

# 2026 10-Year Assessment Preliminary Needs

*Stakeholder and Customer Webcast*

**PRESENTED BY:**

System Planning, ATC

March 16, 2026

- ATC Proprietary -

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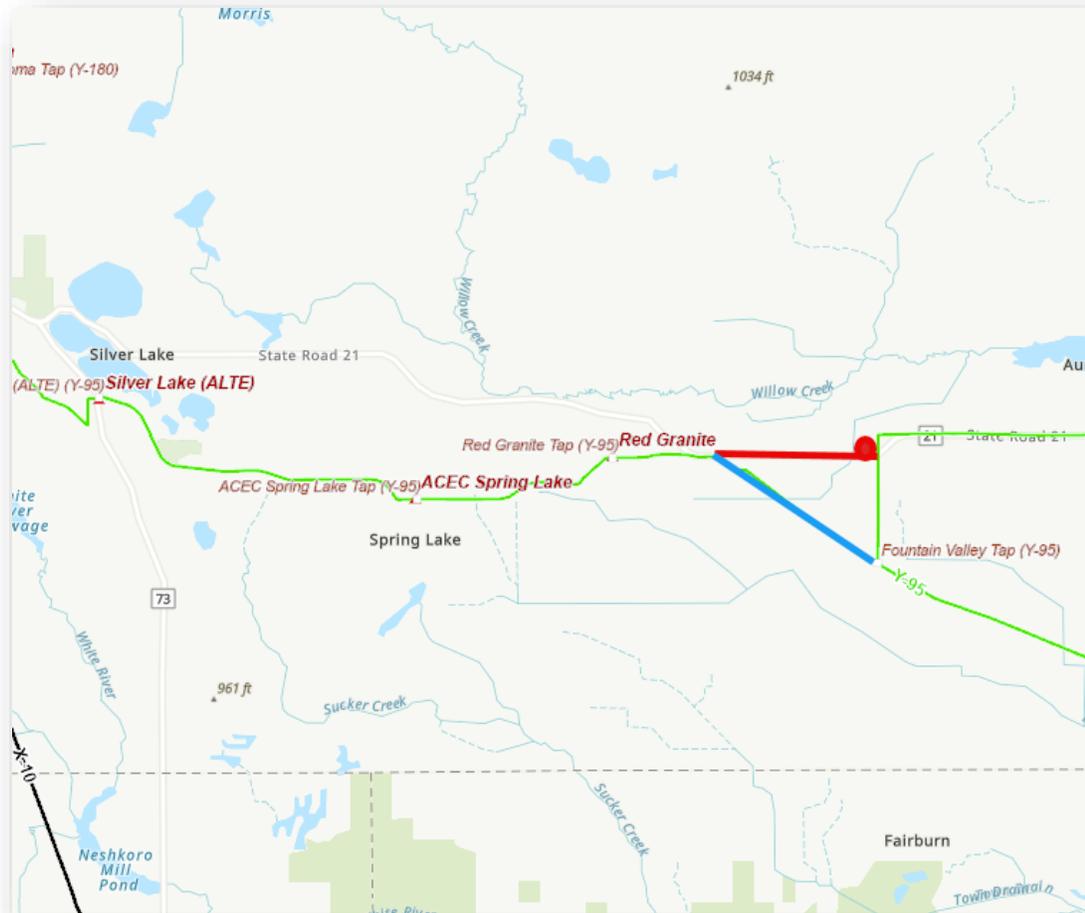
# Purpose

- Define and solicit input on needs
  - Network and reliability
  - Generation interconnection (G-T)
  - Distribution interconnection (D-T)
  - Asset renewal
  - Communications
- Solicit input on public policy driven needs
- Summarize next steps

# Preliminary Needs

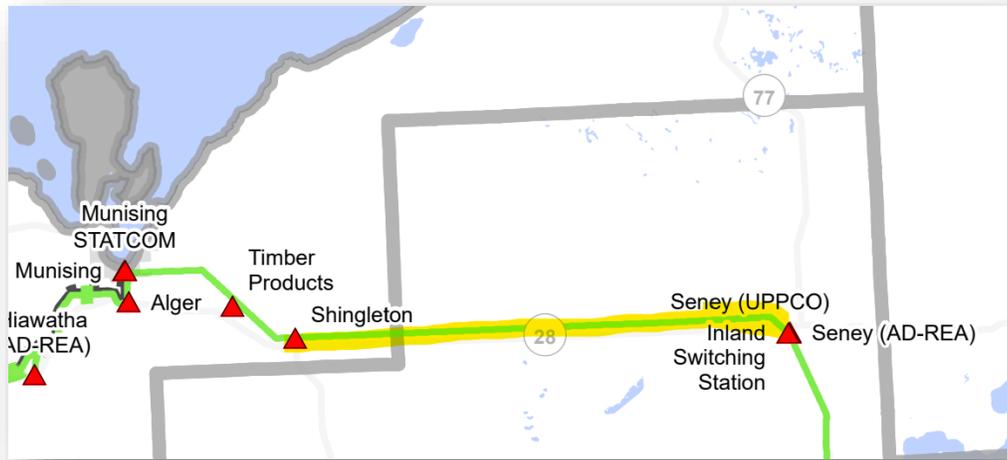
- We are seeing new projects based on new needs this year.
  - New network reliability projects
  - Additional renewable interconnections
  - Distribution interconnections
  - Substation and transmission line asset renewal work
  - Changes in regulatory body priorities & policies

# Y-95 Sectionalizing Project



- Need Drivers:
  - Reliability – Load miles served by line and number of taps on line.
- Scope:
  - Build greenfield switching station between Red Granite Tap and Fountain Valley Tap to segment Y-95.
  - Feed Fountain Valley radially from new station.
  - Build green field 69 kV line between Red Granite and Fountain Valley Tap line.
  - Retire existing Y-95 where it goes cross country between Red Granite and Fountain Valley Tap.
- Estimated Cost: \$20M
- Proposed ISD: 2029
- MTEP ID 51206, MTEP26 Appendix B

# Inland, Shingleton – Seney 69kV Rebuild



- Need Drivers:
  - Asset Renewal needs for 69 kV line between Shingleton and Seney.
    - Green Treated poles, approx. 15%
    - Difficult and expensive for accessing line
- Scope:
  - Relocate Inland line approximately 0.5 miles south along Highway M-28.
  - Remove existing facilities
- Estimated Cost: ~\$110M
- Proposed ISD: 2030
- MTEP26, Target Appendix B, ID 50677

# Silver River - North Lake (NLKG31), 138kV rebuild



- Need Drivers:
  - Asset Renewal needs for 138kV line.
    - Condition & Performance
    - Outage constraints
- Scope:
  - Rebuild ~54.5 miles of existing 138kV wood H-frame line NLKG31 with new 138kV steel monopole construction, single circuit.
- Estimated Cost: ~\$161.7M
- Proposed ISD: 2032
- MTEP25, Target Appendix B, ID 50129

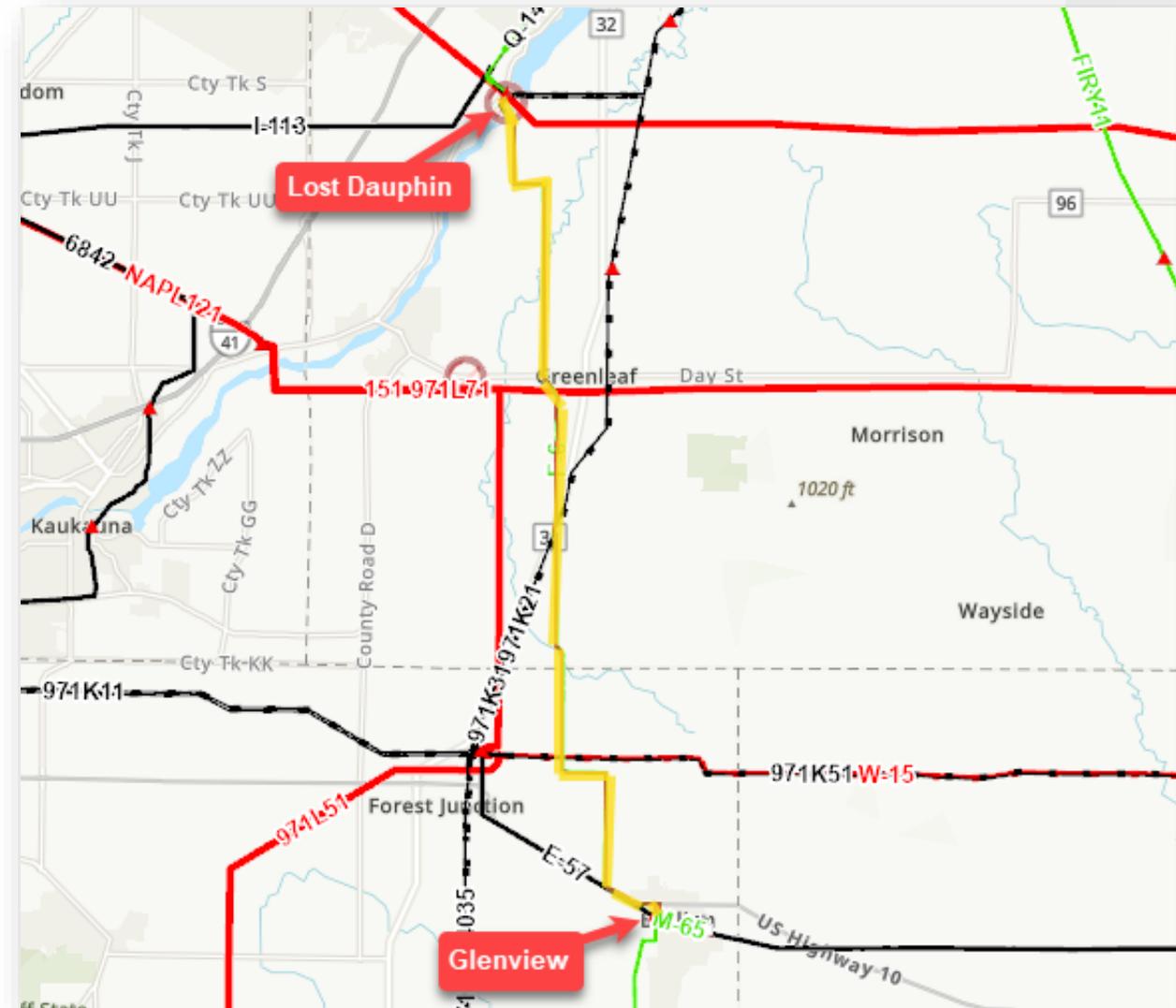
# Lone Rock Phase Shift Transformer Asset Renewal

