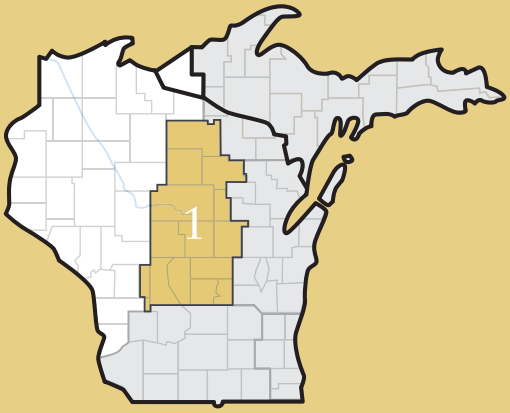
Zone 1

AMERICAN TRANSMISSION COMPANY®

An excerpt from ATC's 2010 10-Year Transmission System Assessment

An annual report describing economic and regional solutions to electric reliability needs



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

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AMERICAN TRANSMISSION COMPANY®

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

Economics, renewables increasingly in focus

Planning for regional solutions

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 future performance. Our studies identify and prioritize future projects needed to improve the adequacy and reliability of the system and meet evolving public priorities.

After nearly 10 full years of operation and $2.2 billion in new and upgraded infrastructure investment, electric system reliability remains our top priority. But looking forward, we see an increasing need for an expanded regional transmission system. Consequently, our planning focus has broadened to consider projects that provide economic and public policy benefits as well. Several factors, including the emerging wholesale market and federal and state policy, play a larger role in our planning process today than they did when we first began operation in 2001.

The majority of the grid's regional interconnections were made in the late 1950s through the early 1970s to accommodate local reliability needs. Nationally, the transmission system was not designed to accommodate the expanded energy flows required by the current wholesale marketplace.

Renewable portfolio standards also call for a more robust regional grid to move power from wind-rich areas west of Wisconsin to population centers where the electricity is consumed. The changed marketplace and increasing importance of renewable energy sources necessitate a broader view of the system, which influences planning policies and studies.

Since our inception, load growth and operational issues were the primary drivers for transmission improvements, and planning studies were conducted accordingly. Today, finding a way to build the system to allow states to meet their renewable energy standards and getting the full benefit of the Midwest ISO market for ATC customers have become more significant transmission needs. We continue to collaborate with customers and other stakeholders to plan best-value projects that meet system needs and provide multiple benefits.

The 2010 Assessment covers the years 2010 to 2019, and for the second year, we have included asset renewal projects through the full 10-year horizon. Our studies indicate $3.4 billion in necessary transmission system improvements. The total includes $1.0 billion for transmission network upgrades, $0.7 billion for regional multi-value projects, along with $1.7 billion in interconnection and asset renewal projects, infrastructure replacement and relocation, and other smaller network reliability improvements.

Cost estimate of system improvements

	2006	2007	2008	2009	**2010**
Total 10-Year Capital Cost	$3.1B	$2.8B	$2.7B	$2.5B	**$3.4B**




North Central Wisconsin – Zone 1

Electric System Overview

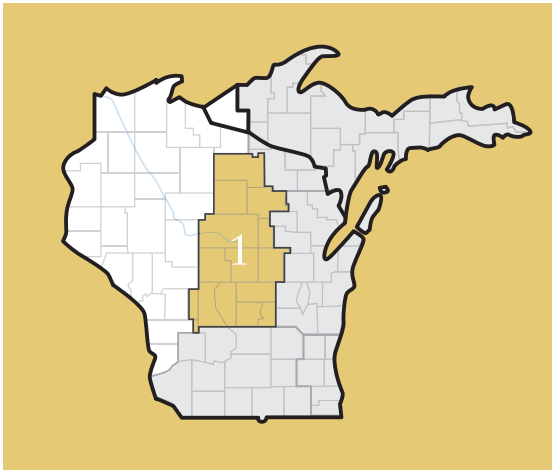
Slight increases expected in population, employment

Population in Zone 1 is projected to grow at 0.7 percent annually between now and 2020. Employment is projected to grow at 0.9 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 1.1 percent annually through 2019.



