



Board Staff held two webinars on October 27, 2017 and November 9, 2017 to discuss issues related to the Board's Solar Generic Proceeding. The following summarizes questions asked during the webinars and Staff's responses to those questions.

Questions from the October 27th Webinar

Q. Can you explain the difference between the 4 markets (solar, class 1, class 2, ORECs?)

Response: Pursuant to the Board's Renewable Portfolio Standards (RPS) regulations, the market for Renewable Energy Certificates (RECs) is segmented into four categories: solar, Class I, Class II, and off shore wind. Definitions of each can be found in the Board's regulations at N.J.A.C. 14:8-1.2. The following are the definitions of each:

Class I renewable energy" means electric energy produced from solar technologies, photovoltaic technologies, wind energy, fuel cells powered by renewable fuels, geothermal technologies, wave or tidal action, small scale hydropower facilities with a capacity of three megawatts or less and put into service after July 23, 2012, and/or methane gas from landfills or a biomass facility, provided that the biomass is cultivated and harvested in a sustainable manner. Types of Class I renewable energy that qualify for use in meeting the requirements of this subchapter are set forth at N.J.A.C. 14:8-2.5.

Class II renewable energy" means electric energy produced by a hydro power facility that has a maximum design capacity of greater than 3 megawatts but less than 30 megawatts from all generating units combined or by a resource recovery facility, provided that such facility is located where retail competition is permitted and provided further that the Commissioner of Environmental Protection has determined that such facility meets the highest environmental standards and minimizes any impacts to the environment and local communities. Types of Class II renewable energy that qualify for use in meeting the requirements of this subchapter are set forth at N.J.A.C. 14:8-2.6.

Solar electric generation" means creation of electricity using a system that employs solar radiation to produce energy that powers an electric generator. Solar electric generation includes technologies that utilize the photovoltaic effect. Solar electric generation is a type of class I renewable energy.

Offshore wind renewable energy certificate" or "OREC" means a certificate issued by the Board or its designee, representing the environmental attributes of one megawatt hour of electric generation from a qualified offshore wind project.

Qualified offshore wind project" means a wind turbine electric generation facility in the

Atlantic Ocean and connected to the electrical transmission system in this State, and includes the associated transmission-related interconnection facilities and equipment, and approved by the Board pursuant to section 3 of P.L. 1999, c. 23 (N.J.S.A. 48:3-51).

Q. Was the October 27th webinar the first time that 2017 retail sales number was published?

Response: No. Staff issued estimated retail sales amounts in September 2017 as it has routinely done since 2006 to facilitate the RPS compliance process. The figures released on October 27th further refined staff's estimate. The final 2017 retail sales figures calculated from aggregated RPS compliance reports were first released during the November 9, 2017 webinar.

Q. If SRECS are already in over supply, what is the future of NJ Solar?

Response: SREC oversupply is not an unusual occurrence. SRECs are eligible for use in the year in which the electricity was generated and the following four compliance years. The future of the solar market in New Jersey is a function of multiple factors including but not limited to supply and demand for solar modules in the global marketplace, installation costs, federal tax credits, electricity prices, SREC prices, future legislative or policy changes and others.

Q. Should the state establish a community shared solar program supported by the authorization of virtual net metering?

Should the state devote more resources to supporting the access of low and moderate-income residents of NJ to solar? If so, how, and using what resources?

Should the net metering and interconnection policy goals, objectives, and design be made more consistent with the RPS policy goals, objectives and design, eligibility criteria, etc.?

Response: The purpose of the generic proceeding is to solicit input regarding the state of the New Jersey solar market, the efficacy of the current suite of state incentives as well as any need for new policies or policy changes including community solar, earmarks for low- and moderate-income customers, SREC eligibility criteria, net metering, and other related issues. Staff encourages stakeholders to submit comments on any policies they believe would benefit the solar industry and the state.

