

February 14, 2020

**VIA HAND DELIVERY & ELECTRONIC MAIL**

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

**RE: Docket 4915 – FY2020 Electric Infrastructure, Safety, and Reliability Plan  
Quarterly Update – Third Quarter Ending December 31, 2019**

Dear Ms. Massaro:

On behalf of National Grid,<sup>1</sup> I have enclosed ten copies of the Company's fiscal year (FY) 2020 Electric Infrastructure, Safety, and Reliability (ISR) Plan quarterly update for the third quarter ending December 31, 2019. Pursuant to the provisions of the approved FY 2018 Electric ISR Plan, the Company committed to providing quarterly updates on the progress of its Electric ISR program to the Rhode Island Public Utilities Commission and the Rhode Island Division of Public Utilities and Carriers.

Thank you for your attention to this matter. If you have any questions, please contact me at 401-784-7288.

Very truly yours,



Jennifer Brooks Hutchinson

Enclosures

cc: Docket 4915 Service List  
Christy Hetherington, Esq.  
John Bell, Division  
Greg Booth, Division

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<sup>1</sup>The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.

\_\_\_\_\_  
Joanne M. Scanlon

February 14, 2020  
Date

**Docket No. 4915 - National Grid's Electric ISR Plan FY 2020**  
**Docket No. 4857 - Performance Incentives Pursuant to R.I.G.L. §39-1 27.7.1(e)(3)**

**Service List as of 8/15/2019**

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<p><b>Office of Energy Resources (OER)</b>  Andrew Marcaccio, Esq.  Dept. of Administration  Division of Legal Services  One Capitol Hill, 4<sup>th</sup> Floor  Providence, RI 02908</p>	<p><a href="mailto:Andrew.marcaccio@doa.ri.gov">Andrew.marcaccio@doa.ri.gov</a>;</p>	<p>401-222-3417</p>
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<p><b>File an original &amp; ten copies w/:</b>  Luly E. Massaro, Commission Clerk  John Harrington, Commission Counsel  Public Utilities Commission  89 Jefferson Blvd.  Warwick, RI 02888</p>	<p><a href="mailto:Luly.massaro@puc.ri.gov">Luly.massaro@puc.ri.gov</a>;  <a href="mailto:John.harrington@puc.ri.gov">John.harrington@puc.ri.gov</a>;  <a href="mailto:Cynthia.WilsonFrias@puc.ri.gov">Cynthia.WilsonFrias@puc.ri.gov</a>;  <a href="mailto:Todd.bianco@puc.ri.gov">Todd.bianco@puc.ri.gov</a>;  <a href="mailto:Alan.nault@puc.ri.gov">Alan.nault@puc.ri.gov</a>;</p>	<p>401-780-2107</p>

## **Electric Infrastructure, Safety, and Reliability Plan**

### **FY 2020 Quarterly Update**

#### **Third Quarter Ending December 31, 2019**

#### **EXECUTIVE SUMMARY**

For the nine months ending December 31, 2019, the Company<sup>1</sup> spent \$73.0 million for capital investment projects against a fiscal year-to-date 2020 (FYTD) budget of \$78.8 million. Overall, FYTD spending was under-budget by \$5.8 million. FYTD spending for the Non-Discretionary category was \$33.7 million, which was \$2.6 million over the FYTD budget of \$31.1 million. FYTD spending for the Discretionary category was \$39.3 million, which was \$8.4 million under the FYTD budget of \$47.7 million. Each of these categories is addressed in more detail below.

On July 11, 2016, the Rhode Island Public Utilities Commission (PUC) issued an Order<sup>2</sup> directing the Company to provide more detail on capital spending in the Damage/Failure category. The detail must include work type, location, and, where applicable, Level 1 Inspections and Maintenance (I&M) repairs completed with Damage/Failure funding. The Company has included additional detail on Level 1 I&M repairs in Section 5 of this report and has included summary information on capital spending in the Damage/Failure category in Attachment F of this report. Attachment F is also included as an executable Excel file that organizes raw data captured in the Company's financial, asset, and work management systems.

For FY 2020, the Company and the Rhode Island Division of Public Utilities and Carriers (Division) agreed to provide a quarterly budget and project management report on the Southeast Substation project. The latest report is included as Attachment G of this report.

As part of the FY 2020 budget process, the Company has agreed to provide detail related to meter purchases as part of its quarterly report. Attachment H is the meter purchase detail through December 31, 2019.

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<sup>1</sup> The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

<sup>2</sup> Written Order No. 22471 (issued on July 11, 2016 in Docket No. 4592), at pages 16, 29.

