



ARR/FTR Solution Options

FTR Group

AFMTF

May 24, 2021

- Solution options align with LEI report findings and incorporate various stakeholder feedback to-date into three separate but related themes: ARR, FTR, Transparency / Simplicity
- Priority on preserving intended purposes & existing source/sink based construct, while:
 - Enhancing alignment with what load pays in LMP due to congestion and how ARRs are allocated on a zonal basis
 - Ensuring load has priority rights to transmission system and congestion revenues
 - Improving choice flexibility for load to collect auction revenues or DA congestion revenues
- Advance FTR auction efficiencies, e.g. model transparency, price discovery and liquidity while ensuring value added activity
- PJM supports and can implement these options however this is not a final proposal and PJM remains open to additional input and alternative options

ARRs

FTRs

Transparency
& Simplicity

- Status Quo: Up-to Zonal Base Load (ZBL) in Stage 1A
 - ZBL is an LSE's NSPL-ratio share of the zone previous year's lowest daily peak (usually 40-50% peak)
 - 10-year guarantee (may trigger RTEP upgrades)
 - Ratings on facilities with violations are increased and carried forward to all FTR auctions (ratings may be reduced in subsequent auctions if auction revenue is positive and ARR's are fully funded)
- Option 1: Increase Stage 1A guarantee to a fixed percentage of peak load

Key Takeaway: Preserving a Stage 1 protects hedging ability for native base load, future integrations, and 10-year guarantee FERC requirement.



ZBL as a Percentage of NSPL

Key takeaway: A fixed guarantee above 60% would increase Stage 1A MW awards for all zones. FTR Group is currently performing analysis to determine what level could be guaranteed without creating significant additional violations in a no outage case.

ZONE	17/18	18/19	19/20	20/21	21/22	Average 5-year
AE	37.7%	39.8%	38.2%	36.1%	35.0%	37.4%
AEP	54.0%	57.7%	56.5%	54.1%	53.3%	55.1%
AP	53.2%	54.5%	52.6%	49.3%	51.4%	52.2%
ATSI	49.6%	52.8%	51.6%	49.4%	45.2%	49.7%
BC	45.4%	46.7%	45.2%	44.5%	43.7%	45.1%
CE	44.0%	45.1%	43.2%	42.6%	40.7%	43.1%
DAY	47.7%	48.7%	49.0%	48.2%	43.5%	47.4%
DEOK	48.8%	51.4%	51.0%	48.8%	46.7%	49.4%
DOM	47.6%	48.1%	45.7%	49.2%	48.6%	47.8%
DPL	41.5%	46.0%	44.4%	40.4%	40.9%	42.6%
DUQ	47.4%	49.2%	48.9%	47.7%	43.8%	47.4%
EKPC	39.7%	44.3%	36.4%	38.0%	42.7%	40.2%
JC	38.0%	39.8%	37.2%	35.3%	35.6%	37.2%
ME	48.3%	49.3%	50.0%	47.0%	45.7%	48.0%
OVEC	N/A	47.2%	21.1%	21.8%	17.6%	26.9%
PE	46.8%	47.8%	45.0%	44.1%	43.8%	45.5%
PEP	42.5%	46.5%	43.5%	43.6%	43.4%	43.9%
PL	45.7%	51.7%	51.7%	47.3%	50.9%	49.4%
PN	58.1%	57.4%	57.6%	55.2%	55.9%	56.8%
PS	43.1%	44.8%	42.7%	42.2%	41.6%	42.9%
RECO	35.9%	35.7%	34.4%	35.7%	33.7%	35.1%

