

January 7, 2022

VIA ELECTRONIC MAIL

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

RE: Docket 5189– 2022 Annual Energy Efficiency Program Plan Responses to PUC Data Requests - Set 7 (Complete Set)

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a National Grid (“National Grid” or the “Company”), attached, please find the electronic version of the Company’s complete set of responses to the Public Utilities Commission’s (“PUCs”) Seventh Set of Data Requests in the above referenced docket. Bates stamp has been applied to the attached electronic version.¹

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,



Andrew S. Marcaccio

Enclosures

cc: Docket 5189 Service List
Margaret Hogan, Esq.
John Bell, Division
Jon Hagopian, Esq.

¹ Per the Commission’s request, the Company is providing one copy of this transmittal for the Commission’s file in this docket and six (6) copies, 3-hole punched for the Commission.

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

January 7, 2022
Date

**Docket No. 5189 - National Grid – 2022 Annual Energy Efficiency Program
Service list updated 11/29/2021**

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PUC 7-1

Request:

Referencing the Provisional Plan 2 (filed by the Company in response to PUC 5-3), please answer the following:

- a. Is the Provisional Plan 2 cost-effective?
- b. Is the Provisional Plan 2 prudent?
- c. Is the Provisional Plan 2 less than the cost of supply? Please include all calculations that support your response.
- d. Is the Provisional Plan 2 reliable?
- e. Is the Provisional Plan 2 environmentally responsible?

Response:

- a. Cost effective: Yes, the Provisional Plan 2 is cost effective with a BCR of 1.73.
- b. Prudent: Yes. The Provisional Plan 2 is prudent because this investment will provide energy that is lower than the cost of supply for Rhode Island customers while being part of an overall portfolio of energy efficiency programs that adheres to the PUC's guidance of limiting budget growth to 5% or less (and managing associated 2022 rate and bill impacts to customers).
- c. Less than the cost of supply: Yes. The investment within the Provisional Plan 2 is \$64,145,224 less than the cost of supply (see table 1 below).
- d. Reliable: Yes, the Provisional Plan 2 is reliable because it contributes to meeting the state's energy needs as well as providing for stability and sustainable growth in the state's energy efficiency programs.
- e. Environmentally responsible: Yes, the Provisional Plan 2 is environmentally responsible because this investment reduces CO2 emissions by 376,622 tons and contributes directly to meeting the Act on Climate's goals.

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
In Re: 2022 Annual Energy Efficiency Plan
Responses to the Commission's Fifth Set of Data Requests
Issued on December 15, 2021

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Table 1: Provisional Plan 2 Electric Portfolio - Cost of Supply Components

Ref	a	b
1	Electric Energy Costs	\$56,205,790
2	Electric Generation Costs	\$6,833,795
3	Electric Transmission Capacity Costs	\$16,468,067
4	Electric Distribution Capacity Cost	\$16,316,236
5	Natural Gas Costs	-\$2,297,268
6	Fuel Costs	\$19,026,114
7	Income Eligible Rate Discount	\$107,155
8	Arrearages	\$147,884
9	Price Effects	\$36,508,519
10	Non-embedded Greenhouse Gas Reduction Costs	\$46,104,871
11	Non-embedded Nitrous Oxide (NOx Costs)	\$1,267,832
12	Reliability Costs	\$1,273,169
13	Cost of supply = Sum of Rows 1 through 12	\$197,962,164
14	Program Implementation Expenses	\$111,633,291
15	Customer Contribution	\$16,683,649
16	Shareholder Incentive	\$5,500,000
17	Cost of EE	\$133,816,940
18	Difference = Row 13 minus Row 17	\$64,145,224

PUC 7-2

Request:

Please explain how the Company developed the Provisional Plan 2 (filed by the Company in response to PUC 5-3), and identify which measures were removed relative to the Provisional Plan and by how much (in dollars).

Response:

As instructed by the PUC, the Company developed the Provisional Plan 2 by removing all incremental spending in the Provisional Plan (relative to the Alternative Base Plan) associated with measures that resulted in negative benefit-cost ratios based on the RI Test. This resulted in the \$4,335,191 reduction in the incentive budget across the Commercial and Industrial sector.

The amounts are detailed by measure name in the table below. Additionally, the Company removed all \$817,983 in Sales, Technical Assistance, and Training costs designed to support future portfolio development activities.

Measure Name	Program	Incentive Cost
Upstream Heat Pump - Ductless	New Construction	-\$49,372
Upstream Heat Pump - Packaged	New Construction	-\$107,579
Upstream HVAC Refrigeration	New Construction	-\$6,228
Refrigeration - Custom	New Construction	-\$122,080
EI Light: Prescriptive	Retrofit	-\$2,621,153
Compressed Air - Custom	Retrofit	-\$71,613
HVAC – Custom	Retrofit	-\$247,446
Motors & VFD - Custom	Retrofit	-\$57,095
Refrigeration - Custom	Retrofit	-\$266,749
Other – Custom	Retrofit	-\$34,452
Heat Pumps	SBDI	-\$512,500
Lighting	SBDI	-\$153,670
Non-Lighting	SBDI	-\$85,252
Total		-\$4,335,191

PUC 7-3

Request:

Referencing the Company's response to PUC 1-119, please provide the same information requested in PUC 1-119 for the Alternative Base Plan (both electric and gas portfolios).

Response:

The results for the gas portfolio remain unchanged from PUC 1-119.

Please see Attachment PUC 7-3-1 for electric portfolio results. Please see below for unique participants included in the electric models.

2022 Alternative Base Plan Electric Rate and Bill Impacts Model	Unique Participants
Residential (Model 1: HERs only)	298,076
Residential (Model 2: All Programs Except HER)	55,521
Residential (Model 3: All Programs)	353,597

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
Attachment PUC 7-3-1

2022 Alternative Base Plan Electric Rate and Bill Impacts - Expanded

Sector	Long Term Rate Impacts	Change in Bills			
			Non-Participants	Average Customer	Average Participant
Residential (Model 1: HERs only)	0.00%	Long Term Average	0.00%	-0.04%	-0.06%
		2022	0.09%	-0.84%	-1.21%
		2023	0.00%	0.00%	0.00%
		2024	0.00%	0.00%	0.00%
		2025	0.00%	0.00%	0.00%
		2026	0.00%	0.00%	0.00%
		2027	0.00%	0.00%	0.00%
		2028	0.00%	0.00%	0.00%
		2029	0.00%	0.00%	0.00%
		2030	0.00%	0.00%	0.00%
		2031	0.00%	0.00%	0.00%
		2032	0.00%	0.00%	0.00%
		2033	0.00%	0.00%	0.00%
		2034	0.00%	0.00%	0.00%
		2035	0.00%	0.00%	0.00%
		2036	0.00%	0.00%	0.00%
		2037	0.00%	0.00%	0.00%
		2038	0.00%	0.00%	0.00%
		2039	0.00%	0.00%	0.00%
		2040	0.00%	0.00%	0.00%
2041	0.00%	0.00%	0.00%		
Residential (Model 2: All Programs Except HERs)	0.12%	Long Term Average	0.12%	-0.17%	-7.10%
		2022	4.84%	4.23%	0.22%
		2023	-0.44%	-1.03%	-4.84%
		2024	-0.45%	-1.03%	-4.84%
		2025	-0.37%	-0.95%	-4.77%
		2026	-0.29%	-0.87%	-4.69%
		2027	-0.28%	-0.75%	-4.90%
		2028	-0.21%	-0.68%	-4.83%
		2029	-0.25%	-0.47%	-10.90%
		2030	-0.21%	-0.43%	-10.87%
		2031	-0.08%	-0.30%	-10.75%
		2032	-0.08%	-0.29%	-10.74%
		2033	0.05%	-0.17%	-10.63%
		2034	0.05%	-0.17%	-10.63%
		2035	0.04%	-0.17%	-10.64%
		2036	0.04%	-0.17%	-10.64%
		2037	0.03%	-0.13%	-13.75%
		2038	0.03%	-0.13%	-13.75%
		2039	0.00%	0.00%	0.00%
		2040	0.00%	0.00%	0.00%
2041	0.00%	0.00%	0.00%		

Residential (Model 3: All Programs)	0.25%	Long Term Average	0.25%	-0.10%	-6.84%
		2022	6.46%	4.84%	4.56%
2023	-0.50%	-1.08%	-4.89%		
2024	-0.51%	-1.09%	-4.90%		
2025	-0.42%	-1.00%	-4.82%		
2026	-0.34%	-0.92%	-4.74%		
2027	-0.14%	-0.61%	-4.76%		
2028	-0.07%	-0.54%	-4.70%		
2029	0.06%	-0.16%	-10.62%		
2030	0.05%	-0.17%	-10.63%		
2031	0.05%	-0.17%	-10.63%		
2032	0.05%	-0.17%	-10.63%		
2033	0.05%	-0.17%	-10.63%		
2034	0.05%	-0.17%	-10.63%		
2035	0.04%	-0.17%	-10.64%		
2036	0.04%	-0.17%	-10.64%		
2037	0.03%	-0.13%	-13.75%		
2038	0.03%	-0.13%	-13.75%		
2039	0.00%	0.00%	0.00%		
2040	0.00%	0.00%	0.00%		
2041	0.00%	0.00%	0.00%		

PUC 7-4

Request:

Referencing the Company's response to PUC 1-119, please provide the same information requested in PUC 1-119 for the Provisional Plan 2 (both electric and gas portfolios).

Response:

The results for the gas portfolio remain unchanged from PUC 1-119. Please see Attachment PUC 7-4-1 for electric portfolio results. Please see below for unique participants included in the electric models.

2022 Provisional Plan 2 Electric Rate and Bill Impacts Model	Unique Participants
Residential (Model 1: HERs only)	298,076
Residential (Model 2: All Programs Except HER)	55,521
Residential (Model 3: All Programs)	353,597

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
Attachment PUC 7-4-1

2022 Provisional Plan 2 Electric Rate and Bill Impacts - Expanded

Sector	Long Term Rate Impacts	Change in Bills			
			Non-Participants	Average Customer	Average Participant
Residential (Model 1: HERs only)	0.01%	Long Term Average	0.01%	-0.04%	-0.06%
		2022	0.11%	-0.82%	-1.19%
		2023	0.00%	0.00%	0.00%
		2024	0.00%	0.00%	0.00%
		2025	0.00%	0.00%	0.00%
		2026	0.00%	0.00%	0.00%
		2027	0.00%	0.00%	0.00%
		2028	0.00%	0.00%	0.00%
		2029	0.00%	0.00%	0.00%
		2030	0.00%	0.00%	0.00%
		2031	0.00%	0.00%	0.00%
		2032	0.00%	0.00%	0.00%
		2033	0.00%	0.00%	0.00%
		2034	0.00%	0.00%	0.00%
		2035	0.00%	0.00%	0.00%
		2036	0.00%	0.00%	0.00%
		2037	0.00%	0.00%	0.00%
		2038	0.00%	0.00%	0.00%
		2039	0.00%	0.00%	0.00%
		2040	0.00%	0.00%	0.00%
2041	0.00%	0.00%	0.00%		
Residential (Model 2: All Programs Except HERs)	0.16%	Long Term Average	0.16%	-0.14%	-7.06%
		2022	5.69%	5.07%	1.03%
		2023	-0.45%	-1.04%	-4.85%
		2024	-0.46%	-1.04%	-4.85%
		2025	-0.38%	-0.96%	-4.78%
		2026	-0.30%	-0.88%	-4.70%
		2027	-0.28%	-0.76%	-4.90%
		2028	-0.21%	-0.68%	-4.83%
		2029	-0.25%	-0.47%	-10.90%
		2030	-0.22%	-0.43%	-10.87%
		2031	-0.08%	-0.30%	-10.75%
		2032	-0.08%	-0.29%	-10.74%
		2033	0.05%	-0.17%	-10.63%
		2034	0.05%	-0.17%	-10.63%
		2035	0.04%	-0.17%	-10.64%
		2036	0.04%	-0.17%	-10.64%
		2037	0.03%	-0.13%	-13.75%
		2038	0.03%	-0.13%	-13.75%
		2039	0.00%	0.00%	0.00%
		2040	0.00%	0.00%	0.00%
2041	0.00%	0.00%	0.00%		

Residential (Model 3: All Programs)	0.27%	Long Term Average	0.27%	-0.08%	-6.82%
		2022	7.07%	5.45%	5.16%
2023	-0.51%	-1.09%	-4.90%		
2024	-0.52%	-1.10%	-4.91%		
2025	-0.43%	-1.01%	-4.83%		
2026	-0.35%	-0.93%	-4.75%		
2027	-0.14%	-0.62%	-4.77%		
2028	-0.08%	-0.55%	-4.71%		
2029	-0.13%	-0.35%	-10.79%		
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2039	0.00%	0.00%	0.00%		
2040	0.00%	0.00%	0.00%		
2041	0.00%	0.00%	0.00%		

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Request:

In response to PUC 1-21, the Company explained that the 2021 AESC estimates for energy, capacity, energy DRIPE, and capacity DRIPE avoided costs were “generally lower” than the 2018 AESC estimates. Then, in response to PUC 5-1 (attachment 5-1-3), the Company indicated the following: the summer generation capacity benefit delivered by the 2021 electric energy efficiency program was \$6,921,000 *lower* using the 2021 AESC estimates vs. the 2018 AESC estimates; the capacity DRIPE benefit delivered by the 2021 electric energy efficiency program was \$9,711,000 *higher* using the 2021 AESC estimates vs. the 2018 AESC estimates; the sum of avoided energy benefits (across all four costing periods) delivered by the 2021 electric energy efficiency program was \$3,346,000 *higher* using the 2021 AESC estimates vs. the 2018 AESC estimates; and the electric energy DRIPE benefit delivered by the 2021 electric energy efficiency program was \$6,274,000 *lower* using the 2021 AESC estimates vs. the 2018 AESC estimates.

Please explain why the Company's response to PUC 1-21 suggests that the value of the four avoided cost categories decreased between the 2018 AESC and 2021 AESC, while the Company's response to PUC 5-1 appears to suggest that the value of avoided energy and capacity DRIPE increased between the 2018 AESC and 2021 AESC.

Response:

The annual values of energy, capacity, energy DRIPE, and capacity DRIPE avoided costs all decreased from AESC 2018 to AESC 2021 on a 15-year levelized basis. This is shown in ES - Table 4 from AESC 2021 that was submitted with the response to Record Request No. 5 from the hearings on December 6 and 8 and is what the Company communicated in the response to PUC 1-21.

Avoided Electric Energy Benefits

The application of the AESC 2021 to the 2021 plan resulted in an increase of \$3,346,000 in electric energy benefits. This equates to a 4.2% change. The table below extracts information from Table ES – Table 4 in the AESC 2021 to show a comparison of the change in Annual Electric Energy Avoided costs, on a 15-year levelized basis. These values show that on this metric this category of avoided costs declined by 27% between the two studies. While there is a decrease in the 15-year levelized cost, application of the stream of avoided costs to the specific measures in the portfolio, with their specific measure lives, resulted in an increase in avoided electric energy benefits.

