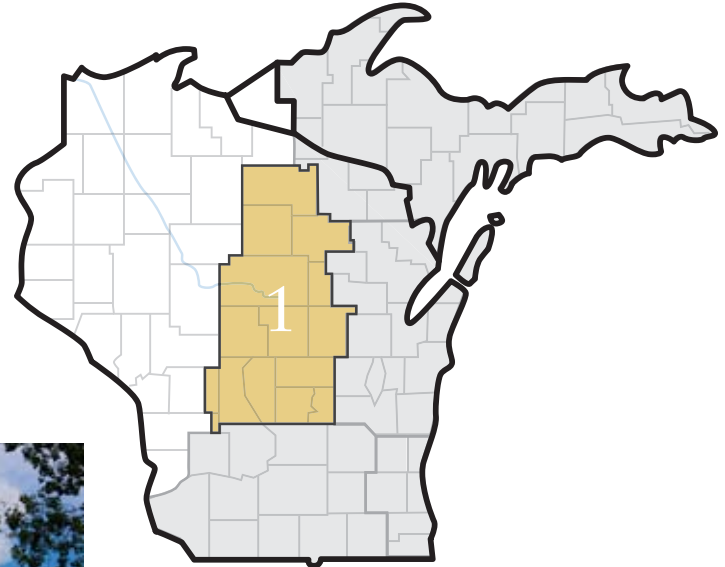


10-Year Transmission System Assessment

Proposals to ensure

- Electric system reliability
- Access to low-cost sources of power
- Access to renewable energy

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Zone 1 North Central Wisconsin

ADAMS
FOREST (southwestern portion)
FOND DU LAC (northwest portion)
GREEN LAKE
JUNEAU
LANGLADE
LINCOLN
MARATHON
MARQUETTE
MONROE (eastern portion)

ONEIDA
PORTAGE
SHAWANO (western portion)
VERNON (eastern portion)
VILAS (southern portion)
WAUPACA
WAUSHARA
WINNEBAGO (western portion)
WOOD

Planning for future reliability

American Transmission Co. was formed in 2001 to plan, permit, build, own, operate and maintain a high-voltage electric grid that meets the reliability and economic needs of our customers. Our planners continually conduct engineering studies on the electric transmission system looking for potential problems that may affect the future performance of the system. Our studies identify and prioritize future projects needed to improve the adequacy and reliability of the electric transmission system and meet evolving public priorities for increased availability of renewable generation.

Many projects serve to increase customer access to low-cost generation, which can reduce the cost of serving load in our footprint. In certain cases, expected economic benefits may be the primary driver of a project. Such is the case with our Paddock-Rockdale 345-kV line in southern Wisconsin. It is the first of its kind in the Midwest – while the line will enhance reliability, economics drove the decision to build. Local electric utilities will save through improved access to the wholesale electric market, and those savings will be passed on to end-use electric customers.

Whatever the need, we select best-value projects that resolve multiple system issues, and we do so in a transparent, collaborative process. We bring people into the process, engaging stakeholders in transmission discussion. We believe this open collaboration is critical to efficiently and economically meet renewable portfolio standards in the region. To that end, we are leading and participating in about a dozen regional and intra-regional studies and initiatives. We also are continuing to work with stakeholders in identifying projects that provide economic

benefits and upgrades that could improve access to lower-cost sources of power inside and outside our service territory.

In this, our ninth year of producing a 10-year forecast of transmission system needs, our focus remains on maintaining the adequacy and reliability of the system to meet the current and future needs of our customers. However, this is the first year that we have included asset renewal projects in the Assessment. While our reliability performance data indicates that our system is performing well, we are placing increased emphasis on managing the risk of aging infrastructure. Our approach to work that traditionally has been called maintenance is moving from a time-based program to a more-efficient process that is informed by performance analysis and operational experience.

The 2009 Assessment covers the years 2010 to 2019, and identifies \$2.5 billion in necessary transmission system improvements. The total includes \$1 billion for transmission network upgrades specifically described in this report, along with \$1.5 billion in interconnection and asset renewal projects, infrastructure replacements and relocations, and other smaller network reliability improvements.

While the cost estimate in our 2009 Assessment is slightly less than the \$2.7 billion identified in last year's report, we may increase our overall 10-year capital spending because of increased focus on regional transmission support to move renewable generation to areas where the power is needed. With more than \$2.1 billion invested in the system since 2001, we have become a recognized, national leader in planning, permitting and building electric transmission infrastructure.

