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2016 10-Year Assessment Summary

October 2016

Topics

- Messages
- Capital Forecast
- Larger Projects by Zone

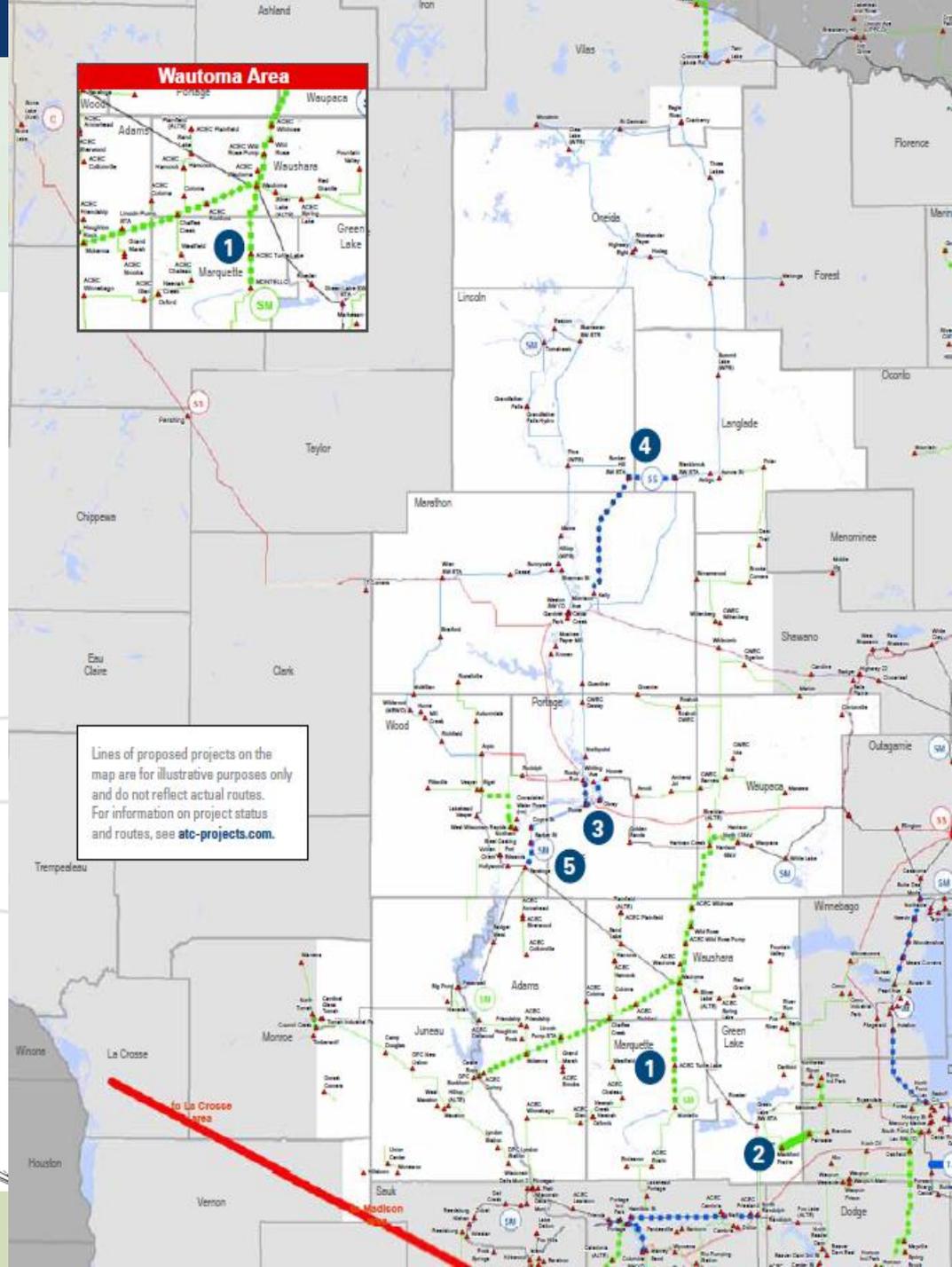
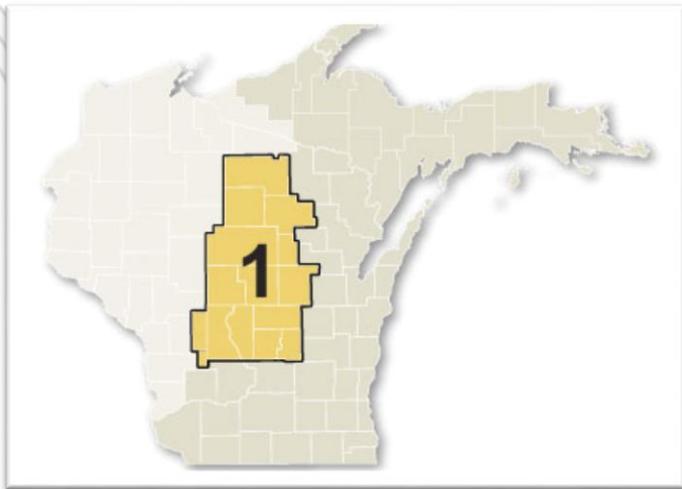
Messages

