

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

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
Subtotal	2,509	911	8,317	1,587	9,152	1,314

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
Subtotal	1,217	462	1,212	591	1,693	434
TOTAL	3,726	1,373	9,529	2,178	10,845	1,748

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.



Andrew S. Marcaccio
Senior Counsel

March 15, 2021

VIA ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Division of Public Utilities & Carriers
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket D-04-16 - 2020 Electric Meter Testing Report

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a National Grid (“National Grid” or the “Company”), enclosed, please find the Company’s 2020 Meter Testing Report (“Report”). The enclosed Report is being filed in accordance with 815-RICR-30-00-1.7.4(B).

Subject to the extended testing period as explained in the paragraph below, the Report contains the statistical analysis of all meter types tested in calendar year 2020. National Grid met the statistical sample requirements for all meter models and all meter families. As reflected in the attached Report, no meter groups failed in 2020.

The Company was unable to complete testing of the appropriate sample sizes of electric meters by December 31, 2020. The Company came into compliance by catching up in testing in the early parts of calendar year 2021. (i.e. extending the 2020 test period). Please note that the Company simultaneously started the sampling for the 2021 test period by sampling different meters and using separate recordkeeping to ensure that 2020 and 2021 do not contain double counted tests. In conclusion, the Company is up-to-date in electric meter testing and anticipates completing the 2021 test period on time.

Thank you for your attention to this filing. If you have any questions or concerns, please do not hesitate to contact me at 401-784-4263.

Sincerely,

A handwritten signature in blue ink, appearing to read "Andrew S. Marcaccio".

Andrew S. Marcaccio

Enclosures

cc: Leo Wold, Esq., Division
John Bell, Division
Joe Shilling, Division

Serial Num: 25165220

Equipment: Meter

Model: KV2C - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7018

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Pick for test and diversion investigation meter. Orange tag said that "Jumpers were burnt up in socket". Meter is burnt and melted. No display and meter would not test. Put on diversion rack in case there are any questions.

Serial Num: 28272131

Equipment: Meter

Model: MS - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7017

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: meter arrived at test shop with orange tag saying; dials read high -out of range dials read 72919 no
ert response time run results; on time run, the meter time ran at 100%. Still no results from the
ert.

Serial Num: 39956505

Equipment: Meter

Model: J4S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 6993

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: open voltage coil dials=59817 ert 59956.59

Serial Num: 54383887

Equipment: Meter

Model: KV2C - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7292

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: 20963. Pick for test meter. No pulses. Will not test. No sign of tampering.

Serial Num: 60456504

Equipment: Meter

Model: I210 - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7156

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: meter arrived at test shop with pot clip missing reading 06017 would not test or time run

Serial Num: 76205505

Equipment: Meter

Model: V62S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7413

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Pick for test meter. Meter read=86026. Meter seal is missing. Pot clip is open and there are two resistors and wires connected to the pot clip screws. Test results were less than half of the expected results. Sent to time run.

Serial Num: 78839793

Equipment: Meter

Model: J5S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7105

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: meter would not test was a pick for test meter

Serial Num: 83101477

Equipment: Meter

Model: V64S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7404

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: customer complaint. read: 38494 no ert results to greg mason AMO and CSC. meter time ran at 100%. meter will be on rack.

Serial Num: 93455666

Equipment: Meter

Model: J5S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7286

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Pick for test. Possible customer complaint. Ert/ dials mismatch. Ert=40816.46 and dials=41184. Meter tested within Grid limits. Both the ert and the dials time ran at 100%. No sign of internal tampering. The reason for the mismatch may have been that the dials were not set at zero when the meter was installed. Meter put on customer complaint rack.

Serial Num: 95896958

Equipment: Meter

Model: VM64S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7140

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: customer complaint; dials=10625 no ert on this meter time run at 100%. Put on customer complaint rack.



*National Grid - Rhode Island
Outliers with Positive Registration Report*

Criteria: weighted average < 90 or > 110

<i>Meter Group</i>	<i>Company Number</i>	<i>Test Date</i>	<i>Full Load</i>	<i>Light Load</i>	<i>Weighted Average</i>
D4	62082621	11/18/2020	93.37	10.99	76.89
J5	82938530	03/25/2020	50.08	100.21	60.10
MX	48347138	05/04/2020	99.82	199.43	119.74
MX	48348010	05/05/2020	99.68	200.10	119.76
S12	80022773	04/28/2020	50.24	50.06	50.20
SENTINEL	98747154	04/28/2020	179.99	179.99	179.99
V612	72908869	12/31/2020	91.31	63.17	85.68
V62	76205505	12/31/2020	48.85	45.16	48.11