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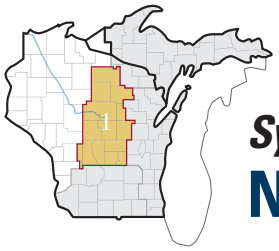
GREEN TIER

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:

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

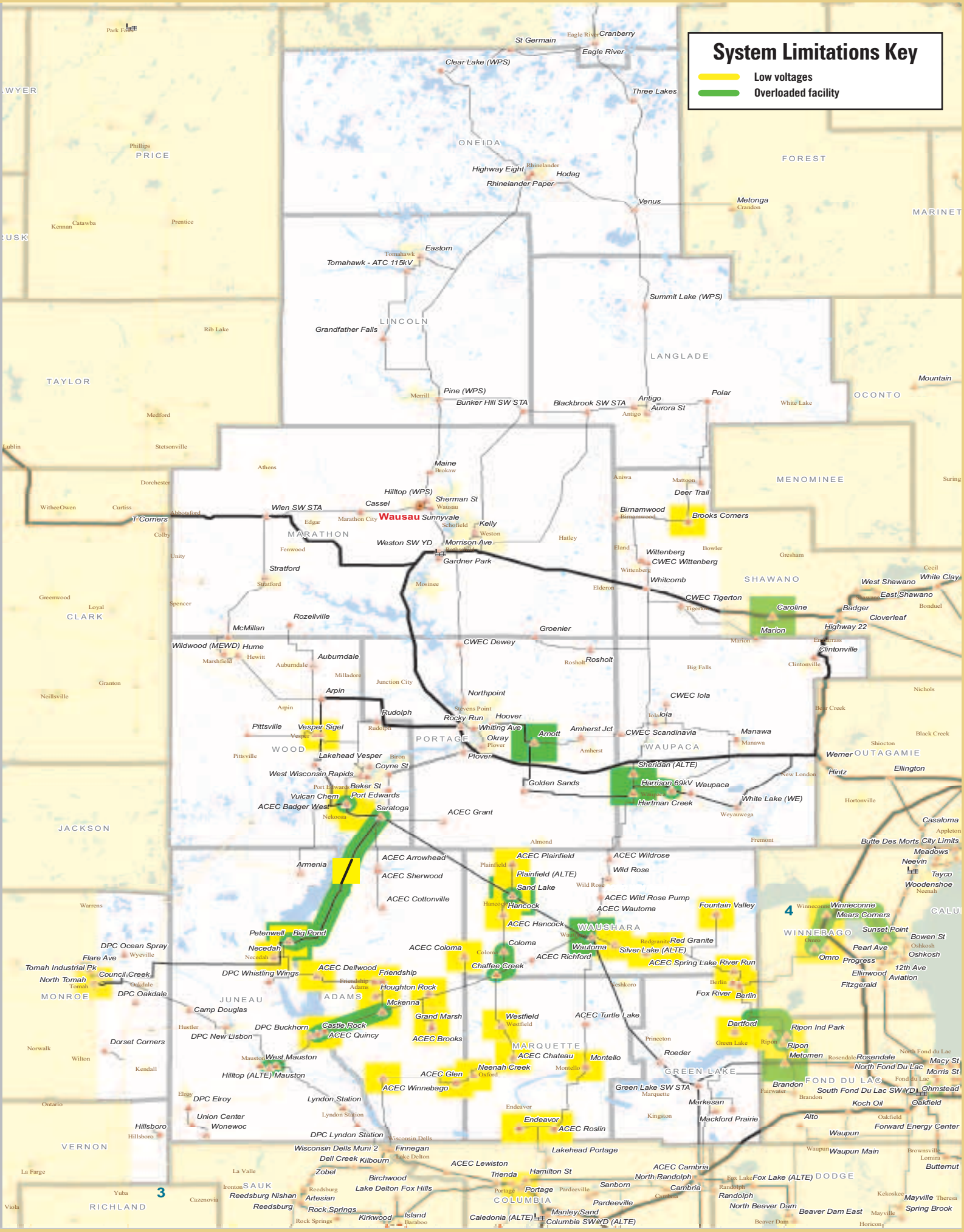
Transmission system limitations in Zone 1

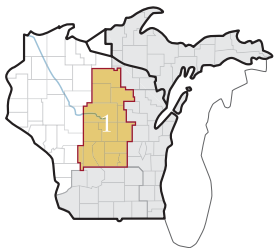
The recently completed Cranberry-Conover-Plains 138-kV line addresses the long-term reliability issues of the Rhinelander Loop, provides substantial voltage support to the 69-kV system in the western portion of the Upper Peninsula of Michigan, and addresses potential long-term condition issues due to the age of the 69-kV system.

Key system performance issues in Zone 1 include low voltages and thermal overloads in the southern portion of the zone. These issues will necessitate a combination of reinforcements.

