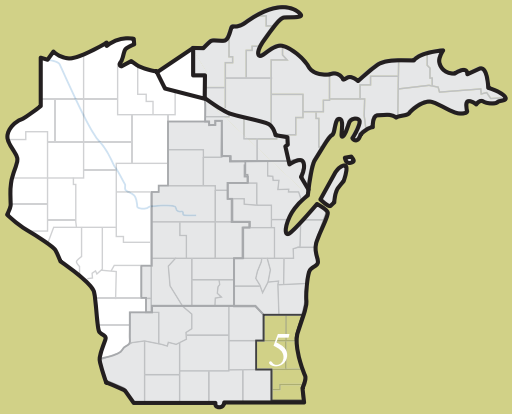
Zone 5

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 5 Southeast Wisconsin

KENOSHA
MILWAUKEE
OZAUKEE
RACINE
WASHINGTON
WAUKESHA

www.atc10yearplan.com

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**




Southeast Wisconsin – Zone 5

Electric System Overview

Small increases expected in population, employment

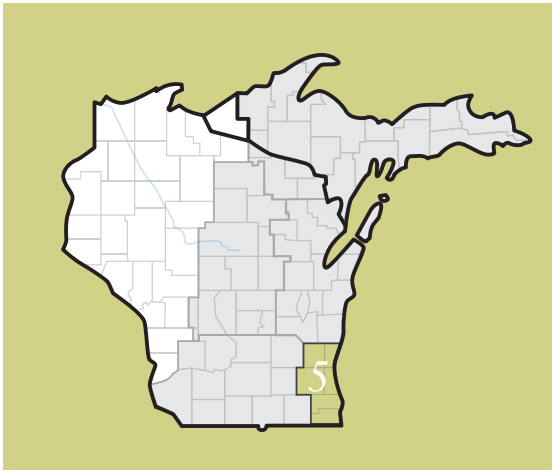
Population in Zone 5 is projected to grow 0.5 percent annually between now and 2019, and employment is projected to grow 0.8 percent in the same time period.

Waukesha County is projected to realize the largest increase in both population and employment.

Electricity usage growing

Peak electric demand typically occurs during the summer months. Large industrial loads in the Milwaukee metropolitan area, including Charter Steel and Miller Brewing, are among the largest electricity users in the zone.

Electric load is projected to grow approximately 1 percent annually through 2019.



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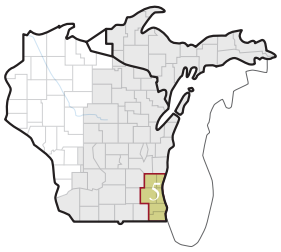
GREEN TIER

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

Southeast Wisconsin – Zone 5

Transmission system characteristics in Zone 5

ATC delivers power in Zone 5 with various transmission facilities including:

- The southern portion of 345-kV lines from Point Beach and Edgewater,
- The Saukville, Arcadian, Granville, Oak Creek, and Racine 345/138-kV substations,
- The transmission lines emanating from the Pleasant Prairie and Oak Creek power plants,
- 230-kV facilities near Milwaukee, and
- A significant 138-kV network in the Milwaukee area, a portion of which is underground.

