

STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION

IN RE: THE RHODE ISLAND DISTRIBUTED :
GENERATION BOARD'S RECOMMENDATIONS :
FOR THE 2021 RENEWABLE ENERGY : DOCKET NO. 5088
GROWTH PROGRAM YEAR 2021 :

Supplemental Direct Testimony of
Jim Kennerly – Sustainable Energy Advantage (SEA)

**DISTRIBUTED-GENERATION BOARD
& OFFICE OF ENERGY RESOURCES**

JANUARY 8, 2021

1 **Supplemental Direct Testimony of Jim Kennerly – Sustainable Energy Advantage**

2
3 I, Jim Kennerly, hereby testify under oath as follows:
4

5 **1. Please state your name, employer and title.**

6
7 My name is Jim Kennerly. I am employed as a Senior Consultant by Sustainable Energy
8 Advantage, LLC (SEA).
9

10 **2. Have you previously filed direct testimony in this docket?**

11
12 Yes. My initial direct testimony in this docket is attached to the *Recommendations for the*
13 *2021 Renewable Energy Growth (REG) Program Year* filed by the Office of Energy
14 Resources (OER) and the Distributed Generation Board on November 17, 2020. The
15 testimony concerns the development of recommended ceiling prices for the 2021 REG
16 program year, as well as the development of incremental cost values utilized in
17 calculating values for the proposed Low Income Community Remote Distributed
18 Generation (CRDG) adder pilot program and the continuation of the Carport Solar pilot
19 program.
20

21 **3. What is the purpose of your supplemental direct testimony?**

22
23 Upon voting to recommend the 2021 Renewable Energy Growth (REG) program ceiling
24 prices to this Commission, the Distributed Generation Board (DG Board) also delegated
25 responsibility to OER and SEA to recommend revised ceiling prices in the event that
26 changes were made to federal law and/or policy after the submittal of the initially-
27 recommended prices, but prior to the public hearings on the proposed ceiling prices,
28 adders and capacity allocations.
29

30 The purpose of my testimony is to:

- 31
- 32 • Provide revised ceiling prices for the 2021 REG program year based on several
 - 33 changes to federal tax law related to renewable energy enacted in late December
 - 34 2020; and
 - 35 • Update our estimates of the incremental cost of certain renewable energy projects
 - 36 eligible for proposed Low Income CRDG and Carport Solar public policy adders
 - 37 following these changes to federal tax law.
38

39 **4. Please describe the changes that were made to federal tax law relevant to OER and**
40 **the Distributed Generation Board’s 2021 recommended Renewable Energy Growth**
41 **ceiling prices following the DG Board’s initial recommended prices.**

42
43 On December 27, 2020, President Trump signed the [Consolidated Appropriations Act of](#)
44 [2021](#) (hereafter CAA or “the Act”) into law. Among thousands of other provisions related

1 to a wide variety of topics, the Act also made several changes to the federal Investment
2 Tax Credit (ITC) and Production Tax Credit (PTC) for renewable energy projects
3 relevant to the calculation of REG Ceiling Prices.
4

- 5 • **ITC Changes:** The CAA provides for a two-year extension of the current ITC
6 phase-down schedule for solar PV projects of all sizes. Most relevant to the 2021
7 prices, the Act extends the 26% ITC value available for projects beginning
8 construction through January 1, 2023. Previously, the tax code had provided for a
9 22% ITC value for projects considered to have “beg(un)...construction” during
10 calendar year 2021 – the value SEA assumed for the initial set of recommended
11 Solar prices. In addition, the Act extends the “placed-in-service” deadline from
12 January 1, 2024 to January 1, 2026. This change is relevant because an extended
13 deadline for commercial operation for ITC-eligible projects makes it highly likely
14 that all eligible REG Medium, Commercial and Large Solar projects can ensure
15 their qualification for the 26% ITC value under the Five Percent Safe Harbor and
16 Physical Work Test outlined in [IRS Notice 2018-59](#), even if such projects
17 experience lengthy interconnection delays.
18