Zone 1 includes the counties of:

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


System Limitations Key
Low voltages
Overloaded facility
Park Falls
St Germain
Eagle River
Cranberry
Clear Lake (WPS)
Three Lakes
ONEIDA
FOREST
PRICE
Phillips
Highway Eight
Rhinelander
Hodag
Rhinelander Paper
Venus
Metonga
Crandon
Catawba
Prentice
Kennan
Eastom
Tomahawk
Tomahawk - ATC 115kV
Summit Lake (WPS)
LINCOLN
Rib Lake
Grandfather Falls
LANGLADE
TAYLOR
Merrill
Pine (WPS)
Bunker Hill SW STA
Blackbrook SW STA
Antigo
Aurora St
Polar
White Lake
OCONTO
Mountain
Medford
Lublin
Stetsonville
Athens
Maine
Brokaw
Dorchester
Aniwa
Mattoon
MENOMINEE
Deer Trail
Hilltop (WPS)
Cassel
Sherman St
Wausau
Wien SW STA
Birnamwood
Brooks Corners
T Corners
Abbotsford
Edgar
Marathon City
Wausau
Sunnyvale
Schofield
Kelly
Weston
MARATHON
Colby
Hatley
Weston SW YD
Morrison Ave
Gardner Park
Eland
Bowler
Wittenberg
CWEC Wittenberg
Fenwood
Unity
Gresham
Stratford
Whitcomb
SHAWANO
Mosinee
Elderon
West Shawano
White Clay
East Shawano
CWEC Tigerton
Caroline
Badger
Cloverleaf
Highway 22
Rozellville
McMillan
Groenier
Marion
Clintonville
Wildwood (MEWD)
Hume
CWEC Dewey
Hewitt
Auburndale
Rosholt
Big Falls
Granton
Neillsville
Arpin
Northpoint
CWEC Iola
Iola
Rudolph
Rocky Run
Hoover
Pittsville
Vesper Sigel
Whiting Ave
Amherst Jct
CWEC Scandinavia
Manawa
Okray
Arnott
PORTAGE
WAUPACA
WOOD
Plover
Amherst
Shiocton
OUTAGAMIE
Lakehead Vesper
Coyne St
Sheridan (ALTE)
Werner
Hintz
Ellington
West Wisconsin Rapids
Golden Sands
Harrison 69kV
Waupaca
Baker St
Port Edwards
Vulcan Chem
ACEC Badger West
Saratoga
Hartman Creek
White Lake (WE)
ACEC Grant
Weyauwega
Hortonville
JACKSON
Casaloma
Appleton
Almond
Fremont
Butte Des Morts
City Limits
Meadows
ACEC Arrowhead
ACEC Plainfield
ACEC Wildrose
Armenia
Plainfield
Neevin
ACEC Sherwood
Plainfield (ALTE)
Wild Rose
Tayco
Woodenshoe
Sand Lake
Neenah
ACEC Cottonville
ACEC Wild Rose Pump
Warrens
Hancock
Fountain Valley
ACEC Wautoma
Winneconne
Mears Corners
ACEC Hancock
WAUSHARA
WINNEBAGO
Petenwell
Big Pond
Sunset Point
Bowen St
DPC Ocean Spray
Necedah
ACEC Coloma
Coloma
Wautoma
Red Granite
Pearl Ave
Oshkosh
Flare Ave
Wyeville
Silver Lake (ALTE)
ACEC Richford
Omro
Progress
Tomah Industrial Pk
ACEC Dellwood
ACEC Spring Lake
River Run
Ellinwood
12th Ave
Council Creek
Friendship
Chaffee Creek
Aviation
North Tomah
DPC Whistling Wings
Fitzgerald
Houghton Rock
Fox River
Berlin
MONROE
DPC Oakdale
ADAMS
JUNEAU
Mckenna
Camp Douglas
Grand Marsh
Westfield
ACEC Turtle Lake
Dartford
Ripon Ind Park
DPC Buckhorn
Castle Rock
DPC New Lisbon
ACEC Quincy
ACEC Brooks
Ripon
Dorset Corners
MARQUETTE
Princeton
Green Lake
Metomen
Rosendale
Macy St
West Mauston
ACEC Chateau
Montello
Roeder
North Fond du Lac
Mauston
Neenah Creek
Morris St
Hilltop (ALTE) Mauston
ACEC Glen
Oxford
GREEN LAKE
Brandon
FOND DU LAC
Fond du Lac
ACEC Winnebago
Green Lake SW STA
Fairwater
South Fond du Lac SW YD
Ohmstead
Elroy
DPC Elroy
Lyndon Station
Markesan
Koch Oil
Oakfield
Endeavor
Kingston
Alto
Union Center
Wonewoc
ACEC Roslin
Mackford Prairie
Forward Energy Center
Hillsboro
DPC Lyndon Station
Waupun
VERNON
Wisconsin Dells Muni 2
Finnegan
Lakehead Portage
Waupun Main
Dell Creek
Kilbourn
ACEC Lewiston
ACEC Cambria
Butternut
Zobel
Trienda
Hamilton St
North Randolph
Fox Lake (ALTE)
DODGE
Birchwood
Sanborn
Cambria
Randolph
Lake Delton
Fox Hills
Portage
Pardeeville
Mayville
Reedsburg Nishan
Artesian
Reedsburg
Rock Springs
Kirkwood
Island
Baraboo
Caledonia (ALTE)
Manley Sand
Columbia SW YD (ALTE)
Pardeeville
North Beaver Dam
Beaver Dam East
Spring Brook
SAUK
COLUMBIA
RICHLAND
3
4