- Need Drivers:
  - Transformer is near end of useful life
  - Extremely limited manufacturer and parts support
  - LTC model is known through industry for failures and being problematic
- Scope:
  - Replace with identically rated unit
    - Planning and Substation Services to complete study to provide alternatives (smart wires, other)
- Estimated Cost: \$12.5M
- Proposed ISD: December 2029
- MTEP26, Target Appendix B, ID 50658



# Glenview - Lost Dauphin 69 kV (F-6), Partial Rebuild

- Need Drivers:
  - Condition & Performance
- Scope:
  - Rebuild ~16 miles of 69kV line and OPGW
- Estimated Cost: \$29M
- Proposed ISD: 2029
- MTEP26, Target Appendix B, ID 50652

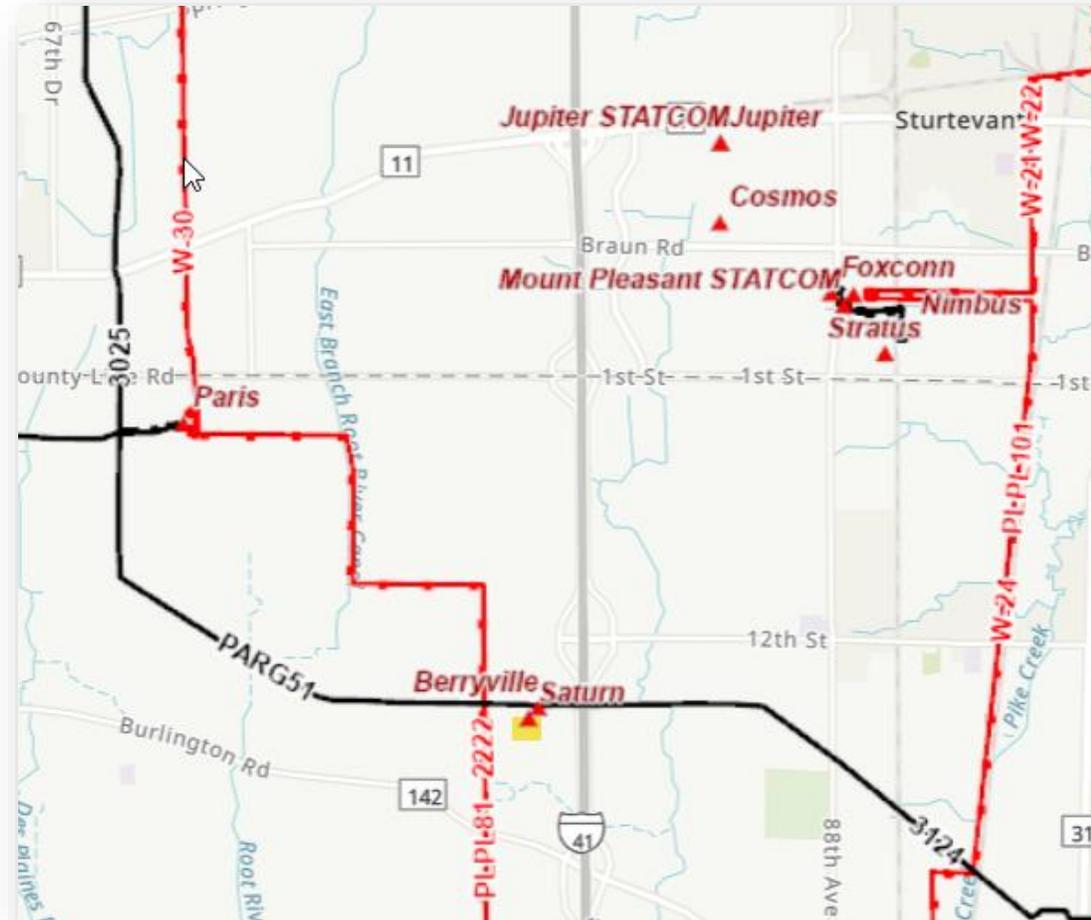


# Mukwonago – University 138kV (UNIG52), Partial Rebuild

- Need Drivers:
  - Condition & Performance
  - Economic and reliability
- Scope:
  - Rebuild ~19 miles of 138kV line with OPGW
- Estimated Cost: \$87M
- Proposed ISD: 2031
- MTEP26, Target Appendix B, ID 50682



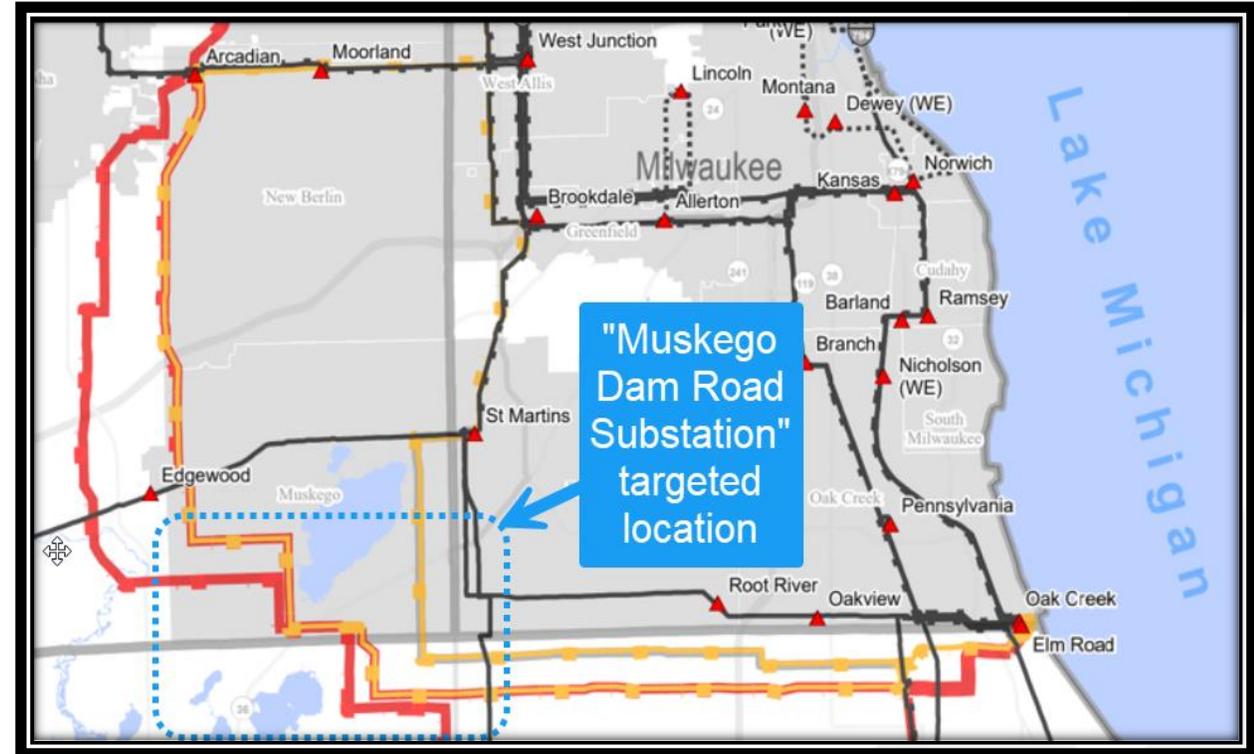
# Red Oak Ridge Generation Interconnection



- Need Drivers:
  - Invenergy submitted an interconnection request for a 1,186-MW simple-cycle facility consisting of five combustion turbines.
  - 1st MISO ERAS generation interconnection project in ATC region
- Scope of Work:
  - A new greenfield 345 kV substation tapping both 2222 and PLPL81 and connecting Red Oak Ridge plant via three generator lead lines
- Estimated cost: \$70.5 million
- Proposed In Service Date: 2029
- MTEP26, Target Appendix A, ID 51144
- CA to be filed

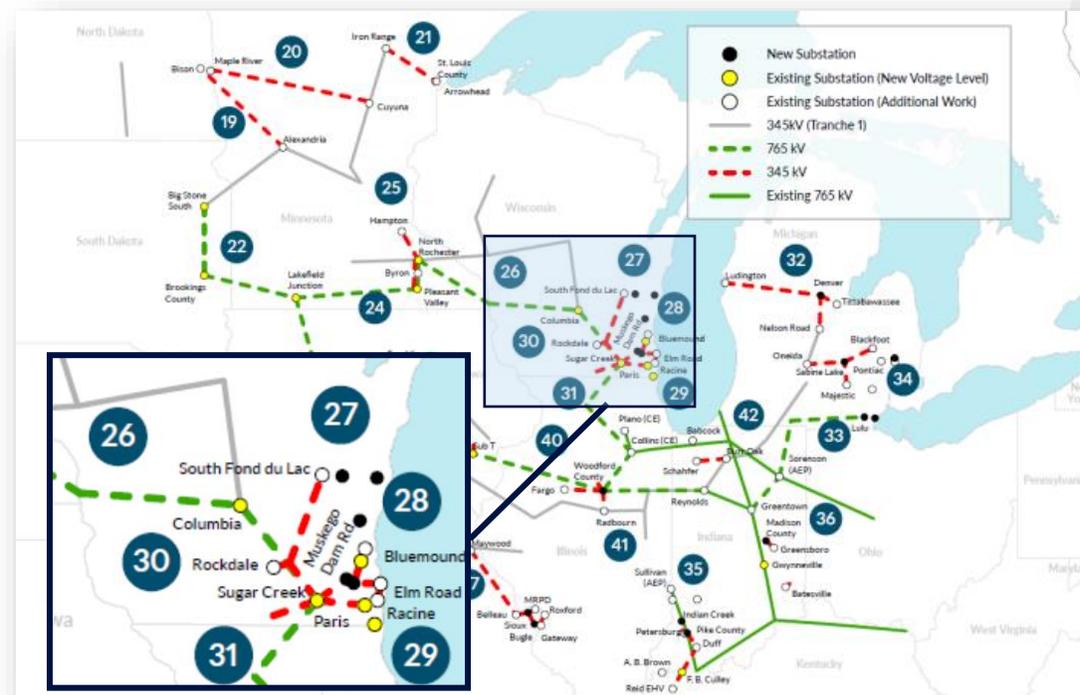
# Milwaukee Area 230 kV Conversion To 345 kV Project