Transmission system limitations in Zone 5

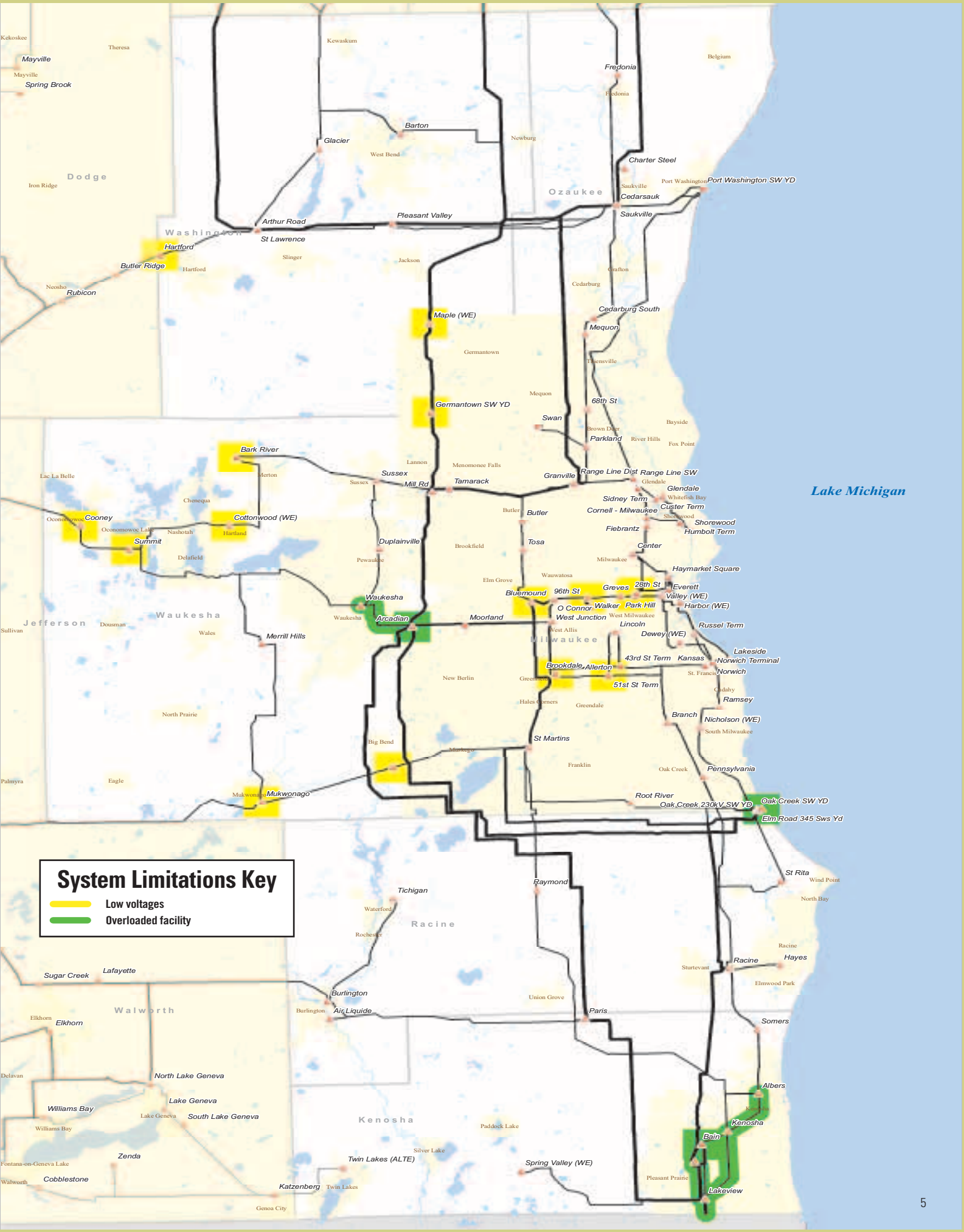
Key system performance issues in Zone 5 include:

- Heavy flows on aging facilities,
- New generation project expected to be placed in service in 2010,
- Heavy flows from the west (Zone 3) resulting in heavily loaded 138-kV facilities in the western portion of Zone 5,
- Heavy market flows from and to the south, resulting in high 345-kV and 138-kV line loadings and the need to monitor potential multiple contingency conditions, and
- Sagging voltage profile in portions of Washington and Waukesha counties.

Transmission system reinforcements needed to interconnect and deliver new generation at the Oak Creek Power Plant comprise much of the recent expansion to Zone 5. Significant load growth in Waukesha and Washington counties is projected to exceed the capabilities of the existing 138-kV system in those areas, signaling the need for future transmission system reinforcements.