Transmission projects in Zone 1

North Central Wisconsin – Zone 1

We have implemented three projects in Zone 1 since the 2009 Assessment, most notably the rebuild of the Arpin-Rocky Run 345-kV line.

Our current plans in Zone 1 include 19 system reliability and economic projects between 2010 and 2024. 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 project		
1	Construct 69-kV line from new Warrens Substation to the Council Creek-Tunnel City 69-kV line	2010	T-D interconnection
	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	Low-voltage, economics, avoids reconfiguration during emergencies
	Asset Renewal projects		
4	Wautoma-Berlin 69-kV line rebuild	2011	Condition and performance
5	Whitcomb-Deer Trail 69-kV line rebuild	2011	Condition and performance
6	Montello-Wautoma 69-kV rebuild	2017	Condition and performance
7	Plover-Whiting 115-kV line rebuild	2019	Condition and performance

System Solutions Key

SUBSTATION KEY

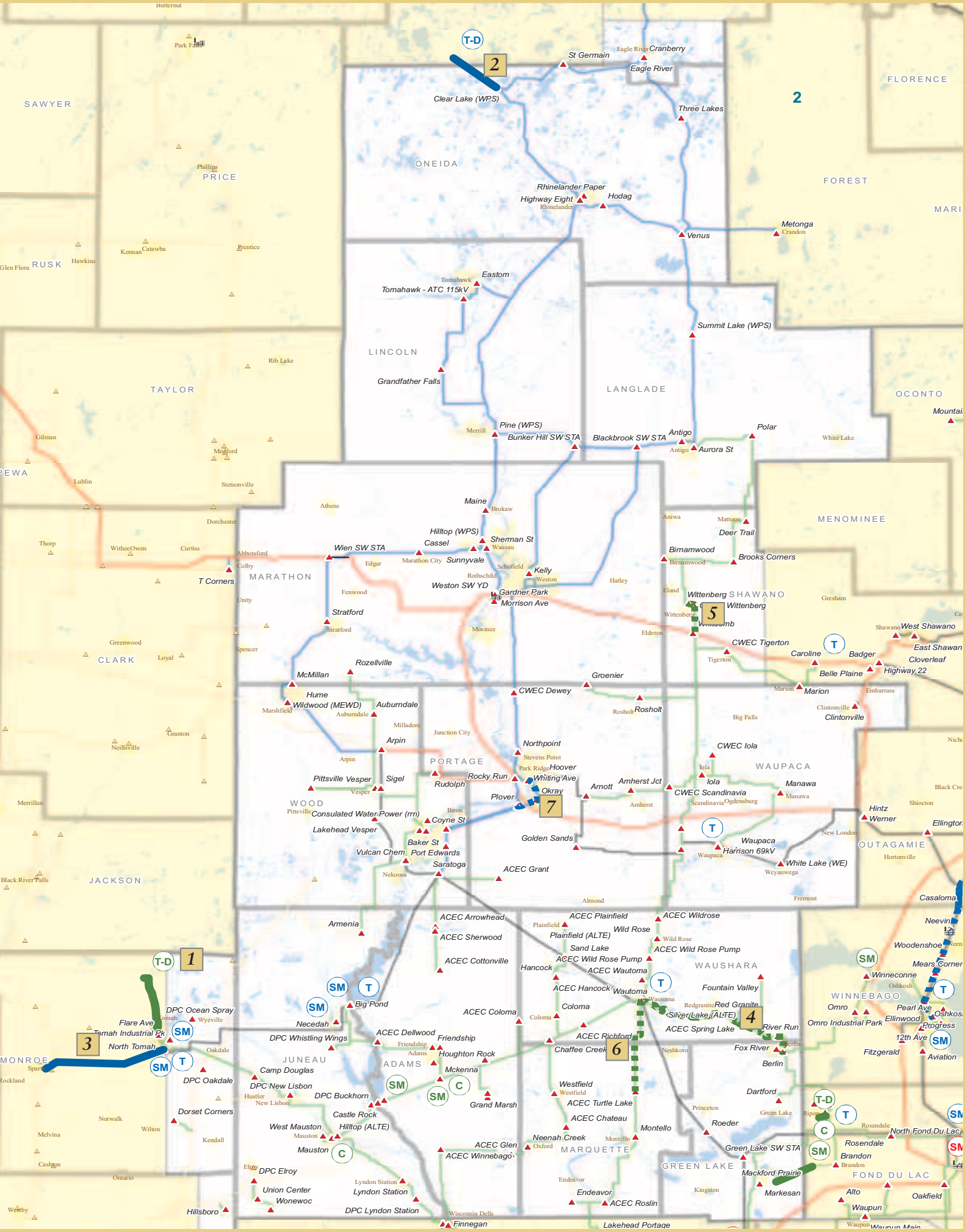
- **SS** — **New substation** — Supports transmission system expansion
- **SM** — **Substation modifications** — Upgrades equipment ratings to avert facility overloads
- **T** — **Transformer** — Supports local growth and improves voltage levels
- **C** — **Capacitor bank or reactor** — Relieves low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