- ATC project scope update – Include the "Muskego Dam Road SS" facility to the "Milwaukee Area 230 kV Conversion To 345 kV" facilities.
- Both efforts are a part of the MISO LRTP Tranche 2.1 portfolio project 29.
- MTEP24 Appendix A, ID 50562.
- Cost: Updated project cost in development.
- Construction over a multi-year period, preliminarily 2028 to 2031.
- A CPCN is required.

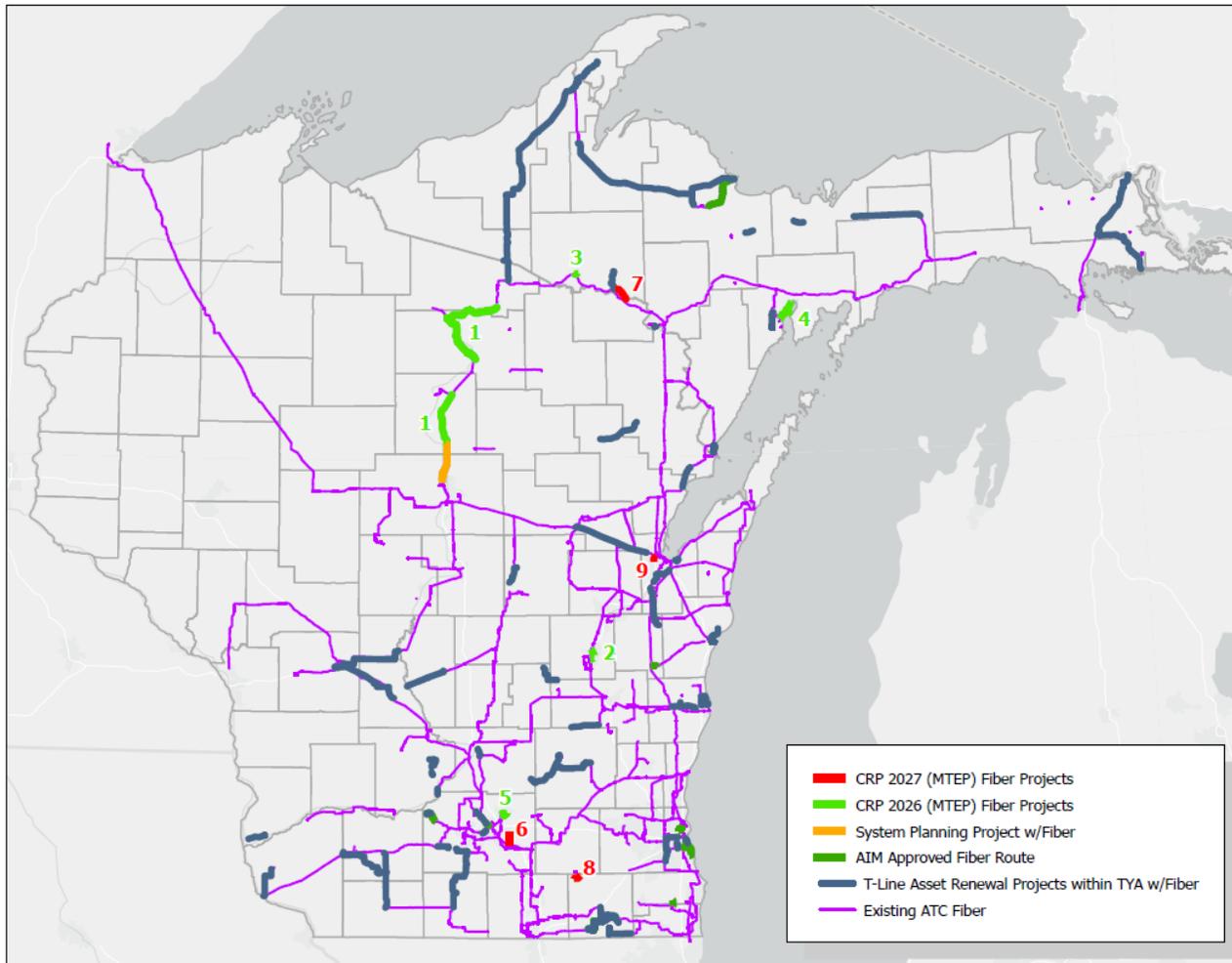


# Long Range Transmission Plan (LRTP)

- Tranche 2.1 Approved in MTEP 24
- 24 project totaling \$21.8B investment
  - ATC assigned \$2B in projects
  - Competitively Bid Projects in ATC footprint (\$1.8B)
- Request For Proposal (RFP) process underway at MISO
- Additional Info on the [MISO LRTP Website](#)



# Communication Reliability Program (CRP) - In Service and Active (OPGW & UG Fiber) Projects



Label:	CRP - MTEP26 Projects:	PCO Cost Estimate:
1	<b>North Central Wisconsin Plan</b> OPGW - Line Q-96 - (HWY 8 to Clear Lake), Line U-16 - (Clear Lake to St Germain) & Line CRBU11 - (St Germain to Cranberry) Stand-Alone - <b>OPGW Installation</b>	\$54,000,000.00
2	OPGW - Line I-9 - (Pine to Skanawan Tap) Align w/ (I-9) <b>T-Line Re-Build &amp; Reinsulate Scope</b> <b>Oshkosh Plan</b> OPGW - Line I-61 (Sunset Point to Pearl Ave) UG Fiber - (12th Ave to Ellinwood) Align w/ <b>T-Line Re-Build Scope</b>	\$9,000,000.00
3	OPGW - Line CRFY21- (Iron Grove to Lincoln Ave: UPPCO)	\$5,000,000.00
4	<b>Escanaba Plan</b> UG Fiber - (Old Mead Road to North Bluff to Gladstone to Masonville)	\$9,000,000.00
5	UG Fiber - (Sun Prairie to Highway 151)	\$4,000,000.00
<b>Total Estimate:</b>		<b>\$81,000,000.00</b>
Label:	CRP - MTEP27 Projects:	PCO Cost Estimate:
6	OPGW - Line Y-81: Cottage Grove Tap to Structure: #53 Align w/ <b>T-Line Re-Build Scope</b>	\$8,000,000.00
7	OPGW - Line ASPY51: Aspen to Structure: #127828 Align w/ <b>T-Line Re-Build Scope</b>	\$8,000,000.00
8	OPGW - Line UNIG51: Whitewater to Structure: #3434 w/ <b>Re-Conductor &amp; Rebuild Scope</b> from Whitewater to Structure: #20009	\$10,000,000.00
9	OPGW - Line MSNG41: Mason Street to Structure: #20 Align w/ <b>T-Line Re-Build Scope</b>	\$8,000,000.00
<b>Total Estimate:</b>		<b>\$34,000,000.00</b>

# Communications Reliability Program (CRP) Projects - 2026 & Beyond

- **Resiliency, Partnership & Future Technology Demands**
  - Substation Communications Resiliency
  - Asset Management & System Planning Alignment
  - Future Substation Technology & Communication Demands

# Distribution to Transmission (D-T) Interconnections

**136 requests in 2025**

- Governing documents:
  - FERC Tariff Attachment FF-ATCLLC
  - NERC Standards
  - FERC Filed D-T Interconnection Agreement (IA)
  - ATC's Load Interconnection Guide
  - ATC's Business Practices

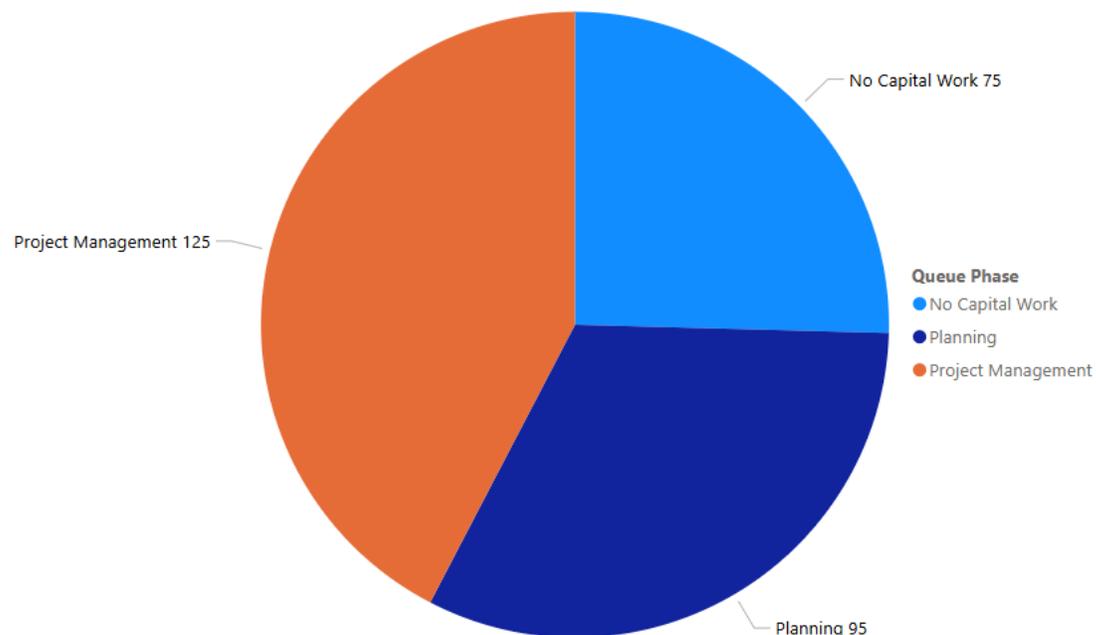
# D-T Best Value Planning (BVP) Process

- Collaborative planning assessment to determine the best value solution for all parties
- Types of requests
  - New distribution substation
  - Distribution substation equipment change
  - Distributed energy resources (DERs)
  - Unforecasted load or change in load characteristics
  - Economic development projects
  - Power quality issues
- Individual project timelines vary widely