- 19 • **PTC (and ITC in Lieu of PTC) Changes:** In addition, the Act provides for a
20 one-year extension of the PTC, as well as a parallel extension of provisions
21 allowing PTC-eligible projects to be claimed as “energy property” under the
22 provisions of the ITC. The latter approach is known as taking the ITC *in lieu of*
23 the PTC (referred to hereafter as “ILoPTC”). These changes result in differing
24 treatment for eligible wind and non-wind projects:
25

- 26 ○ *PTC/ILoPTC-Eligible Wind Projects:* The Act extends the deadline for
27 beginning construction of eligible wind projects from January 1, 2021 to
28 January 1, 2022, at a value equivalent to 60% of the statutory PTC or
29 ILoPTC value.
30
- 31 ○ *PTC/ILoPTC-Eligible Non-Wind Projects:* The Act also extends the
32 deadline for beginning construction of various other types of non-wind
33 renewable energy projects from January 1, 2021 to January 1, 2022. For
34 eligible projects (including projects in the Small Scale Hydro and
35 Anaerobic Digestion (AD) REG renewable energy classes), the available
36 value is 100% of the statutory PTC or ILoPTC values available to those
37 projects under the tax code.
38

39 **5. Please verify SEA’s final recommended ceiling prices for the 2021 program year**
40 **and compare those prices to the 2020 program year prices, as well as the prices**

1 **previously proposed to the Commission for the 2021 program year prior to the**
2 **passage of the Consolidated Appropriations Act of 2021.**

3
4 The final recommended ceiling prices for the 2021 REG program year, as well as the
5 2021 ceiling prices proposed prior to the enactment of the CAA and the percentage
6 change for each price from the 2020 approved prices, can be found in **JK Supplemental**
7 **Schedule 1.**

8
9 **6. Please describe how the CAA’s changes to the ITC for Solar projects affect SEA’s**
10 **assumptions and CREST model inputs used to calculate Solar ceiling prices for the**
11 **2021 program year.**

12
13 The changes to the ITC provisions for eligible solar projects require changes to several
14 financing and tax assumptions for projects in the proposed REG Solar categories for the
15 2021 program year. I describe these revisions to our financing and tax assumptions
16 below:

- 17
18 • **ITC Value:** The revised prices in all the Solar categories (ranging from Small to
19 Large Solar) reflect a shift the tax credit value to 26% from 22%. Historically, the
20 ceiling prices have assumed that project owners can fully monetize the ITC and
21 “safe harbor” at the credit value available during the calendar year. Given that the
22 bulk of the solar industry maintains regular access to tax equity (and the CAA’s
23 extension of the “placed-in-service” deadline through calendar year 2025), we are
24 confident that full monetization of the solar ITC at 26% is a reasonable
25 assumption for all REG-eligible Solar projects.
- 26
27 • **Financing Assumptions:** The changes to the ITC require changes to the assumed
28 total shares of debt and equity, as well as the assumed total shares of tax and
29 sponsor equity within the pool of total equity. However, in the absence of time
30 and resources to conduct further stakeholder outreach, these changes are limited
31 to projects larger than 25 kW_{DC} (Medium, Commercial and Large Solar).
 - 32
33 ○ *Debt/Equity Structuring:* While an increased ITC reduces the required
34 REG tariff payment necessary to cover the project’s costs and provide a
35 reasonable return to debt and equity investors, the lower tariff payment
36 also reduces the amount of cash being generated by the project. As a
37 result, if the project does not lower the amount it chooses to borrow (by
38 increasing the total amount of sponsor and tax equity in the project’s
39 financial structure) the project will be at risk of having an insufficient
40 amount of cash to meet minimum debt service coverage requirements by
41 the project’s potential lenders. Therefore, to ensure proper debt service
42 coverage, we have increased the assumed equity share to 45% from 40%

1 (and concurrently reduced the total share of debt from 60% to 55%) for
2 Medium and Commercial Solar projects. However, our analysis suggested
3 that Large Solar projects did not require as large of an infusion of equity to
4 cover its debt service obligations, and thus only required a 2.5% increase
5 in equity share (from 40% to 42.5%, with a concurrent reduction in debt
6 from 60% to 57.5%).

