



Super Peak and Demand Response Avoided Cost Analysis

December 16th, 2015



Super Peak Study details

Why do we need super-peak values?

- Peak periods are broad and may not capture full value of energy efficiency delivered at times of high demand

What is Super-peak?

- “Super-peak” and “Super-duper peak” or “DR peak” analysis of narrower time bands for electricity and natural gas. These are pieces of the existing ISO peak definitions.

Study Conducted as follow-up to Avoided Energy Supply Cost (AESC) 2015, by Tabors, Caramanis, and Rudkevich (TCR)

Scope of Work

- Task 1 – Super-peak avoided costs for electric energy
- Task 2 – Super-peak avoided costs for gas energy
- Task 3 – DR Peak avoided cost for electric energy

Super Peak avoided costs

When are super-peak periods? (Task 1 & 2)

- Summer weekdays – 13:00 to 17:00
- Winter weekdays – 17:00 to 21:00
- Natural Gas- Peak days (10), shoulder days (141) and baseload days(214)

Results

- Recommendation – TCR does not recommend using separate DRIPE coefficient for super-peak and other periods.
- Instead, apply the relevant peak period DRIPE coefficients from AESC 2015 to the prices for the super-peak periods and other peak periods respectively.

Task 3 – Preliminary results

Demand Response Peak

- DR Peak analysis to estimate the impact of demand response (DR) on locational marginal prices for the following zones: MA (3 + statewide), ME, RI, NH, and CT
- Model – same as was used in the AESC 2015 Base Case for the period of 2016 – 2018 to ensure consistency of results
- Analyzed for three year period consistent with AESC and Plan
- Demand Response events were designed based on National Grid Smart Energy Solutions program in Worcester and the proposed scale of National Grid DR program in the MA 3 year Plan 2016-2018

Task 3 – Expected Results

- Locational Marginal Prices (LMP) for the DR case in real 2015 dollars:
 - by zone,
 - by year,
 - by AESC 2015 costing period,
 - and/or by super-peak periods
- LMP differences from the Base Case scenario by zone by AESC 2015 costing period and for super-peak/other peak periods

Next Steps

- Preliminary analysis and memo to be shared with Study Group, early 2016
- Study group to develop a DR b/c framework using these results