

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
5.02	1,359	Total for all ATC Day Ahead constraints - April 2011	Solutions listed in ATC TYA unless otherwise noted
1.98	168	Kenosha - Lakeview 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.71	412	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)
0.68	101	Indian Lake 138/69 kV Transformer T2 flo Indian Lake 138/69 kV Transformer T1	Flow Control Device (Proposed, 2014)
0.54	73	Nelson Dewey 161/138 kV Transformer T91	Area Generation outages may have contributed to this constraint
0.22	24	Kewaunee 345/138 kV Transformer T10	Area Generation and Transmission outages may have contributed to this constraint
0.22	94	Flow South PTDF	Flow Control Device (Proposed, 2014)
0.20	47	Stiles - Pulliam 138 kV (64441) flo Highway 22 - Morgan 345 kV	Area Transmission outages may have contributed to this constraint
0.16	77	Cedar Ridge - Ohmstead 138 kV flo Edgewater - South Fond Du Lac 345 kV	Area Generation and Transmission outages may have contributed to this constraint
0.13	240	New Holstein - St. Nazianz 69 kV flo Northeast - Shoto 69 kV	Area Generation and Transmission outages may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.05	6	Minnesota to Wisconsin Exports Interface (MWEX)	Monroe County - Council Creek 161 kV line (Proposed, 2013) North La Crosse - Madison 345 kV line (Provisional 2018)
0.04	7	Highway V - East Krok 138 kV flo Kewaunee - North Appleton 345 kV	Area Generation and Transmission outages may have contributed to this constraint
0.04	14	Badger 138/115 kV Transformer T1 flo Highway22 - Gardner Park 345 kV	Area Generation and Transmission outages may have contributed to this constraint
0.01	5	Racine - Oak Creek 138 kV flo Elm Road - Racine 345 kV	Area Generation outages may have contributed to this constraint
0.01	1	Lakeview - Zion 138 kV flo Zion - Arcadian 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.01	16	New Holstein - St. Nazianz 69 kV flo Lakefront - Revere Drive 69 kV	Area Generation and Transmission outages may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.01	12	McGulpin - Straits 138 kV ckt 3 flo McGulpin - Straits 138 kV ckt 1	Flow Control Device (Proposed, 2014)
0.00	1	Stiles - Pulliam 138 kV (64451) flo Highway 22 - Morgan 345 kV	Area Transmission outages may have contributed to this constraint
0.00	14	New Holstein - St. Nazianz 69 kV flo Glenview - Shoto 138 kV	Area Generation and Transmission outages may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.00	7	Mass - Bruce Crossing 69 kV flo Atlantic - Winona 69 kV	ATC Michigan Energy Collaborative investigating potential solutions (2011)*
0.00	1	Cedar Ridge - Kettle Moraine 138 kV flo Edgewater - South Fond Du Lac 345 kV	Area Generation and Transmission outages may have contributed to this constraint
0.00	1	Hiawatha - Engadine Tap 69 kV flo Pine River - Nine Mile 69 kV	
0.00	1	Pleasant Prairie - Zion 345 kV flo Zion - Arcadian 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.00	4	St. Nazianz - Custer 69 kV flo Glenview - Shoto 138 kV	Shoto - Custer 138 kV line (Provisional 2022)
0.00	2	Manrap - Custer 69 kV flo Shoto 138/69 kV Transformer T1	Shoto - Custer 138 kV line (Provisional, 2020)
0.00	2	Roberts - Newberry 69 kV	
0.00	1	Masonville - Lakehead Rapid River 69 kV flo Chandler - Delta 69 kV	
0.00	1	Mass - Bruce Crossing 69 kV flo M-38 - Perch Lake 138 kV	ATC Michigan Energy Collaborative investigating potential solutions (2011)*
0.00	27	Manistique Transformer T1	No solution - virtual activity causing congestion