Cost estimate of system improvements					
	2005	2006	2007	2008	2009
Total 10-Year Capital Cost	\$3.4B	\$3.1B	\$2.8B	\$2.7B	\$2.5B



Helping to **keep the lights on,**
businesses running and communities strong™



North Central Wisconsin – Zone 1

Electric System Overview

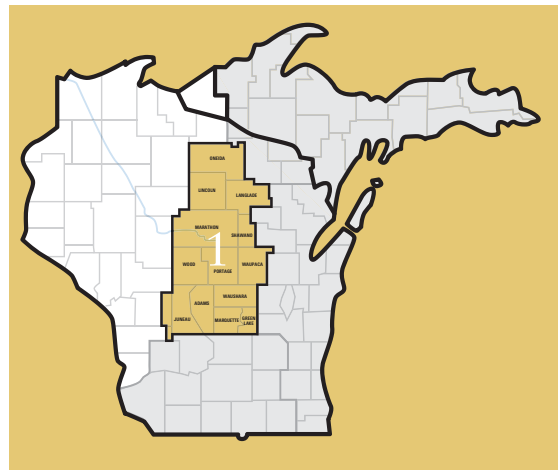
Slight increases expected in population, employment

Population in Zone 1 is projected to grow at 0.7 percent annually between now and 2019. Employment is projected to grow at 1 percent annually between now and 2019. Marathon County will realize the largest increase in population and employment, while Adams County will have the highest growth rate.

Electricity usage growing

Peak electric demands typically occur during the summer months, with some winter peaks appearing in the northern portion. Primary electricity users in Zone 1 include a number of large paper mills and food processing plants.

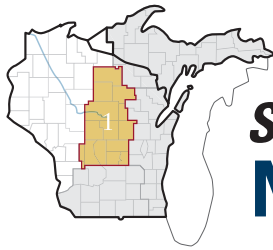
Electric load is projected to grow approximately 1.8 percent annually through 2019.



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Transmission is the vital link in bringing power to communities

Transmission lines move electricity at high voltages over long distances – from power plants to communities where local utilities deliver power to homes and businesses via distribution lines. A reliable transmission network provides access to many sources of power, whether they are local or regional. Having multiple paths to get power from producers to consumers lessens the chance that they will experience service interruptions. With an increasing emphasis on renewable energy, transmission system planning will become even more important to put the power of wind on the wires.



System Limitations **North Central Wisconsin – Zone 1**

Transmission system characteristics in Zone 1

ATC delivers power in Zone 1 with various transmission facilities including:

- an east-west 345-kV line from Arpin Substation through Stevens Point extending to the Appleton area,
- a 345-kV line extending from Wausau to northeastern Minnesota,
- a 345-kV line extending from Wausau to Stevens Point to eastern Outagamie County (Highway 22),
- a 115-kV network in the northern portion of the zone and
- a 138-kV and 69-kV network in the southern portion of the zone.

There are a number of transmission system performance issues in Zone 1 including overloaded lines and equipment, and low system voltages. Steady or rapid load growth in certain areas and the recently completed construction of a new power plant in the Wausau area are driving these issues.

