

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
PUBLIC UTILITIES COMMISSION

IN RE: THE RHODE ISLAND DISTRIBUTED :  
GENERATION BOARD’S REPORT AND : DOCKET NO. 4672  
RECOMMENDATIONS RELATING TO THE 2017 :  
RENEWABLE ENERGY GROWTH CLASSES, :  
CEILING PRICES, AND CAPACITY TARGETS :

**PRE-FILED DIRECT TESTIMONY OF JASON GIFFORD**

1 **Q. Please state your name, employer and title?**

2 A. My name is Jason Gifford. I am a Senior Director at Sustainable Energy Advantage,  
3 LLC (“SEA”).

4 **Q. Can you please provide your background related to renewable energy technologies?**

5 A. I have over eighteen (18) years of experience in the development of renewable energy  
6 policy, market, and financial analysis. My practice with SEA focuses on policy, strategy and  
7 financial advisory services to a broad range of both public and private sector clients. Prior to  
8 SEA, I served as Manager of Industry Investment and Development at the Massachusetts  
9 Renewable Energy Trust – which is now the Massachusetts Clean Energy Center. From 1998 to  
10 2002 I was Manager of Regulatory Affairs and Business Development for Green Mountain  
11 Energy Company, a competitive retail provider of renewable electricity products to residential  
12 and commercial consumers.

13 **Q. Can you please provide SEA’s background related to renewable energy**  
14 **technologies?**

15 A. Sustainable Energy Advantage has been a national leader on renewable energy policy  
16 analysis and program design since 1998. In that time, SEA has supported the decision-making of  
17 more than two hundred (200) clients—including more than forty (40) governmental entities—  
18 through the analysis of renewable energy policy, strategy, finance, projects and markets. SEA is

1 known and respected widely as an independent analyst, a reputation earned through the firm’s  
2 ability to identify and assess all stakeholder perspectives, conduct analysis that is objective and  
3 valuable to all affected, and provide advice and recommendations that are in touch with market  
4 realities and dynamics.

5 **Q. What was SEA’s role in the Renewable Energy Growth program?**

6 A. Since 2011, SEA has served as a technical consultant to the Office of Energy Resources  
7 (“OER”) and, beginning in 2014, to the Distributed Generation Board (“DG Board”) in their  
8 implementation of the DG Standard Contracts and Renewable Energy Growth (“REG”) programs.  
9 SEA’s role is to help the OER and DG Board to make informed recommendations  
10 with respect to technology-, ownership-, and size-specific ceiling prices based on detailed  
11 research and analysis. SEA has also acted as a joint facilitator of a lengthy process, reproduced  
12 each year, to request, gather and analyze cost and performance data from current and prospective  
13 market participants and other interested parties. This process also solicits stakeholders’  
14 empirical evidence regarding market trends and practices, and offers multiple opportunities for  
15 interested parties to participate in public meetings and submit written comments – which are  
16 encouraged to address both general market observations and to respond directly to draft proposed  
17 ceiling price recommendations. Interviews with active market participants and regional energy  
18 regulators are also conducted each year. SEA utilizes the National Renewable Energy  
19 Laboratory’s (“NREL”) CREST model to generate recommended ceiling prices through multiple  
20 rounds of analysis.

21 **Q. What was SEA’s role in the development of the 2017 Renewable Energy Growth**  
22 **program?**

1 A. SEA’s role was to conduct detailed research and analysis, and collect additional insight  
2 through public meetings, written comments, and interviews, and then to recommend ceiling  
3 prices for each technology-, ownership- and size-specific class established by the DG Board and  
4 OER. These recommendations are submitted to the DG Board, and subsequently discussed and  
5 voted upon at one of the Board’s public meetings.

6 **Q. Can you please explain the Cost of Renewable Energy Spreadsheet Tool (“CREST”)**  
7 **model?**

8 A. The CREST model is a discounted cash flow analysis tool published by NREL. The  
9 CREST model is available to the public without charge, and is fully transparent (that is, all  
10 formulas are visible to, and traceable by, all users). CREST was created to help policymakers  
11 develop of *cost-based* renewable energy incentives, and has been peer reviewed by both public  
12 and private sector market participants. The model is designed to calculate the cost of energy, or  
13 minimum revenue per unit of production, necessary for the modeled project to cover its  
14 expenses, service its debt obligations (if any), and meet its equity investors’ assumed minimum  
15 required after-tax rate of return. CREST was developed in Microsoft Excel, so it offers the user a  
16 high degree of flexibility and transparency, including full comprehension of the underlying  
17 equations and model logic. Beginning in 2015, NREL re-released CREST models that allow the  
18 user to edit formulas, without limit. SEA was the primary architect of the CREST model, which  
19 was developed under contract to NREL.

