



Economic planning

ATC utilizes three methods to determine which projects have the potential for economic benefits:

1. Stakeholder Input and Analyses
2. Reliability Project Screening
3. Congestion Severity Index

These methods are described below.

Stakeholder Input and Analyses

In March 2008, Federal Energy Regulatory Commission (FERC) Order 890-A took effect. As part of this order, FERC requires a coordinated, open, and transparent transmission planning process on both a local and regional level. To comply with these requirements, ATC submitted a compliance filing on Order 890-A that provides a timeline of actions to ensure that the economic planning process is both coordinated and open. ATC has also submitted a compliance filing on Order 1000 that incorporates public policy requirement needs into its economic planning analysis

Annually, ATC will use a process with consistent timelines that combines stakeholder input, historical data, future line flow forecasts, and updated information on the electric system to identify transmission upgrades for economic evaluation.

Each year:

- During February, we hold an initial stakeholder meeting to review the market congestion summary and potential fixes and to discuss economic study scenarios, drivers, ranges, and assumptions.
- By March 1, we work with stakeholders to request and prioritize new/other economic studies and recommend study assumptions.
- By April 15 – we identify preliminary areas of economic study, study assumptions and models and solicit further comments from stakeholders, including soliciting stakeholders for public policy requirements that drive transmission needs.
- By May 15 – we finalize areas of economic study, study assumptions and models to be used in analysis, including a determination as to why or why not public policy requirements were included in the assumptions.
- By November 15 – we provide a summary of the results of the economic analyses to our stakeholders.



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ATC conducts analyses of the projects identified for study over several months' time and posts the key results, including the extent to which these savings offset project costs. When the expected benefits of a studied project are high enough to justify its costs, the process of developing it as a formal proposal is begun.

As a result of the 2015 ATC/stakeholder collaborative process, we are performing economic analyses on the following ATC facilities:

Economic Planning Study Areas

- Janesville/Beloit 138 kV Project
- Green Bay Area 138 kV Project

Studies will be performed and results shared with stakeholders over the course of the year. In addition, customers and stakeholders who would like to request specific economic studies can do so if they are willing to pay for the studies and are willing to have the results posted publicly.

Reliability Project Screening

Economic analyses were performed on 15 projects from the 2014 10-Year Assessment project list to determine whether those projects were candidates for acceleration or deferral based on economic considerations. Please refer Table EP-1 for the list of projects screened. The list of 15 projects was based primarily on the availability of redispatch and capital costs of the projects; however, lower cost projects specifically identified by the ATC planning department were also included in the study. Generation interconnection and distribution interconnection projects were not eligible for inclusion in this list. Further, capacitor bank projects were not considered since the voltage benefits provided were not captured by the PROMOD software analysis. Finally, projects with in-service dates prior to 2019 were not considered since development of those projects was too far underway to make scheduling changes. As a result of this screening, two projects showed economic savings to ATC customers. Both the Arcadian to Waukesha 138 kV rebuilds and the Spring Green 2nd transformer both had savings that helped offset costs, but could not cover them completely. They will continue to be studied further for acceleration.

A similar analysis will be performed in the 2016 10-Year Assessment based upon the 2015 Assessment project list.



Table EP-1
List of 10-Year Assessment 2014 Economically Screened Projects

#	2014 TYA Economic Studied Projects	Planning Zone
1	Loop Presque Isle – Tilden 138 kV line into National and uprate National – Tilden 138 kV line.	2
2	Reconductor Winona – Atlantic 69 kV line.	2
3	Upgrade Lakota Road – Winona 69 kV line to 138 kV.	2
4	New Plains – National 138 kV line.	2
5	Install a second Plains 345/138 kV transformer.	2
6	Uprate Plains – Arnold 138 kV line.	2
7	Install a second Spring Green 138/69 kV transformer.	3a
8	New West Middleton – Blount 138 kV line.	3a
9	Rebuild West Middleton – Pheasant Branch 69 kV double circuit line.	3a
10	Install a second 138/69 kV transformer at Colley Road.	3b
11	Convert Portage – Columbia 69 kV line to 138 kV.	3b
12	Install 138/69 kV transformer at Custer, and construct Shoto – Custer 138 kV line.	4
13	Reconductor Highway V – Tower Drive 138 kV line.	4
14	Uprate DePere – Glory Road 138 kV line.	4
15	Reconductor Arcadian – Waukesha 138 kV lines.	5