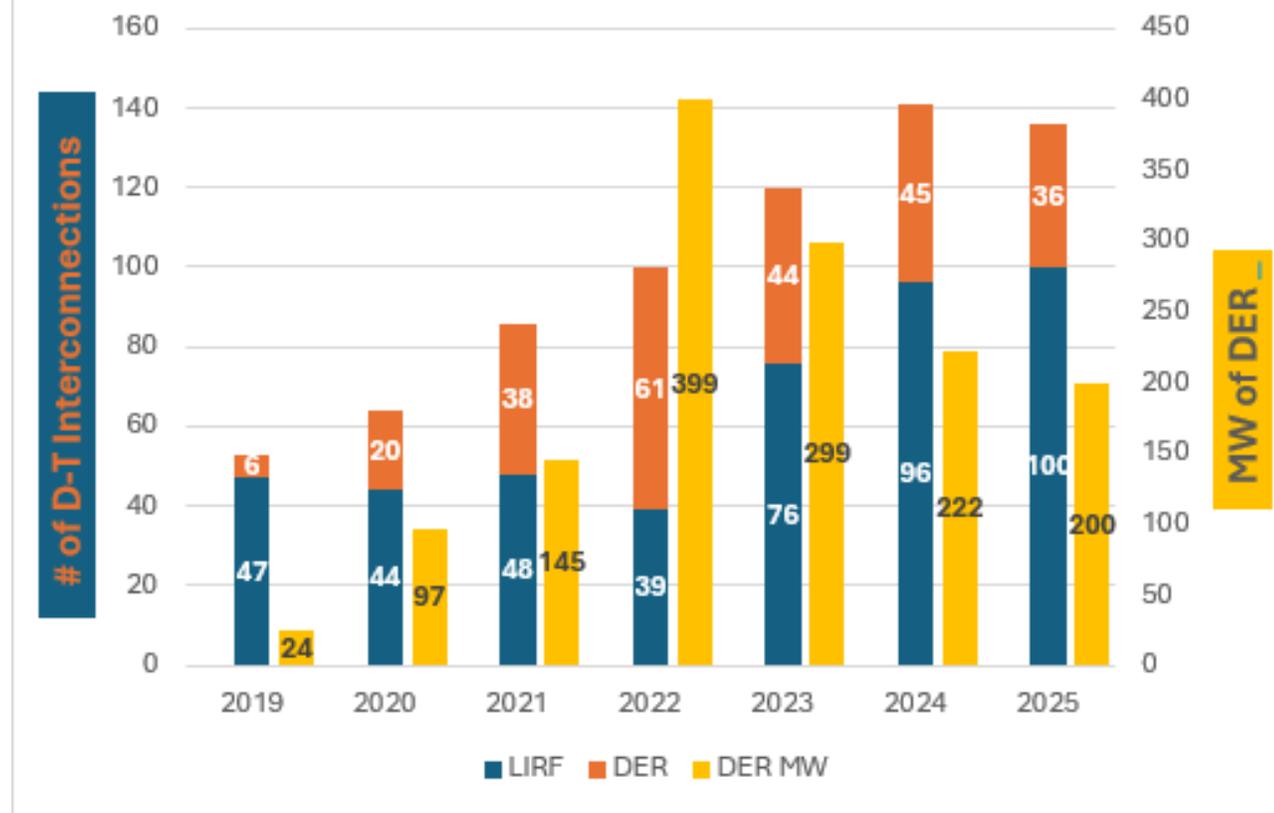
# D-T Dashboard

295 Active Projects

D-T Queue Phases



D-T Interconnection Requests by Year Including Distributed Energy Resources (DER)



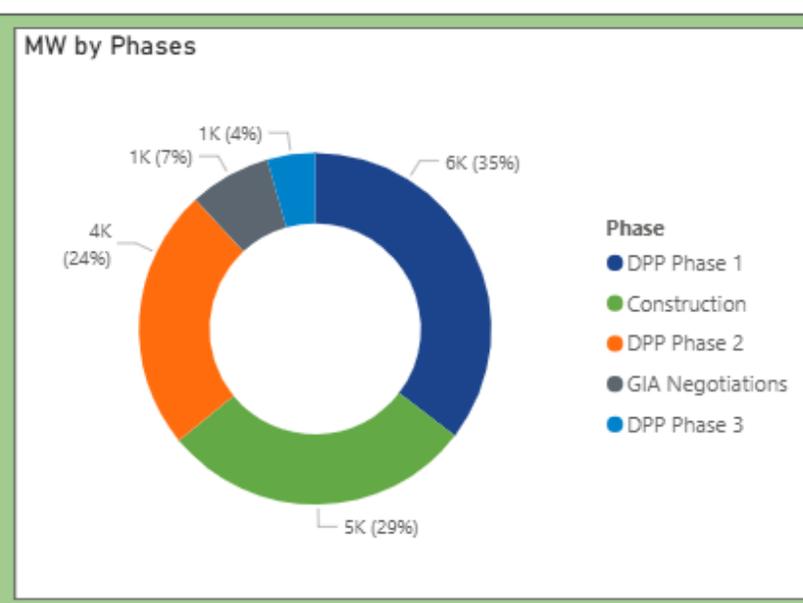
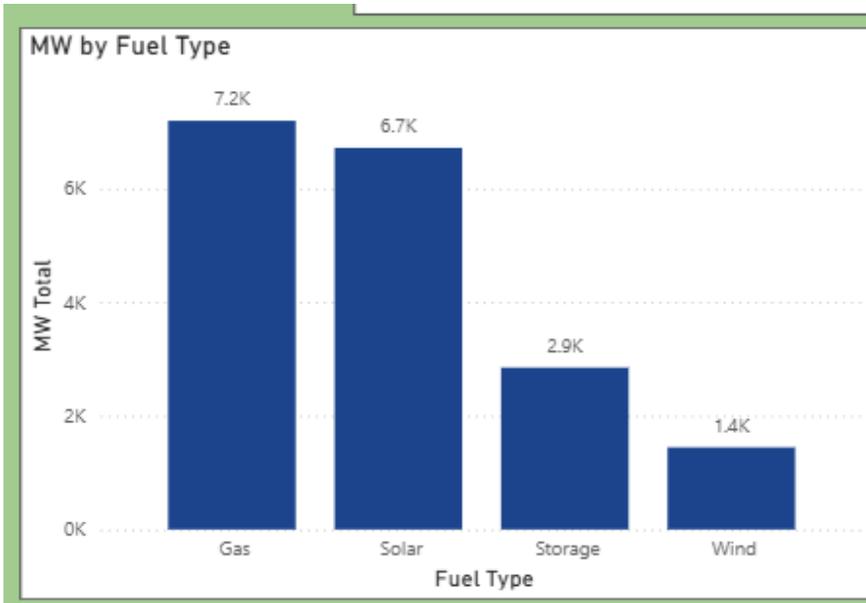
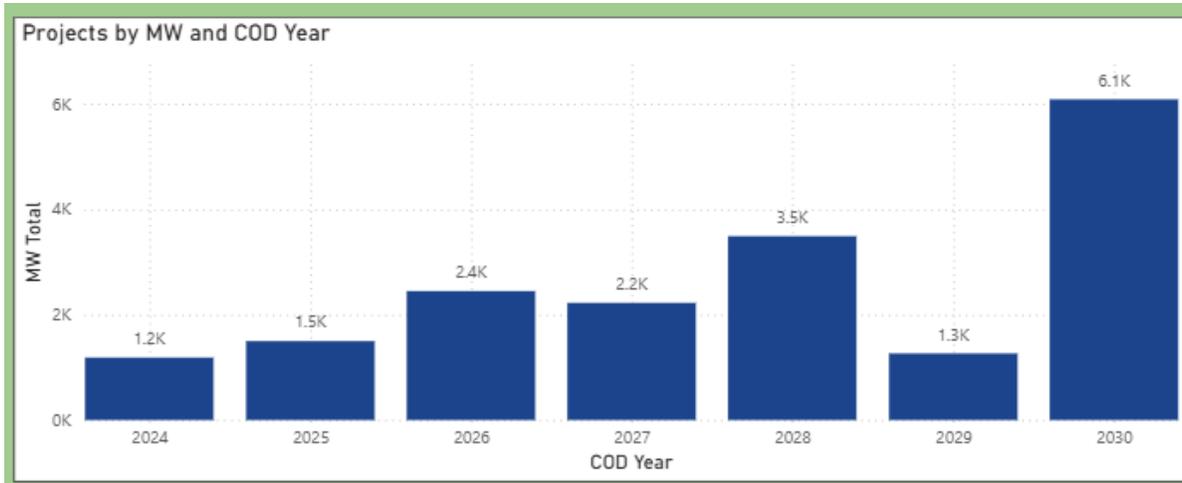
# MISO Generator Interconnection Process

