

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: 2020 RENEWABLE ENERGY GROWTH – :
 CLASSES, CEILING PRICES AND CAPACITY :
 TARGETS AND 2020 RENEWABLE ENERGY : DOCKET NO. 4983
 GROWTH PROGRAM – TARIFFS AND SOLICITATION :
 AND ENROLLMENT PROCESS RULES :

**DISTRIBUTED-GENERATION BOARD’S RESPONSES
TO THE COMMISSION’S FIRST SET OF DATA REQUESTS**

1-1. For each of the proposed Renewable Energy Classes, please provide the system size assumptions that were used to develop the final proposed ceiling prices for the entire class.

Response: Please see Table 1 below which shows the size of the proxy system utilized for modeling the ceiling price for each renewable energy class that was recommended by the Distributed-Generation Board (“DG Board”) for the 2020 Renewable Energy Growth Program Year (“RE Growth 2020 PY”). The eligible system sizes for each class are also included for reference.

Table 1		
Renewable Energy Class	Eligible System Sizes	Modeled Size
Small Solar I	1 to 10 kW _{DC}	5 kW _{DC}
Small Solar II	11 to 25 kW _{DC}	25 kW _{DC}
Medium Solar	26 to 250 kW _{DC}	250 kW _{DC}
Commercial Solar	251 to 999 kW _{DC}	500 kW _{DC}
Community Remote - Commercial Solar	251 to 999 kW _{DC}	500 kW _{DC}
Large Solar	1 to 5 MW _{DC}	2 MW _{DC}
Community Remote - Large Solar	1 to 5 MW _{DC}	2 MW _{DC}
Wind	0 to 5 MW _{AC}	3 MW _{AC}
Community Remote - Wind	0 to 5 MW _{AC}	3 MW _{AC}
Small Scale Hydropower	≤ 5 MW _{AC}	500 kW _{AC}
Anaerobic Digestion	≤ 5 MW _{AC}	725 kW _{AC}

Respondent: Jim Kennerly, Sustainable Energy Advantage, LLC (“SEA”)

1-2. The Large Wind approved ceiling price is 19.35¢ for 2019. The proposed wind ceiling price is 21.40¢ for 2020. Please itemize the difference of 2.05¢. Please provide the portion of the difference that is attributable to phase outs of tax benefits and provide the amount and explanation of any portions of the difference not attributable to the tax changes.

Response: The vast majority of the 2.05¢ difference between the 2019 approved ceiling price and the 2020 proposed price for Large Wind is driven by the phase out of federal tax benefits. The removal of the tax benefits alone, without any other changes to the modeled project's financing structure or depreciation, increases the ceiling price by 2.10¢.

The other adjustments that SEA made to financing and depreciation assumptions as a result of the loss of the tax credit (described in detail in Mr. Kennerly's testimony beginning at page 49) limited the increase associated with the loss of tax credit to 2.05¢. Those changes include:

- Increasing the project's share of debt;
- Removing tax equity from the capital stack; and
- Accounting for the election of 100% bonus depreciation by some projects.

The only non-tax credit driven change SEA made to the Wind modeling inputs was a very small change in assumed interconnection costs. The data supplied by National Grid suggested these costs rose from \$282/kWAC in 2019 to \$295/kWAC in 2020. However, this change did not have a clearly discernible impact on the resulting ceiling price.

Respondent: Jim Kennerly, SEA

1-3. The Small Wind approved ceiling price is 24.05¢ for 2019. The proposed wind

ceiling price is 21.40¢ for 2020. Please itemize the difference of (2.65¢). Please provide the portion of the difference that is attributable to phase outs of tax benefits and provide the amount and explanation of any portions of the difference not attributable to the tax changes.

Response: The proposed 2020 ceiling price categories do not include separate Small Wind and Large Wind categories, but rather, one Wind category including all projects up to 5.0 MW in size. The modeled system size for the ceiling price development to the Wind category was 3,000 kW, which was the same modeled system size for the Large Wind category in 2019.

Therefore, the difference between the 2019 approved Small Wind ceiling price and the 2020 proposed Wind ceiling price is driven entirely by the fact that the DG Board only recommends one Wind ceiling price category for the 2020 Program Year. The removal of the tax credit alone, without any other changes to the modeled Small Wind project, would increase the ceiling price 3.40¢.

