



Transmission Expansion Advisory Committee

Interregional Planning Update

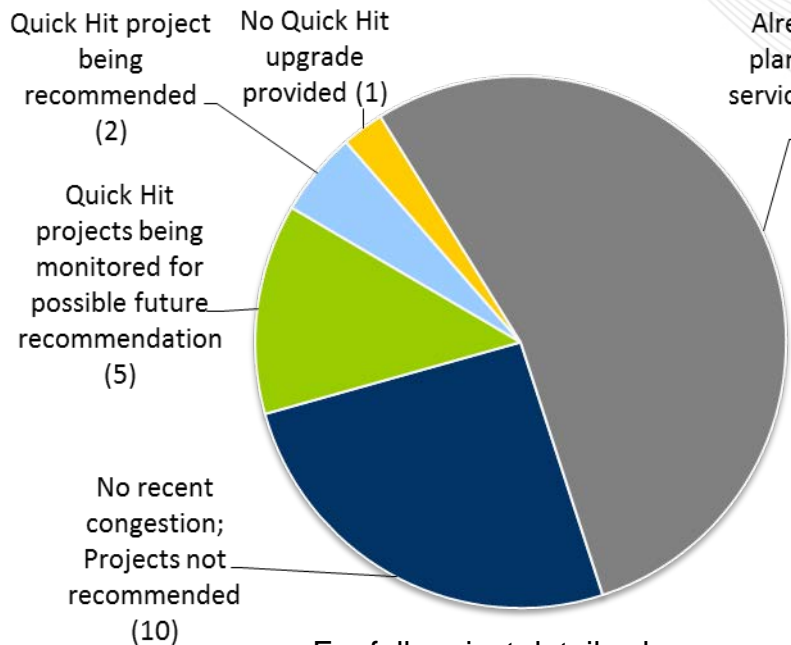
July 9, 2015

- Order No. 1000 Interregional Compliance
 - July 31, 2015 (extension granted)
 - Agreement on principles
- IPSAC July 15, 2015
 - Metrics and process
 - Targeted study scope discussion
- “Quick hit” study – M2M congestion 2013-2014
 - Tracking upgrade status addressing \$300 M historical
 - 2 upgrades recommended – implementation under discussion
- NIPSCO technical conference completed June 15, 2015

- Study to identify quick, low cost upgrades to reduce M2M congestion
- Study analysis is complete
- Many already planned projects in both RTEP and MTEP were found to be beneficial to M2M constraints
- Two new projects being pursued; both in MISO

39 M2M Flowgates Studied

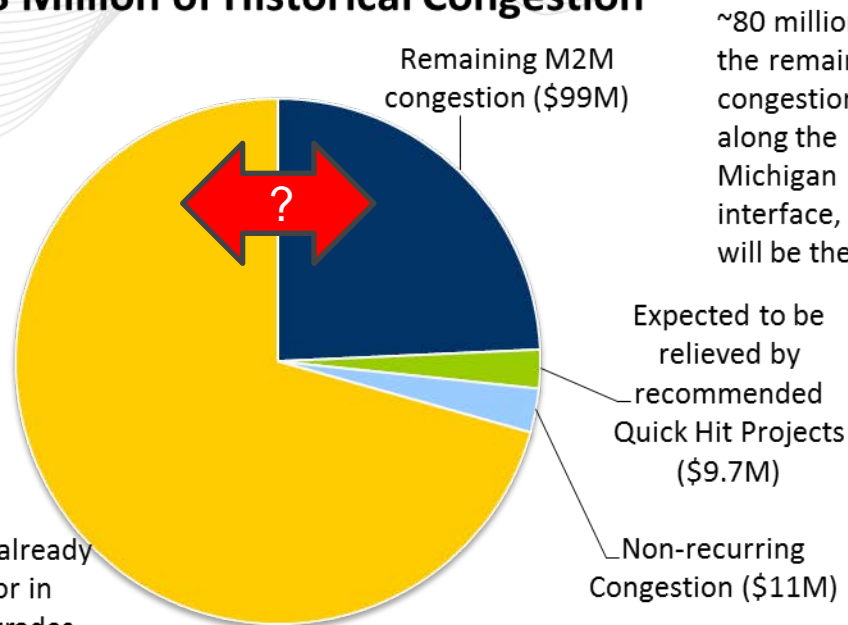
\$408 Million of Historical Congestion



For full project details please see April 14 IPSAC presentation

Already have planned or in service upgrades (21)

Relieved by already planned or in service upgrades (\$288M)



*MTEP projects for P2 and P5 were assumed to relieve 10% of historical congestion on the targeted flowgate.

