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January 10, 2020

Via Regular U.S. Mail

Luly Massaro, Commission Clerk
RI Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

Re: PUC Docket No. 4983– Renewable Energy Growth Program for Year 2020

Dear Ms. Massaro:

Enclosed for filing in the above referenced docket, please find an original and nine copies of a memorandum containing the Distributed Generation Board's revised recommended ceiling prices based on the enactment of Public Law 116-94. A PDF version of the enclosed was sent to the Service List via email.

If you have any questions or concerns, please do not hesitate to contact Daniel W. Majcher, Esq. at 401.222.8880 or via email at daniel.majcher@doa.ri.gov. Going forward, attorney Majcher will be representing the Office of Energy Resources and the Distributed Generation Board in this matter.

Sincerely,

Andrew S. Marcaccio
Deputy Chief of Legal Services

Enclosures

Sustainable Energy Advantage, LLC

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Memorandum

To: Distributed Generation Board and RI Office of Energy Resources

From: Kate Daniel, Jim Kennerly and Jason Gifford, Sustainable Energy Advantage, LLC

Date: January 10, 2020

Re: Impact of Public Law 116-94 (Further Consolidated Appropriations Act, 2020) on Recommended 2020 REG Program Ceiling Prices (R.I. PUC Docket 4983)

On December 20, 2019, President Trump signed **HR 1865 - Further Consolidated Appropriations Act, 2020** into law as Public Law (P.L.) 116-94. P.L. 116-94 amends 26 U.S.C. §§ 45, 48 to extend the Production Tax Credit (PTC) and provisions permitting taxpayers to claim such projects as "energy property" eligible for the federal Investment Tax Credit (ITC)[1]) to projects starting construction no later than December 31, 2020. As it pertains to the Rhode Island Renewable Energy Growth (REG) program, the change amounts to a one-year prospective extension for Wind projects from the end of 2019, while the extension for Hydro and Anaerobic Digestion (AD) is both prospective through the end of 2020 *and retroactive* for projects starting construction after January 1, 2018.[2] Following the enactment of P.L. 116-94, the Rhode Island Office of Energy Resources (OER) and Distributed Generation Board requested that Sustainable Energy Advantage (SEA) determine the impact of the above-described changes on the recommended 2020 Ceiling Prices, and recommend revised prices as needed. Below we detail our methodology and assumptions for assessing the impact of the change in law, as well as the comparative impact of electing either the PTC or ITC in lieu of the PTC and our final recommended prices.

Methodology for Determining P.L. 116-94 Impact on 2020 Recommended Ceiling Prices

REG Ceiling Prices represent the nominal levelized revenue a project would need to receive for each kilowatt-hour (kWh) of expected output to cover its capital and operating costs and meet investor returns, **less** both:

- The nominal levelized revenue the project could expect after the end of its tariff compensation term (either 15 or 20 years); **and**
- The nominal levelized value of other non-REG tariff revenue streams (e.g., all applicable federal or state tax benefits, including depreciation).

Therefore, increasing federal tax credits during a given Program Year will, all else equal, reduce the tariff rate necessary to earn a reasonable return. Since Wind, Hydro and Anaerobic Digestion projects are eligible for both the PTC and the ITC in lieu of the PTC under 26 U.S.C. §§ 45, 48, our analysis must determine which credit provides the greatest tax benefit (and thereby maximizes value for Rhode Island's ratepayers). To undertake this

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[1] A taxpayer's election to receive the ITC for a PTC-eligible project is referred to hereafter in lieu of the PTC is referred to hereafter (and interchangeably) as the "ITC in lieu of PTC" or "ILoPTC".

[2] Solar projects, which have been unable to qualify for the PTC since the mid-2000s and are on a different statutory phase-out schedule under the ITC, are unaffected by enactment of P.L. 116-94.

comparison, we make the following initial assumptions (all of which are consistent with federal tax law as revised by P.L. 116-94):

- ***Cost and Performance Assumptions:*** Passage of P.L. 116-94 has not changed our estimates of cost or performance assumptions for any technology.

- **Solar Assumptions:** No assumptions for Solar projects have changed (since the portions of 26 U.S.C. §§ 45 related to the ITC for solar PV projects were left unchanged by P.L. 116-94).

- ***Tax Benefit Utilization:*** All applicable Wind and AD projects can utilize 100% of the tax benefits they are eligible for, but (based on historical input) hydroelectric projects are only able to capitalize 80% of the tax credit.

- ***Safe Harboring Ability:*** All applicable Wind, Hydro and AD are assumed to be able to start construction prior to the end of 2020 and can otherwise qualify under the various "safe harbor" and construction continuity provisions for PTC and ITC in lieu of PTC projects under current Internal Revenue Service (IRS) rules regarding the timing of the start of construction.