Congestion Severity Index

ATC developed a Congestion Severity Index for use as the screening indicator to track locations on the transmission system where constraints to the delivery of economic energy exist. The Congestion Severity Index combines the financial impact of constraints with the frequency of constraints. The financial impact during an hour is the calculated theoretical maximum number of dollars that could be paid into the market due to congestion on the constraint in question. The sum of the total financial impacts for each hour during which the constraint occurs forms the basis of the Congestion Severity Index. This information is used as a starting point in determining areas of the system where potential upgrades may be cost-effective. This data is combined with stakeholder input and ATC planning recommendations to identify a group of projects to study. A list of the most severe market constraints in the Day Ahead and Real Time markets for 2014 is given in Tables ZS-5 and ZS-6, respectively. Maps depicting the geographic locations of the most severe market constraints in the Day Ahead and Real Time markets for 2014 are shown in Figures ZS-27 and ZS-28, respectively.

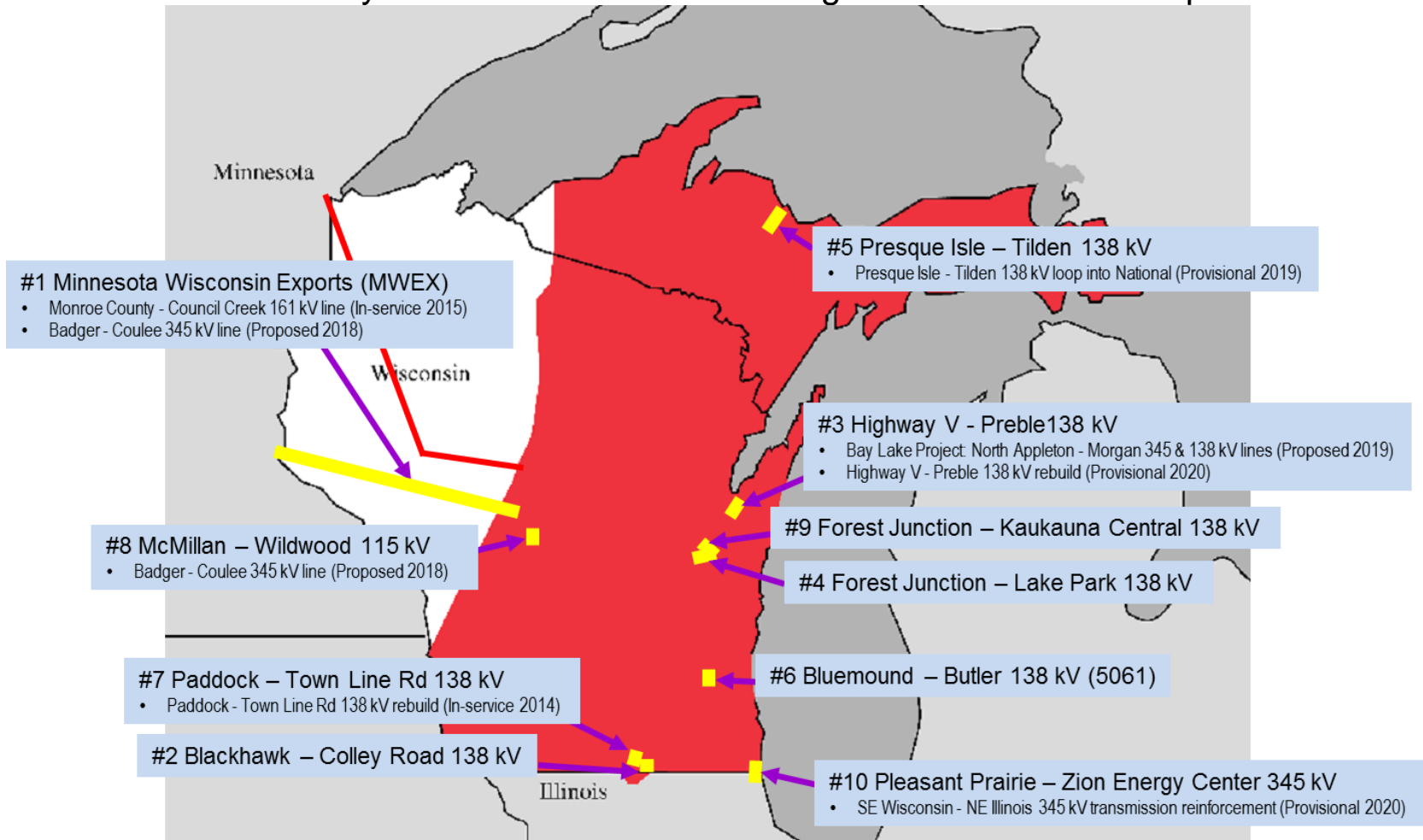


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Table ZS-5
 ATC Day Ahead Market Most Limiting Elements – 2014

Severity Index	Hours	Day Ahead Element	Potential Solution(s)
43.08	822	Minnesota to Wisconsin Exports Interface (MWEX)	Monroe County - Council Creek 161 kV line (In-service 2015) Badger - Coulee 345 kV line (Proposed 2018)
14.33	546	Blackhawk - Colley Road 138 kV	Transmission status may have contributed to this constraint
9.33	1,093	Highway V - Preble 138 kV	Bay Lake Project: North Appleton - Morgan 345 & 138 kV lines (Proposed 2019) Highway V - Preble 138 kV rebuild (Provisional 2020) Transmission status may have contributed to this constraint
4.59	104	Forest Junction - Lake Park 138 kV	Transmission status may have contributed to this constraint
2.71	227	Presque Isle - Tilden 138 kV	Presque Isle - Tilden 138 kV loop into National (Provisional 2019) Transmission status may have contributed to this constraint
2.36	207	Bluemound - Butler 138 kV (5061)	Transmission status may have contributed to this constraint