- Load forecast growth has slightly lower growth rate relative to 2015 Assessment.
- Modest amount of new network projects
 - T-D significant reason for new network projects
- Canceling a few network projects
- Substation Distribution Capacitor potential retirements showed only a few local area impacts
- Continue to participate in Regional Studies

Capital Forecast

	2012	2013	2014	2015	2016
Specific Network Projects	\$1.9B	\$1.2B	\$1.4B	\$1.4B	\$1.3B
Regional Multi-Value Projects	\$0.8B	\$0.5B	\$0.5B	\$0.5B	\$0.5B
Asset Maintenance	\$1.1B	\$1.1B	\$1.2B	\$1.4B	\$1.4B
Other Capital Categories	\$0.1B/\$1.0B	\$0.2B/\$0.8B	\$0.2B/\$0.8B	\$0.4B/\$1.2B	\$0.4B/\$1.2B
Total 10-Year Capital Cost	\$3.9B/\$4.8B	\$3.0B/\$3.6B	\$3.3B/\$3.9B	\$3.7B/\$4.5B	\$3.6B/\$4.4B

Zone 1



Lines of proposed projects on the map are for illustrative purposes only and do not reflect actual routes. For information on project status and routes, see atc-projects.com.

System Solutions Key

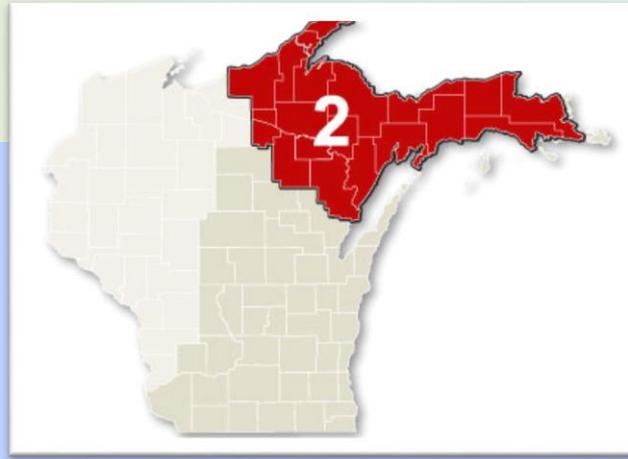
SUBSTATION KEY		TRANSMISSION LINE KEY		EXISTING TRANSMISSION LINES KEY	
SS	New substation Supports transmission system expansion		345-kV transmission line		69 kV
SM	Substation modifications Upgrades equipment ratings to avert facility overloads		115-, 138- or 161-kV transmission line		115 kV
T	Transformer Supports local growth and improves voltage levels		69-kV transmission line		230 kV
C	Capacitor bank or reactor Relieves low voltages or high voltages		Rebuilt 115- or 138-kV transmission line		345 kV
T-D	T-D interconnection Supports local growth		Rebuilt 69-kV transmission line		115 kV
			115- or 138-kV transmission line rating upgrade		230 kV
			69-kV transmission line rating upgrade		115 kV

