

Comparison of Proposals for Clearing DR Products in RPM Auctions

Markets and Reliability Committee
October 23, 2013

- The following components of Packages A, B and D are compared:
 - Clearing of Limited DR
 - Clearing of Extended Summer DR
 - Clearing of Annual Capacity
 - Application of 2.5% holdback

- All packages (Packages A, B and D) treat the Limited DR Reliability Target as the maximum quantity of Limited DR that can clear in RPM auctions
- Package B sets the maximum quantity of Limited DR that can clear at a higher level based on two factors:
 - Applies full 2.5% holdback to Annual and ES capacity but only a portion (portion to-be-determined) of the 2.5% holdback to Limited DR thereby allowing for more Limited DR to clear in the BRA
 - Assumes an update of the Limited DR Reliability Target to reflect use as operational resource. An evaluation of impact of DR operational changes on DR Reliability Targets is part of the CSTF issue charge and any DR Reliability Target impact resulting from this evaluation would be applicable to each proposed package and not be a unique component of any single package

- **Package A:**
 - treats ES DR Reliability Target as maximum quantity of sub-Annual DR (Limited DR plus ES DR) that can clear;
 - direct use of ES DR Reliability Target; sub-Annual DR will not be procured in quantities above the ES DR Reliability Target
- **Packages B & D:**
 - Use the ES DR Reliability Target to establish Minimum Annual Resource Requirements, as under status quo; however a sloped demand curve concept is applied for prices above Net CONE
 - Indirect use of ES DR Reliability Target; sub-Annual DR can be procured in quantities above the ES DR Reliability Target

- **Package A:**
 - Clear only Annual Resources up to intersection of VRR curve once maximum Limited and maximum Sub-Annual constraints are reached
 - Entire sloped portion of VRR curve utilized by Annual Resources
 - Incrementally procures only Annual capacity when total procurement exceeds overall reliability requirement
- **Packages B & D:**
 - Clear Annual resources and ES DR up to intersection of VRR Curve once maximum Limited constraint and Minimum Annual Resource Requirement are reached
 - Entire sloped portion of VRR curve utilized by ES DR and/or Annual Resources
 - Incrementally procures either Annual or ES capacity when total procurement exceeds overall reliability requirement

- Packages A & D:
 - Apply 2.5% holdback in BRA to all capacity types
 - the entire 2.5% holdback quantity can then be satisfied in IAs by procuring capacity in least cost manner from any capacity resource type (Annual, ES or Limited)
- Package B:
 - Applies full 2.5% holdback in BRA to only Annual and ES capacity; but only some portion of the 2.5% holdback is applied to Limited DR (portion TBD)
 - Limited DR is then effectively precluded from being eligible to satisfy that portion of holdback in IAs

- A sloped VRR curve provides reliability and cost benefits not provided by a vertical demand curve (as identified in Prof. Hobbs analysis)
- Package A: reinstates entire sloped portion of the VRR curve for Annual Resources; restoring all of the reliability and cost benefits of a sloped-demand curve for Annual resources
- Packages B & D: maintain status quo implementation of a vertical demand curve for Annual Resources (via Minimum Annual Resource Requirement); and further exasperates reliability impact of a vertical curve for Annual resources by employing a sloped curve for prices above Net CONE (i.e. procuring Annual capacity below Min Annual Requirement when most needed)

- A sloped VRR curve procures higher capacity commitment levels above target IRM (increased reliability) at lower total cost
- Package A: incrementally procures only Annual capacity when total procured capacity exceeds overall reliability requirement ensuring that the product providing the highest reliability benefit is procured for this increment; respects the ES DR Reliability Target by not procuring sub-Annual DR above this limit
- Packages B & D: incrementally procures either Annual or ES capacity when total procured capacity exceeds overall reliability requirement allowing for procurement of sub-annual capacity in excess of ES DR Reliability Target; disregards reliability analysis that optimistically sets this target based on an accepted level of diminished reliability associated with the availability limitations of ES DR

Implications of Proposal Differences Application of 2.5% Holdback

- If all or portion of holdback is not applied to a particular capacity type then that capacity type effectively becomes ineligible to meet that portion of holdback in IA
- Initial implementation of Minimum Annual Resource Requirement inadvertently set up this exact scenario; PJM 12/1/2011 filing to correct this situation was approved in 1/30/2012 FERC Order:
- FERC 1/30/2012 Order (paragraph 121): “We find that PJM’s proposal makes certain that the hold-back serves the purpose in the capacity auctions for which it was intended. As defined in the Commission’s March 2009 Order, the hold-back was created to allow for greater participation, as close as possible to the delivery year, of short lead-time resources. According to the March 2009 Order, these short lead-time resources include: demand response, energy efficiency resources, upgrades to existing generation units and imports of capacity from areas outside of PJM. **PJM’s proposal will continue to defer 2.5 percent of the total resources for the incremental auction and this overall hold-back to the VRR Curve can be met by any of the resource categories, including Limited Demand Resources.**”