1.98	230	Paddock - Town Line Road 138 kV	Paddock - Town Line Road 138 kV rebuild (In-service 2014) Generation and transmission status may have contributed to this constraint
1.73	509	McMillan - Wildwood 115 kV	Badger - Coulee 345 kV line (Proposed 2018)
1.60	98	Forest Junction - Kaukauna Central 138 kV	Transmission status may have contributed to this constraint
1.33	58	Pleasant Prairie - Zion Energy Center 345 kV	SE Wisconsin - NE Illinois 345 kV transmission reinforcement (Provisional 2020)
100.52	7,353	Total for All ATC Day Ahead Constraints in 2014	

Figure ZS-27
 ATC Day Ahead Market Most Limiting Elements – 2014 Map





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Table ZS-6
 ATC Real Time Market Most Limiting Elements – 2014

Severity Index	Hours	Real Time Element	Potential Solution(s)
13.72	185.9	Highway V - Preble 138 kV	Bay Lake Project: North Appleton - Morgan 345 & 138 kV lines (Proposed 2019) Highway V - Preble 138 kV rebuild (Provisional 2020) Transmission status may have contributed to this constraint
6.12	61.2	Pleasant Prairie - Zion Energy Center 345 kV	SE Wisconsin - NE Illinois 345 kV transmission reinforcement (Provisional 2020)
4.68	98.7	Blackhawk - Colley Road 138 kV	Transmission status may have contributed to this constraint
4.16	91.3	McMillan - Wildwood 115 kV	Badger - Coulee 345 kV line (Proposed 2018)
3.47	48.8	Presque Isle - Tilden 138 kV	Presque Isle - Tilden 138 kV loop into National (Provisional 2019) Transmission status may have contributed to this constraint
3.05	43.3	Paddock - Town Line Road 138 kV	Paddock - Town Line Road 138 kV rebuild (In-service 2014) Generation and transmission status may have contributed to this constraint
1.92	31.8	Bluemound - Butler 138 kV (5061)	Transmission status may have contributed to this constraint
1.77	14.9	Forest Junction - Kaukauna Central 138 kV	Transmission status may have contributed to this constraint
1.46	9.6	Forest Junction - Lake Park 138 kV	Transmission status may have contributed to this constraint
1.43	7.7	City Limits - Lake Park 138 kV	Transmission status may have contributed to this constraint
59.21	1,073.2	Total for All ATC Real Time Constraints in 2014	

Figure ZS-28
 ATC Real Time Market Most Limiting Elements – 2014 Map