Zone 1 projects

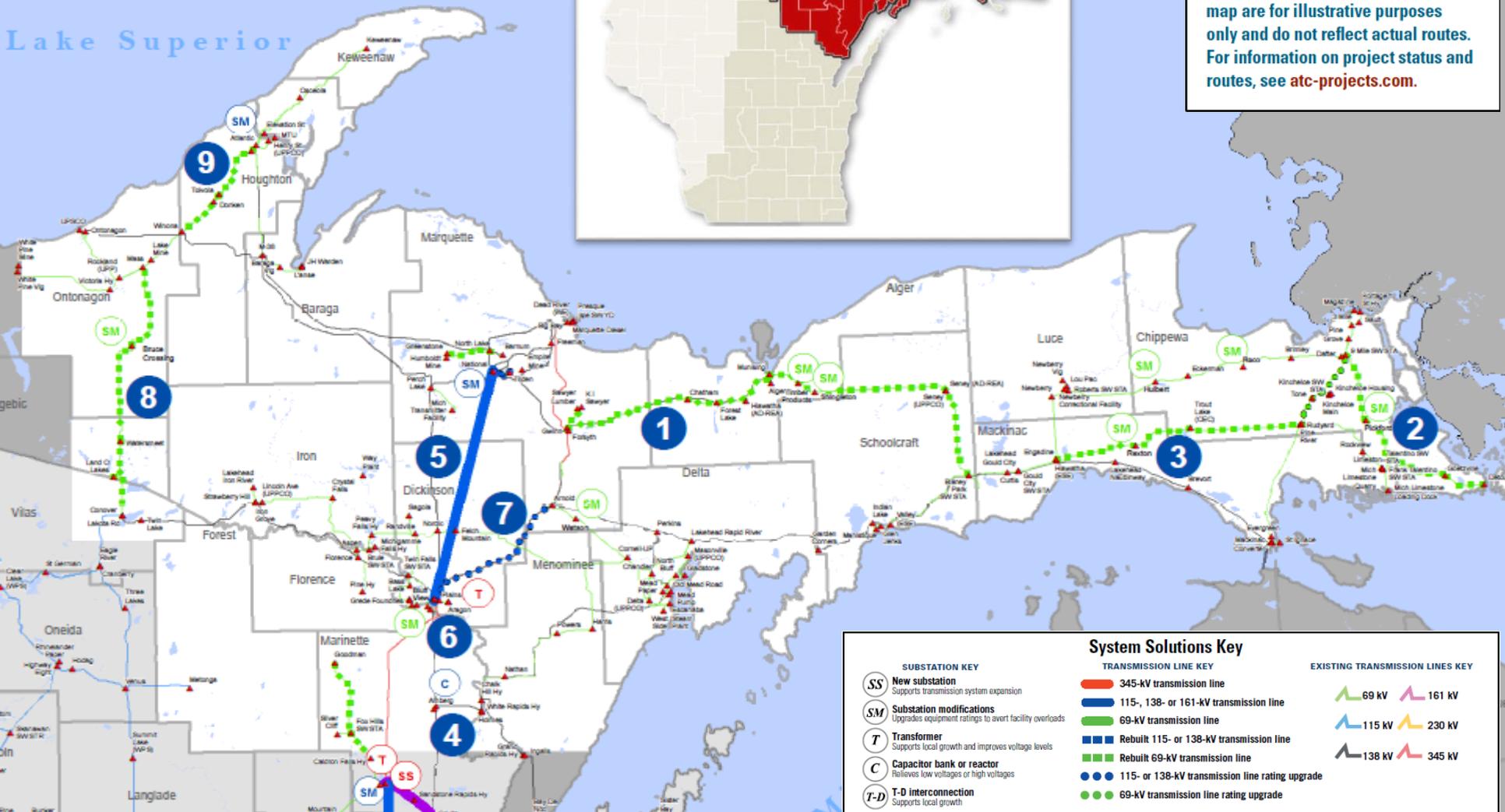
PROJECT DESCRIPTION	IN-SERVICE YEAR	NEED DRIVER
Planned Projects		
1 Montello – Wautoma 69-kV line rebuild	2016	Condition and performance
2 Fairwater – Mackford Prairie 69-kV line construction	2017	Network service, condition, overloads and low voltages
3 Plover – Whiting 115-kV line rebuild	2019	Condition and performance
4 M13-Reinforcement-Bunker Hill-Blackbrook	2019	Overloads and condition
5 Coyne – Saratoga 115-kV line rebuild	2020	Condition and performance

Additional projects may be found in the full 10-Year Assessment at atc10yearplan.com.