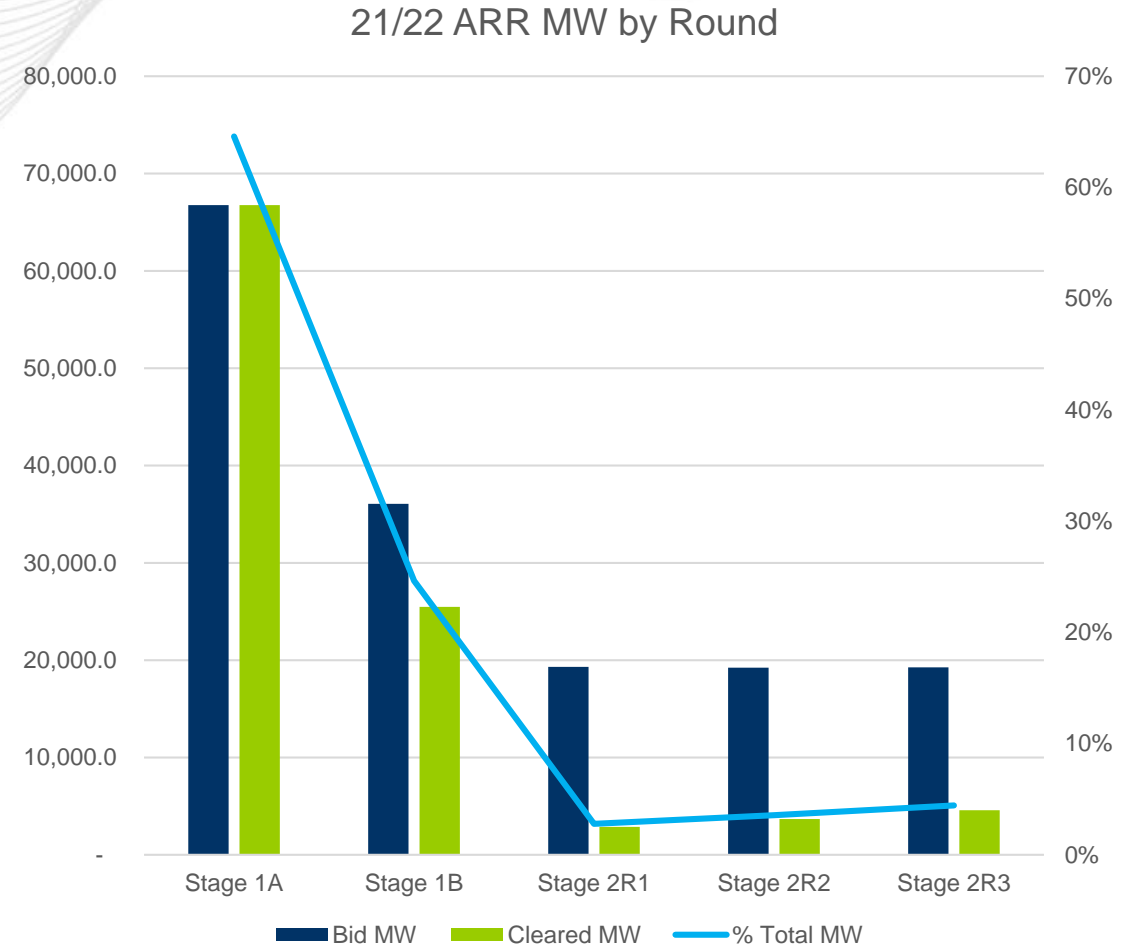
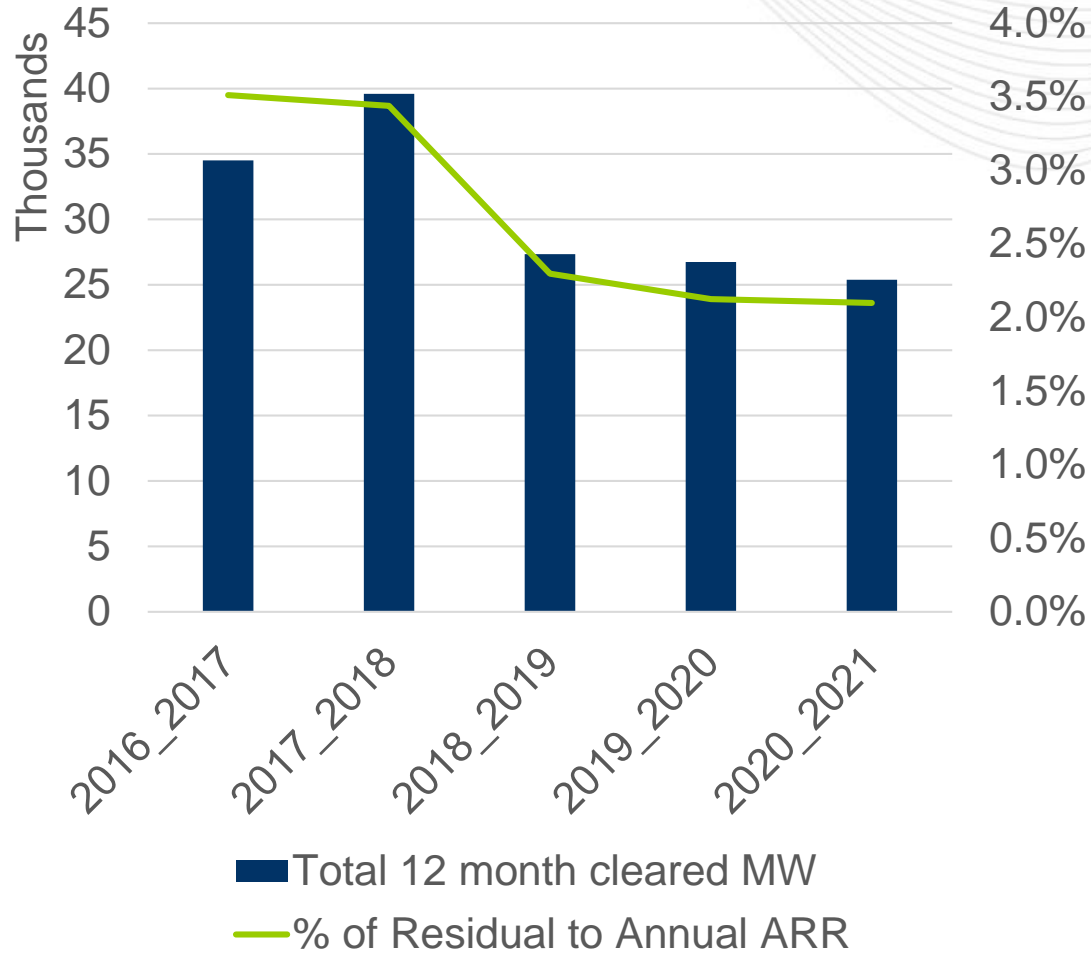
- Status quo:
 - Stage 1 – source points only from designated active historical resources or Qualified Replacement Resources
 - Stage 2 – source points any available generator, interface, hub, zone
 - Must always sink at load settlement point/aggregate (with fixed bus weightings)
- Option 1:
 - Stage 1A – maintain status quo (up-to a TBD fixed percentage of NSPL)
 - Stage 1B – Hub, Interface, Zone additional source points (up to NSPL, subject to SFT)
 - Stage 2 – any source/sink combination available in the annual FTR auction (up to remainder of NSPL, subject to SFT, over two rounds, 50% capability each round)
 - Eliminate monthly residual ARR process