- Packages A & D: apply entire 2.5% holdback in BRA to all capacity types ensuring that the entire deferred quantity can be met by all capacity resource types, including Limited DR, in the IAs
- Package B: applies only a portion (to-be-determined) of the 2.5% holdback in BRA to Limited DR thereby precluding Limited DR from satisfying that portion of deferred quantity in the IAs; allows Limited DR capacity to clear as a higher % of total procured capacity in the BRA

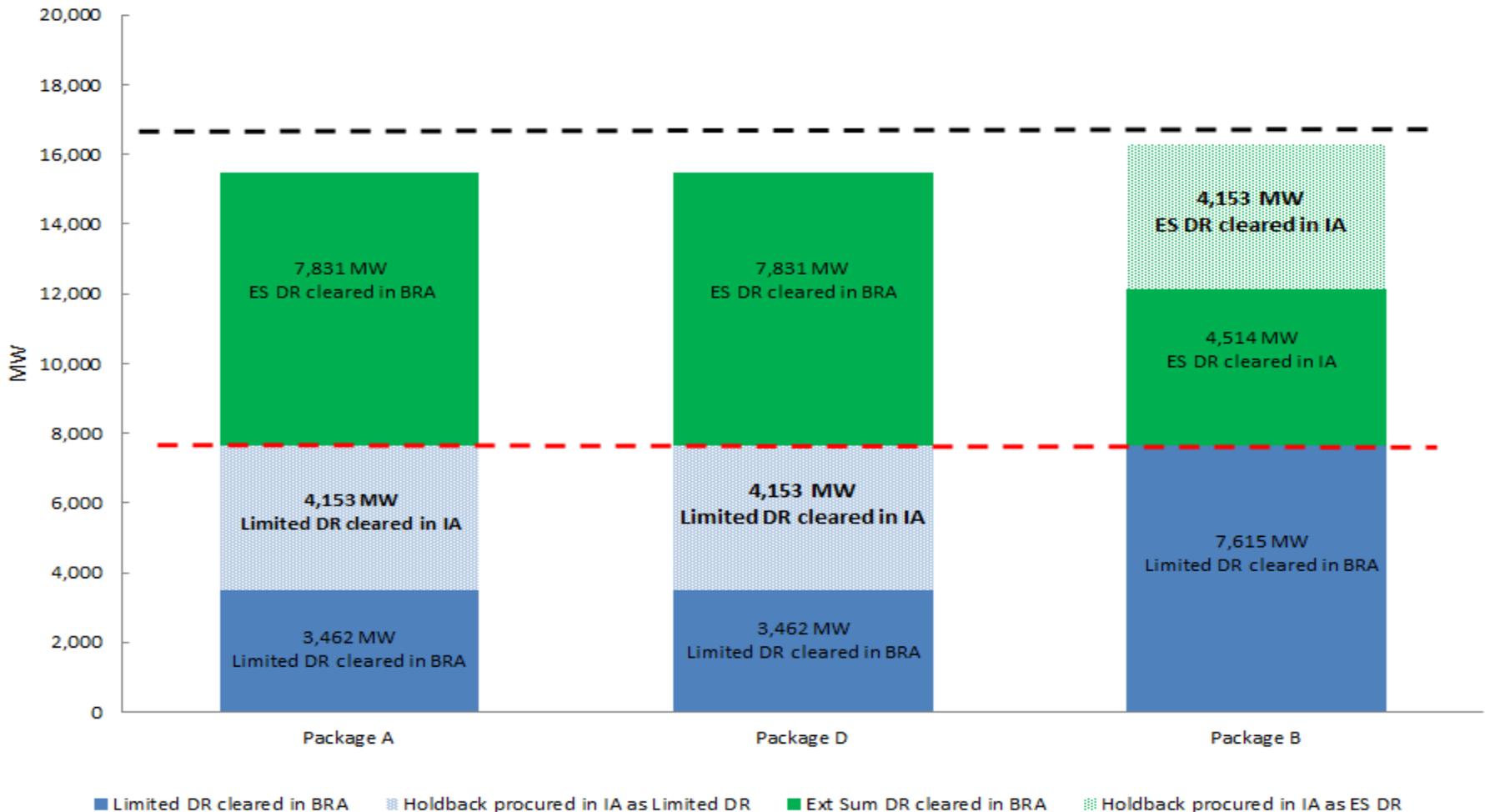
Simulation of Packages

- Packages A, B and D were rerun against the 2015/2016 BRA and 2016/2017 BRA
- Package B contains a component to apply only a portion of the 2.5% holdback to Limited DR capacity where the portion is described as yet to be determined
 - The simulations of Package B assume that none of the 2.5% holdback is applied to Limited DR capacity in the BRA
 - Package D is identical to Package B except that Package D applies the full 2.5% to all capacity types (including Limited DR capacity) in the BRA
 - The simulation results of Package B and D therefore bound the impact of Package B's to-be-determined portion of the holdback that is not applied to Limited DR capacity in the BRA

