

# 2024 10-Year Assessment Summary

**PRESENTED BY:**

System Planning

November 4, 2024

- ATC Proprietary -

[atcllc.com](http://atcllc.com)

# Highlights

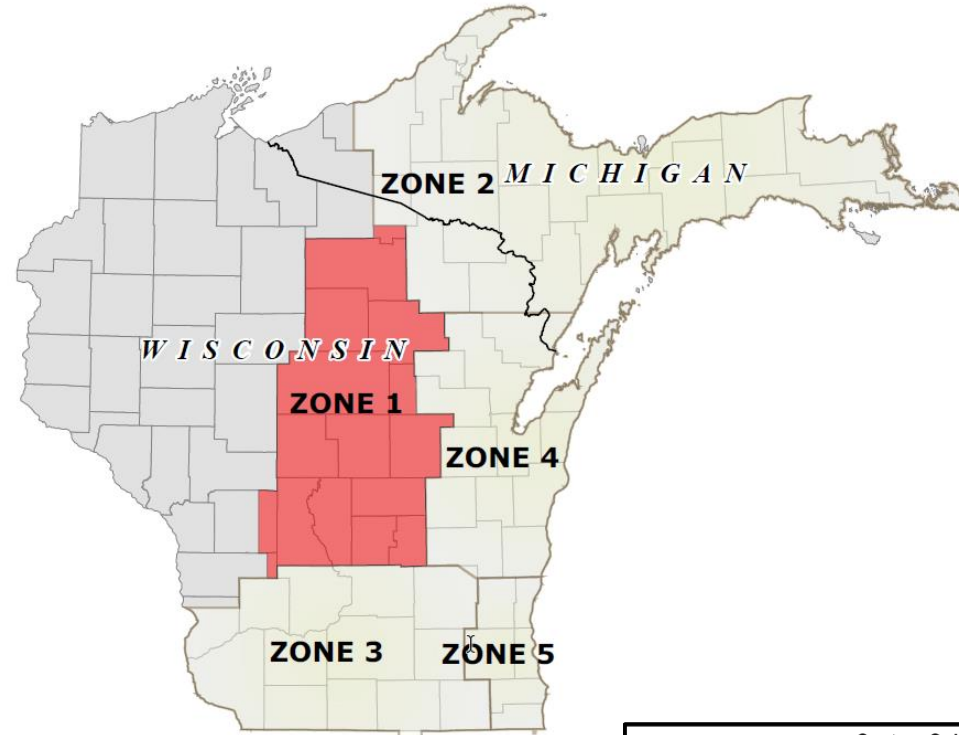
- 130 projects in our generation queue, totaling over 18.5 GW
- Distribution-to-transmission requests from our customers remain strong, as does the addition of distributed energy resources
- Large new requests from major technology companies that will add unprecedented loads
- LRTP Tranche 1 and Grid Forward – Central Wisconsin Project
- Planning for an evolving system with innovative solutions
- Commitment to Safety and Reliability

# Capital Forecast (10-Year)

	2020	2021	2022	2023	2024
<b>Projects driven by Planning Criteria</b>	\$0.4B	\$0.6B	\$0.5B	\$0.9B	\$1.8B
<b>Regional Multi-Value Projects</b>	\$0.2B	\$0.2B	\$1.1B	\$1.0B	\$1.4B
<b>Reliability - Maintaining Infrastructure</b>	\$1.8B	\$2.2B	\$2.8B	\$3.4B	\$4.0B
<b>Economic Growth</b>	\$0.2B	\$2.2B	\$0.2B	\$0.7B	\$1.5B
<b>Other Capital Categories</b>	\$0.3B/\$0.9B	\$0.3B/\$1.0B	\$0.5B/\$1.7B	\$0.6B/\$2.1B	\$0.2B/\$2.2B
<b>Total 10-Year Capital Cost **</b>	\$2.9B/\$3.5B	\$3.5B/\$4.2B	\$5.1B/\$6.3B	\$6.6B/\$8.1B	\$8.9B/\$10.9B

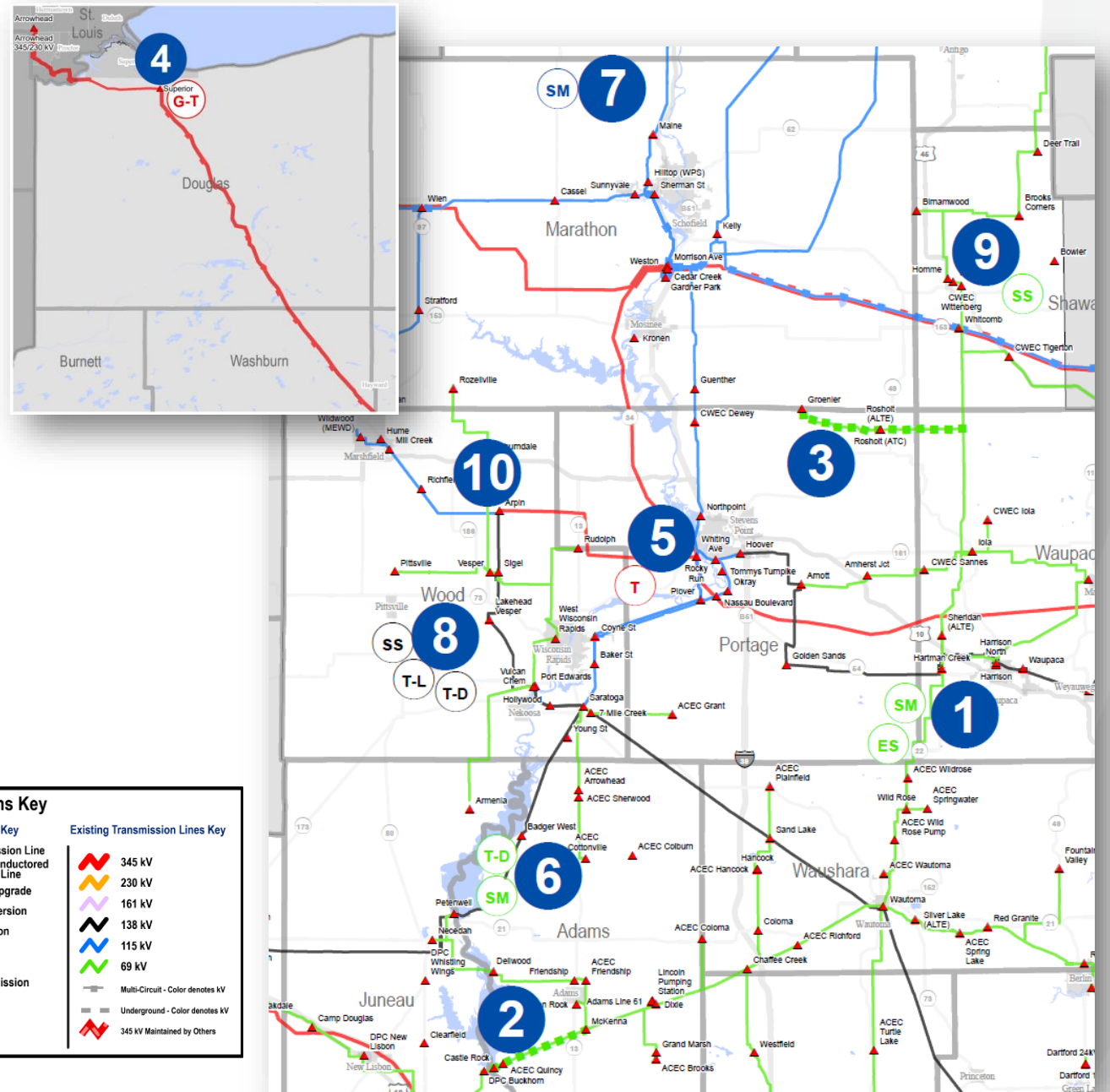
\*\* = +10% / -10%, DEFINES A RANGE IN OUR ESTIMATING TO ACCOUNT FOR VARIABILITY IN PROJECT COST

# Zone 1



*The information presented in this map document is advisory and is intended for reference purposes only. ATC owned and operated facility locations are approximate. Depending on the status of the projects shown, the transmission line additions may be for illustrative purposes only and may not reflect the actual routes.*

