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RE: Tool used to identify sustainable prices for SRECs, pipeline and successor solar programs

We used the attached RPS analyzer to evaluate many scenarios of sustainable prices for legacy SRECs, pipeline solar projects and projects developed in the successor program.

With an average legacy SREC price of **$140** in 2019 (that declines in each year) the RPS budget is sufficient in each year to build at most **278 MW** of new solar each year from 2019 through 2030. Further, by reallocating the unused budget surplus in years 2019-2021 to expand the RPS budget in years 2022-2024, the average legacy SREC price could as high as **$176** in 2019, as shown in Table 2. Diagram 1 shows the early surpluses used in the later years. We are happy to provide further explanations of this tool and look forward to continued discussions with BPU staff.

Respectfully submitted,

Barbara Blumenthal, New Jersey Conservation Foundation

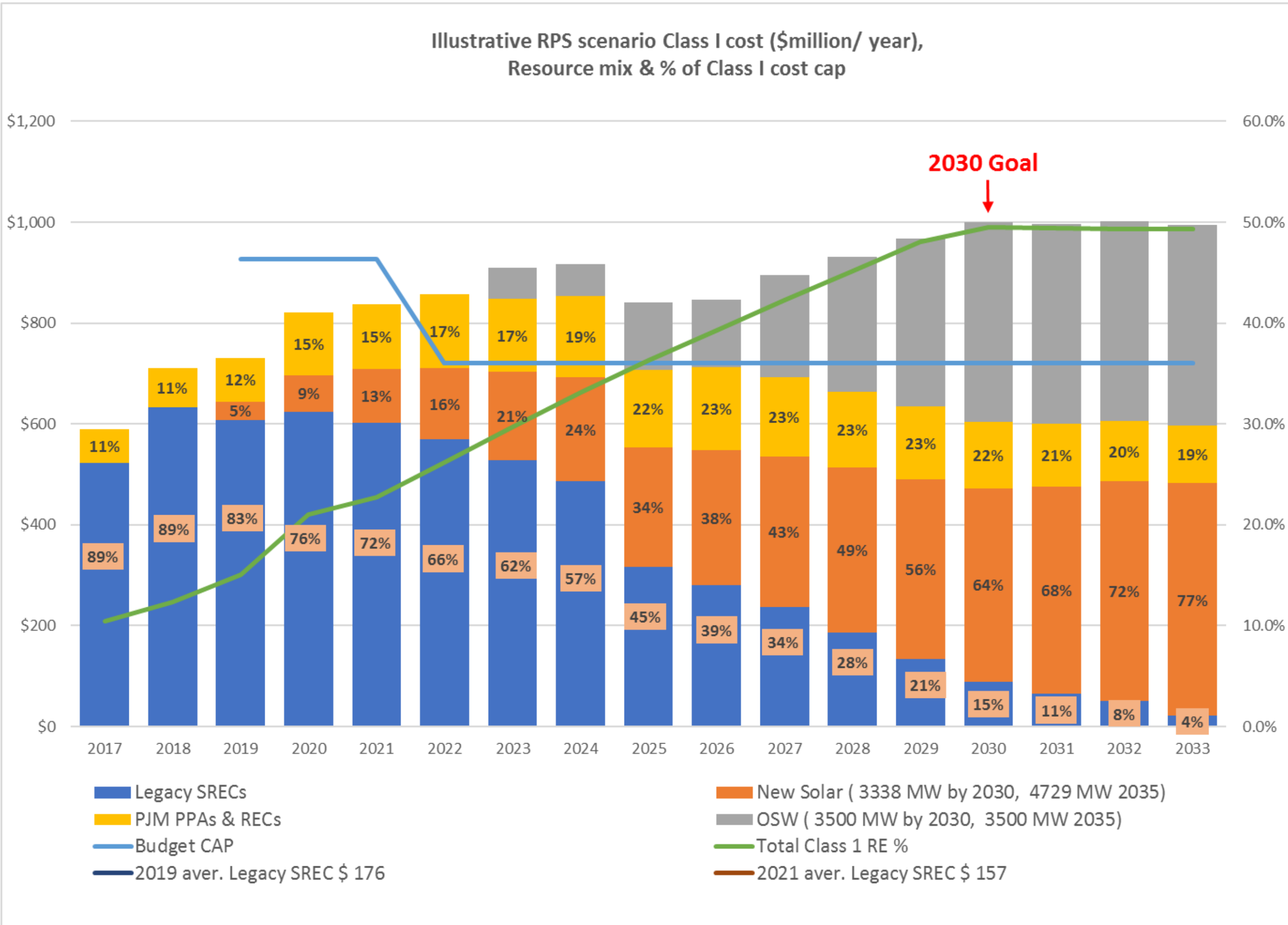
Table 1 – Scenario A, optimization for new solar, given starting SREC price

