



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Rhode Island Division of  
Public Utilities and Carriers  
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December 14, 2015

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

**In Re: The Renewable Energy Growth Program – Classes, Ceiling Prices &  
Targets for 2016----Docket No. 4589B**

Dear Luly,

Please find for filing an original and nine (9) copies of the Division of Public Utilities and Carriers, (the "Division") Memorandum authored by Ms. Carrie Gilbert and Mr. Alvaro E. Pereira of Daymark Energy Advisors on behalf of the Division, setting forth their findings and recommendations relating to the Renewable Energy Growth Program-Classes, Ceiling Prices and Targets for 2016 for consideration by the Public Utilities Commission (the "Commission") in its review of the above captioned docket.

The Division submits this Memorandum in lieu of pre-filed testimony and will have its consultants Ms. Gilbert and Mr. Pereira of Daymark Energy Advisors available at hearing.

I appreciate your cooperation in this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jon G. Hagopian".

Jon G. Hagopian  
Senior Legal Counsel

cc: Thomas F. Ahern, Administrator  
Stephen Scialabba, Chief Accountant



## MEMORANDUM

**TO:** RHODE ISLAND DIVISION OF PUBLIC UTILITIES AND CARRIERS

**FROM:** CARRIE GILBERT AND AL PEREIRA — DAYMARK ENERGY ADVISORS

**DATE:** DECEMBER 14, 2014

**SUBJECT:** DOCKET NO. 4589-B RHODE ISLAND DISTRIBUTED GENERATION REPORT AND RECOMMENDATION REGARDING 2015 2016 RENEWABLE ENERGY CLASSES, CEILING PRICES AND TARGETS

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In this memo, we summarize the results of our review of the ceiling prices filed by the Rhode Island Board (“Board”) on November 13, 2015. This filing is the third report filed by the Board, as prior reports (2011, 2012, and 2013) were filed by the Rhode Island Office of Energy Resources (“OER”). This filing is the second report in support of the Renewable Energy Growth (“REG”) Program, which replaced the Distributed Generation Standard Contracts Program (“DGSC”) Program that expired on December 31, 2014. Attachments I and II to this memorandum contain a copy of Table IV and Table V from the Board report that shows the revised ceiling prices. Attachment III shows the class allocation recommended for 2016. Overall, we believe that the 2016 prices and class allocations are reasonable. We discuss below the analyses and review that we performed to arrive at this conclusion.

The Rhode Island General Assembly enacted the REG Program (Section 26.6 of Title 39) in June 2014. The REG Program replaced the DGSC program and covers the period from 2015 through 2019. The REG Program has a target to install 160 MW of renewable energy according to a five year schedule:

- 25 MW in 2015;
- 40 MW in 2016;
- 40 MW in 2017;
- 40 MW in 2018; and
- Remainder to reach 160 MW target in 2019.

The Board’s November filing indicated that there were full subscriptions in the large and commercial solar categories and in the wind program in 2015. The Board reported that the interest in the medium solar program was not as strong, but that the Board was able to shift some of the allocation from the medium solar class to support other projects in 2015.

## RENEWABLE ENERGY CLASSES

The renewable energy classes and system size eligibility is the same as 2016 with the exception of an additional wind class for three turbine projects between 3-5 MW. Table 1 shows the 2016 classes.

*Table 1: 2016 Renewable Technology and Eligible Classes*

Technology	Eligible System Sizes
<b>Small Solar I (Host Owned)</b>	1-10 kW DC
<b>Small Solar I (3<sup>rd</sup> party owned/financed)</b>	1-10 kW DC
<b>Small Solar II</b>	11-25 kW DC
<b>Medium Solar</b>	26-250 kW DC
<b>Commercial Solar</b>	251-999 kW DC
<b>Large Solar</b>	1000-5000 kW DC
<b>Wind I</b>	1500-2999 kW DC
<b>Wind II</b>	3000-5000 kW DC
<b>Wind III*</b>	3000-5000 kW DC
<b>Anaerobic Digester I</b>	150-500 kW DC
<b>Anaerobic Digester II</b>	501 -1000 kW DC
<b>Small Scale Hydropower I</b>	10-250 kW DC
<b>Small Scale Hydropower II</b>	251-1000 kW DC