EXISTING TRANSMISSION LINES KEY

- 69 kV
- 161 kV
- 115 kV
- 230 kV
- 138 kV
- 345 kV


T-D
2
Clear Lake (WPS)
St Germain
Eagle River
Cranberry
Three Lakes
SAWYER
PRICE
ONEIDA
FLORENCE
FOREST
2
Rhinelander Paper
Highway Eight
Rhinelander
Hodag
Venus
Metonga
Crandon
Eastom
Tomahawk - ATC 115kV
Tomahawk
RUSK
Hawkins
Glen Flora
Kennan
Catawba
Prentice
Summit Lake (WPS)
LINCOLN
TAYLOR
LANGLADE
OCONTO
Rib Lake
Grandfather Falls
Pine (WPS)
Bunker Hill SW STA
Blackbrook SW STA
Antigo
Aurora St
Polar
Merrill
Gilman
Medford
Lublin
Stetsonville
Maine
Brokaw
Athens
Dorchester
Hilltop (WPS)
Cassel
Sherman St
Wausau
Wien SW STA
Edgar
Marathon City
Sunnyvale
Schofield
Kelly
Weston
Rothschild
Weston SW YD
Gardner Park
Morrison Ave
Stratford
Abbotsford
Colby
T Corners
MARATHON
Unity
Fenwood
Mosinee
Spencer
Greenwood
CLARK
Loyal
Thorp
Curtiss
Aniwa
Mattoon
Deer Trail
MENOMINEE
Birnamwood
Brooks Corners
Eland
Wittenberg
SHAWANO
Gresham
5
Elderon
Tigerton
CWEC Tigerton
Caroline
Badger
Belle Plaine
Shawano
West Shawano
East Shawan
Cloverleaf
Highway 22
Rozellville
McMillan
Hume
Wildwood (MEWD)
Marshfield
Auburndale
Groenier
CWEC Dewey
Rosholt
Marion
Embarrass
Clintonville
Granton
Neillsville
Milladore
Junction City
Arpin
Northpoint
Stevens Point
Park Ridge
Hoover
Whiting Ave
Okray
Plover
PORTAGE
Rocky Run
Rudolph
Sigel
Pittsville Vesper
Vesper
WOOD
Pittsville
Consulated Water Power (rrn)
Lakehead Vesper
Biron
Coyne St
Baker St
Port Edwards
Vulcan Chem
Saratoga
Nekoosa
ACEC Grant
Golden Sands
Arnott
Amherst Jct
Amherst
Plover
7
CWEC Iola
Iola
WAUPACA
CWEC Scandinavia
Scandinavia
Ogdensburg
Manawa
Waupaca
Harrison 69kV
White Lake (WE)
Weyauwega
Hintz
Werner
New London
OUTAGAMIE
Hortonville
Ellington
Black River Falls
JACKSON
Almond
Fremont
Armenia
ACEC Arrowhead
ACEC Sherwood
ACEC Cottonville
ACEC Plainfield
Plainfield
