

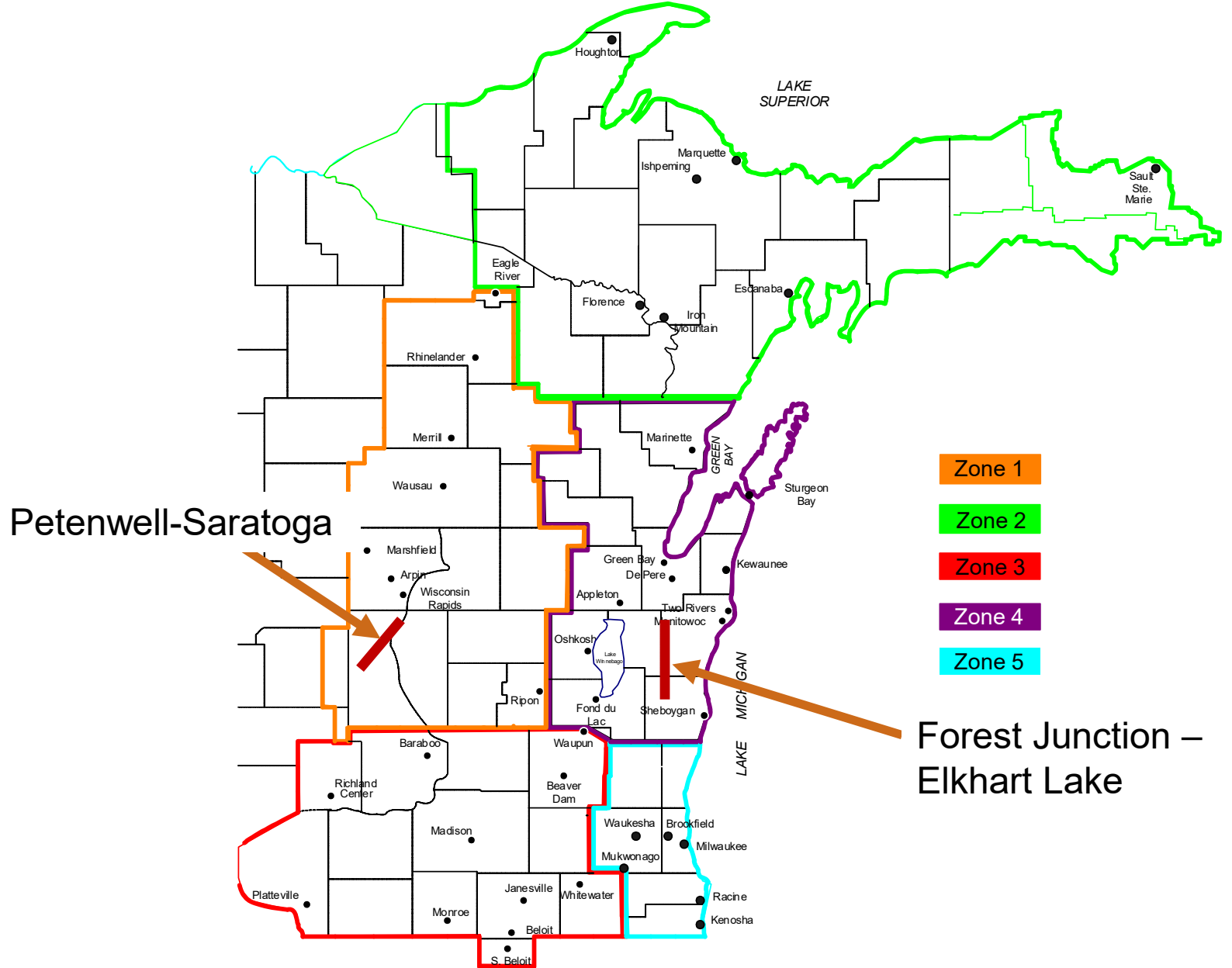
# Economic Planning Study Update

PRESENTED BY

Anna Torgerson, ATC Economic Planning

March 8, 2021





# Elkhart Lake Series Reactor

- In-service Mid-December 2020
- Estimated Cost of \$1.3 Million
- 40-Year Customer Benefit of \$11.2 Million

# Petenwell – Saratoga (X-43) Rebuild

- Improves Reliability Issues
- IT Project Cost Savings
- Lowers Market Congestion
- Removes the need for the Council Creek Remedial Action Scheme
  - Saves time and money
- Acceleration of Asset Renewal Projects
- Cost of \$24.5 Million
- Project in-service date of December 2022

# Economic Planning Kickoff

PRESENTED BY

Anna Torgerson, ATC Economic Planning

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# Introduction

- Process Overview and Timeline
- 2021 Futures Development
- Stakeholder Input
- Next Steps

# ATC Process Overview and Timeline

- **During February**, we hold an initial stakeholder meeting to review the market congestion summary and potential fixes and to discuss economic study scenarios, drivers, ranges, and assumptions.
- **By March 1**, we work with stakeholders to request and prioritize new/other economic studies and recommend study assumptions.
- **By April 15** – we identify preliminary areas of economic study, study assumptions and models and solicit further comments from stakeholders.
- **By May 15** – we finalize areas of economic study, study assumptions and models to be used in analysis.
- **By November 15** – we provide a summary of the results of the economic analyses to our stakeholders.