Key Takeaway: : Allow for the entire transmission system capability to be available to be nominated prior to annual auction. Also, preserves NSPL related cap and zonal resource concept.



Residual and Annual ARR MW Summary

Key takeaway: Replace residual monthly ARR with additional up-front ARR available capability and surplus revenue. Monthly residual ARR require extensive resources to clear.

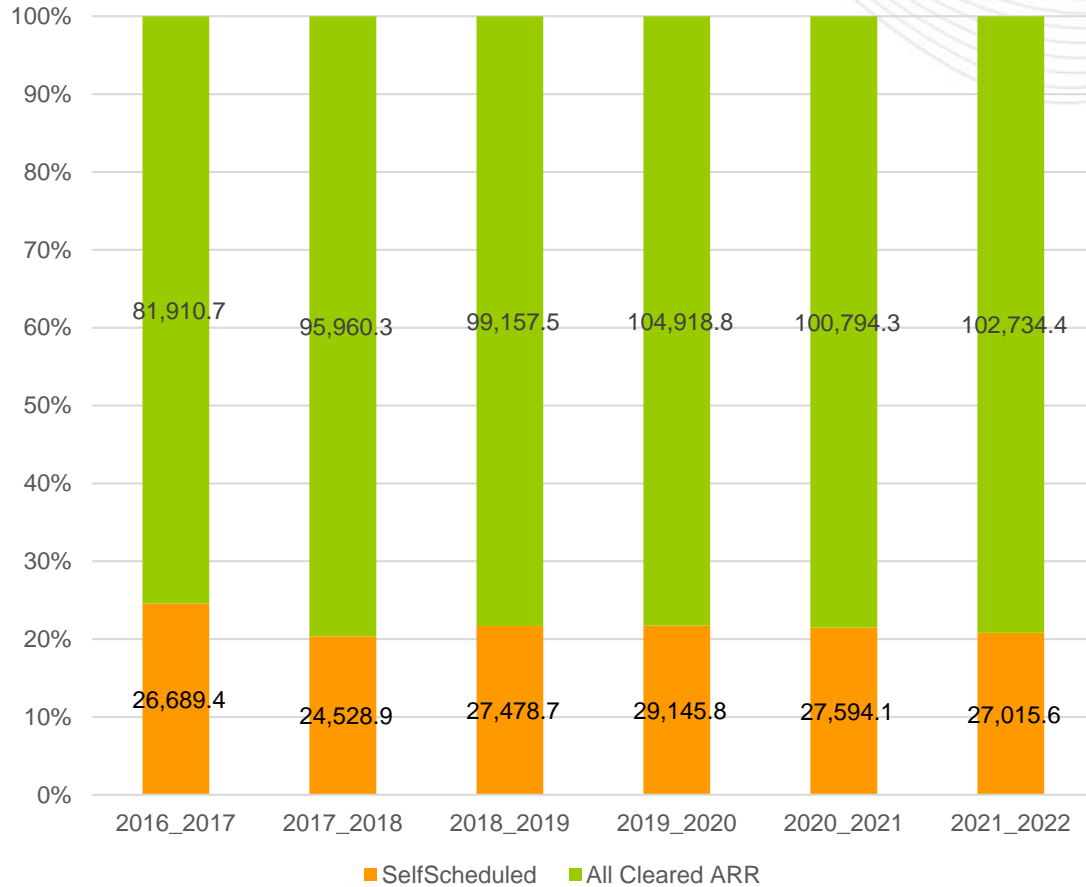


- Status quo: Self-schedule FTR product is 24H Obligation “price taker”, does not shift with load
- Option 1: replace self-scheduling concept with direct FTR allocation concept, would shift with load (IMM State of the Market recommendation)
 - Must be done prior to round 1 of the annual auction
 - ARR holder would have two options:
 - Keep ARR and collect auction revenues
 - Convert ARR to directly allocated FTR at zero cost, forego auction revenues
 - Option to Sell directly allocated FTR in annual auction

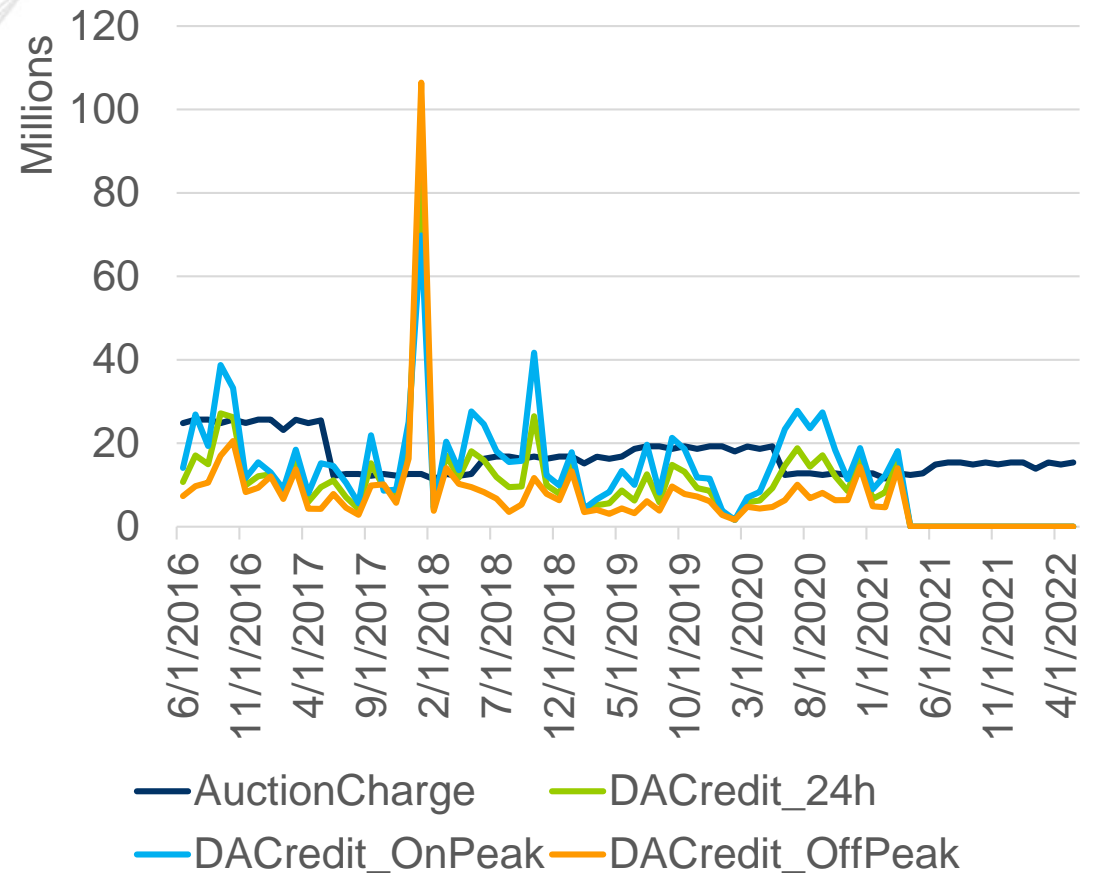
Key Takeaway: With the ability to swap an ARR for a FTR at no cost prior to the annual auction allows additional flexibility for load to sell FTR at a reservation price.