Zone 2



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SUBSTATION KEY		TRANSMISSION LINE KEY		EXISTING TRANSMISSION LINES KEY	
SS	New substation Supports transmission system expansion		345-kV transmission line		69 kV
SM	Substation modifications Upgrades equipment ratings to avert facility overloads		115-, 138- or 161-kV transmission line		115 kV
T	Transformer Supports local growth and improves voltage levels		Rebuilt 115- or 138-kV transmission line		230 kV
C	Capacitor bank or reactor Relieves low voltages or high voltages		Rebuilt 69-kV transmission line		138 kV
T-D	T-D Interconnection Supports local growth		115- or 138-kV transmission line rating upgrade		345 kV
			69-kV transmission line rating upgrade		

Zone 2 projects

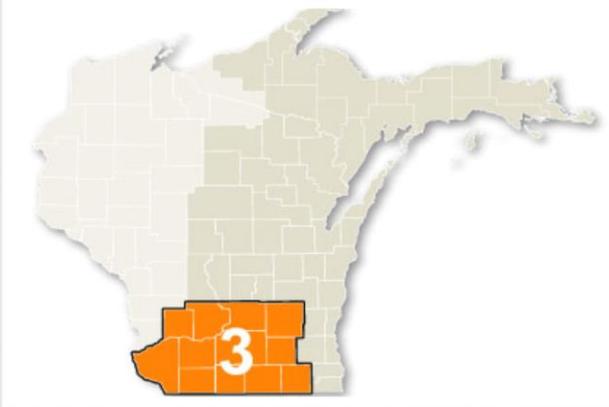
	PROJECT DESCRIPTION	IN-SERVICE YEAR	NEED DRIVER
Planned Projects			
1	Munising – Gwinn 69-kV line partial rebuild	2017	Condition and performance
2	9 Mile – Detour 69-kV line partial rebuild	2017	Condition and performance
3	Pine River – Hiawatha 69-kV line partial rebuild	2018	Condition and performance
4	Bay Lake: Benson Lake 138-kV Substation – Installation of a static VAR compensator	2019	Low voltages
Provisional Projects			
5	Plains – National 138-kV project	2023	Overloads and low voltages
6	Plains 345/138-kV project	2023	Overloads and low voltages
7	Plains – Arnold 138-kV uprate	2023	Overloads and low voltages
8	Lakota – Winona 138-kV conversion	2021	Overloads and low voltages
9	Winona – Atlantic 69-kV line rebuild	2024	Overloads and low voltages