- Generator application to MISO
- MISO Tariff dictates schedule and process
- Definitive Planning Process (DPP) - 3 phases
  - DPP1 – Preliminary system impact study
  - DPP2 – Revised system impact study and interconnection facility study
  - DPP3 – Final system impact study and network upgrade facility study
- Expedited Resource Addition Study (ERAS)
- Surplus Studies
- Replacement Studies
- Material Modifications (MM) Studies

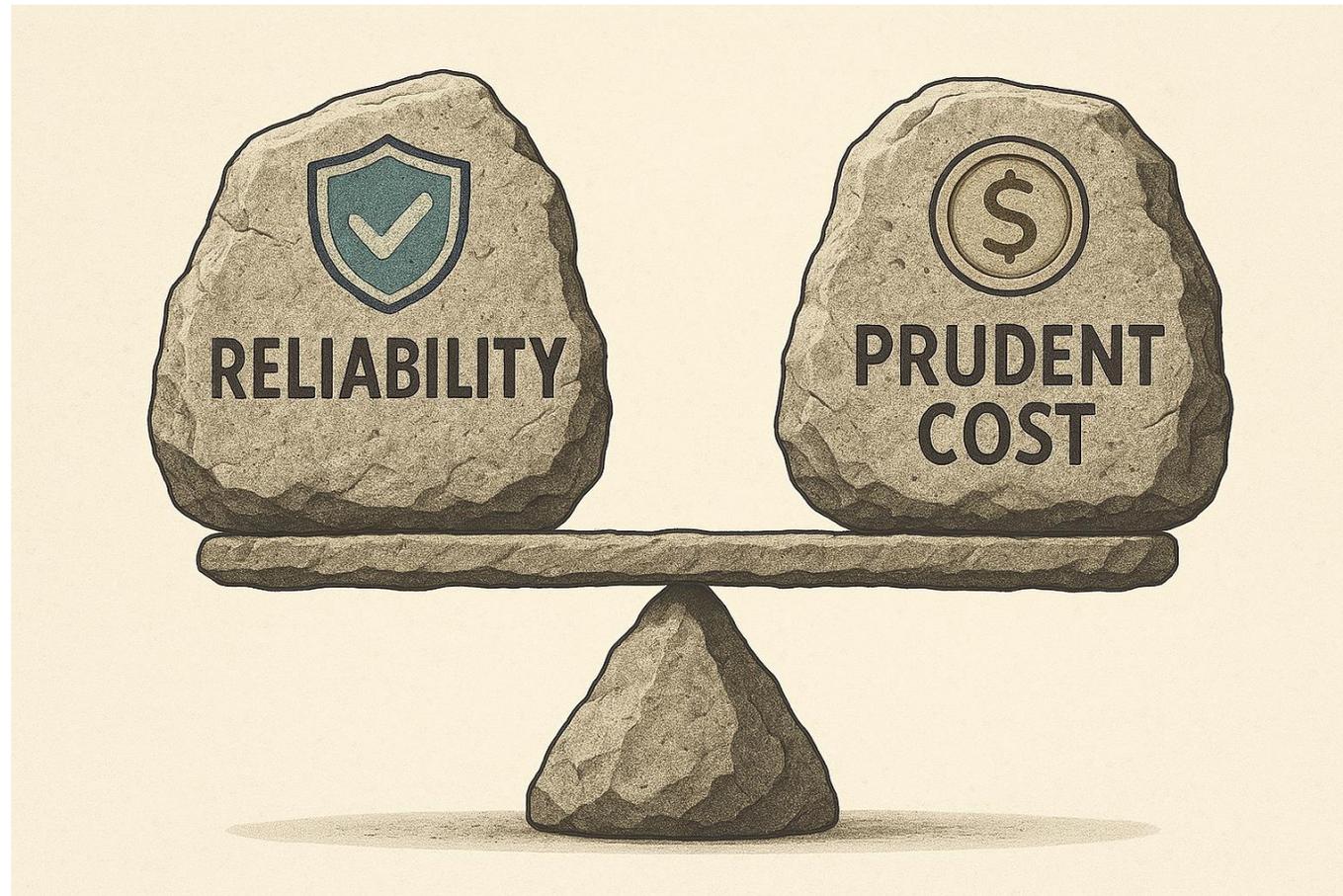
# MISO Generator Interconnection Process

- Facility Studies
  - Interconnection Customer Interconnection Facility Study (ICIFS)
  - Network Upgrades Facility Studies (NUFS)
- Generator Interconnection Agreement (GIA)
- Shared network upgrades – Multiparty Facility Construction Agreement(MPFCA)

# G-T Dashboard



# “ATC’s Asset Renewal strategy is about balancing Asset Risk and Costs”



# Asset Renewal Program Objectives



SAFETY – PUBLIC  
AND WORKER



MINIMIZE TOTAL  
LIFE CYCLE COST  
[NET PRESENT  
VALUE OF  
REVENUE  
REQUIREMENTS  
(NPV RR) FROM  
CUSTOMER  
COST/RATE  
PERSPECTIVE]