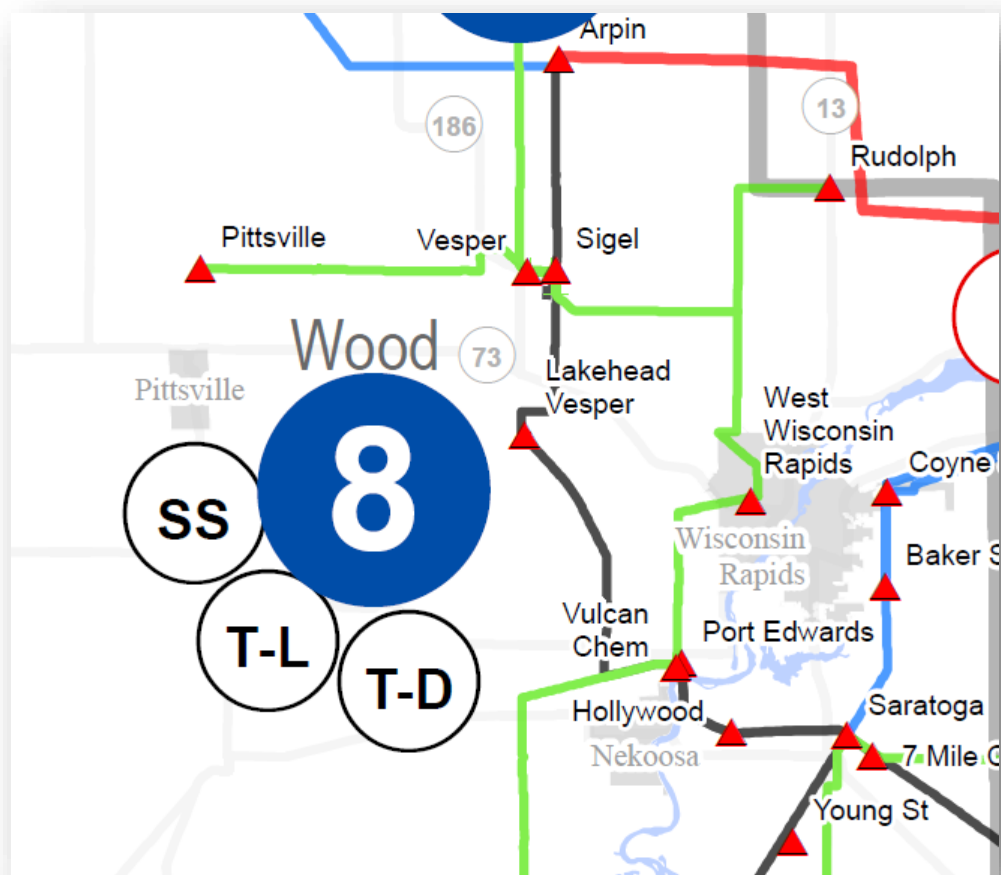
Substation Key	Transmission Line Key	Existing Transmission Lines Key
(C) Capacitor Bank or Reactor	— New Transmission Line	— 345 kV
(SS) New Substation	— Rebuilt / Reconductored Transmission Line	— 230 kV
(SM) Substation Modification	● Line Rating Upgrade	— 161 kV
(T) Transformer	— Voltage Conversion	— 138 kV
(T-D) T-D Interconnection	— Communication	— 115 kV
(TL) Transmission Line	Color denotes kV for both Substation and Transmission	— 69 kV
(T-T) T-T Interconnection		— Multi-Circuit - Color denotes kV
(ES) Energy Storage		— Underground - Color denotes kV
(G-T) G-T Interconnection		— 345 kV Maintained by Others



# Zone 1 Projects

Project Description	TYA Project No.	In-Service Year	Need Driver	Status	Zone
Waupaca Area Energy Storage Project	1	2025	Operational flexibility	Planned	1
McKenna – Castle Rock 69 kV line (Y-47), Rebuild	2	2025	Condition and Performance	Planned	1
Groenier – Rosholt (ALTE) Tap 69 kV (Y-71), Partial Rebuild and Rerate	3	2025	Condition and Performance	Planned	1
J732 Superior SS Generator Interconnection and Network Upgrades	4	2026	G-T Interconnection	Planned	1
Rocky Run SS T2 and T4 Power Transformer Replacement	5	2027	Reliability	Planned	1
Northern Adams County Area Network Improvement Project	6	2027	Reliability / T-D Interconnection	Planned	1
North Central WI Reliability Project	7	2028	Reliability	Planned	1
Pittsville Area Reliability Project	8	2028	Reliability / T-D Interconnection	Proposed	1
Biramamwood Area Reliability Project	9	2028	Reliability	Proposed	1
Grid Forward Central Wisconsin (MISO LRTP Tranche 1 Project 6)	10	2030	Regional reliability	Proposed	1

# Pittsville Area Reliability Project



- Need Drivers:
  - New load addition in the Pittsville area
  - Inability to back feed existing Pittsville area load from alternate sources
- Scope of Work:
  - Build green field 138 kV switching on the Sigel – Port Edwards line.
  - Build radial 9.6 mile 138 kV line from new switching station to new distribution substation near Pittsville
- Estimated cost: \$35.9 million.
- Proposed ISD: December 2028
- The project is targeted as MTEP 2025 Appendix A and will require a CPCN filing

# Birnamwood Area Reliability Project

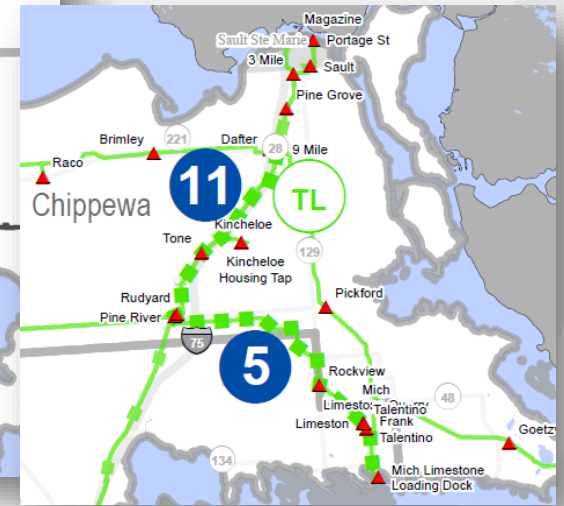
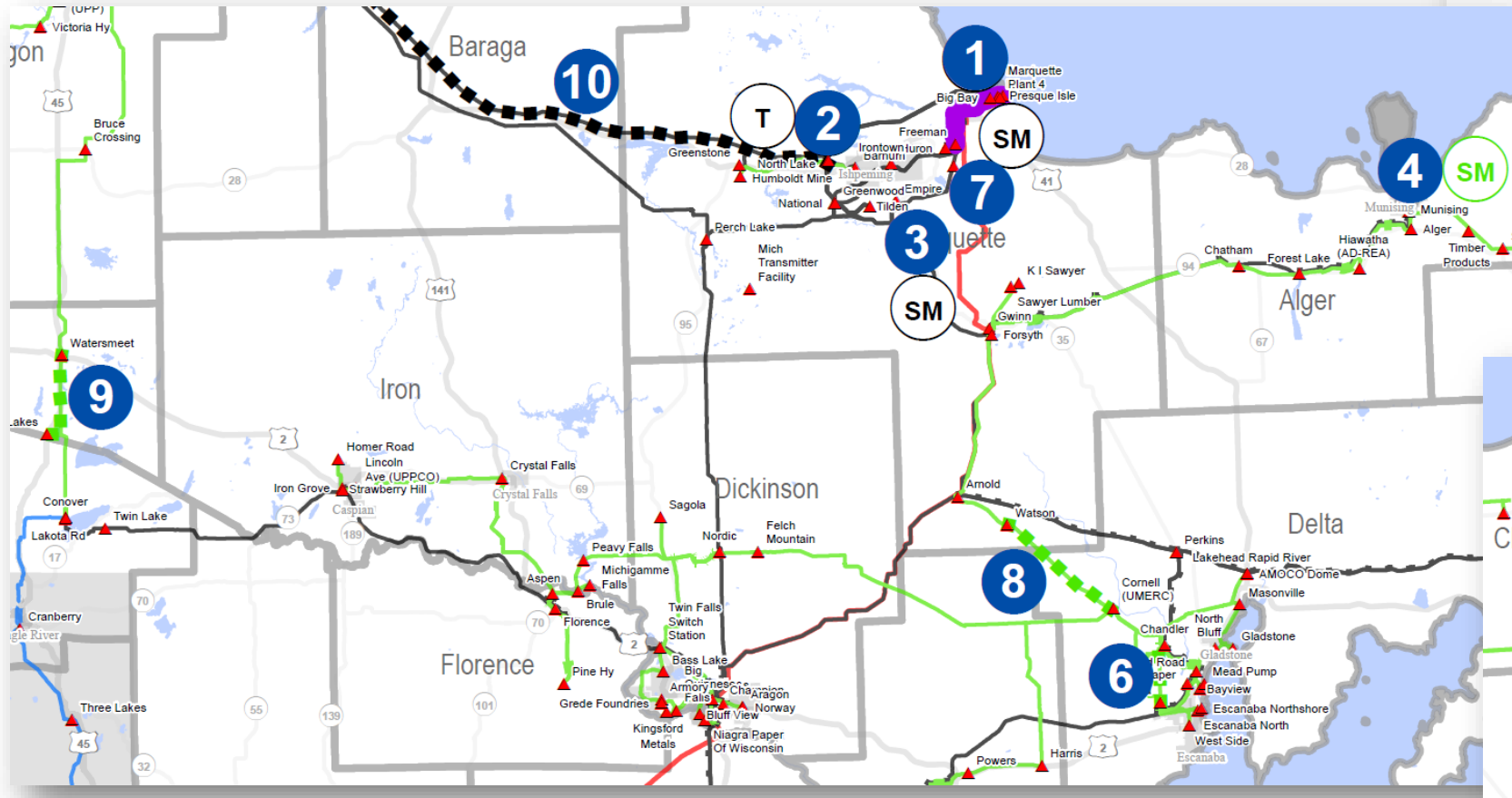
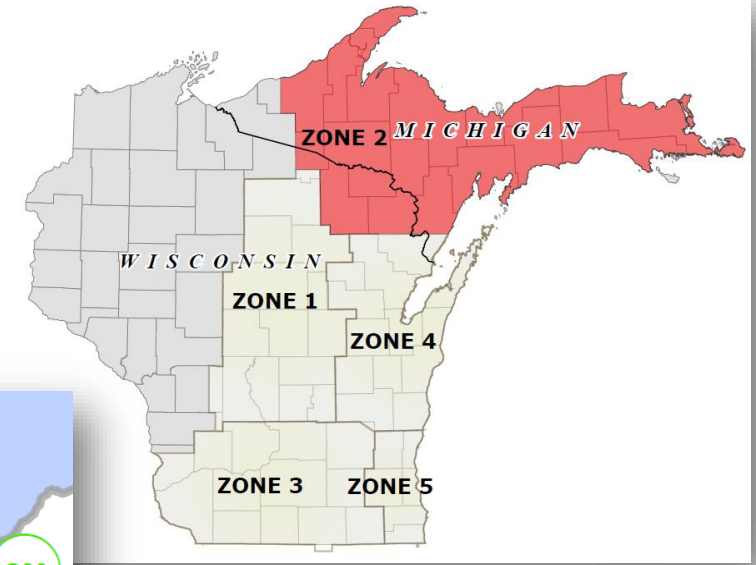


- Need Drivers :
  - The 69 kV Deer Trail – Whitcomb Line exceeds ATC’s sectionalizing guideline
  - N-1 condition that results in excessive voltage drop.
- Scope of Work:
  - Build new greenfield 69 kV switching station near Birnamwood Switching structure.
    - Birnamwood tap to be radially fed from new switching station.
    - Switching station to include a cap bank for voltage support
- Estimated cost: \$14.2 million.
- Proposed ISD: December 2028
- The project is targeted as MTEP 2025 Appendix A

# Zone 2

The information presented in this map document is advisory and is intended for reference purposes only. ATC owned and operated facility locations are approximate. Depending on the status of the projects shown, the transmission line additions may be for illustrative purposes only and may not reflect the actual routes.