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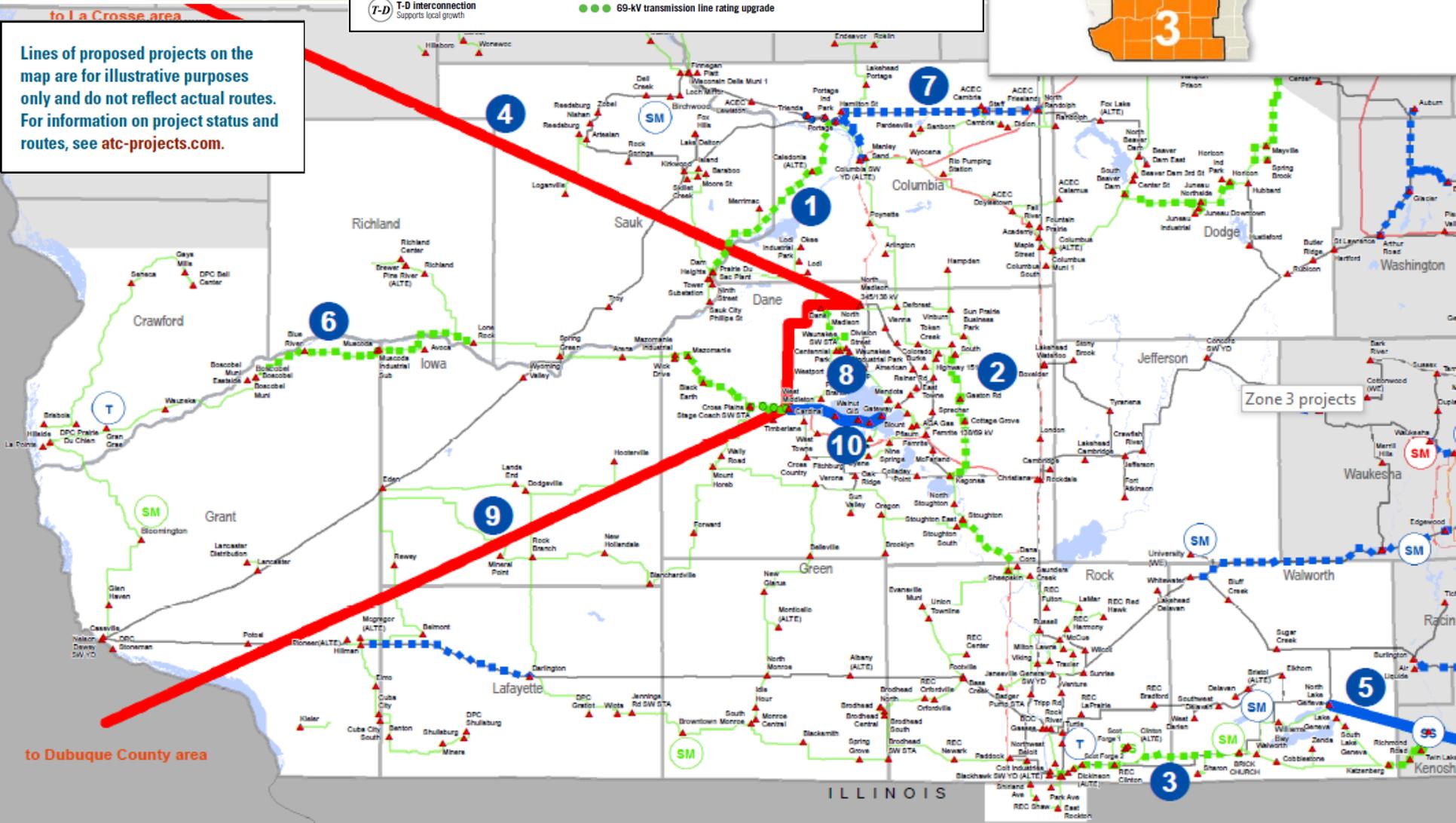
Zone 3

System Solutions Key

SUBSTATION KEY	TRANSMISSION LINE KEY	EXISTING TRANSMISSION LINES KEY
SS New substation Supports transmission system expansion	345-kV transmission line	69 kV
SM Substation modifications Upgrades equipment ratings to avert facility overloads	115-, 138- or 161-kV transmission line	115 kV
T Transformer Supports local growth and improves voltage levels	69-kV transmission line	230 kV
C Capacitor bank or reactor Relieves low voltages or high voltages	Rebuilt 115- or 138-kV transmission line	138 kV
T-D T-D interconnection Supports local growth	Rebuilt 69-kV transmission line	345 kV
	115- or 138-kV transmission line rating upgrade	
	69-kV transmission line rating upgrade	



