



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

Transmission Update

Brett French, External Affairs Manager

U.P. Energy Summit
September 30, 2015

Providing Value to our Customers

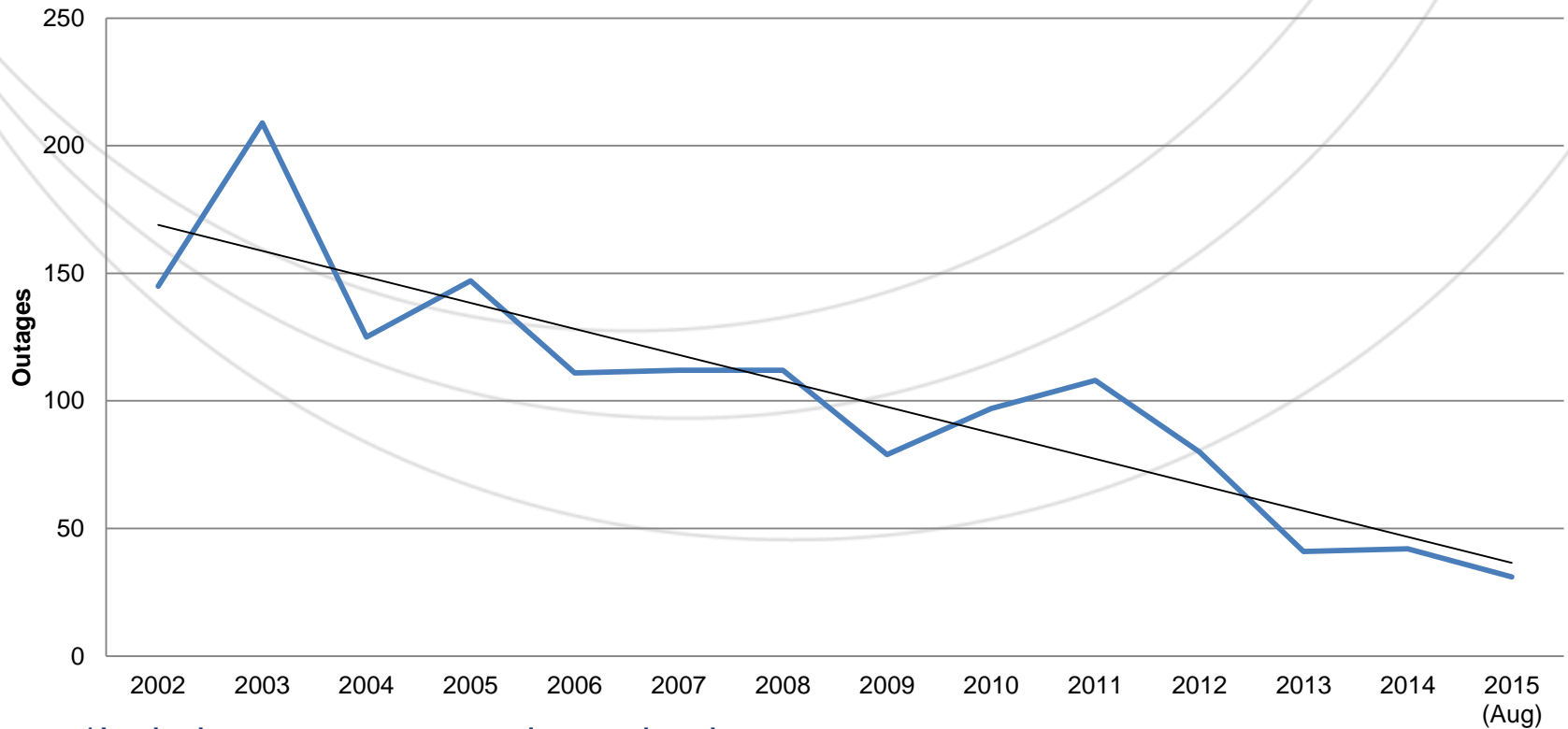
- ATC provides reliable transmission infrastructure that enables our customers to meet the needs of more than 5 million industrial, commercial and residential consumers of electricity
 - ATC is an enabler, facilitator and “go-to” energy partner
- It doesn't matter if you're a large IOU; a small Co-op or Muni; an Independent Power Producer; or an Alternative Electric Supplier, you'll be treated comparably by ATC

