ATC Zone 2 Projects Update
U.P. Energy Summit

Brett French
Regional Manager of External Relations – Michigan
October 16, 2012

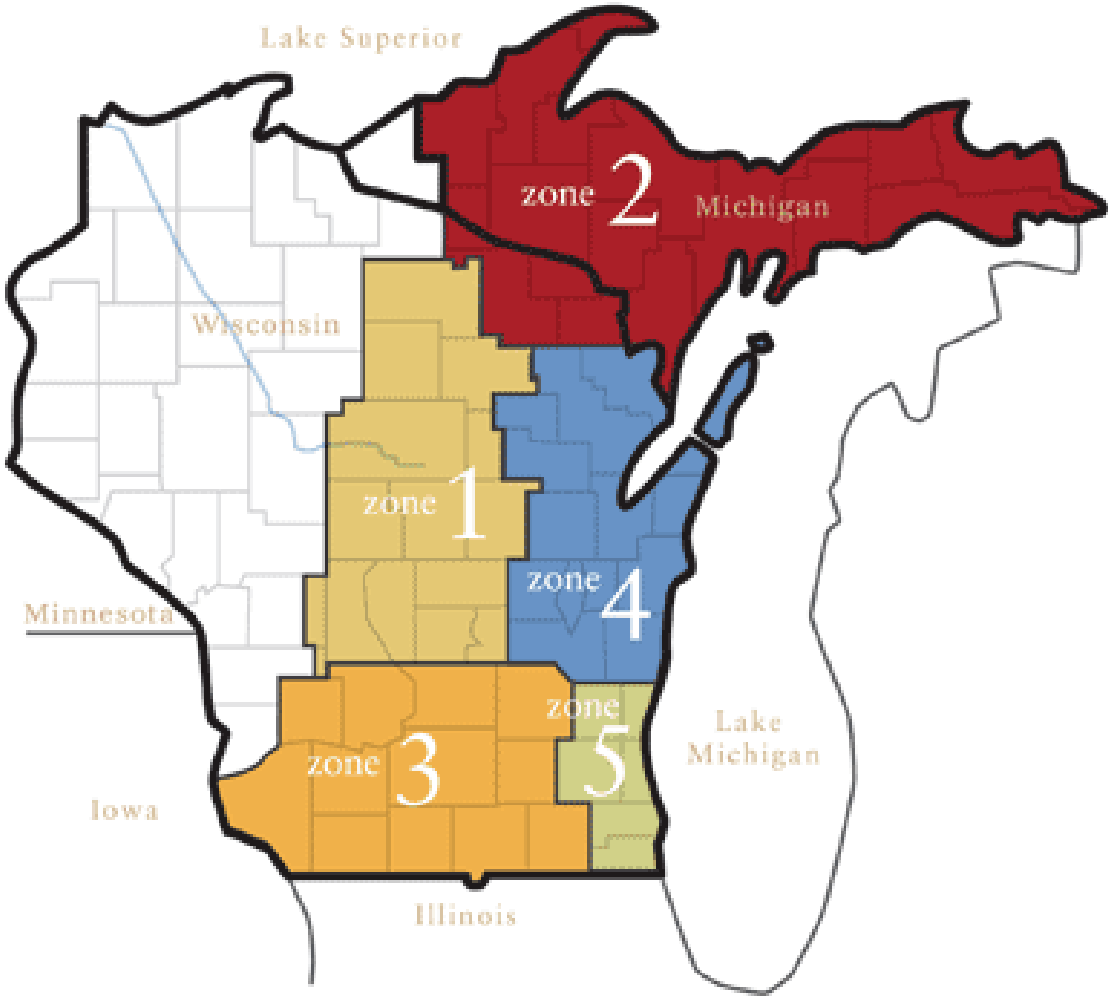
Helping to **keep the lights on**,
businesses running and communities strong®