\*New Category in 2016

The Board also established a “Working Group” to examine and develop 2016 ceiling prices for non-profit properties that are unable to use the federal tax credit incentives or for low to moderate income customers who may not be able to effectively leverage the federal tax credits. Historically these groups have been underserved by the DGSC Program and the first year of the REG Program. In its November memo the Board proposes a Pilot program targeting increased participation from these sectors. The Pilot program includes three categories selected by the Working Group. These categories are shown in Table 2 below.

Table 2: Pilot Program 2016 Renewable Technology and Eligible Classes

Technology	Eligible System Sizes
<b>Small Scale Solar – Residential or non-profit mastered single unit building</b>	1-10 kW DC
<b>Small Scale Solar – Residential, Small Commercial, or non-profit master metered multi-unit building (2-4 units)</b>	11-25 kW DC
<b>Medium Solar – Non-profit or multi-unit (5 or more units) mater metered building</b>	26-250 kW DC

## CEILING PRICES

The ceiling prices presented in the Board’s November report are included as Attachment 1 and Attachment 2 to this memo. Attachment 2 contains the ceiling prices for the pilot program.

Ceiling prices for 2016 were generally determined in the same manner—the CREST model was used and inputs were developed using stakeholder input and other research—as were the prices for the 2011 through 2015, but with updated assumptions for certain technologies.

The Production Tax Credit (“PTC”) a tax benefit for certain renewable energy technologies, was renewed in December 2014, but expired at the end of 2014 for non-solar technologies. The Board recommended that the ceiling prices for wind, anaerobic digestion, and small hydropower not include the PTC.

The Investment Tax Credit (“ITC”) for solar is 30 percent for projects with a commercial operation date (“COD”) prior to December 31, 2016 and 10 percent for those project with a COD after December 31, 2016. The Board recommended that the ceiling prices for small and medium solar projects, which have shorter construction lead times include the higher ITC and the ceiling prices for the commercial and large scale solar projects, which have longer construction lead times include the lower ITC.

The Board also requested that alternative ceiling prices be calculated with the PTC for wind, anaerobic digestion, and hydro and with the higher level of the ITC for the large and commercial solar. In the event that there are any changes in the Federal renewable energy incentives, the Board could potentially make revisions to the ceiling prices for 2016.

Solar DG projects show a decrease compared to the prior year’s prices for small projects, which show a price decrease between 9 and 21 percent from the 2015 prices. Medium solar ceiling prices are unchanged between 2015 and 2016. The ceiling prices for large and commercial solar projects are

higher in 2016 due to the lower ITC assumed for 2016. The assumptions show decreased capital costs for all solar categories.

The Board report also includes ceiling prices for the Pilot Program. These ceiling prices are higher than the corresponding prices for similarly sized solar projects in the non-pilot program due to the lack of Federal Incentives available to customers participating in the Pilot Program.

We reviewed the data sources referenced in the Board's filing and believe that the solar capital costs used to determine the 2016 ceiling prices are reasonable. Furthermore, competitive bidding in the larger solar categories should catch cost reductions not captured by the ceiling prices.

The 2016 ceiling prices for wind DG projects are 5 to 8 percent higher than the 2015 price, which was 30 percent higher than the 2014 price. One large driver for the difference in wind ceiling prices between 2014 and 2015 is that the approved ceiling prices for 2014 included the PTC, while the 2015 prices do not. The drivers behind the increase between 2015 and 2016 are increased interconnection and debt service costs.