System Solutions Key		
<b>Substation Key</b>	<b>Transmission Line Key</b>	<b>Existing Transmission Lines Key</b>
(C) Capacitor Bank or Reactor	▬ New Transmission Line	▬ 345 kV
(SS) New Substation	▬ Rebuilt / Reconductored Transmission Line	▬ 230 kV
(SM) Substation Modification	▬ Line Rating Upgrade	▬ 161 kV
(T) Transformer	▬ Voltage Conversion	▬ 138 kV
(T-D) T-D Interconnection	▬ Communication	▬ 115 kV
(TL) Transmission Line	Color denotes kV for both Substation and Transmission	▬ 69 kV
(T-T) T-T Interconnection		▬ Multi-Circuit - Color denotes kV
(ES) Energy Storage		▬ Underground - Color denotes kV
(G-T) G-T Interconnection		▬ 345 kV Maintained by Others

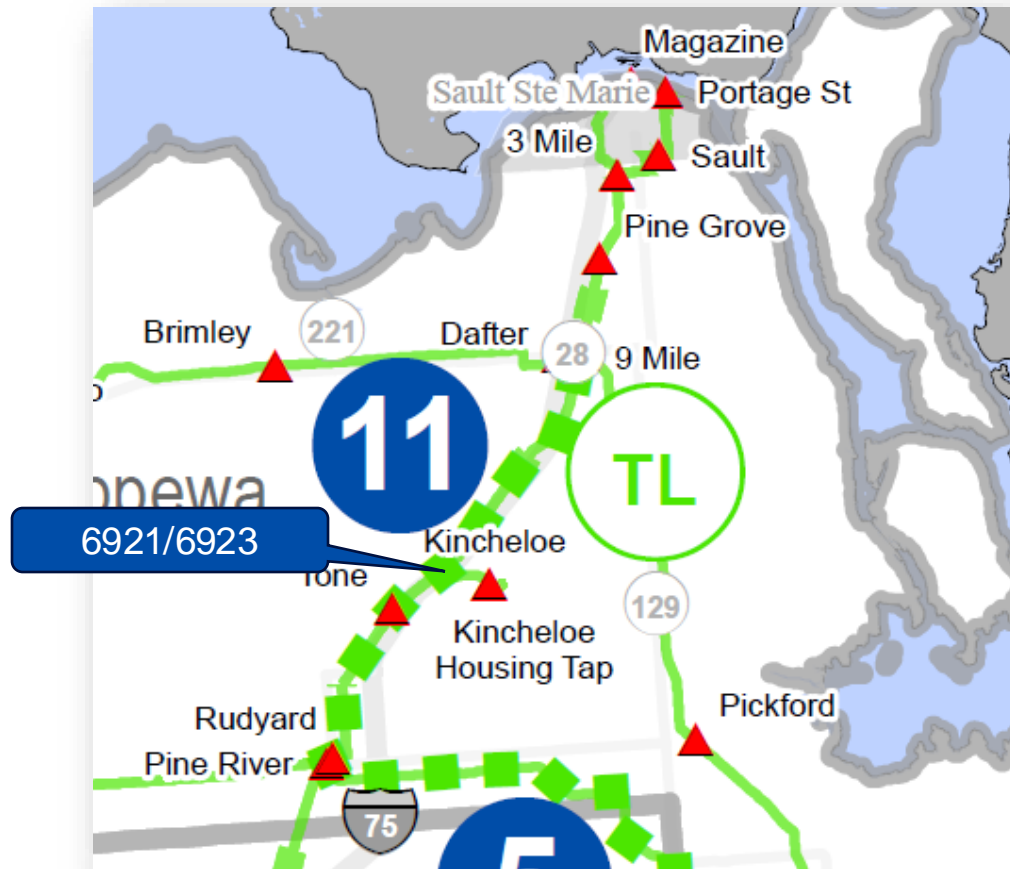




# Zone 2 Projects

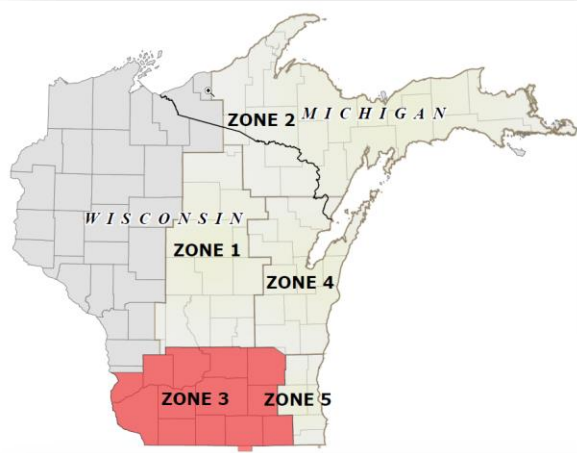
Project Description	TYA Project No.	In-Service Year	Need Driver	Status	Zone
Marquette County Reactive Power Project	1	2025	Reliability	Planned	2
North Lake SS, Transformer Asset Renewal	2	2025	Condition and Performance	Planned	2
Tilden SS, Control House Replacement and Breaker & Relay Asset Renewal	3	2026	Condition and Performance	Planned	2
Munising Area Reactive Power Project	4	2026	Reliability	Planned	2
Pine River – Mich Limestone Loading Dock 69 kV (ESE_6906), Rebuild	5	2027	Condition and Performance	Planned	2
Chandler – Delta 69 kV (Delta1), Rebuild and OPGW	6	2026	Condition and Performance	Proposed	2
Empire Mine – Huron 138 kV (X-119), OPGW Addition	7	2027	Communication	Proposed	2
Cornell Tap – Watson Tap 69kV (Chandler), Partial Rebuild	8	2028	Condition and Performance	Proposed	2
Watersmeet – Land O Lakes 69 kV (6530), Rebuild	9	2028	Condition and Performance	Provisional	2
Silver River – North Lake 138 kV (NLKG31), Rebuild	10	2029	Condition and Performance	Provisional	2
9 Mile SW STA – Pine River 69kV (6921/23) Line Rebuild	11	2028	Condition and Performance	Provisional	2

# Pine River - Nine Mile 69 kV (6921/6923), Rebuild



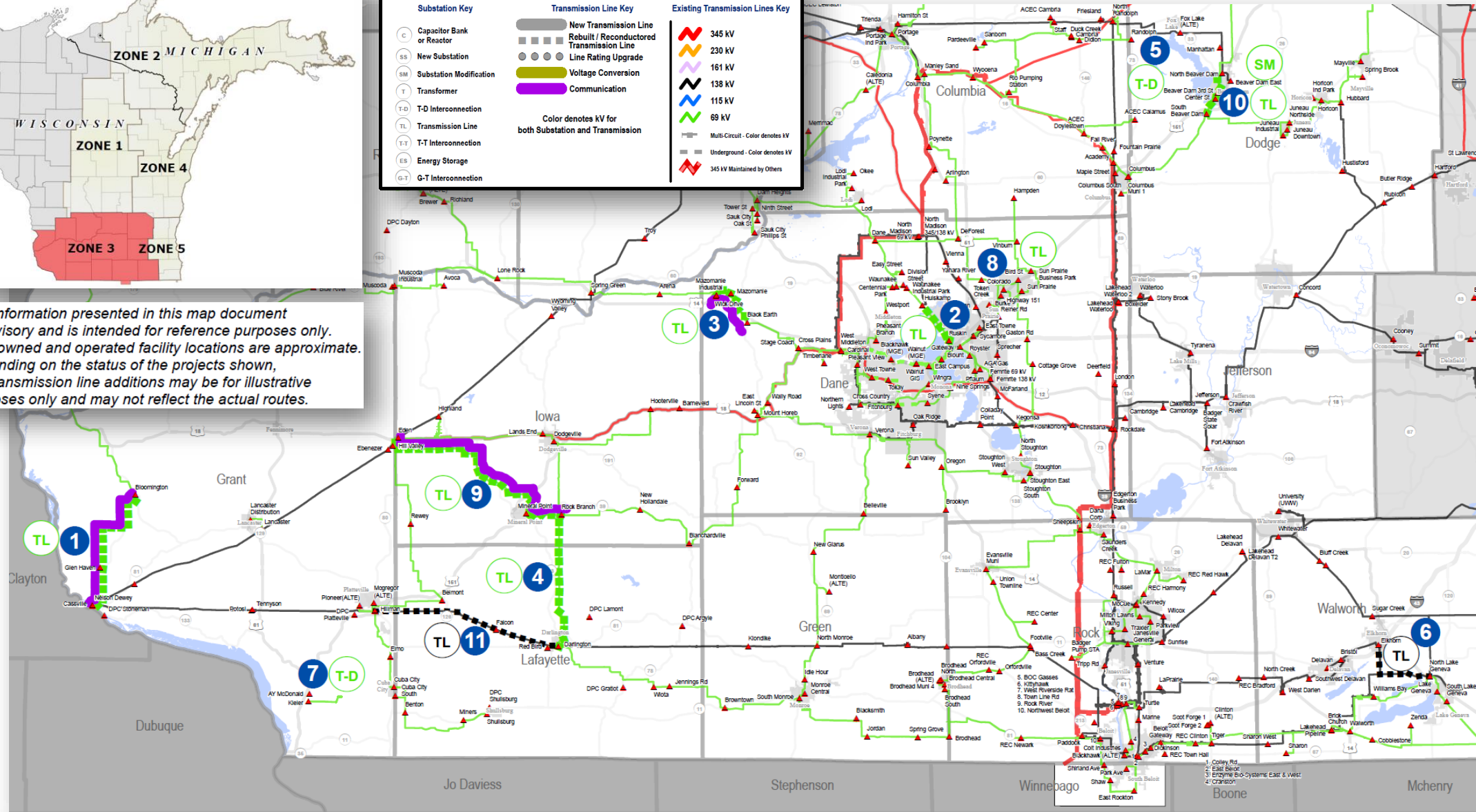
- Need Driver:
  - Condition and performance of existing 1960-1970s structures and hardware.
  - Narrow phase spacing design and galloping issues.
  - Other Benefits
    - Planning corridor for future 138kV
    - Fiber path buildout in UP Strategy
- Scope of Work:
  - Install new double circuit structures for 17 miles.
  - Install new T2 477 conductor and 48 fiber OPGW.
- Estimated cost: \$41 million
- Proposed In Service Date: December 2028.
- The project is approved as MTEP22 Appendix A.