Parameters & output	**Scenario A**
2019 SREC price	$140
2019 New solar incentive	$100
Wind PPA or REC	REC
Max New Solar MW/yr	**278**
% spent on legacy solar	35%
% spent on new solar	30%
% spent on wind	18%
'19-'33 budget surplus ($B)	$1.487

Table 2 – Scenario A cost assumptions for sustainable price path using 3-year surplus

Incentive / MWH	***2017***	***2018***	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***	***2025***	***2026***	***2027***	***2028***	***2029***	***2030***
Legacy SRECs	*$225*	*$225*	$140	$130	$121	$113	$105	$97	$91	$84	$78	$73	$68	$63
Legacy SRECs with surplus			**$176**	**$166**	**$157**	**$149**	**$141**	**$134**	$91	$84	$78	$73	$68	$63
New Solar	$0	$0	$100	$99	$97	$96	$94	$93	$92	$90	$89	$87	$86	$85
OSW	$0	$0	$35	$34	$33	$33	$32	$31	$30	$30	$29	$28	$27	$27
PJM PPAs & RECs	*$12*	*$12*	$12	$11	$11	$10	$10	$9	$9	$9	$8	$8	$8	$7

Diagram 1. Scenario A, cost by resource type



Appendix – Description of RPS analyzer to evaluate sustainable SREC price paths

1. Structure of RPS Analyzer

Key economic assumptions are in the input section in the top left corner. Additional cost assumptions are shown in the top section of the spreadsheet. The first sheet "Tranches and Prices" contains an optimizer in the second section that solves for the maximum new solar that can be built each year, so that total costs to meet the RPS in each year do not exceed the RPS budget cap.

The second sheet "Use surplus from 9%" uses the total budget surplus in 2019, 2020 and 2021 to increase the RPS budget in years 2022, 2023 and 2024 by the same amount. The average budget deficit for these six years is zero. This adjustment to the total budget in years 2022-2024 would enable higher legacy SREC prices as shown in the example in Table 2. This sheet also enables weighting the budget surplus by cohort, or vintage of solar projects. Rather than providing a higher SREC level to all legacy solar projects, the surplus could be allocated more heavily to older projects, which were developed based on substantially higher costs.

2. Approach used in the RPS Analyzer

The RPS cost cap establishes an annual budget for the incentives for all Class 1 renewables, other than offshore wind. It is relatively straightforward to project an annual budget for each year in which the statute mandates a solar requirement as a share of total retail sales, based on reasonable assumptions regarding future energy prices and rates and total retail energy consumption. To find sustainable SREC prices, this annual budget needs to be allocated among SREC payments and incentives for new solar and other Class 1 renewables, other than offshore wind, needed to meet the RPS requirements.

For any given SREC price path, it is straightforward to calculate the dollars from the budget that would be spent on achieving compliance with the statute's annual solar mandate, by multiplying the required number of SRECs to be retired in each year by the assumed SREC price in that year. Subtracting this total SREC spending in each year from the projected annual budget in each year leaves the remaining budget to fund incentives needed in that year to achieve the RPS goals, including the annual cost of incentives for any new solar in the state. Because the RPS cost cap does not include offshore wind, the RPS goals that must be met within the budget for each year are the overall statutory RPS goals, minus any offshore wind renewable energy credits produced and retired in that same year.