COMPLIANCE



MANAGE RISK



RELIABLE  
PERFORMANCE –  
MAINTAIN OR  
IMPROVEMENT

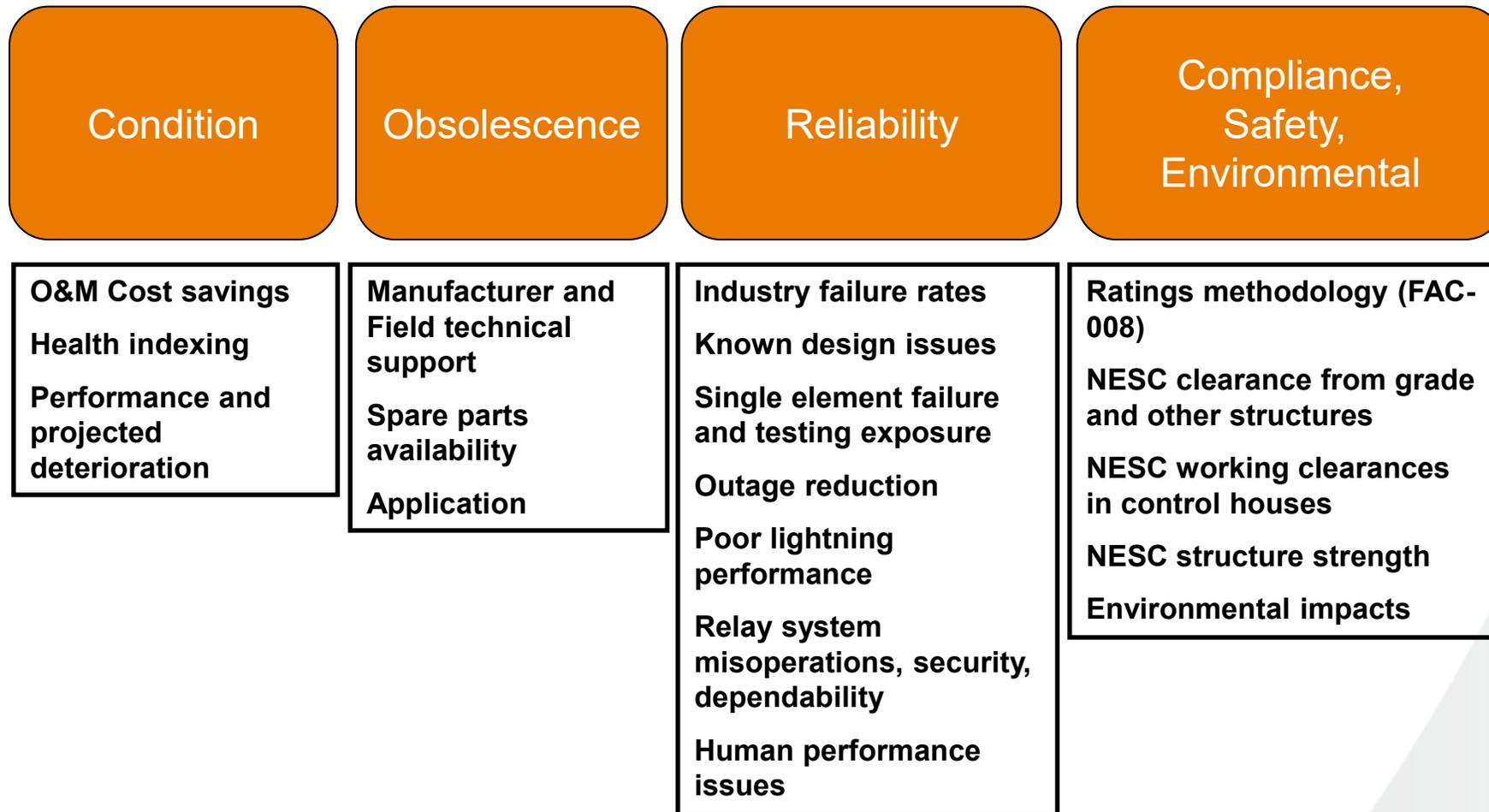


ENVIRONMENTAL  
PERFORMANCE  
IMPROVEMENTS

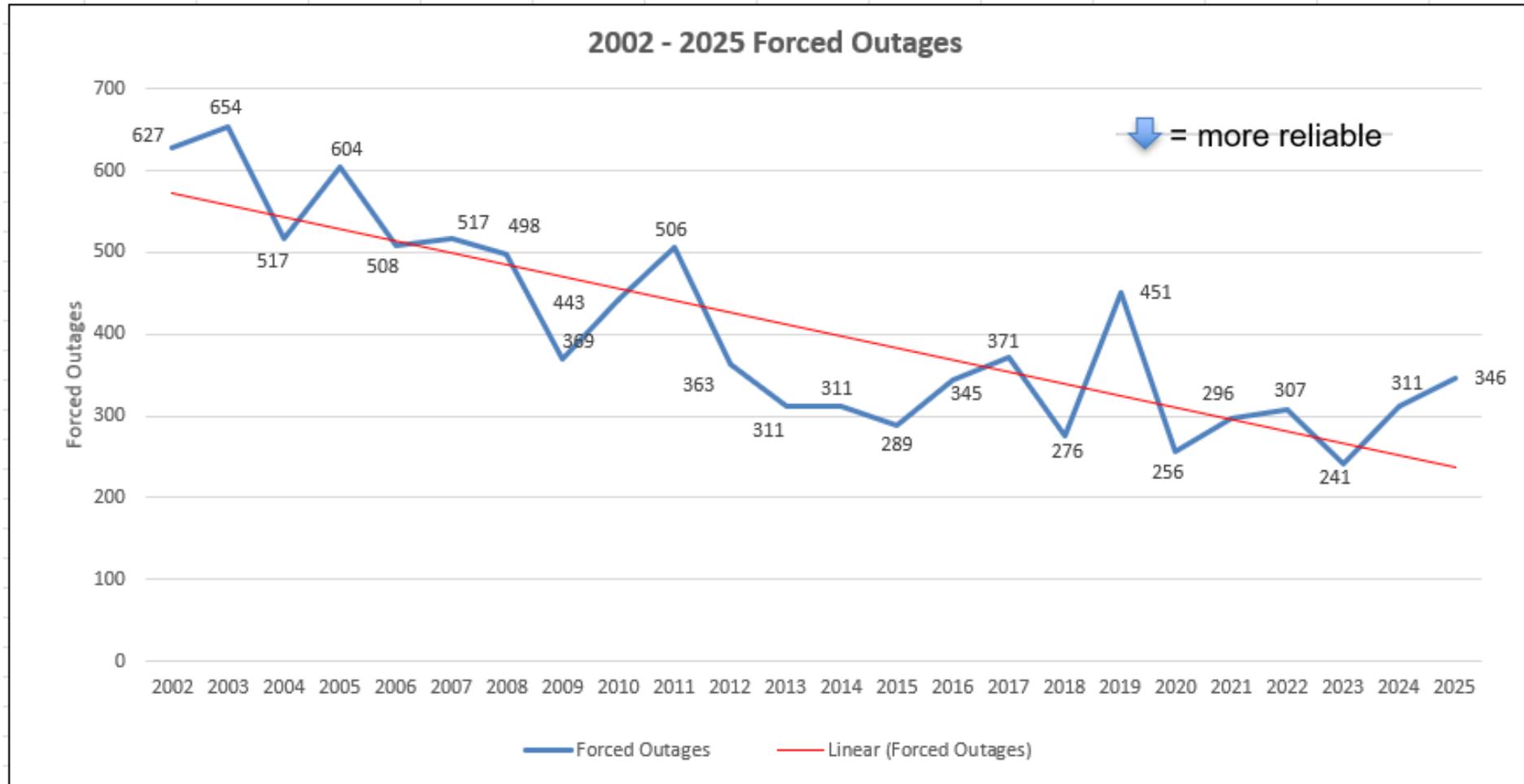


COORDINATION  
WITH  
STAKEHOLDERS

# Asset Renewal Program Considerations

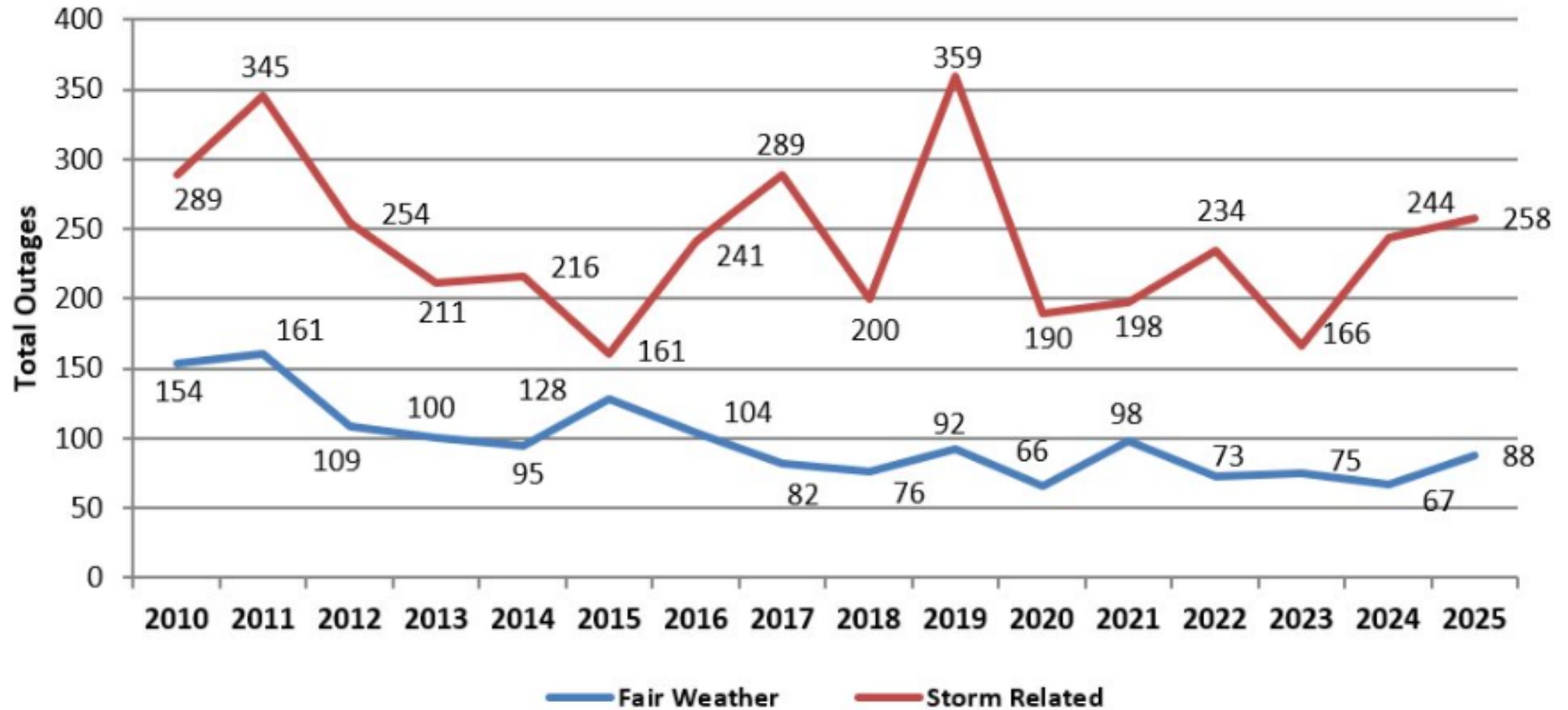


# What is the Value of Asset Renewal?



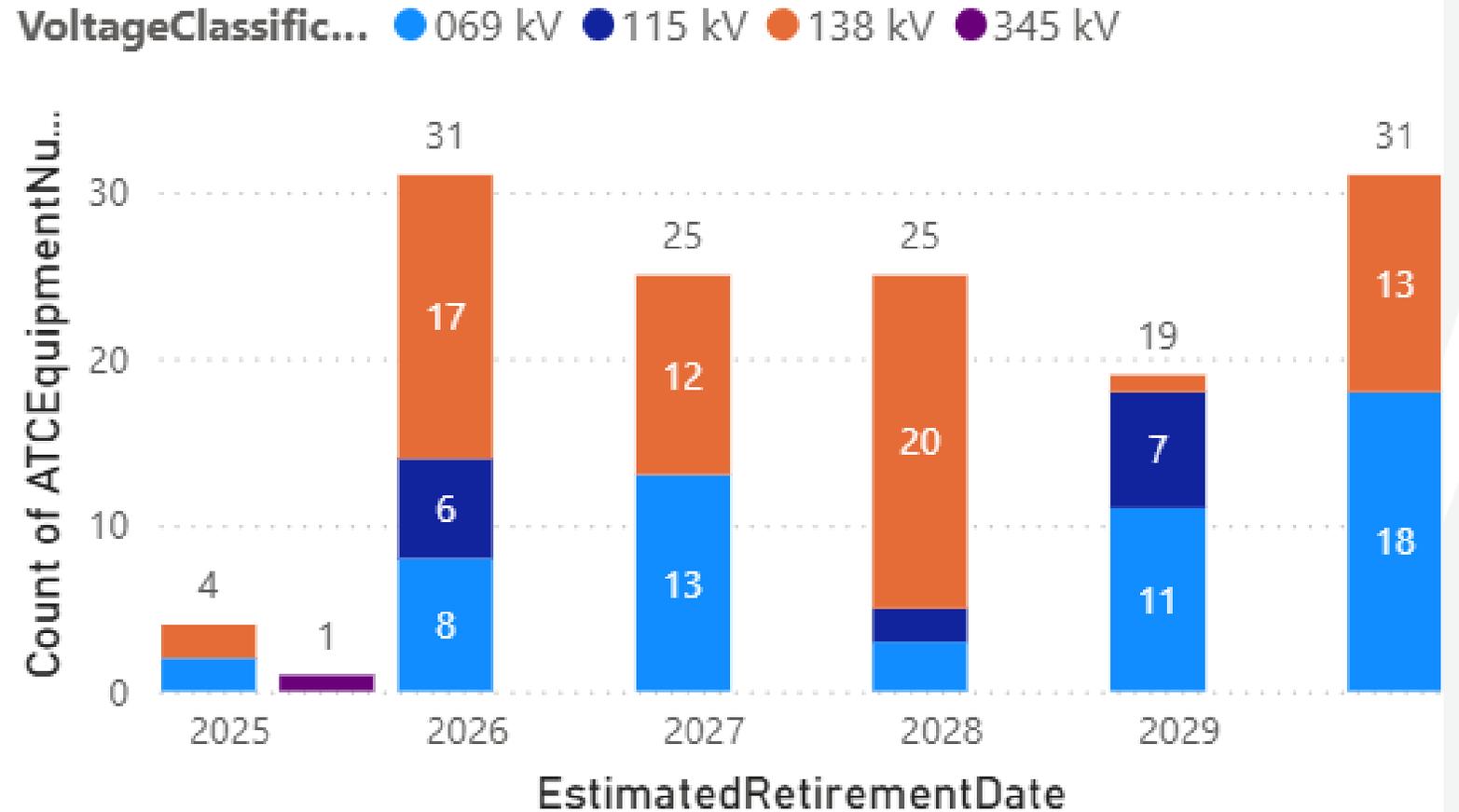
- One way to measure the value of the asset renewal program is the increased reliability by driving down forced outages.
- This trend has continued through the expansion of the transmission system and the addition of assets.

