



FTR/ARR Funding and Education Updated

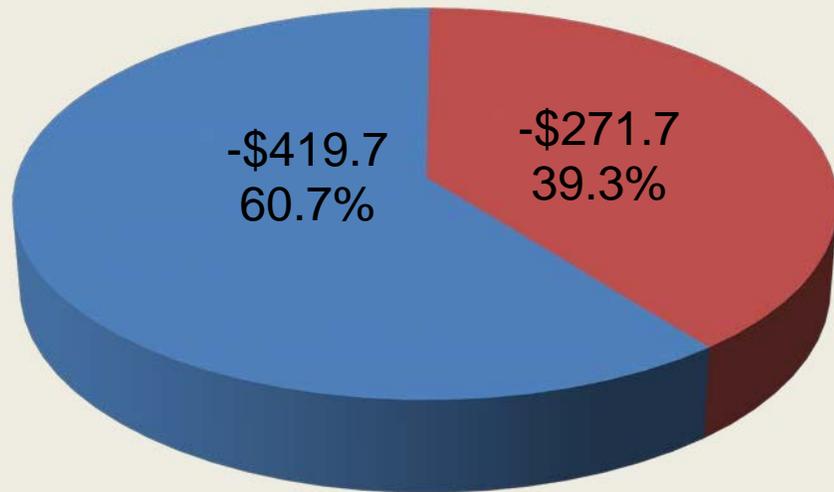
FTRSTF
July 16, 2014

Planning Period	Revenue Adequacy	Total Surplus	Day-Ahead Surplus	Auction Surplus	Balancing Congestion	M2M Payments
2009-10	97%	-\$28	\$58	\$92	-\$148	-\$31
2010-11	85%	-\$254	\$36	\$67	-\$316	-\$48
2011-12	81%	-\$192	\$34	\$109	-\$255	-\$80
2012-13	69%	-\$288	-\$2	\$67	-\$329	-\$45
2013-14	72%	-\$677	-\$348	\$76	-\$376	-\$44
2014-15*	103%	\$2	\$21	\$2	-\$18	-\$2

*through June 2014

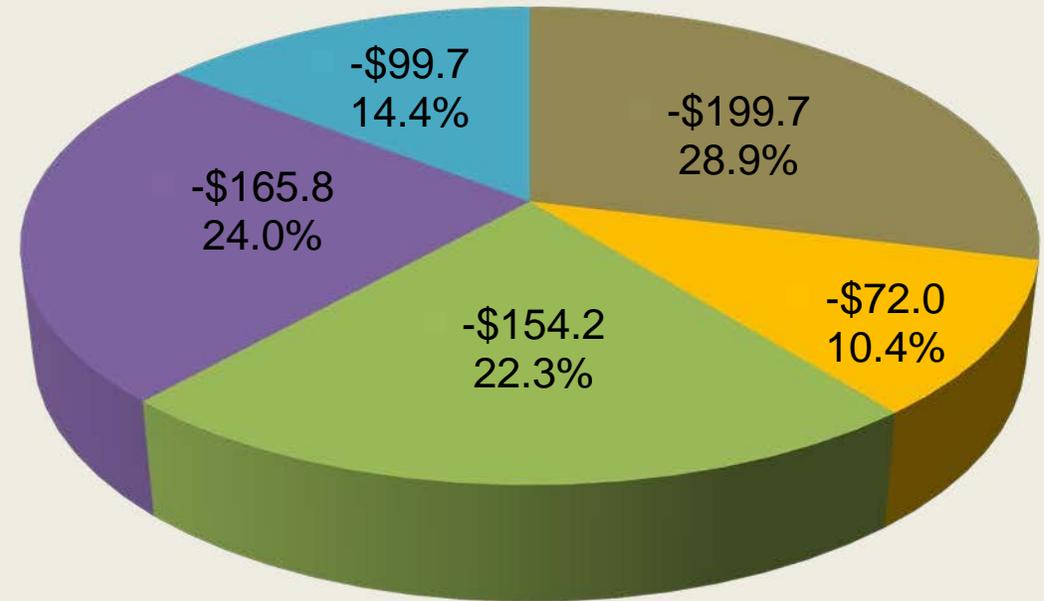
2013/2014 Revenue Inadequacy Assignments (\$millions)

