

SCRSTF Alternative Proposal: Winter Performance Equivalents (WIPEs)

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Winter Performance Equivalents Proposal (#2 of 2)

1. *Background and Motivation – same as for full seasonal proposal*
2. Proposed Alternative Solution: WIPeS
3. Additional Results of Illustrative Simulation
4. Summary of Potential Benefits

Appendix A: Additional details of the illustrative simulation

2. Proposed Approach #2: Winter Performance Equivalents (WIPes)

- Base Residual Auction is status quo (annual CP only; no change)
- Separately, create and auction off locational “Winter Performance Equivalents” (WIPes) (\$\$ are offset to capacity cost to consumers)
 - The WIPE is a ticket that releases a capacity resource from associated Winter period obligations; turns an Annual resource into a summer-only resource
 - A capacity resource with a WIPE is equivalent to the Summer half of an aggregated resource under PJM’s aggregation proposal
- WIPes would be created in quantities based on a reliability analysis, and could be auctioned off a few weeks before base residual auction

WIPE Proposal: Optional Details

- WIPes could be auctioned using a sloped price-quantity curve
 - Analogous to PJM capacity sales in incremental auctions
 - Recognizes that the last increment of WIPE has some incremental winter reliability value, should not be sold off if the market assigns low value to it
- WIPes should be tradable on a bilateral basis; WIPE reconfiguration auctions could also be held
- Resources with winter capacity in excess of summer could be permitted to create/sell WIPes
- PJM might be a purchaser rather than seller of WIPes in a winter-peaking zone

WIPE Proposal: Example

- A demand resource purchases 10 MW of WIPes in the WIPE auction at \$30/MW-day
- The Base Residual Auction clears at \$150/MW-day; the demand resource clears 12 MW
- For 10 MW of demand resource covered by WIPes, the owner nets \$120/MW-day (\$150/MW-day minus \$30/MW-day WIPE cost)
- For the additional 2 MW of cleared demand response, the owner might provide Annual service, or acquire additional WIPes on a bilateral basis or in incremental auction

3. Results of Illustrative Simulation: WIPE Proposal

(See first presentation for description of illustrative simulation scope, goals, assumptions)

	Ann. Only	WIPE Proposal		
		WIPE auct.	Ann. Auct.	TOTAL
Clearing price*	\$ 148.0	\$30.0	\$131.7	\$ 131.7
Cleared qty	165,605	15,000	166,711	
% of Rel. Req't	105.4%		105.8%	
LOLE	0.016		0.013	0.013
Cost (\$ bil.)	\$ 9.2	-\$.2	\$8.0	\$ 7.9
Trad. Gen	157,105	10,350	153,561	
DR	6,000	4,000	10,000	
EE	700	300	1,000	
Wind	800		800	
Wind/DR agg.	1,000		1,000	
Solar	0	350	350	

Observations:

- WIPE auction clears @ \$30/MW-day (a bit below Winter in seasonal model where VRR curve leads to clearing larger quantity at lower price)
- As in seasonal model, assumptions about generation winter offers drive winter price, WIPE price
- WIPE approach again results in lower cost, higher reliability than Annual Only

Disclaimer: Illustrative assumptions and results – alternative, reasonable assumptions might give very different results!

Seasonal Approaches: Price Signals; Price Formation Expectations

	Annual Only (1st presentation)	Seasonal Construct (1st presentation)	Annual w/WIPes
Price signal for Annual resources	<i>B.R.A. price (Net CONE concept applies)</i>	<i>Summer price plus Winter price (Net CONE concept applies)</i>	B.R.A. price (Net CONE concept applies)
Price signal for incremental Summer capacity	<i>No summer or winter price signals (aggregation may be understood to create a price signal that is not transparent, and also not consistent with incremental summer, winter reliability value)</i>	<i>Explicit price signal: likely reflects incremental annual value (Net CONE concept) net of anticipated net winter value</i>	Explicit price signal: Annual B.R.A. price minus WIPE price
Price signal for incremental Winter capacity		<i>Explicit price signal: price required to entice sufficient annual resources to provide winter service</i>	WIPE price: price required to entice sufficient resources to provide winter service

4. WIPE Approach: Summary of Potential Benefits

- Similar benefits to full seasonal approach – higher reliability at lower cost by recognizing seasonality of capacity requirements, accommodating seasonal resources; while creating explicit seasonal price signals
- Builds on PJM’s aggregation proposal with two seasons – and no change needed to base residual auction
- Realizing the benefits may require provisions to ensure WIPes are not purchased with intent to squeeze out seasonal resources

Appendix A: Additional Details of Simulation w/WIPES

- Same assumptions as for seasonal simulation (RTO only; Annual and Winter reliability requirements) resource offer assumptions, etc.)
- WIPE auction:
 - Fixed quantity of WIPES used: 15,000 MW (assumed difference between Summer and Winter reliability requirements; just an estimate for now)
 - Winter offer prices used as WIPE offers (offer prices reflect thresholds to provide, or not provide, winter service)
 - Offers accepted starting from highest (for truly summer-only resources) to lower until WIPE quantity exhausted (compare to Winter auction, which accepted offers for winter service from low to high)
 - Similar clearing price result