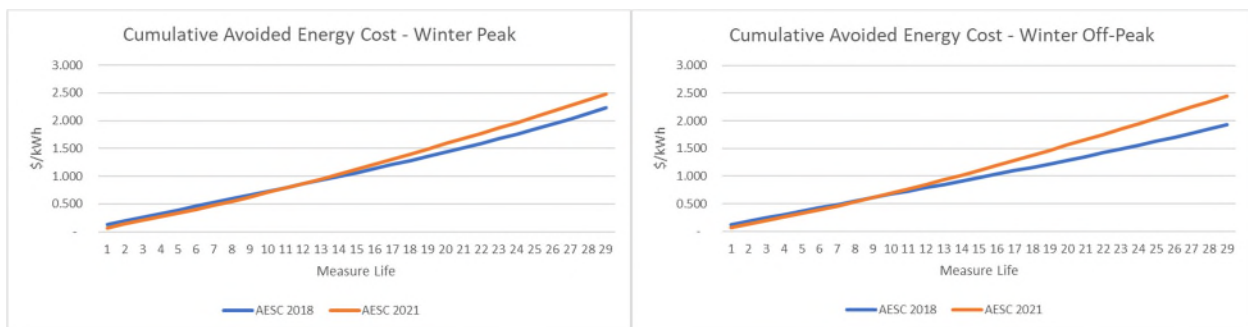
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Comparison of Retail Levelized Costs, Excerpted from ES – Table 4 in AESC 2021:

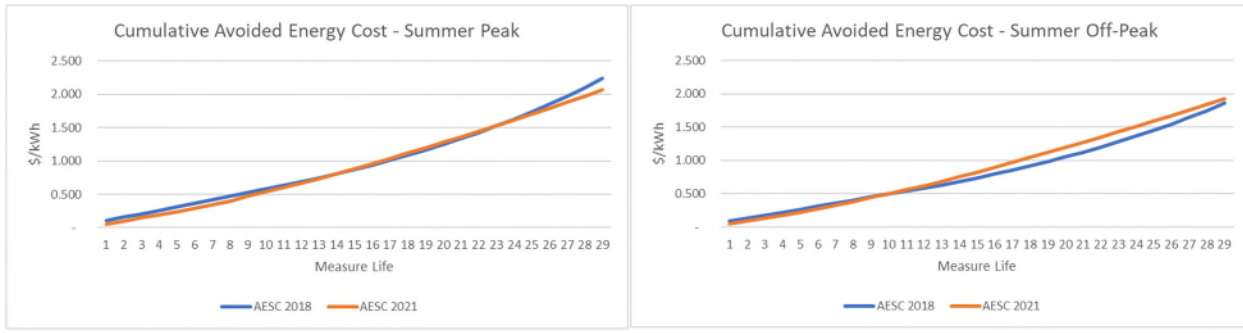
Category	AESC 2018 (2021 cents/kWh)	AESC 2021 (2021 cents/kWh)	Difference (2021 cents/kWh)	Difference (%)
Avoided Retail Energy Costs	5.32	3.90	-1.42	-27%

When avoided costs are applied to the calculation of benefits in the benefit cost models, the values are applied in the cumulative present value of the stream of avoided costs over the duration of the lifetime of the measures. That is, a reference table is built in the model that takes the cumulative present value of the annual avoided costs for each measure life of 1-30 years. The net annual energy savings are then multiplied by the relevant cumulative value to calculate the benefit. This is equivalent to a calculation that would take the annual energy savings and multiply by the applicable avoided cost in each year of the measure life and then taking a present value, however it provides some computational simplicity. This also allows a visualization of how the value of avoided costs in out years changes.

The graphs below show the comparison of cumulative avoided energy costs for measure lives of 1-30 years between AESC 2018 and AESC 2021 for four costing periods referenced in the BC models. For measures with longer measure lives the trend for winter peak, winter off-peak, and summer off-peak is that the cumulative present value of the avoided energy cost is higher in AESC 2021 than AESC 2018.



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The average measure life for measures where avoided energy benefits increased with application of AESC 2018 to AESC 2021 is 16.4. The average measure life for measures where avoided energy benefits decreased with application of AESC 2018 to AESC 2021 is 4.0.

The table below shows, for all measures in the BC model, the measure life, avoided energy benefits with application of AESC 2018 and AESC 2021 and the difference between the two. The table is sorted by measure life.

Program	Measure Name	Measure Life	Total Avoided Electric Benefits (\$) - AESC 2018	Total Avoided Electric Benefits (\$) - AESC 2021	Difference in Total Avoided Electric Benefits (\$) between AESC 2018 and AESC 2021	% Change with application of AESC 2021
Low Income Multi Family	Pre-Wx	1	\$0	\$0	\$0	N/A
Energywise	New movers dual fuel	1	\$60,463	\$54,759	-\$5,703	-9%
Energywise	New Mover electric	1	\$120,484	\$109,119	-\$11,365	-9%
Energy Star HVAC	Opt-out dual fuel	1	\$503,806	\$456,283	-\$47,523	-9%
Behavior Feedback	Opt-Out electric	1	\$1,097,055	\$993,573	-\$103,482	-9%
Commercial New Construction	Dwelling Ext Reflector	2	\$24	\$23	-\$1	-3%

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d/b/a National Grid
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Issued on December 31, 2021

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Program	Measure Name	Measure Life	Total Avoided Electric Benefits (\$) - AESC 2018	Total Avoided Electric Benefits (\$) - AESC 2021	Difference in Total Avoided Electric Benefits (\$) between AESC 2018 and AESC 2021	% Change with application of AESC 2021
Commercial New Construction	Dwelling Int Reflector	2	\$24	\$23	-\$1	-3%
Commercial New Construction	LED Outdoor Fixture	2	\$26	\$25	-\$1	-3%
Commercial New Construction	Dwelling Int EISA Exempt	2	\$48	\$46	-\$2	-3%
Commercial New Construction	Dwelling Ext Reflector	2	\$56	\$54	-\$2	-3%
Commercial New Construction	Dwelling Ext LED Fixture	2	\$113	\$109	-\$4	-3%
Commercial New Construction	Common Ext Reflector	2	\$134	\$130	-\$4	-3%
Commercial New Construction	Common Int Reflector	2	\$179	\$173	-\$6	-3%
Commercial New Construction	Common Int EISA Exempt	2	\$183	\$177	-\$6	-3%
Commercial New Construction	Common Int Reflector	2	\$305	\$295	-\$10	-3%
Commercial New Construction	Common Ext Reflector	2	\$549	\$531	-\$18	-3%
Commercial New Construction	Dwelling Int EISA Exempt	2	\$659	\$637	-\$21	-3%

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Program	Measure Name	Measure Life	Total Avoided Electric Benefits (\$) - AESC 2018	Total Avoided Electric Benefits (\$) - AESC 2021	Difference in Total Avoided Electric Benefits (\$) between AESC 2018 and AESC 2021	% Change with application of AESC 2021
Commercial New Construction	Dwelling Int LED Bulbs	2	\$781	\$755	-\$25	-3%
Commercial New Construction	Dwelling Int Reflector	2	\$1,112	\$1,076	-\$36	-3%
Commercial Retrofit	LED Bulb (School Fundraiser)	2	\$2,566	\$2,483	-\$84	-3%
Commercial Retrofit	LED Indoor Fixture	2	\$2,602	\$2,517	-\$85	-3%
Commercial Retrofit	Common Ext LED Bulbs	2	\$2,810	\$2,718	-\$92	-3%
Commercial Retrofit	Dwelling Int LED Bulbs	2	\$2,882	\$2,788	-\$94	-3%
Commercial Retrofit	Common Int LED Bulbs	2	\$3,105	\$3,004	-\$101	-3%
Commercial Retrofit	Common Ext LED Bulbs	2	\$4,812	\$4,655	-\$157	-3%
Commercial Retrofit	Common Ext LED Fixture	2	\$6,597	\$6,382	-\$215	-3%
Commercial Retrofit	Common Ext LED Fixture	2	\$8,725	\$8,440	-\$285	-3%
Commercial Retrofit	Common Int LED Fixture	2	\$8,811	\$8,523	-\$288	-3%
Commercial Retrofit	LED Bulbs (EISA Exempt)	2	\$8,839	\$8,550	-\$289	-3%
Commercial Retrofit	LED Bulbs	2	\$9,358	\$9,053	-\$304	-3%
Commercial Retrofit	Common Int LED Bulbs	2	\$12,202	\$11,804	-\$398	-3%
Commercial Retrofit	Common Int LED Fixture	2	\$20,546	\$19,875	-\$671	-3%
Small Business Direct Install	LED Bulbs Reflectors	2	\$22,391	\$21,660	-\$731	-3%

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Energywise	LED Bulb (Food Pantries)	2	\$48,306	\$46,730	-\$1,577	-3%
Energywise	AMPLED Bulbs	2	\$101,836	\$98,512	-\$3,324	-3%
Energywise	LED Bulb (Specialty)	2	\$157,481	\$152,340	-\$5,140	-3%
Energywise	LED Bulbs	2	\$180,309	\$174,423	-\$5,886	-3%
Energywise	LED Bulb (Hard to Reach)	2	\$276,514	\$267,488	-\$9,026	-3%
Energywise	LED Bulb	2	\$279,394	\$270,275	-\$9,120	-3%
Energy Star HVAC	LED Bulb (Fixture)	2	\$647,120	\$625,997	-\$21,123	-3%
Energywise	Custom: SEM	3	\$182,669	\$177,777	-\$4,891	-3%
Energywise	Energy Star Products Dehumidifier Recycling	4	\$25,142	\$23,504	-\$1,638	-7%
Energywise	Compressed Air - Custom	4	\$108,574	\$102,778	-\$5,796	-5%
Commercial New Construction	HPTUNE	5	\$1,012	\$967	-\$45	-4%
Commercial Retrofit	Vending Miser	5	\$2,020	\$1,912	-\$108	-5%
Commercial Retrofit	AMPAPREMOV	5	\$1,980	\$1,867	-\$112	-6%
Commercial Retrofit	Vending Miser	5	\$2,172	\$2,055	-\$117	-5%
Small Business Direct Install	Smart Strip	5	\$17,787	\$16,839	-\$948	-5%
Small Business Direct Install	AMPEDUC - TLC	5	\$22,438	\$21,243	-\$1,196	-5%
Energywise	Refrigerator Brush	5	\$33,236	\$31,352	-\$1,884	-6%
Energywise	AMP Smart Strip	5	\$100,326	\$94,981	-\$5,346	-5%

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Energywise	EI Light: Upstream A-lines and Decoratives	5	\$107,867	\$99,562	-\$8,305	-8%
Energywise	EI Light: Upstream G24, G23, MR Lamps, PAR lamps	5	\$107,867	\$99,562	-\$8,305	-8%
Energy Star HVAC	Smart Strip	5	\$213,438	\$202,066	-\$11,372	-5%
Energy Star HVAC	Energy Star Products Smart Strip	5	\$275,646	\$260,959	-\$14,687	-5%
Energy Star HVAC	Energy Star Products Tier 2 APS OS	5	\$330,969	\$313,335	-\$17,635	-5%
Energy Star HVAC	Energy Star Products Tier 2 APS	5	\$386,131	\$365,557	-\$20,574	-5%
Energy Star HVAC	EI Light: Upstream Retrofit Kits	5	\$367,882	\$339,559	-\$28,323	-8%
Commercial Retrofit	Smart Strip	6	\$6,093	\$5,844	-\$250	-4%
Energy Star HVAC	Energy Star Products Pool Pump - variable	6	\$205,295	\$185,891	-\$19,404	-9%
Low Income Multi Family	Pipe Insulation - Oil	7	\$0	\$0	\$0	N/A
Low Income Multi Family	Pipe Insulation - Others	7	\$0	\$0	\$0	N/A
Low Income Multi Family	AERATOR - Oil	7	\$0	\$0	\$0	N/A
Low Income Multi Family	AERATOR - Others	7	\$0	\$0	\$0	N/A
Low Income Multi Family	AERATOR Oil	7	\$0	\$0	\$0	N/A
Low Income Multi Family	TSV Showerhead Oil	7	\$0	\$0	\$0	N/A

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Low Income Multi Family	Energy Star ProductsThermostatic Shutoff Valve, Oil	7	\$0	\$0	\$0	N/A
Low Income Multi Family	Energy Star ProductsThermostatic Shutoff Valve, Other	7	\$0	\$0	\$0	N/A
Low Income Multi Family	Energy Star ProductsLow-Flow Showerhead with TSV, Other	7	\$0	\$0	\$0	N/A
Low Income Multi Family	AMPDHWGAS	7	\$0	\$0	\$0	N/A
Commercial New Construction	AMPDHW OIL	7	\$0	\$0	\$0	N/A
Commercial New Construction	AERATOR Oil	7	\$0	\$0	\$0	N/A
Commercial New Construction	AERATOR - Electric	7	\$366	\$351	-\$14	-4%
Commercial New Construction	Energy Star ProductsThermostatic Shutoff Valve, Elec	7	\$518	\$498	-\$20	-4%
Commercial Retrofit	AMPDHW ELEC	7	\$1,355	\$1,302	-\$53	-4%
Commercial Retrofit	AERATOR Elec	7	\$1,540	\$1,480	-\$61	-4%
Commercial Retrofit	AERATOR	7	\$4,298	\$4,129	-\$169	-4%
Commercial Retrofit	Pipe Insulation - Electric	7	\$5,785	\$5,557	-\$228	-4%

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Commercial Retrofit	Energy Star Products Low-Flow Showerhead with TSV, Electric	7	\$7,408	\$7,116	-\$291	-4%
Commercial Retrofit	TSV Showerhead Elec	7	\$7,719	\$7,416	-\$304	-4%
Commercial Retrofit	TSV Showerhead Elec	7	\$12,770	\$12,267	-\$502	-4%
Energywise	Energy Star Products Freezer Recycling	8	\$44,581	\$43,189	-\$1,392	-3%
Energy Star HVAC	Energy Star Products REFRIG RECYCLING	8	\$791,564	\$765,614	-\$25,951	-3%
Small Business Direct Install	Energy Star Products Room Air Cleaners	9	\$54,845	\$53,941	-\$904	-2%
Energy Star HVAC	HVAC - Custom	9	\$1,021,453	\$1,009,974	-\$11,479	-1%
Energy Star HVAC	Lighting controls	9	\$422,243	\$409,817	-\$12,426	-3%
EnergyStar Lighting	EI Light: Upstream Exterior	10	\$797,299	\$804,264	\$6,965	1%
Low Income Single Family	LED Bulb (Linear LED)	10	\$298,174	\$298,899	\$725	0%
Low Income Multi Family	DISHWASH	10	\$1,089	\$1,103	\$14	1%
Low Income Multi Family	AMP WATER BED	10	\$1,043	\$1,051	\$8	1%
Commercial Retrofit	Upstream HVAC Controls	10	\$6,897	\$6,819	-\$77	-1%
Energywise	EI HVAC	10	\$587,580	\$581,004	-\$6,576	-1%
EnergyWise Multi Family	Lighting	11	\$5,627,287	\$5,679,736	\$52,449	1%

