



# RPM Auction Participation by EE Resources

Jeff Bastian  
Sr. Consultant, Market Operations  
Market Implementation Committee  
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## 1.20A Energy Efficiency Resource

Energy Efficiency Resource shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the periods described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption **that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed**, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention. Annual Energy Efficiency Resources, Base Capacity Energy Efficiency Resources and Summer-Period Energy Efficiency Resources are types of Energy Efficiency Resources.

- EE Resources were first implemented as Capacity Resources in RPM starting with the 2012/2013 BRA conducted in May of 2009
- At that time, the PJM peak load forecast methodology did not explicitly reflect the load reducing effects of recently installed EE or future EE
- In its initial implementation, the EE Resource allowed for recognition of recent and future EE projects by reducing the need to procure other resources by the amount of EE that was not yet recognized in the load forecast used for an RPM auction
  - A cleared EE Resource displaced a commensurate MW quantity of capacity resource commitment that would otherwise be unnecessarily procured for load that was included in the forecast but that would not exist in the relevant delivery year due to a successful implementation of the EE program

- Significant changes to the load forecasting models and methodology were implemented starting with the 2016 PJM Load Forecast Report
- One important change was adding variables that captured past and future trends in equipment/appliance saturation and efficiency
- With this change, past and future EE would now be reflected in the peak load forecast starting with the forecast used for the 2019/2020 BRA
- Throughout 2015, PJM stakeholders developed rules that would provide for continued EE Resource participation in RPM to coincide with implementation of the new peak load forecast model
- These rules changes were specified in PJM Manuals 18 & 18B and are summarized in the meeting material of the 12/17/2015 MRC:

<https://www.pjm.com/-/media/committees-groups/committees/mrc/20151217/20151217-item-04-draft-manual-18-and-18b-revisions-presentation.ashx>

- To prevent double-counting EE as a resource and again as a load forecast reduction, an add-back mechanism was implemented in order to accommodate continued EE Resource participation in RPM Auctions when the new peak load forecast model was adopted
- The EE Addback accommodates capacity market participation by EE as a supply-side EE Resource by preventing the adverse reliability impact associated with the EE effects already being included in the peak load forecast that is used to develop the parameters of each auction
- The EE Addback effectively returns the MW quantity of the proposed EE Resource to the peak load forecast that is used to develop the parameters for an RPM Auction

- For each BRA, the Reliability Requirement of the RTO and each LDA is increased by the total UCAP Value of all EE Resources for which PJM accepted an EE M&V Plan for that auction
  - This upward adjustment is referred to as the “EE add-back”
- The cleared MW quantity of EE Resources in the BRA can equal but will never exceed the EE add-back MW quantity given that the add-back is based on the maximum MW quantity of EE that could possibly clear the BRA
- The EE add-back MW quantity of the BRA will normally exceed the cleared MW quantity of EE Resources of the BRA
  - Entire MW quantity of accepted EE M&V Plan may not offer into auction
  - Entire EE sell offer quantity may not clear the auction

- The difference between the BRA add-back MW quantity and the cleared EE Resource MW quantity of the BRA represents an EE add-back margin that is carried forward and applied to the IAs that are conducted for the BRA delivery year
- For each IA, the Reliability Requirement of the RTO and each affected LDA is increased by the total UCAP Value of all EE Resources that clear in that auction, but not until and only to the extent that the total EE Resource UCAP MW quantity cleared in all auctions conducted for that delivery year exceeds the total EE add-back MW quantity applied to the BRA of that delivery year
  - Slides 6 and 7 of the 12/17/2015 MRC meeting material provide examples of the application of the EE add-back across the BRA and IAs of a delivery year

- Current rules include a safeguard against an excessively high BRA add-back MW quantity relative to the MW quantity of EE Resources that clear the BRA
- Prior to each BRA, a threshold ratio is determined by the most recent 3-year average ratio of the total EE Resource UCAP MW cleared in all auctions for a delivery year divided by the total EE Resource UCAP MW cleared in the BRA for that delivery year (example shown on slide 15 of 12/17/2015 MRC meeting material)
  - If a first-pass BRA solution yields a ratio of BRA EE MW add-back quantity to cleared BRA EE MW quantity less than the applicable threshold ratio then the first-pass solution is the final solution
  - If a first-pass BRA solution yields a ratio of BRA EE MW add-back quantity to cleared BRA EE MW quantity greater than the applicable threshold ratio then the BRA EE add-back quantity is reset to equal the cleared EE MW quantity of the first-pass solution times the threshold ratio and the 2<sup>nd</sup> pass solution is the final solution regardless of the resultant ratio



# Auctions Results under Current Application of EE Add-back

BRA	EE Addback in BRA	EE Cleared in BRA	Addback to Cleared Ratio of BRA	Applicable Threshold Ratio	EE Addback Margin Applied to IAs	EE Cleared in IAs
2019/2020	1,891.4	1,515.1	1.25	1.38	376.3	1,013.4
2020/2021*	2,432.8	1,710.2	1.42	1.42	722.6	1,859.3
2021/2022	3,912.9	2,821.0	1.39	1.61	1,091.9	1,974.2

\* Initial EE addback MW of 2020/2021 BRA was 3,092.9 MW relative to a first-pass cleared EE MW quantity of 1,710.2 yielding an initial first-pass ratio of 1.81. The EE addback was reset to 2,432.8 MW based on 1,710.2 MW of Cleared EE of first-pass solution times the applicable threshold ratio of 1.42.

Presenter:  
Jeff Bastian

[Jeffrey.Bastian@pjm.com](mailto:Jeffrey.Bastian@pjm.com)

Facilitator:  
Lisa Morelli,

[lisa.morelli@pjm.com](mailto:lisa.morelli@pjm.com)

Secretary:  
Nick DiSciullo,

[nicholas.disciullo@pjm.com](mailto:nicholas.disciullo@pjm.com)

**RPM Auction Participation by EE Resources**



**Member Hotline**

(610) 666 – 8980

(866) 400 – 8980

[custsvc@pjm.com](mailto:custsvc@pjm.com)