20 **Q. Were the CREST models made available to stakeholders?**

21 A. Yes. The CREST models are always available to the public. Any stakeholder may  
22 download a CREST model from NREL’s website, without charge, and enter any number of  
23 different input configurations – including all inputs used by SEA during the ceiling price

1 analysis. This allows all stakeholders to replicate SEA’s modeling process and results at any  
2 time. In addition, during the 2017 ceiling price development process, National Grid requested a  
3 CREST model populated with then-current inputs for a host-owned residential solar project.  
4 SEA provided such model to National Grid by email. SEA has fulfilled similar requests from  
5 other stakeholders in past program years. SEA has also provided CREST modeling support by  
6 phone to assist stakeholders with the use of the model and their own analysis.

7 **Q. How many public meetings did SEA participate in during the development of the**  
8 **2017 ceiling prices?**

9 A. Four. The first public meeting was held on July 27<sup>th</sup> and focused on the results of the  
10 Data Request, as well as the supplemental cost- and performance-oriented research and  
11 interviews completed to date. The second and third public meetings were held on September 7<sup>th</sup>  
12 and 28<sup>th</sup>, respectively, and were used to facilitate discussion of two (2) sets of draft ceiling price  
13 recommendations. The fourth and final public meeting in which SEA participated was the DG  
14 Board meeting held on October 17, 2016, at which SEA presented and the DG Board deliberated  
15 and voted on the 2017 ceiling price recommendations.

16 **Q. Is it your understanding that SEA was contracted by the Board to conduct research,**  
17 **collect and review stakeholder data and comments, and recommend 2017 ceiling prices for**  
18 **each renewable energy category?**

19 A. Yes. SEA conducted this research and analysis in order to support the OER, DG Board  
20 and Commission’s informed decision-making with respect to 2017 ceiling prices.

21 **Q. Are those recommendations reflected in the Report and Recommendation submitted**  
22 **to the Commission?**

23 A. Yes.

1 **Q. Were there any SEA recommendations that were not included in the Report?**

2 A. No.

3 **Q. Can you verify the ceiling prices included in the Report and Recommendations?**

4 A. Yes. The ceiling price for each technology class is summarized below.

<b>Ceiling Price Classes</b>	
<b>Technology Class</b>	<b>Ceiling Prices (¢/kWh)</b>
Small Solar I – Host Owned (15 Year Tariff)	34.75
Small Solar I – Host Owned (20 Year Tariff)	30.85
Small Solar I – Third Party Owned (15 Year Tariff)	27.05
Small Solar I – Third Party Owned (20 Year Tariff)	24.05
Small Solar II	27.75
Medium Solar	22.75
Commercial Solar	18.75
Large Solar	15.05
Small Wind	21.45
Wind I	19.45
Wind II	18.25
Wind III	17.35
Anaerobic Digestion I	20.15
Anaerobic Digestion II	20.15
Small Scale Hydropower I	22.45
Small Scale Hydropower II	22.45

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<b>Community Remote Distributed Generation (CRDG) Ceiling Price Classes</b>	
<b>Technology</b>	<b>Ceiling Prices (¢/kWh)</b>
Community Remote – Commercial Solar	20.65
Community Remote – Large Solar	16.85
Community Remote – Wind I	20.65
Community Remote – Wind II	19.35
Community Remote – Wind III	18.55

6

7 **Q. Are these the same ceiling prices that were developed through the CREST modeling**  
 8 **in conjunction with stakeholders and OER, and recommended to the DG Board?**

9 A. Yes.

10 **Q. How were these ceiling prices developed and what factors were considered in**  
 11 **developing them?**