The ceiling prices for hydropower have decreased 2 percent due to the reduction in the assumption about property tax rates in the state. The ceiling price for anaerobic digestion has increased by about 3 percent from 2015 prices because of the offsetting impacts of changes in assumptions for station service, interconnections costs, fixed O&M and tipping fees. Development of these resource types has been quite limited in the past. There may be a number of reasons for this lack of development, including ceiling prices that are too low for development. Thus, we conclude that use of these flat to higher prices is reasonable given our analysis of input changes and the results of past solicitation. We also acknowledge that these resources are required to submit bids (up to the ceiling price), thus there will be pressure to submit market-competitive bids.

## **ALLOCATION PLAN**

The Board's recommended allocation is included as Attachment III. The Board allows the anaerobic digester, small hydropower and wind allocations to be reallocated to solar classes in the third enrollment if there is not enough interest in these technologies. It also gives National Grid the discretion to redirect 2.5 MW of the small solar and 3 MW of the medium solar allocations to large solar during any of the enrollment periods. We support the flexibility in solar allocation requested by Grid and also support allocating greater MWs to larger projects where prices are lower and competitively determined.

We find the MW allocation among the resource classes to be generally reasonable. We support the flexibility in solar allocation requested by Grid and also support allocating greater MWs to larger projects where prices are lower and competitively determined. Solar allocations form a large (about 75%) portion of the 40 MW—with 3 MW of that portion determined by statute—but that is the resource

type that has featured the most interest (and is able to take advantage of federal tax credits). The remaining allocation of 25% to the other resources is reasonable as a means to promote resource diversity. We also agree with the allocation between fixed-price projects (12.5 MW) and competitively bid projects (27.5 MW).

## Attachment I

### Summary of 2016 Proposed Ceiling Prices

Technology	Ceiling Prices (¢/kWh)
Small Solar I – Host Owned (15 Year Tariff)	37.65
Small Solar I – Host Owned (20 Year Tariff)	33.45
Small Solar I – Third Party Owned/Financed (15-year Tariff)	29.9
Small Solar I – Third Party Owned/Financed (20-year Tariff)	26.1
Small Solar II	26.15
Medium Solar	24.40
Commercial Solar	23.15
Large Solar	18.35
Wind I	24.45
Wind II	23.45
Wind III	22.65
Anaerobic Digestion I	21.20
Anaerobic Digestion II	21.20
Small Scale Hydropower I	21.00
Small Scale Hydropower II	19.75

## Attachment II

### Summary of 2016 Proposed Ceiling Prices – Pilot Program

Technology	Ceiling Prices (¢/kWh)
Small Solar I – 1-10kW (15 Year Tariff)	42.25
Small Solar I – 1-10kW (20 Year Tariff)	39.85
Small Solar II – 11-25kW (20 Year Tariff)	30.15
Medium Solar	29.55

## Attachment III

### Summary of 2016 Allocations

Technology & Eligible Class	kW Allocations
Small Solar I – Host Owned	5,500 kW* DC
Small Solar I – Third Party Owned/Financed	
Small Solar II	
Medium Solar	5,000 kW DC
Commercial Solar	8,000 kW DC
Large Solar	9,000 kW DC
Wind I	9,000 kW DC
Wind II	
Wind III	
Anaerobic Digestion I	1,500 kW DC
Anaerobic Digestion II	
Small Scale Hydropower I	
Small Scale Hydropower II	
<b>Pilot Program</b>	
Small Scale Solar – Residential or non-profit mastered single unit building	1,000 kW DC
Small Scale Solar – Residential, Small Commercial, or non-profit master metered multi-unit building (2-4 units)	
Medium Solar – Non-profit or multi-unit (5 or more units) mater metered building	1,000 kW DC
<b>Total</b>	40,000 kW

\*The REG Program statutorily requires that a minimum 3 MW of the annual capacity from the 2015, 2016, 2017 and 2018 REG programs be allocated for the small solar class.