- 7
- 8 ○ *Sponsor/Tax Equity Structuring:* When the value of the ITC increases
9 relative to what was assumed (22%), holding all other factors equal, tax
10 equity investor(s) will provide a larger share of the total equity than in a
11 case in which there is a smaller credit value available to eligible projects,
12 since a larger credit allows a tax equity investor to profitably take a larger
13 equity position in a project. Thus, for Medium, Commercial and Large
14 Solar projects, we increased the assumed share of tax equity within the
15 pool of total equity to 75% (from 60%). These values represent the same
16 sponsor/tax equity ratios from the 2020 ceiling prices, for which a 26%
17 ITC was also assumed to be available.
 - 18
 - 19 ○ *Small Solar Financing Assumptions:* Given that (as noted above) the
20 timing of the Act's passage does not allow for sufficient time to solicit
21 further stakeholder comment on the granular potential impact of the CAA,
22 we chose not to revise the Small Solar financing assumptions, beyond
23 shifting the value of the ITC from 22% to 26%. However, we do believe
24 the existing inputs are likely to be a reasonable reflection of current Small
25 Solar financing offers and dynamics, since the period in which they were
26 collected from stakeholders corresponded with a time when a 26% ITC
27 was also available.

28

29 Our revised CREST model inputs for Medium, Commercial and Large Solar projects can
30 be found in **JK Supplemental Schedule 2**.

31

32 **7. Why are these Solar prices slightly different from the ones included in your initial**
33 **Direct Testimony attached to the Report and Recommendations that were meant to**
34 **represent what the ceiling prices would be at an assumed 26% ITC level?**

35

36 Following the passage of the CAA (and after further deliberation) our team determined
37 that the indicative prices in my initial Direct Testimony that were intended to reflect a
38 hypothetical (at that time) restoration of the 2020 calendar year 26% ITC value did not
39 include needed changes to the financial structuring described in my above answer.
40 Specifically, the final proposed prices (shown in **JK Supplemental Schedule 1**) reflect
41 what SEA believes to be appropriate changes in the share of debt and equity (and the
42 share of tax and sponsor equity within the pool of total equity) necessary to reflect

1 changes in how Solar projects will be financed following the CAA's passage.
2

3 **8. Please describe how the Act's changes to the PTC (and the ILoPTC) impact ceiling**
4 **prices for the non-Solar categories for the 2021 program year.**

5
6 I describe our proposed revisions to financing and tax assumptions in response to the one-
7 year extension of the PTC and ILoPTC below:
8

- 9 • **Use of ILoPTC Over PTC:** The base value of the ILoPTC is 30% of the total
10 project cost. As described in a memorandum SEA filed in Docket 4983, the
11 ILoPTC provides more value for the project than the PTC because it is a one-time
12 credit during the first year of the project's life.¹ As such, it is more likely to be
13 utilized by tax equity investors and comes at a lower cost to ratepayers.
14
- 15 • **Wind/Wind CRDG:** As discussed in the memorandum filed by SEA in Docket
16 4983 following a one-year extension of the PTC and ILoPTC in late 2019, the
17 revised prices for Wind and Wind CRDG assume an 18% ILoPTC value. This
18 value is derived by multiplying the 30% statutory ILoPTC value by the 60% value
19 available to Wind projects. To ensure appropriate debt service coverage, assuming
20 the monetization of the ILoPTC requires an increase in the pool of total equity
21 from 32.5% to 40% (with a concurrent reduction in debt from 67.5% to 60%).
22 Furthermore, the injection of tax equity requires increasing the amount of tax
23 equity in the share of total equity from 0% to 75% (with a concurrent reduction in
24 sponsor equity from 100% to 25%). Finally, the revised Wind and Wind CRDG
25 prices no longer assume an average of a price with 100% bonus depreciation (as
26 allowed by the Tax Cuts and Jobs Act of 2017) and a price that assumes use of the
27 IRS' 5-year Modified Accelerated Cost Reduction System (MACRS) depreciation
28 schedule. It remains our understanding that most tax equity providers remain
29 hesitant to accept bonus depreciation on top of either the ITC, PTC or ILoPTC, on
30 account of their ongoing preference to spread their tax equity resources across a
31 larger number of projects.
32
- 33 • **Anaerobic Digestion (AD):** Unlike Wind and Wind CRDG projects (which are
34 subject to a separate phase-out schedule), AD projects can utilize the full 30%
35 statutory ILoPTC value. To ensure appropriate debt service coverage, the price
36 includes an assumed increase in total equity from 40% to 55% (with a concurrent
37 reduction in debt from 60% to 45%), and an increase in assumed tax equity as a

