,796
Communications Equipment	\$540	\$540	\$25,000
Information Technology	\$2,875	\$2,875	\$25,000
<b>Totals</b>	<b>\$40,937</b>	<b>\$60,729</b>	<b>\$137,796</b>
<b>Benefits</b>			
Avg Annual Savings <sup>2</sup>	\$6,700	\$6,700	\$10,250
Total FTEs Reduced	57	57	86

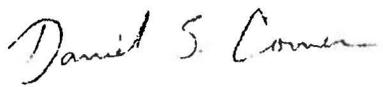
1. Includes costs for acceptance testing and scrap value benefit

2. Avg annual savings over a 20 year evaluation period

The estimate of \$25M for communications costs for an AMI project in PSNH's territory are based upon data provided to the US Department of Energy by several utilities that received Smart Grid Investment Grants. The data indicates that the Communications costs per customer range from \$44 per customer at Central Maine Power to \$101 per customer at the NH Electric Cooperative. Using a conservative figure of \$50 per customer for the communications costs for PSNH's 500,000 customers results in the \$25M estimate. PSNH did not pursue a more detailed estimate of the AMI costs based upon the limited incremental savings the Company would see from AMI compared to the huge additional investment that would be required compared to AMR. AMI would cost PSNH an additional \$97 million, but would save only an additional \$3.5 million per year over the 20 year evaluation period.

I hope that this information is sufficient to explain why PSNH and NU reached the decision to install AMR meters. The Company believes strongly that the AMR solution is the prudent and cost justified solution to move away from manual meter reading in NH. I welcome the opportunity to discuss this with you further should you or other members of the PUC Staff wish to do so.

Sincerely,

A handwritten signature in cursive script that reads "Daniel S. Comer".

Daniel S. Comer  
Director – Meter Reading and Field Operations

Cc: Steven Mullen – NHPUC  
Amanda Noonan – NHPUC  
Allen Desbien - PSNH