- ***Differential PTC Value by Resource:*** The statutory PTC value for eligible projects is 2.5¢/kWh, which projects are eligible to receive over 10 years. However, under P.L. 116-94 and other provisions in 26 U.S.C. §§ 45, 48, Wind projects are only eligible for 60% of the statutory value, while Hydro and AD projects are eligible for 50%.

- ***Differential ITC in Lieu of PTC Value by Resource:*** The statutory ITC percentage for non-solar projects taking the ITC in lieu of the PTC is 30%. However, while Hydro and AD projects can receive 100% of this value if commencing construction 2020, Wind projects can only receive 60% of this value through 2020.

- ***Depreciation Interaction with Other Federal Tax Credits:*** While Wind, Hydro and AD projects are permitted (as enacted by P.L. 115-97, the Tax Cuts and Jobs Act of 2017) to elect 100% Bonus Depreciation, our discussions with market participants have revealed that most tax equity investors continue to lack sufficient tax capacity to benefit simultaneously from electing 100% Bonus Depreciation and the PTC or ITC. Therefore, Wind, Hydro and AD projects are now assumed to depreciate their assets for tax purposes based on the applicable Modified Accelerated Cost Recovery System (MACRS) schedule published by the IRS (5 years for Wind and AD, and 7 years for Hydro).

- ***Changes to Assumed Project Financial Structures:*** Relative to the initially-recommended prices, the financial structure of Wind, Hydro and AD projects must change to accommodate a larger share of tax equity in the capital stack for each project. To this end, we assume that projects with a very high (70% or greater) debt share will reduce their debt to accommodate a greater share of tax equity capital.
    - *For Wind and Hydro projects,* we assume the respective 18% and 24% effective ITC in lieu of PTC percentages require increasing total project equity by 5% and assume that 80% of this total comes from tax equity investors.[3]
    - *For AD projects*, we assume the 30% statutory ITC in lieu of PTC percentage does not require reducing the amount of debt in the project, since AD projects are already assumed to have a lower percentage debt than wind or hydro, and the equity share is not assumed to rise in order to accommodate the injection of tax equity capital.

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[3] These are the same debt/equity and sponsor/tax equity shares assumed in the 2018 Ceiling Prices, which were in effect during a year in which the ITC in lieu of PTC credit was 60% of the total value (as it will be during the 2020 Program Year)

The tables below compare these revised assumptions with the initial 2020 Ceiling Price assumptions.

Table 1: 2020 REG Ceiling Price Tax Benefit Assumptions Pre- and Post-P.L. 116-94

Category	Pre-P.L. 116-94	P.L. 116-94 (w/PTC)	P.L. 116-94 (w/ILoPTC)
Wind/ Wind - CRDG	• No PTC or ILoPTC Benefit • Half of projects assumed to take 100% Bonus Depreciation, half on 5-year MACRS	• **PTC of 1.5¢/kWh (60% of statutory value)** • **5-year MACRS (No Bonus)**	• **ILoPTC of 18% (60% of statutory value of 30%)** • **5-year MACRS (No Bonus)**
Hydro	• No PTC or ILoPTC Benefit • 7-year MACRS (No Bonus)	• **PTC of 1.25¢/kWh (50% of statutory value)** • 7-year MACRS (No Bonus)	• **ILoPTC at statutory value, <u>but capitalizing only 80% of credit</u> (24%)** • 7-year MACRS (No Bonus)
Anaerobic Digestion	• No PTC or ILoPTC Benefit • 5-year MACRS (No Bonus)	• **PTC of 1.25¢/kWh (50% of statutory value)** • 5-year MACRS (No Bonus)	• **ILoPTC at statutory value (30%)** • 5-year MACRS (No Bonus)

Table 2: Assumed 2020 REG Ceiling Price Tax Benefit-Related Financing Assumptions Pre- and Post-P.L. 116-94

Category	Wind/Wind - CRDG		Hydroelectric		Anaerobic Digestion	
Policy Case	*Pre-P.L. 116-94*	*P.L. 116-94 (PTC or ILoPTC)*	*Pre-P.L. 116-94*	*P.L. 116-94 (PTC or ILoPTC)*	*Pre-P.L. 116-94*	*P.L. 116-94 (PTC or ILoPTC)*
Debt/Equity %	70%/30%	**65%/35%**	70%/30%	**65%/35%**	60%/40%	60%/40%
Sponsor/Tax Equity %	100%/0%	**25%/75%**	100%/0%	**20%/80%**	100%/0%	**20%/80%**
Target After-Tax Equity IRR	10%	**9.75%**	10%	**9.6%**	10%	**9.6%**

Analysis Results/Comparison of Prices Assuming PTC and Prices Assuming ITC in Lieu of PTC

Given the assumptions described in Table 1, we compare the impacts of utilizing the PTC and the impact of utilizing the ITC in lieu of the PTC relative to the initial proposed prices for Wind, Hydro and AD in Table 3 below.