¹ See *DG Board's Memo Recommending Revised Ceiling Prices*, filed 10 January 2020 in Docket 4983. Available at: <http://www.ripuc.ri.gov/eventsactions/docket/4983-DGB-Memo-RevCP%201-10-20.pdf>. Unlike the ILoPTC, the PTC is provided over ten years, and is only provided for each MWh of production from the eligible project, which subjects the value of the credit to an added degree of risk.

1 share of total equity from 0% to 80% (with a concurrent reduction in sponsor
2 equity from 100% to 20% of total equity).

- 3
4 • **Small Scale Hydroelectric:** While small-scale hydroelectric resources are
5 eligible under both the PTC and ILoPTC (and the ILoPTC was, in fact, assumed
6 to be fully monetized in the final 2020 approved prices), we have elected not to
7 assume the credit is monetized at all in the final recommended 2021 ceiling price
8 for hydro projects. This rationale for this recommendation is explained below.

9
10 Our revised CREST model inputs for Wind, Wind CRDG and AD projects can be found
11 in **JK Supplemental Schedule 3**.

12
13 **9. Why does SEA recommend against assuming Small Scale Hydroelectric projects can**
14 **monetize the ILoPTC, even though it did so for the 2020 prices following a similar**
15 **one-year extension?**

16
17 When developing ceiling prices for the REG program, SEA generally assumes full
18 monetization of all broadly applicable and available incentives and tax credits, unless we
19 have specific and credible information to suggest that doing so is not reasonable or
20 consistent with typical practice amongst market participants. In this instance, we believe
21 there is specific and credible information to suggest that it may not be reasonable to
22 expect that Small Scale Hydroelectric projects can easily monetize the ILoPTC.

23
24 We make this recommendation in large part due to feedback received during the 2021
25 ceiling price development process from a small-scale hydroelectric developer active in
26 New England. This developer (whose company has had at least one hydro project
27 selected in REG Open Enrollments since the Renewable Energy Growth Act was passed
28 in 2015) argued that assuming the availability of the ILoPTC for hydroelectric projects
29 would be incongruous with typical development timelines for such resources.
30 Specifically, this developer asserted that new hydroelectric projects (including smaller
31 resources eligible for the REG program) require Federal Energy Regulatory Commission
32 (FERC) approval, in addition to other required state and local approvals.

33
34 As a result, this developer suggested that assuming monetization of the ILoPTC - which
35 would require them to either undertake physical work at the site that may not be
36 permitted by federal, state or local authorities, or procure expensive hydroelectric
37 generation system components in order to ensure “safe harbor” at the 30% value -
38 represents a business risk they were unwilling to take. Furthermore, this developer also
39 suggested that the decisions made by the DG Board and PUC to recommend and approve
40 Small Scale Hydropower prices for the 2020 program year that assumed full monetization
41 of the credit led his company to conclude that it was not possible to submit a hydro
42 project for consideration during this year’s Open Enrollments that could meet typical
43 return thresholds for hydro projects.