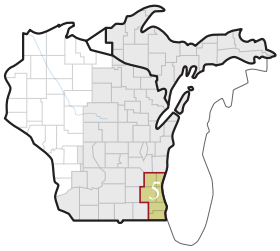
Zone 5 includes the counties of:

KENOSHA	**OZAUKEE**	**WASHINGTON**
MILWAUKEE	**RACINE**	**WAUKESHA**


Lake Michigan
Dodge
Washington
Ozaukee
Waukesha
Jefferson
Milwaukee
Racine
Walworth
Kenosha
Mayville
Spring Brook
Fredonia
Barton
Glacier
Charter Steel
Port Washington SW YD
Cedarsauk
Saukville
Arthur Road
Pleasant Valley
St Lawrence
Hartford
Butler Ridge
Rubicon
Maple (WE)
Cedarburg South
Mequon
Germantown SW YD
68th St
Swan
Parkland
Bark River
Range Line Dist
Range Line SW
Granville
Tamarack
Mill Rd
Sussex
Glendale
Sidney Term
Cornell - Milwaukee
Custer Term
Shorewood
Humbolt Term
Fiebrantz
Center
Haymarket Square
Cooney
Cottonwood (WE)
Summit
Duplainville
Tosa
Brookfield
Waukesha
Arcadian
Moorland
Bluemound
96th St
Greves
28th St
Everett
Valley (WE)
Harbor (WE)
O Connor
Walker
Park Hill
West Junction
Lincoln
Dewey (WE)
Russel Term
Merrill Hills
Brookdale
Allerton
43rd St Term
Kansas
Lakeside
Norwich Terminal
Norwich
51st St Term
Ramsey
Branch
Nicholson (WE)
St Martins
Pennsylvania
Root River
Oak Creek 230kV SW YD
Oak Creek SW YD
Elm Road 345 Sws Yd
Mukwonago
Tichigan
Raymond
St Rita
Burlington
Air Liquide
Paris
Somers
Racine
Hayes
Sugar Creek
Lafayette
Elkhorn
North Lake Geneva
Lake Geneva
South Lake Geneva
Williams Bay
Zenda
Twin Lakes (ALTE)
Spring Valley (WE)
Albers
Kenosha
Bain
Lakeview
Cobblestone
Katzenberg
System Limitations Key
Low voltages
Overloaded facility

Transmission projects in Zone 5

Southeast Wisconsin – Zone 5



We have implemented three projects in Zone 5 since the 2009 Assessment, including a capacitor bank project and two line upgrade projects.

Our current plans in Zone 5 include ten system reliability and economic projects between 2010 and 2024. These projects are in various stages of development. The most notable planned, proposed and provisional projects, and the asset renewal projects in Zone 5, 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
	Provisional projects		
1	Replace two existing 345/138-kV transformers at Arcadian Substation with 1-500 MVA transformer	2015	Overloads under contingency conditions
2	Arcadian-Waukesha 138-kV line 9942/9962 uprate	2015	Overloads under contingency conditions
3	Spring Valley-Twin Lakes-South Lake Geneva 138-kV line plus Katzenberg-Brick Church 138-kV line	2018	Overloads and low voltages, provides network service
	Asset Renewal projects		
4	Replace Bluemound 230/138-kV transformers #1 and #3	2011-2012	Condition and performance
5	Edgewood-St. Martins 138-kV line rebuild	2014	Condition and performance
6	Mukwonago-Edgewood 138-kV line rebuild	2014	Condition and performance
7	St. Lawrence-Hartford 138-kV line rebuild	2014	Condition and performance
8	Concord-Cooney 138-kV line rebuild	2015	Condition and performance
9	Waukesha-Merrill Hills 138-kV line rebuild	2015	Condition and performance
10	Paris-Albers 138-kV line rebuild	2016	Condition and performance
11	Merrill Hills-Summit 138-kV line rebuild	2017	Condition and performance