Noteworthy Numbers

- ATC has made considerable investments in Michigan and northern Wisconsin since 2001 to improve reliability and increase import capacity into the Upper Peninsula
- Import Capacity into the U.P. has tripled
 - 2001: ~200 MWs at system peak
 - 2015: ~600 MWs at system peak
- CapEx (2001 – 2015)
 - System-wide: ~\$4.23B (estimated)
 - Michigan: ~\$738M (estimated)
- 2015 Revenue Requirement of ~\$634M
 - Wisconsin: ~\$515M (81.2%)
 - Michigan: ~\$59M (9.3%)
 - Other States: ~\$60M (9.5%)

Improvements in Reliability

Total Outages for ATC's Planning Zone 2

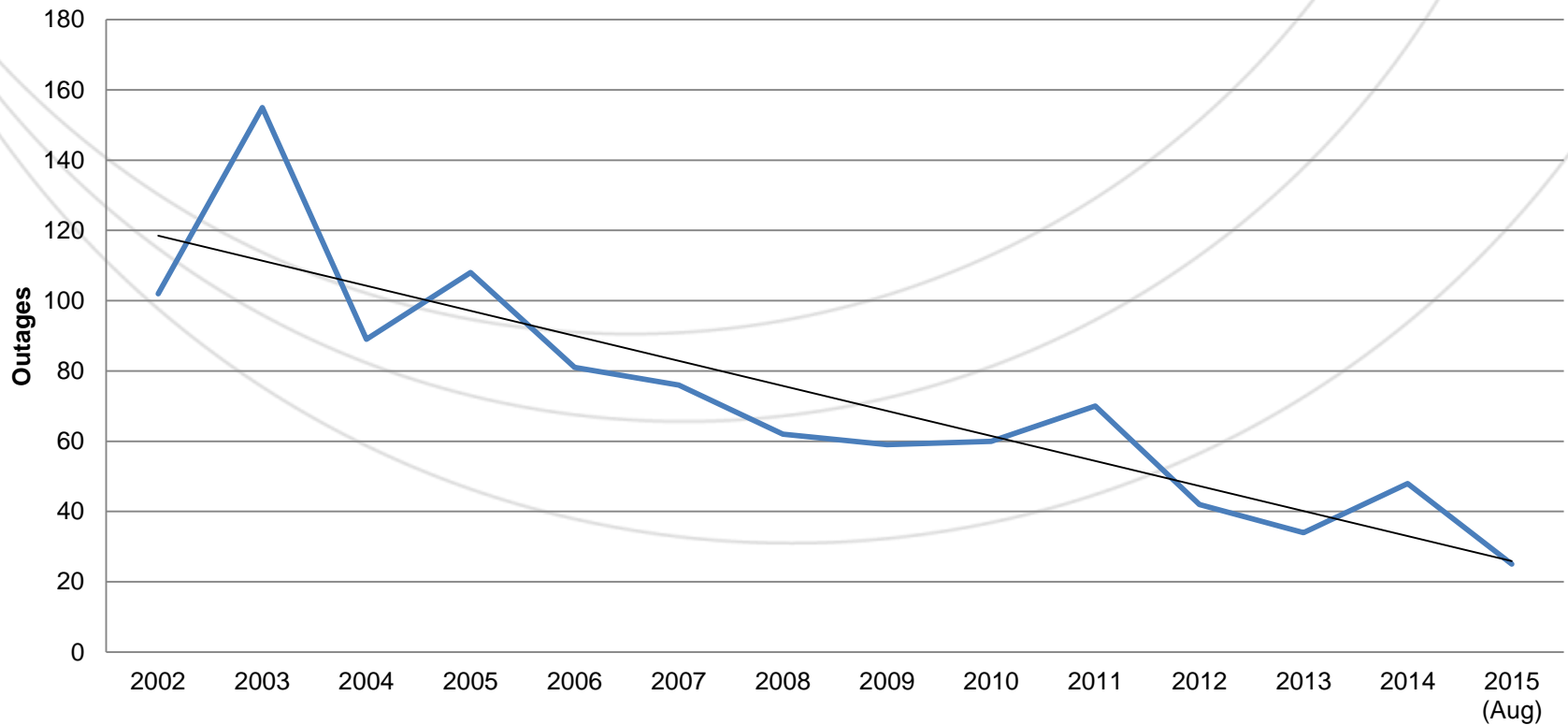


*Includes momentary and sustained



Improvements in Reliability

Total Sustained Outages for ATC's Planning Zone 2

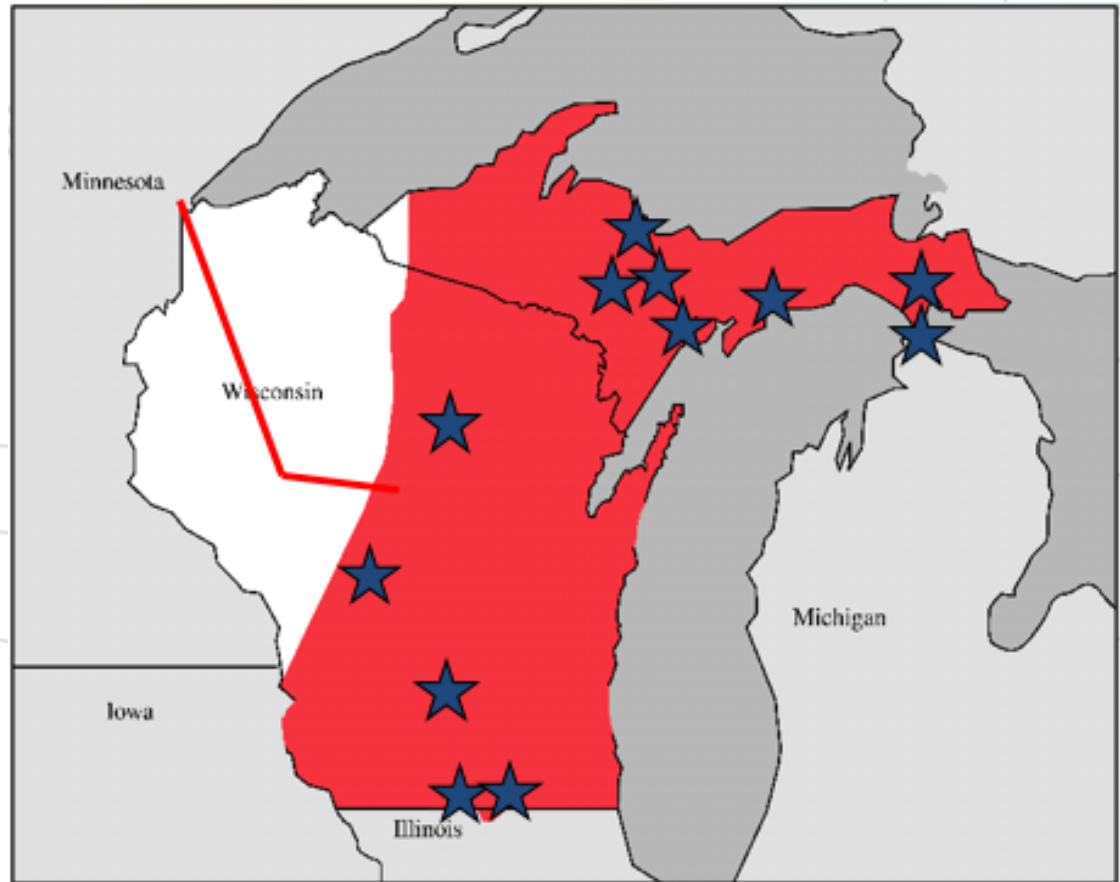


*A sustained outage is ≥ 1 minute



Economic Benefits of Reliability Projects

- Certain “Reliability Projects” also provide “economic value” to ratepayers
- Ratepayers saved ~\$3.5M during 2014 due to reduced energy costs and losses
- ~25% of the project costs are offset by economic benefits (forecasted at the 2014 level)