**I. FY 2020 Capital Spending by Key Driver Category**

**1. Non-Discretionary Spending**

***a. Customer Request/Public Requirement – \$0.7 million over budget***

FYTD capital spending in the Customer Request/Public Requirement category was \$21.8 million, which was over budget by \$0.7 million. Capital spending through the third quarter of FY 2020 on New Business Commercial and Public Requirements projects was a combined \$9.6 million, which was \$2.8 million over the FYTD budget of \$6.8 million. In addition, capital spending on transformers was \$3.7 million, \$1.1 million over the FYTD budget of \$2.6 million. Partially offsetting these overages was the FYTD actual spending on Distributed Generation projects, which was \$2.2 million, under the FYTD budget by \$2.5 million and New Business Residential, which was \$0.8 million under the FYTD budget of \$4.2 million.

At this time, the Company forecasts that spending in the Customer Request/Public Requirement category will be \$2.0 million over budget at the end of the fiscal year as the year to date trends are expected to continue.

***b. Damage/Failure - \$1.9 million over budget***

FYTD capital spending in the Damage/Failure category was \$11.9 million, which was \$1.9 million over the FYTD budget of \$10.0 million for this category. This variance is primarily driven by overspending on the storms capital confirming projects and two transformer failures.

At this time, the Company forecasts that the Damage/Failure category will be \$15.8 million, or \$2.3 million over budget at the end of the fiscal year due to additional anticipated spending on the transformer failures.

**2. Discretionary Spending**

***a. Asset Condition (without Southeast Substation) - \$6.4 million under budget***

FYTD capital spending in the Asset Condition category (excluding the Southeast Substation project) was \$20.4 million, which was \$6.4 million under the FYTD budget of \$26.8 million. The major variances were the following:

- Capital spending on the URD and Underground Cable Replacement programs were \$1.0 million under the FYTD budget of \$7.9 million. It is anticipated that capital spending on these programs will be \$0.3 million over budget by year end.

- Capital spending on the Providence Area Study was \$1.3 million under the FYTD budget of \$2.1 million. It is anticipated that this project will remain underbudget by a similar amount at year end because of project delays.
- Capital spending on Dyer Street substation was \$2.7 million under the FYTD budget of \$3.3 million. The Company is pausing work on this project so that options can be reassessed as current cost estimates are higher than previous estimates.
- Capital spending on the Lee, Cottage, and Front Street projects was on budget FYTD, but forecasted remaining spending of \$0.9 million on the Cottage Street project will cause the category to be overbudget at year end.
- Capital spending on the Pawtucket 1 and Franklin Square breaker replacement projects was \$1.2 million under the FYTD budget. It is anticipated that this underspend will continue through the end of the year.

At this time, the Company forecasts that the Asset Condition category spending (absent the Southeast Substation Project) will be \$28.2 million, \$5.2 million under the fiscal year budget of \$32.6 million.

**b. Non-Infrastructure – on budget**

At this time, the Company forecasts that the Non-Infrastructure category will end the year essentially on budget.

**c. System Capacity and Performance - \$0.6 million under budget**

FYTD capital spending for the System Capacity and Performance category was \$15.9 million, which was \$0.6 million under the FYTD budget of \$16.5 million.

- Capital spending on the Aquidneck Island project was essentially on budget through the third quarter. It is anticipated that additional spending will take place in the last quarter of the year, resulting in \$3.4 million in overspending due to overall project cost increases from limitation to work hours, soil conditions, and more mature project estimates.
- Capital spending on Quonset and Chase Hill substations was \$1.2 million. There was no budget set for these projects in FY 2020 as project delays pushed completion of work from FY 2019 into FY 2020 after budgets were set.

At this time, the Company forecasts the System Capacity and Performance category spending will be \$24.0 million, \$2.9 million over the fiscal year end budget of \$21.0 million.

***d. Southeast Substation Projects – \$2.4 million under budget***

FYTD capital spending on the Southeast Substation project was \$1.5 million, which was \$2.4 million under the FYTD budget of \$3.9 million. See Attachment G for additional details.

***e. Large Project Variances***

As ordered by the PUC in Docket No. 4473, the Company provides explanations for the portfolio of large projects<sup>3</sup> with variances that exceed +/- 10% of the annual fiscal year budget in the quarterly reports. These FYTD projects represented \$31.3 million of the total FY 2020 budget of \$101.8 million. Specific project information is provided in Attachment E.

