



Zone 4 – 2019 study results

Refer to [Table ZS-3](#), [Table ZS-3a](#) and [Figure ZS-15](#)

Summary of key findings

- The updated load forecasts have resulted in the deferral or cancellation of several projects identified in prior 10-Year Assessments.
- Additional reinforcements may be needed in the Manitowoc and eastern Calumet County areas.
- Zone 4 is an active study area for potential wind generation additions.

A provisional project to rebuild and convert the Bayport-Pioneer 69-kV line to 138-kV operation has been deferred from 2016 to 2020. The reason for the deferral of this project is that the previously forecasted load addition in this area is no longer included in the load forecasts. One of the benefits of this project would be to provide network service to the currently radially-served Bayport, Suamico and Sobieski substations. As identified in prior assessments, this project would also address potential low voltages and thermal overloads under single-contingency conditions.

A new provisional 138-kV line project could address potential heavy flows on the Shoto-Mirro-Northeast-Revere 69-kV line or the Shoto 138/69-kV transformer under single-contingency conditions during non-peak periods under certain generation patterns. The project includes constructing a new Shoto to Custer 138-kV line and installing a new 138/69-kV transformer at Custer Substation. This project has been deferred from 2016 to 2020 based upon updated load and generation assumptions utilized in our studies. In addition, the in-service date may need to be adjusted after a more detailed study is completed (such as economic benefit analysis).

The Melissa-Tayco 138-kV line uprate project (0.16 miles) was deferred from 2016 to 2020. The project was developed in a prior Assessment to address the line overload under single contingency conditions and certain generation patterns. The circuit was recently validated by ATC to have higher normal and emergency ratings, thus the deferral of the prior in-service date. Because of the increase in the circuit ratings, the need for this uprate project did not show up in any of the models studied for the 2009 10-Year Assessment. Since this is the first occurrence of the need not appearing, ATC choose to delay the proposed project instead of canceling it. The status and in-service date of this project may need to be adjusted further depending on the results of the system studies performed for the 2010 10-Year Assessment along with any additional economic benefit analysis.

Due to updated load forecast information, several projects have been cancelled. Those projects are:

- Installing 2-16.3 MVAR capacitor banks at Mears Corners,
- Installing 2-16.3 MVAR capacitor banks at Rosiere,
- Replacing the 345/138-kV breaker at the Edgewater Substation, and
- Installing 2-16.3 MVAR capacitor banks at Aviation.

Projects whose "Need date" precedes the "In-service date"

- None



10-Year Assessment

An annual report summarizing proposed additions and expansions to the transmission system to ensure electric system reliability.

2009

October 2009 10-Year Assessment
www.atc10yearplan.com

Projects whose “In-service date” precedes the “Need date”

- None

Zone 4 - 2019 futures study results

Two potential 2019 futures were studied as part of this Assessment:

- 20% Wind Future
- Slow Growth Future

Please refer to the [Methodology & Assumptions](#) for details about how the futures models were developed.

In the 20% Wind Future, line overloads and bus voltages generally improve in Zone 4. However, line overloads and bus voltages worsen in the Door County peninsula and line overloads worsen in the Manitowoc area. Future projects and/or increasing area generation mitigates the situation(s). These results occur because of area generation dispatch and the associated change in the flow of power associated with the 20% Wind scenario.

In the Slow Growth Future, line overloads and bus voltages generally improve throughout Zone 4. This result is consistent with the reduced loading and associated generation redispatch throughout the zone. Please refer to [Table ZS-3a](#) for the limitations and performance criteria exceeded for these futures.