Respondent: Jim Kennerly, SEA

1-4. Referencing Mr. Kennerly’s testimony on page 50, lines 18-19, did SEA perform any independent research or analysis of whether \$40/kW for the rapid shutdown at the module level requirements is reasonable? If not, why not? If so, please provide the analysis.

Response: SEA compared the stakeholder-supplied National Electric Code (“NEC”) 2017 compliance cost premium assumption of \$40/kWDC to information contained in the National Renewable Energy Laboratory’s (“NREL”)s Q1/Q2 2019 Solar

Industry Update¹. The NREL update reports the Q1 2019 cost of microinverters – which represent one option to satisfy rapid shutdown compliance – at \$300/kW_{AC}. By comparison, NREL estimates the cost of string or central inverters (which do not satisfy the new code) at \$50-\$150/kW_{AC}. Therefore, a cost premium of between \$150-\$250/kW_{AC} can be expected *if* NEC 2017 compliance is achieved through deployment of microinverters.

It is SEA’s understanding, however, that compliance with the new standard can be achieved by deploying projects that utilize *either* microinverters *or* DC optimizers, and that microinverters are likely the more expensive option. The stakeholder-based cost estimate assumes a DC optimizer, and therefore SEA and the DG Board recommend maintaining the \$40/kW_{DC} assumption, which is well below the low end of cost premium associated with microinverters.

SEA and the DG Board maintain that this assumption balances ratepayer cost mitigation with recognition of the cost of code compliance by assuming the most cost-effective form of compliance.

Respondent: Jim Kennerly, SEA

1-5. Referencing JK Schedule 8, on page 80, please explain why the carport adder is based on the 2017 dollar values and not on 2020 dollar values.

Response: The values from JK Schedule 8 are nominal dollar values, and are not adjusted for inflation to a particular base year. The values are excerpted from an analysis (as referenced in JK Schedule 8 and Mr. Kennerly’s testimony) conducted by the

¹ Available at: <https://www.nrel.gov/docs/fy19osti/74585.pdf>

Massachusetts Department of Energy Resources (“MA DOER”) using data from a survey and analysis undertaken by SEA in 2016, which assumed that a future Massachusetts solar program would open in 2017 (hence the reference to that year). The same adder value calculated in JK Schedule 8 is the current value available in Massachusetts for Canopy Solar Tariff Generation Units seeking qualification under the Solar Massachusetts Renewable Target (“SMART”) program, and is the value that MA DOER has proposed (as discussed in a recent stakeholder presentation related to the 400 MW Program Review) to maintain at its current level until the end of the program. MA DOER’s reasoning for the change shared in that presentation is as follows:

Evidence has been presented that most...projects with Location Based Adders have fixed incremental costs that in some cases have actually increased since the regulation was initially promulgated (e.g. tariffs on foreign steel).²

In Massachusetts, the Compensation Rate Adder for Canopy Solar Tariff Generation Units is a Location-Based Adder. MA DOER’s assertion regarding incremental costs for such projects is consistent with SEA and the DG Board’s understanding of the cost dynamics for carports throughout the region.

Respondent: Jim Kennerly, SEA

1-6. Was there any consideration of making the carport adder also subject to a competitive bid process? If yes, please explain why it wasn’t chosen. If not, why not?

Response: The DG Board did not discuss making the carport adder component subject to a

² See Massachusetts Department of Energy Resources (MA DOER). “SMART Program 400 MW Review” 5 September 2019, p. 10. Available at: <https://www.mass.gov/doc/smart-400-mw-review-straw-proposal-090519/download>

competitive bid process, in addition to the commercial or large solar class competitive bid process that a developer will need to go through prior to receiving a tariff award. The DG Board for the first year of the proposed carport adder wanted to replicate the MA SMART program process and evaluate the results and report back those results to the Public Utilities Commission (“Commission”) with any updates/modifications (including a possible competitive bid for the adder) via the DG Board’s recommendations for the RE Growth 2021 PY.

Respondent: Christopher Kearns, Office of Energy Resources (“OER”)

1-7. Was there any discussion of providing any adder to encourage projects to build on brownfields or landfills? If so, why was it not proposed. If not, why not?