Key takeaway: roughly 25% of ARR is self-scheduled; existing 24H product is not flexible

Percentage Self-Schedule MWh



Self-Scheduled FTRs



- Status quo:
 - Customer funded (att. EE)
 - Generation / Merchant Transmission interconnections
 - Eligible RTEP enhancements
- Option 1:
 - Eliminate customer funded and Generation/Merchant transmission IARR options
 - Significant time spent building models with low value added

Since 2016:

6 requests

0 awards

Design Component	Status Quo	Solution Option	Justification
Amount of guaranteed ARRs allocated	Stage 1A up-to Zonal Base Load share of historical source and sink paths only (~40-50% of Network Service Peak Load historically).	Maintain Stage 1A and 1B, 1A as-is, but guarantee TBD % NSPL in 1A, 1B expand resources up-to NSPL, subject to SFT. Eliminate residual monthly ARR process.	Ensure priority rights to transmission system and congestion revenues.
Availability and Assignment of Congestion rights to Load (ARR source/sink points)	Stage 1 – source points only from designated active historical resources or Qualified Replacement Resources. Stage 2 – source points any available generator, interface, hub, zone. Must always sink at load settlement point/aggregate	Stage 1A – status quo; Stage 1B – status quo sources plus Hub, Zone and Interface, sink load settlement point. (May request up to 100% NSPL) Stage 2 – Relinquish and/or additional requests with any source/sink combination capped at total NSPL.	Enhance alignment with allocated rights and actual cLMP costs paid.
Modeling Detail	Annual Model with modeled constraints, line limits and outages based on DA snap shot, Monthly updates during planning year.	Option 1: Annual model (status quo) Option 2: Seasonal model	
Auction/DA Congestion surplus allocation	Surplus goes to FTR deficiencies first, residual allocated to ARR holders on ARR weighted basis at the end of the Planning Period.	Option 1: 100% to ARR Holders, methodology TBD Option 2: 100% to RT Load plus Exports	
Congestion Right Election (Claim or Sell Options)	Annual, 24H Obligation "Price taker" from average 4 round annual auction prices.	Replace self-schedule option with option for directly allocated FTR (no cost) prior to Round 1 of Annual Auction, 24H obligation	Efficient choice flexibility for load to collect auction revenues (at desired price) or collect congestion revenues.
IARR Products	Customer funded (Attachment EE), Merchant, RTEP	Remove Attachment EE (Customer Funded) and Merchant Transmission. Retain RTEP IARRs	High administrative burden with very low value.