Q. Can today's webinar address the question of the impact of the staff review process on the projects that submitted complete Expressions of Interest pursuant to Subsection (r) and that were identified in the Board's Request for Comments issued on June 15, 2017? (from 10/27/17 webinar)

As developer of the first four projects on the Expression of Interest list pursuant to the Board's May 2016 and Feb 2017 orders, we are quite interested in how these projects, which total 148 MWdc for all 19 projects, are being evaluated in the BPU's program review. For example, we are interested in knowing which generation year is assumed for these projects. Is it possible that the projects will qualify for both 2018 and 2019 generation years? What other ideas are being considered? (from 11/9/17 webinar)

Response: The Board has suspended Subsection (r) considerations pending the outcome of this generic proceeding. Staff has not made any assumptions regarding these projects. Staff notes that the analysis prepared by ICF included Scenario #7 which estimates the impacts of the installation of an aggregated 67 MW of Subsection (r) capacity. Staff encourages stakeholders to submit comments regarding potential Subsection (r) capacity that should be considered by the Board.

Q. You should do the analysis if EV increase to meet the NJ ZEV requirement which is around 350,000 EV by 2025 which is about 2M MWH or an almost 3% increase in electricity between now and 2025?

In 2025 account for the increase in EV and electricity would be about 120 MW as an annual increment.

Response: The analysis utilized nationally recognized forecasts of load growth prepared by the US Department of Energy (USDOE) Energy Information Administration (EIA). Stakeholders are welcome to provide comments on the use of alternative forecasts.

Questions from the November 9th Webinar

Q. Is it possible that this regulatory process will result in changes to the rules for the 2018 Energy Year or is this all 2019 Energy Year and beyond?

Response: Given that we are already 6 months into EY18, that we are still several months away from the Board making any decisions regarding these matters, and that the rulemaking process typically takes a minimum of 6 months, Staff believes it is highly unlikely any changes to the rules will be implemented before the end of EY18.

Q. What is the Board's timeline to review and potentially rule on the future of the NJ SREC program as depicted in scenarios shown in ICF presentation?

Response: Subsequent to the public hearings scheduled for early December, Staff will review any public comments submitted to the Board and prepare recommendations for consideration by the Board. No date has been established regarding when the Board will consider this matter.

Q. Is "carry-over" synonymous with banked RECs?

Response: Yes.

Q. Will the draft questions be finalized before the public hearings and before the Dec 15 comment deadline?

Response: Yes.

Q. Will the deadlines be posted on the Policy Updates and Request for Comment page of the OCE website?

Response: Yes.

Questions from the November 9th Webinar Regarding ICF's Analysis

Q: The model is based on a Supply Demand concept, however the solar market in NJ has not traditionally followed typical supply/demand trends. Consequently, how valuable is this model approach?

Response: The model is intended to provide insights into what would occur in a rational market based on economic fundamentals. The model is intended to provide insights into the direction and order of magnitude of the impacts of different policy options and is not intended to be an economic forecast. Staff fully understands that solar markets will respond differently than what the model predicts especially when unforeseen changes occur to other important financial assumptions like an increase to incentives such as a new federal cash grant program or a significant increase to costs like an import tariff.

Q: How did your model take into consideration programs such as PSEG's Solar 4 All on SREC prices?

Response: The assumptions include installation of the 33 MW of capacity approved by the Board for PSEG's Solar 4 All Extension II program.

Q: Did you model the employment impacts of different builds by year?

Response: No.

Q: Did the ICF analysis take into account the possibility that the current program would be phased out in 2021?

Response: No.

Q: Why in ICF model did the industrial proposal to go to 4% and 5% in the next years doesn't drive the market short and push the SREC price to the SACP?

Response: We are unsure which scenario is being identified in this question. The Industry Plan B scenario tops out at a 4.5% solar carve-out in the RPS, and three other scenarios exceed a 5% carve-out. However, as a general matter, SREC prices do not reach the SACP because the combination of the ability to bank SRECs for 3-5 years (depending on the scenario) and other economic and timing assumptions in the model do not drive prices quite to SACP levels.

Q: What does the shading indicate in 2nd table on slide 13? Changes from current schedule?

Response: Yes.

