

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and  
Cost Recovery Program  
Responses to the Division's Fourth Set of Data Requests  
Issued on March 16, 2023

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Division 4-15 Supplemental

Request:

What has been the increase in failure rate, if any, among the existing AMR metering? Provide the quantity of meter failures per year for the past 3 years by type such as AMR meter, electromechanical meter and so on. Additionally, for the same period of time, provide the meter replacements due to test calibration failure and actual failure.

Original Response:

Rhode Island Energy is in the process of gathering and validating the information sought in this request, but has not yet completed that process. Rhode Island Energy will supplement this response once it has completed that process.

Supplemental Response:

Testing is not performed on every returned meter, and, without a full data test set, it is not possible to provide failure rates that represent the entire AMR population. Of the meters that get returned to the Meter Test Shop, only the following meters receive tests:

- Meters that are exchanged as part of the annual pick for test program;
- Meters associated with a billing issue; and
- Meters that are less than 10 years old that are returned to the shop for all other exchanges.

The testing that is performed is documented in the annual Electric Meter Testing report, and those reports from 2020 through 2022 are provided as Attachment DIV 4-15-1, Attachment DIV 4-15-2, and Attachment DIV 4-15-3. In the absence of comprehensive failure rate data, there are some insights that can be gleaned from retired meter trends. The retirement practice that has been used consists of retirement based upon failed tests and meter retirement based upon aging criteria. The table below provides a summary of the meters that have been retired in 2020, 2021 and 2022, broken down by meter type, age and whether they were tested prior to being retired. The information in the table reflects a trend of increasing annual meter retirements over the past three years, with the majority of the retired meters being electromechanical meters that are older than 20 years.

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CY 2020		CY 2021		CY 2022	
Untested	Tested	Untested	Tested	Untested	Tested

**Mechanical**

10-20 yrs old	788	160	777	83	132	16
> 20 yrs old	1,721	751	7,540	1,504	9,020	1,298
<b>Subtotal</b>	<b>2,509</b>	<b>911</b>	<b>8,317</b>	<b>1,587</b>	<b>9,152</b>	<b>1,314</b>

**Solid State**

< 10 yrs old	508	255	216	199	161	127
10-20 yrs old	663	200	924	368	1,365	281
> 20 yrs old	46	7	72	24	167	26
<b>Subtotal</b>	<b>1,217</b>	<b>462</b>	<b>1,212</b>	<b>591</b>	<b>1,693</b>	<b>434</b>
<b>TOTAL</b>	<b>3,726</b>	<b>1,373</b>	<b>9,529</b>	<b>2,178</b>	<b>10,845</b>	<b>1,748</b>

These trends are consistent with expectations, given the AMR meter asset base. The average meter population is getting older with time; approximately 60% of the AMR meters will reach the end of the design life by the end of 2024, and the electromechanical meters that are retrofitted with ERTS are older technology than the solid-state meters. The current state of the AMR meters for Rhode Island Energy was described in Section 2.2 of the AMF Business Case at Bates pages 21 and 22.

Each year a small fraction of the Rhode Island Energy electric meters are exchanged and returned for various reasons as described in the response to Division 3-23. The data provided in that response provides the total amount of meter exchange orders completed. These orders could be a result of a meter investigation for a suspected failed meter, a customer service upgrade, or part of the annual regulatory pick for test random sample meter exchanges. Quantities of exchanges for those specific reasons are not captured at that sub-category level so it is not possible to provide it at that level of detail. The annual rate of all meter exchanges has increased from approximately 2% of the total AMR population in 2020 to over 3% in 2022.

The implementation of AMF will result in improvements for meter retirements because the metering asset for Rhode Island Energy will be new, therefore the annual exchange requirements will likely be considerably reduced. To the extent that there is an AMF meter issue, the AMF meter will provide an alert to the Company that the meter is failing or has failed. If the resulting investigation requires a meter exchange, all returned AMF meters will be tested to monitor failure rates in the future.