This remaining share of the budget then needs to be allocated among three categories of incentive costs. The first category is incentive payments made in each year through multi-year incentive programs such as long-term contracts and declining block tariffs for new solar or other Class 1 renewable projects from prior years. For example, assuming ten-year contracts, a new solar project under a long-term contract in 2019 will receive incentive payments through 2028, and the cost of those payments needs to be within the RPS budget for all those years. The second category is new solar projects that are initiated in each year, which will incur incentive costs in that year and each subsequent year it is eligible for them. The third category is enough renewable energy credits (RECs) to meet the RPS goals for the year, net of current offshore wind energy production.

Our preferred approach to allocating the budget remaining after SRECs to these three categories is to maximize the amount of new solar that can be developed in the current year, after paying the incentives for new solar from previous years that is still eligible for incentives, subject to the constraint that enough money be set aside to buy enough RECs to meet the RPS goals for the current year. This approach maximizes the share of the RPS cost cap that can be spent on the combination of legacy and new solar, while spending as little as possible on less expensive wind RECs needed to meet the RPS goals. Further, with lower SREC prices, it ensures that as much as possible of the budget freed up by lower SREC prices is spent on new solar in the state as possible, while still meeting the RPS goals.

Once the analysis is set up in this manner, it is relatively straightforward to test a wide variety of SREC price paths to see how much new solar can be built each year while still achieving the RPS goals and without exceeding the RPS budget. There is clearly a tradeoff between SREC prices and the maximum amount of new solar that can be built each year, under reasonable assumptions about future total retail sales, in kilowatt-hours and in dollars, the cost of new solar, market and other revenue streams available to help defray new solar costs, and the penetration of offshore wind.

Any such SREC price paths, provided the BPU finds they provide fair and adequate compensation for legacy solar projects, would be sustainable. That is, they would fairly compensate legacy solar, be consistent with the overall RPS budget, leave enough of that budget to meet the overall RPS goals, and would ensure continued future growth for solar in the state.

Importantly, our analysis suggests that more solar could be built each year at a given SREC price, within the budget and while meeting the RPS goals, under a variety of new policy approaches. Specifically, the **recent change by BPU** to count retired SRECs towards the RPS goals, instead of treating them as above and beyond the RPS goals, allows significantly more solar to be built each year, for any given SREC price path. In addition, in some scenarios there is a significant surplus under the annual budget in early years. Allowing unused portions of the RPS budget to be tapped in future years could allow significantly more solar to be built each year.

We recommend the BPU and interested parties explore such an approach to identifying sustainable SREC price paths, with the objective of finding a sustainable path or an aggregate of several paths for solar projects of different types and vintages, that is itself sustainable. Ideally, such explorations and increased consensus around their key features would take place prior to the issuance of a proposed rule and would inform that rule to ensure its ultimate fairness and workability. Of particular importance is additional insight into, and ideally consensus on, levels of SREC pricing that provide adequate compensation to legacy projects, while still supporting acceptable amounts of new solar within the state, without compromising the achievement of the RPS goals.

Additional critical issues for stakeholder input. Current settlement, purchasing, hedging and compliance mechanisms for unretired SRECs, whether from newly eligible solar projects or from prior vintages, may also need to be modified to work efficiently with an administrative SREC price. Any such modifications should be carefully considered to ensure they are fair, non-discriminatory, and practicable, and to minimize their placing unsustainable demands on the RPS budget. All these critical details should be informed and improved by a collaborative or stakeholder process prior to the issuance of a proposed rule. Special attention may be warranted for the treatment of unretired SRECs from earlier vintages, which may be held by a variety of parties under a variety of contractual arrangements.

Ensuring sustainable prices for the pipeline program. The same analytical process that can establish a maximum annual budget for new solar, for a given SREC price path, should be followed to set up a maximum annual budget for the pipeline program. Setting such a budget will ensure that the pipeline program will not eat up current and future budgets needed to support continued solar growth and meet the RPS.

The pipeline program should be designed to not only address the gap between the SREC program and successor solar incentive programs, but to preserve as much money as possible for those new solar programs, thus ensuring both business continuity and faster future growth rates for solar. One such approach is to build on the competitive bidding and procurement process used in the NJ SREC II program, which ended in 2018. This approach has the added benefit of building on a pre-existing program, which could make it implementable upon the closing of the SREC program to new applications. Similar to the approach to finding and implementing sustainable SREC prices, the design and scope of the pipeline program would benefit from further technical discussions and stakeholder input prior to the issuance of a proposed rule.