Table 3: Comparison of Potential 2020 Ceiling Prices with Pre- and Post-P.L. 116-94 Assumptions (¢/kWh and % Change)

Category	Pre-P.L. 116-94 Recommended 2020 Ceiling Prices	2020 Ceiling Price Assumptions + PTC	2020 Ceiling Price Assumptions + ITC in Lieu of PTC (ILoPTC)
Wind	21.40	**20.35 (-5%)**	**18.85 (-14%)**
Wind - CRDG	23.85	**22.85 (-4%)**	**21.05 (-12%)**
Anaerobic Digestion	21.15	**19.55 (-8%)**	**15.35 (-27%)**
Hydro	27.05	**26.05 (-4%)**	**21.45 (-23%)**

While reducing the debt share of the capital stack (in order to accommodate the expected injection of tax equity) will technically raise the project's overall cost of capital (which amounts to a price impact of 0.5¢/kWh or less, depending on the resource)[4], the above results suggest that these tax benefits have a substantial impact on the recommended Ceiling Prices for Wind, Hydro and AD. In addition, we also find that the value of federal tax benefits is greatest for Wind, Hydro and AD project owners (and for the ratepayers of Rhode Island) if said owners elect the ITC in lieu of PTC, but the benefits of electing to take the ITC in lieu of PTC are disproportionately larger for Hydro and AD than electing to take the PTC. This last finding is driven by three key factors:

1. The interaction of the PTC and the ITC in lieu of PTC with the time value of money (specifically, the fact that the ITC in lieu of PTC is assumed to provide 100% of its benefits at the time of commercial operation, while the PTC is over 10 years);
2. The scale of the effective ITC in lieu of PTC percentage (18%-30%) relative to the much smaller scale of the PTC benefits on a ¢/kWh basis; and
3. (For Hydro and AD) The larger (24%-30%) effective ITC in lieu of PTC relative to the 60% effective value for Wind (18%).

Final Recommended 2020 Ceiling Prices

In conducting the Ceiling Price analysis, SEA has historically assumed that projects will utilize all available incentives, unless there is strong evidence to indicate that doing so is infeasible (as with bonus depreciation). This assumption mitigates the risk that ratepayers will pay higher costs than necessary to support renewable energy projects.

Our firm's long experience with renewable energy markets leads us to recommend Ceiling Prices that include the value of all available tax credits. In the case of Wind, Hydro and AD projects, we recommend Ceiling Prices that assume election of the ITC in lieu of PTC. This is not the first time that SEA has revised ceiling prices due to changes with federal renewable energy tax related laws. SEA submitted revised ceiling prices to the Public Utilities Commission (PUC) with the 2013 and 2016 ceiling prices due to changes in federal laws in December 2012 and 2015. Those changes in ceiling prices were approved by the PUC for those respective year's programs.

We provide the following reasons for our recommendation below.

1. Based on our experience, Wind projects are adept and familiar with monetizing tax credits, and we have assumed in Ceiling Prices in recent years, without objection from the wind industry, that developers are able to fully monetize the (reduced) value of the ITC in lieu of PTC.

2. Based on experience, we are also confident that it is possible for Wind and Hydro projects to "start construction" and satisfy the IRS "safe harbor" requirements if selected during the first two Open Enrollments of the Program Year.

3. These changes are consistent with past program years and docket proceedings where ceiling prices were adjusted due to changes in federal renewable tax laws.

Thus, we recommend adoption of the prices shown in Table 4 below.

[4] When (as it is now, and as described in SEA's various stakeholder presentations linked in the 2020 REG packet) the cost of debt is lower than the cost of equity, increasing a project's share of debt can (all factors equal) reduce the project's financing costs. However, if equity is more costly than debt and the share of debt in a project's capital stack is reduced, the increasing the share of equity in a project can cause a project's Ceiling Price to increase to the degree that equity is substituted for debt.

Table 4: Final Recommended 2020 REG Ceiling Prices (¢/kWh)

Category	Initial Recommended 2020 Ceiling Prices	**Final Recommended 2020 Ceiling Prices**
Small Solar I (15-Year)	29.65	29.65
Small Solar II (20-Year)	23.45	23.45
Medium Solar (20-Year)	21.15	21.15
Commercial Solar (20-Year)	18.25	18.25
Commercial Solar – CRDG (20-Year)	20.99	20.99
Large Solar (20-Year)	13.65	13.65
Large Solar – CRDG (20-Year)	15.70	15.70
Wind (20-Year)	21.40	**18.85**
Wind – CRDG (20-Year)	23.85	**21.05**
Anaerobic Digestion (20-Year)	21.15	**15.35**
Small Scale Hydropower (20-Year)	27.05	**21.45**