

# Market Monitor Report

MC Webinar  
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# Congestion Discussion

- **Total congestion is total congestion related charges minus total congestion related credits.**
- **Total Congestion = Total Day Ahead Congestion + Total Balancing Congestion.**
- **Note: Balancing Congestion only affects total congestion if day ahead transmission model flows are different than the real time transmission model flows.**

# DA Ahead Congestion

Bus	DA CLMP	DA MW GEN	DA MW Load	Gen Credit	Load Charges	Total Congestion
A	\$50	100	50	\$5,000	\$2,500	(\$2,500)
D	\$100	50	100	\$5,000	\$10,000	\$5,000
Total		150	150	\$10,000	\$12,500	\$2,500

- **Gen at A (100 MW) and D (50 MW), Load at A (50 MW) and D (100 MW).**
- **50 MW of transfer capability modeled between A and D.**
- **DA CLMP at Bus A is \$50 and DA CLMP at Bus D is \$100.**
- **\$50 x 50 MW of transfer = Over collection= \$2,500**
- **Total Day Ahead Congestion is Total Load Charges – Generation Credits = \$2,500**

# DA Ahead Congestion

Bus	DA CLMP	DA MW GEN	DA MW Load	Gen Credit	Load Charges	Total Congestion
A	\$50	90	50	\$4,500	\$2,500	(\$2,000)
D	\$100	60	100	\$6,000	\$10,000	\$4,000
Total		150	150	\$10,500	\$12,500	\$2,000

- **Gen at A (90 MW) and D (60 MW), Load at A (50 MW) and D (100 MW).**
- **40 MW of transfer capability modeled between A and D.**
- **DA CLMP at Bus A is \$50 and DA CLMP at Bus D is \$100.**
- **$\$50 \times 40 \text{ MW} = \text{Overcollection} = \$2,000$**
- **Total Day Ahead Congestion is Total Load Charges – Generation Credits = \$2,000**

# Real Time versus Balancing Congestion

- DA has 50 MW transfer, RT 40 MW Transfer, CLMP the same (flat gen offers)

Bus	DA CLMP	DA MW GEN	DA MW Load	Gen Credit	Load Charges	Total Congestion
A	\$50	100	50	\$5,000	\$2,500	(\$2,500)
D	\$100	50	100	\$5,000	\$10,000	\$5,000
Total		150	150	\$10,000	\$12,500	\$2,500
Bus	RT CLMP	RT MW GEN	RT MW Load	Gen Credit	Load Charges	Total Congestion
A	\$50	90	50	\$4,500	\$2,500	(\$2,000)
D	\$100	60	100	\$6,000	\$10,000	\$4,000
Total		150	150	\$10,500	\$12,500	\$2,000
Bus	RT CLMP	Gen DEV	Load Dev	Gen Credit	Load Charges	Bal. Congestion
A	\$50	-10	0	(\$500)	\$0	\$500
D	\$100	10	0	\$1,000	\$0	(\$1,000)
Total Deviation		0	0	\$500	\$0	(\$500)
Total DA + Balancing						\$2,000

Generation Deviations

Less Gen Credit

More Gen Credit

Total generation credits go up by \$500

No change in load charges

Over collection falls by \$500, to \$2000

-\$500 balancing congestion

# Table 11-10 Total PJM congestion costs by accounting category by market (Dollars (Millions)): January through June of 2008 through 2014

(Jan - Jun)	Congestion Costs (Millions)									
	Load Payments	Day Ahead			Total	Balancing			Inadvertent Charges	Grand Total
		Generation Credits	Explicit Costs	Explicit Costs		Load Payments	Generation Credits	Explicit Costs		
2008	\$727.6	(\$589.4)	\$86.7	\$1,403.8	(\$102.4)	\$68.2	(\$67.1)	(\$237.7)	\$0.0	\$1,166.1
2009	\$159.3	(\$299.4)	\$63.1	\$521.7	(\$17.0)	(\$2.4)	(\$99.0)	(\$113.6)	\$0.0	\$408.2
2010	\$151.5	(\$544.1)	\$38.1	\$733.8	(\$7.3)	\$18.6	(\$63.9)	(\$89.8)	(\$0.0)	\$644.0
2011	\$256.0	(\$420.3)	\$25.6	\$701.9	\$31.1	\$56.0	(\$107.0)	(\$131.9)	\$0.0	\$570.0
2012	\$56.8	(\$267.4)	\$65.4	\$389.6	(\$5.0)	\$19.5	(\$101.8)	(\$126.4)	\$0.0	\$263.3
2013	\$133.2	(\$306.1)	\$87.8	\$527.1	(\$8.4)	\$90.4	(\$122.3)	(\$221.1)	(\$0.0)	\$306.0
2014	\$392.4	(\$1,353.6)	(\$54.1)	\$1,691.8	\$64.5	\$219.9	(\$94.2)	(\$249.7)	\$0.0	\$1,442.2