Q: Which projects/type of projects fall within the ICF's "Grid Supply" bucket. Please provide examples (e.g. "on-site projects"?)

Response: Any projects not on the customers side of the meter.

Q: Is it correct, that you only add Subsection R in scenario 7? Any other scenarios all assume that SSR won't be injected?

Response: Yes.

Q: How long is the market in years 2018-2021 in scenario 5 or 6?

Response: The tables on slide 18 shows the estimates of solar build rates for the different scenarios. The model does not explicitly project how long the market is in any given year because a certain degree of over-builds in any given year can be absorbed into the bank of SRECs.

Q: Please confirm that the projected grid supply project numbers you reference in the ICF report do NOT include any Subsection R projects except for EY 2018-2019 in Scenario #7 (67MW)

Response: See response regarding PSEG S4AEII above, some Subsection t capacity is included in each scenario.

Q's: Why are no Subsection R projects proposed in Scenarios 1 or 2 if SB2276 includes language that the Board may approve up to 50MW per year for EY 2019 and 2020?

Updated SB2276, incorporates that after enactment newly issued SRPs only have Qualification Life of 10 years is that reflected in the analysis? Page14 suggests not. Also, SB2276 calls for 3-year banking period after a successor program is put in place, not sure impact of 5 to 3 years, but wanted to note this.

I was under the impression that one of the purposes of SB2276 is to phase out the SREC program and bring the current SREC market to equilibrium before commencing an entirely new program in June 2021? If this is the case, why wouldn't the projected SREC pricing more closely follow the SACP in 2019-2022 in Scenarios 1 & 2?

Response: The questions above concern draft legislation. Staff will not speculate regarding the likelihood of the legislation being enacted. That said, Staff believes that the Scenarios modelled by ICF reflect a broad spectrum of options that have been proposed by the solar industry and others.

Q: Can you explain how the SREC prices affect both the commercial and residential rate of return percentage?

Response: Rate of return calculations consider all costs and all sources of revenues. SRECs represent one source of revenue.

Q: When economics was sufficient for both residential and commercial build, how were the portions of each category determined?

Response: The model is designed to produce a mix of commercial, residential and grid supply solar consistent with historical build ratios.

Q: Can you please elaborate on the application of the “Market Clearing Price”?

Response: The Market Clearing price reflects the transition (or trendline) between earlier SREC prices and the pure fundamentals price at the end of the SREC banking period. This price curve is meant to represent the price that market participants would face in each Energy Year.

Q: For each COD year cohort, was the SREC price used across the tenor (number of years in prior question) a fixed price or did it follow the shape of the “Pure Fundamentals Curve” shown in the results? For example, under Scenario 2, did a project that went COD under the 18-19 energy year assume to receive X years of RECs at the fixed price of approximately \$130 or did it assume to receive the first year at approximately \$130, the second year at approximately \$150, the third year at approximately \$25, etc. (following the curve)?

Response: The assumed SREC price followed the Pure Fundamentals Curve.

Q: How many years of SREC sales at the “Pure Fundamentals Price” were included in the economics for the build decision?

Response: For scenarios assuming a 15-year qualification life, 15 years of SREC payments were included. For the scenario assuming a 10-year qualification life (scenario 6), 10 years of SREC payments were included.

Q: With lowering SACP you note an expected lower SREC, as SREC pricing is same for SREC produced by a EY12 vintage project as that for a EY19 vintage project why effect past investments; how can impact be isolated to going forward projects?

Is the "pure fundamental price" a sculpted forward curve that is applied to all projects regardless of COD year? IE. a 2019 COD project is assumed to make a financing decision on the same forward curve that a 2018 COD project sees (with the 2019 project just stepping into the forward curve a year later)?

Response: The impact is not isolated to going forward prices. A change in the SACP, depending on its level, could impact all projects with SRECs remaining to be sold.

Q: What does the panel believe the current installation cost per watt for a grid supply system to be?

Installed costs seem inflated, FYI, though I know you probably need a 3rd party source for your pricing, which may not reflect market realities.

Tracking the Sun 10 shows about \$2.00 per watt for Commercial over 500 KW - closer to reality for commercial costs?