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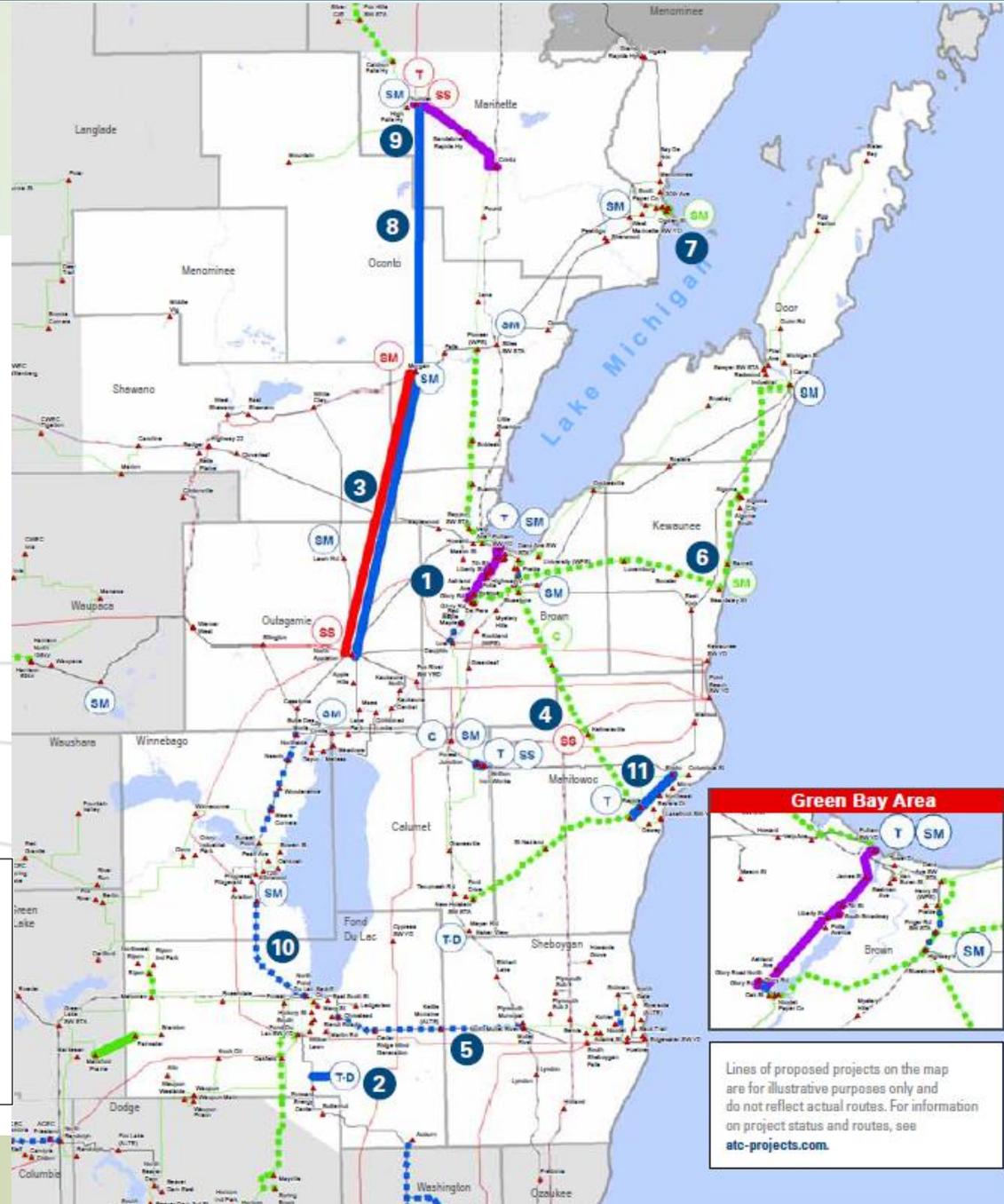
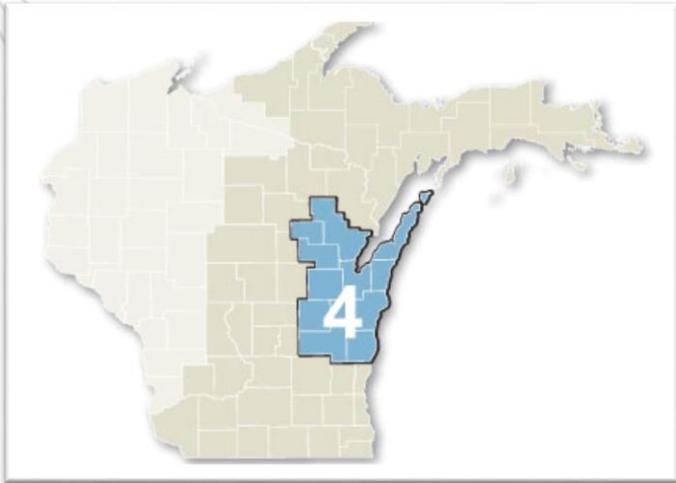
to Dubuque County area