1 A. The ceiling prices were developed through a collaborative process between SEA, OER,  
2 the DG Board and stakeholders. Through a formal data request, OER, the DG Board and SEA  
3 implored all interested parties to provide market data (including sources) with respect to the cost,  
4 performance and financing assumptions related to each of the technology and size classes being  
5 evaluated. Stakeholders were afforded three (3) weeks to assemble and submit these data. Late  
6 submittals were accepted. In fact, data submitted at any time was incorporated throughout the  
7 process. Follow-up interviews were also conducted, where required to understand the data  
8 response or to request additional information. Recent transactions in ISO-NE and NYISO, bid  
9 pricing received during the DG Standard Contracts program, bid prices received in the first and  
10 second 2016 enrollment of the Renewable Energy Growth Program and other publicly available  
11 reports and data sources were also considered in SEA’s review and analysis. The Lawrence  
12 Berkeley National Laboratory (LBNL) provided solar cost data for all of New England, New  
13 York and selected Mid-Atlantic States. The Massachusetts Clean Energy Center (MassCEC)  
14 provided detailed cost data for solar projects participating in the MA solar carve-out program.  
15 Three pricing iterations were shared with stakeholders and discussed at public meetings before  
16 recommendations were submitted to OER and the DG Board.

17 **Q. How many stakeholder comments were received in response to the formal data**  
18 **request?**

19 A. The data request received a more robust response than in recent years. The number of  
20 responses, including those obtained via interviews and follow-ups, are summarized below:

<b>Technology</b>	<b># of responses submitted, by category</b>
<b>Solar</b>	13
<b>Wind</b>	3
<b>Anaerobic Digestion</b>	3
<b>Small Scale Hydropower</b>	3

1 **Q. Please summarize the subject matter on which stakeholders commented. How were**  
2 **these comments incorporated into the process and ceiling price recommendations to the**  
3 **DG Board?**

4 A. Comments were received regarding all four eligible technologies. With respect to solar,  
5 stakeholders commented on project cost (both installed and operating), performance (capacity  
6 factor), and financing assumptions. During the public meetings and associated follow-up,  
7 particular attention was given to installed costs and financing assumptions for the small, host-  
8 owned solar category and the two (2) community remote distributed generation (CRDG)  
9 categories. Stakeholder comments and supporting data from regional and national databases  
10 serve as the primary basis for the proposed change in the ceiling prices between 2016 and 2017.  
11 For the nascent CRDG market, several rounds of comments, research and discussion were  
12 required to finalize the recommended ceiling prices. Because the CRDG market is young, public  
13 datasets are not available. The CRDG ceiling prices rely on data provided by market  
14 participants, and estimates regarding the expected composition of residential and commercial  
15 enrollment in these offerings – which is expected to shade somewhat toward commercial  
16 customers (50%-75% commercial, 25%-50% residential), at least in the program’s first year.  
17 With respect to wind, stakeholder comments and data were collected for both cost and  
18 performance – with interconnection costs rising as a focal point once again. Small wind projects  
19 (intended here to refer to any project composed of one, two or three turbines) are increasingly  
20 rare in the northeast. As a result, there is a dearth of information that is both relevant and  
21 current. The cost of siting, permitting, constructing and operating utility-scale wind in Rhode  
22 Island does not appear to capture any scale economies, and – based on market participant  
23 feedback regarding expected production – continues to target land areas with sub-optimal wind

1 resources in order to successfully obtain permits. This combination of factors has caused the  
2 wind ceiling price to increase over time. In contrast to recent years in which little or no data  
3 were provided, a significant amount of permitting, installed cost, operating expense, and  
4 production data were provided by two hydroelectric market participants. Hydro is a mature  
5 technology, with relatively few prospects for growth in Rhode Island (and New England more  
6 generally). Targeted opportunities exist, however, and a limited number of installations may be  
7 feasible if developers can secure long-term contracts and weather the lengthy FERC permitting  
8 process (which the other three eligible technologies do not need to contend with). Anaerobic  
9 digester comments focused on fuel consumption, heat rates and tipping fees. SEA followed up  
10 on these issues with the commenting party, who did not participate in the public meetings.

11 **Q. Why are ceiling price recommendations not based exclusively on stakeholder input?**

12 A. While stakeholder input is extremely important to understanding the local landscape, it  
13 would be difficult to explain and defend a contract price based solely on the self-reported  
14 assumptions of the entities seeking such contracts – particularly if inputs and comments are  
15 received from a limited number of project developers in a particular technology or size category.  
16 The recommended ceiling prices take other recent data sources into account – particularly with  
17 respect to cost and financing trends – in order to encourage projects in Rhode Island that can be  
18 demonstrated to be competitive with similar projects throughout the region.

