I. Introduction and Background

The Clean Energy Parties (“CEP”)\(^1\) claim that the Joint Utilities’\(^2\) selection of representative customer load profiles in their bill impact analyses in the Value of Distributed Energy Resources (“VDER”) Proceeding is flawed and may compromise such bill impact analyses and subsequent analyses of cost shifts and project economics.\(^3\) For the reasons below, the Joint Utilities urge the Public Service Commission (“Commission”) to reject CEP’s assertions because the Joint Utilities’ bill impact analyses properly used representative typical customer load profiles and appropriately selected customers based on the average of monthly load factors such that the analyses are methodologically sound.

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\(^1\) The Clean Energy Parties are Solar Energy Industries Association, Coalition for Community Solar Access, the Natural Resources Defense Council, the New York Solar Energy Industries Association, the Pace Energy and Climate Center, and Vote Solar.


Pursuant to the direction in the Department of Public Service Staff Letter ("Staff Letter"),\(^4\) on September 28, 2018, the Joint Utilities submitted bill impact analyses based on representative typical customer load profiles at three levels of load factor (low, medium, and high) for various strata of kWh consumption, both for customers installing solar photovoltaic ("PV") panels and customers who do not install solar PV panels. The Joint Utilities presented their bill impact analyses at the October 10, 2018 VDER Rate Design Working Group meeting.

The four utilities with load research programs (Central Hudson, Con Edison, National Grid, and O&R) selected customers from each of their load research strata\(^5\) that are close to the 25th, 50th, and 75th percentile in average monthly load factor in that stratum. The two utilities that do not have load research programs (NYSEG and RG&E) developed load profiles by modifying standard load profile data, obtained from an outside vendor, to create customer load profiles with appropriate annual usage and load factors. Appendix A hereto describes the development of NYSEG and RG&E customer load profiles.

\section*{II. The Joint Utilities' Bill Impact Analyses Are Methodologically Sound}

Contrary to CEP’s claims, the Joint Utilities’ load research programs are statistically designed such that customers in the program are representative of the utility’s customers in the service classification class and in a stratum of that service classification. No load research customer is representative of all customers in that class or in that stratum. However, as designed, each customer is representative of some customers in the class and the stratum. The

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\(^4\) VDER Proceeding, Staff Letter Regarding VDER Rate Design Process and Rates Selected for Analysis (filed June 29, 2018) ("Staff Letter").

\(^5\) Load research strata are determined by statistical analysis to produce statistically significant estimates of class loads. National Grid’s and O&R’s residential load research programs have five consumption strata and Con Edison’s has six consumption strata; Central Hudson’s residential load research program has two end-use (heating and non-heating) strata.
customers are real customers and they do represent the customers that would be subject to the proposed rates. Since they are real customers, they reflect real world differences in loads by time of day, month, and season.

CEP asserts, “While the specific customer selected might come close to the 25th, 50th and 75th percentile in average load factor, they do not share this distribution in terms of overall usage.” CEP, however, fails to explain why this is relevant. In accordance with the Staff Letter, the utilities selected customers meeting load factor criteria. There is no reason to believe that customers at the 25th, 50th, and 75th percentile in average monthly load factor would also meet these criteria in terms of kWh usage.

CEP’s assertion that some of the customers selected for the Joint Utilities’ bill impact analyses are not viable solar candidates is similarly misplaced. The Joint Utilities prepared a bill impact analysis that presents a broad array of mass market customers, including customers who may be viable or non-viable rooftop solar candidates. In interpreting the results of the Joint Utilities’ bill analyses, it may be valid to distinguish between impacts to customers (and stratum) that are not viable solar candidates. Certainly, solar developers evaluate whether a customer is a viable solar candidate as a part of their regular business activities. However, such considerations in no way indicate a flaw in the Joint Utilities’ bill impact analysis. CEP’s demand for additional detail or narrative concerning testing samples for representativeness also lacks merit and, in any event, is outside the scope of the VDER Proceeding. The Joint Utilities’ load research strata and

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6 VDER Proceeding, CEP Comments, p. 4.
7 Id.
8 The Joint Utilities note that CEP had the opportunity to respond to the Staff Letter in the VDER Proceeding by recommending an alternate methodology for selecting the customer load profiles.
9 Id., p. 3.
sample sizes, by stratum, were determined according to rigorous statistical analysis so that the sample would produce statistically significant estimates of class load data.

CEP next asserts that the Joint Utilities’ decision to select bill impact customers based on the average of monthly load factors masks differences in individual customers’ loads between months or between seasons. CEP’s presentation of charts and tables of National Grid data, however, fails to provide any evidence that its assertions have any meaningful effect on the Joint Utilities’ analyses.

