PSEG Nuclear, LLC
ZECE Application – Hope Creek
Docket No:

Response to Application Request: HC-MISC-0002
Date: 12/19/2018

**Question:**
Please explain whether receipt of the ZEC will have any impact on the Unit's participation in the wholesale markets. If so, how? (Response must be both quantitative and qualitative and include discussion of anticipated impact on the BGS auction and a comparison of costs and benefits.

**Attachments Provided Herewith:** No

**Response:**

The receipt of ZECs will allow the Unit to remain in operation. If the Unit remains in operation, it will be capable of participating in wholesale energy and capacity markets consistent with PSEG’s business judgement to the extent permitted by PJM rules and requirements. If ZECs are not awarded, the Unit will retire and will not participate in any market.

The BGS auction is a competitive procurement of full requirements supply for customers who have not switched to third party suppliers. PSEG Nuclear cannot predict how BGS auction participants will view the receipt of ZECs by the Unit in preparing their bids for the BGS auctions. But assuming that the expectation of BGS market participants is that the Unit’s impact on future market conditions will be similar to the Unit’s past impact, a 2017 report prepared by the Brattle Group provides a useful analysis of the impacts of New Jersey nuclear plant retirements.¹

The Brattle report, sponsored by PSEG and Exelon Generation, evaluated the impact on consumers in New Jersey if all three units located at the Artificial Island site – Hope Creek, Salem 1 and Salem 2 – simultaneously ceased operation. Brattle determined that the retirement of Hope Creek, Salem 1 and Salem 2 would result in a $4.99/MWh price increase in New Jersey. This would represent an increase of about $400 million per year in electricity costs to New Jersey consumers.

Brattle did not evaluate the impact of a single unit retirement, but it can be assumed that the incremental price impact is roughly proportional to the unit capacity. Hope Creek has a 1,291 MW nameplate capability out of total of 3,631 MWs of nameplate capability at the site or about

¹ See “Salem and Hope Creek Nuclear Power Plants’ Contribution to the New Jersey Economy,” November 2017, Mark Beckman, Ph.d., Dean Murphy, Ph.d. (http://files.brattle.com/files/11755_salem_and_hope_creek_nuclear_power_plants_contribution_to_the_new_jersey_economy.pdf), included as an attachment to SSA-00021.
36% of the total. This represents a share of about $144 M of the $400 M per year rate increase calculated by Brattle.

The Hope Creek cost impact can also be allocated to BGS load. The chart below, compiled from information available from the BSG website, represents the quantity of MW capacity obligations associated with BGS compared with the total of MW capacity obligations for all the electric utilities in New Jersey:

Using the values in the chart, 10,597 MWs out of 17,565 MWs or about 60% of total State-wide load consists of BGS load. Accordingly, an estimate of impact on BGS load associated with Hope Creek ceasing operations would be about 60% of $144 M of total estimated Hope Creek impact or a yearly increase of about $86.4 M per year representing Hope Creek impact on BGS.²

The level of ZEC costs can also be allocated to Hope for comparison. Because the level of ZEC payments are a function of deliveries, ZEC obligations should be allocated based on consumption. The chart below shows that the MWhs consumed by BGS customers is 51% of the total New Jersey Retail load for the 2017/2018 delivery year:

In our response to Question 6, Section VII, PSEG Nuclear calculated that the total amount paid to Hope Creek, assuming that all three plants at Artificial Island were selected for receipt of ZECs, would be expected to average about $96 M a year over the 2019/2020, 2020/2021 and 2021/2022 delivery years (which coincides with the period that would be covered by the next delivery year).

² The use of capacity values to allocate savings is consistent with the Brattle report finding that majority of the impacts on power prices in New Jersey associated with the retirement of the plants occurred in the capacity market. Id., p. 9 ("[T]he capacity price effect accounts for over half of the total electricity price effect in PJM-East [which includes New Jersey].")
BGS auction). Applying the 51% allocation factor for BGS load would result in a dollar allocation to BGS customers of $49 M a year for Hope Creek. By contrast, the Brattle study indicates that given the price increase anticipated from not having the nuclear units available, the cost of serving BGS load would increase by about $86.4 M per year if Hope Creek ceased operation. Accordingly, the retention of Hope Creek would result in a saving to BGS customers of about $37.4 a year.