Plainfield (ALTE)
Wild Rose
ACEC Wildrose
Wild Rose
ACEC Wild Rose Pump
Sand Lake
ACEC Wild Rose Pump
Hancock
ACEC Wautoma
ACEC Hancock
Wautoma
WAUSHARA
Fountain Valley
Red Granite
Silver Lake (ALTE)
ACEC Spring Lake
4
River Run
Fox River
Berlin
Redgranite
Wautoma
Coloma
ACEC Coloma
ACEC Richford
Chaffee Creek
6
Neshkoro
Westfield
ACEC Turtle Lake
ACEC Chateau
Montello
Neenah Creek
Oxford
ACEC Glen
ACEC Winnebago
MARQUETTE
Princeton
Roeder
Dartford
Green Lake
Ripon
Green Lake SW STA
GREEN LAKE
Mackford Prairie
Markesan
Endeavor
ACEC Roslin
Kingston
Grand Marsh
Marion
Casaloma
Neevin
Woodenshoe
Mears Corner
Winneconne
Oshkosh
WINNEBAGO
Omro
Pearl Ave
Ellinwood
Omro Industrial Park
Oshkos
Progress
12th Ave
Fitzgerald
Aviation
Rosendale
Brandon
North Fond Du Lac
FOND DU LAC
Alto
Oakfield
Waupun
Waupun Main
Lakehead Portage
Finnegan
Wisconsin Dells
DPC Lyndon Station
Lyndon Station
Union Center
Wonewoc
DPC Elroy
Elroy
Hillsboro
Wesby
Ontario
Cashton
Melvina
Wilton
Norwalk
Kendall
Dorset Corners
Castle Rock
DPC Buckhorn
Hustler
New Lisbon
DPC New Lisbon
Camp Douglas
DPC Oakdale
Oakdale
Rockland
Spar
MONROE
North Tomah
Tomah Industrial Pk
Flare Ave
DPC Ocean Spray
Wyeville
1
3
JUNEAU
ADAMS
Necedah
Big Pond
DPC Whistling Wings
ACEC Dellwood
Friendship
Houghton Rock
Mckenna
Adams
Friendship
West Mauston
Hilltop (ALTE)
Mauston
Lemonweir
Mauston
C
SM
T
T-D

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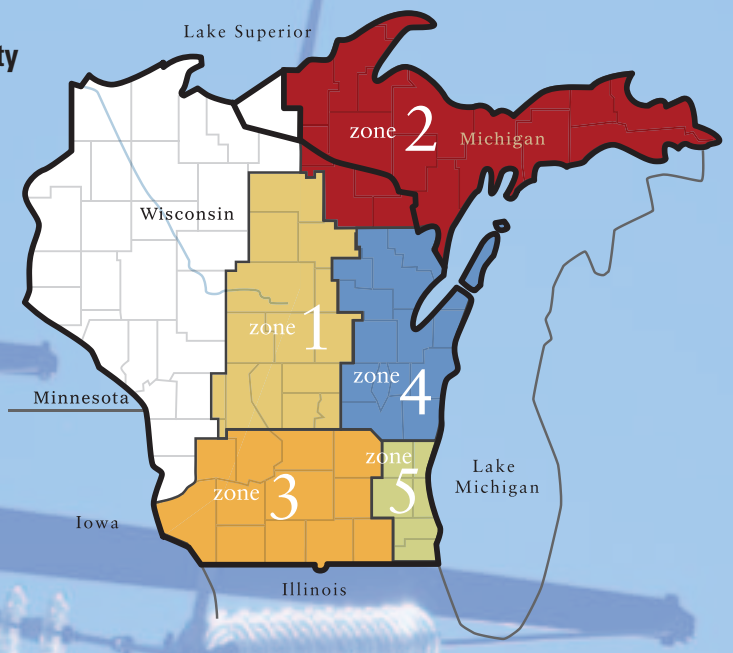
Helping to **keep the lights on,** businesses running and communities strong®

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
- **$2.75 billion** in total assets



CONTACT

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More detailed information is available at **www.atc10yearplan.com**

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GREEN TIER