More specifically, CEP’s comparison of two National Grid customers (Strata 2 – high load factor and Strata 3 – low load factor) draws the meaningless conclusion from its analysis that, “[i]f one were to exclude the three highest months from [the calculation of] each average [load factor], the high load factor customer is only 21% higher (15.9% vs. 13.1%), a much more modest difference.” There is no justification for excluding data. These customers were selected from National Grid’s load research program and thus they do represent the customers that reflect real world differences in loads by time of day, month, and season. CEP’s charts that compare (1) energy usage, (2) load factor, (3) coincident peak (“CP”) demand and (4) non-coincident peak (“NCP”) demand and peak kWh of National Grid’s Strata 2 – high load factor and Strata 3 – low load factor customers are similarly additional and superfluous analytical exercises that have no bearing on the Joint Utilities’ or E3’s analyses.

CEP attempts to bring relevance to its analysis of two National Grid customers by claiming, “[t]he point of this analysis is … to show that ‘similar’ customers based on the JU’s

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10 Id., p. 6.
11 Id., pp. 7-10.
12 Id., p. 7.
13 Id., pp. 8-10.
sorting and selection methodology can face dramatically different bill impacts depending on their actual detailed usage. … [I]t is impossible for CEP to know whether these two individual customers truly represent their strata. Had the JU selected a customer one entry up or down on the sorted list, it is possible that the entire outcome of their analysis would change.”14

As a preliminary matter, the Joint Utilities note that there is no support or justification for CEP’s attempt to extend its analysis of two National Grid customers to all customers and to all utilities. Of greater significance, however, there is no support or justification for CEP’s assertion that “the entire outcome of [the Joint Utilities’] analysis”15 could be affected by the selection of only one bill impact customer.

Although CEP does not explain how it would define or measure “outcome,” the Joint Utilities offer that an appropriate way to assess the effect of the rate design proposals that have been analyzed is provided by summary analysis that combines the impacts for all utilities. The Joint Utilities have provided such analysis in residential bill impact comparison charts that were included in the Joint Utilities’ October 10, 2018 presentation to the VDER Rate Design Working Group (Slides 14 – 17). E3 also provided summary analysis of the effects of the proposed rate designs on cost shifting (NEM Successor Rate Design Analysis, 10/05/18, E3, Slides 8 – 11) and solar and storage markets (Slides 15, 16). These summary analyses demonstrate the overall outcome of each of the rate design proposals in terms of bill impacts, cost shifts, and market impacts for all the Joint Utilities. Although CEP has not established the need to pick different customers for the bill impact analysis, the consistency of the Joint Utilities’ and E3’s analyses of

14 Id., p. 10.
15 Id. (emphasis added).
each proposed rate design across all utilities indicates that the overall outcomes would not be radically changed if different customers had been used in the Joint Utilities’ analyses.

CEP’s assertions of (1) National Grid’s serious analytic error; (2) NYSEG and RG&E’s not basing their analysis on 15 unique customers; and (3) O&R’s and Con Edison’s inconsistent average annual load factors from two separate sources all fail to undermine the soundness of the Joint Utilities’ bill impact studies.

National Grid’s “serious” error was only the result of the mislabeling in National Grid’s residential bill impact file and is easily corrected. This mislabeling resulted from a sorting error in National Grid’s residential (SC1) bill impact file, which incorrectly aligned billing determinants and subsequent bill impact calculations for several bill impact customers in a stratum with the load factor labels displayed in the file. Correction of this labeling error changes the order in which data is displayed in the relevant table, but does not materially affect the bill impact results. National Grid also discovered a small rounding error in the non-solar data set resulting in slightly different bill impact figures in the delivery section of the analysis. Correction of this rounding error is insignificant to the resulting calculations of the bill impacts as compared to the original analysis filed.

Next, because NYSEG and RG&E do not have a load research program, the load shapes for the bill impact customers are derived from residential and small commercial “base” load profiles that NYSEG and RG&E obtained from a third party. NYSEG and RG&E adjusted the
base load profiles to create typical customer load profiles for five stratum of annual kWh consumption at the 20th, 40th, 60th, 80th, and 95th percentiles of the companies’ annual billing data. NYSEG and RG&E also adjusted the five-strata load data to create load profiles at three levels of load factor (low, medium, and high) that are specific to each stratum. CEP’s assertion that NYSEG and RG&E did not use 15 unique customers is not appropriate; NYSEG and RG&E used available data to produce 15 representative load profiles that vary by annual usage and load factor, following the directions in the Staff Letter. The bill impacts that NYSEG and RG&E created with these 15 representative load profiles are reasonable, appropriate, and consistent with the bill impacts created by the other utilities.