## 2010 - 2025 Fair Weather/Storm Outage Comparison

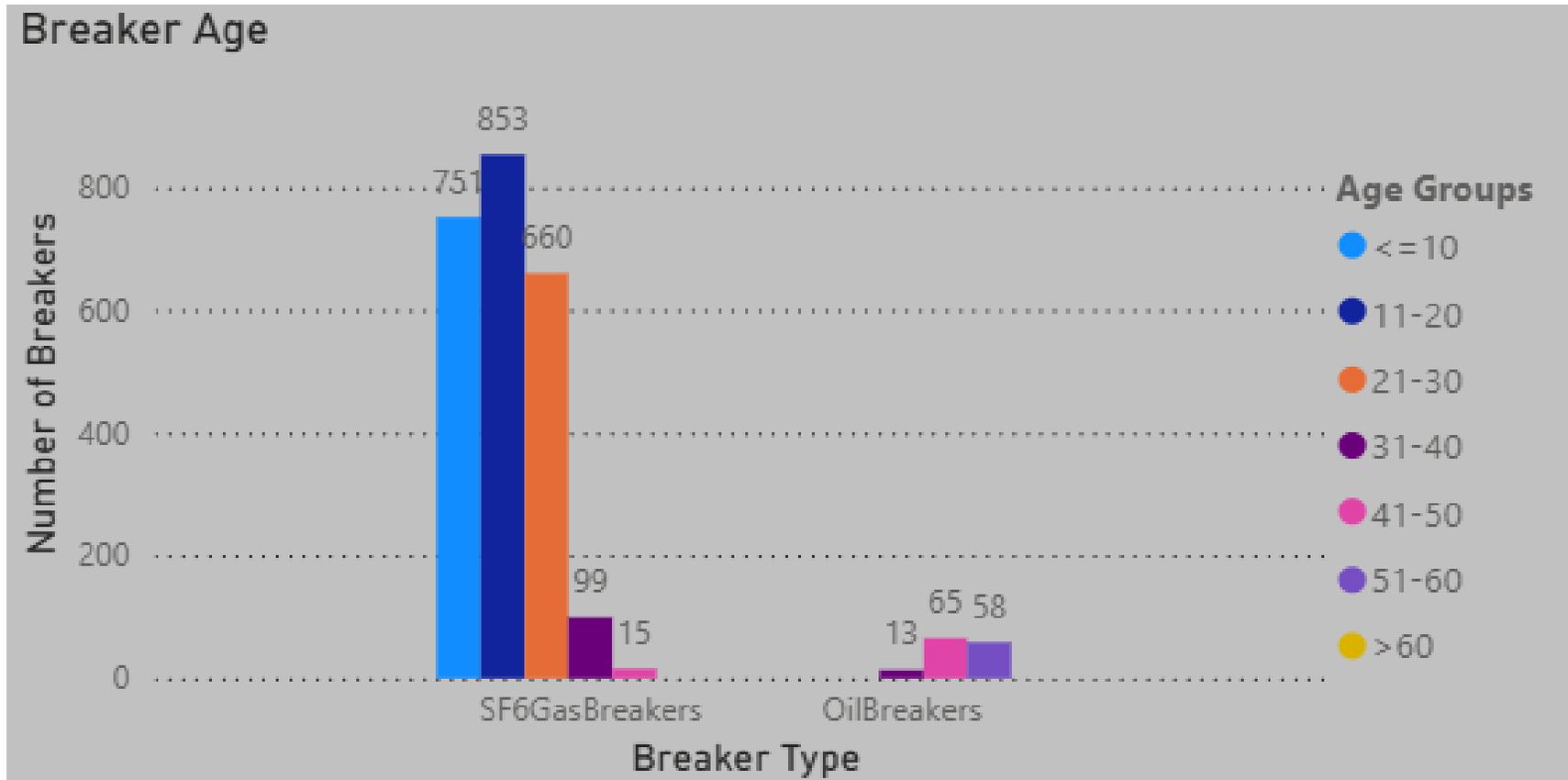


# Oil Circuit Breakers Replacement Program

- Approved in 2020, OCB program accelerates the replacement of remaining oil circuit breakers not included in past years programs. **136** breakers remain to be retired by 12/01/2029. 28 breakers were removed in 2025.



# Circuit Breakers Age Distribution 2025



## Number of Breakers in Fleet

<b>790</b>	<b>1474</b>	<b>246</b>	<b>2514</b>
69 kV	115/138/161 kV	230/345 kV	Total

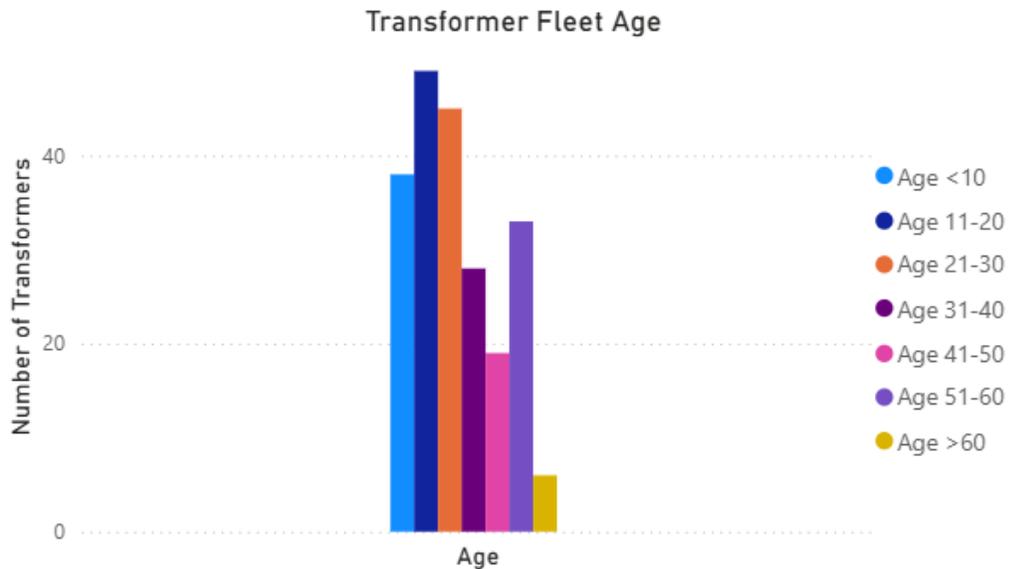
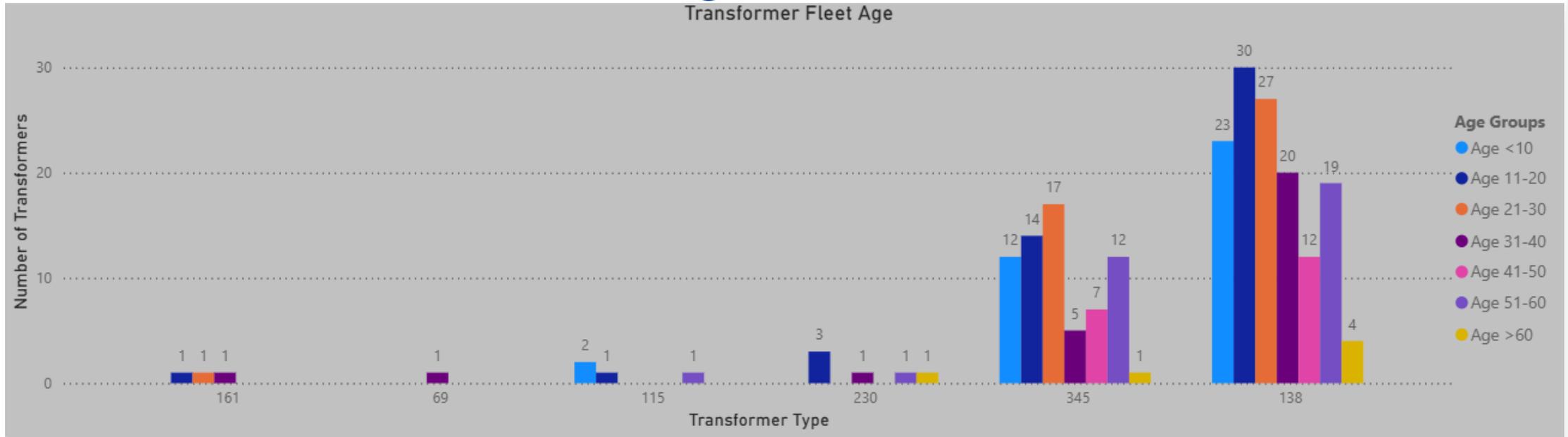
# Power Transformer Asset Renewal

*“Three-Legged Stool Analogy”*

1. Transformer Health Index
2. Probability of Failure
3. Corporate Risk



# Transformer Age Distribution 2025



Age <10	Age 11-20	Age 21-30	Age 31-40	Age 41-50	Age 51-60	Age >60
38	49	45	28	19	33	6