- Balancing Congestion
- Day-Ahead Inadequacies



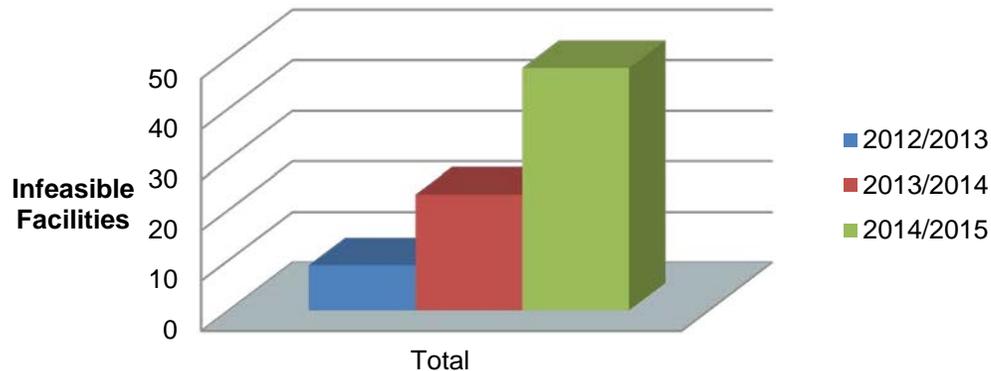
2013/2014 Detailed Revenue Inadequacy Assignments (\$millions)

- Stage 1A Infeasible Rights
- Transmission Outages (FTR vs. Day-Ahead differences)
- M2M constraints Including M2M Payments
- Uncontrollable Inadequacy (Forced Outages, Real-Time Switching, Polar Vortex, Demand Response, Volatage/Thermal Surrogates/NERC Derates)
- Transmission Outages (Day-ahead vs. Real-Time differences)

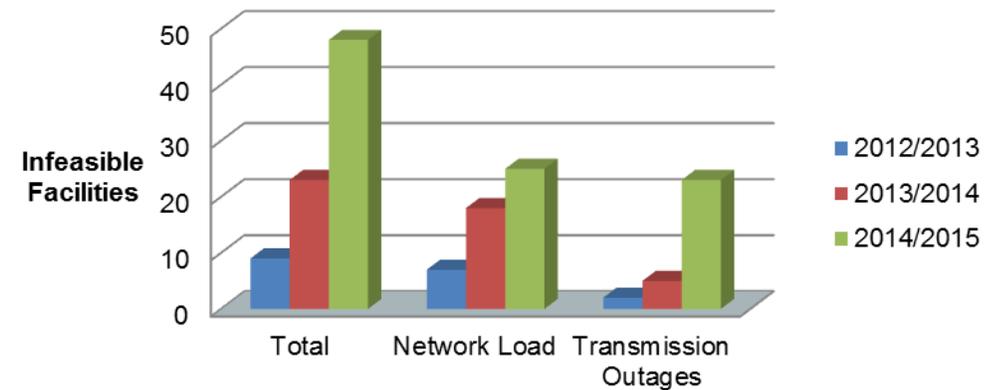


- Quantity of Infeasible facilities have increased over last several years
 - Increased Transmission Outages
 - Increased uncompensated power flow (i.e. Loop Flow)
 - Additional M2M Flowgates

PJM ARR Stage 1A Infeasible Facilities



PJM ARR Stage 1A Infeasible Facilities and Causes



Planning Period	Congestion Credits (\$millions)	Total FTR Revenue Inadequacy (\$ millions)	FTR Revenue Adequacy %	FTR Revenue Inadequacy from Stage 1A Infeasible ARR (\$ millions)	Stage 1A Infeasible ARRs % of FTR Revenue Inadequacy
2012/2013	\$623	\$288	68%	\$75.3	26%
2013/2014	\$1,819	\$691	72%	\$199.7	29%

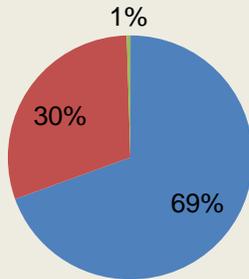
FTR revenue shortfall from Stage 1A infeasible facilities continues to increase

- Inadequacy of Stage 1A ARRs calculated as follows:
 - Value the MWs of infeasible Stage 1A ARRs utilizing the day-ahead congestion prices (MW * (DA Sink LMP – DA Source LMP)*hours in period)
 - Day-ahead congestion LMPs used because the MWs of infeasible ARRs translates into additional FTR MW capability available in FTR auctions as either Self Scheduled FTRs or purchased FTRs.
 - PJM can “buy back” capability on infeasible facilities by utilizing excessive auction revenue but this is difficult and only moves the risk of inadequacy into the FTR auctions as reduced revenues.