# Zone 3



System Solutions Key		
<b>Substation Key</b>	<b>Transmission Line Key</b>	<b>Existing Transmission Lines Key</b>
(C) Capacitor Bank or Reactor	— New Transmission Line	— 345 kV
(SS) New Substation	— Rebuilt / Reconstructed Transmission Line	— 230 kV
(SM) Substation Modification	— Line Rating Upgrade	— 161 kV
(T) Transformer	— Voltage Conversion	— 138 kV
(T-D) T-D Interconnection	— Communication	— 115 kV
(TL) Transmission Line	Color denotes KV for both Substation and Transmission	— 69 kV
(T-T) T-T Interconnection		— Multi-Circuit - Color denotes KV
(ES) Energy Storage		— Underground - Color denotes KV
(G-T) G-T Interconnection		— 345 kV Maintained by Others

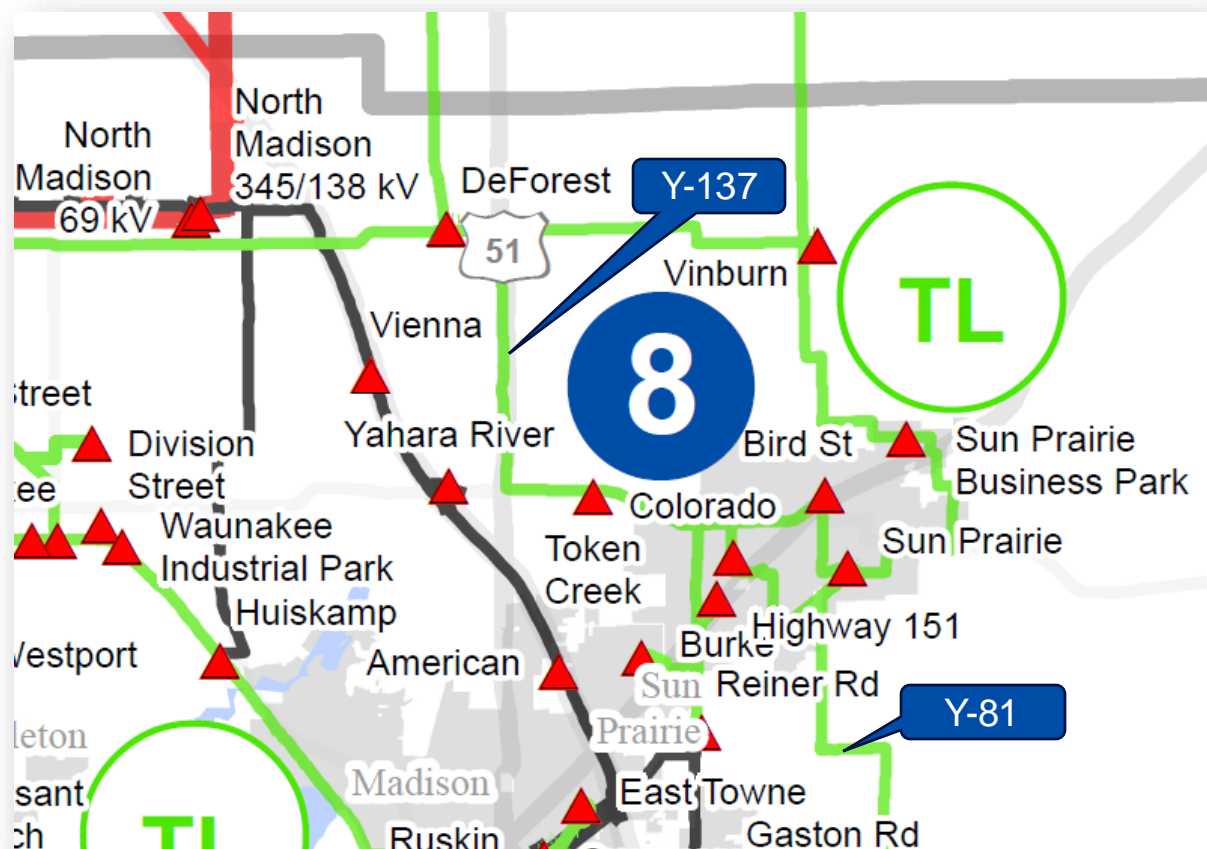
The information presented in this map document is advisory and is intended for reference purposes only. ATC owned and operated facility locations are approximate. Depending on the status of the projects shown, the transmission line additions may be for illustrative purposes only and may not reflect the actual routes.



# Zone 3 Projects

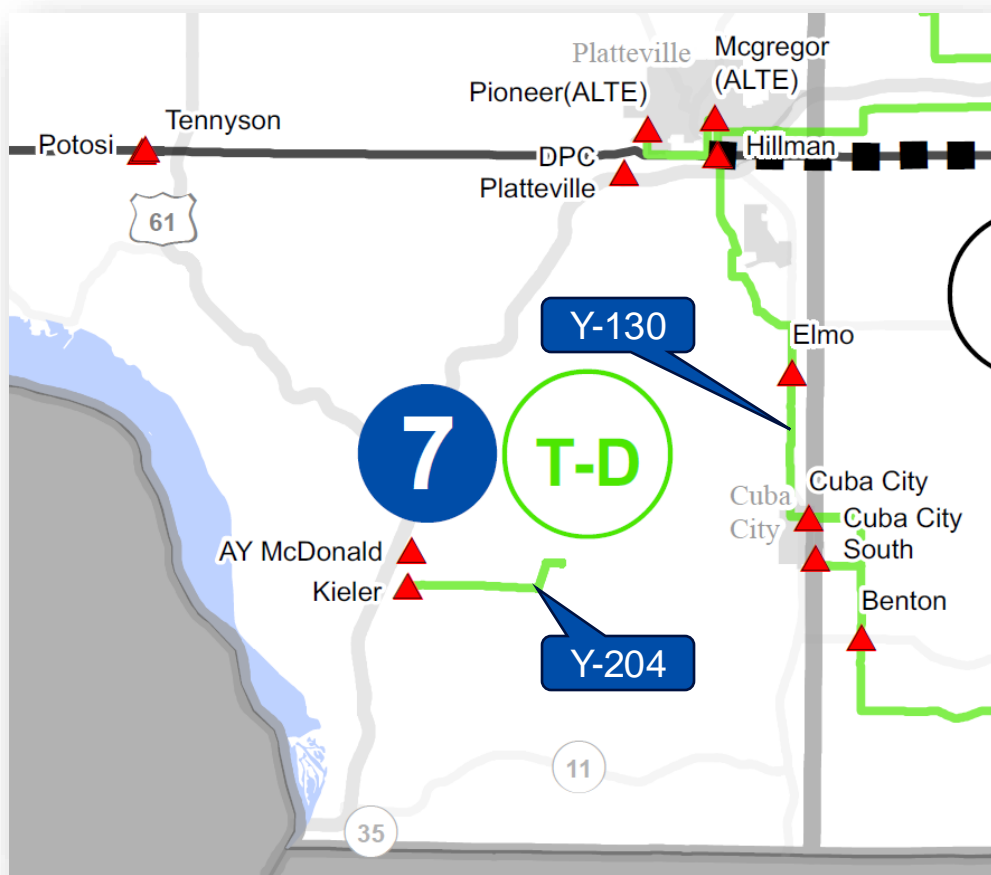
Project Description	TYA Project No.	In-Service Year	Need Driver	Status	Zone
Nelson Dewey – Bloomington 69-kV (Y-184), Rebuild and OPGW	1	2025	Reliability, Condition and Performance	Planned	3
Huiskamp – Ruskin (6937), Partial Rebuild	2	2025	Condition and Performance	Planned	3
Wick Drive – Black Earth 69kV, (Y-62), OPGW Addition and Partial Rebuild	3	2026	Communication	Proposed	3
Darlington – Rock Branch 69kV (Y-109), Rebuild	4	2027	Condition and Performance	Proposed	3
Dodge County, DIC, New Substation	5	2027	T-D Interconnection	Proposed	3
North Lake Geneva – Elkhorn 138 kV (X-55), Rebuild	6	2027	Operational flexibility	Proposed	3
Grant County, DIC, New Substation	7	2028	T-D Interconnection	Proposed	3
Sun Prairie Area Reliability Project	8	2029	Reliability	Proposed	3
Eden – Rock Branch 69kV (Y-106), Rebuild & OPGW	9	2030	Economic, Condition and Performance	Proposed	3
North Beaver Dam SS Asset Renewal & South Beaver Dam – North Beaver Dam 69 kV (Y-59), Line Reb	10	2026-27	Condition and Performance	Proposed	3
Hillman – Darlington 138kV (X-14/X-101), Rebuild	11	2028	Condition and Performance	Provisional	3