Transmission system limitations in Zone 1

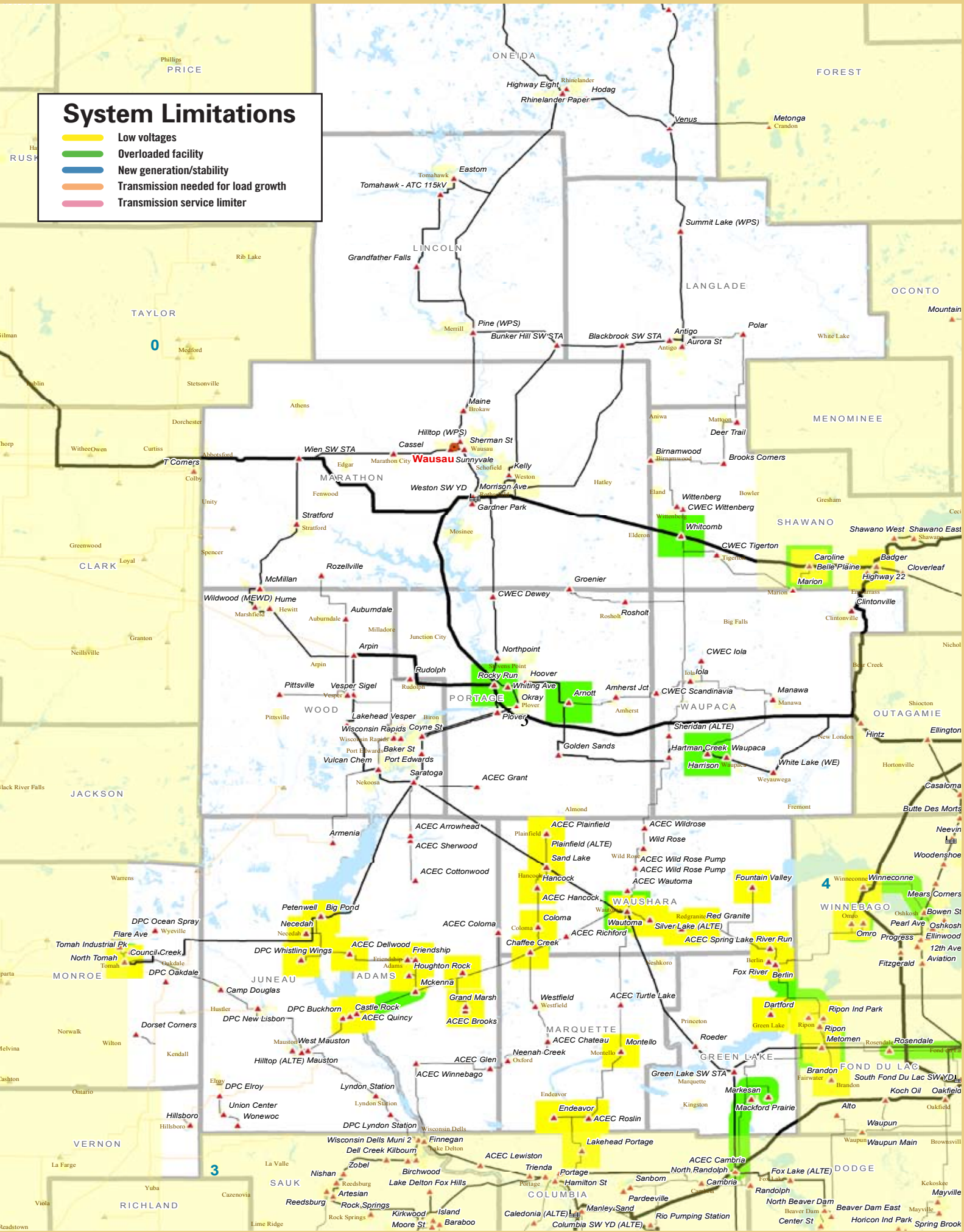
In the analysis of Zone 1, we identified low voltages and transmission facility overloads.

Low voltages occur in the area north of Wausau toward the Michigan border. The most notable facility overloads occur on 115-kV lines in the Rhinelander Loop, and we are implementing a number of projects to reinforce this area. In 2008, ATC completed the first phase of a longer-term reinforcement by constructing a new Cranberry-Conover 115-kV line. This reinforcement project also includes the rebuild and conversion of the Conover-Iron River-Plains 69-kV line to 138-kV operation by 2010. This alternative addresses the long-term reliability issues of the Rhinelander Loop, provides substantial voltage support to the 69-kV system in the western portion of the Upper Peninsula and addresses potential long-term condition issues due to the age of the existing 69-kV system.

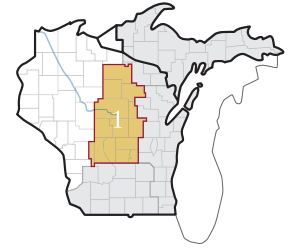
Low voltages and overloaded facilities in and around the Petenwell/Castle Rock lakes area and in the Berlin/Ripon area will necessitate a combination of reinforcements.

System Limitations

- Low voltages
- Overloaded facility
- New generation/stability
- Transmission needed for load growth
- Transmission service limiter



Transmission projects in Zone 1 North Central Wisconsin – Zone 1



We have implemented two projects in Zone 1 since the 2008 Assessment, most notably the construction of the new Gardner Park-Highway 22 345-kV line.