<i>Meter Group</i>	<i>Total Quantity</i>
D4	1
J5	1
MX	2
S12	1
SENTINEL	1
V612	1
V62	1



National Grid - Rhode Island
Outliers with Zero Registration Report

Criteria: weighted average equals zero

<i>Meter Group</i>	<i>Company Number</i>	<i>Test Date</i>	<i>Full Load</i>	<i>Light Load</i>	<i>Weighted Average</i>
AB	13076194	12/31/2020	0.00	0.00	0.00
ALPHA	02923027	12/30/2020	0.00	0.00	0.00
ALPHA	03838969	03/01/2021	0.00	0.00	0.00
I210	42354392	04/27/2020	0.00	0.00	0.00
I210	60456504	05/11/2020	0.00	0.00	0.00
I70	91294855	04/03/2020	0.00	0.00	0.00
J5	70430942	12/17/2020	0.00	0.00	0.00
J5	71026258	11/17/2020	0.00	0.00	0.00
J5	78839793	03/26/2020	0.00	0.00	0.00
KV2	25126030	09/03/2020	0.00	0.00	0.00
KV2	25165220	02/11/2020	0.00	0.00	0.00
KV2	54383887	12/22/2020	0.00	0.00	0.00
S4 - SANG	76402673	12/31/2020	0.00	0.00	0.00
S4 - SANG	79866933	11/02/2020	0.00	0.00	0.00
V612	72975125	11/02/2020	0.00	0.00	0.00

<i>Meter Group</i>	<i>Total Quantity</i>
AB	1
ALPHA	2
I210	2
I70	1
J5	3
KV2	3
S4 - SANG	2
V612	1



National Grid - Rhode Island

Meter Group Statistical Analysis Report - All Meter Types

Test Period: 01/01/2020 to 03/05/2021

Data as of: 03/05/2021

Status: All

Meter Model	Population	Tests Required	Tested Amount	Defective Meters	Passing/Failing			Total Population Extrapolation				Mtrs excl. from stats (outliers)	Current % ncf	Allowed % ncf	Status	Mean	Std. Dev.
					# tests >102%	# tests <98%	% Tests Failed	# of all >102%	# of all <98%	% > 102%	% < 98%						
AB	115,389	150	155	1	0	2	1.29	0	52	0.00	0.05	0	0.05	4.42	pass	100.03	0.57
ALPHA	3,338	75	76	2	0	2	2.63	0	0	0.00	0.00	0	0.00	4.83	pass	99.94	0.10
CENTRON	94,421	150	150	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.42	pass	99.98	0.11
D2	188	15	16	0	0	0	0.00	0	0	0.00	0.00	0	0.00	6.55	pass	99.95	0.53
D4	14,050	100	105	0	0	4	3.81	0	165	0.00	1.17	1	1.17	4.67	pass	99.86	0.78
D5	8,458	75	77	0	0	1	1.30	0	3	0.00	0.03	0	0.03	4.83	pass	99.76	0.53
FOCUS	16,029	100	109	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.67	pass	99.99	0.04
I210	64,697	150	150	2	0	2	1.33	0	4	0.00	0.01	0	0.01	4.42	pass	100.02	0.12
I70	75,680	150	160	1	0	1	0.63	0	5	0.00	0.01	0	0.01	4.42	pass	100.03	0.23
J5	50,355	150	157	3	0	5	3.18	0	3	0.00	0.01	1	0.01	4.42	pass	99.79	0.38
KV2	11,783	100	108	3	0	3	2.78	0	1	0.00	0.01	0	0.01	4.67	pass	100.00	0.07
MARKV	6	3	3	0	0	0	0.00	0	0	0.00	0.00	0	0.00	7.59	pass	99.99	0.02
MS	43,886	150	154	0	0	1	0.65	0	3	0.00	0.01	0	0.01	4.42	pass	99.90	0.34
MX	6,647	75	79	0	2	0	2.53	0	0	0.00	0.00	2	0.00	4.83	pass	99.85	0.28
S12	1,702	50	52	0	0	1	1.92	0	0	0.00	0.00	1	0.00	5.21	pass	100.12	0.32
S4 - SANG	1,167	35	36	2	0	2	5.56	0	0	0.00	0.00	0	0.00	5.58	pass	100.00	0.31
SENTINEL	5,637	75	84	0	1	0	1.19	0	0	0.00	0.00	1	0.00	4.83	pass	100.02	0.13
V612	1,806	50	55	1	0	2	3.64	0	0	0.00	0.00	1	0.00	5.21	pass	99.99	0.28
V62	199	15	15	0	0	1	6.67	0	0	0.00	0.00	1	0.00	6.55	pass	100.16	0.32
Totals:	515,438	1,668	1,741	15	3	27	1.72%	0	236	0.00%	0.05%	8					

- Notes: 1) Passing/Failing results include all outlier meter tests.
2) Total Population Extrapolation is based on statistical tests results which do not include outlier meter tests.