AMERICAN TRANSMISSION COMPANY®

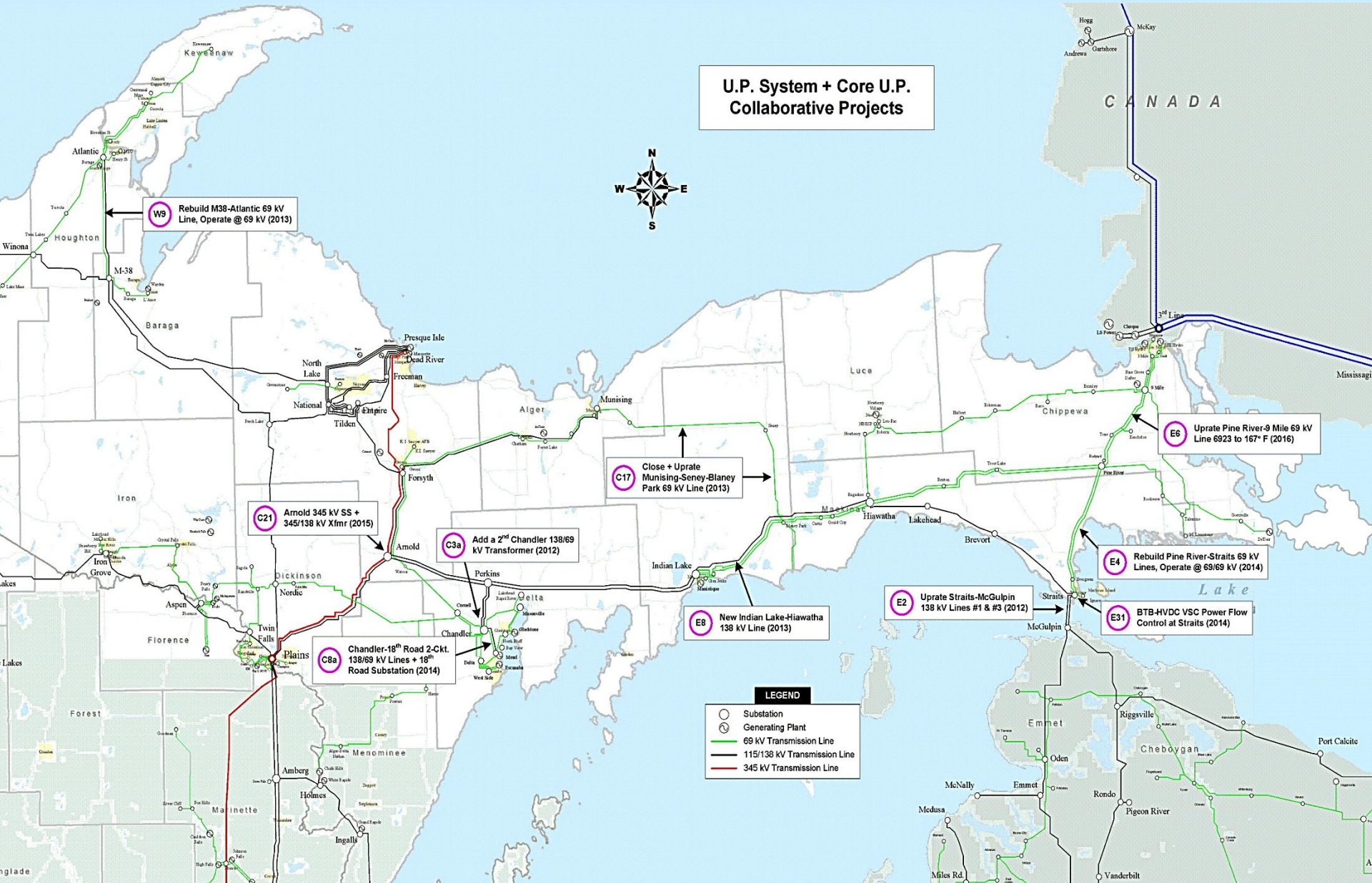
Project Updates

- U.P. Energy Collaborative “Core” Projects
  - HVDC Flow Control
  - Straits – Pine River Rebuild
  - Delta Substation Upgrades
  - Chandler Substation Expansion
  - Chandler – Old Mead Road
  - Arnold Substation Expansion
  - Atlantic – M38 Rebuild
- Bay Lake
  - Green Bay – Morgan (Project Area 1)
  - 138-kV Static Var Compensator (Project Area 2)
  - Holmes – Old Mead Road (Project Area 4)

ATC Planning Zones



Map of U.P. Collaborative "Core" Projects



HVDC Flow-Control

- Installation of high-voltage, direct-current (HVDC) flow control equipment and related upgrades at the Straits substation
- Necessary to manage overloads that are created by unmitigated “Loop Flows”
- MISO Board approval June 2011
- Construction started Q2 2012
- Targeted in-service date of Q3 2014
- Estimated at $131 million


D400E


GROVE

Straits-Pine River

- Rebuild 25 miles of double-circuit 69-kV transmission line between Straits and Pine River substations
- Long-term solution to enhance reliability in the area and increase capacity
- Provides greater operational flexibility, reduces system losses and reduces the overall cost of operation and maintenance
- Construction began Q3 of 2012
- Targeted in-service date of Q1 2014
- Cost estimated at $36.1 million