***f. New Distribution System Technology Update***

In Order No. 22955, the PUC directed that the Company include an explanation of all new technologies that National Grid is exploring to assist in distribution planning, particularly related to the integration of distributed energy resources or providing additional visibility on the distribution grid.<sup>4</sup> Currently, these include the following:

- The Company utilizes CYME advanced power engineering software to perform distribution system analysis. The software's Hosting Capacity module was used to develop the RI Hosting Capacity Map which was delivered via the System Data Portal on September 28, 2018.
- The Company has implemented advanced protection function and logic in Point of Common Coupling (PCC) Reclosers which will help reduce the witness testing required at customer DG sites. Also, the advanced sensing and logic functions will allow automatic reconnect to the utility for utility side interruptions which will minimize outage and nuisance tripping.
- The Company has implemented Python Scripting training to assist in refining CYME models. The training focused on creation scripts intended to automate tasks formally done by hand and create accurate base models in a more efficient manner. The training can also be used for data maintenance and review.

**3. Investment Placed-in-Service**

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<sup>3</sup> Large projects are defined as exceeding \$1.0 million in total project cost.

<sup>4</sup> Written Order No. 22955 (November 14, 2017 in Docket No. 4682) at page 19.

Through the third quarter of FY 2020, \$69.5 million of plant additions were placed-in-service, which was 68% of the annual forecast of \$102.8 million and 68% of the current projected year-end forecast of \$102.2 million. Details by spending rationale are included in Attachment B.

As shown on Attachment B, through the third quarter of FY 2020, the Non-Discretionary sub-category had \$25.5 million of plant additions placed-in-service, which was 76% of the annual forecast of \$33.6 million. The Discretionary sub-category had \$44.1 million of plant additions placed-in-service, which was 64% of the annual forecast of \$69.2 million.

#### **4. Vegetation Management (VM)**

FYTD the Company completed 921 miles or 76% of its annual distribution mileage cycle pruning goal of 1,208 miles. Overall, through the third quarter of FY 2020, the Company's VM operation and maintenance (O&M) spending was \$8.2 million. The Company expects to complete 100% of their work plan for FY 2020 within the budget of \$10.4 million.

Attachment C provides the FYTD spending for all sub-components in the VM category, as well as an update of the gypsy moth and other pest related damage tracked by the Company.<sup>5</sup>

#### **5. Inspection and Maintenance (I&M)**

FYTD the Company completed 80% of its annual structure inspection goal of 53,241 with an associated spend of \$0.4 million, or 78% of the Repair and Inspections Related Cost subcategory budget. The Repairs and Inspection Related Costs subcategory forecast includes the FY 2020 mobile elevated voltage testing and repairs, which the PUC approved in Docket No. 4237.

The Company began performing inspections on its overhead distribution system in FY 2011 and began performing the repairs based on those inspections in FY 2012. Deficiencies found are categorized as Level I, II, or III. Level I deficiencies are repaired immediately or within one week of the inspection. The Company bundles Level II and III work for planned replacement. At the end of the third quarter of FY 2020, the

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<sup>5</sup> At the March 20, 2018, Open Meeting, in Docket 4783, the PUC directed the Company to include a summary in its FY 2019 ISR quarterly reports of the gypsy moth and other pest-related damage tracked by the Company.



Company has completed repairs for 32% of the total deficiencies found. Total deficiencies found and repairs made-to-date are shown in the table below.

<b>Summary of Deficiencies and Repair Activities RI Distribution</b>				
<b>Year Inspection Performed</b>	<b>Priority Level/Repair Expected</b>	<b>Deficiencies Found (Total)</b>	<b>Repaired as of 12/31/19</b>	<b>Not Repaired as of 12/31/19</b>
<b>FY 2011</b>	I	18	18	0
	II	13,146	13,128	18
	III	28	28	0
<b>FY 2012</b>	I	17	17	0
	II	15,847	15,454	393
	III	626	567	59
<b>FY 2013</b>	I	15	15	0
	II	26,614	16,461	10,153
	III	9,011	4,613	4,398
<b>FY 2014</b>	I	11	11	0
	II	22,534	3,895	18,639
	III	8,651	2,786	5,865
<b>FY 2015</b>	I	5	5	0
	II	21,549	1	21,548
	III	4,392	0	4,392
<b>FY 2016</b>	I	2	2	0
	II	11,596	558	11,038
	III	6,498	59	6,439
<b>FY 2017</b>	I	2	2	0
	II	8,300	0	8,300
	III	7,539	0	7,539
<b>FY 2018</b>	I	11	11	0
	II	8,821	0	8,821
	III	7,237	0	7,237
<b>FY 2019</b>	I	28	28	0
	II	3,699	0	3,699
	III	2,464	0	2,464
<b>FY 2020</b>	I	19	19	0
	II	49	1	48
	III	22	0	22
<b>Total Since Program Inception</b>	<b>I, II, III</b>	<b>178,751</b>	<b>57,679</b>	<b>121,072</b>