LETICIA C. PIMENTEL

One Financial Plaza, 14th Floor
Providence, RI 02903-2485
Main (401) 709-3300
Fax (401) 709-3378
lpimentel@rc.com
Direct (401) 709-3337

March 15, 2022

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket No. D-04-16 –2021 Electric Meter Testing Report

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a National Grid (“National Grid” or the “Company”), enclosed, please find the Company’s 2020 Meter Testing Report (“Report”). enclosed Report is being filed in accordance with 815-RICR-30-00-1.7.4(B).

The Report contains the statistical analysis of all meter types tested in calendar year 2021. The Company met the statistical sample requirements for all meter models and all meter families. As reflected in the attached Report, one single meter group, S4-Sangamo, failed in 2021. This meter manufacturer and model will be considered for asset replacement.

Thank you for your attention to this filing. If you have any questions, please contact me at 401-709-3337.

Sincerely,

A handwritten signature in cursive script that reads "Leticia Pimentel".

Leticia C. Pimentel

cc: Leo Wold, Esq.
John Bell, Division
Joe Shilling, Division

Serial Num: 69294791

Equipment: Meter

Model: I70S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7619

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: diversion. meter found upside down. missing cover to base seal read:11321 ert read:55872.31 results AMO CSC The reason why the ERT read is so much higher than the dial read is because the meter was found upside down, which would make the dial on the meter run backwards. Although the ERT read and dial read did not match, this meter tested and time ran at 100%. meter will be on rack

Serial Num: 74507776

Equipment: Meter

Model: J5S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7477

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: diversion investigation. read: 74094 ert wont read. results to CSC and AMO.

Serial Num: 82784641

Equipment: Meter

Model: V64S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7522

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: customer complaint. read: 31064 no ert results to AMO and CSC. tested and time ran at 100 %.
meter will be on rack

Serial Num: 83101477

Equipment: Meter

Model: V64S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7404

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: customer complaint. read: 38494 no ert results to greg mason AMO and CSC. meter time ran at 100%. meter will be on rack.

Serial Num: 84061122

Equipment: Meter

Model: I70S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7448

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Pick for test and diversion meter. Ert reads 00018.76 and dials=00018. Both the ert and the dials=100%. Some corrosion on blades. No sign of internal tampering evident. Put on diversion rack.

Serial Num: 94718904

Equipment: Meter

Model: J5S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7449

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Pick for test and diversion meter. Pot clip is open and a resistor is wired accross it. No disk movement. Will not test. Put on diversion rack.



National Grid - Rhode Island
Outliers with Positive Registration Report

Criteria: weighted average < 90 or > 110

<i>Meter Group</i>	<i>Company Number</i>	<i>Test Date</i>	<i>Full Load</i>	<i>Light Load</i>	<i>Weighted Average</i>
S4 - SANG	55129182	08/26/2021	67.68	69.47	68.04

<i>Meter Group</i>	<i>Total Quantity</i>
S4 - SANG	1



National Grid - Rhode Island
Outliers with Zero Registration Report

Criteria: weighted average equals zero

<i>Meter Group</i>	<i>Company Number</i>	<i>Test Date</i>	<i>Full Load</i>	<i>Light Load</i>	<i>Weighted Average</i>
AB	10258890	01/14/2021	0.00	0.00	0.00
CENTRON	05100873	08/26/2021	0.00	0.00	0.00
I210	42355960	08/26/2021	0.00	0.00	0.00
J5	94718904	05/26/2021	0.00	0.00	0.00
KV2	59230688	08/26/2021	0.00	0.00	0.00