**Number of Power Transformers in Fleet**

1	142	74	217
69kV	161-115kV	345-230kV	Total

Includes Spare Transformers

# Femrite Transformer – Life Extension Project

- Femrite 138/69kV Transformer
  - 1989 vintage 187MVA with model vacuum load tap changer (LTC)
  - Transformers and LTCs are generally expected to be in service for 60 years
- Existing model issues:
  - Parts and service are no longer available
  - service issues with the control and LTC protection
- Solution: Replace model with new LTC
  - Quick payback, (<2 Yr NPVRR break even)
  - Minimal project risk
  - Work completed for summer 2024
  - Transformer is expected to be in service for an additional 20+ years

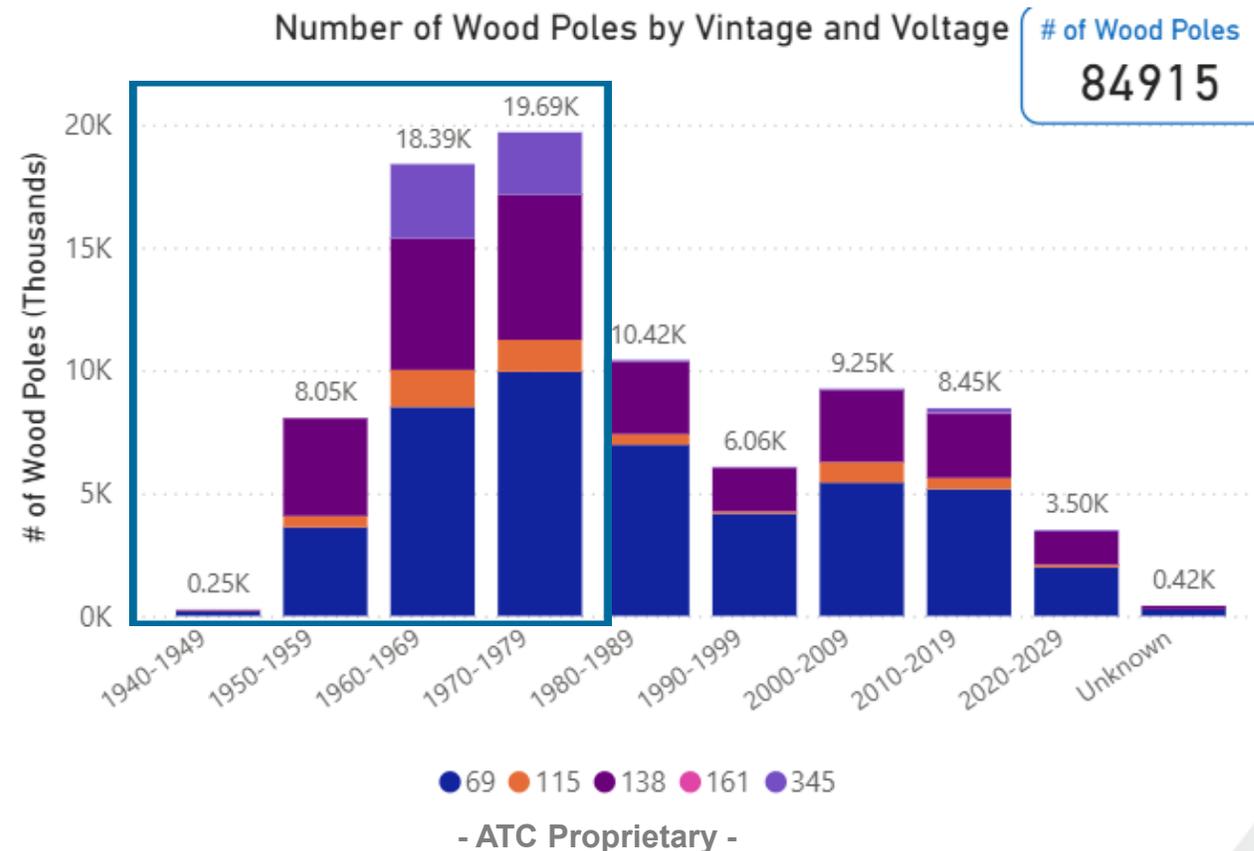
Before LTC Replacement



After LTC Replacement

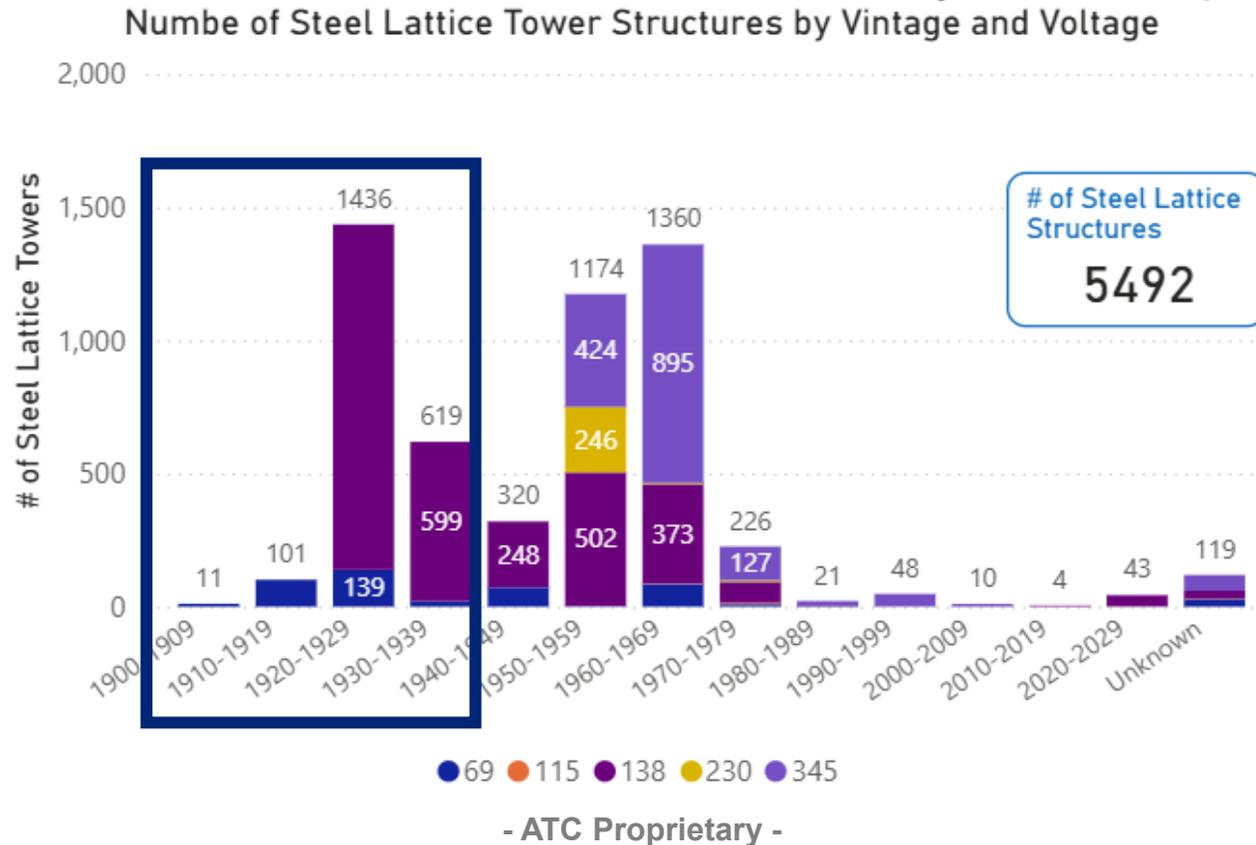
# Overhead Transmission Lines – Wood Pole Lines 20-year Outlook

- Objective is to manage condition and preserve reliability and safety as these assets reach end of life.
- Pre-1980 vintage wood poles are likely to be replaced in the next 20 - 25 years.



# Overhead Transmission Lines – Steel Lattice Lines – Preliminary 20-year Outlook

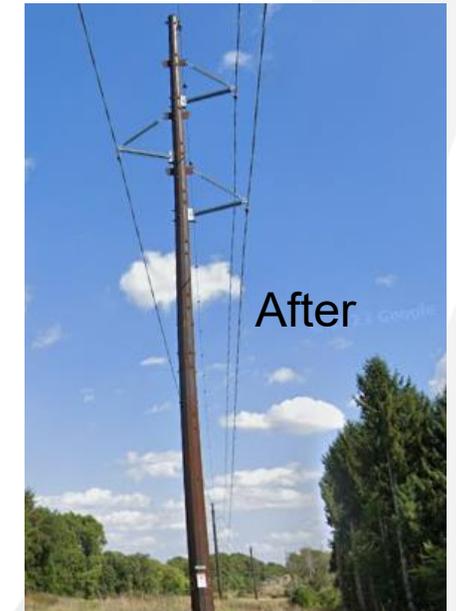
- Objective is to manage condition and preserve reliability and safety as these pre-1940's assets reach end of life.
- Pre-1940 vintage lattice tower structures are likely to be replaced in the next 20 - 25 years.



# Asset Renewal T-line Needs

## Example of Successful Project

- Stoughton - Sheepskin 69 kV (Y-12), Rebuild
  - Project Background
    - ◆ Approximately 7 miles of rebuild
  - Past Needs
    - ◆ Condition and Performance Issues
    - ◆ Replace 1910-1920's vintage lattice structures, below grade corrosion and design spacing issues.
    - ◆ Outages: Was One of the most frequently outage ATC lines
      - ✓ On average about 3 outages per year
      - ✓ Need to update to avian friendly design
      - ✓ Improved lightning performance
  - Current status
    - ◆ Project went in-service Spring 2021
    - ◆ 0 forced outages since the new design went into service



# Assessment Status

- Next Steps

- Needs comments – due March 31, 2026
- Finalize needs – Early April
- Preliminary solutions meeting/presentation – May 18, 2026
- Finish sensitivity studies – May
- Develop new or revised scope and cost estimates – June
- ATC internal review/approval – August
- 2025 Assessment publication – November 16, 2026

# Contacts

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Q&A