44
45 A review of recent Open Enrollments appears to support aspects of this developer’s

1 claims. The data showed that the only years in which a Small Scale Hydroelectric project
2 was selected (2017, 2018 and 2019) were ones in which the PTC/ILoPTC had not been
3 assumed to be available to REG Small Scale Hydroelectric projects. In addition, in Open
4 Enrollments held during the 2020 program year, National Grid selected zero Small Scale
5 Hydroelectric projects.
6

7 Given this feedback, as well as the limited number of hydro projects selected to date, we
8 believe that in the absence of major changes to development timelines for small hydro
9 projects, assuming monetization of the credit when calculating the Small Scale
10 Hydroelectric ceiling price could be counterproductive for the development of Small
11 Scale Hydroelectric resources in the REG program, and thus recommend against using it
12 as an input.²
13

14 **10. Why is it reasonable to assume full monetization of the ILoPTC for the purposes of**
15 **the Wind, Wind CRDG and AD prices, but no monetization for Small Scale**
16 **Hydroelectric projects?**
17

18 We believe the assumption of full monetization of the ILoPTC is reasonable for Wind
19 and Wind CRDG projects because developers have consistently and successfully
20 submitted Wind and Wind CRDG projects into REG Open Enrollments over many years,
21 including years in which the ceiling prices assumed full credit monetization.
22 Furthermore, even though no AD projects have yet been selected in the REG program,
23 we are unaware of credible or specific information that would suggest full monetization
24 is not possible for these projects.
25

26 **11. Does SEA believe that the revised 2021 recommended ceiling prices are reasonable**
27 **in view of the changes to the federal tax code made by the CAA, and appropriately**
28 **balance the REG program's goals of encouraging market development at the lowest**
29 **reasonable cost to ratepayers?**
30

31 Yes. While I believe the previously-proposed prices also balanced these core objectives
32 effectively, the enactment of the changes to the federal tax code ensure that these prices
33 are even more competitive (and affordable for Rhode Island ratepayers).
34

35 **12. Do the changes in the ITC for Solar projects impact SEA's estimates of the**
36 **incremental costs of projects eligible for the proposed Low Income CRDG adder**
37 **pilot program and the proposed continuation of the Carport Solar pilot program?**
38

39 Yes, they do.
40

41 **13. Please describe how these changes affect the incremental cost estimates associated**
42 **with these proposed adder values.**

² Furthermore, unless Congress chooses to pursue another one-year PTC extension in late 2021 for 2022 and beyond, we believe that this assumption may be moot for future REG program years.

1
2 As a result of the change in the ITC's value for 2021, the incremental cost estimates for
3 each type of adder are lower because an increase in the value of the ITC does not have a
4 linear impact on change in the levelized revenue requirement for each type of project.
5 More specifically, Low Income CRDG and Carport projects have higher capital and
6 operating expenses than typical projects³ in each Solar category. As a result, a 4%
7 increase in the ITC for those projects will result in larger reductions in their levelized
8 revenue requirements than for a project not eligible for the proposed adders. The net
9 effect is a smaller difference between the two projects, resulting in lower incremental cost
10 estimates.

11
12 **14. Please compare SEA's revised estimate of the range of potential incremental cost**
13 **per kilowatt-hour values for Low Income and Carport projects with the previous**
14 **potential ranges for those types of projects.**

15
16 As discussed in my Direct Testimony, our initial estimates yielded a range of Carport
17 Solar adder values of between 4.9 and 7.7 ¢/kWh, and a range of LMI results
18 (representing an average of roof- and ground-mounted projects) of between 3.0 and 4.2
19 ¢/kWh. Please see **JK Schedule 22** for detailed weighted average calculations of this
20 incremental cost value based on the previously-proposed 2021 prices.

21
22 When utilizing the revised Solar category prices, the resulting range of Carport Solar
23 values is 4.7 to 6.7 ¢/kWh, and the range for LMI projects (representing an average of
24 roof- and ground-mounted projects) is 2.9 and 4.0 ¢/kWh. Please see **JK Supplemental**
25 **Schedule 4** for revised incremental cost results.

26 **15. Do you still recommend that the PUC approve the proposed Low Income CRDG**
27 **and Carport Solar adders at the values proposed by National Grid?**

28
29 Yes. National Grid's recommended values of 3.0 ¢/kWh for the proposed Low Income
30 CRDG pilot and 5.0 ¢/kWh for the continued Carport adder pilot remain within the range
31 of revised estimated incremental costs for those project types.