ARRs

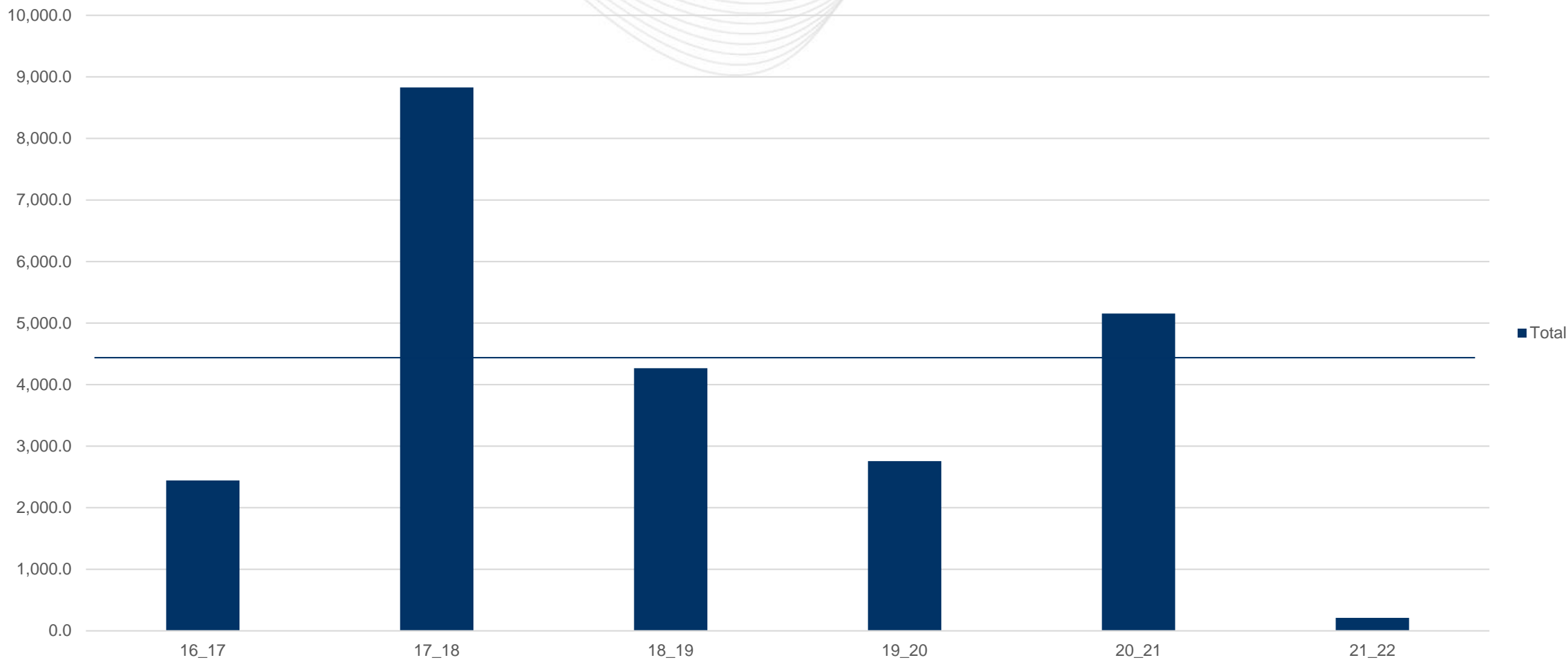
FTRs

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Design Component	Status Quo	Solution Option	Justification
FTR Auction Bid Limits	10,000 per period, auction, round by corporate entity	15,000 per prompt period per auction round, per corporate entity	Advance liquidity.
FTR product & class types	24H, On peak, Off peak (M-F 2300-0700, Weekend all day). Monthly or Annual product.	Weekday peak hours (HE 8-23), Weekend/holiday peak hours (HE 8-23), Everyday off-peak hours (HE 1-7, HE 24). Month or Annual product	Increase hedge flexibility.
FTR Option paths and clearing mechanism	No floor price.	Add \$1 floor price	Ensure value added.

Key takeaway: Each planning period on average over 4,000 MWs clear less than \$1

Cleared Option MWs Less than \$1



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Design Component	Status Quo	Solution Option	Justification
Network Model Posted Information	Base topology, outages, selected interface limits, m2m flow, loop flow, uncompensated flow, contingencies modeled	Option 1: Model reference document/model user guide Option 2: post actual case (exploring - will require GE support)	Advance Transparency.
Network Model Posted Information Frequency	Base models posted quarterly; outages, interface limits posted per auction, aggregate and PAR definitions, model mapping files.		

Facilitator:

David Anders,

David.Anders@pjm.com

Secretary:

Ankit Kharod

Ankit.Kharod@pjm.com

SME/Presenter:

FTR Group

FTRGroup@pjm.com



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com