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

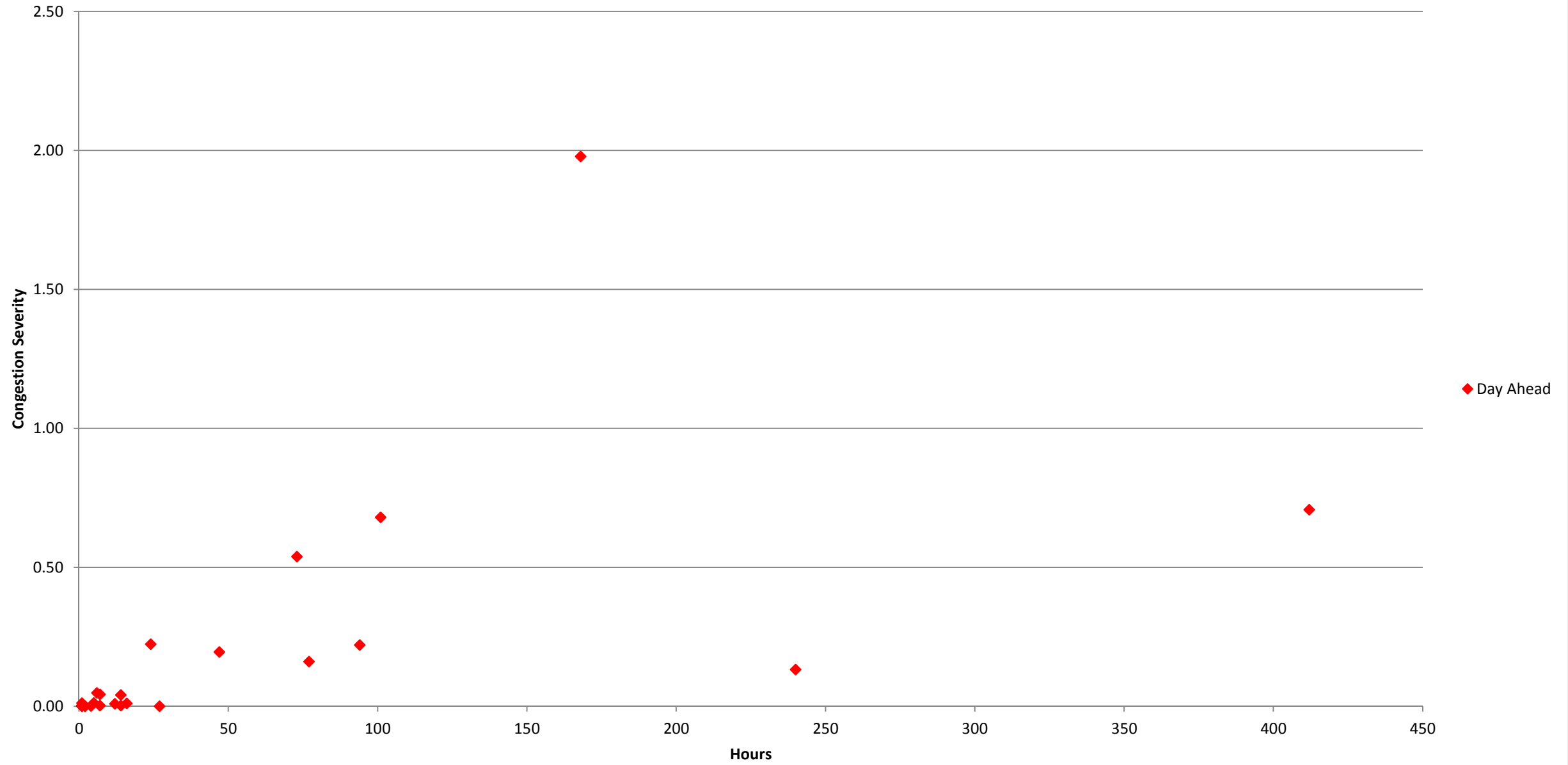
1. This constraint may have been bound for other contingencies as well.

Severity Index	Hours	Constraint	Potential Solution
5.71	322	Total for all ATC Real Time constraints - April 2011	Solutions listed in ATC TYA unless otherwise noted
2.81	17	Nelson Dewey 161/138 kV Transformer T91	Area Generation outages may have contributed to this constraint
1.46	12	Indian Lake 138/69 kV Transformer T2 flo Indian Lake 138/69 kV Transformer T1	Flow Control Device (Proposed, 2014)
0.38	50	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)
0.36	5	Kenosha - Lakeview 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line* (economic analysis 2011)
0.30	9	Racine - Oak Creek 138 kV flo Elm Road - Racine 345 kV	Area Generation outages may have contributed to this constraint
0.19	153	New Holstein - St. Nazianz 69 kV flo Shoto 138/69 kV	Area Generation and Transmission outages may hae contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.05	1	Rocky Run 345/115 kV Transformer T4 flo Arpin - Rocky Run 345 kV	Monroe County - Coucil Creek 161 kV line (Proposed, 2013)
0.05	21	Cedar Ridge - Ohmstead 138 kV flo Edgewater - South Fond Du Lac 345 kV	Area Generation and Transmission outages may have contributed to this constraint
0.05	47	New Holstein - St. Nazianz 69 kV flo Northeast - Shoto 69 kV	Area Generation and Transmission outages may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.03	1	Rudyard Tap - Pine River 69 kV flo Pine River - Nine Mile 69 kV	
0.00	0	University - Whitewater 138 kV	
0.00	6	New Holstein - St. Nazianz 69 kV flo Lakefront - Revere Drive 69 kV	Area Generation and Transmission outages may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.00	1	Badger 138/115 kV Transformer T1 flo Highway22 - Gardner Park 345 kV	Area Generation and Transmission outages may have contributed to this constraint
0.00	0	Westmark - Kellnersville flo Shoto 138/69 kV Transformer T1	Area Generation and 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.

Day Ahead Hours Vs. Congestion Severity



Real Time Hours Vs. Congestion Severity