Response: No. The DG Board and OER have not explored an adder for those sites as solar developers have been looking at those types of disturbed sites and using the available ceiling prices that have been approved by the Commission in prior years. An example of this is the Forbes Street Landfill in the City of East Providence with the first phase of the project (3.71 MW) awarded a ceiling price through the Distributed Generation Contracts Pilot Program in 2012 and the second phase (4MW) of the project site awarded a tariff in 2016.

Respondent: Christopher Kearns, OER

1-8. Referencing Mr. Kennerly’s testimony at page 62, lines 6-16, wherein he referred to the carport adder as a pilot, please respond to the following:
(a) Please explain how the proposed carport adder is “a small scale, targeted

program that is limited in scope, time, and spending, and is designed to test the feasibility of a future program or rate design.”

Response: The DG Board developed the carport adder as a pilot for the 2020 PY to collect the data; observe the application/permit processes both with National Grid and local municipalities; and identify any barriers.

(b) Please explain what the pilot is proposing to test.

Response: This pilot is the result of dialogue with various municipal planning officials, environmental groups and the solar developer market to promote solar development within parking lots as one way to address local siting challenges. The pilot is testing whether the development of solar carports within parking lots can help alleviate some of the solar siting concerns raised by the aforementioned stakeholders.

(c) Please explain each of the specific barriers the pilot is designed to overcome.

Response: The adder is designed to help overcome economic barriers associated with developing solar projects on parking lots. As mentioned in 1-8(b), the development of carports in parking lots is one way to address local siting challenges.

(d) Please explain the specific pilot design elements that address the barriers identified in part c.

Response: OER and the DG Board expect that the pilot’s adder will incentivize development of solar carports in parking lots in a manner that is consistent with the intent of the RE Growth Program.

(e) Please explain the specific learning objectives from the pilot.

Response: The DG Board's and OER's goal is to collect and observe the following from the pilot:

- How many commercial solar class applications submit project proposals with the carport adder for a portion or all the project system size in the application;
- How many large solar class applications submit project proposals with the carport adder for a portion or all the project size in the application;
- How many commercial solar class applications are awarded with the carport adder;
- How many large solar class applications are awarded with the carport adder;
- How many carport adder projects include a portion of a project being installed on a roof top to as part of an application;
- How many commercial and large solar class applications were just standalone carport projects;
- The results of the initial competitive bidding change with the commercial and large solar classes with some projects trying to obtain a tariff with the carport adder, if it's located in a parking lot;
- Collect project cost data from carport projects to reevaluate the carport adder incentive with the development of the recommendations for the RE Growth 2021 PY;
- Collect and compare interconnection costs associated with carport applications to standalone ground mounted commercial and large class solar applications.
- Monitor where the commercial and large solar class carport adder projects are being proposed. Examples: existing grocery stores, business shopping centers, affordable housing complexes;
- What is the timeline or difference with solar developers executing agreements with parking lot owners compared with traditional land owners;
- Will the execution of agreements with parking lot owners result in applications not being ready to apply until the 3rd enrollment period in the fall;
- Which of the two solar classes eligible for the carport adder is having more activity relating to interconnection studies and submitted applications;
- Will there be a geographic and county (Kent, Washington, Providence, Bristol,

Newport) distribution of carport related applications submitted;

- Will the carport related project proposals be in the urban, suburban or rural areas of the State;
- Will municipalities permit and review these projects through a special use permit, development plan review or master plan review;
- Evaluate if there are any permitting barriers to developing carport projects within municipalities;
- How many carport related applications remain in National Grid interconnection queue, that weren't awarded tariffs during the commercial enrollment periods in 2020 to help inform possible megawatt allocation plans for the development of the 2021 RE Growth Program; and
- Observe how municipalities (through communications with the RI Chapter of the American Planning Association and the RI League of Cities and Towns) handle carport applications.

(f) Please explain how the pilot is designed to provide the results of those learnings.

Response: This pilot provides an opportunity for stakeholders, state agencies, National Grid, and the Commission to evaluate the results of the pilot and achieve public policy objectives within the current framework of the RE Growth Program. The Board, OER and SEA in collaboration with National Grid will collect the information detailed in response to 1-8(e) from the pilot to help develop the recommendations for the 2021 RE Growth PY. OER is also happy to coordinate with National Grid to develop a presentation for the Commission and staff on the initial results of the carport adder pilot in the summer/fall of 2020, if requested by the Commission.

Respondent: Christopher Kearns, OER

Date: November 21, 2019