FY 2020 – I&M Level 1 Deficiencies Repaired						
Year Inspection Performed	Deficiencies Found	Structure Number	Location	Description of Work Performed	Inspection Date	Repaired Date
2019	1	53	Douglas Ave, Providence	Replaced switch tag.	4/4/2019	4/16/2019
2019	1	83	Danielson Pike, Scituate	Replaced switch tag.	4/4/2019	5/9/2019
2019	1	181	Plainfield Pike, Foster	Replaced switch tag.	5/8/2019	5/14/2019
2019	1	6	Hilton St, Pawtucket	Replaced defective switch.	5/23/2019	6/4/2019
2019	1	5	Eaton Ave, Warwick	Repaired floating insulator.	9/13/2019	9/16/2019
2019	1	143	Pippin Orchard Rd, Cranston	Repaired broken guy wire.	9/10/2019	9/26/2019
2019	1	105	Rockland Rd, Scituate	Replaced switch tag.	6/14/2019	10/31/2019
2019	1	10	Chestnut St, Warwick	Repaired floating primary.	10/15/2019	11/12/2019
2019	1	16	Peck Hill Rd, Johnston	Repaired street light hazard condition	9/18/2019	11/12/2019
2019	1	9273	Pawtucket Ave, East Providence	Replaced switch tag.	11/13/2019	11/20/2019
2019	1	17	Langworthy Rd, Westerly	Replaced switch tag.	10/8/2019	11/27/2019
2019	1	2	Snow Rd, Warwick	Replaced switch tag.	9/19/2019	12/2/2019
2019	1	1	Namquid Dr, Warwick	Replaced switch tag.	9/17/2019	12/2/2019
2019	1	158-50	Cmdr Oliver Hazard Perry Memor, South Kingstown	Replaced switch tag.	6/24/2019	12/2/2019
2019	1	7	Farnum Rd, Warwick	Replaced switch tag.	9/19/2019	12/3/2019
2019	1	1	Maple St, Warwick	Replaced switch tag.	9/19/2019	12/3/2019
2019	1	9006	Maple St, Warwick	Replaced switch tag.	9/19/2019	12/3/2019
2019	1	87	Warwick Ave, Warwick	Replaced switch tag.	9/19/2019	12/3/2019
2019	1	63-50	West Shore Rd, Warwick	Replaced switch tag.	9/19/2019	12/3/2019

Note: Table includes replaced switch tag deficiencies identified during FY20, but these are not considered Level 1 work that requires repair within one week.

As shown in the table below, results of the Company’s manual elevated voltage testing for FY 2020 have not indicated any instances of elevated voltages found through either overhead or manual elevated voltage inspections.

Manual Elevated Voltage Testing				
Manual Elevated Voltage Testing	Total System Units Requiring Testing	FY 2020 Units Completed thru 12/31/19	Units with Voltage Found (>1.0v)	Percent of Units Tested with Voltage (>1.0v)
Distribution Facilities	264,729	42,517	0	0%
Underground Facilities	12,438	3	0	0%
Street Lights	4,929	0	0	0%

Attachment D provides the FY 2020 spending for all components in the I&M category and other O&M related expenses.

## Attachment A

### US Electricity Distribution - Rhode Island Capital Spending by Spending Rationale FY 2020 through December 31, 2019 (\$000)

	FYTD			FY 2020		
	Budget	Actual	Variance	Budget	Forecast	Variance
<b>Customer Request/Public Requirement</b>	\$21,134	\$21,843	\$709	\$27,025	\$29,021	\$1,996
<b>Damage Failure</b>	\$9,997	\$11,866	\$1,869	\$13,505	\$15,824	\$2,319
<i>Subtotal Non-Discretionary</i>	\$31,131	\$33,709	\$2,578	\$40,530	\$44,845	\$4,315
<b>Asset Condition</b>	\$26,866	\$20,425	(\$6,441)	\$33,425	\$28,239	(\$5,186)
<b>Non-Infrastructure</b>	\$409	\$1,472	\$1,063	\$550	\$227	(\$323)
<b>System Capacity &amp; Performance</b>	\$16,493	\$15,856	(\$637)	\$21,045	\$23,954	\$2,909
<i>Subtotal Discretionary (Without Southeast Sub)</i>	\$43,768	\$37,753	(\$6,015)	\$55,020	\$52,420	(\$2,600)
<b>Southeast Substation Project</b>	\$3,885	\$1,535	(\$2,350)	\$6,250	\$4,712	(\$1,538)
<i>Subtotal Discretionary</i>	\$47,653	\$39,288	(\$8,365)	\$61,270	\$57,133	(\$4,137)
<b>Total Capital Investment in System</b>	<b>\$78,784</b>	<b>\$72,997</b>	<b>(\$5,787)</b>	<b>\$101,800</b>	<b>\$101,977</b>	<b>\$177</b>