Zone 3 projects

	PROJECT DESCRIPTION	IN-SERVICE YEAR	NEED DRIVER
Planned Projects			
1	Dam Heights – Portage 69-kV line rebuild	2017	Condition and performance
2	Kegonsa – Sun Prairie 69-kV line partial rebuild	2017	Condition and performance
3	Colley Road – Brick Church 69-kV line rebuild	2018	Overloads, low voltages and condition
4	Badger Coulee: Briggs Rd – North Madison – Cardinal 345-kV line construction	2018	Reliability, economics and public policy
5	Spring Valley – North Lake Geneva 138-kV line construction	2019	Overloads and low voltages, provide network service
6	Boscobel – Lone Rock 69-kV line rebuild	2019	Condition and performance
7	Portage – Staff – North Randolph 138-kV line rebuild	2019	Condition and performance
8	Dane – Waunakee 69-kV line rebuild	2020	Condition and performance
Proposed Project			
9	Cardinal – Hickory Creek	2023	Reliability, economics and public policy
Provisional Project			
10	Cardinal – Blount 138-kV line construction	2029	Overloads and low voltages

Additional projects may be found in the full 10-Year Assessment at atc10yearplan.com.

Zone 4



SUBSTATION KEY		TRANSMISSION LINE KEY		EXISTING TRANSMISSION LINES KEY	
SS	New substation Supports transmission system expansion		345-kV transmission line		69 kV
SM	Substation modifications Upgrades equipment ratings to avert facility overloads		115-, 138- or 161-kV transmission line		161 kV
T	Transformer Supports local growth and improves voltage levels		Transmission line voltage conversion		115 kV
C	Capacitor bank or reactor Relieves low voltages or high voltages		Rebuilt 345-kV transmission line		230 kV
T-D	T-D interconnection Supports local growth		Rebuilt 115- or 138-kV transmission line		138 kV
			Rebuilt 69-kV transmission line		345 kV
			115- or 138-kV transmission line rating upgrade		
			69-kV transmission line rating upgrade		

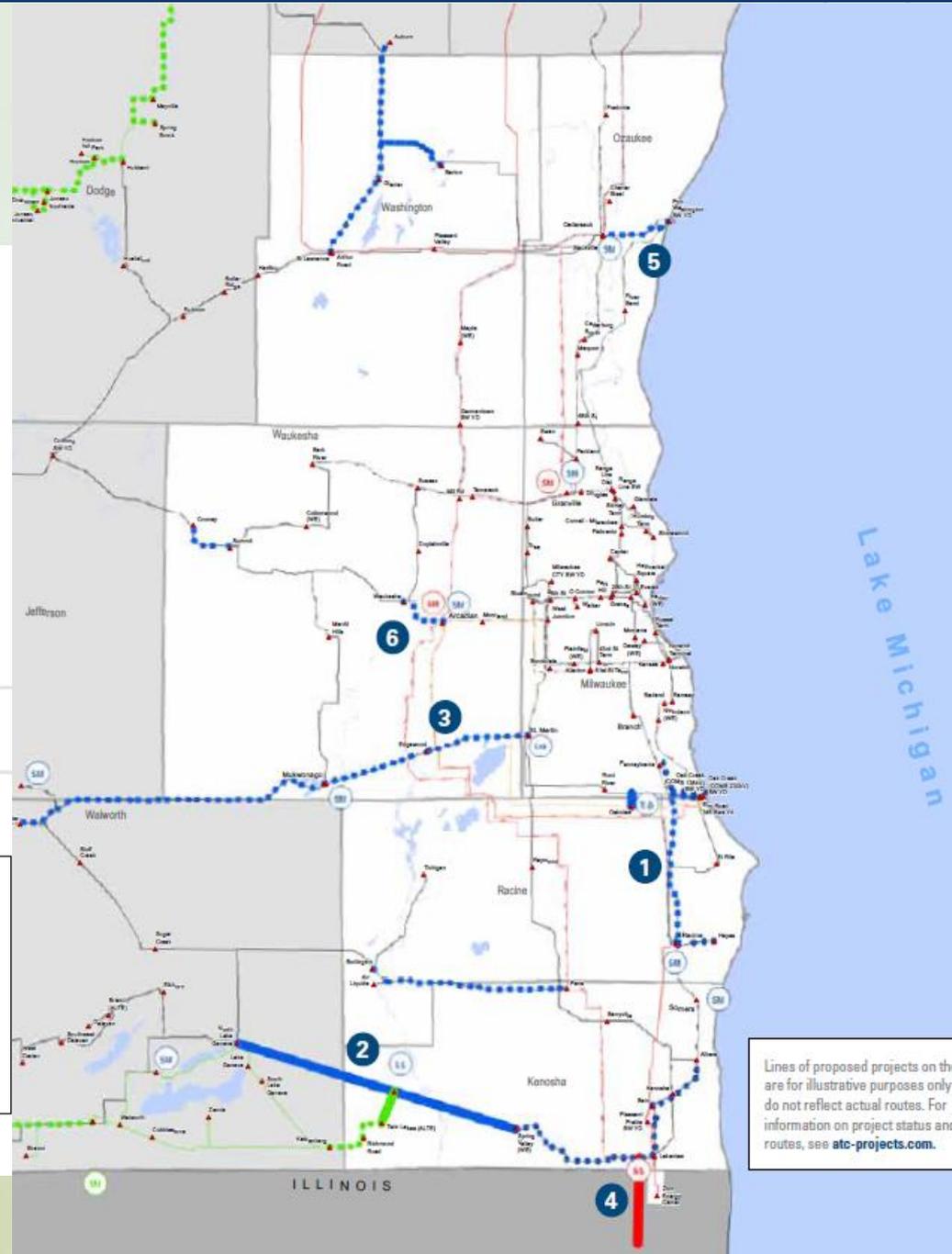
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Zone 4 projects