# ARR/FTR Product

- **Allocation of congestion rents collected:**
  - **Provides credit (congestion offset) for transmission access to less expensive generation.**
  - **Evolved from physical rights to transmission.**
  - **Should not provide more revenue than congestion collected.**
    - **Would be over payment to FTR holder**
  - **Target allocation a distribution metric for under and over allocation, not a guarantee of payout.**

# Real Time versus Balancing Congestion

- DA has 50 MW transfer, RT 40 MW Transfer, CLMP the same (flat gen offers)

		FTR MW	Flow	CLMP Difference	Target Allocations	Congestion
DA	A to D	50	50	\$50	\$2,500	\$2,500
	Total				\$2,500	\$2,500

		FTR MW	Flow	CLMP Difference	Target Allocations	Congestion
RT	A to D	50	40	\$50	\$2,500	\$2,000
	Total				\$2,500	\$2,000

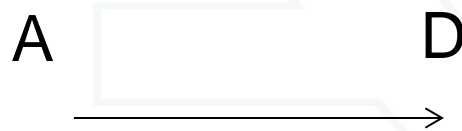
		FTR MW	Deviation	CLMP Difference	Target Allocations	Balancing Congestion
Balancing	A to D	50	(10)	\$50	\$2,500	(\$500)
	Total				\$2,500	(\$500)

DA + Balancing	A to D					\$2,000
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FTR	Target Allocation	Day Ahead Congestion	Balancing Congestion	Total Congestion	Funding
A to D	\$ 2,500.00	\$ 2,500.00	\$ (500.00)	\$ 2,000.00	\$ (500.00)