\* ( ) denotes an underspend for the period

## Attachment B

### US Electricity Distribution - Rhode Island Plant Additions by Spending Rationale FY 2020 through December 31, 2019 (\$000)

	FY 2020 Annual ISR Target	FYTD Actual in Service	FY 2020 Year- end Forecast	% of FY 2020 Year-end Annual Forecast Placed in Service	% of FY 2020 Year-end Forecast Placed in Service
<b>Customer Request/Public Requirement</b>	\$20,053	\$13,439	\$22,520	67%	60%
<b>Damage Failure</b>	\$13,568	\$12,036	\$14,696	89%	82%
<i>Subtotal Non-Discretionary</i>	\$33,621	\$25,475	\$37,216	76%	68%
<b>Asset Condition (w/Southeast Substation)</b>	\$28,008	\$14,451	\$27,661	52%	52%
<b>Non- Infrastructure</b>	\$553	\$0	\$544	0%	0%
<b>System Capacity &amp; Performance</b>	\$40,615	\$29,608	\$36,750	73%	81%
<i>Subtotal Discretionary</i>	\$69,176	\$44,060	\$64,956	64%	68%
<b>Total Capital Investment in System</b>	<b>\$102,797</b>	<b>\$69,535</b>	<b>\$102,172</b>	68%	68%

### Attachment C

#### US Electricity Distribution - Rhode Island Vegetation Management O&M Spending FY 2020 through December 31, 2019 (\$000)

	FY 2020 Annual ISR Budget	FYTD Actual	FY 2020 Year-End Forecast	FYTD % Spend
Cycle Pruning (Base)	\$5,600	\$4,591	\$5,600	82%
Hazard Tree	\$2,250	\$1,782	\$2,250	79%
Sub-T (on & off road)	\$500	\$301	\$500	60%
Police/Flagman Details	\$825	\$583	\$825	71%
Core Crew (all other activities)	\$1,225	\$982	\$1,225	80%
<b>Total VM O&amp;M Spending</b>	<b>\$10,400</b>	<b>\$8,239</b>	<b>\$10,400</b>	<b>79%</b>

	FY 2020 Goal	FY YTD Goal	FY YTD Complete	FY YTD % Complete	FY 2020 % Complete
<b>Distribution Mileage Trimming</b>	<b>1,208</b>	<b>906</b>	<b>921</b>	<b>102%</b>	<b>76%</b>

#### FY 2020 Q3 Gypsy Moth Update

District	Circuit	Location	Removals
Capital	49_53_112W43	Cumberland	18
Capital	49_53_127W40	Burrillville	180
Capital	49_53_34F1	Foster/ Scituate	261
Capital	49_53_34F2	Foster/ Scituate	160
Capital	49_53_34F3	Foster/ Scituate	134
Capital	49_53_38F1	Smithfield	1
Capital	49_53_26W1	North Smithfield	54
Capital	49_53_15F2	Scituate	55
Coastal	49_56_155F6	Hopkinton	38
Coastal	49_56_155F8	Hopkinton	58
Coastal	49_56_30F2	North Kingstown	5
Coastal	49_56_63F6	Coventry/Exeter	1,477
Coastal	49_56_85T3	Charlestown	19
Coastal	49_56_68F4	Kenyon	32
Coastal	49_56_68F1	Kenyon	134
<b>Totals</b>			<b>2,626</b>

FY 2020 Total Gypsy Moth Spend	\$1,291,634
Gypsy Moth Removals	2,626
Cost/Tree	\$492

## Attachment D

### US Electricity Distribution - Rhode Island Inspection and Maintenance Program and Other O&M Spending FY 2020 through December 31, 2019 (\$000)

	FY 2020 Annual ISR Budget	FYTD Actual	FY 2020 Year- End Forecast	FYTD % Spend
Opex Related to Capex	\$256	\$127	\$182	50%
Repair & Inspections Related Costs	\$515	\$404	\$515	78%
System Planning & Protection Coordination Study	\$25	\$46	\$55	184%
VVO/CRV Program	\$311	\$14	\$80	5%
<b>Total I&amp;M O&amp;M Spending</b>	<b>\$1,107</b>	<b>\$591</b>	<b>\$832</b>	<b>53%</b>