Clearly one size no longer fits all – the future system should differentiate between residential, Low income, commercial and grid supply

Response: Recognizing that PV installation costs can vary widely across project sizes, types, and regions, the ICF model utilized installed cost data for New Jersey from the nationally recognized study (*Tracking the Sun 10*) that you identify in the question. As mentioned on slide 9, ICF used data for commercial systems of 500 kW and below in capacity to capture smaller and mid-sized commercial systems. If ICF had modeled large (> 500 kW) commercial systems instead, it would have used the New Jersey-specific starting installed cost of \$2.20 per watt from the same report for that size.

Q: Is 6% pre-tax or post-tax? Was 6% used for all customer categories (residential, commercial, utility)?

Response: The 6% discount rate is post-tax and unlevered. The same discount rate was used for all three customer categories.

Q: Can you pick one example from page 17 to illustrate how you came up with a specific SREC price in a specific year?

Response: The model projects SREC prices taking into consideration a number of factors including installed costs, retail rates, build rates, RPS requirements, etc.

Q: Page 18 of the ICF presentation lists the projected grid supply Installations for 2017-2018 through 2021-2022 years. Are projects that submitted expressions of interest in response to the Board's May 2016 and Feb 2017 orders included in these numbers? Those projects totaled 148 MWdc capacity, which does not seem to correspond to the figures on the page. I wonder where the projected numbers came from and whether they are supposed to include our group. If they do not include our group, where does it stand in all of this?

Response: The Board will determine the treatment of projects that submitted expressions of interest at a future date. As noted above, the intent of the model was to assess the direction and order of magnitude of the impact of potential policy changes, not to forecast the future. Scenario #7 models the impacts of infusions of additional Subsection R projects.

Q: Can you elaborate on the assumption of "20% residential projects that do not sell SRECs into market" on page 11?

Under SREC sales treatment, do you have any empirical data to support the 20% residential and 5% commercial projects that do not sell their SRECs? I see total online capacity to be 2,271MW, including 623MW of residential and 1,103MW of non-residential BTM. I interpret this assumption to exclude almost 8% of the current online capacity, which seems high.

Response: The assumption is reflective of certain behind-the-meter system owners going forward not going through the process of selling SRECs. The assumption as based on discussions with industry participants in 2016 and 2017. In terms of model outputs, assuming higher SREC

sales rates from these PV system owners would reduce the level of future PV builds for a given RPS level.

Q: What is the assumed make-up of the market? What % of installations are residential, commercial and grid-supply?

Response: The starting point is what is actually installed as reported by TRC in the monthly solar installation reports posted on the NJCEP web site. Changes are identified in the slides that show the results for each scenario.

Q: The rate of return needs to be above what level to make the project valid?

Response: The modeling assumes that a minimum of a 6% post-tax, unlevered rate of return is necessary to incent new capacity additions above assumed build levels.

Q: On slide 9, under Property and Sales tax. it states projects are 100% exempt. Please note that grid projects however are typically subject to property taxes (differential) - as well as lease payments. Combined this is a considerable ongoing cost that should be factored into future project type economic comparisons. (\$0.015/kWh/yr. for a 10MW project is a common combined cost)

Response: Duly noted.

Q: Has the experience in Puerto Rico provided any data for commercial enterprise and use of self-contained solar as an alternative to grid electricity?

Response: Staff is unaware of any data relating to the experience in Puerto Rica that is relevant to this proceeding.

Q: To what extent do you think energy storage could improve IRR numbers (i.e. via peak shaving), particularly for commercial?

Response: Staff welcomes any comments related to whether storage could improve solar IRRs.

Q: Of the Class I \$100 million how much represented NJ facilities vs out of state?

Response: Over 92% of the NJ Class I RECs were sourced from out-of-state facilities, the majority being Illinois and Indiana wind. Less than 8% of the NJ Class I RECs were sourced from New Jersey facilities, the majority being landfill gas to energy facilities.

Q: Have you access the impact of the section 201 solar tariff case?

Response: No, this was not considered in the model.