	PROJECT DESCRIPTION	IN-SERVICE YEAR	NEED DRIVER
	Planned Projects		
1	Pulliam – Glory Road 138-kV line conversion	2016	Overloads and low voltages
2	Creekview Substation: 138-kV line construction to serve T-D interconnection	2017	T-D interconnection
3	Bay Lake: North Appleton – Morgan 345-kV and 138-kV line construction	2018	Overloads and low voltages
4	Branch River 345-kV Substation construction	2018	Accommodate new generation
5	Cedar Ridge Wind Generation – Mullet River 138-kV line rebuild	2019	Condition and performance
6	Finger Road – Canal 69-kV line rebuild	2021	Condition and performance
	Proposed Project		
7	Ogden St. – Bayshore 69-kV line construction	2018	Provide network service
	Provisional Projects		
8	Morgan –Thunder 138-kV project	2023	Overloads and low voltages
9	Morgan – Plains 345-kV loop into new	2023	Overloads and low voltages
10	Aviation – North Fond du Lac 138-kV line rebuild	2025	Overloads
11	Shoto – Custer 138-kV line	2026	Overloads and low voltages

Additional projects may be found in the full 10-Year Assessment at atc10yearplan.com.

Zone 5



- 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

System Solutions Key

- TRANSMISSION LINE KEY**
- 345-kV transmission line
 - 115-, 138- or 161-kV transmission line
 - 69-kV transmission line
 - Rebuilt 115- or 138-kV transmission line
 - Rebuilt 69-kV transmission line
 - 345-kV transmission line rating upgrade
 - 230-kV transmission line rating upgrade
 - 115- or 138-kV transmission line rating upgrade
 - 69-kV transmission line rating upgrade
- EXISTING TRANSMISSION LINES KEY**
- 69 kV
 - 115 kV
 - 161 kV
 - 230 kV
 - 138 kV
 - 345 kV

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Zone 5 projects

PROJECT DESCRIPTION	IN-SERVICE YEAR	NEED DRIVER
Planned Projects		
1 Oak Creek – Hayes 138-kV upgrade and reconfiguration	2018	Overloads
2 Spring Valley – North Lake Geneva 138-kV line construction	2019	Overloads and low voltages, provide network service
3 Mukwonago – Edgewood – St. Martins 138-kV line rebuild	2019	Condition and performance
Proposed Projects		
4 Southeastern Wisconsin – Northeastern Illinois Interface Project	2020	Overloads
5 Port Washington – Saukville 138-kV line rebuild	2021	Overloads
6 Arcadian – Waukesha 138-kV rebuild	2025	Overloads

Additional projects may be found in the full 10-Year Assessment at atc10yearplan.com.

For more information

Visit the ATC 10-Year Assessment
website: www.atc10yearplan.com

Or contact

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