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EnergyWise Multi Family	Non-Lighting	11	\$443,253	\$451,669	\$8,415	2%
Behavior Feedback	EI Light: Upstream TLEDs	11	\$843,469	\$851,331	\$7,861	1%
Behavior Feedback	EI Light: Upstream Linear Luminaires	11	\$756,931	\$763,986	\$7,055	1%
EnergyStar Appliances	EI Light: Upstream Linear Fixture w/ Controls	11	\$230,772	\$232,923	\$2,151	1%
Low Income Single Family	EI Light: Upstream Stairwell	11	\$10,735	\$10,835	\$100	1%
Low Income Multi Family	CWASHER	11	\$2,548	\$2,629	\$81	3%
Low Income Multi Family	Participant	11	\$0	\$0	\$0	N/A
Low Income Multi Family	Participant	11	\$0	\$0	\$0	N/A
Commercial New Construction	Participant (NEB)	11	\$0	\$0	\$0	N/A
EnergyWise Multi Family	EI Light: Prescriptive	12	\$17,266,086	\$17,615,438	\$349,351	2%
EnergyWise Multi Family	CODES AND STANDARDS	12	\$196,230	\$205,069	\$8,839	5%
EnergyStar Appliances	D2 Upstream Food Service	12	\$84,336	\$87,460	\$3,123	4%
EnergyStar Appliances	Other - Custom	12	\$77,137	\$79,734	\$2,597	3%
EnergyStar Appliances	Early Retirement CW Elec DHW & Gas Dryer	12	\$76,158	\$78,622	\$2,463	3%
EnergyStar Appliances	Other - Custom	12	\$83,673	\$85,874	\$2,201	3%

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EnergyStar Appliances	Upstream HVAC Air Conditioners	12	\$147,438	\$149,075	\$1,637	1%
EnergyStar Appliances	Early Retirement CW Elec DHW & Elec Dryer	12	\$45,902	\$47,387	\$1,485	3%
EnergyStar Appliances	AMPACREPLACE	12	\$81,812	\$83,195	\$1,383	2%
EnergyStar Appliances	Refrig rebate	12	\$34,167	\$35,401	\$1,234	4%
EnergyStar Appliances	Early Retirement CW Oil DHW & Elec Dryer	12	\$32,145	\$33,185	\$1,040	3%
Low Income Single Family	Refrig rebate	12	\$19,939	\$20,781	\$842	4%
Low Income Single Family	Refrig rebate	12	\$17,084	\$17,701	\$617	4%
Low Income Single Family	Early Retirement CW Gas DHW & Gas Dryer	12	\$7,661	\$7,909	\$248	3%
Low Income Single Family	Upstream Heat Pump - Packaged	12	\$18,652	\$18,859	\$207	1%
Low Income Single Family	Energy Star ProductsRoom Air Conditioner 10.8	12	\$11,706	\$11,904	\$198	2%
Low Income Single Family	Upstream Heat Pump - Ductless	12	\$11,909	\$12,041	\$132	1%
Low Income Multi Family	Early Retirement CW Propane DHW & Elec Dryer	12	\$2,080	\$2,147	\$67	3%

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Low Income Multi Family	Early Retirement CW Gas DHW & Elec Dryer	12	\$1,135	\$1,171	\$37	3%
Low Income Multi Family	Air Sealing Kit - Electric	12	\$697	\$720	\$24	3%
Low Income Multi Family	Air Sealing Kit - Oil	12	\$0	\$0	\$0	N/A
Low Income Multi Family	Air Sealing Kit - Others	12	\$0	\$0	\$0	N/A
Behavior Feedback	Motors & VFD - Custom	13	\$129,413	\$137,080	\$7,667	6%
Energywise	Lighting - Custom	13	\$9,882,087	\$10,303,529	\$421,441	4%
EnergyWise Multi Family	EI Light: Upstream High/Low Bay	13	\$2,948,365	\$3,047,060	\$98,695	3%
EnergyWise Multi Family	Process- Custom	13	\$1,741,775	\$1,826,882	\$85,106	5%
EnergyWise Multi Family	HPWH < 55 gallon UEF 2.7	13	\$474,694	\$496,696	\$22,001	5%
Low Income Single Family	Upstream HVAC Refrigeration	13	\$7,728	\$8,100	\$372	5%
Low Income Multi Family	HPWH >=55 gallon UEF 2.0	13	\$1,508	\$1,578	\$70	5%
EnergyWise Multi Family	D2 Lights	14	\$2,611,502	\$2,749,331	\$137,829	5%
EnergyStar Appliances	Central Heat Pump	14	\$36,054	\$38,733	\$2,678	7%
EnergyWise Multi Family	Motors and VFD	15	\$1,982,632	\$2,141,293	\$158,661	8%
EnergyWise Multi Family	HVAC - Custom	15	\$1,776,989	\$1,892,202	\$115,213	6%
EnergyWise Multi Family	ECM Pumps	15	\$887,658	\$968,019	\$80,360	9%

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EnergyWise Multi Family	Compressed Air - Custom	15	\$1,105,977	\$1,183,356	\$77,379	7%
EnergyWise Multi Family	Process - Custom	15	\$1,023,630	\$1,090,342	\$66,712	7%
EnergyWise Multi Family	Lighting - Custom	15	\$445,394	\$477,171	\$31,777	7%
EnergyWise Multi Family	Refrigeration - Custom	15	\$382,951	\$414,077	\$31,126	8%
EnergyWise Multi Family	D2 CAIR	15	\$358,368	\$386,498	\$28,130	8%
EnergyWise Multi Family	Refrigeration - Custom	15	\$274,752	\$297,084	\$22,332	8%
EnergyWise Multi Family	Motors & VFD - Custom	15	\$211,757	\$228,703	\$16,946	8%
EnergyWise Multi Family	Motors and VFD	15	\$152,824	\$165,054	\$12,230	8%
EnergyStar Lighting	Upstream HVAC VRF	15	\$115,462	\$122,244	\$6,782	6%
EnergyStar Lighting	AIR SEALING ELEC WITH AC	15	\$79,896	\$85,094	\$5,197	7%
EnergyStar Lighting	WiFi Tstat-heat and cool,Gas	15	\$70,678	\$75,276	\$4,598	7%
EnergyStar Appliances	Adaptive Reuse	15	\$53,437	\$56,801	\$3,364	6%
EnergyStar Appliances	Tier 2 Home - Water Heating	15	\$22,000	\$23,676	\$1,676	8%
EnergyStar Appliances	SHOWERHEAD Elec	15	\$21,573	\$23,217	\$1,643	8%
EnergyStar Appliances	SHOWERHEAD Elec	15	\$20,063	\$21,591	\$1,528	8%
Low Income Single Family	Tier 3 Home - Water Heating	15	\$11,164	\$12,014	\$850	8%

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Low Income Single Family	AIR SEALING ELEC WITH AC	15	\$9,363	\$10,119	\$756	8%
Low Income Single Family	WiFi Tstat-cool only,Elec	15	\$7,068	\$7,528	\$460	7%
Low Income Single Family	Pipe Wrap DHW Elec	15	\$4,569	\$4,917	\$348	8%
Low Income Single Family	Showerhead - Electric	15	\$3,913	\$4,211	\$298	8%
Low Income Single Family	Wifi thermostat - Oil	15	\$4,000	\$4,261	\$260	7%
Low Income Single Family	Tier 1 Home - Water Heating	15	\$3,199	\$3,442	\$244	8%
Low Income Single Family	SHOWERHEAD	15	\$2,508	\$2,704	\$196	8%
Low Income Multi Family	Wifi thermostat - Electric	15	\$1,230	\$1,328	\$99	8%
Low Income Multi Family	CP Home - Water Heating	15	\$751	\$809	\$57	8%
Low Income Multi Family	Wifi thermostat - Others	15	\$667	\$710	\$43	7%
Low Income Multi Family	Showerhead - Oil	15	\$0	\$0	\$0	N/A
Low Income Multi Family	Showerhead - Others	15	\$0	\$0	\$0	N/A
Low Income Multi Family	AIR SEALING OIL	15	\$0	\$0	\$0	N/A
Low Income Multi Family	SHOWERHEAD Oil	15	\$0	\$0	\$0	N/A

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Commercial New Construction	AIR SEALING OIL	15	\$0	\$0	\$0	N/A
Commercial New Construction	SHOWERHEAD Oil	15	\$0	\$0	\$0	N/A
Behavior Feedback	Energy Star Products Energy Star Dryer	16	\$82,328	\$89,425	\$7,097	9%
EnergyWise Multi Family	Comprehensive Design - Custom	17	\$604,528	\$666,178	\$61,650	10%
EnergyWise Multi Family	AMP Dehumidifier Rebate	17	\$302,677	\$331,521	\$28,844	10%
EnergyWise Multi Family	Energy Star Products Dehumidifier Rebate	17	\$95,170	\$104,240	\$9,069	10%
EnergyStar Appliances	ACS16SEER13EER	17	\$27,667	\$29,764	\$2,097	8%
EnergyWise Multi Family	Elec Res to MSHP	18	\$1,073,314	\$1,206,634	\$133,319	12%
EnergyWise Multi Family	Mini-Split Heat Pump	18	\$802,266	\$896,609	\$94,344	12%
EnergyWise Multi Family	AMP Minisplit Heat Pumps - Electric Resistance	18	\$334,943	\$376,547	\$41,604	12%
EnergyStar Lighting	HP Mini-split QIV	18	\$36,764	\$41,088	\$4,323	12%
EnergyStar Appliances	HPQIVES	18	\$7,543	\$8,414	\$871	12%
Low Income Single Family	DOWNSIZE	18	\$7,878	\$8,484	\$606	8%
Low Income Single Family	AMP HEAT SYSTEM	18	\$4,641	\$5,119	\$478	10%

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Low Income Multi Family	ACQIVES	18	\$569	\$613	\$44	8%
Low Income Multi Family	Custom	18	\$0	\$0	\$0	N/A
Commercial New Construction	Custom	18	\$0	\$0	\$0	N/A
EnergyWise Multi Family	AMPRefrig rebate	19	\$1,013,974	\$1,125,862	\$111,888	11%
EnergyWise Multi Family	Programmable thermostat - Electric	19	\$109,487	\$121,187	\$11,699	11%
EnergyWise Multi Family	AMPFREEZER	19	\$95,681	\$106,441	\$10,760	11%
EnergyWise Multi Family	THERMOSTAT Elec with AC	19	\$100,853	\$111,372	\$10,518	10%
EnergyStar Lighting	THERMOSTAT Elec with AC	19	\$63,999	\$70,867	\$6,869	11%
EnergyStar Appliances	Programmable thermostat - Oil	19	\$40,557	\$43,632	\$3,076	8%
Low Income Single Family	AMP THERMOSTAT , Electric	19	\$7,161	\$7,923	\$762	11%
Low Income Single Family	THERMOSTAT OIL	19	\$1,669	\$1,848	\$179	11%
Low Income Single Family	Programmable thermostat - Other	19	\$1,622	\$1,745	\$123	8%
Low Income Multi Family	THERMOSTAT OIL	19	\$351	\$387	\$37	10%
Low Income Multi Family	AMP Programmable Thermostat, Gas	19	\$293	\$315	\$22	8%
Low Income Multi Family	AMP Programmable Thermostat, Other	19	\$293	\$315	\$22	8%

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Low Income Multi Family	AMPProgrammable Thermostat, Oil	19	\$227	\$245	\$17	8%
Energywise	Custom: Street Lighting	20	\$5,070,846	\$5,803,732	\$732,886	14%
EnergyWise Multi Family	CHP	20	\$1,874,772	\$2,096,038	\$221,266	12%
EnergyWise Multi Family	C&I Codes	20	\$382,904	\$424,108	\$41,203	11%
EnergyWise Multi Family	Wx Elec - Elec Heat only	20	\$190,559	\$211,364	\$20,805	11%
Behavior Feedback	AMPWx DelFuel	20	\$66,754	\$73,999	\$7,244	11%
EnergyStar Lighting	Wx - OIL	20	\$84,711	\$90,866	\$6,155	7%
EnergyStar Lighting	AMPWx Elec	20	\$54,062	\$59,929	\$5,867	11%
EnergyStar Appliances	ES Storm Windows - Elec heating	20	\$30,949	\$34,298	\$3,348	11%
EnergyStar Appliances	Upstream HVAC ECM Pump	20	\$14,478	\$16,024	\$1,546	11%
Low Income Multi Family	ES Storm Windows	20	\$676	\$749	\$73	11%
Low Income Multi Family	ES Storm Windows - Others	20	\$676	\$749	\$73	11%
EnergyWise Multi Family	D2 HVAC Prescriptive	23	\$2,538,154	\$2,714,569	\$176,415	7%
EnergyWise Multi Family	Tier 3 Home - Heating	25	\$325,052	\$377,268	\$52,216	16%
EnergyWise Multi Family	Tier 2 Home - Heating	25	\$248,221	\$288,095	\$39,874	16%
EnergyWise Multi Family	Tier 1 Home - Heating	25	\$93,348	\$108,344	\$14,995	16%
EnergyStar Appliances	INSULATION ELEC WITH AC	25	\$76,186	\$78,683	\$2,497	3%

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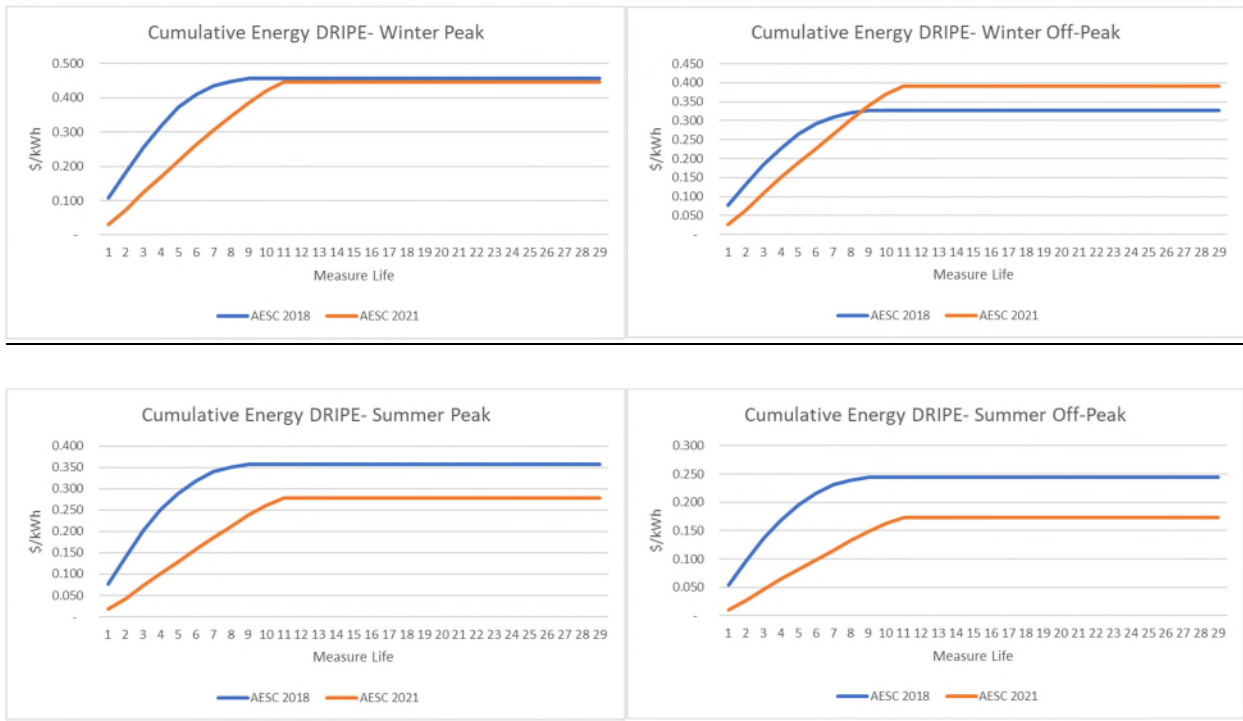
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Program	Measure Name	Measure Life	Total Avoided Electric Benefits (\$) - AESC 2018	Total Avoided Electric Benefits (\$) - AESC 2021	Difference in Total Avoided Electric Benefits (\$) between AESC 2018 and AESC 2021	% Change with application of AESC 2021
EnergyStar Appliances	Tier 4 Home	25	\$93,774	\$96,094	\$2,320	2%
EnergyStar Appliances	INSULATION ELEC WITH AC	25	\$19,454	\$21,417	\$1,963	10%
EnergyStar Appliances	Renovation Rehab Tier 2 Home	25	\$42,904	\$43,966	\$1,062	2%
Low Income Single Family	CP Home - Heating	25	\$4,803	\$5,575	\$772	16%
Low Income Single Family	Tier 3 Home - Cooling	25	\$22,952	\$23,704	\$752	3%
Low Income Single Family	Renovation Rehab CP	25	\$6,832	\$7,570	\$739	11%
Low Income Single Family	Tier 2 Home - Cooling	25	\$21,011	\$21,700	\$689	3%
Low Income Single Family	Tier 1 Home - Cooling	25	\$16,196	\$16,726	\$531	3%
Low Income Single Family	Renovation Rehab Tier 3 Home	25	\$15,319	\$15,698	\$379	2%
Low Income Single Family	Renovation Rehab Tier 1 Home	25	\$14,077	\$14,425	\$348	2%
Low Income Multi Family	CP Home - Cooling	25	\$503	\$520	\$17	3%
Low Income Multi Family	INSULATION OIL	25	\$0	\$0	\$0	N/A
Commercial New Construction	INSULATION OIL	25	\$0	\$0	\$0	N/A