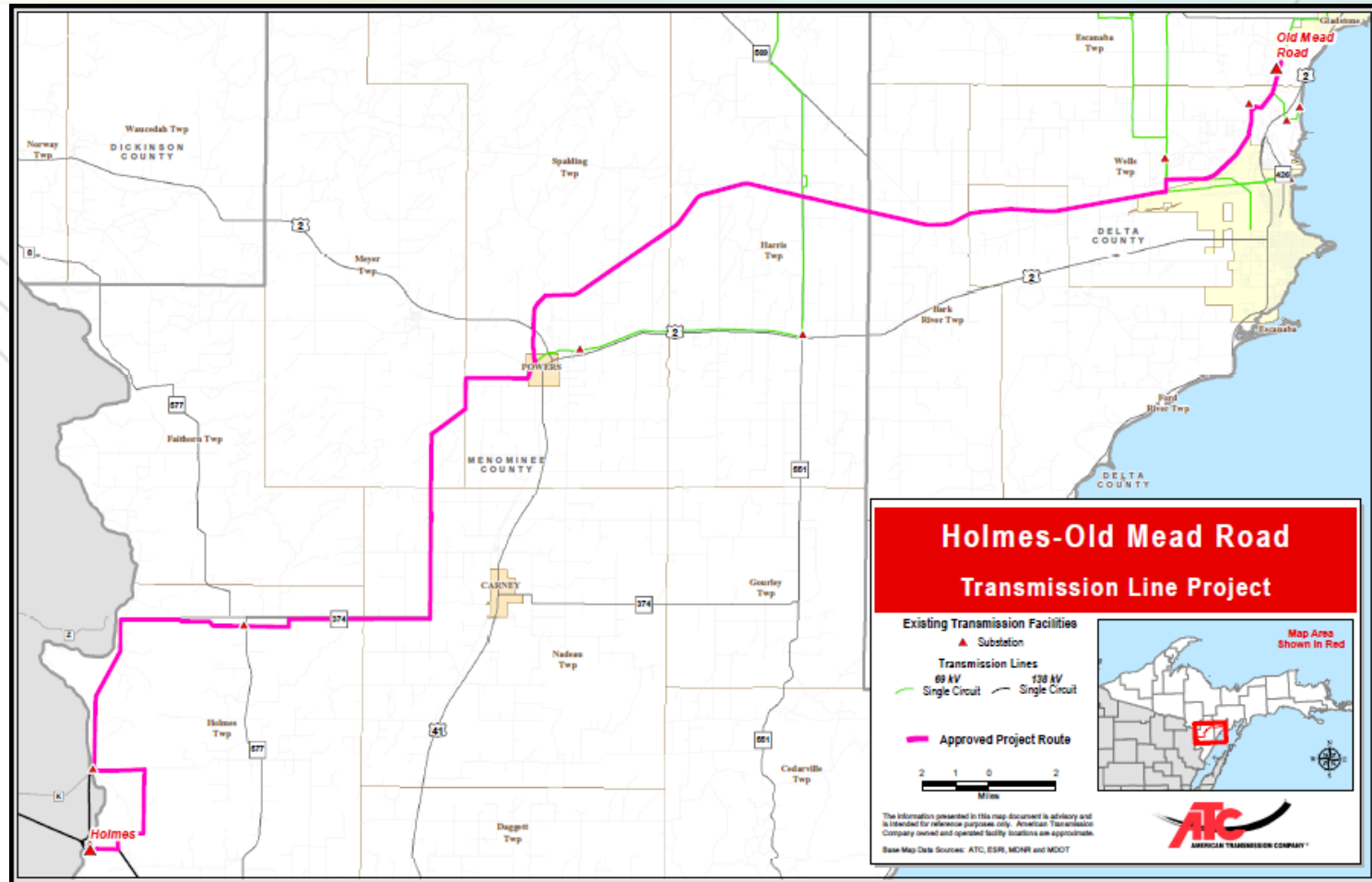
Project Updates

- **Holmes – Old Mead Road 138-kV line**
 - Approved by the MPSC: January 2014
 - Permit and ROW procurement completed
 - Construction began: Fall 2014
 - Targeted in-service: Summer 2016