System Solutions Key

SUBSTATION KEY

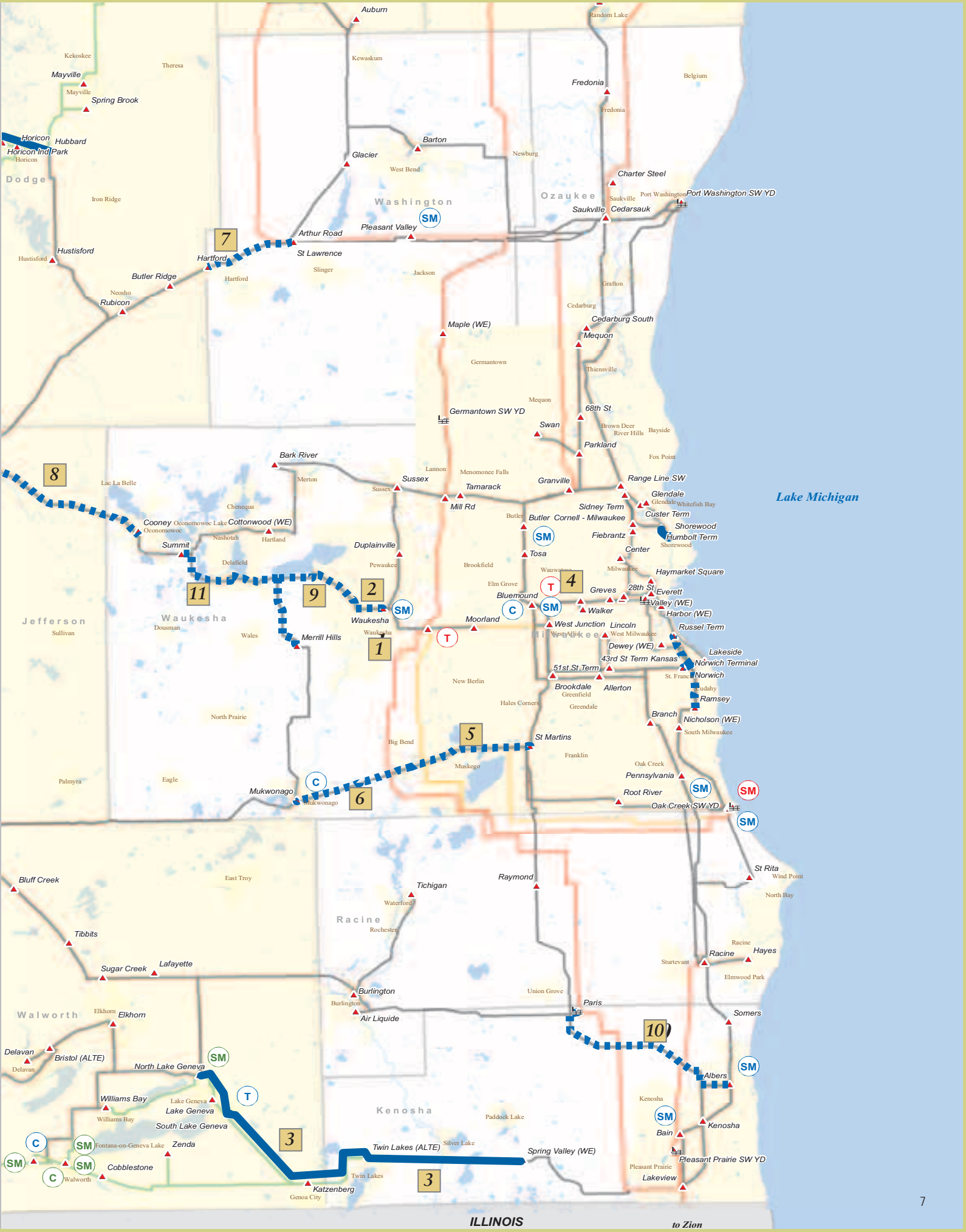
- SS — **New substation** — Supports transmission system expansion
- SM — **Substation modifications** — Upgrades equipment ratings to avert facility overloads
- T — **Transformer** — Supports local growth and improves voltage levels
- C — **Capacitor bank or reactor** — Relieves low voltages or high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