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Electric Energy DRIPE

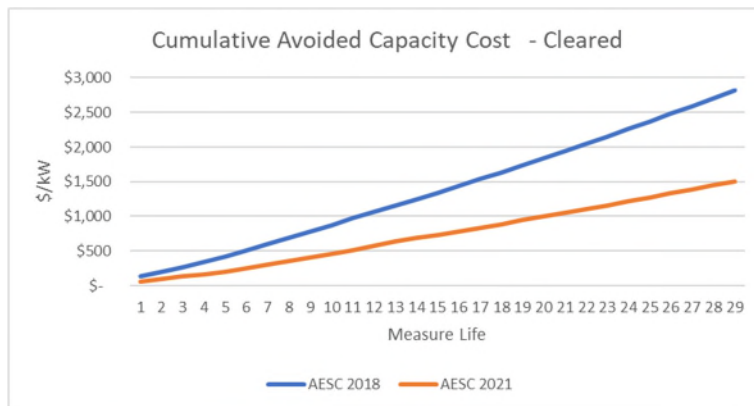
The graphs below show the comparison of cumulative electric energy DRIPE costs for measure lives of 1-30 years between AESC 2018 and AESC 2021 for four costing periods referenced in the BC models. For measures with longer measure lives the trend for winter peak, summer peak, and summer off-peak is that the cumulative present value of the avoided energy DRIPE cost is higher in AESC 2018 than AESC 2021. In this case, AESC 2018 has generally higher electric energy DRIPE costs, with the exception of winter off-peak values.



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Capacity

The graph below show the comparison of cumulative capacity costs for measure lives of 1-30 years between AESC 2018 and AESC 2021 for cleared values referenced in the BC models. For all measures, the trend is that the cumulative present value of the avoided energy cost is higher in AESC 2018 than AESC 2021.



Capacity DRIPE

The response to PUC 5-1 indicates a change in the way the Company applied capacity DRIPE values produced in the Avoided Cost Studies between Docket 5076 (the 2021 EE Plan) and Docket 5189 (the 2022 EE Plan). This change caused the cumulative lifetime capacity DRIPE benefits to increase, even though the annual capacity DRIPE values decreased. This change was made inadvertently: in both years, the Company believed it was applying the capacity DRIPE values from both studies correctly. Comparing the benefit cost calculations and examining the AESC User Interface, the Company believes that the way it applied the capacity DRIPE values from AESC 2021 for the 2022 EE Plan is correct and that the method of application used in Docket 5076 undercounted actual capacity DRIPE benefits.

To explain this further, both AESC 2018 and AESC 2021 produce a stream of annual capacity DRIPE values. In its benefit cost models, the Company aggregates and discounts these values to create cumulative lifetime values associated with measure lifetimes. Then, for each measure of lifetime X, the model looks up and applies a single value associated with each avoided cost category and calculates the benefits for that component.

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In AESC 2021, for measures installed in 2021, capacity DRIPE dissipates after 6 years. (In AESC 2018, this dissipation period was 5 years). In terms of cumulative values, this means that a measure installed in 2021 with an expected useful life of 6 years will have the same lifetime capacity DRIPE benefit as a measure with an expected useful life of 7 years or 10 years because there is no additional capacity DRIPE value after year 6.

However, when the Company created the cumulative values using AESC 2018, using the User Interface file provided with the study, it created cumulative values differently. This resulted in cumulative capacity DRIPE value for measure lifetimes greater than 5 years being set to zero. In other words, for any measure that had a measure life greater than 5 years, the Company didn't claim a capacity DRIPE benefit in the 2021 EE Plan. These values were carried into the avoided cost lookup tables in the benefit cost model. Application of the capacity DRIPE values in this way resulted in the undercounting of capacity DRIPE benefits in the 2021 Plan.

PUC 7-6

Request:

Referring to the last market potential study that was performed for the EERMC and referenced in Docket 5023 in 2020, please state the total compensation paid to the vendor for that market potential study. Please also provide copies of all the invoices that were sent by the vendor and indicate the dates payments were made to the vendor. (Because the Commission is not certain about which entities may have made payments to the vendor, this data request is being issued to both National Grid and EERMC.)

Response:

The total vendor compensation for the market potential study referenced in Docket 5023 in 2020 was \$530,424.75.

These payments were split between the Company and the EERMC client fund:

- The Company made one payment totaling \$111,340.00, which is shown in PUC 7-6a.
- The remainder of the market potential study payments, totaling \$419,084.75, were paid from the EERMC client fund, and are detailed in the EERMC response to PUC 6-1.

PUC 7-7

Request:

Referencing the economic development benefits column included in Tables E-6 and E-6B, please provide 3 sets of schedules (one for the Provisional Plan 1, one for the Alternative Base Plan, and one for the Provisional Plan 2) that show the underlying calculation(s) of the economic development benefits for each program. The schedules should include the program-specific economic development multipliers and should depict how those multipliers were applied to program-specific costs to generate the program-specific economic development benefits.

Response:

Please see Attachments PUC 7-7-1 through 7-7-3 that show the underlying calculation of economic development benefits for each program for the Provisional Plan, Provisional Plan 2, and Alternative Base Plan.¹

The equation for economic benefits can be described as:

$$\text{Economic benefits} = \text{Economic Multiplier} * \text{Program Implementation Expenses}^2$$

The attachments use the updated economic multipliers as described in a memo submitted to the PUC on January 6, 2022.

¹ Shown in response to PUC 7-9.

² Calculated in Table E-3.

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
Attachment PUC 7-7-1
Provisional Plan 1 - Economic Development Benefits

	Economic Multiplier (GDP/\$ Program Spend)	Program Implementation Expenses (\$)	Economic benefits (\$ GDP) = Economic Multiplier * Program Implementation Expenses
Non-Income Eligible Residential			
Residential New Construction	\$1.56	\$1,500,265	\$2,340,413
ENERGY STAR® HVAC	\$1.58	\$4,862,823	\$7,683,260
EnergyWise	\$1.05	\$15,663,715	\$16,446,901
EnergyWise Multifamily	\$1.45	\$3,236,316	\$4,692,658
Home Energy Reports	\$1.11	\$2,641,297	\$2,931,839
Residential Consumer Products	\$1.65	\$2,795,620	\$4,612,773
Residential ConnectedSolutions	\$0.83	\$1,811,464	\$1,503,515
Income Eligible Residential			
Single Family - Income Eligible Services	\$0.96	\$13,266,540	\$12,735,879
Income Eligible Multifamily	\$1.30	\$3,536,143	\$4,596,987
Commercial & Industrial			
Large Commercial New Construction	\$2.74	\$12,453,573	\$34,122,789
Large Commercial Retrofit	\$5.28	\$30,307,381	\$160,022,969
Small Business Direct Install	\$1.53	\$9,732,307	\$14,890,430
Commercial ConnectedSolutions	\$2.19	\$4,386,618	\$9,606,693

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
Attachment PUC 7-7-2
Provisional Plan 2 - Economic Development Benefits

	Economic Multiplier (GDP/\$ Program Spend)	Program Implementation Expenses (\$)	Economic benefits (\$ GDP) = Economic Multiplier * Program Implementation Expenses
Non-Income Eligible Residential			
Residential New Construction	\$1.56	\$1,500,781	\$2,341,219
ENERGY STAR® HVAC	\$1.58	\$4,864,967	\$7,686,648
EnergyWise	\$1.05	\$15,672,122	\$16,455,729
EnergyWise Multifamily	\$1.45	\$3,237,970	\$4,695,056
Home Energy Reports	\$1.11	\$2,641,297	\$2,931,839
Residential Consumer Products	\$1.65	\$2,796,732	\$4,614,608
Residential ConnectedSolutions	\$0.83	\$1,812,339	\$1,504,241
Income Eligible Residential			
Single Family - Income Eligible Services	\$0.96	\$13,273,478	\$12,742,539
Income Eligible Multifamily	\$1.30	\$3,538,094	\$4,599,522
Commercial & Industrial			
Large Commercial New Construction	\$2.74	\$12,020,615	\$32,936,485
Large Commercial Retrofit	\$5.28	\$26,314,731	\$138,941,780
Small Business Direct Install	\$1.53	\$8,977,566	\$13,735,677
Commercial ConnectedSolutions	\$2.19	\$4,390,196	\$9,614,529

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
Attachment PUC 7-7-3
Alternative Base Plan - Economic Development Benefits

	Economic Multiplier (GDP/\$ Program Spend)	Program Implementation Expenses (\$) (1)	Economic benefits (\$ GDP) = Economic Multiplier * Program Implementation Expenses
Non-Income Eligible Residential			
Residential New Construction	\$1.56	\$1,501,262	\$2,341,969
ENERGY STAR® HVAC	\$1.58	\$4,866,964	\$7,689,803
EnergyWise	\$1.05	\$15,679,952	\$16,463,950
EnergyWise Multifamily	\$1.45	\$3,239,510	\$4,697,289
Home Energy Reports	\$1.11	\$2,641,297	\$2,931,839
Residential Consumer Products	\$1.65	\$2,797,768	\$4,616,318
Residential ConnectedSolutions	\$0.83	\$1,813,153	\$1,504,917
Income Eligible Residential			
Single Family - Income Eligible Services	\$0.96	\$13,279,939	\$12,748,741
Income Eligible Multifamily	\$1.30	\$3,539,910	\$4,601,884
Commercial & Industrial			
Large Commercial New Construction	\$2.74	\$9,135,541	\$25,031,382
Large Commercial Retrofit	\$5.28	\$25,166,579	\$132,879,535
Small Business Direct Install	\$1.53	\$8,984,175	\$13,745,788
Commercial ConnectedSolutions	\$2.19	\$4,393,612	\$9,622,010

(1) Program Implementation Expenses based on the Alternative Base Plan in response to PUC 7-9.

PUC 7-8

Request:

Referencing Tables E-2 and E-5 Secondary filed by the Company in response to PUC 1-20, please explain the following:

- a. The "Grand Total" column in Table E-2 depicts \$3,700 of the \$9.154 million re-allocation being re-allocated to the residential non-income eligible sector. For each of the residential non-income eligible programs to which that \$3,700 was re-allocated, please explain the basis for that re-allocation and provide the underlying calculations on which the re-allocations were based (where possible).
- b. The "Grand Total" column in Table E-2 depicts \$2,300 of the \$9.154 million re-allocation being re-allocated to the residential income eligible sector. For each of the residential income eligible programs to which that \$2,300 was re-allocated, please explain the basis for that re-allocation and provide the underlying calculations on which the re-allocations were based (where possible).
- c. Referencing the "total benefit" column of Table E-5 Secondary, please show how the total benefits were calculated for each of the residential non-income eligible programs that received a portion of the \$3,700 re-allocation.
- d. Referencing the "total benefit" column of Table E-5 Secondary, please show how the total benefits were calculated for each of the residential income eligible programs that received a portion of the \$2,300 re-allocation.

Response:

- a. The Program Planning & Administration (PP&A) costs include \$873,280 in "allocated costs" that cover all programs. These allocated costs include such areas as IT costs that support all programs. As a result, the Company allocates these costs across all programs. The methodology the Company uses to allocate these costs is based on program level incentive¹ costs budgeted for each program that year².

The Company's original 2022 Annual Plan filed on 10-1-2021 included approx. \$9.14M in incentive costs for the RI Grows project. In the Provisional Plan filed on 10-1-2021 the \$9.14M was redistributed across the Commercial and Industrial sector. However, as shown in DIV 2-9, of the \$9.14M approx. \$1.18M was budgeted for Sales, Technical Assistance & Training to support the proposed incremental measures in the Provisional Plan. As a result, the decrease in overall incentive levels in Provisional Plan led to a

¹ Referred to in the E-2 table as "Cost of services and product rebates/incentives provided to customers"

² Total costs for that year are not used because this would create a circular reference. As a result, incentive costs are used as the best proxy for how costs that support all programs should be allocated to individual programs.

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redistribution of the \$873,280 in PP&A “allocated costs” which resulted in slightly higher allocation levels to the Non-Income Eligible Residential and Income Eligible Residential sectors. The redistribution of these allocated costs can be seen in Attachment PUC 7-8-1.

Note that a similar method was used for the approximately \$400 in STAT costs also redistributed across the Non-Income Eligible Residential and Income Eligible Residential sectors in PUC 1-20, table E-2.

- b. Please see part a. above and Attachment PUC 7-8-1.
- c. The total benefits calculated in the “total benefit” column of Table E-5 Secondary are inclusive of economic benefits. The increase in the allocated spending apportioned to these programs as detailed in part a. above is the sole driver of the increase in economic benefits, and therefore total benefits in the “total benefit” column. To calculate this, the increases in the “Program Implementation Expenses” column in the E-5 Secondary table from PUC 1-20 are then multiplied by the respective program’s economic multiplier as listed on Bates 391 of the original plan filing³ to arrive at the “Total Benefit” amount. Additionally, please see PUC 7-7 for detailed schedules on how economic multipliers are applied to program implementation expenses to calculate economic benefits.
- d. Please see part c. above.

³ Please reference the economic multipliers memo submitted to the PUC on January 6th, 2022 for an explanation of the update to the economic multipliers. PUC 1-20 uses the original multipliers found on Bates 391 of the 2022 Annual Plan.