# Sun Prairie Area Reliability Project



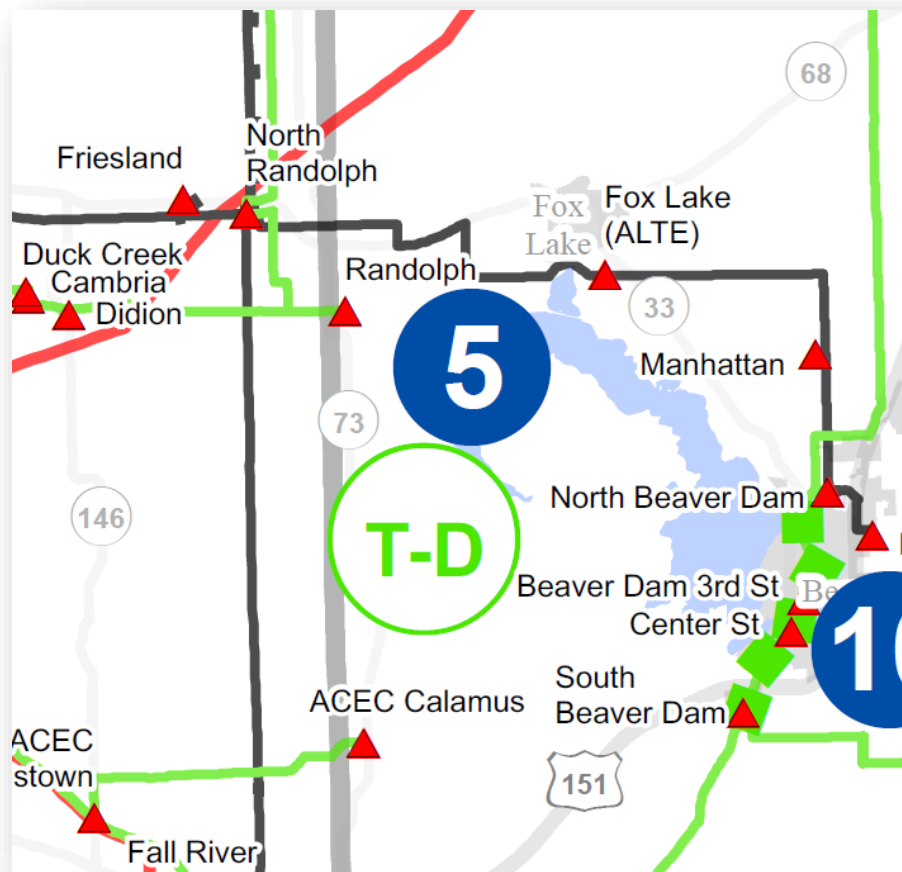
- Need Driver:
  - Large pocket of load at risk in Sun Prairie Area driven by multiple thermal limitations.
- Project scope:
  - Loop 69 kV Y-81 circuit into Reiner Rd SS
    - Install additional 138/69 kV transformer
    - Install 69 KV bus-tie-breaker
  - Loop 69 kV Y-137 into Yahara River SS
    - Install additional 138/69 kV transformer
- Estimated cost: \$61.5 million
- Proposed ISD: Q2 2029
- The project is targeted as MTEP 2025 Appendix A and will require a CA filing

# Grant County, DIC, New Substation



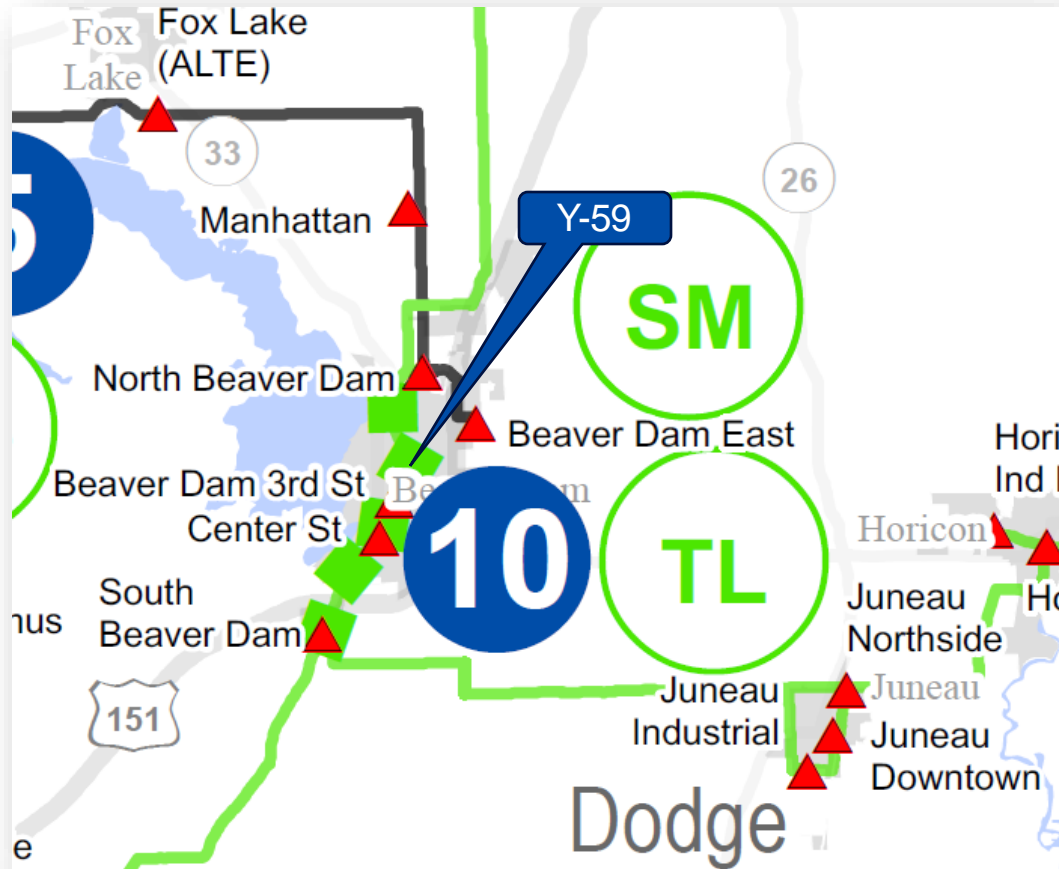
- Need Driver:
  - New foundry load addition near Kieler, WI
  - WPL Request to relocation and rebuild Kieler SS
- Project scope:
  - ATC to Loop 69 kV Y-130 circuit in and out of rebuilt Kieler SS
    - Network existing "islanded" Y-204
  - ATC to construct short 69 kV feed to new customer foundry
- Estimated cost: \$50 million
- Proposed ISD: 2026 - 2027
- The project is targeted as MTEP 2024 Appendix A. CA filing is targeting Q4 2024

# Dodge County, DIC, New Substation



- Need Driver:
  - New load interconnection request in the Beaver Dam area
- Project scope:
  - Manhattan Substation - New 138 kV substation
  - Expand the North Randolph Substation
  - Construct new 138 kV double circuit transmission line from the expanded North Randolph Substation to the new Manhattan Substation
  - Rebuilding the existing 138 kV transmission line from the North Randolph Substation to the Manhattan Substation
- Estimated cost: \$192 million
- Proposed ISD: Q2 2027
- The project is targeted as MTEP 2024 Appendix A. CPCN filing is targeting Nov 2024

# Rebuild of North Beaver Dam SS & South Beaver Dam – North Beaver Dam 69kV Line



- Need Driver:
  - Condition and performance of existing 1960s 69kV line structures, hardware, and substation assets at North Beaver Dam.
  - Reconfigure substation to improve operational flexibility as a bus outage is currently required for emergency and routine maintenance.
- Scope of Work:
  - North Beaver Dam – South Beaver Dam (Y-59):
    - Partially rebuild 4.1 miles of 69kV transmission with new structures, poles, conductor, and 5 miles of OPGW.
  - North Beaver Dam
    - Reconfigure the 138 kV bus and reroute 138 kV lines
    - Install new control building, physical security package, and transformer online monitoring.
    - Will require Certificate of Authority (CA) with PSCW
- Estimated cost:
  - TL: \$7.9 million
  - SS: \$16.1 million
- Proposed ISD: December 2026-2027
- The projects are approved as MTEP 2023 Appendix A.