50 MW DA



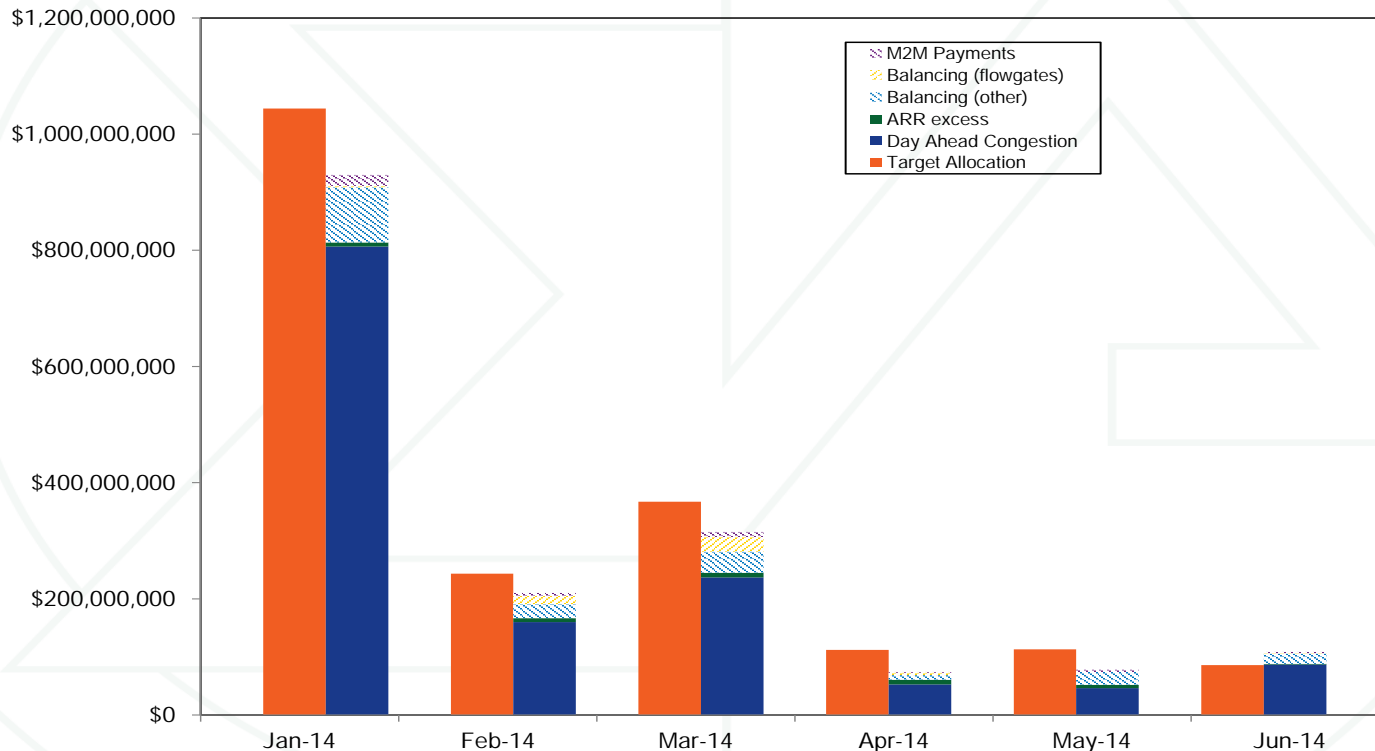
40 MW RT



# ARR/FTR Product

- **FTR pay out of \$2,000 offsets congestion completely.**
- **If FTR pay out is \$2,500, but actual congestion is \$2,000, FTR holders would be subsidized.**
- **Depending on allocation of the FTRs and the uplift charges, winners and losers, wealth transfers.**