**The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5189
Attachment PUC 7-8-1**

Program Planning & Administration Allocated Costs

Program	Original Plan	%	Provisional Plan	%	Difference	%
Residential New Construction	\$ 8,491	1.0%	\$ 8,614	1.0%	\$ 123	0.0%
ENERGY STAR® HVAC	\$ 30,902	3.5%	\$ 31,350	3.6%	\$ 448	0.1%
EnergyWise	\$ 138,195	15.8%	\$ 140,198	16.1%	\$ 2,002	0.2%
EnergyWise Multifamily	\$ 27,182	3.1%	\$ 27,576	3.2%	\$ 394	0.0%
Residential Consumer Products	\$ 18,285	2.1%	\$ 18,550	2.1%	\$ 265	0.0%
Home Energy Reports	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
Residential ConnectedSolutions	\$ 14,282	1.6%	\$ 14,489	1.7%	\$ 207	0.0%
Single Family - Income Eligible Services	\$ 114,037	13.1%	\$ 115,690	13.2%	\$ 1,652	0.2%
Income Eligible Multifamily	\$ 32,061	3.7%	\$ 32,525	3.7%	\$ 465	0.1%
Large Commercial New Construction	\$ 167,612	19.2%	\$ 102,668	11.8%	\$ (64,944)	-7.4%
Large Commercial Retrofit	\$ 194,585	22.3%	\$ 244,041	27.9%	\$ 49,456	5.7%
Small Business Direct Install	\$ 84,151	9.6%	\$ 93,453	10.7%	\$ 9,302	1.1%
Commercial ConnectedSolutions	\$ 43,496	5.0%	\$ 44,127	5.1%	\$ 630	0.1%
Subtotal - Non-Income Eligible Residential	\$ 237,337	27.2%	\$ 240,776	27.6%	\$ 3,439	0.4%
Subtotal - Income Eligible Residential	\$ 146,098	16.7%	\$ 148,215	17.0%	\$ 2,117	0.2%
Subtotal - Commercial & Industrial	\$ 489,844	56.1%	\$ 484,288	55.5%	\$ (5,556)	-0.6%
Total	\$ 873,280	100.0%	\$ 873,280	100.0%	\$ 0	0.0%
Net Change					\$ 0	0.0%

PUC 7-9

Request:

Please re-file all relevant schedules for the Alternative Base Plan (originally filed in response to PUC 2-17) with corrected EERMC and OER budget numbers.

Response:

Please see Attachment PUC 7-9-1 for the updated Attachment 5 schedule for the Alternative Base Plan.¹

¹ This response uses the updated economic multipliers found in the memo submitted to the PUC on January 6th, 2022.

**Table E-1 - ATTACHMENT PUC 7-9-1
National Grid
Electric DSM Funding Sources in 2022 by Sector
\$(000)**

	<u>Projections by Sector</u>			Total
	Income Eligible Residential	Non-Income Eligible Residential	Commercial & Industrial	
(1) Projected Budget (from E-2):	\$17,079.7	\$36,128.0	\$59,804.8	\$113,012.5
Sources of Other Funding:				
(2) Projected DSM Commitments at Year-End 2021:	\$0.0	\$0.0	\$0.0	\$0.0
(3) Projected Year-End 2021 Fund Balance and Interest:	\$0.0	(\$7,628.9)	\$12,579.2	\$4,950.3
(4) Projected FCM Net Revenue from ISO-NE:	\$482.0	\$5,723.2	\$8,130.1	\$14,335.3
(5) Total Other Funding:	\$482.0	(\$1,905.7)	\$20,709.3	\$19,285.5
(6) Customer Funding Required:	\$16,597.7	\$38,033.7	\$39,095.6	\$93,726.9
(7) Forecasted kWh Sales:	246,778,762	2,930,118,727	4,162,361,309	7,339,258,798
(8) Energy Efficiency Program charge per kWh, excluding uncollectible recovery:				\$0.01277
(9) Proposed SRP Opex Factor per kWh, excluding uncollectible recovery:				<u>\$0.00000</u>
(10) Total Proposed Energy Efficiency Charge per kWh, excluding uncollectible recovery:				\$0.01277
(11) Currently Effective Uncollectible Rate				1.30%
(12) Proposed Energy Efficiency Program Charge per kWh, including Uncollectible Recovery:				\$0.01293
(13) Currently Effective Energy Efficiency Program Charge per kwh				<u>\$0.01113</u>
(14) Proposed Adjustment to Reflect Fully Reconciling Funding Mechanism				\$0.00180

Notes:

- (1) Projected Budget from E-2 includes OER and EERMC costs allocated to each sector based on forecasted sales.
- (2) DSM Commitments are projects that are under construction with anticipated completion in 2022.
- (3) Fund balance projections include projected revenue and spend through year end with Income Eligible sector set to \$0 through projected subsidization from other sectors, minus commitments which are illustrated separately on line (2). The fund balance includes a \$124,135 credit from shareholder funds to the fund balance which the Company plans to make prior to February 1, 2022 based on the Company's response to PUC 5-4 part e. The fund balance also assumes a transfer of \$5,000,000 to the Rhode Island Infrastructure Bank (RIIB), approved in the 2021 Annual Plan, to be made in early 2022. Note that these funds have not yet been transferred to RIIB, however the Company anticipates, subject to PUC approval, transferring these funds given that the Company received a written request from RIIB on December 30, 2021, and is currently working with RIIB in order to ensure that all required documentation has been provided and is in order prior to completing the transfer.
- (4) The total projection of FCM revenue is allocated by kWh sales to each sector. FCM Revenue includes an estimated \$332,804 penalty. See prefiled testimony for additional details.
- (5) Line (2) + Line (3) + Line (4)
- (6) Line (1) - Line (5)
- (7) Per Company Forecast
- (8) Line (6) ÷ Line (7), truncated to 5 decimal places
- (9) Truncated to 5 decimal places
- (11) Proposed SRP Opex Factor is \$0.00000.
- (10) Line (8) + Line (9)
- (11) Uncollectible rate approved in Docket No 4770.
- (12) Line (10) ÷ (1-Line (11)), truncated to 5 decimal places
- (13) Currently Effective EE Charge includes System Reliability Factor and uncollectible recovery.
- (14) Line (12) - Line (13)

**Table E-2 - ATTACHMENT PUC 7-9-1
National Grid
2022 Electric Energy Efficiency Program Budget (\$000)**

	Program Planning & Administration	Marketing	Cost of services and product rebates/incentives provided to customers	Sales, Technical Assistance & Training	Evaluation & Market Research	Total Performance Incentive	Grand Total
Non-Income Eligible Residential							
Residential New Construction	\$92.6	\$23.6	\$800.9	\$504.3	\$79.9		\$1,501.3
ENERGY STAR® HVAC	\$104.3	\$279.6	\$3,734.7	\$486.2	\$262.3		\$4,867.0
EnergyWise	\$418.2	\$373.6	\$13,289.6	\$1,316.5	\$282.0		\$15,680.0
EnergyWise Multifamily	\$103.7	\$74.3	\$2,613.8	\$407.2	\$40.4		\$3,239.5
Residential Consumer Products	\$85.7	\$464.3	\$1,724.7	\$500.9	\$22.2		\$2,797.8
Home Energy Reports	\$55.9	\$13.1	\$0.0	\$2,551.5	\$20.8		\$2,641.3
Residential ConnectedSolutions	\$39.8	\$11.3	\$1,356.1	\$368.5	\$37.4		\$1,813.2
Energy Efficiency Education Programs	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		\$0.0
Residential Pilots	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		\$0.0
Community Based Initiatives - Residential	\$33.7	\$125.2	\$96.2	\$0.0	\$0.0		\$255.1
Comprehensive Marketing - Residential	\$1.3	\$246.7	\$0.0	\$0.0	\$0.0		\$247.9
Residential Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Subtotal - Non-Income Eligible Residential	\$935.3	\$1,611.8	\$23,615.9	\$6,135.0	\$744.9	\$0.0	\$33,042.9
Income Eligible Residential							
Single Family - Income Eligible Services	\$349.5	\$135.0	\$10,756.0	\$1,966.9	\$72.5		\$13,279.9
Income Eligible Multifamily	\$117.6	\$14.1	\$3,024.0	\$344.4	\$39.8		\$3,539.9
Income Eligible Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Subtotal - Income Eligible Residential	\$467.1	\$149.2	\$13,780.0	\$2,311.3	\$112.3	\$0.0	\$16,819.8
Commercial & Industrial							
Large Commercial New Construction	\$203.2	\$306.8	\$6,654.8	\$1,537.9	\$432.9		\$9,135.5
Large Commercial Retrofit	\$756.0	\$239.5	\$18,529.5	\$4,825.29	\$816.3		\$25,166.6
Small Business Direct Install	\$236.1	\$244.0	\$7,937.2	\$310.8	\$256.0		\$8,984.2
Commercial ConnectedSolutions	\$101.3	\$6.8	\$4,102.6	\$182.9	\$0.0		\$4,393.6
Commercial Pilots	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		\$0.0
Community Based Initiatives - C&I	\$11.2	\$41.7	\$32.1	\$0.0	\$0.0		\$85.0
Finance Costs	\$0.0	\$0.0	\$2,000.0	\$0.0	\$0.0		\$2,000.0
Commercial Workforce Development	\$0.0	\$0.0	\$0.0	\$157.5	\$0.0		\$157.5
Commercial & Industrial Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$5,500.0	\$5,500.0
Subtotal - Commercial & Industrial	\$1,307.9	\$838.8	\$39,256.1	\$7,014.4	\$1,505.2	\$5,500.0	\$55,422.4
Regulatory							
OER	\$1,636.4	\$0.0	\$0.0	\$0.0	\$0.0		\$1,636.4
EERMC	\$1,090.9	\$0.0	\$0.0	\$0.0	\$0.0		\$1,090.9
Rhode Island Infrastructure Bank	\$0.0	\$0.0	\$5,000.0	\$0.0	\$0.0		\$5,000.0
Subtotal - Regulatory	\$2,727.3	\$0.0	\$5,000.0	\$0.0	\$0.0	\$0.0	\$7,727.3
Grand Total	\$5,437.5	\$2,599.8	\$81,652.1	\$15,460.7	\$2,362.3	\$5,500.0	\$113,012.5

Notes:

- (1) 2022 Large Commercial Retrofit Commitments (\$000):
- (2) For more information on Finance Costs, please refer to Attachment 2, Section 9.
- (3) OER and EERMC total 3.0% of customers' EE Program Charge collected on Table E-1, minus 3%.
- (4) Finance Costs are detailed in Table E-9. Finance Costs include an injection of \$2M into the Large C&I Revolving Loan Fund. Without this injection the Large C&I Revolving Loan Fund is projected to be negative by the end of 2022.
- (5) Demonstrations and Assessments budgets are included in specific program level budgets listed above. More information on Demonstration and Assessments descriptions, budgets, and which program level budget they are included in can be found in Attachment 8.
- (6) Based on the state's System Reliability and Least Cost procurement statute (amended in 2021), funds transferred to the Rhode Island Infrastructure Bank are now classified under Regulatory costs.

**Table E-3 - ATTACHMENT PUC 7-9-1
National Grid
Derivation of the 2022 Spending and Implementation Budgets (\$000)**

	Proposed 2022 Budget From E-2	Commitments	Regulatory Costs	Performance Incentive	Eligible Sector Spending Budget for Performance Incentive on E-8B	Implementation Expenses for Cost- Effectiveness on E-5
Non-Income Eligible Residential						
Residential New Construction	\$1,501.3					\$1,501.3
ENERGY STAR® HVAC	\$4,867.0					\$4,867.0
EnergyWise	\$15,680.0					\$15,680.0
EnergyWise Multifamily	\$3,239.5					\$3,239.5
Residential Consumer Products	\$2,797.8					\$2,797.8
Home Energy Reports	\$2,641.3					\$2,641.3
Residential ConnectedSolutions	\$1,813.2					\$1,813.2
Energy Efficiency Education Programs	\$0.0					\$0.0
Residential Pilots	\$0.0					\$0.0
Community Based Initiatives - Residential	\$255.1					\$255.1
Comprehensive Marketing - Residential	\$247.9					\$247.9
Residential Performance Incentive	\$0.0			\$0.0		\$0.0
Subtotal - Non-Income Eligible Residential	\$33,042.9	\$0.0	\$0.0	\$0.0	\$31,204.9	\$33,042.9
Income Eligible Residential						
Single Family - Income Eligible Services	\$13,279.9					\$13,279.9
Income Eligible Multifamily	\$3,539.9					\$3,539.9
Income Eligible Performance Incentive	\$0.0			\$0.0		\$0.0
Subtotal - Income Eligible Residential	\$16,819.8	\$0.0	\$0.0	\$0.0	\$16,819.8	\$16,819.8
Commercial & Industrial						
Large Commercial New Construction	\$9,135.5	\$0.0				\$9,135.5
Large Commercial Retrofit	\$25,166.6	\$0.0				\$25,166.6
Small Business Direct Install	\$8,984.2	\$0.0				\$8,984.2
Commercial ConnectedSolutions	\$4,393.6					\$4,393.6
Commercial Pilots	\$0.0					\$0.0
Community Based Initiatives - C&I	\$85.0					\$85.0
Finance Costs	\$2,000.0					\$2,000.0
Commercial Workforce Development	\$157.5					\$157.5
Commercial & Industrial Performance Incentive	\$5,500.0			\$5,500.0		\$0.0
Subtotal - Commercial & Industrial	\$55,422.4	\$0.0	\$0.0	\$5,500.0	\$45,497.7	\$49,922.4
Regulatory						
OER	\$1,636.4		\$1,636.4			\$1,636.4
EERMC	\$1,090.9		\$1,090.9			\$1,090.9
Rhode Island Infrastructure Bank	\$5,000.0		\$5,000.0			\$5,000.0
Subtotal - Regulatory	\$7,727.3	\$0.0	\$7,727.3	\$0.0	\$0.0	\$7,727.3
Grand Total	\$113,012.5	\$0.0	\$7,727.3	\$5,500.0	\$93,522.5	\$107,512.5

Notes:

- (1) Eligible Sector Spending Budget = Total Budget from E-2 minus commitments, regulatory costs, pilots, assessments, Residential ConnectedSolutions, Commercial ConnectedSolutions, Performance Incentive
- (2) Eligible Sector Spending Budget does not include assessments, see Attachment 8 for assessments budgets.
- (3) Implementation Expenses = Total Budget from E-2 minus commitments and Performance Incentive.