Stage 1A Over allocated Inadequacy Distribution

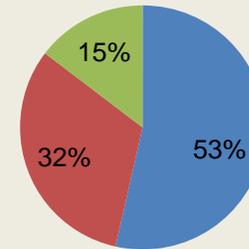
2012/2013

- Network Load (Internal and M2M Flowgate)
- Network Load (M2M Flowgate)
- Transmission Outages



2013/2014

- Network Load (Internal and M2M Flowgate)
- Network Load (M2M Flowgate)
- Transmission Outages



	2012/2013	2013/2014
Network Load (Internal and M2M Flowgate)	\$52.3	\$107.0
Network Load (M2M Flowgate)	\$22.6	\$63.5
Transmission Outages	\$0.4	\$29.2
Total	\$75.3	\$199.7

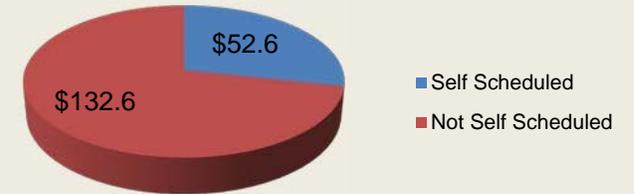
Planning Period	Revenue Inadequacy from Infeasible Stage 1A Facilities		ARR Credits/Auction Costs from Infeasible Stage 1A Facilities	
	Self Scheduled	Not Self Scheduled	Self Scheduled	Not Self Scheduled
2012/2013	\$28.7	\$46.6	\$52.6	\$132.6
2013/2014	\$33.7	\$166.0	\$17.7	\$125.5

- Majority of inadequacy associated with Infeasible capability that was not Self Scheduled
- FTR Auction costs associated with Stage 1A infeasible facilities distributed to ARR holders

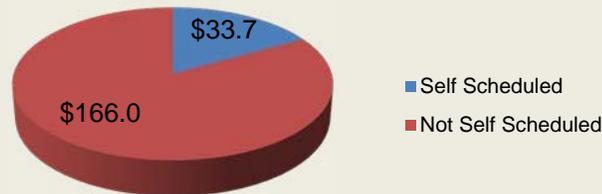
2012/2013 Revenue Inadequacy from Infeasible Stage 1A Facilities (Total=\$75.3 million)



2012/2013 ARR Credits/Auction Costs from Infeasible Stage 1A Facilities (Total=\$185.3)



2013/2014 Revenue Inadequacy from Infeasible Stage 1A Facilities (Total=\$199.7 million)



2013/2014 ARR Credits/Auction Costs from Infeasible Stage 1A Facilities (Total=\$143.2)



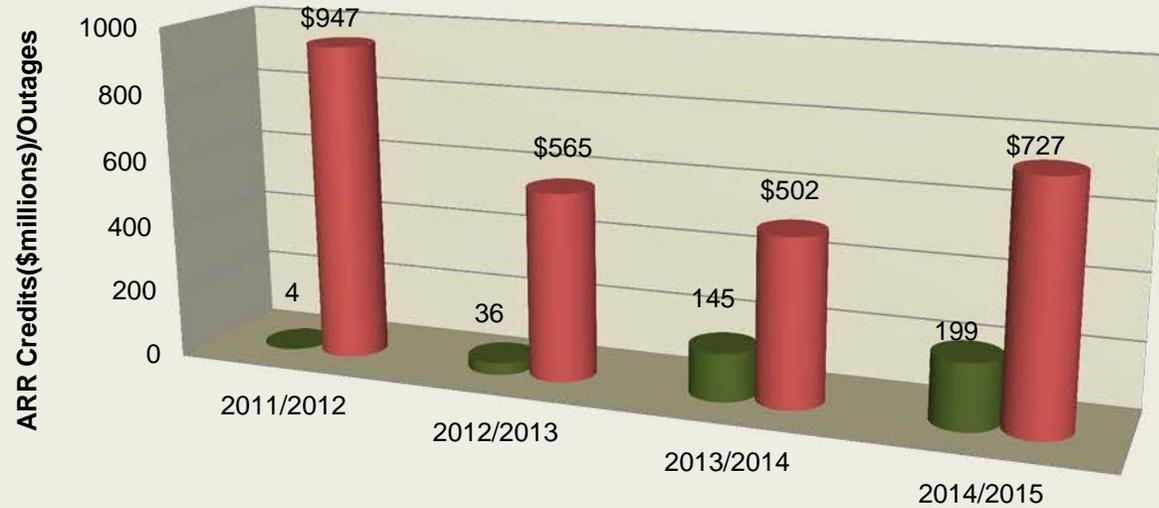


Stage 1A Allocation – Inadequacy by Type

Planning Period	Type	Revenue Inadequacy from Infeasible Stage 1A Facilities		ARR Credits/Auction Costs from Infeasible Stage 1A Facilities	
		Self Scheduled	Not Self Scheduled	Self Scheduled	Not Self Scheduled
2012/2013	Network Load (including M2M)	\$28.5	\$46.5	\$51.6	\$124.8
	Transmission Outages	\$0.2	\$0.2	\$1.0	\$7.9
	Total	\$28.7	\$46.6	\$52.6	\$132.6