PROJECT AT A GLANCE

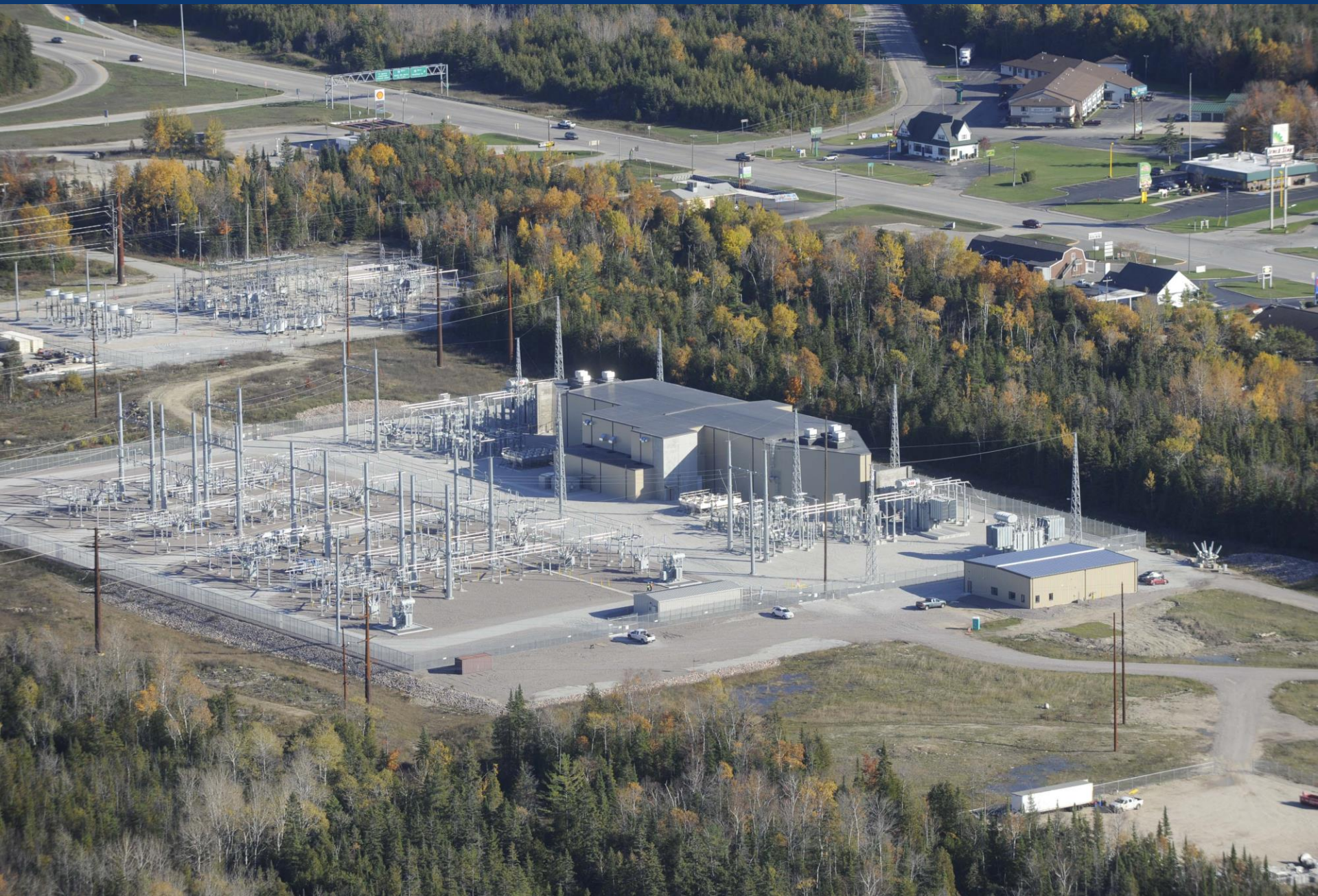
Areas that benefit:	Upper Peninsula of Michigan
Counties where facilities may be located:	Delta and Menominee
Line length:	58 miles
Voltage:	138-kV
Estimated project cost:	\$120 million
End points:	Holmes Substation in Menominee County, Mich., to Old Mead Road Substation in Escanaba, Mich.
*estimates will be refined as project design becomes more detailed	

Holmes – Old Mead Road Route



Project Updates

- **HVDC Voltage Source Converter (VSC) at Straits**
 - Placed in-service: August 2014
 - Increased reliability for Michigan's ratepayers
 - Enhances the performance of MISO's Energy Market
 - Increases the potential to move energy between Michigan's Upper and Lower Peninsulas