**Table E-4 - ATTACHMENT PUC 7-9-1
National Grid
Proposed 2022 Budget Compared to Approved 2021 Budget (\$000)**

	Proposed Implementation Budget 2022	Approved Implementation Budget 2021	Difference
Non-Income Eligible Residential			
Residential New Construction	\$1,501.3	\$1,611.3	-\$110.1
ENERGY STAR® HVAC	\$4,867.0	\$3,487.8	\$1,379.2
EnergyWise	\$15,680.0	\$15,692.2	-\$12.2
EnergyWise Multifamily	\$3,239.5	\$2,804.3	\$435.2
ENERGY STAR® Lighting	\$0.0	\$5,274.8	-\$5,274.8
Residential Consumer Products	\$2,797.8	\$2,681.2	\$116.5
Home Energy Reports	\$2,641.3	\$2,641.7	-\$0.4
Residential ConnectedSolutions	\$1,813.2	\$1,920.5	-\$107.4
Energy Efficiency Education Programs	\$0.0	\$40.0	-\$40.0
Residential Pilots	\$0.0	\$0.0	\$0.0
Community Based Initiatives - Residential	\$255.1	\$226.2	\$28.9
Comprehensive Marketing - Residential	\$247.9	\$332.7	-\$84.8
Subtotal - Non-Income Eligible Residential	\$33,042.9	\$36,712.7	-\$3,669.7
Income Eligible Residential			
Single Family - Income Eligible Services	\$13,279.9	\$12,846.1	\$433.9
Income Eligible Multifamily	\$3,539.9	\$3,549.0	-\$9.1
Subtotal - Income Eligible Residential	\$16,819.8	\$16,395.1	\$424.8
Commercial & Industrial			
Large Commercial New Construction	\$9,135.5	\$8,188.2	\$947.4
Large Commercial Retrofit	\$25,166.6	\$31,565.2	-\$6,398.7
Small Business Direct Install	\$8,984.2	\$8,883.6	\$100.6
Commercial ConnectedSolutions	\$4,393.6	\$2,990.1	\$1,403.5
Community Based Initiatives - C&I	\$85.0	\$74.5	\$10.4
Commercial Pilots	\$0.0	\$0.0	\$0.0
Finance Costs	\$2,000.0	\$5,000.0	-\$3,000.0
Commercial Workforce Development	\$157.5	\$0.0	\$157.5
Subtotal Commercial & Industrial	\$49,922.4	\$56,701.6	-\$6,779.2
Regulatory			
EERMC	\$1,090.9	\$738.5	\$352.4
OER	\$1,636.4	\$738.5	\$897.9
Rhode Island Infrastructure Bank	\$5,000.0	\$0.0	\$5,000.0
Subtotal Regulatory	\$7,727.3	\$1,477.0	\$6,250.3
TOTAL IMPLEMENTATION BUDGET	\$107,512.5	\$111,286.3	-\$3,773.9
OTHER EXPENSE ITEMS			
Commitments	\$0.0	\$0.0	\$0.0
Company Incentive	\$5,500.0	\$5,500.0	\$0.0
Subtotal - Other Expense Items	\$5,500.0	\$5,500.0	\$0.0
TOTAL BUDGET	\$113,012.5	\$116,786.3	-\$3,773.9

Notes:

- (1) Program Implementation Budget excludes Commitments, Company Incentive; derived on Table E-3
- (2) Total Budget includes Implementation, Commitments; illustrated on Table E-3
- (3) The Energy Star® Lighting program year-over-year decrease is due to the phase out of the program in 2022.
- (4) In large part, the increased budget for the Large Commercial and Industrial New Construction program can be attributed to the proposed 13.3 MW CHP system, which accounts for approximately \$9,200,000 in incentives in the 2022 plan. The HVAC incentive budget also increased by approximately \$700,000 due to a 2,065,000 kWh increase in gross annual savings.
- (5) The Large Commercial Retrofit program decreased primarily due to roughly a \$5,400,000 reduction in lighting incentive due to lower anticipated volume as the market becomes increasingly saturated. The CHP budget also decreased approximately \$500,000 because there was a CHP retrofit in the 2021 plan but not 2022.
- (6) The increase in the 2022 Commercial and Industrial ConnectedSolutions program budget can be attributed to the higher participation in the Daily Dispatch demand response offering. In total, the customer incentive payments represent approximately 98% of the cost associated with this measure.
- (7) The Finance Cost decline is driven by a reallocation of \$5M in RIIB from this line to the RIIB line under regulatory due to the updated the Least Cost Procurement statute (amended in 2021).
- (8) The increase in allocation of funds to the OER is made consistent with the state's System Reliability and Least Cost procurement statute (amended in 2021), which provides that the Commission shall allocate an amount not to exceed three percent (3.0%) from authorized demand-side management gas and electric funds authorized.
- (9) The Rhode Island Infrastructure Bank addition is driven by a reallocation of \$5M from the Finance Cost Line to the Rhode Island Infrastructure Bank line under the regulatory sector to comply with the Least Cost Procurement statute (amended in 2021).

**Table E-5 - Primary - ATTACHMENT PUC 7-9-1
National Grid
Calculation of 2022 Program Year Cost-Effectiveness
All Dollar Values in (\$000)**

	RI Test Benefit/ Cost ¹	Total Benefit	Program Implementation Expenses ²	Customer Contribution	Performance Incentive	¢/Lifetime kWh
Non-Income Eligible Residential						
Residential New Construction	2.07	\$4,232.1	\$1,501.3	\$547.2		13.7
ENERGY STAR® HVAC	2.18	\$14,630.8	\$4,867.0	\$1,848.5		8.6
EnergyWise	1.03	\$16,626.6	\$15,680.0	\$530.6		120.3
EnergyWise Multifamily	1.64	\$6,189.9	\$3,239.5	\$532.0		18.1
Home Energy Reports	2.04	\$5,401.4	\$2,641.3	\$0.0		9.8
Residential Consumer Products	2.21	\$9,713.3	\$2,797.8	\$1,606.6		9.3
Residential ConnectedSolutions	1.59	\$2,886.0	\$1,813.2	\$0.0		N/A
Energy Efficiency Education Programs			\$0.0			
Residential Pilots			\$0.0			
Community Based Initiatives - Residential			\$255.1			
Comprehensive Marketing - Residential			\$247.9			
Non-Income Eligible Residential SUBTOTAL	1.57	\$59,680.0	\$33,042.9	\$5,064.9	\$0.0	18.9
Income Eligible Residential						
Single Family - Income Eligible Services	1.94	\$25,758.0	\$13,279.9	\$0.0		34.5
Income Eligible Multifamily	2.36	\$8,368.1	\$3,539.9	\$0.0		14.6
Income Eligible Residential SUBTOTAL	2.03	\$34,126.2	\$16,819.8	\$0.0	\$0.0	26.8
Commercial & Industrial						
Large Commercial New Construction	3.47	\$34,249.9	\$9,135.5	\$742.5		5.1
Large Commercial Retrofit	2.19	\$72,910.7	\$25,166.6	\$8,064.5		10.6
Small Business Direct Install	1.15	\$12,596.2	\$8,984.2	\$1,923.1		16.9
Commercial ConnectedSolutions	2.42	\$10,621.2	\$4,393.6	\$0.0		N/A
Commercial Pilots			\$0.0			
Community Based Initiatives - C&I			\$85.0			
Finance Costs			\$2,000.0			
Commercial Workforce Development			\$157.5			
C&I SUBTOTAL	1.97	\$130,378.0	\$49,922.4	\$10,730.1	\$5,500.0	10.6
Regulatory						
OER			\$1,636.4			
EERMC			\$1,090.9			
Rhode Island Infrastructure Bank			\$5,000.0			
Regulatory SUBTOTAL			\$7,727.3			
TOTAL	1.74	\$224,184.2	\$107,512.5	\$15,795.0	\$5,500.0	14.8

Notes:

- (1) RI Test B/C Test = Total Benefits from Table E-6A / Program Implementation Expenses from Table E-3
Also includes effects of free-ridership and spillover.
- (2) For Implementation Expenses derivation, see Table E-3.

Table E-5 - Secondary - ATTACHMENT PUC 7-9-1
National Grid
Calculation of 2022 Program Year Cost-Effectiveness with Economic Benefits Included
All Dollar Values in (\$000)

	RI Test Benefit/ Cost ¹	Total Benefit	Program Implementation Expenses ²	Customer Contribution	Performance Incentive	¢/Lifetime kWh
Non-Income Eligible Residential						
Residential New Construction	3.21	\$6,574.1	\$1,501.3	\$547.2		13.7
ENERGY STAR® HVAC	3.32	\$22,320.6	\$4,867.0	\$1,848.5		8.6
EnergyWise	2.04	\$33,090.5	\$15,680.0	\$530.6		120.3
EnergyWise Multifamily	2.89	\$10,887.2	\$3,239.5	\$532.0		18.1
Home Energy Reports	3.15	\$8,333.3	\$2,641.3	\$0.0		9.8
Residential Consumer Products	3.25	\$14,329.6	\$2,797.8	\$1,606.6		9.3
Residential ConnectedSolutions	2.42	\$4,390.9	\$1,813.2	\$0.0		N/A
Energy Efficiency Education Programs			\$0.0			
Residential Pilots			\$0.0			
Community Based Initiatives - Residential			\$255.1			
Comprehensive Marketing - Residential			\$247.9			
Non-Income Eligible Residential SUBTOTAL	2.62	\$99,926.1	\$33,042.9	\$5,064.9	\$0.0	18.9
Income Eligible Residential						
Single Family - Income Eligible Services	2.90	\$38,506.8	\$13,279.9	\$0.0		34.5
Income Eligible Multifamily	3.66	\$12,970.0	\$3,539.9	\$0.0		14.6
Income Eligible Residential SUBTOTAL	3.06	\$51,476.8	\$16,819.8	\$0.0	\$0.0	26.8
Commercial & Industrial						
Large Commercial New Construction	6.00	\$59,281.3	\$9,135.5	\$742.5		5.1
Large Commercial Retrofit	6.19	\$205,790.2	\$25,166.6	\$8,064.5		10.6
Small Business Direct Install	2.42	\$26,342.0	\$8,984.2	\$1,923.1		16.9
Commercial ConnectedSolutions	4.61	\$20,243.2	\$4,393.6	\$0.0		N/A
Commercial Pilots			\$0.0			
Community Based Initiatives - C&I			\$85.0			
Finance Costs			\$2,000.0			
Commercial Workforce Development			\$157.5			
C&I SUBTOTAL	4.71	\$311,656.7	\$49,922.4	\$10,730.1	\$5,500.0	10.6
Regulatory						
OER			\$1,636.4			
EERMC			\$1,090.9			
Rhode Island Infrastructure Bank			\$5,000.0			
Regulatory SUBTOTAL			\$7,727.3			
TOTAL	3.59	\$463,059.6	\$107,512.5	\$15,795.0	\$5,500.0	14.8

Notes:

- (1) RI Test B/C Test = Total Benefits from Table E-6A including Economic Benefits / Program Implementation Expenses from Table E-3
Also includes effects of free-ridership and spillover.
- (2) For Implementation Expenses derivation, see Table E-3.

Table E-5A - ATTACHMENT PUC 7-9-1
National Grid
Calculation of 2022 Program Year Cost-Effectiveness with TRC Test
All Dollar Values in (\$000)

	TRC Benefit/ Cost ¹	Total Benefit	Program Implementation Expenses ²	Customer Contribution	Performance Incentive	¢/Lifetime kWh
Non-Income Eligible Residential						
Residential New Construction	1.65	\$3,371.2	\$1,501.3	\$547.2		13.7
ENERGY STAR® HVAC	1.60	\$10,738.0	\$4,867.0	\$1,848.5		8.6
EnergyWise	0.78	\$12,563.7	\$15,680.0	\$530.6		120.3
EnergyWise Multifamily	1.36	\$5,142.9	\$3,239.5	\$532.0		18.1
Home Energy Reports	1.38	\$3,642.0	\$2,641.3	\$0.0		9.8
Residential Consumer Products	1.59	\$7,013.3	\$2,797.8	\$1,606.6		9.3
Residential ConnectedSolutions	1.59	\$2,882.5	\$1,813.2	\$0.0		N/A
Energy Efficiency Education Programs			\$0.0			0.0
Residential Pilots			\$0.0			0.0
Community Based Initiatives - Residential			\$255.1			0.0
Comprehensive Marketing - Residential			\$247.9			0.0
Non-Income Eligible Residential SUBTOTAL	1.19	\$45,353.5	\$33,042.9	\$5,064.9	\$0.0	18.9
Income Eligible Residential						
Single Family - Income Eligible Services	1.66	\$22,034.6	\$13,279.9	\$0.0		34.5
Income Eligible Multifamily	2.03	\$7,186.3	\$3,539.9	\$0.0		14.6
Income Eligible Residential SUBTOTAL	1.74	\$29,220.8	\$16,819.8	\$0.0	\$0.0	26.8
Commercial & Industrial						
Large Commercial New Construction	2.66	\$26,252.5	\$9,135.5	\$742.5		5.1
Large Commercial Retrofit	1.74	\$57,710.4	\$25,166.6	\$8,064.5		10.6
Small Business Direct Install	0.86	\$9,355.6	\$8,984.2	\$1,923.1		16.9
Commercial ConnectedSolutions	2.42	\$10,621.2	\$4,393.6			
Commercial Pilots			\$0.0			
Community Based Initiatives - C&I			\$85.0			
Finance Costs			\$2,000.0			
Commercial Workforce Development			\$157.5			
C&I SUBTOTAL	1.57	\$103,939.8	\$49,922.4	\$10,730.1	\$5,500.0	10.6
Regulatory						
OER			\$1,636.4			
EERMC			\$1,090.9			
Rhode Island Infrastructure Bank			\$5,000.0			
Regulatory SUBTOTAL			\$7,727.3			
TOTAL	1.39	\$178,514.2	\$107,512.5	\$15,795.0	\$5,500.0	14.8

(1) TRC B/C Test omits societal benefits that are monetized in the RI Test, including non-embedded emissions (CO2 and Nox), and economic benefits. Also includes effects of free-ridership and spillover.

(2) For Implementation Expenses derivation, see Table E-3.