	FY 2020 Goal	FYTD Goal	FYTD Complete	FYTD % Complete	FY 2020 % Complete
RI Distribution Overhead Structures Inspected	53,241	39,931	42,660	107%	80%

## Attachment E

### US Electricity Distribution - Rhode Island Project Variance Report FY 2020 through December 31, 2019 (\$'000)

Project Description	Project Funding Number(s)	FYTD			FY 2020 Total			Variance Cause
		Budget	Actual	Variance	Budget	Forecast	Variance	
Aquidneck Island Projects (Gate 2, Newport, Jepson)	CD00649, C024159, C015158, C028628, C054054, CD00656	\$10,536	\$10,861	\$324	\$13,450	\$16,954	\$3,504	Spending expected in the last quarter of the year is estimated to result in \$3.4 million in overspending due to overall project cost increases from limitation to work hours, soil conditions, and more mature project estimates
Volt/Var Program	C079300, C080896, C080895, C079282, C080899, C080900, C079482, C079288, C076367, C077201, C077200, C075573, C076365, C080898, C080894, C080897, C080901, C075571, C082915, C082900	\$949	\$684	(\$265)	\$1,400	\$1,279	(\$121)	Nasonville Station Scope was swapped for Woonsocket Scope. Woonsocket Scope is more expensive than Nasonville.
Lee Street & Cottage Street D-Line and D-Sub	C050758, C051118, C051126, C050760	\$2,892	\$2,146	(\$746)	\$2,900	\$3,006	\$106	Lee Street D-Line - YTD Project received a credit due to duplicate accrual processed in March FY19. Cottage St D-Line increase due to conversion work in thickly settled urban area causing actuals to be higher than estimated.
Green Development LLC	C078529, C078827, C078825, C078820, C078824	\$0	\$1,018	\$1,018	\$0	\$1,018	\$1,018	Green Dev. LLC (C078529) - Emergent Work
SouthEast Substation (D-Line and D-Sub)	C053657, C053658	\$3,885	\$1,479	(\$2,406)	\$6,250	\$4,513	(\$1,737)	D-Sub delays in completing final design documents.
Southern Sky - Johnston & Cranston RI	C079031, C079081	\$0	\$701	\$701	\$0	\$463	\$463	Emergent Work
Front Street MC Retirement	C050778	\$400	\$1,220	\$820	\$400	\$1,470	\$1,070	Project cost increases due to more complex construction and coordination related to being in an urban area
Quonset Substation (D-Line and D-Sub)	C053646, C053647	\$0	\$718	\$718	\$0	\$759	\$759	Project delays pushed completion of work from FY19 into FY20 after the budget was set.
University Solar	C079116	\$3,558	\$2,403	(\$1,155)	\$4,000	\$2,403	(\$1,597)	CIAC Timing
Sockanosssett & Westerly Failure	C082725, C081110	\$0	\$686	\$686	\$0	\$1,351	\$1,351	Sockanosssett - Damage Failure (D/F) of TB#1 and purchase of a replacement spare. Westerly - Final payments for replacement transformer of TB#4 D/F
Chase Hill Substation (D-Line and D-Sub)	C024175, C024176	\$0	\$497	\$497	\$0	\$750	\$750	Project delays pushed completion of work from FY19 into FY20 [after budget set]
East Providence Sub.	C046727, C046726	\$871	\$391	(\$480)	\$1,280	\$459	(\$821)	Project delayed
Dyer Street Indoor Sub	C051205, C051211	\$3,307	\$629	(\$2,678)	\$4,900	\$1,277	(\$3,623)	Most recent cost estimates are higher than expected. The Company is pausing this project so that options can be reassessed
Hope Substation	C078476, C046697	\$720	\$1,634	\$914	\$750	\$2,099	\$1,349	Final construction sequencing and outage plans resulted in higher costs than originally estimated. In addition, FY19 decision to combine pole structure work with flood work carried over costs into FY20.
Providence Study	C078734, C078796, C078796, C078797, C078800, C078802-6, C078857	\$2,089	\$739	(\$1,350)	\$2,860	\$1,657	(\$1,203)	Project delays
South Street Substation	C051212, C051213, C055623	\$879	\$447	(\$431)	\$1,800	\$1,075	(\$725)	Underspending due to work occurring in FY19 that was expected to occur in FY20, such as earlier final cutover to new substation in FY19
Pawtucket Breaker	C069166	\$1,255	\$55	\$1,200	\$1,225	\$130	\$1,095	Project costs expected to be less due to actual breakers being manufactured at lower cost than originally assumed.
		<b>\$31,342</b>	<b>\$26,309</b>	<b>(\$2,633)</b>	<b>\$41,215</b>	<b>\$40,663</b>	<b>\$1,638</b>	