# 2021 Futures Development

- Utilize the MISO Transmission Expansion Plan (MTEP) models and futures
- Review MISO models and provide updates as necessary
- Review generation interconnection request in MISO Queue
- Review load profiles and demand and energy growth
- Better modeling of time of use industrial customers
- Most updated transmission topology
- Ensures greater alignment with MISO stakeholder process



# MTEP21 Futures and Years

## Brand new futures

- Future 1 (F1)
- Future 2 (F2)
- Future 3 (F3)

## Additional model year

- 2025
- 2030
- 2035
- 2040

# Future 1

- Low load growth
  - Very low rate of electrification
- Low trend of carbon-free transition
- 40% carbon reduction from 2005 baseline
- 85% of utility announced goals met
- Older age-based generation retirements

# Future 2

- Medium Load Growth
  - Medium-rate of electrification adoption
- 60% carbon reduction from 2005 baseline
- 100% of utility announced goals met
- Mid-ranged age-based generation retirements

# Future 3

- High Load growth
  - High adoption rate of electrification
- Transition from carbon to carbon-free
- 80% carbon reduction from 2005 baseline
- 50% minimum penetration of wind/solar
- 100% of utility announced goals met
- Younger age-based retirements

# MTEP21 Net Load Growth Rate

	Future 1	Future 2	Future 3
Energy	0.47%	1.08%	1.69%
Demand	0.57%	0.98%	1.43%

# MTEP21 DER (Distributed Energy Resources)

	Future 1	Future 2	Future 3
Demand Response	0.94 GW	0.94 GW	0.94 GW
Energy Efficiency	7.82 GW	8.05 GW	11.72 GW
Distributed Generation	3.47 GW	3.47 GW	6.17 GW

# MTEP21 Other Renewable Variables

	Future 1	Future 2	Future 3
Carbon Reduction from 2005	40%	60%	80%
Minimum Wind & Solar Penetration	26%	32%	50%
Utility Announced Plans for Renewable Buildout	85% Goals Met	100% Goals Met	100% Goals Met

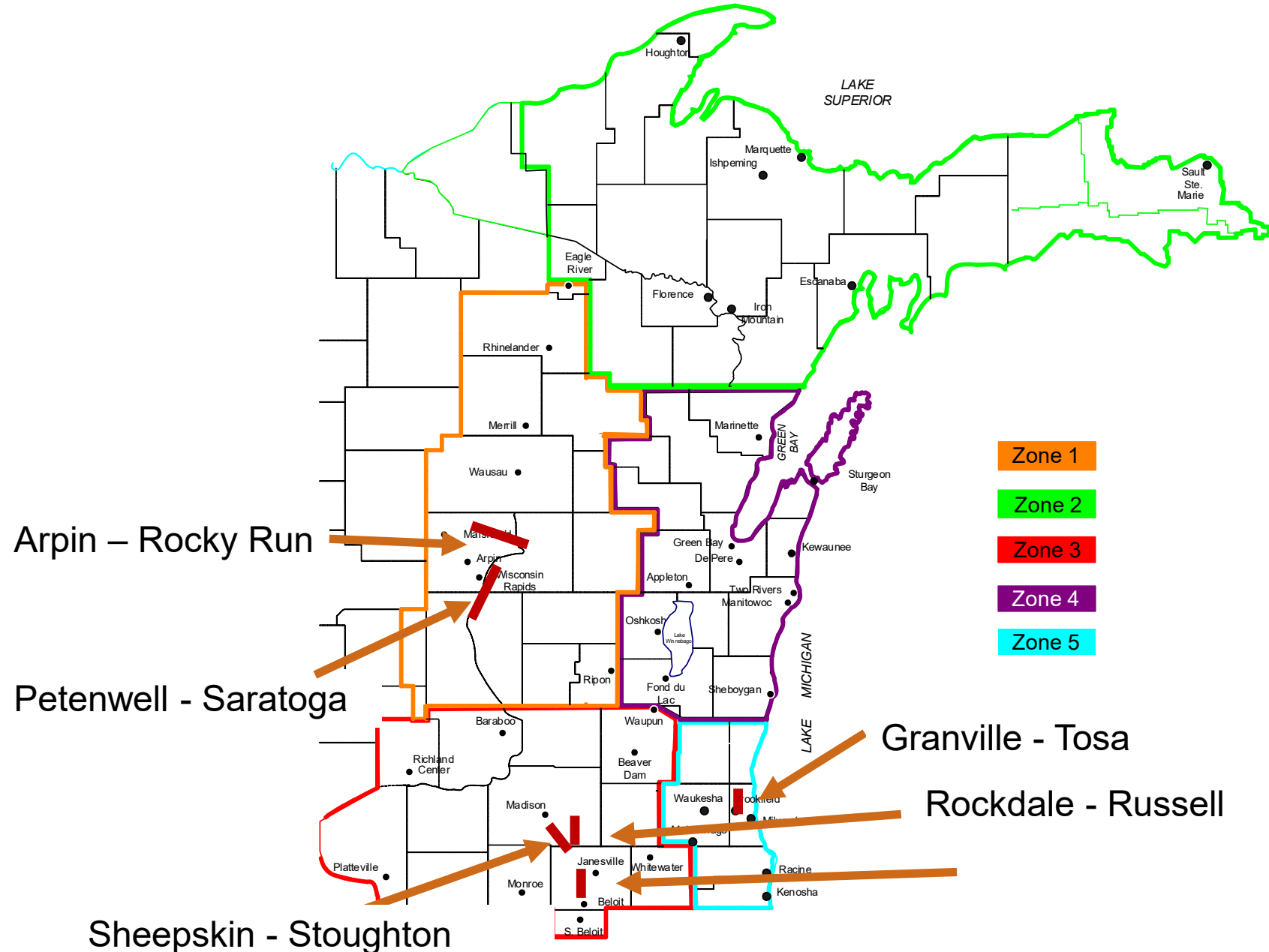
# MTEP21 Assumed Generation Retirement Age