**Table E-6 - ATTACHMENT PUC 7-9-1
National Grid
Summary of 2022 Benefits by Program (Energy Efficiency Measures)**

	Benefits (000's)																			
	Total	Total (Economic Excluded)	Capacity					Energy				Non Electric				Societal				
			Summer Generation	Capacity DRIPE	Trans	Dist	Reliability	Winter		Summer		Electric Energy DRIPE	Natural Gas	Oil	Other Resource	Non Resource	Carbon	NOx	Economic	
								Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak									
Non-Income Eligible Residential																				
Residential New Construction	\$6,574	\$4,232	\$48	\$43	\$94	\$93	\$1	\$369	\$485	\$144	\$110	\$289	\$0	\$325	\$1,304	\$66	\$833	\$28	\$2,342	
ENERGY STAR® HVAC	\$22,321	\$14,631	\$182	\$159	\$357	\$353	\$2	\$2,398	\$2,987	\$221	\$185	\$1,833	\$55	\$1,639	-\$16	\$384	\$3,762	\$131	\$7,690	
EnergyWise	\$33,091	\$16,627	\$148	\$162	\$291	\$288	\$2	\$267	\$273	\$178	\$157	\$314	\$0	\$8,984	\$233	\$1,267	\$3,605	\$458	\$16,464	
EnergyWise Multifamily	\$10,887	\$6,190	\$94	\$79	\$182	\$180	\$1	\$595	\$742	\$106	\$89	\$464	\$0	\$632	\$48	\$1,931	\$1,004	\$43	\$4,697	
Home Energy Reports	\$8,333	\$5,401	\$207	\$450	\$365	\$362	\$6	\$646	\$531	\$251	\$183	\$640	\$0	\$0	\$0	\$0	\$1,736	\$23	\$2,932	
Residential Consumer Products	\$14,330	\$9,713	\$335	\$719	\$752	\$745	\$9	\$903	\$981	\$485	\$487	\$1,496	\$15	\$42	\$41	\$4	\$2,663	\$37	\$4,616	
Non-Income Eligible Residential SUBTOTAL	\$95,535	\$56,794	\$1,014	\$1,612	\$2,041	\$2,022	\$21	\$5,178	\$5,999	\$1,385	\$1,210	\$5,036	\$70	\$11,622	\$1,609	\$3,652	\$13,603	\$720	\$38,741	
Income Eligible Residential																				
Single Family - Income Eligible Services	\$38,507	\$25,758	\$275	\$253	\$541	\$536	\$3	\$874	\$967	\$410	\$423	\$801	\$77	\$5,282	\$386	\$11,208	\$3,428	\$295	\$12,749	
Income Eligible Multifamily	\$12,970	\$8,368	\$22	\$19	\$43	\$43	\$0	\$789	\$1,008	\$30	\$25	\$554	\$0	\$642	\$53	\$3,958	\$1,137	\$45	\$4,602	
Income Eligible Residential SUBTOTAL	\$51,477	\$34,126	\$297	\$271	\$584	\$578	\$3	\$1,663	\$1,975	\$440	\$448	\$1,354	\$77	\$5,924	\$439	\$15,165	\$4,565	\$340	\$17,351	
Commercial & Industrial																				
Large Commercial New Construction	\$59,281	\$34,250	\$1,336	\$1,155	\$2,616	\$2,592	\$14	\$4,958	\$2,947	\$3,158	\$1,916	\$4,265	-\$257	\$0	\$4	\$1,548	\$7,898	\$100	\$25,031	
Large Commercial Retrofit	\$205,790	\$72,911	\$2,776	\$5,530	\$6,172	\$6,115	\$69	\$6,592	\$4,728	\$4,490	\$2,800	\$9,914	-\$1,887	\$0	\$30	\$10,381	\$15,134	\$67	\$132,880	
Small Business Direct Install	\$26,342	\$12,596	\$248	\$599	\$569	\$564	\$7	\$1,395	\$807	\$1,018	\$519	\$2,089	-\$400	\$0	\$0	\$1,942	\$3,226	\$14	\$13,746	
C&I SUBTOTAL	\$291,413	\$119,757	\$4,360	\$7,284	\$9,357	\$9,271	\$91	\$12,944	\$8,482	\$8,666	\$5,235	\$16,268	-\$2,544	\$0	\$34	\$13,871	\$26,257	\$181	\$171,657	
TOTAL	\$438,426	\$210,677	\$5,671	\$9,167	\$11,981	\$11,871	\$116	\$19,785	\$16,456	\$10,491	\$6,894	\$22,659	-\$2,397	\$17,547	\$2,083	\$32,688	\$44,426	\$1,241	\$227,748	

**Table E-6A - ATTACHMENT PUC 7-9-1
National Grid
Summary of 2022 Impacts by Program (Energy Efficiency Measures)**

	Load Reduction in kW		Electric Energy Savings				Gas Saved		Oil Saved		Propane Saved		Total Net Savings (Electric, Gas, Oil, Propane)	
			MWh		MMBtu		MMBtu		MMBtu		MMBtu		MMBtu	
	Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
Non-Income Eligible Residential														
Residential New Construction	74	259	867	14,947	2,957	50,998	-	-	521	13,016	1,321	33,013	4,798	97,027
ENERGY STAR® HVAC	240	1,063	4,620	77,717	15,762	265,169	395	6,012	4,463	67,405	(33)	(424)	20,587	338,161
EnergyWise	424	506	2,789	13,472	9,515	45,968	-	-	19,019	364,568	230	3,654	28,764	414,190
EnergyWise Multifamily	143	350	1,424	20,783	4,857	70,912	-	-	1,046	25,343	-	-	5,903	96,255
Home Energy Reports	3,692	5,706	26,852	26,852	91,619	91,619	-	-	-	-	-	-	91,619	91,619
Residential Consumer Products	1,118	826	6,885	47,554	23,491	162,256	84	1,672	85	1,683	25	370	23,685	165,981
Non-Income Eligible Residential SUBTOTAL	5,691	8,709	43,435	201,325	148,201	686,921	478	7,684	25,133	472,014	1,543	36,614	175,356	1,203,233
Income Eligible Residential														
Single Family - Income Eligible Services	480	501	3,314	38,506	11,306	131,383	958	11,562	11,178	214,399	63	1,121	23,505	358,466
Income Eligible Multifamily	49	445	1,538	24,309	5,247	82,943	-	-	1,239	25,915	-	-	6,486	108,858
Income Eligible Residential SUBTOTAL	529	946	4,851	62,816	16,553	214,327	958	11,562	12,417	240,314	63	1,121	29,991	467,324
Commercial & Industrial														
Large Commercial New Construction	1,745	1,295	12,589	192,343	42,953	656,274	(2,368)	(30,783)	-	-	-	-	40,585	625,491
Large Commercial Retrofit	8,490	7,200	41,132	312,931	140,342	1,067,722	(34,444)	(227,197)	-	-	-	-	105,899	840,524
Small Business Direct Install	904	722	9,976	64,394	34,037	219,711	(8,030)	(48,183)	-	-	-	-	26,007	171,528
C&I SUBTOTAL	11,139	9,216	63,696	569,668	217,332	1,943,707	(44,842)	(306,163)	-	-	-	-	172,490	1,637,544
TOTAL	17,359	18,872	111,983	833,808	382,086	2,844,954	(43,406)	(286,917)	37,550	712,329	1,607	37,735	377,837	3,308,102

Notes:
1) Lifetime savings are equal to annual savings multiplied by the expected life of measures expected to be installed in each program.

**Table E-6B - ATTACHMENT PUC 7-9-1
National Grid
Summary of 2022 Demand Response Benefits and Savings**

	Benefits (000's)															Load Reduction (MW)	MWh Saved		
	Total	Total (Economic Excluded)	Summer Generation	Capacity				Energy				Non Electric	Societal				Summer	Annual	Lifetime
				Capacity DRIPE	Trans	Dist	Reliability	Winter		Summer			Energy DRIPE	Carbon	Economic				
								Peak	Off Peak	Peak	Off Peak								
Non-Income Eligible Residential																			
Residential Connected	\$4,391	\$2,884	\$238	\$976	\$729	\$722	\$214	\$0	\$0	\$0	\$0	\$0	\$0	\$3	\$1,505	7.4	59.4	59.4	
Commercial & Industrial																			
Commercial Connected	\$20,243	\$10,621	\$646	\$2,651	\$3,207	\$3,177	\$941	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,622	32.4	0.0	0.0	
TOTAL	\$24,634	\$13,505	\$884	\$3,627	\$3,936	\$3,899	\$1,154	\$0	\$0	\$0	\$0	\$0	\$0	\$3	\$11,127	39.8	59.4	59.4	

Table E-7 - ATTACHMENT PUC 7-9-1
National Grid
Comparison of 2022 and 2021 Goals and Tracking

	Proposed 2022 Goal		Proposed 2022 Tracking				Approved 2021				Difference			
	Lifetime Electric Energy Savings (MWh)	Active Demand Response (kW)	Annual Electric Energy Savings (MWh)	Annual Passive Summer Demand Savings (kW)	Total Net Lifetime Energy Savings (MMBtu)	Planned Unique Participants	Lifetime Electric Energy Savings (MWh)	Annual Electric Energy Savings (MWh)	Annual Passive Summer Demand Savings (kW)	Active Demand Response (kW)	Lifetime Electric Energy Savings (MWh)	Annual Electric Energy Savings (MWh)	Annual Passive Summer Demand Savings (kW)	Active Demand Response (kW)
Non-Income Eligible Residential														
Residential New Construction	14,947		867	74	97,027	462	18,088	979	66		-3,141	-113		8
ENERGY STAR® HVAC	77,717		4,620	240	338,161	5,229	51,309	3,181	204		26,408	1,439		36
EnergyWise	13,472		2,789	424	414,190	12,000	14,385	2,841	445		-913	-52		-20
EnergyWise Multifamily	20,783		1,424	143	96,255	3,600	16,307	1,240	158		4,476	183		-15
Home Energy Reports	26,852		26,852	3,692	91,619	323,248	26,852	26,852	3,692		0	0		0
ENERGY STAR® Lighting	0		0	0	0	0	26,801	11,533	1,872		-26,801	-11,533		-1,872
Residential Consumer Products	47,554		6,885	1,118	165,981	34,692	38,130	5,926	1,019		9,424	958		100
Residential ConnectedSolutions		7,365				4,178				5,431				1,934
Non-Income Eligible Residential SUBTOTAL	201,325	7,365	43,435	5,691	1,203,233	383,409	191,872	52,553	7,455	5,431	9,453	-9,118	-1,764	1,934
Income Eligible Residential														
Single Family - Income Eligible Services	38,506		3,314	480	358,466	3,583	36,909	3,120	457		1,598	194		22
Income Eligible Multifamily	24,309		1,538	49	108,858	3,600	22,545	1,554	70		1,764	-16		-21
Income Eligible Residential SUBTOTAL	62,816		4,851	529	467,324	7,183	59,454	4,674	527		3,361	177		2
Commercial & Industrial														
Large Commercial New Construction	192,343		12,589	1,745	625,491	96	189,441	11,837	1,856		2,902	752		-111
Large Commercial Retrofit	312,931		41,132	8,490	840,524	2,239	744,562	59,496	11,648		-431,630	-18,364		-3,158
Small Business Direct Install	64,394		9,976	904	171,528	490	105,134	9,696	1,134		-40,740	280		-230
Commercial ConnectedSolutions		32,400				180				33,600				-1,200
C&I SUBTOTAL	569,668	32,400	63,696	11,139	1,637,544	3,005	1,039,136	81,029	14,638	33,600	-469,468	-17,332	-3,500	-1,200
TOTAL	833,808	39,765	111,983	17,359	3,308,102	393,597	1,290,462	138,256	22,621	39,031	-456,653	-26,273	-5,262	734

Notes:
(1) Planned 2022 participation takes into account net-to-gross and estimates unique participation by taking into account 2021 unique customer accounts to savings ratios. Therefore the number of planned measures may be more than the estimated participants shown. For measure counts please view the widget tables in Attachments 1 and 2. Table E-7 no longer includes a comparison to the previous year's participation. Due to the way unique participation is calculated it is not possible to compare year-over-year results.
(2) There are additional Low Income participants in Residential New Construction.
(3) A customer can participate in more than one program, for example, Residential Consumer Products and and Home Energy Reports, therefore the population reached can be more than 100%.

Table E-8A - ATTACHMENT PUC 7-9-1
National Grid
2022 Electric PIM Benefits, Allocations, and Categorization (\$000)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
	Capacity		Capacity		Reliability	Energy		Energy		Electric Energy	Utility NEIs	Non Electric			Non Resource	Societal		Economic	
	Summer Generation	Capacity DRIPE	Transmission	Distribution		Winter Peak Energy	Winter Off Peak Energy	Summer Peak Energy	Summer Off Peak Energy	DRIVE	Utility NEIs	Natural Gas and DRIPE	Oil and Oil DRIPE	Propane and Water		Carbon	NOx		
Non-Income Eligible Residential																			
Residential New Construction	\$48	\$43	\$94	\$93	\$1	\$369	\$485	\$144	\$110	\$289	\$0	\$0	\$325	\$1,304	\$66	\$833	\$28	\$2,342	
ENERGY STAR® HVAC	\$182	\$159	\$357	\$353	\$2	\$2,398	\$2,987	\$221	\$185	\$1,833	\$0	\$55	\$1,639	-\$16	\$384	\$3,762	\$131	\$7,690	
EnergyWise	\$148	\$162	\$291	\$288	\$2	\$267	\$273	\$178	\$157	\$314	\$0	\$0	\$8,984	\$233	\$1,267	\$3,605	\$458	\$16,464	
EnergyWise Multifamily	\$94	\$79	\$182	\$180	\$1	\$595	\$742	\$106	\$89	\$464	\$0	\$0	\$632	\$48	\$1,931	\$1,004	\$43	\$4,697	
Home Energy Reports	\$207	\$450	\$365	\$362	\$6	\$646	\$531	\$251	\$183	\$640	\$0	\$0	\$0	\$0	\$0	\$1,736	\$23	\$2,932	
Residential Consumer Products	\$335	\$719	\$752	\$745	\$9	\$903	\$981	\$485	\$487	\$1,496	\$0	\$15	\$42	\$41	\$4	\$2,663	\$37	\$4,616	
Income Eligible Residential SUBTOTAL	\$1,014	\$1,612	\$2,041	\$2,022	\$21	\$5,178	\$5,999	\$1,385	\$1,210	\$5,036	\$0	\$70	\$11,622	\$1,609	\$3,652	\$13,603	\$720	\$38,741	
Income Eligible Residential																			
Single Family - Income Eligible Services	\$275	\$253	\$541	\$536	\$3	\$874	\$967	\$410	\$423	\$801	\$273	\$77	\$5,282	\$386	\$10,935	\$3,428	\$295	\$12,749	
Income Eligible Multifamily	\$22	\$19	\$43	\$43	\$0	\$789	\$1,008	\$30	\$25	\$554	\$340	\$0	\$642	\$53	\$3,618	\$1,137	\$45	\$4,602	
Income Eligible Residential SUBTOTAL	\$297	\$271	\$584	\$578	\$3	\$1,663	\$1,975	\$440	\$448	\$1,354	\$613	\$77	\$5,924	\$439	\$14,553	\$4,565	\$340	\$17,351	
Commercial & Industrial																			
Large Commercial New Construction	\$1,336	\$1,155	\$2,616	\$2,592	\$14	\$4,958	\$2,947	\$3,158	\$1,916	\$4,265	\$0	-\$257	\$0	\$4	\$1,548	\$7,898	\$100	\$25,031	
Large Commercial Retrofit	\$2,776	\$5,530	\$6,172	\$6,115	\$69	\$6,592	\$4,728	\$4,490	\$2,800	\$9,914	\$0	-\$1,887	\$0	\$30	\$10,381	\$15,134	\$67	\$132,880	
Small Business Direct Install	\$248	\$599	\$569	\$564	\$7	\$1,395	\$807	\$1,018	\$519	\$2,089	\$0	-\$400	\$0	\$0	\$1,942	\$3,226	\$14	\$13,746	
C&I SUBTOTAL	\$4,360	\$7,284	\$9,357	\$9,271	\$91	\$12,944	\$8,482	\$8,666	\$5,235	\$16,268	\$0	-\$2,544	\$0	\$34	\$13,871	\$26,257	\$181	\$171,657	
Included in PIM? (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	
Percent Application in PIM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	0%	0%	0%	
Category	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Electric Utility System Benefits	Resource Benefits	Resource Benefits	Resource Benefits	NA	NA	NA	

Notes
From 2022 Benefit-Cost Model, reflects benefits in Table E-6

**Table E-8B - ATTACHMENT PUC 7-9-1
National Grid
2022 Electric PIM Costs**

	(1)	(2)	(3)
	Costs (\$)		
	Eligible Spending Budget from Table E-3	Regulatory Costs	Total Costs for PIM Calculations
Non-Income Eligible Residential SUBTOTAL	\$31,204,926	\$2,575,773	\$33,780,700
Income Eligible Residential SUBTOTAL	\$16,819,849	\$2,575,773	\$19,395,623
C&I SUBTOTAL	\$45,497,704	\$2,575,773	\$48,073,478
Included in PIM? (Y/N)	Y	Y	Y

Notes

Source is Table E-2 and E-3. Regulatory costs allocated equally to each sector.