# Figure 13-16 FTR target allocation compared to sources of positive and negative congestion revenue



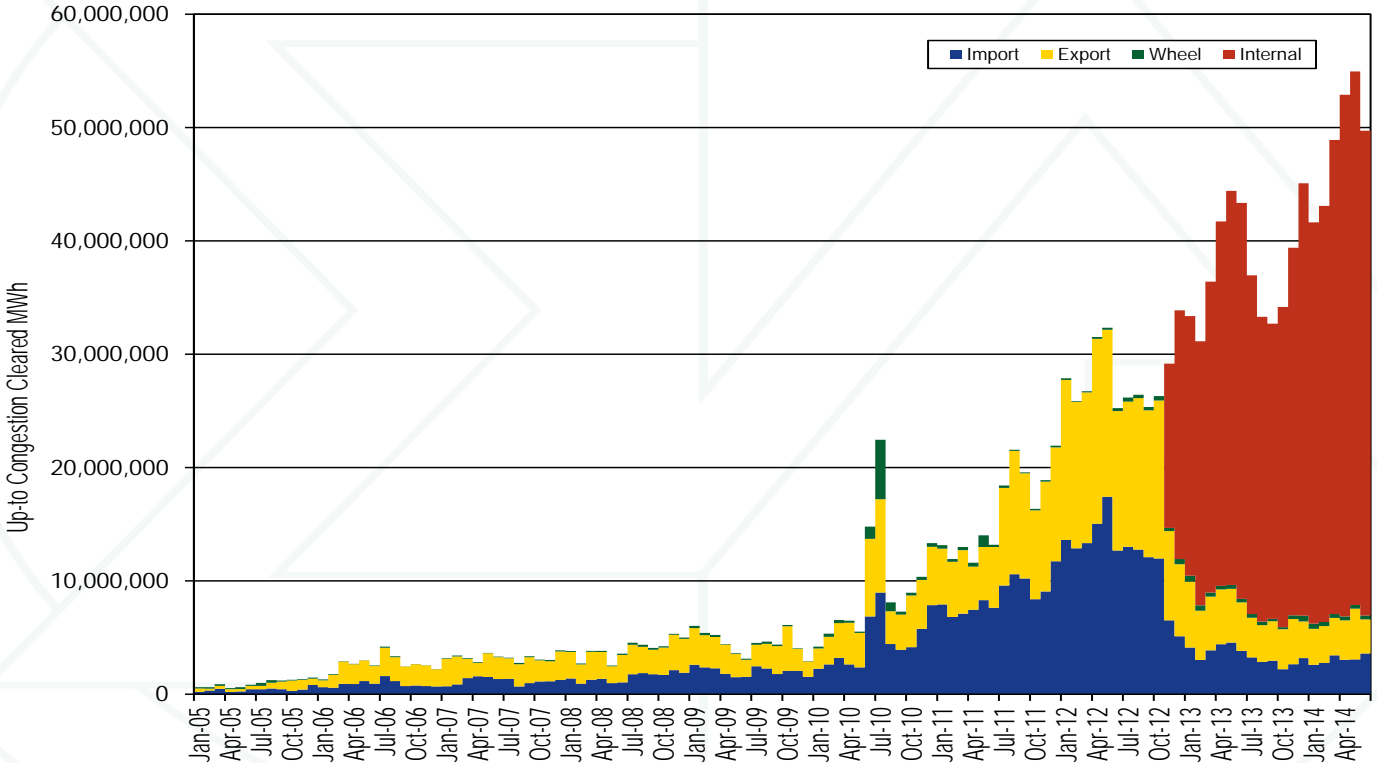
# MMU Proposed Options

- 1. Report correct monthly payout ratios**
- 2. Eliminate portfolio netting subsidizations**
- 3. Eliminate counter flow FTR subsidizations**
- 4. Eliminate cross geographic subsidies**
- 5. Improve outage modeling in FTR auctions**
- 6. Reduce FTR availability on persistently underfunded paths/facilities**
- 7. Implement seasonal ARR and FTR allocation methods**
- 8. Eliminate over allocation of Stage 1A ARRs**

# UTC: Overview

- **Evidence that product is having an effect on the system:**
  - **Unit Commitment and dispatch**
  - **Congestion**
  - **FTR revenues**
  - **Day ahead market solution issues**

# Figure 3-24 PJM cleared up-to congestion transactions by type (MW): January 2005 through June 2014



# UTC: IMM Recommendations

- **UTC product definition needs to include an allocation of uplift charges consistent with treatment of INCs and DEC.**
  - **Treated as a source and a sink**
- **FTR forfeiture rule needs uniform application to all virtual bids and offers.**

# Table 3-71 Cleared UTC profitability by source and sink point: January through June of 2013 and 2014

Jan-Jun	Cleared UTCs	Profitable UTCs	UTC Profitable at Source Bus	UTC Profitable at Sink Bus	Profitable UTC	Profitable Source	Profitable Sink
2013	6,963,165	3,817,472	4,626,806	2,398,423	54.8%	66.4%	34.4%
2014	13,212,749	7,317,892	9,088,006	4,262,210	55.4%	68.8%	32.3%

# May UTC Analysis: Impact on congestion

- **Study results show that UTCs increase negative balancing congestion.**
  - **Removing UTCs reduced the number of day ahead constraints and day ahead congestion.**
  - **Removing UTCs made day ahead results more consistent with real time constraints and real time congestion.**
  - **Removing UTCs reduced negative balancing congestion.**



# UTC analysis: Contributions to congestion in 2013

- **Analysis shows that UTCs pay day ahead congestion, in net.**
- **Analysis shows that UTCs are paid balancing congestion, in net.**
- **Analysis shows that UTCs contribute significantly to negative balancing congestion, in net.**

# UTC and INC/DEC Relative Contributions to Day Ahead and Balancing Congestion: 2012 and 2013

Year	Total Day Ahead Congestion	Total UTC Contribution to Day Ahead Congestion	Total INC/DEC Contribution to Day Ahead Congestion	UTC Contribution as a Percentage of Day Ahead Congestion	INC/DEC Contribution as a Percentage of Day Ahead Congestion
2012	\$780	\$127	\$18	16%	2%
2013	\$1,011	\$125	\$49	12%	5%

Year	Total Balancing Congestion	Total UTC Contribution to Balancing Congestion	Total INC/DEC Contribution to Balancing Congestion	UTC Contribution as a Percentage of Balancing Congestion	INC/DEC Contribution as a Percentage of Balancing Congestion
2012	(\$251)	(\$180)	(\$32)	72%	13%
2013	(\$334)	(\$213)	(\$79)	64%	24%

# UTC Analysis: FTR Funding

- **Study results show that UTCs contributed significantly to FTR underfunding relative to target allocations.**
- **For the five days studied, the removal of UTCs changed FTR funding relative to target allocations from a deficit of -\$4.1 million to a net surplus of \$537 thousand, a gain in funding relative to target allocations of \$4.7 million.**
- **For the five days studied, removing UTCs reduced target allocations from \$16,241,505 to \$7,780,223. The reduction was \$8,461,282, or 52 percent.**

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