Project Updates

- North Appleton – Morgan 345-kV/138-kV lines and Benson Lake Static VAR Compensator
 - Approved by the PSCW: May 2015
 - Permitting and ROW procurement to begin: Late-2015
 - Construction to begin: Mid-2016
 - Targeted in-service: Mid-2019
 - Estimated cost: \$327M

North Appleton-Morgan at a glance

Voltage: 345 kV and 138 kV

Length: About 45 miles

Estimated cost: \$327 million

Southern end point: North Appleton Substation, French Road, Town of Freedom, Outagamie County

Northern end point: Morgan Substation, CCC Road, Town of Morgan Oconto County

Typical pole type: Side-by-side single-circuit steel monopoles

Typical pole height: 85 feet for 138 kV and 120 feet for 345 kV

Typical span length: Between 600 and 800 feet

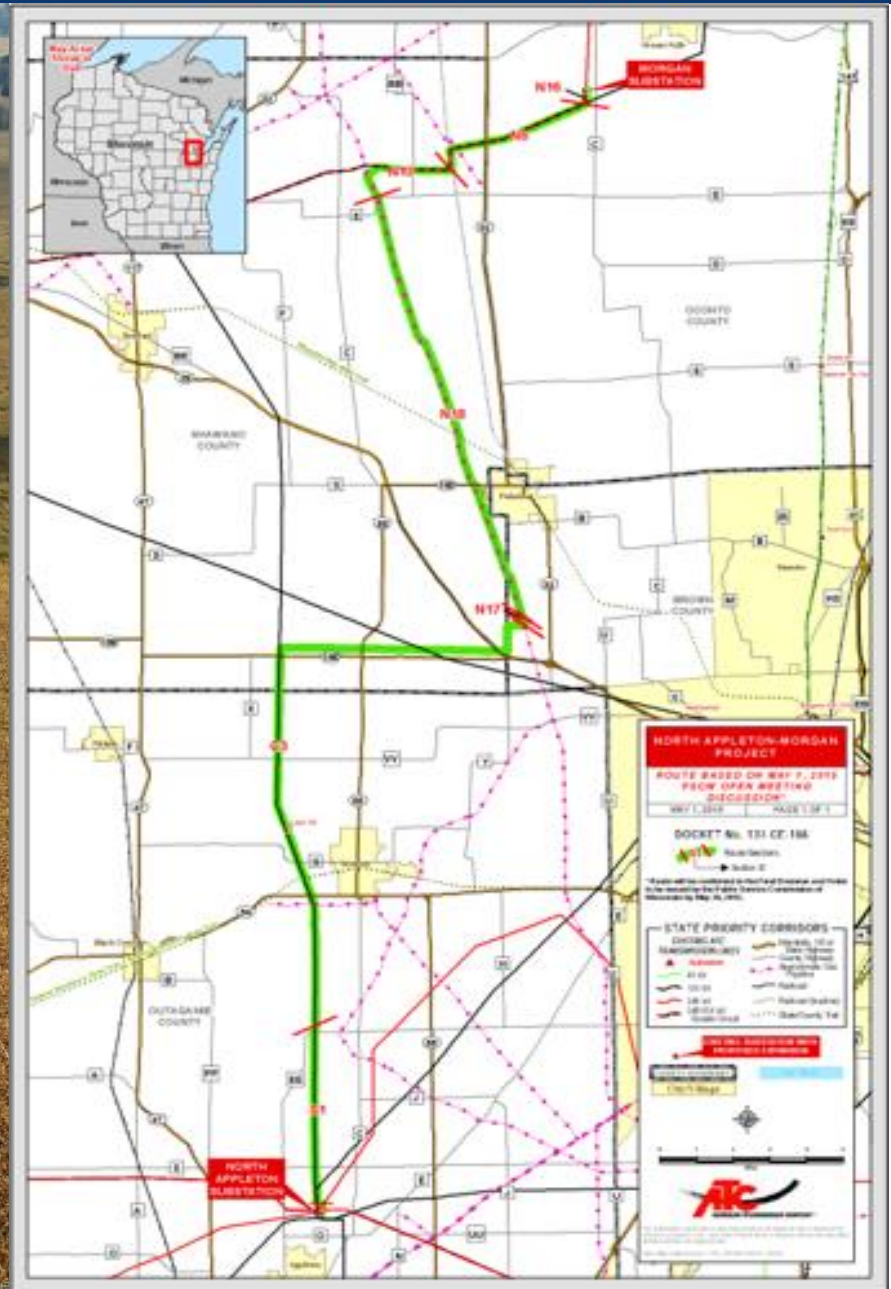
Project schedule

Property owner notifications June 2015

Begin easement negotiations..... Late 2015

Start construction July 2016

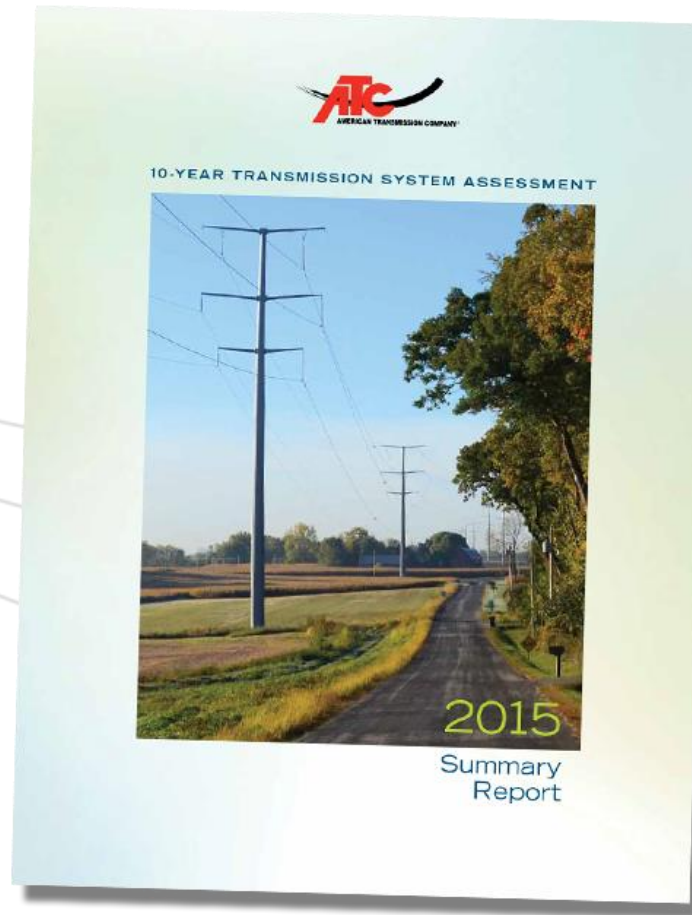
In-service date..... Second quarter 2019



ATC's System Planning

- ATC plans its system in an open, transparent, stakeholder driven process that meets federal requirements
 - Governed by FERC under Order 890, Order 1000, the provisions of MISO's Tariff and Attachment FF-ATCLLC
 - Meets the NERC TPL-001-4 Transmission System Planning Performance Requirements
 - Relies upon the forecasts and resource projections of our customers and stakeholders
 - Closely scrutinized to vet and validate the “needs” and transmission solutions being proposed by ATC
 - Predicated on our philosophy of delivering the “Best Value Plan”

ATC's Ten Year Assessment



Northern Area Reliability Assessment

- Develop and evaluate transmission solutions that maintain compliance with NERC reliability standards if:
 - Presque Isle Units 5-9 are retired
 - Replacement generation is not developed
- Accomplished via extensive stakeholder engagement
 - “Least-regrets” transmission projects submitted to MISO for evaluation under MTEP15
- Compliments and supports MISO’s Regional Planning Process

NARA Major Modeling Assumptions

Expected Scenario (2023 Peak & Off-peak Models)

- **Generation assumptions**
 - Presque Isle – Units 5-9 retired
 - Escanaba – All units off-line
 - White Pine – All units off-line
 - West Marinette – All units off-line
 - Pulliam – Units 5 and 6 off-line
- **Load assumptions**
 - Empire Mine load not included
 - Marquette BLP load not included
- **Mitigation options**
 - Mackinac HVDC Flow Control
 - West Marinette generation

