

Congestion Severity Index

The lists on the following tabs are sorted by the Congestion Severity Index of the constraints. The Congestion Severity Index is based on the theoretical potential maximum number of dollars paid into the market by load serving entities due to congestion on the constraint in question. It is the maximum potential amount of money (in millions of dollars) that could have been saved over the course of this time period had the constraint not been bound. Both directions of the constraint are captured (there are a few constraints in ATC that have been bound in different directions at different times).

Hours

The "hours" measurements provided on the table is a measure duration of constraint binding. The number given is the total number of "hours" that the constraint occurred. RT data may have partial hours since RT constraints are bound in five minute intervals.

Day Ahead and Real Time

Day Ahead (DA) constraints indicate that MISO committed generation out of economic order in the Day Ahead market, meaning that more expensive generation is committed for the next day in order to avoid constraints that would occur if only the cheapest generation was scheduled to run. Real Time (RT) constraints show up when MISO did not anticipate overloads on the system in the Day Ahead market. Adjustments must be made to the generation mix during the operating day in order to mitigate constraints.

Potential Solution

Potential solutions have been provided for some constraints listed. These solutions may not have been designed for the sole purpose of alleviating the listed constraints and therefore will not necessarily fully mitigate the constraints, but will reduce the constraint's frequency and severity under normal operating conditions.

Severity Index	Hours	Constraint	Potential Solution
10.98	1,121	Total for all ATC Day Ahead constraints - January 2011	Solutions listed in ATC TYA unless otherwise noted
5.32	378	Pleasant Prairie - Zion 345 kV flo Cherry Valley - Silver Lake 345 kV (ComEd)	Upgrade substation equipments at Zion substation in ComEd system (Planned, 2011) Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
3.60	188	Pleasant Prairie - Zion 345 kV flo Zion - Arcadian 345 kV	Upgrade substation equipments at Zion substation in ComEd system (Planned, 2011) Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.73	105	Lakeview - Zion 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.53	67	Flow South PTDF	Flow Control Device (Proposed, 2014)
0.42	233	Nordic - Felch Tap 69 kV flo Chandler 138/69 kV Transformer T1	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014) Second Chandler 138/69 kV Transformer (Proposed, 2012)
0.21	18	Minnesota to Wisconsin Exports Interface (MWEX)	Monroe County - Council Creek 161 kV line (Proposed, 2013) North La Crosse - Madison 345 kV line (Provisional 2018)
0.08	8	Granville - Butler 138 kV flo Granville - Tosa 138 kV	2011 Congestion Analysis
0.04	32	Nordic - Felch Tap 69 kV flo Plains - Arnold 138 kV ¹	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014) Second Chandler 138/69 kV Transformer (Proposed, 2012)
0.02	11	Indian Lake 138/69 kV Transformer T2 flo Indian Lake 138/69 kV Transformer T1	Flow Control Device (Proposed, 2014)
0.01	8	Blount - East Campus 69 kV (6906) flo Blount - East Campus 69 kV(6908)	Cardinal - Blount 138 kV line (Provisional, 2020) Possible Blount Unit retirements by end 2011
0.01	17	Cornell - Chandler 69 kV flo Empire - Forsyth 138 kV + MINE LOAD	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014)
0.01	5	McMillan - Wildwood 115 kV flo Arpin - Rocky Run 345 kV	Improve clearance on McMillan - Wildwood 115 kV (Planned, 2011)
0.01	9	Nordic 138/69 kV Transformer T8 flo Armory - Big Quin Falls 69 kV	ATC Michigan Energy Collaborative investigating potential solutions (2011)*
0.00	9	Indian Lake - Manistique 69 kV	Flow Control Device (Proposed, 2014)
0.00	9	Manrap - Custer 69 kV	Shoto - Custer 138 kV line (Provisional, 2020)
0.00	3	Watson Tap - Forsyth 69 kV flo Nordic - Chandler 69 kV	Second Chandler 138/69 kV Transformer (Proposed, 2012)
0.00	5	Roberts - Newberry 69 kV	Area Transmission outages may have contributed to this constraint
0.00	2	Atlantic 138/69 kV Transformer T1 flo M38 138/69 kV Transformer T1	ATC Michigan Energy Collaborative investigating potential solutions (2010)*
0.00	5	North East - Revere Drive 69 kV flo Manrap - Shoto 69 kV	Shoto - Custer 138 kV line (Provisional 2020)
0.00	4	Cornell Tap - Harris Tap flo Chandler 138/69 kV Transformer T1	Area Transmission outages may have contributed to this constraint
0.00	2	Ontonagon 138/69 kV Transformer flo Mass - Victoria 69 kV	ATC Michigan Energy Collaborative investigating potential solutions (2011)*
0.00	1	Chandler 138/69 kV Transformer T1 flo Plains 345/138 kV Transformer TR1 ¹	Second Chandler 138/69 kV Transformer (Proposed, 2012)
0.00	1	Straits - Evergreen 69 kV flo Straits - Pine River 69 kV	Flow Control Device (Proposed, 2014)
0.00	1	Masonville - Lakehead Rapid River 69 kV flo Chandler - Delta 69 kV	Area Transmission outages may have contributed to this constraint