Our current plans in Zone 1 include 18 system reliability and

economic projects between 2009 and 2023. These projects are in various stages of development. The most notable planned, proposed, provisional and asset renewal projects in Zone 1, along with their projected year of completion and the factors driving the need for the projects, are listed below.

	Project description	In-service year	Need driver
	Planned projects		
1	Rebuild Arpin-Rocky Run 345-kV line	2010	Improve condition and increase reliability performance of existing line
	Proposed projects		
2	Construct 115-kV line from new Woodmin Substation to the Clear Lake Substation	2012	T-D interconnection
3	Monroe County-Council Creek 161-kV line and construct Timberwolf 69-kV switching station	2013	Addresses low-voltage situation in the area, provides significant economic benefits, avoids need to reconfigure system during high west-to-east system biases
	Provisional projects		
4	Construct Fairwater-Mackford Prairie 69-kV line and reconfigure North Randolph-Ripon 69-kV line to form a second Ripon-Metomen 69-kV line; retire circuit between Metomen and the Mackford Prairie tap	2018-21	Improve reliability performance
	Asset Renewal projects		
5	Plover-Whiting 115-kV line rebuild	2019	Improve condition and increase reliability performance of existing line

System Solutions

SUBSTATION KEY

- SS** **New substation**
Supports transmission system expansion
- SM** **Substation modifications**
Upgrades equipment ratings to avert facility overloads
- T** **Transformer**
Supports local growth and improves voltage levels
- C** **Capacitor bank**
Relieves low voltages
- T-D** **T-D interconnection**
Supports local growth

TRANSMISSION LINE KEY

- 345-kV transmission line
- ▬ 115-, 138- or 161-kV transmission line
- ▬ Rebuilt 115- or 138-kV transmission line
- ▬ Transmission line voltage conversion
- ▬ 69-kV transmission line
- ▬ Rebuilt 69-kV transmission line



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RICHLAND

FLORENCE

FOREST

ONEIDA

OCONTO

MENOMINEE

MARATHON

LANGLADE

CLARK

PORTAGE

WAUPACA

JACKSON

OUTAGAMIE

MONROE

WAUSHARA

WINNEBAGO

JUNEAU

ADAMS

WAUTOMA

FOND DU LAC

VERNON

SAUK

COLUMBIA

GREEN LAKE

DODGE

RICHLAND

BEAVER DAM



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ATC AT A GLANCE

- Formed in 2001 as the first multi-state, **transmission-only utility**.
- Owner and operator of approximately **9,400 miles of transmission line and 510 substations**.
- Meeting electric needs of more than **five million people** in 72 counties in four states: Wisconsin, Michigan, Minnesota and Illinois.
- \$2.5 billion** in total assets.

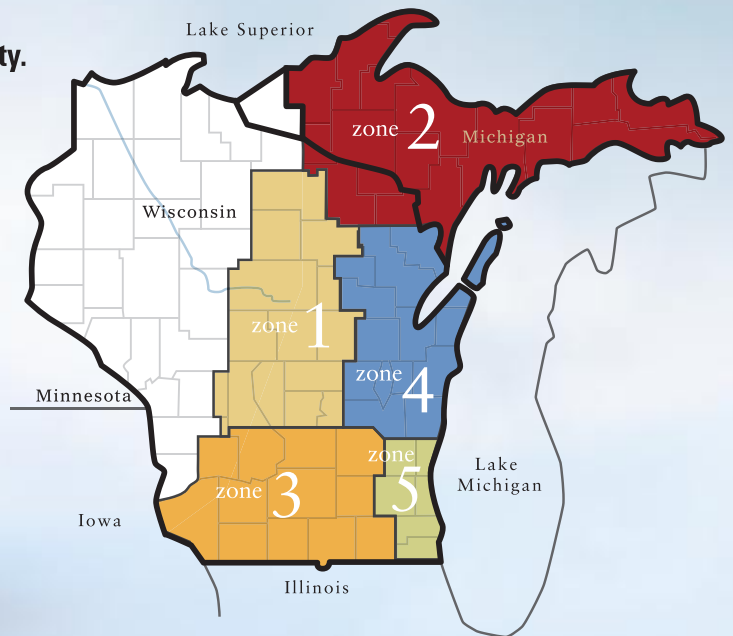
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Would you like a speaker from ATC to address your group? Give us a call, toll-free, at 1.866.899.3204, ext. 6922.