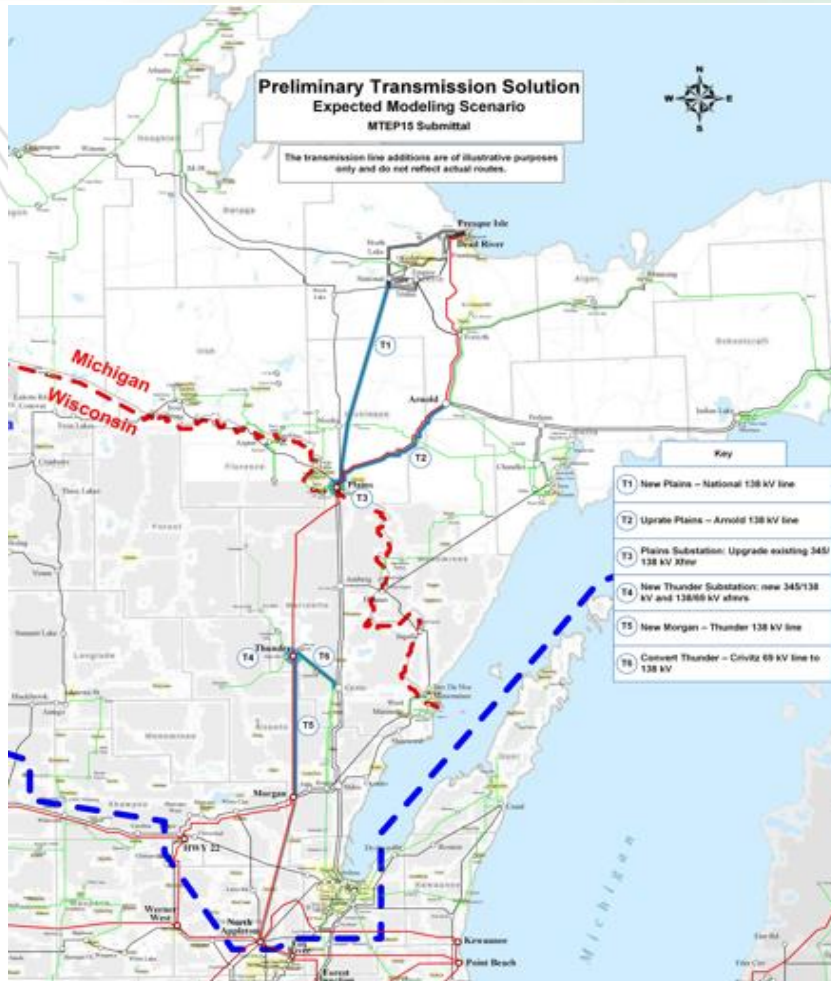
NARA Results

NERC TPL-001-4 Requirements

- **P0: System Intact**
 - No limitations observed
- **P1: Single Contingencies**
 - 3 overloads
 - 2 voltage issues
- **P1: Prior Maintenance + Single Contingencies (off-peak only)**
 - 17 overloads
 - 7 voltage issues
- **P2: Single Contingencies**
 - 6 (EHV) and 4 (HV) overloads
- **P3: Generator + Single Contingencies**
 - 2 overloads
- **P6: Multiple Contingency (two overlapping singles)**
 - 8 overloads
 - 7 voltage issues
- **P7: Multiple Contingency (common structure)**
 - 1 overload
 - 1 voltage issue

NARA Projects

MTEP 15



- Based on the “Expected” modeling assumptions
- CapEx estimated at ~\$250M
- 2020 in-service dates will be extremely challenging to achieve

Next Steps

- **Plains – National 138-kV line**
 - Under review as an MTEP 15 Appendix A target
 - MISO Board approval anticipated in December 2015
 - Initiate routing & siting and CPCN development, as necessary, to support the retirement of PIPP
- **J394 Generation Project (280 MWs)**
 - System Impact and Facilities Studies are underway to evaluate impact on the transmission system via MISO’s Definitive Planning Phase (DPP) of the Generation Interconnection Process
- **Advance other NARA transmission projects as “Appendix A” targets under MISO’s MTEP process, as necessary, to permit the retirement of PIPP**

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