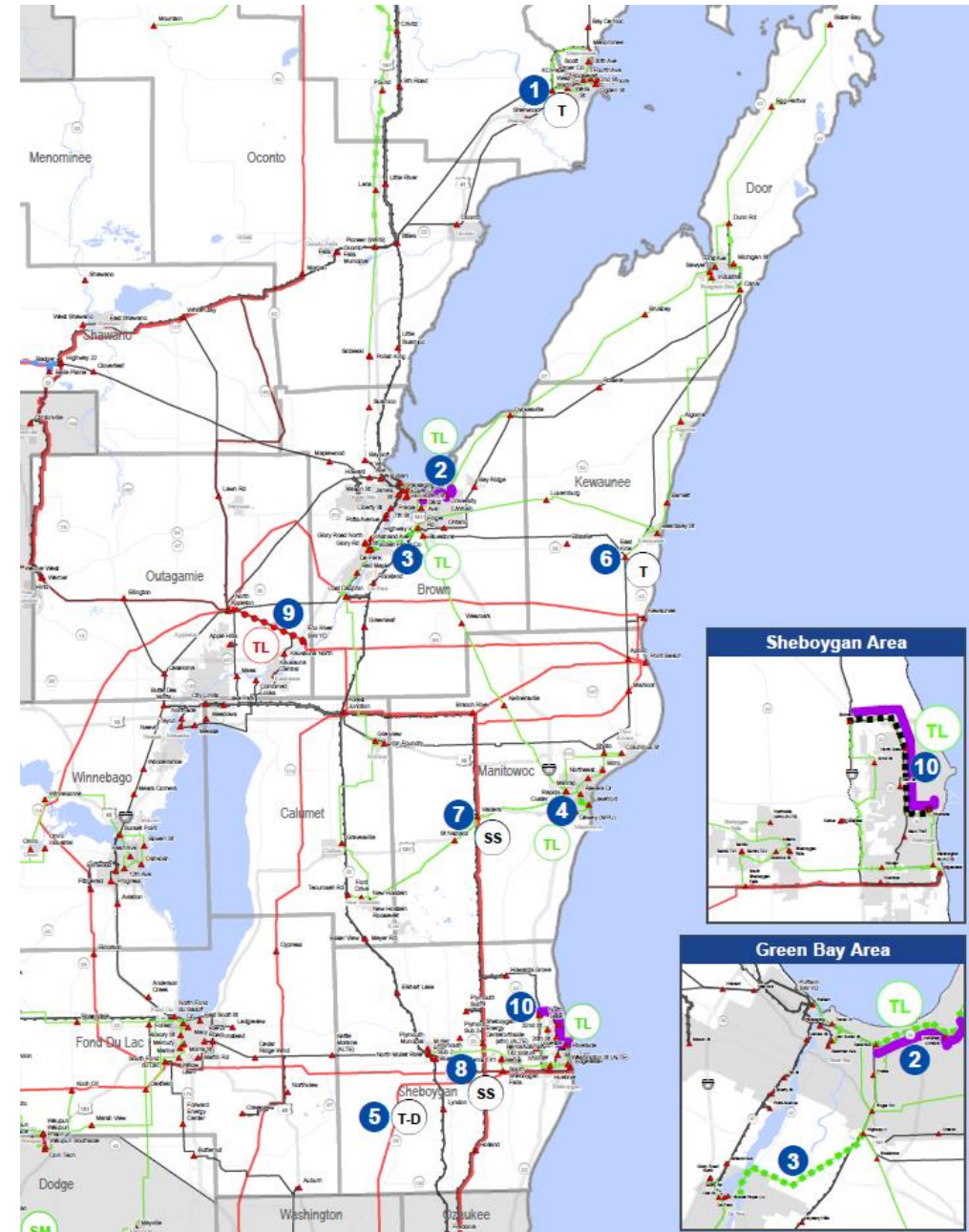


# Zone 4

The information presented in this map document is advisory and is intended for reference purposes only. ATC owned and operated facility locations are approximate. Depending on the status of the projects shown, the transmission line additions may be for illustrative purposes only and may not reflect the actual routes.



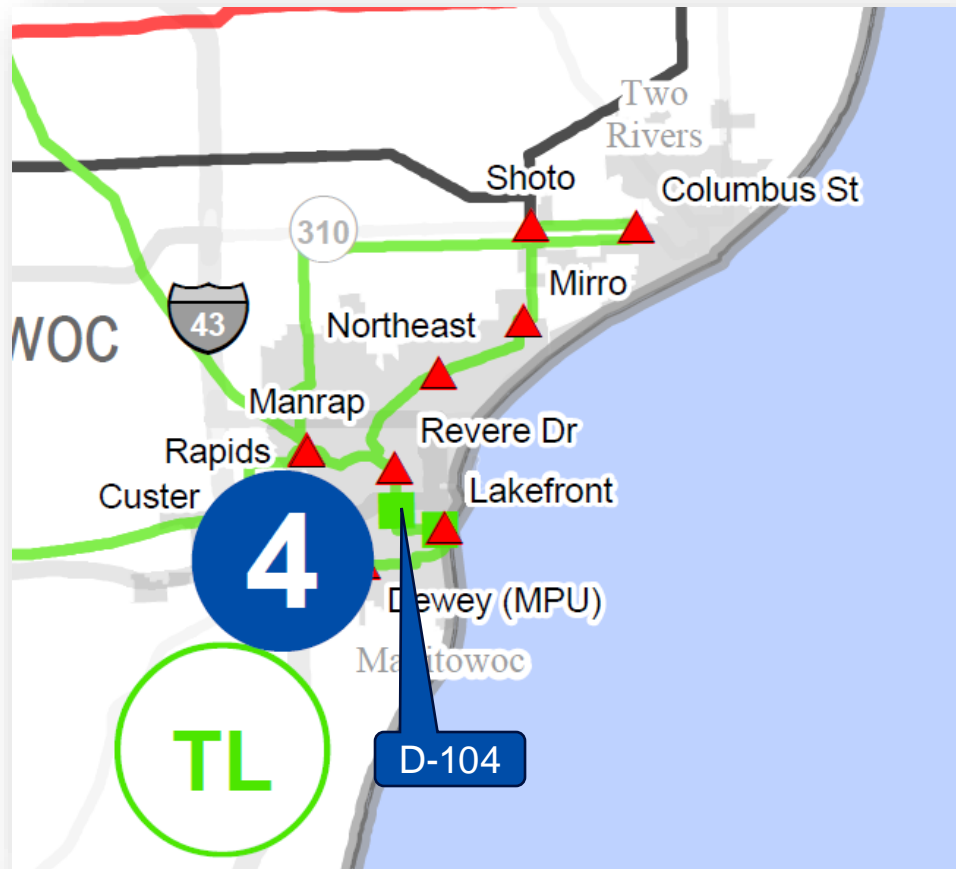
Substation Key		Transmission Line Key		Existing Transmission Lines Key	
(C)	Capacitor Bank or Reactor	(Solid Grey)	New Transmission Line	(Red)	345 kV
(SS)	New Substation	(Dashed Grey)	Rebuilt / Reconductored Transmission Line	(Orange)	230 kV
(SM)	Substation Modification	(Grey Circle)	Line Rating Upgrade	(Purple)	161 kV
(T)	Transformer	(Green)	Voltage Conversion	(Black)	138 kV
(T-D)	T-D Interconnection	(Purple)	Communication	(Blue)	115 kV
(TL)	Transmission Line	(Color)	Color denotes kV for both Substation and Transmission	(Green)	69 kV
(T-T)	T-T Interconnection	(Grey)		(Grey)	Multi-Circuit - Color denotes kV
(ES)	Energy Storage	(Grey)		(Grey)	Underground - Color denotes kV
(G-T)	G-T Interconnection	(Red)		(Red)	345 kV Maintained by Others



# Zone 4 Projects

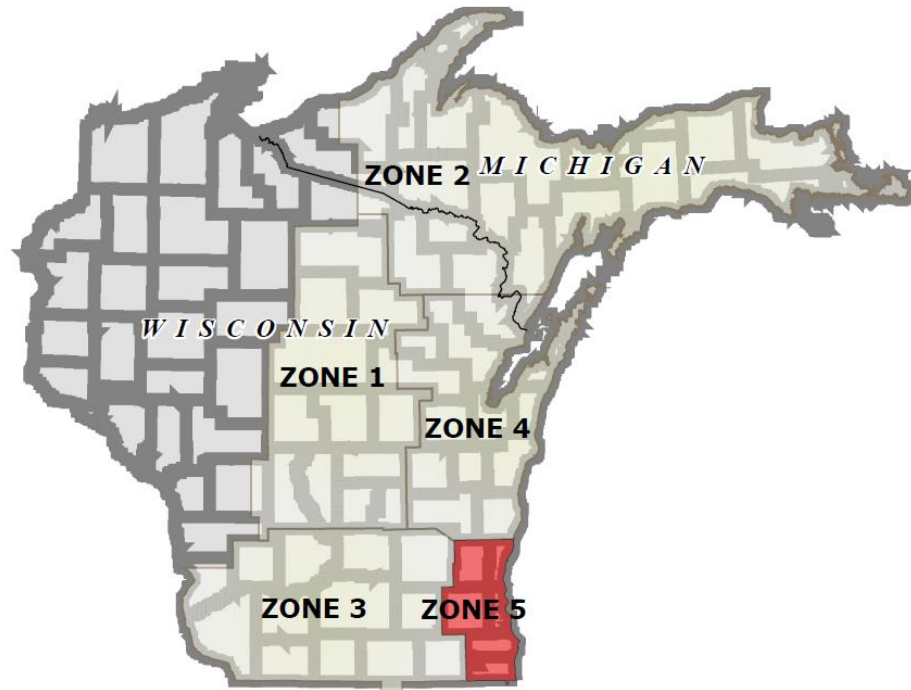
Project Description	TYA Project No.	In-Service Year	Need Driver	Status	Zone
West Marinette SS Transformer and Breaker Asset Renewal	1	2025	Condition and Performance	Planned	4
Danz Ave. SW STA – University (WPS) 69 kV (O-15), Underground Rebuild and OPGW	2	2026	Condition and Performance	Planned	4
Hwy V - Structure 123 69 kV (Z-26), Rebuild	3	2026	Condition and Performance	Planned	4
Lakefront SW YD - Revere Dr 69 kV (D-104), Rebuild	4	2028	Condition and Performance	Planned	4
Plymouth Reliability Project	5	2026	T-D Interconnection	Planned	4
East Krok Transformer Replacement	6	2027	Reliability, Condition and Performance	Proposed	4
Valders SS, New 138/69 kV Substation	7	2028	Economic, Reliability	Proposed	4
Mullet River Area Reliability Project	8	2028	Reliability, Condition and Performance	Proposed	4
North Appleton – Fox River 345kV line (NAPL121) Network Upgrade (J1316 G-T)	9	2028	G-T Interconnection (Network Upgrade)	Proposed	4
Riverside (ALTE) - Erdman 69 kV (Y-82/X-64/X-37), Partial Rebuild & OPGW	10	2028	Condition and Performance	Provisional	4