\* ( ) denotes an underspend for the period

## Attachment F

### US Electricity Distribution - Rhode Island Damage/Failure Detail by Work Type FY 2020 through December 31, 2019 (\$000)

	Project Type					Grand Total
	D-Line Blanket	D-Line Property Damage	D-Line Storm	D-Sub Blanket	D-Sub & D-Line Specific	
AFUDC	\$73	\$0	\$21	\$5	\$40	\$139
Default Accounting	\$1,264	\$208	\$98	\$93	\$337	\$2,000
Engineering/Design/Supervision	\$544	\$62	\$309	\$8	\$43	\$966
Outdoor Lighting - Cable/Wire	\$7	(\$0)	\$0	\$0	\$0	\$7
Outdoor Lighting - Framing	\$32	\$0	\$2	\$0	\$0	\$34
Outdoor Lighting - Poles/Foundation	\$22	\$0	\$0	\$0	\$0	\$22
Overhead Bonding/Grounding	\$9	\$1	\$1	\$0	\$0	\$10
Overhead Services	\$184	\$5	\$89	\$0	\$0	\$278
Overhead Switches/Reclosers/Fuses	\$393	\$28	\$78	\$0	\$0	\$499
Overhead Transformers/Capacitors/Regulators/Meters	\$445	\$45	\$276	\$0	\$0	\$766
Overhead Wire & Conductor	\$419	\$13	\$180	\$0	\$0	\$612
Pole Framing	\$224	\$52	\$96	\$0	\$0	\$371
Poles/Anchors/Guying	\$1,249	\$381	\$1,625	\$0	\$1	\$3,255
Substation Equipment Installations	\$0	\$0	\$0	\$326	\$332	\$658
Substations Civil/Structural	\$0	\$0	\$0	\$3	\$31	\$34
Switching and Restoration	\$71	\$3	\$8	\$1	\$0	\$84
Traffic Control	\$236	\$53	\$73	\$0	\$10	\$373
Underground Cable	\$855	(\$17)	\$71	\$0	\$4	\$914
Underground Cable Splicing	\$60	(\$0)	\$5	\$0	\$0	\$65
Underground Civil Infrastructure	\$267	\$15	\$9	\$0	\$71	\$361
Underground Direct-Buried Cable	\$70	(\$2)	\$1	\$0	\$0	\$69
Underground Services	\$17	(\$0)	(\$2)	\$0	\$0	\$15
Underground Switches/Reclosers/Fuses	\$123	(\$0)	\$5	\$0	\$0	\$128
Underground Transformers/Capacitors/Regulators/Meters	\$209	\$10	\$13	\$0	\$0	\$232
<b>Grand Total</b>	<b>\$6,773</b>	<b>\$857</b>	<b>\$2,956</b>	<b>\$436</b>	<b>\$870</b>	<b>\$11,892</b>



## Attachment G

### US Electricity Distribution - Rhode Island New Southeast Substation Budget and Project Management Report FY 2020 Q3 Update

# New Southeast Substation

Date: February 13, 2020

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## New Southeast Substation Project Agenda

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- Background & Drivers
- Scope
- Cost & Major Milestones
- Support Documentation
- Other



## New Southeast Substation Project Background & Drivers



- Pawtucket No. 1 substation supplies load in the City of Pawtucket, Rhode Island. It consists of an indoor substation located in a four story brick building constructed in 1907 and an outdoor substation on the yard. It supplies approximately 36,000 customers with a peak electrical demand of 114MW. There are a number of concerns in this area:
  - The equipment in the indoor substation is 40 to 94 years old, obsolete, and no longer supported by any vendor. Parts have to be custom made or salvaged from facilities removed from service.
  - The building has structural issues that cause concern for the continued safe and reliable operation of the substation.
  - There is un-served load for loss of either the 73 transformer or the 74 transformer that exceeds the distribution planning criteria.
  - The loading on a number of feeders is projected to exceed summer normal ratings along with the loading on bus section 73



## New Southeast Substation Project Scope



- Construct a new eight feeder 115/13.8kV metal clad station (Dunnell Park #1201) with two transformers and breaker and a half design on a site adjacent to the transmission line right of way on York Avenue in the City of Pawtucket.
- Supply the new station from the existing 115kV lines crossing the site, X-3 and T-7.
- Rearrange the 13.8kV distribution system so that the new station supplies most of the load east of the Seekonk River.
- Install a new control house at the Pawtucket No 1 station site to house the control equipment for the 115 kV station presently located in the four story brick building and upgrade the 115kV Line Protections (P-11,X-3,T-7).
- Upgrade in Valley station the 115kV Line Protections for P-11.
- Remove the indoor substation and all electrical equipment from the four story brick building and demolish the building.



