

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
3.09	611	Total for all ATC Day Ahead constraints - October 2011	Solutions listed in ATC TYA unless otherwise noted
0.77	102	Lakeview - Zion 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.45	79	Kenosha - Lakeview 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.36	19	Cedar Ridge - Ohmstead 138 kV flo South Fond Du Lac 345 kV Transformers T21 + T22	Area Generation outage may have contributed to this constraint
0.29	36	Indian Lake 138/69 kV Transformer T2 flo Indian Lake 138/69 kV Transformer T1	Flow Control Device (Proposed, 2014) Indian Lake - Hiawatha 138kV line (Proposed, 2014) ATC Northern Plan Projects
0.28	118	Flow South PTFD	Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.23	14	Arcadian 345/138 kV Transformer T2 flo Arcadian 345/138 kV Transformer T1	Replace Arcadian Transformers T2 and T3 (Provisional 2020)
0.17	8	Rocky Run 345/115 kV Transformer T4 flo Rocky Run 345/115 kV Transformer T1	Monroe County - Coucil Creek 161 kV line (Proposed, 2013)
0.13	38	Indian Lake Transformer 138/69 kV T1 flo Indian Lake Transformer 138/69 kV T2	Flow Control Device (Proposed, 2014) Indian Lake - Hiawatha 138kV line (Proposed, 2014) ATC Northern Plan Projects
0.13	9	Minnesota to Wisconsin Exports Interface (MWEX)	Monroe County - Council Creek 161 kV line (Proposed, 2013) North La Crosse - Madison 345 kV line (Proposed 2018)
0.11	40	Cedar Ridge - Ohmstead 138 kV flo Edgewater - South Fond Du Lac 345 kV	Area Generation outage may have contributed to this constraint
0.04	24	Nordic - Perch Lake 138 kV flo Empire - Forsyth 138 kV	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014) Second Chandler 138/69 kV Transformer (Proposed, 2012) ATC Northern Plan Projects
0.03	16	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) ATC Northern Plan Projects
0.03	7	Shoto - Mirro 69 kV flo Manrap - Shoto 69 kV	Area Generation outage may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.02	12	Manrap - Shoto 69 kV flo Northeast - Shoto 69 kV	Area Generation outage may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.01	4	Plains 345/138 kV Transformer T1	Arnold 345/138 kV Transformer (Provisional, 2015) Flow Control Device (Proposed, 2014) Second Chandler 138/69 kV Transformer (Proposed, 2012) ATC Northern Plan Projects
0.01	15	Straits 138/69 kV Transformer T1 flo Straits - Hiawatha 138 kV + Hiawatha 138/69 kV Transf	Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.01	11	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) ATC Northern Plan Projects
0.01	5	Straits - Evergreen 69 kV flo Straits - Pine River 69 kV	Flow Control Device (Proposed, 2014) ATC Northern Plan Projects

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

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

0.00	5	Newberry Correctional Facility Tap - Roberts SW STA 69	Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.00	1	Rockdale 345/138 kV Transformer T21 flo Rockdale 345/138 kV Transformer T23	Rockdale - West Middleton 345 kV (Planned 2013)
0.00	14	Rudyard Tap - Pine River 69 kV flo Pine River - Nine Mile 69 kV	Uprate Pine River - Nine Mile 69 kV line (Proposed 2016) ATC Northern Plan Projects
0.00	4	Northeast - Mirro SW STR 69 kV flo Manrap - Shoto 69 kV	Area Generation outage may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.00	6	Evergreen - Pine River 69 kV flo Straits - Hiawatha 138 kV + Hiawatha 138/69 kV Transform	Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.00	13	Hiawatha - Engadine Tap 69 kV	Indian Lake - Hiawatha 138kV line (Proposed, 2014) Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.00	6	Rock River 138/69 kV Transformer T42	
0.00	1	Cedar Ridge - Kettle Moraine 138 kV flo Edgewater - South Fond Du Lac 345 kV	Area Generation outage may have contributed to this constraint
0.00	2	Roberts - Lou Pac Tap 69 kV	Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.00	1	Hiawatha - Engadine Tap 69 kV flo Pine River - Nine Mile 69 kV	Indian Lake - Hiawatha 138kV line (Proposed, 2014) Flow Control Device (Proposed, 2014) ATC Northern Plan Projects
0.00	1	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
1.56	86	Total for all ATC Real Time constraints - October 2011	Solutions listed in ATC TYA unless otherwise noted
0.32	5	Indian Lake Transformer 138/69 kV T1 flo Indian Lake Transformer 138/69 kV T2	Flow Control Device (Proposed, 2014) Indian Lake - Hiawatha 138kV line (Proposed, 2014) ATC Northern Plan Projects
0.26	1	Lakeview - Zion 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.21	3	Indian Lake - Valley Tap 69 kV flo Indian Lake Hiawatha 69 kV	Flow Control Device (Proposed, 2014) Indian Lake - Hiawatha 138kV line (Proposed, 2014) ATC Northern Plan Projects
0.13	1	Kenosha - Lakeview 138 kV flo Pleasant Prairie - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.12	1	Rocky Run 345/115 kV Transformer T4 flo Rocky Run 345/115 kV Transformer T1	Monroe County - Coucil Creek 161 kV line (Proposed, 2013)
0.09	27	Cedar Ridge - Ohmstead 138 kV flo Edgewater - South Fond Du Lac 345 kV	Area Generation outage may have contributed to this constraint
0.09	5	Sheepskin - Stoughton 69 kV flo Paddock - Rockdale 345 kV	Rockdale - West Middleton 345 kV (Planned 2013)
0.09	3	Rockdale 345/138 kV Transformer T21 flo Rockdale 345/138 kV Transformer T22	Rockdale - West Middleton 345 kV (Planned 2013)
0.08	1	Cedar Ridge - Ohmstead 138 kV flo South Fond Du Lac 345/138 kV Transformer TR21 & TR	Area Generation outage may have contributed to this constraint
0.05	30	Manrap - Shoto 69 kV flo Northeast - Shoto 69 kV	Area Generation outage may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)
0.05	4	Kenosha - Lakeview 138 kV flo Arcadian - Zion 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.03	3	Kenosha - Lakeview 138 kV flo Arcadian 345/138 kV Transformer T3	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.02	2	Lakeview - Zion 138 kV flo Zion - Arcadian 345 kV	Pleasant Prairie - Zion Energy Center 345 kV line (Proposed 2014)
0.00	1	Presque Isle Output	ATC Northern Plan Projects
0.00	1	Northeast - Mirro SW STR 69 kV flo Manrap - Shoto 69 kV	Area Generation outage may have contributed to this constraint Shoto - Custer 138 kV line (Provisional 2022)

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

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