# Lakefront SW YD - Revere Dr 69 kV (D-104), Rebuild

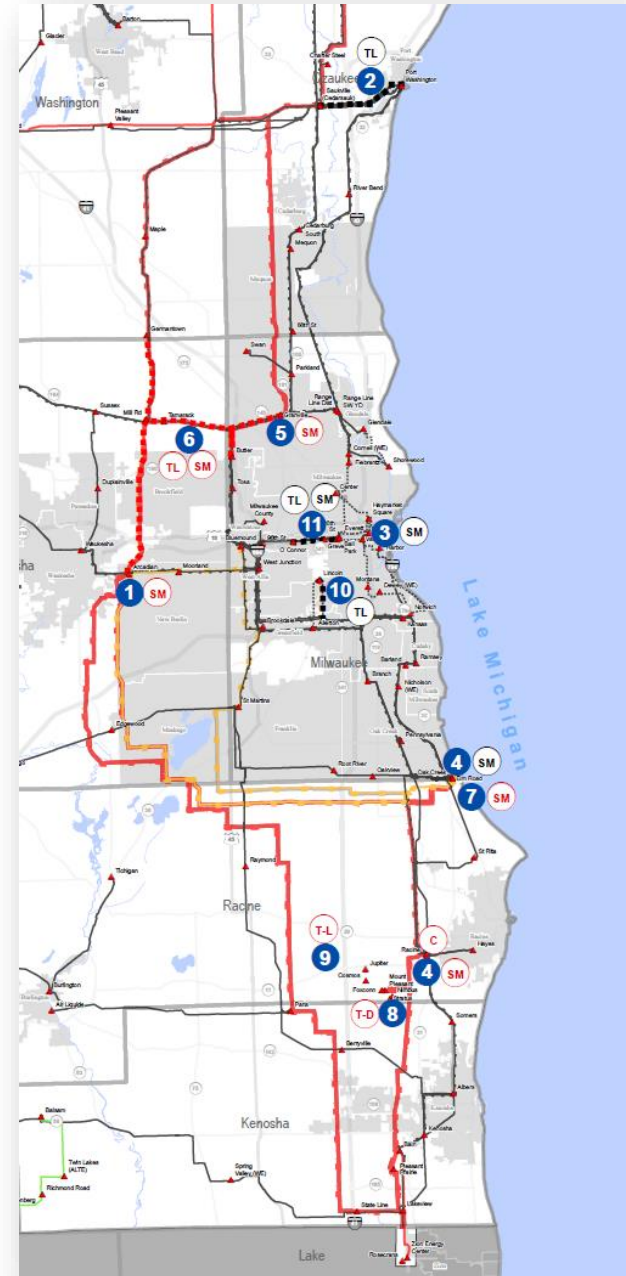
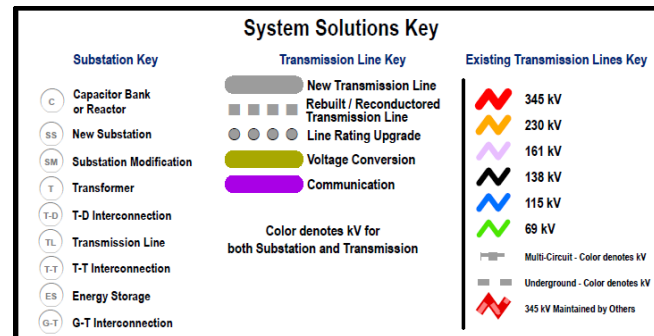


- Need Driver:
  - Condition and performance of existing 1960 structures and hardware.
- Scope of Work:
  - Rebuild and install OPGW on approximately 1.84 miles of D-104 from Lakefront SS to Revere Dr. SS.
  - Install new structures, hardware, conductor, OPGW fiber for 1.84 miles of D-104.
- Estimated Cost: \$9.0 million
- Proposed In Service Date: December 2028
- The projects are target Appendix A MTEP24.

# Zone 5



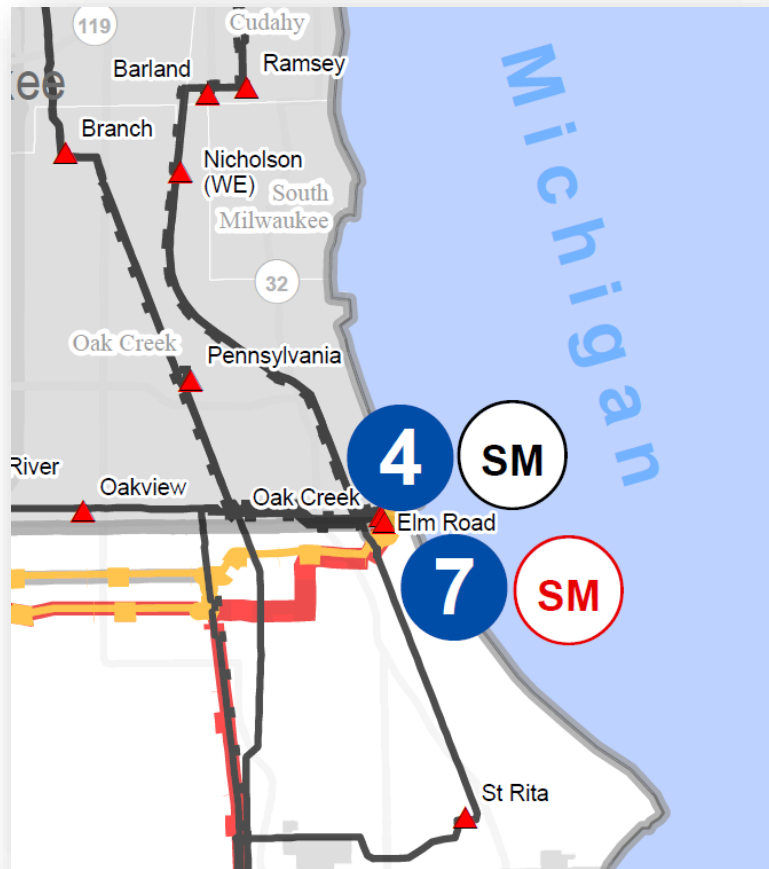
*The information presented in this map document is advisory and is intended for reference purposes only. ATC owned and operated facility locations are approximate. Depending on the status of the projects shown, the transmission line additions may be for illustrative purposes only and may not reflect the actual routes.*



# Zone 5 Projects

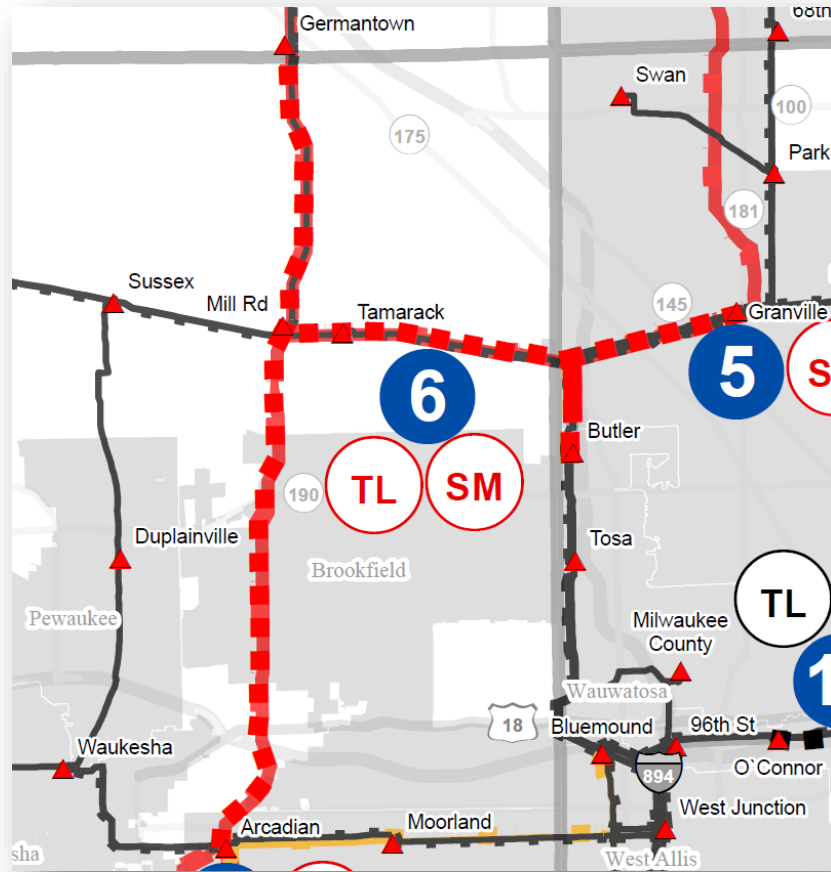
Project Description	TYA Project No.	In-Service Year	Need Driver	Status	Zone
Arcadian SS Power Transformer and Control House Replacement and Asset Renewal	1	2024	Condition and Performance	Planned	5
Port Washington – Saukville 138 kV (X-132/X-133), Partial Rebuild	2	2025	Condition and Performance and Reliability	Planned	5
Everett GIS Asset Renewal	3	2026	Condition and Performance	Planned	5
Oak Creek, Racine SS and Remote Ends, Control Buildings and Relaying Asset Renewal	4	2026	Condition and Performance	Planned	5
Granville SS, Control House and Relay Replacement and Asset Renewal	5	2026	Condition and Performance	Planned	5
Mill Road – Granville Project	6	2028	Reliability, G-T and D-T Interconnection	Planned	5
Elm Road Generation POI Relocation Project	7	2026	G-T Interconnection	Proposed	5
Racine County, DIC, Various Substations	8	2025-2027	T-D Interconnection	Planned	5
Racine County, DIC, Western Feed Transmission Line	9	2027	T-D Interconnection	Proposed	5
Lincoln – 43rd Street Terminal 138 kV (5053), Replace with double circuit duct bank and XLPE cable	10	2027	Condition and Performance	Proposed	5
WisDOT I-94 Stadium Group of Projects	11	2027	Condition and Performance	Proposed	5

