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|  | NEPOOL Reliability Committee |
|  | Maria Scibelli, Chair, Power Supply Planning Committee |
|   | July 11, 2018 |
|  | April 24-25, 2018 Reliability Committee Referral |

On April 25, 2018, the Power Supply Planning Committee (PSPC) received the following referral from the Reliability Committee (RC):

*“Request the PSPC to review the Net Installed Capacity Requirement (NICR) results for past Forward Capacity Auctions (FCAs) and Third Annual Reconfiguration Auctions (ARAs) (and any other data relevant to the request), and explore whether any consistent bias exists in the NICR calculation methodology and report its findings to the RC. If any consistent bias is determined to exist, the PSPC is also asked to recommend changes in modeling assumptions or methodology to the RC to address such bias.”*

At the May 29, 2018 PSPC meeting, the ISO presented the results of an analysis to investigate bias in the NICR calculations by examining historical NICR values from Capacity Commitment Period (CCP) 1 (2010-2011) through CCP 11 (2020-2021). The results of this analysis showed that there were three contributing factors to the decrease in NICR from the values calculated for the FCA to the values calculated for ARA 3. These factors are:

1. The Great Recession which began in 2009 and mainly affected CCP 1 (2010-2011) through CCP 3 (2012-2013) but still has lingering impacts on electricity consumption today. This recession was not predicted and the subsequent economic recovery took longer than expected. As such, the ARA 3 load forecast three years later were significantly lower than the values for the FCAs which resulted in decreases in NICR calculated for ARAs.
2. Coupled with the lingering effects of the Great Recession, the continued weakening over the years in the relationship between economic growth and growth in electricity consumption has also contributed to the decrease in ARA ICR values. Driven in part by increased end-use efficiency over time, New England economic growth is now associated with less growth in electric demand than in the past, and this evolution has impacted ICR values for all CCPs.
3. The rapid growth of behind-the-meter photovoltaic (BTM PV) installations and new methods to include these in the ICR model as a reduction to the load forecast was the main driver for the decrease in NICR values for CCP 7 (2016-2017) through CCP 11 (2020-2021). By modeling BTM PV in the ICR for ARAs when it was not previously modeled in the ICR for the corresponding FCAs, the ISO was able to roll this assumption into the ICR as quickly as possible and thus capture the load reducing impact of these installations. However, the reduction in NICR for ARA 3 versus the corresponding FCA is greater than it would have been if BTM PV was only modeled in ARAs if it was first modeled in the corresponding FCA.

The ISO also described several ICR modeling assumptions that caused increases in the NICR value for ARAs as compared to the NICR value for the corresponding FCAs. The main assumption was the impact of increasing generator forced outages in the 2011-2013 timeframe. This increase has caused ICR values calculated in the past several years to increase, since a rolling 5-year average value of generator availability is used.

The ISO concluded its presentation by stating that NICR values increased or decreased due to assumption changes that were developed according to the Tariff and under the review of the PSPC. While the three contributing factors for declining ARA ICR values noted above may have been difficult to forecast and model, they do not indicate bias. After concluding this presentation, members of the PSPC thanked the ISO for the thoroughness of the analysis. Overall, the PSPC agreed that bias is not an issue in the ICR calculations but requested that the ISO continue to improve its load forecasting methodology. It was noted that using an adjustment factor to modify NICR going forward could be adjusting for issues that have already been addressed and may, in fact, result in double counting the impact of these assumptions changes.