19 **Q. Did the Board allow SEA to have direct communication with the stakeholders on the**  
20 **development of the ceiling prices, including by email, phone calls and face to face meetings?**

21 A. Yes. The Board and OER encouraged stakeholders to ask questions of SEA directly by  
22 phone, email or in person. As a result, SEA held in-person meetings, phone calls and email  
23 exchanges with a range of participants on a range of topics.



1 **Q. Did SEA give presentations regarding the 2017 REG Program?**

2 A. Yes. SEA gave four presentations. SEA presented the results of the data request and its  
3 supplementary research in a public meeting on July 27<sup>th</sup>. SEA presented the first draft of  
4 proposed ceiling price inputs and results for all technology categories in a public meeting on  
5 September 7, 2016. SEA presented the second draft of proposed inputs and results in a public  
6 meeting on September 28, 2016. The final ceiling price recommendations for all technology  
7 categories were presented at the DG Board meeting on October 17, 2016. SEA received  
8 feedback, discussed market dynamics and stakeholder experiences, and answered questions  
9 posed by the Board, OER and/or stakeholders, as applicable, in each of these meetings.  
10 Supplemental comments were requested and received after each of the first three meetings.

11 **Q. Are those presentations attached to the Report and Recommendation?**

12 A. Yes.

13 **Q. Did SEA, on behalf of the Board, consider all of the stakeholder feedback given in**  
14 **the development of recommended 2017 ceiling prices?**

15 A. Yes. Stakeholder feedback was solicited, considered, and incorporated throughout the  
16 entire process. SEA’s presentation of multiple draft ceiling prices, and associated explanation of  
17 changes, substantiates this fact.

18 **Q. Do the proposed 2017 ceiling prices differ from the 2016 ceiling prices? If yes,**  
19 **please quantify the percentage change.**

20 A. Yes. The percentage change between the proposed 2017 ceiling prices and the final 2016  
21 ceiling price are summarized below.

<b>Ceiling Price Category</b>	<b>% Change between final 2016 and proposed 2017 Ceiling Prices</b>
Small Solar I (Host Owned)	15 year: -8%; 20 year: -8%
Small Solar I (Third Party Owned)	15 year: -5%; 20 year: -3%

Small Solar II	11%
Medium Solar	0.9%
Commercial Solar	-3.0%
Large Solar	-0.3%
Wind I	4%
Wind II	1%
Wind III	-0.3%
Anaerobic Digestion I	-0.3%
Anaerobic Digestion II	-0.3%
Small Scale Hydropower I	31%*
Small Scale Hydropower II	29%*

*\*The 2016 ceiling price assumed availability for the Federal Production Tax Credit. The 2017 proposed ceiling prices assumes that this credit has expired – accounting for a portion of this cost increase.*

1  
2 Price declines in Small Solar I and Commercial Solar represent lower estimated installed costs  
3 and, in the case of residential solar, an exemption from local property taxes. The proposed  
4 increase in Small Solar II represents a reset of this price that is intended to reflect the actual cost  
5 of installing such facilities. Of the over 700 residential solar tariffs awarded, only about 15  
6 (~2%) are in the Solar II category. This suggests that the 2016 ceiling price was insufficient to  
7 drive meaningful market participation. The proposed increase for Wind I represents an expected  
8 increase in installed costs (mostly as a result of higher interconnection cost estimates) and a 20%  
9 reduction in the Federal Investment Tax Credit (ITC). The proposed 2017 ceiling prices for  
10 Medium Solar, Large Solar, Wind II & III, and Anaerobic Digestion remain similar to the prices  
11 approved for 2016.

12 **Q. Does SEA believe that the importance of both policy objectives and cost**  
13 **effectiveness were considered in its analysis and recommendations?**

14 A. Yes. SEA believes that the recommended ceiling prices represent a balance among all of  
15 the policy objectives of Rhode Island law.

1 **Q. Does SEA believe that the ceiling prices approved by the Board in its votes on**  
2 **October 17, 2016 and November 1, 2016, and recommended to the Commission, are**  
3 **reasonable and are in the best interests of the State of Rhode Island?**

4 A. Yes.

5 **Q. Does this conclude your testimony?**

6 A. Yes.