Finally, CEP claims “inconsistencies between the [O&R and Con Edison] average annual load factors presented on the main summary and the average of monthly load factors derived from the data sheets.” These load factors do correctly differ because the load factors on O&R’s and Con Edison’s summary sheets, used to categorize customers as low, medium or high load factor, are calculated in a traditional manner, using a single maximum demand in each month. Load factors calculated by CEP based on the billing determinants used in the bill impact analysis are determined using monthly demands based on a three-day average as specified in the rate designs studied. Both calculations are correct for their intended purposes.

19 VDER Proceeding, CEP Comments, p. 6.
III. Conclusion

For the reasons described above, the Joint Utilities urge the Commission to reject CEP’s criticism of the utilities’ bill impact studies.

Dated: November 9, 2018

Respectfully submitted,

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Appendix A - New York State Electric & Gas Corporation and
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Development of Bill Impact Customer Load Profiles

The NYSEG and RG&E ("Companies") bill impact customer load shapes are derived
from the residential and small commercial load data that NYSEG and RG&E obtained from a
third party.\textsuperscript{20} The third-party load data consists of 24-hour load patterns, by month for three
categories of days: weekdays, Saturdays, and Sundays. Using the third-party load data,
Concentric constructed residential and small commercial Base annual load profiles of 8,760
hourly data points for the calendar year 2019, adjusted so that the kWh distribution of the Base
load profile,\textsuperscript{21} by month, is the same as the total rate class kWh distribution, by month.

To create the 15 residential and small commercial bill impact load profiles, the Base load
profiles were adjusted by multiplying each of the 8760 hourly loads by a constant factor so that
the sum of the modified hourly loads equaled the target annual kWh for each stratum. The target
annual kWh for each stratum was determined from NYSEG and RG&E annual usage frequency
distributions for 2017.\textsuperscript{22} The target annual kWh for each stratum is the annual usage at the 20th,
40th, 60th, 80th, and 95th percentiles; the target annual kWh are shown on Page 2 of the Bill
Impact Results, filed September 28, 2018. Because NYSEG and RG&E do not have load
research programs, the bill impact load profiles were calculated, rather than selected from a load
research sample. Thus, the calculated annual usage is the same for low, medium, and high load
factor customers in each stratum.

\textsuperscript{20} The Companies employ the use of these service class load profiles to support the load settlement process as well
as to provide input to embedded cost studies.
\textsuperscript{21} Specifically, the Base annual load shape reflects weekday, Saturday, and Sunday load profiles, by month, based
on the 2019 calendar.
\textsuperscript{22} The annual usage frequencies were based on customers with 12 monthly bills in 2017.
The load profiles for each stratum were adjusted by increasing the hourly demand for selected hours in peak and off peak periods\textsuperscript{23} by a constant factor to produce target low, medium and high load factors, by stratum; all other hours were decreased by a second constant factor so that the total monthly kWh was the same for each of the three customers in a stratum. The target low, medium and high load factors for each stratum were determined from National Grid load data.\textsuperscript{24} The target low, medium, and high load factors for each stratum is the load factor at the 25th, 50th, and 75th percentiles; the bill impact load factors are shown on Page 2 of the Bill Impact Results, filed September 28, 2018.\textsuperscript{25}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
 & Peak & Off-Peak \\
\hline
NYSEG & 6:00 pm – 7:00 pm & 9:00 pm – 10:00 pm \\
RG&E & 5:00 pm – 6:00 pm & 9:00 pm – 10:00 pm \\
\hline
\end{tabular}
\caption{The selected hours.}
\end{table}

\textsuperscript{23} The selected hours: Peak 6:00 pm – 7:00 pm, 9:00 pm – 10:00 pm; Off-Peak 5:00 pm – 6:00 pm.\textsuperscript{24} NYSEG and RG&E requested National Grid’s load factor data by stratum after determining that, of all New York utilities, National Grid’s customers and usage patterns were likely to be most similar to NYSEG and RG&E’s customers and usage patterns.\textsuperscript{25} CEP asserts that NYSEG’s and RG&E’s “ratio of peak demand values between the low, medium, and high load factor customers are the same across different strata, even as the total kWh change.” VDER Proceeding, CEP Comments, p. 5. This is not correct: the ratio of peak demand values among the low, medium, and high load factor customers are indeed very different across different strata. CEP’s assertion would be correct only if the low, medium, and high load factors were the same across different stratum, as is demonstrated in the NYSEG and RG&E Bill Impact Results (filed September 28, 2018), p.2.