Table E-8C - ATTACHMENT PUC 7-9-1
National Grid
2022 Electric PIM and SQA

Sector PI = min(Payout Cap(i), [Actual Net Benefits* Design Payout Rate(g) * Payout Rate Adjustment(i)])

Sector	Planned Eligible Benefits		Planned Eligible Costs	Planned Eligible Net Benefits (4)	Design Performance Achievement	Design Performance Payout	Design Payout Rate	Design Payout Rate Thresholds	Payout Rate Adjustments	Payout Cap	Service Quality Metric
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
	100% Electric Utility System Benefits	50% Resource Benefits	Eligible Spending Budget + Regulatory Costs	=(a)+(b)-(c)	Net benefits at which design incentive pool is achieved	Set by PUC	=(f)/(e)	Achievement levels at which the Payout Rate Adjustments in (i) will be applied—Set by PUC	Factor to adjust Design Payout Rate for if final program achievement fall within the ranges in (h)—Set by PUC	=1.25*(f)	Yes if (d) ≤ 0; No if (d) > 0
										Cap on sector payout regardless of achievement in sector	See Service Quality Table
Non-Income Eligible Residential	\$25,517,341	\$6,650,701	\$33,780,700	-\$1,612,658	\$2,000,000	\$500,000	25%	a. Achievement < 25% b. 25% ≤ Achievement < 50% c. 50% ≤ Achievement < 75% d. 75% ≤ Achievement • Spending > Planned Eligible Costs	a. 0.0 b. Achievement/100 + 0.1 c. Achievement/100 + 0.25 d. 1.0 • See Boundary Rules	\$625,000	Yes
Income Eligible Residential	\$8,227,538	\$3,220,366	\$19,395,623	-\$7,947,718	\$2,000,000	\$500,000	25%			\$625,000	Yes
Commercial & Industrial	\$81,958,194	-\$1,255,057	\$48,073,478	\$32,629,659	\$32,629,659	\$5,500,000	17%			\$6,875,000	No

Sector SQA = Maximum Service Adjustment(e) * Service Achievement Scaling Factor(g)

	Planned Eligible Benefits		Planned Eligible Costs	Design Service Achievement	Maximum Service Adjustment	Service Adjustment Thresholds	Service Achievement Scaling Factors	Achievement Cost Adjustment
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	100% Electric Utility System Benefits	50% Resource Benefits	Eligible Spending Budget + Regulatory Costs	=(a)+(b)	Maximum downward adjustment to earned incentive—Set by PUC	Adjusted Achievement levels at which the Service Adjustments in (e) will be applied; adjustment is calculated in (h)	Factor to scale program achievement that fall within the ranges in (f)	Actual-cost-based adjustment factor applied to achievement. Result is if the difference between achievement and cost variances are greater than 5%, the Actual Achievement will be adjusted for use in
Non-Income Eligible Residential	\$25,517,341	\$6,650,701	\$33,780,700	\$32,168,042	\$1,251,250	a. Adjusted Achievement < 65% b. 65% ≤ Adjusted Achievement < 95% c. 95% ≤ Adjusted Achievement	a. 1 b. (95-Adjusted Achievement)/30 c. 0	Performance Variance = "Actual Benefits" / "Design Achievement" - "Spending" / "Planned Eligible Cost" If the absolute value (Performance Variance) ≤ 0.05, Then Adjusted Achievement = Actual Achievement Else Adjusted Achievement = Actual Achievement * (1+ Performance Variance)
Income Eligible Residential	\$8,227,538	\$3,220,366	\$19,395,623	\$11,447,904	\$715,000			
Commercial & Industrial	\$81,958,194	-\$1,255,057	\$48,073,478	N/A	N/A			

**Table E-9 - ATTACHMENT PUC 7-9-1
National Grid
Revolving Loan Fund Projections**

Large C&I Revolving Loan Fund		Small Business Revolving Loan Fund	
(1) Total Loan Fund Deposits Through 2021	\$ 18,547,780	(1) Total Loan Fund Deposits Through 2021	\$ 3,303,570
(2) Current Loan Fund Balance	\$ 7,208,593	(2) Current Loan Fund Balance	\$ 2,743,078
<i>Loans Paid Year-To-Date</i>	\$ 3,356,693	<i>Loans Paid Year-To-Date</i>	\$ 570,365
<i>Repayments Year-To-Date</i>	\$ 2,946,562	<i>Repayments Year-To-Date</i>	\$ 606,588
(3) Projected Additional Loans by Year End 2021	\$ 5,770,777	(3) Projected Additional Loans by Year End 2021	\$ 510,000
(4) Projected Additional Repayments by Year End 2021	\$ 2,453,636	(4) Projected Additional Repayments by Year End 2021	\$ 275,529
(5) Projected Year End Loan Fund Balance 2021	\$ 3,891,451	(5) Projected Year End Loan Fund Balance 2021	\$ 2,508,608
(6) 2022 Fund Injection	\$ 2,000,000	(6) 2022 Fund Injection	\$ -
(7) Projected Loan Fund Balance, January 2022	\$ 5,891,451	(7) Projected Loan Fund Balance, January 2022	\$ 2,508,608
(8) Projected Repayments throughout 2022	\$ 3,881,906	(8) Projected Repayments throughout 2022	\$ 245,746
(9) Estimated Loans in 2022	\$ 8,928,261	(9) Estimated Loans in 2022	\$ 1,500,000
(10) Projected Year End Loan Fund Balance 2022	\$ 845,095	(10) Projected Year End Loan Fund Balance 2022	\$ 1,254,353
Public Sector Revolving Loan Fund		Efficient Buildings Fund	
(1) Total Loan Fund Deposits Through 2021	\$ 54,065	(1) Energy Efficiency Funds allocated to EBF through 202	\$ 27,087,113
(2) Current Loan Fund Balance	\$ 34,124	(2) Total EBF Loans Outstanding	\$ 55,075,045
<i>Funds returned to OER</i>	\$ -		
<i>Repayments Year-To-Date</i>	\$ 34,052		
(3) Projected Additional Loans by Year End	\$ -		
(4) Projected Additional Repayments by Year End	\$ 15,523		
(5) Projected Year End Loan Fund Balance 2021	\$ 49,647		
(6) 2022 Fund Injection	\$ -		
(7) Projected Loan Fund Balance, January 2022	\$ 49,647		
(8) Projected Repayments throughout 2022	\$ 2,945		
(9) Estimated Loans in 2022	\$ -		
(10) Projected Year End Loan Fund Balance 2022	\$ 52,592		

Notes

- 1 Funding injections since loan funds began. Net of any adjustments.
- 2 Current Loan Fund Balance is through July 2021; it includes all loans and repayments made by July 2021. Public Sector Revolving Loan Fund reduced by transfers to RI PEP Incentives. EBF reports in terms of loans outstanding.
- 3 Projected Loans from July to Year-End 2021 is estimated based on projects currently under construction that are anticipated to be paid out by year-end. It is difficult to project this amount accurately due to the fact that projects could be delayed by a month or two resulting in payment occurring in 2022 instead of 2021.
- 4 Projected Repayments from June to Year-End 2021 is estimated based on the monthly average amount of repayments.
- 5 Equal to (2) - (3) + (4).
- 6 Fund injection of \$2M for the Large C&I Revolving Loan Fund is included under the Finance Cost line in table E-2.
- 7 Equal to (5) + (6).
- 8 Assumption based on monthly average repayments in 2021 over 12 month period; repayments accumulate over time and may vary widely.
- 9 Amount projected to be lent to customers in 2022
- 10 Equal to (7) + (8) - (9).
- Efficient Buildings Fund - The 2022 Annual Plan only includes two values for EBF: 1) The Energy Efficiency Funds allocated to EBF through 2021 and also assumes that the \$5M allocated to EBF for 2021 will be transferred to RIIB in 2021. 2) Total EBF Loans Outstanding as of July 2021. Additional information is not available because RIIB has informed the Company that,
- 11 commencing with the 2022 Plan, it will not be providing forward looking projections to the Company regarding EBF. The Company is therefore unable to provide any future projections in the 2022 Annual Plan regarding EBF. The state's System Reliability and Least Cost procurement statute (amended in 2021) directs that \$5M shall be transferred to RIIB. However, RIIB has not informed the Company the statutory \$5M transfer to RIIB in 2022 will go to EBF.

**Table E-10 - ATTACHMENT PUC 7-9-1
National Grid
Rhode Island Electric Energy Efficiency 2003 - 2022
\$(000)**

Electric	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ⁽⁴⁾	2014	2015	2016	2017	2018	2019	2020 ⁽⁵⁾	2021 ⁽⁶⁾	2022 ⁽⁷⁾
Energy Efficiency Budget (\$Million) ⁽¹⁾	\$23.1	\$22.6	\$23.1	\$22.4	\$22.5	\$21.0	\$32.4	\$37.6	\$59.2	\$61.4	\$77.5	\$87.0	\$86.6	\$87.5	\$94.6	\$94.6	\$107.5	\$111.1	\$116.8	\$113.0
Spending Budget (\$Million) ⁽²⁾	\$16.3	\$15.8	\$17.6	\$16.5	\$16.4	\$14.7	\$23.5	\$28.8	\$45.3	\$55.3	\$64.8	\$80.6	\$77.3	\$77.6	\$88.5	\$88.7	\$98.1	\$101.1	\$104.8	\$93.5
Actual Expenditures (\$Million) ⁽³⁾	\$22.8	\$19.5	\$23.4	\$23.7	\$21.9	\$19.2	\$31.7	\$29.7	\$40.0	\$50.7	\$72.9	\$85.3	\$87.4	\$78.4	\$94.8	\$93.0	\$100.7	\$88.2		
Incentive Percentage ⁽¹⁰⁾	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	N/A	N/A
Target Incentive ⁽¹¹⁾	\$712,557	\$781,959	\$774,689	\$726,627	\$723,000	\$647,689	\$1,035,943	\$1,267,043	\$1,992,513	\$2,434,131	\$3,240,747	\$4,032,000	\$3,867,400	\$3,878,087	\$4,425,528	\$4,436,022	\$4,905,009	\$5,054,448	\$5,500,000	\$5,500,000
Earned Incentive	\$712,557	\$604,876	\$795,648	\$760,623	\$716,075	\$675,282	\$1,085,888	\$1,333,996	\$1,929,273	\$2,469,411	\$2,997,681	\$4,223,321	\$4,533,360	\$4,128,034	\$4,829,847	\$4,940,402	\$3,290,237	\$3,242,675		
Annual Summer Demand kW Savings Goal Achieved (%)				106%	106%	113%	142%	78%	71%	83%	114%	78%	112%	101%	103%	116%	98%	79%		
Annual MWh Energy Savings Goal Achieved (%)				111%	102%	111%	115%	107%	94%	93%	99%	105%	115%	107%	115%	110%	98%	88%		
Energy Efficiency Program Charge (\$/kWh) ⁽⁷⁾	\$0.00200	\$0.00200	\$0.00200	\$0.00200	\$0.00200	\$0.00200	\$0.00320	\$0.00320	\$0.00526	\$0.00592	\$0.00876	\$0.00911	\$0.00953	\$0.01077	\$0.01124	\$0.00972	\$0.01121	\$0.01323	\$0.01113	\$0.01293
Annual Cost to 500 kWh/month Residential Customer w/o tax ⁽⁸⁾	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$19.20	\$19.20	\$31.56	\$35.52	\$52.56	\$54.66	\$57.18	\$64.62	\$67.44	\$58.32	\$67.26	\$79.38	\$66.78	\$77.58
Annual Cost to 500 kWh/month Residential Customer w/ tax ⁽⁹⁾	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$20.00	\$20.00	\$32.88	\$37.00	\$54.75	\$56.94	\$59.56	\$67.31	\$70.25	\$60.75	\$70.06	\$82.69	\$69.56	\$80.81

Notes:
(1) Energy Efficiency Budget includes total expenditures and commitments. Includes all demand side management program-related expenses, including rebates, administration and general expenses, evaluation, commitments for future years and Company incentive.
(2) Prior to 2017, Spending Budget Eligible for Shareholder Incentive includes: Implementation, Administration, General, and Evaluation Expenses; excludes EERMC and OER Costs, Commitments, Copays, and Outside Finance Costs. Beginning in 2017, Outside Finance Costs were also included. Beginning in 2018 Pilot expenses were also excluded. Beginning in 2019 ConnectedSolutions expenses and assessments were also excluded.
(3) Actual Expenditures is actual spend during calendar year. Includes expenditures and commitments. Includes all demand side management program-related expenses, including rebates, administration and general expenses, evaluation, commitments for future years and Company incentive.
(4) In the Company's gas and electric rate cases in docket 4323, the PUC approved the uncollectibles gross-up in the electric EE Program Charge effective February 1, 2013, and a new rate applicable to the gross-up of the gas EE Program Charge, effective February 1, 2013.
(5) 2021 values are planned.
(6) 2022 values are proposed.
(7) Beginning in 2012, the EE Program Charge includes the System Reliability Factor. It does not include the \$0.0003 renewables per RI General Laws §39-2-1.2 and Order #19608, which appears on customer bills.
(8) Reflects the annual cost excluding Gross Earnings Tax.
(9) Reflects the annual cost including Gross Earnings Tax.
(10) Incentive percentage not applicable for 2021 due to new performance incentive mechanism developed for the 2021 Annual Plan. See Section 11 of the Main Text of the 2022 Annual Plan for additional details.
(11) Target incentive is calculated in the same way as in 2021 in order to provide a more accurate estimate of the energy efficiency surcharge.

PUC 7-10

Request:

In a given Energy Efficiency Program year, roughly what percentage of the evaluation studies that the Company proposes to undertake in that year are Rhode Island-specific (i.e. not conducted in conjunction with similar studies from other jurisdictions)? In your response, please indicate the specific percentage for the proposed 2022 Energy Efficiency Plan.

Response:

From Program Year 2018 through Program Year 2022, just under 80% of the evaluation studies that the company proposed to undertake were Rhode Island-specific. For the proposed 2022 Energy Efficiency Plan, 84% of the proposed evaluation studies are Rhode Island-specific.

PUC 7-11

Request:

In terms of months, what is the shortest timeline on which the Company has planned, developed, executed, and adopted the results from an evaluation study? In your response, note the specific study and the year in which it was conducted and/or completed.

Response:

Based on the best information available for studies planned in any Program Year from 2018 on, the shortest timeline on which the Company has planned, developed, executed, and adopted the results from an evaluation study is ten months. This was the timeline for the Impact Evaluation of National Grid Rhode Island Income Eligible Services. Planning began for this study in approximately March 2018, the study was completed in August 2018, and results were applied beginning in January 2019.

PUC 7-12

Request:

In terms of months, what is the longest timeline on which the Company has planned, developed, executed, and adopted the results from an evaluation study? In your response, note the specific study and the year in which it was conducted and/or completed.

Response:

Based on studies planned in any Program Year from 2018 on, the longest timeline on which the Company has planned, developed, executed, and adopted the results from an evaluation study is 38 months. This was the timeline for the Rhode Island Piggybacking Diagnostic Study. Planning began for this study in November 2017, the study was completed in January 2020, and results were applied beginning in January 2021.