Auburn
Random Lake
Kekoskee
Theresa
Kewaskum
Mayville
Mayville
Spring Brook
Fredonia
Belgium
Fredonia
Horicon
Hubbard
Horicon Ind Park
Horicon
Barton
Glacier
Newburg
West Bend
Charter Steel
Dodge
Iron Ridge
Washington
Ozaukee
Saukville
Port Washington
Port Washington SW YD
Saukville
Cedarsauk
Pleasant Valley
SM
7
Arthur Road
St Lawrence
Hustisford
Hustisford
Hartford
Hartford
Slinger
Jackson
Butler Ridge
Neosho
Rubicon
Grafton
Cedarburg
Cedarburg South
Maple (WE)
Mequon
Germantown
Thiensville
Mequon
Germantown SW YD
68th St
Swan
Brown Deer
River Hills
Bayside
Parkland
Fox Point
Bark River
8
Lac La Belle
Merton
Lannon
Menomonee Falls
Sussex
Sussex
Tamarack
Granville
Range Line SW
Glendale
Glendale
Whitefish Bay
Lake Michigan
Mill Rd
Sidney Term
Custer Term
Butler
Butler
Cornell - Milwaukee
Shorewood
Fiebrantz
Humbolt Term
Shorewood
Cooney
Oconomowoc Lake
Oconomowoc
Cottonwood (WE)
Chenequa
Nashotah
Hartland
Summit
Duplainville
Tosa
Center
Delafield
Pewaukee
Brookfield
Milwaukee
Haymarket Square
11
9
2
4
T
Elm Grove
Bluemound
Greves
28th St
Everett
Valley (WE)
Jefferson
Waukesha
Waukesha
SM
C
SM
Walker
Harbor (WE)
Sullivan
Dousman
Wales
Merrill Hills
Waukesha
Moorland
T
West Junction
Lincoln
Russel Term
West Allis
West Milwaukee
Milwaukee
1
Dewey (WE)
Lakeside
43rd St Term
Kansas
Norwich Terminal
51st St Term
Norwich
St Francis
Cudahy
New Berlin
Brookdale
Greenfield
Allerton
Ramsey
Hales Corners
Greendale
Branch
Nicholson (WE)
South Milwaukee
North Prairie
5
St Martins
Big Bend
Franklin
Muskego
Oak Creek
Palmyra
Eagle
Pennsylvania
Mukwonago
C
6
Root River
SM
SM
Oak Creek SW YD
SM
St Rita
Wind Point
Bluff Creek
East Troy
Raymond
Tichigan
North Bay
Waterford
Racine
Rochester
Tibbits
Racine
Racine
Hayes
Sugar Creek
Lafayette
Sturtevant
Elmwood Park
Union Grove
Burlington
Burlington
Air Liquide
Paris
Somers
Walworth
Elkhorn
Elkhorn
10
Delavan
Bristol (ALTE)
Delavan
SM
North Lake Geneva
Albers
SM
Williams Bay
Lake Geneva
T
Lake Geneva
Kenosha
Williams Bay
Kenosha
South Lake Geneva
SM
Kenosha
C
SM
Fontana-on-Geneva Lake
Zenda
3
Twin Lakes (ALTE)
Silver Lake
Spring Valley (WE)
Bain
Pleasant Prairie SW YD
SM
SM
Cobblestone
Pleasant Prairie
C
Walworth
Twin Lakes
3
Lakeview
Katzenberg
Genoa City
ILLINOIS
to Zion

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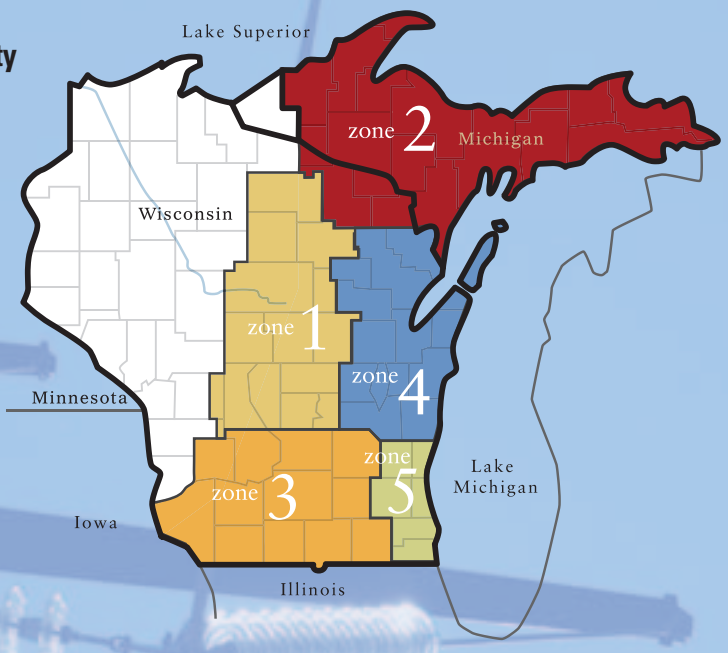
Helping to **keep the lights on,** businesses running and communities strong®

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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