Planning Period	Type	Revenue Inadequacy from Infeasible Stage 1A Facilities		ARR Credits/Auction Costs from Infeasible Stage 1A Facilities	
		Self Scheduled	Not Self Scheduled	Self Scheduled	Not Self Scheduled
2013/2014	Network Load (including M2M)	\$29.2	\$141.3	\$15.8	\$90.3
	Transmission Outages	\$4.5	\$24.7	\$1.9	\$35.1
	Total	\$33.7	\$166.0	\$17.7	\$125.5

Annual ARR Credits and Modeled Outages



	2011/2012	2012/2013	2013/2014	2014/2015
■ Annual Outages Modeled	4	36	145	199
■ ARR Credits (\$ millions)	\$947	\$565	\$502	\$727

Annual ARR Credit Distribution

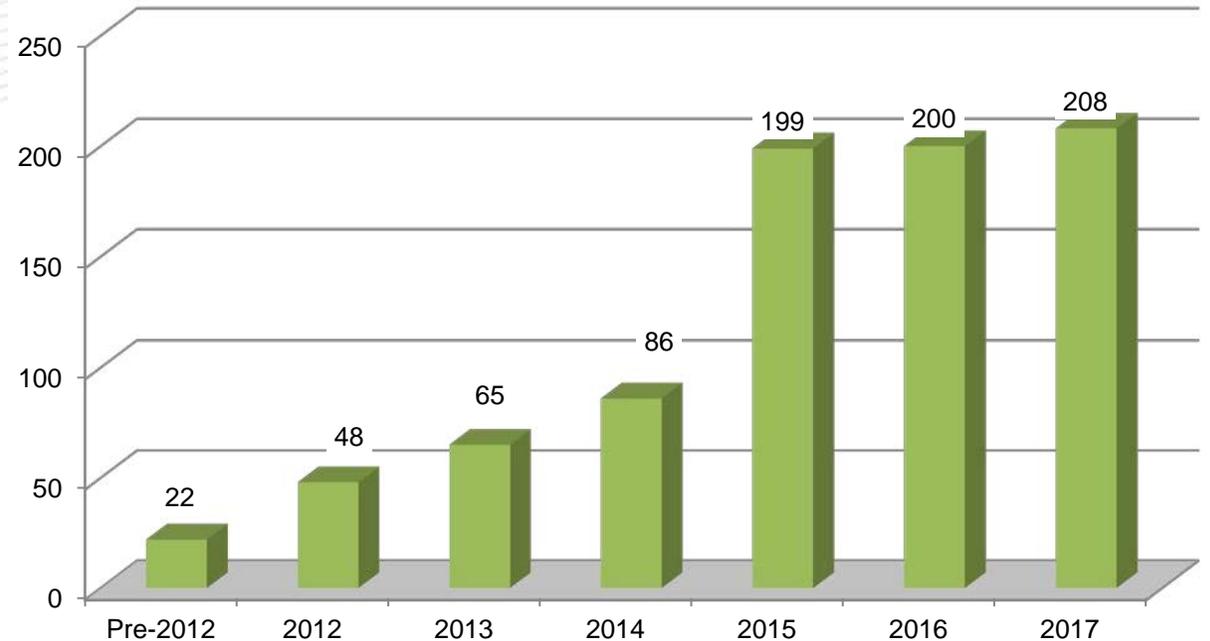
Planning Period	Stage 1A	Stage 1B	Stage 2	Total
2011/2012	\$794	\$111	\$42	\$947
2012/2013	\$514	\$32	\$19	\$565
2013/2014	\$453	\$27	\$22	\$502
2014/2015	\$723	\$2	\$1	\$727

Stage 1 Allocation – Historical Resources

Generation Retirements

- Requires remapping historical resources to an equivalent generator or creating a dummy generator for ARR/pricing purposes only
 - Idea was to preserve the historical transmission system rights
 - May create additional Stage 1A infeasibilities
- Substantial amount of retirements not expected when Stage 1A process originally designed.

Historical Generation Retirements



15.4% of Stage 1 historical generation has retired or submitted deactivation notices representing 25,543.7 MWs