	Future 1	Future 2	Future 3
Coal	46 years	36 years	30 years
Natural Gas CC	50 years	45 years	35 years
Natural Gas Other	46 years	36 years	30 years
Oil	45 years	40 years	35 years
Wind & Solar	25 years	25 years	25 years
Nuclear	Retire if Publicly Announced		



# Notable MTEP21 Congestion

- Rockdale – Russell 138 kV
- Sheepskin – Stoughton 69 kV
- Petenwell – Saratoga 138 kV
- Paddock – Townline Road 138 kV
- Arpin – Rocky Run 345 kV
- Granville – Tosa 138 kV
  
- Considering other areas for study?



Arpin – Rocky Run

Petenwell - Saratoga

Granville - Tosa

Rockdale - Russell

Sheepskin - Stoughton

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5

# Proposed Generation Updates

- All 2018 DPP (Definitive Planning Phase)
  - J986, J1000, J1002, J1003, J1042, J1101, J1153, J1154, J1171, J1183, J1188
  - Include associated transmission upgrades
  - 905 MW Solar
  - 20 MW Storage
- All 2019 DPP
  - J1214, J1244, J1251, J1253, J1304, J1305, J1316, J1326, J1345, J1370, J1374, J1377, J1410, J1411, J1460, J1483
  - Include associated transmission upgrades
  - 1213 MW Solar
  - 225 MW Storage
  - 205 MW Wind
  - 50 MW Natural Gas
- Are there any additional generation updates to be made?

Link to map location on MISO website: <https://api.misoenergy.org/PublicGiQueueMap/index.html>

# Stakeholder and Customer Feedback

- ATC is soliciting stakeholders and customers for new/other economic studies, recommended study assumptions changes, and study areas for our 2020 study
- ATC requests feedback in areas where Public Policy Requirements may drive transmission needs.
  - Public Policy Requirements are enacted statutes (i.e., passed by the legislature and signed by the executive) and regulations promulgated by a relevant jurisdiction, whether within a state or at the federal level, including duly enacted laws or regulations passed by a local governmental entity, such as a municipal or county government. Stakeholders are encouraged to provide ATC with Public Policy Requirements. ATC utilizes transmission needs driven by Public Policy Requirements in its assumptions when performing economic analysis of study areas. The transmission needs driven by Public Policy Requirements that will be included in ATC's finalized assumptions will be posted prior to May 15th.

# Next Steps

- Project / Analysis Development
  - Review of Congestion
  - Investigate impacts of generation expansion and retirement on congestion
  - Stakeholder Feedback
- 2021 Futures Development
  - Continued Review of MISO MTEP Development
  - Update model with interconnection projects that may impact congestion
- Analysis of Projects
  - Study Years – 2025, 2030, 2035 and 2040
  - Futures – All MISO MTEP20 Futures
- Timelines
  - April 15: Define Preliminary Assumptions
    - ◆ Includes Generation Updates from customers
  - May 15: Finalize Assumptions
  - November 15: Provide Analysis Update

# Questions?

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# Thank you for your time!