<i>Meter Group</i>	<i>Total Quantity</i>
AB	1
CENTRON	1
I210	1
J5	1
KV2	1



National Grid - Rhode Island

Meter Group Statistical Analysis Report - All Meter Types

Test Period: 01/01/2021 to 12/31/2021

Data as of: 12/27/2021

Meter Model	Population	Tests Required	Tested Amount	Defective Meters	Passing/Failing			Total Population Extrapolation				Mtrs excl. from stats (outliers)	Current % ncf	Allowed % ncf	Status	Mean	Std. Dev.
					# tests >102%	# tests <98%	% Tests Failed	# of all >102%	# of all <98%	% > 102%	% < 98%						
AB	113,788	150	178	1	0	1	0.56	0	7	0.00	0.01	0	0.01	4.42	pass	99.95	0.44
ALPHA	3,236	75	78	0	0	0	0.00	0	0	0.00	0.00	0	0.00	4.83	pass	99.95	0.05
CENTRON	100,555	150	216	1	0	1	0.46	0	8	0.00	0.01	0	0.01	4.42	pass	99.94	0.12
CENTRON 2	35	5	5	0	0	0	0.00	0	0	0.00	0.00	0	0.00	9.80	pass	99.99	0.05
D2	172	15	16	0	0	0	0.00	0	0	0.00	0.00	0	0.00	6.55	pass	99.82	0.33
D4	13,799	100	124	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.67	pass	99.96	0.30
D5	8,277	75	92	0	0	3	3.26	0	124	0.00	1.50	0	1.50	4.83	pass	99.57	0.73
FOCUS	17,987	100	145	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.67	pass	99.96	0.04
I210	65,015	150	201	1	0	1	0.50	0	5	0.00	0.01	0	0.01	4.42	pass	100.02	0.12
I70	74,539	150	195	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.42	pass	100.00	0.21
J5	49,534	150	181	1	0	1	0.55	0	3	0.00	0.01	0	0.01	4.42	pass	99.74	0.34
KV2	12,401	100	100	1	0	1	1.00	0	1	0.00	0.01	0	0.01	4.67	pass	99.98	0.07
MARKV	6	3	4	0	0	0	0.00	0	0	0.00	0.00	0	0.00	7.59	pass	100.00	0.04
MS	43,196	150	185	0	0	1	0.54	0	3	0.00	0.01	0	0.01	4.42	pass	99.88	0.39
MX	6,488	75	99	0	0	2	2.02	0	37	0.00	0.57	0	0.57	4.83	pass	99.71	0.68
S12	1,645	50	85	0	0	0	0.00	0	0	0.00	0.00	0	0.00	5.21	pass	100.11	0.35
S4 - SANG	1,124	35	35	0	0	1	2.86	0	866	0.00	77.01	1	77.01	5.58	fail	99.07	5.41
SENTINEL	5,492	75	79	0	0	1	1.27	0	0	0.00	0.00	0	0.00	4.83	pass	99.97	0.49
V612	1,757	50	60	0	0	0	0.00	0	0	0.00	0.00	0	0.00	5.21	pass	99.94	0.27
V62	186	15	16	0	0	0	0.00	0	0	0.00	0.00	0	0.00	6.55	pass	100.09	0.33
Totals:	519,232	1,673	2,094	5	0	13	0.62%	0	1,054	0.00%	0.20%	1					

- Notes: 1) Passing/Failing results include all outlier meter tests.
2) Total Population Extrapolation is based on statistical tests results which do not include outlier meter tests.



LETICIA C. PIMENTEL

One Financial Plaza, 14th Floor
Providence, RI 02903-2485
Main (401) 709-3300
Fax (401) 709-3378
lpimentel@rc.com
Direct (401) 709-3337

March 20, 2023

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: 2022 Electric Meter Testing Report

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a Rhode Island Energy (“Rhode Island Energy” or the “Company”), enclosed, please find the Company’s 2022 Meter Testing Report (“Report”). The enclosed Report is being filed in accordance with 815-RICR-30-00-1.7.4(B).

The Report contains the statistical analysis of all meter types tested in calendar year 2021. The Company met the statistical sample requirements for all meter models and all meter families. As reflected in the attached Report, no meter group failed in 2022.

Thank you for your attention to this filing. If you have any questions, please contact me at 401-709-3337.

Sincerely,

A handwritten signature in cursive script that reads "Leticia Pimentel".

Leticia C. Pimentel

cc: Leo Wold, Esq.
John Bell, Division
Joe Shilling, Division

Serial Num: 05006374

Equipment: Meter

Model: SENTINEL - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7846

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Pick for test meter. Orange tag was attached that stated "Customer complaint". Meter read was 34657. This meter was tested, and time ran in the meter test shop, with test results coming in at 100%. We will keep this meter at the Meter Test Shop NE, just in case further inspection is require.
SB

Serial Num: 65513028

Equipment: Meter

Model: D4S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7867

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: diversion investigation. one boot on bottm jaw. jumped out with copper wire from line to load read:
read: 78168 ert read: 76148.90 results to AMO CSC

Serial Num: 78660619

Equipment: Meter

Model: D5S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7772

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: Customer complaint and PFT. Ert= 71495 and dials= 71497. Time ran at 100%. Put on customer complaint rack.