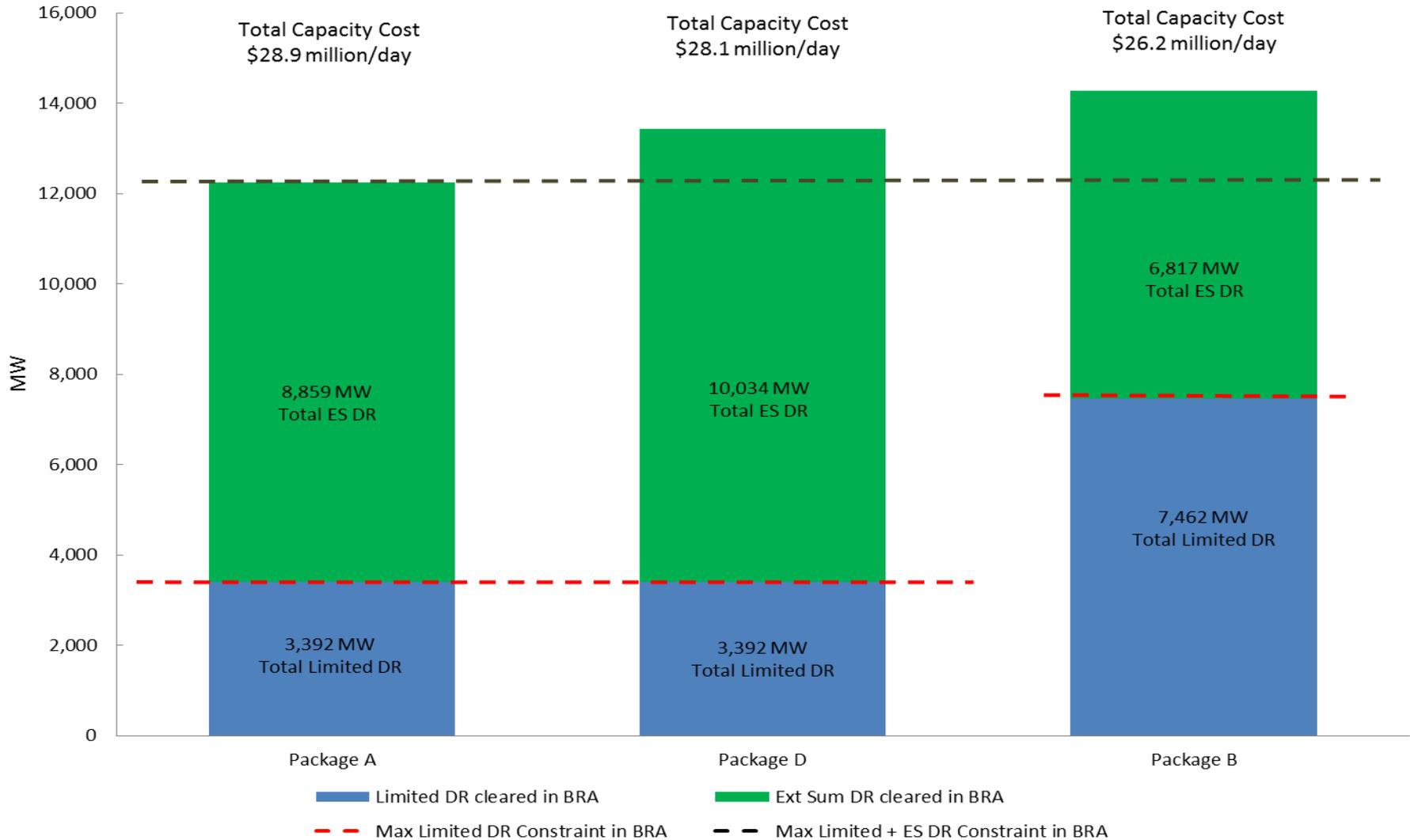
2016/2017 BRA Simulations



2016/2017 Delivery Year Procurement holdback met in IA by eligible capacity having lowest availability



2015/2016 BRA Simulations



2015/2016 Delivery Year Procurement holdback met in IA by eligible capacity having lowest availability