# New Southeast Substation Project Cost & Major Milestones



## Project Cost

- Total Project Cost of \$38.182M (+/- 10%) DOA: \$38.182M
- Transmission Project Cost of \$12.742M (+/-10%)
- Distribution Project Cost of \$25.440M (+/-10%)



## New Southeast Substation Project Major Milestones



### Project Major Milestones

Project Sanction	July 2019
Engineering Design Complete (EDC)	December 2019
Construction Start	January 2020
Dunnell Park Sub Ready for Load (RFL)	March 2021
Pawtucket 1 & Valley Sub Ready for Load (RLF)	June 2021
Construction Complete (CC)	October 2021
Demolish Pawtucket 1 Station Building	December 2021
Project Closeout	October 2022



## New Southeast Substation Project Cost & Major Milestones



- The variance between the initial potential project investment of \$23.000M and this sanction of \$38.182M was caused by:
  - Addition of new 115kV equipment on Pawtucket No. 1 and on the new substation (Dunnell Park #1201) as result of the review of protection requirements for the project. The updated scope includes the installation of 115kV CCVT's, Line Traps, Line Tuners and related relaying and civil & structural work on X-3 and T-7 transmission line terminals on both substations (\$4.485M).
  - Additional civil and environmental scope of work on Pawtucket No. 1 based on the final location of the new control house inside the 100 year floodplain and the alignment with Tidewater Environmental Project requirements (\$4.865M).
  - Underestimation on the scope and level of effort on the distribution line work for the new feeders and distribution circuits rearrangement on the City of Pawtucket (\$4.517M).
  - Increase on equipment market value and other miscellaneous additional costs (\$1.315M).



PROJECT NO. 1-2019-01

# New Southeast Substation Project Support Documentation



New Southeast Station (Dunnell Park) – Location





## Attachment H

### US Electricity Distribution - Rhode Island Meter Purchases FY 2020 Q3 Update

<b>MATERIAL PURCHASES</b>		
<b>MATERIAL TYPE</b>	<b>MATERIAL DESCRIPTION</b>	<b>QUANTITY</b>
METER	KV2C - 45S	84
METER	KV2C - 9S	296
METER	KV2C - 2S	24
SWITCHES	"B" & "X" SWITCHES	2
METER	CENTRON - 2S ERT CL200	10,800
METER	CENTRON - 12S ERT CL200	3,000
METER	CENTRON - C1SR, CL320 240V	240
METER	FOCUS - 2S AMR 240V CL320	1,344
METER	FOCUS - 2S ERT CL200	8,256
METER	FORM 12S, 120V	960
METER	2S AMR 240V	192
INSTRUMENT TRANSFORMER	CUR OUTDOOR 75/5 15KV	36
INSTRUMENT TRANSFORMER	CUR OUTDOOR 50/5 15KV	10
INSTRUMENT TRANSFORMER	CUR OUTDOOR 15/5 15KV	12
INSTRUMENT TRANSFORMER	CUR OUTDOOR 25/5 15KV	15
INSTRUMENT TRANSFORMER	CUR OUTDOOR 70/1 8.4KV	48
INSTRUMENT TRANSFORMER	CUR OUTDOOR 5/5 15KV	11
INSTRUMENT TRANSFORMER	CUR OUTDOOR 60/1 7.2KV	16
INSTRUMENT TRANSFORMER	CUR OUTDOOR 15KV	10
INSTRUMENT TRANSFORMER	400:5 BASE BUSHINGS	240
INSTRUMENT TRANSFORMER	400:5 CAP	120
INSTRUMENT TRANSFORMER	240:120 VT	24
INSTRUMENT TRANSFORMER	2000:5 BASE BUSHINGS	54
INSTRUMENT TRANSFORMER	600:120 VT	36
INSTRUMENT TRANSFORMER	2000:5 CAP	18
INSTRUMENT TRANSFORMER	1500:5 CAP	24
INSTRUMENT TRANSFORMER	1500:5 CAP	18
INSTRUMENT TRANSFORMER	ASTRA DB 2.5 300:120	120
	<b>TOTAL</b>	<b>26,010</b>