Serial Num: 91866208

Equipment: Meter

Model: I70S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7873

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: diversion. 09657 ert read: 84473.03 results to AMO CSC comments read "meter found upside down runnig backwads". the reason the dial read and ERT read dont match is because while the meter is upside down running backwards the ERT is still running forwards.

Serial Num: 95822570

Equipment: Meter

Model: VM64S - Socket

Owner: NARRAGANSETT

Return Date:

Diversion Record Complete

Cmi No: 7724

Suspected By:

Seal Condition:

Degree Blade Wear:

Tamper Evident: Yes No

Dmd Register: Yes No

Gear Filed: Yes No

Adjusted: Yes No

Disk Wedge: Yes No

Gear Missing: Yes No

Link Open: Yes No

Bearings: Yes No

Gear Teeth: Yes No

Link Burred: Yes No

Pointers: Yes No

Register Mesh: Yes No

Blade Wear: Yes No

Resistor: Yes No

Jumpers: Yes No

Other Code:

Comments: customer complaint. read: 18783 no ert results to AMO CSC. Time ran at 100%. Put on customer complaint rack.



National Grid - Rhode Island
Outliers with Positive Registration Report

Criteria: weighted average < 90 or > 110

<i>Meter Group</i>	<i>Company Number</i>	<i>Test Date</i>	<i>Full Load</i>	<i>Light Load</i>	<i>Weighted Average</i>
170	69957754	08/30/2022	100.23	196.31	119.45

<i>Meter Group</i>	<i>Total Quantity</i>
170	1



National Grid - Rhode Island

Meter Group Statistical Analysis Report - All Meter Types

Test Period: 01/01/2022 to 12/31/2022

Data as of: 12/20/2022

Meter Model	Population	Tests Required	Tested Amount	Defective Meters	Passing/Failing			Total Population Extrapolation				Mtrs excl. from stats (outliers)	Current % ncf	Allowed % ncf	Status	Mean	Std. Dev.
					# tests >102%	# tests <98%	% Tests Failed	# of all >102%	# of all <98%	% > 102%	% < 98%						
AB	111,007	150	201	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.42	pass	100.10	0.39
ALPHA	3,079	50	53	0	0	0	0.00	0	0	0.00	0.00	0	0.00	5.21	pass	99.96	0.06
CENTRON	111,823	150	165	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.42	pass	99.96	0.12
CENTRON 2	36	5	6	0	0	0	0.00	0	0	0.00	0.00	0	0.00	9.80	pass	99.93	0.05
D2	125	10	12	0	0	0	0.00	0	0	0.00	0.00	0	0.00	7.26	pass	99.77	0.48
D4	13,112	100	103	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.67	pass	99.94	0.34
D5	7,881	75	75	0	0	0	0.00	0	0	0.00	0.00	0	0.00	4.83	pass	99.72	0.43
FOCUS	20,546	100	113	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.67	pass	99.98	0.04
I210	65,282	150	166	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.42	pass	100.02	0.12
I70	72,652	150	210	0	1	0	0.48	6	0	0.01	0.00	1	0.01	4.42	pass	100.05	0.26
J5	48,100	150	162	0	1	0	0.62	3	0	0.01	0.00	0	0.01	4.42	pass	99.85	0.37
KV2	13,154	100	102	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.67	pass	99.98	0.09
MARKV	6	3	3	0	0	0	0.00	0	0	0.00	0.00	0	0.00	7.59	pass	100.00	0.01
MS	41,946	150	158	0	0	0	0.00	0	0	0.00	0.00	0	0.01	4.42	pass	100.02	0.25
MX	6,225	75	76	0	0	0	0.00	0	0	0.00	0.00	0	0.00	4.83	pass	99.81	0.32
S12	1,214	50	61	0	0	0	0.00	0	0	0.00	0.00	0	0.00	5.21	pass	100.13	0.27
S4 - SANG	1,038	35	39	0	0	1	2.56	0	0	0.00	0.03	0	0.03	5.58	pass	99.88	0.58
SENTINEL	5,451	75	77	0	0	0	0.00	0	0	0.00	0.00	0	0.00	4.83	pass	100.00	0.21
V612	1,177	35	38	0	0	0	0.00	0	0	0.00	0.00	0	0.00	5.58	pass	100.01	0.27
V62	154	15	15	0	0	0	0.00	0	0	0.00	0.00	0	0.00	6.55	pass	100.08	0.27
Totals:	524,008	1,628	1,835	0	2	1	0.16%	9	0	0.00%	0.00%	1					

- Notes: 1) Passing/Failing results include all outlier meter tests.
2) Total Population Extrapolation is based on statistical tests results which do not include outlier meter tests.