32
33 **16. Does this conclude your supplemental direct testimony?**

34
35 Yes.

36
37

³ In this case, a "typical project" refers to a Solar project that is either ground- or roof-mounted, but not sited on a Carport, or serving a low- or moderate-income (LMI) customer. These types of projects are the types of projects utilized as proxy projects for developing REG ceiling prices.

JK Supplemental Schedule 1 - Approved 2020 PY Ceiling Prices vs Pre-/Post-Consolidated Appropriations Act of 2021 (CAA) Recommended 2021 PY Ceiling Price

Renewable Energy Class	2020 PY	Initial Recommended 2021 PY (Pre-CAA)		Final Recommended 2021 PY (Post-CAA)	
		¢/kWh	% Change from 2020	¢/kWh	% Change from 2020
Small Solar I	29.65	29.95	1.0%	28.75	-3.0%
Small Solar II	23.45	25.85	10.2%	24.35	3.8%
Medium Solar	21.15	22.25	5.2%	21.65	2.4%
Commercial Solar (251-750 kW)	18.25	19.05	4.4%	18.55	1.6%
Commercial Solar (751-999 kW)	18.25	15.75	-13.7%	15.25	-16.4%
Large Solar	13.65	11.85	-13.2%	11.35	-16.8%
Wind	18.85	20.05	6.4%	18.75	-0.5%
Anaerobic Digestion	15.35	21.15	37.8%	15.85	3.3%
Small Scale Hydropower	21.45	27.35	27.5%	27.35	27.5%
Community Remote – Commercial Solar (251-750 kW)	20.99	21.91	4.4%	21.33	1.6%
Community Remote – Commercial Solar (751-999 kW)	20.99	18.11	-13.7%	17.54	-16.4%
Community Remote – Large Solar	15.70	13.63	-13.2%	13.05	-16.9%
Community Remote – Wind	21.05	22.45	6.7%	21.05	0.0%

JK Supplemental Schedule 2 – Comparison of Pre- and Post-Consolidated Appropriations Act (CAA) Medium, Commercial and Large Solar Ceiling Price Inputs

Category	Medium Solar		Commercial Solar/ Commercial CRDG (251-750 kW & 751-999 kW)		Large Solar/Large CRDG	
	Pre-CAA	Post-CAA	Pre-CAA	Post-CAA	Pre-CAA	Post-CAA
<i>ITC Value</i>	22%	26%	22%	26%	22%	26%
<i>Debt/Equity %</i>	60%/40%	55%/45%	60%/40%	55%/45%	60%/40%	57.5%/42.5%
<i>Sponsor/Tax Equity %</i>	60%/40%	25%/75%	60%/40%	25%/75%	60%/40%	25%/75%
<i>Target After-Tax IRR</i>	11.1%	10.5%	10.7%	10.3%	10.3%	10.0%

JK Supplemental Schedule 3 – Comparison of Pre- and Post-Consolidated Appropriations Act (CAA) Wind and Anaerobic Digestion (AD) Inputs

Category	Wind/Wind CRDG		Anaerobic Digestion	
	Pre-CAA	Post-CAA	Pre-CAA	Post-CAA
<i>Policy Case</i>				
<i>ILOPTC Value</i>	0%	18%	0%	30%
<i>Debt/Equity %</i>	67.5%/32.5%	60%/40%	60%/40%	45%/55%
<i>Sponsor/Tax Equity %</i>	100%/0%	25%/75%	100%/0%	20%/80%
<i>Target After-Tax Equity IRR</i>	12.5%	9.9%	12.5%	9.7%
<i>Depreciation Approach</i>	Average of 5-year MACRS & 100% Bonus	5-Year MACRS	5-Year MACRS	5-Year MACRS

JK Supplemental Schedule 4 – Revised Final Carport and LMI Adder Results

See file named *JK Supplemental Schedule 4 - Revised Final Carport and LMI Adder Results_FINAL.xlsx*