# Elm Road Generation POI Relocation



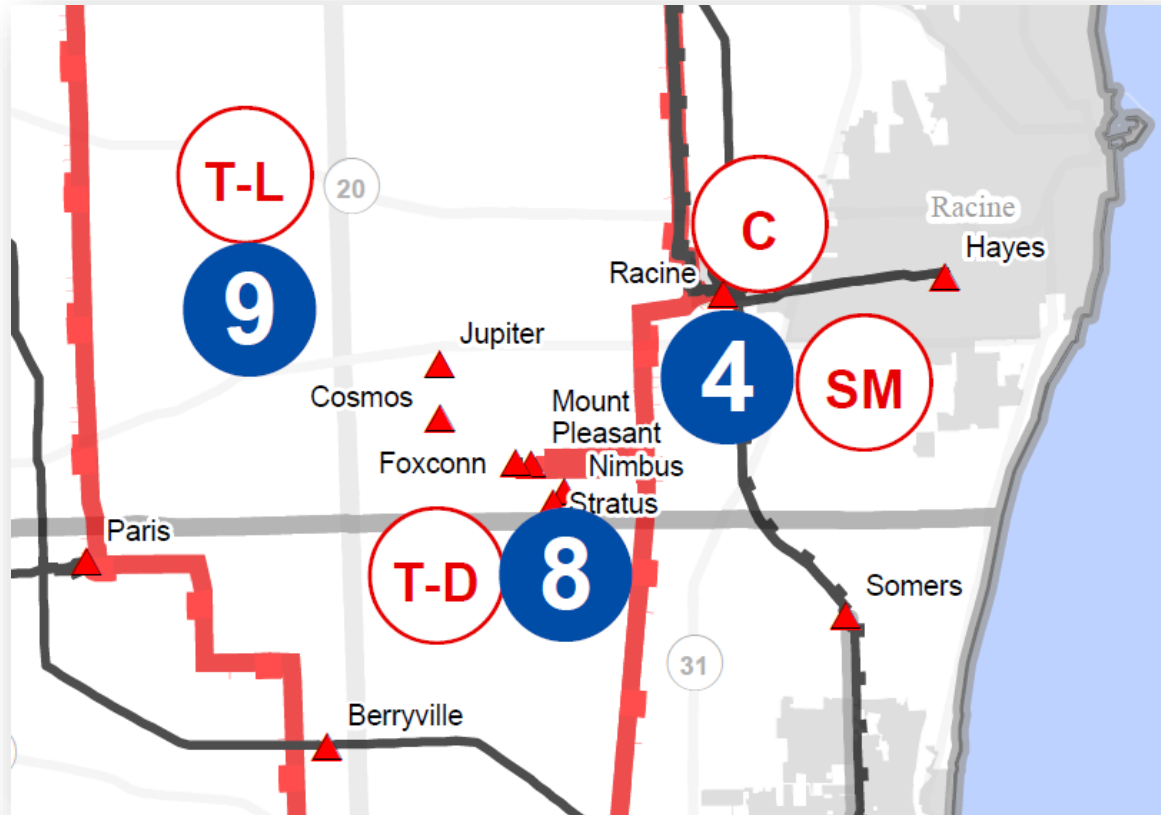
- Need Drivers:
  - WEC Generating Facility Modification Request to MISO
  - Vacate the existing Elm Road generation 345 kV POIs to allow the future interconnection of three of the proposed five Combustion Turbines at Oak Creek
- Scope of Work:
  - Expand the existing Elm Road 345 kV substation breaker and a half configuration with three new rungs and six new 345 kV breakers.
  - Relocate the connections for the two Elm Road Generation tie lines and the station auxiliary transformer to the new rungs.
- Estimated cost: \$22.6 million.
- Proposed In Service Date: June 2026
- MTEP24 Target Appendix A, CA was filed in August 2024

# Mill Road – Granville Project



- Need Drivers:
  - Continue to comply with NERC TPL Reliability Standard
  - Support interconnection of new generation and new load addition
  - Improve transfer capability and operational flexibility
- Scope of Work:
  - Mill Road Substation – Construct a 345/138 kV new substation
  - Granville Substation – Replace an existing 500 MVA transformer
  - Butler Substation – Reconfigure 138 kV bus and install series reactor
  - Tamarack Substation – Reconfigure 138 kV bus
  - Rebuild the Granville – Arcadian 345 kV and Granville – Tamarack – Sussex 138 kV to a 345 kV double circuit
  - Construct a new Mill Road – Tamarack – Butler 138 kV line
  - Uprate the Arcadian – Mill Road 345 kV lines
  - Reconductor the Mill Road – Germantown 138 kV line
- Estimated cost \$424 million
- Proposed In Service Date: Q4 2027
- The project is approved as MTEP 2025 Appendix A via MISO EPR process. CPCN was filed in Oct 2024.

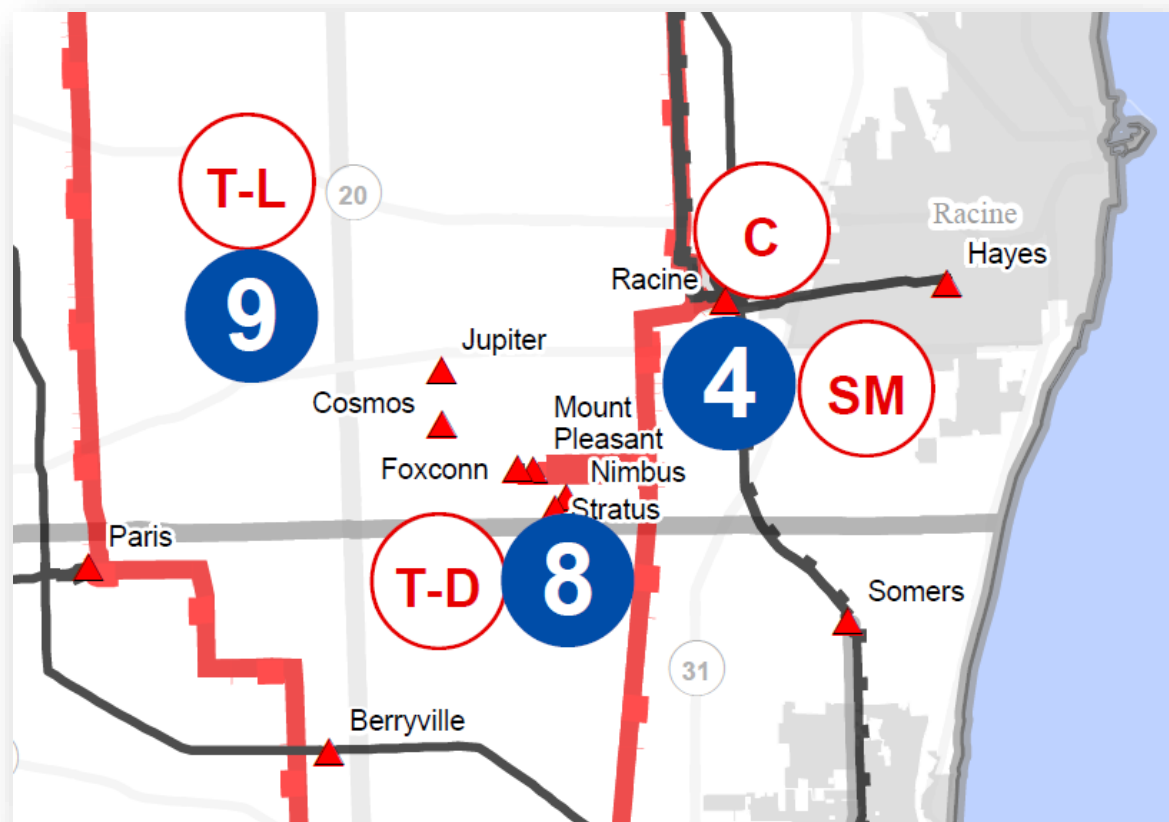
# Racine County Distribution Interconnection



- Need Driver:
  - New load interconnection request in the SE Wisconsin
- Project scope:
  - Nimbus and Stratus Substations - New 138 kV substations.
  - Jupiter and Cosmos Substations - New 345/138 kV substations.
  - Mount Pleasant Substation – Expand substation bus to connect new 345/138 kV transformer
  - Install +/- 350 Mvar STATCOM at Mount Pleasant and Jupiter
  - Construct a new 138 kV double circuit line between the Mount Pleasant, Nimbus, and Stratus substations.
- Estimated cost: \$780 million.
- Proposed ISD: 2025 - 2028
- Projects have either been approved through MISO's EPR or will be submitted in MTEP 25



# Racine County Western Feed Project



- Need Driver:
  - New load interconnection request in the SE Wisconsin
- Project scope:
  - Construct two new 345 kV double circuit lines from the existing Arcadian – Pleasant Prairie (PLPL81)/Arcadian – Paris (W-30) 345 kV double circuit line to loop in and out of the Jupiter and Cosmos substations.
  - Construct a new 345 kV line between the Jupiter, Mount Pleasant, and Cosmos substations
- Estimated cost: \$124 million
- Proposed ISD: Q1 2027
- The project is approved as MTEP 2025 Appendix A via MISO EPR process. CPCN was filed in July 2024.

# For More Information

Visit the ATC 10-Year Assessment website:  
[www.atc10yearplan.com](http://www.atc10yearplan.com)

**Or contact**

Ted Weber

Email: [tweber2@atcllc.com](mailto:tweber2@atcllc.com)

Q & A