~80 million of the remaining congestion is along the Michigan interface, which will be the

Expected to be relieved by recommended Quick Hit Projects (\$9.7M)

Non-recurring Congestion (\$11M)

M2M ID	M2M Flowgate Relieved	Project Description	Congestion Relieved (M \$)	Project ID	Project Owner	Target ISD	Status	% Complete
P11	Beaver Channel - Sub 49	SCADA upgrade @ ITC	6.9		ITC	6/1/2015		
P18	Michigan City - Laporte	Resag NIPS Conductor	2.7		NIPS	6/1/2015		



STATUS - Planned Projects – MISO MTEP

M2M ID	M2M flowgate relieved	Project Description	Congestion Relieved (M \$)	Project ID	Project Owner	Target ISD	Status
P1	Breed - Wheatland 345kV	Reconductor	94.5	2472	IPL	3/1/2016	Planned
P2	Benton Harbor - Palisades	Terminal Equipment @ METC	61.5		METC	6/1/2015	
P3	Monticello-E. Winamac	Reconductor and terminal equipment	45.1	4810	NIPS	1/1/2015	In Service
P4	Oak Grove - Galesburg 161kV	Oak Grove - Mercer-Sandburg 161kV	37.9	3022	MEC	12/1/2016	Planned
P5	Cook - Palisades	Terminal Equipment @ METC	31.5		METC	6/1/2015	
P7	Rising 45TR1	Sidney - Rising 345kV	20	2239	AMIL	12/1/2016	Planned/Under Construction
P13	Kewanee-Edwards 138kV	Oak Grove - Mercer-Sandburg 161kV	5.9	3022	AMIL	12/1/2016	Planned
P15	Rantoul - Rantoul Jct.	Sidney - Rising 345kV	4.8	2239	AMIL	12/1/2016	Planned/Under Construction
P27	Davenport - E. Calamus	line rebuild	0.8		MEC/ALTW	12/1/2016	
P29	Burr Oak - Plymouth	Burr Oak - Hipple	0.2	3203	NIPS	12/31/2019	Planned
P30	Galesburg 161/138	Oak Grove - Mercer-Sandburg 161kV	0	3022	AMIL	12/1/2016	Planned
M10	Burnham - Munster	Reconfigure as Ring Bus	0.4		NIPS		
M18	Tazwell 345/138	Fargo-Maple Ridge 345 & Fargo 345/138	0.1	2472	AMIL	6/1/2016	Planned



STATUS - Planned Projects – PJM RTEP

M2M ID	M2M flowgate relieved	Project Description	Congestion Relieved (M \$)	Project ID	Project Owner	Target ISD	Status	% Complete
P6	Nelson 345kV	Reconductor 0.4 mi. Replace breaker leads at Nelson	28	s0704	CE	5/1/2015	In Service	100
P9	Byron - Cherry Valley 345kV	New Byron - Wayne 345kV	9.2	b2141	COMED	6/1/2017	Engineering/ Planning	5
M7	Cherry Valley - Silver Lake 345kV		0.6					
P12/M11	Miami Fort 345/138	Substation Reconfiguration	7.1	b2634	DEOK	5/1/2017	Engineering/ Planning	0
P14/M4	Miami Fort – Hebron 138 kV		6.9					
P17	Bunsonville – Eugene 345kV	Rebuild AEP portion (2.5 mi)	3.8	s0855	AEP	12/1/2015	Engineering/ Planning	75

*Congestion relieved is historical congestion costs covering 1/1/2013 – 10/31/2014

On Schedule

Behind Schedule

- Market Efficiency Impact was studied in PJM/MISO Quick Hit analysis
- Found to be effective in relieving M2M congestion on
 - Byron – Cherry Valley 345kV (\$9.2 M)
 - Cherry Valley – Silver Lake 345kV (\$0.6 M)

- Upgrade was studied as part of PJM/MISO interregional “Quick Hit” study
 - PJM market efficiency analysis found it to be an effective & efficient solution
 - Analysis shows that B2634 will also reduce flow on the historically congested Miami Fort – Hebron 138kV by 39%, relieving congestion
 - PJM & MISO historical congestion: \$14 M
- Presented to TEAC in February as upgrade for N-1-1 violation identified in Miami Fort #6 deactivation study

- Re-conductor of Bunsonville – Eugene will increase rating from 971 MVA to 1698 MVA
 - 75% increase in line rating
 - 41% increase in capacity into Eugene 345kV
- Significant rating increase is expected to relieve M2M congestion historically observed on this element
- AEP line work is complete, relay work to be completed during fall outage
- MISO MTEP project 4717 re-conductors the Ameren section of tie, benefits not expected until Ameren completes work, scheduled for end of 2015.

Questions?

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- Revision History
 - Original version distributed to the PJM TEAC
7/7/2015