* This project not part of the ATC 10-Year Assessment

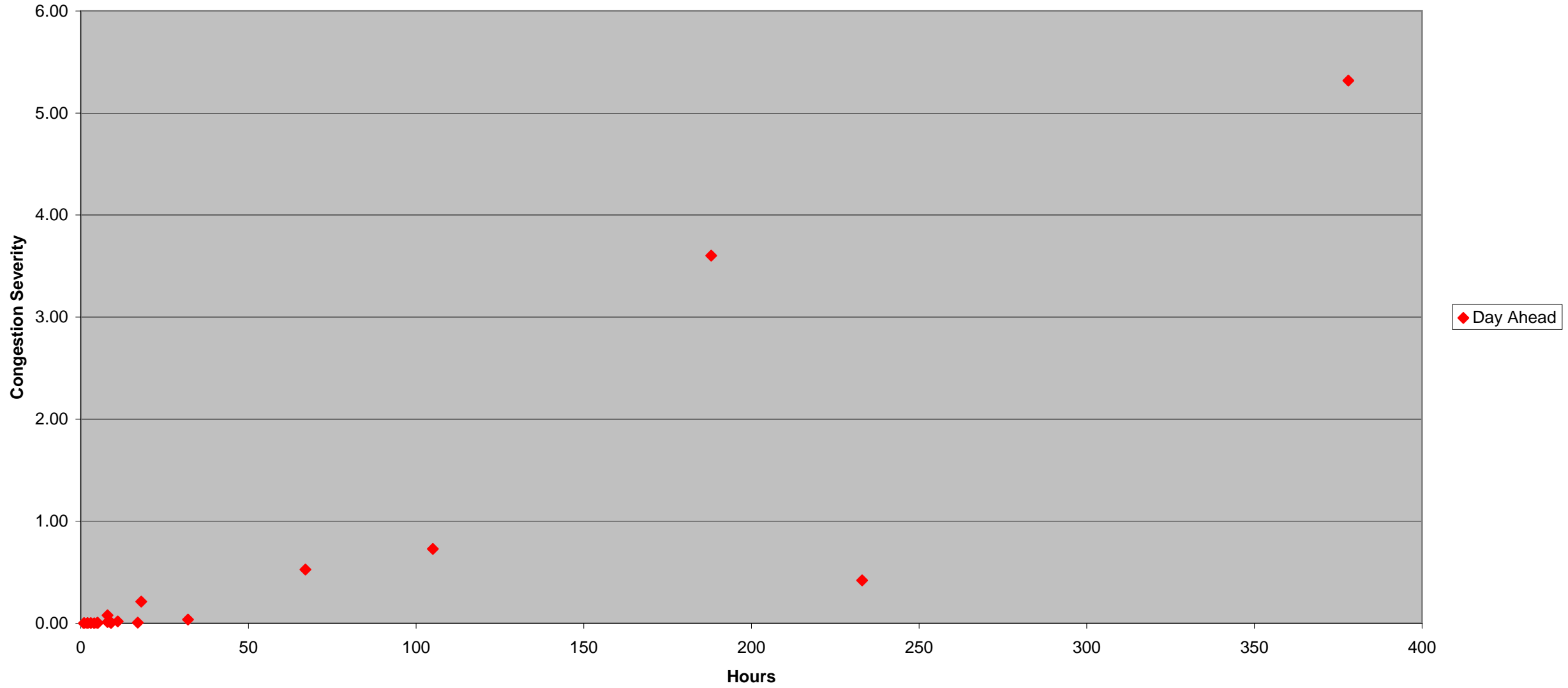
1. This constraint may have been bound for other contingencies as well.

Severity Index	Hours	Constraint	Potential Solution
7.42	211	Total for all ATC Real Time constraints - January 2011	Solutions listed in ATC TYA unless otherwise noted
2.12	38	Pleasant Prairie - Zion 345 kV flo Cherry Valley - Silver Lake 345 kV (ComEd)	Upgrade substation equipments at Zion substation in ComEd system (Planned, 2011) Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
1.88	27	Flow South	Flow Control Device (Proposed, 2014)
1.76	31	Pleasant Prairie - Zion 345 kV flo Zion - Arcadian 345 kV	Upgrade substation equipments at Zion substation in ComEd system (Planned, 2011) Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
1.04	36	Lakeview - Zion 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.39	76	Nordic - Felch Tap 69 kV flo Chandler 138/69 kV Transformer T1	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014) Second Chandler 138/69 kV Transformer (Proposed, 2012)
0.17	0	Arpin 345/138 kV Transformer T21 flo Arpin - Rocky Run 345 kV	Monroe County - Council Creek 161 kV line (Proposed, 2013) Norh La Crosse - Madison 345 kV line (Provisional, 2018)
0.04	1	McMillan - Wildwood 115 kV flo Arpin - Rocky Run 345 kV + Port Edwards SPS	Improve clearance on McMillan - Wildwood 115 kV (Planned, 2011)
0.03	1	McMillan - Wildwood 115 kV flo Arpin - Rocky Run 345 kV	Improve clearance on McMillan - Wildwood 115 kV (Planned, 2011)
0.01	1	Cornell - Chandler 69 kV flo Plains - Arnold 138 kV	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014)

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1. This constraint may have been bound for other contingencies as well.

Day Ahead Hours Vs. Congestion Severity



Real Time Hours Vs. Congestion Severity