635


DO NOT WALK UNDER CHUTE

Delta County Area

- Emergent need for additional transmission in the Delta County area exists today
  - Obligation to serve Network Load
  - Existing assets are frequently overloaded and subject to voltage collapse
  - Existing assets are so critical that it is difficult to schedule routine maintenance outages

Chandler-Old Mead Road

- New 138/69-kV “Old Mead Road” substation near the NewPage Mill
- 6 miles of new 138/69-kV line between Chandler and “Old Mead Road” substations
- Route development completed Q4 2011
- Easements being negotiated through Q1 2013
- Construction slated to begin Q3 2013
  - **contingent upon procurement of land rights**
- Targeted in-service date of Q3 2014
  - **contingent upon procurement of land rights**
- Estimated at $25 million

Chandler Substation

- Installation of second 138/69-kV transformer
- Expanded 138-kV and 69-kV capabilities
- Improves reliability, provides increased flexibility for *Real Time* operations and scheduling of routine maintenance
- Placed in-service Q2 2012
- Estimated at $9.3 million


JLG
11.02.2011


AZCO
AZCO
AZCO
AZCO

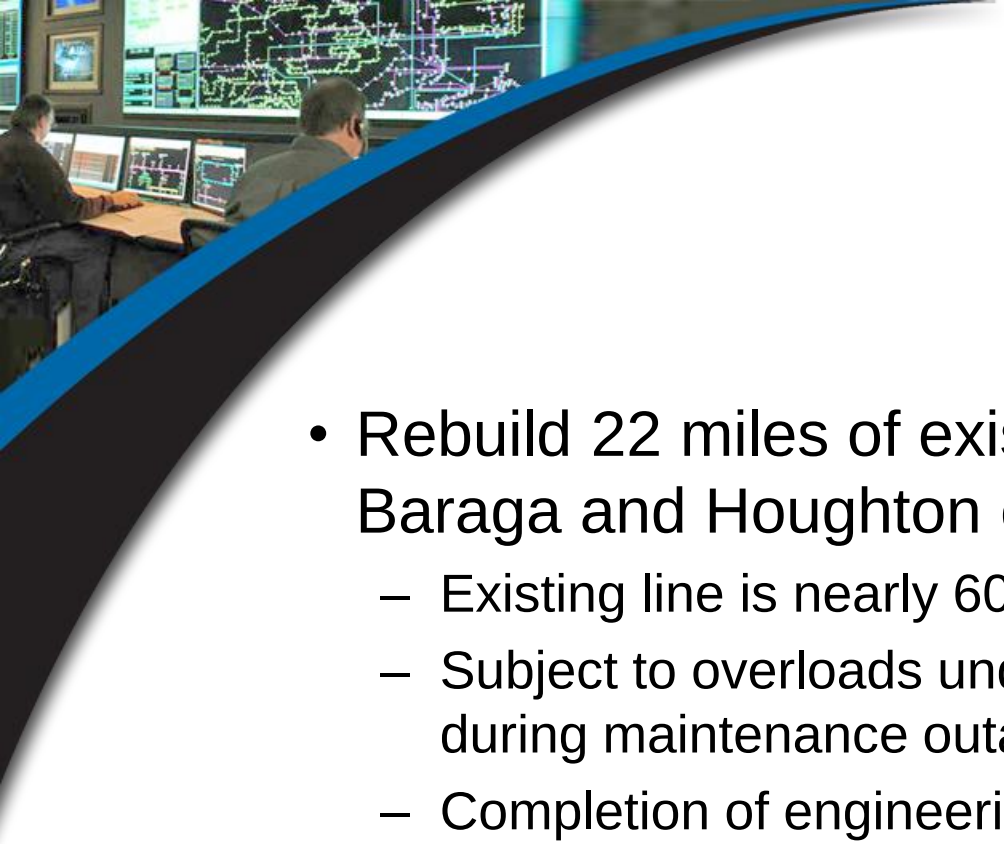

SAFCO
04.01.2012

Delta Substation

- Addition of a 69-kV bus circuit breaker
- Replacement of aging equipment
- Resolves reliability issues and improves overall operational flexibility in the region
- Placed in-service Q2 2012
- Estimated at $2.5 million

Arnold Substation

- Addition of a 345/138-kV transformer and related upgrades
- Provides an additional source in to Delta County
- Improves voltage profiles
- Increases operational flexibility
- Increases ability to schedule maintenance
- Requires HVDC at the Straits to manage increased west to east flows
- Targeted completion date of Q2 2015
- Estimated at $23.4 million



Atlantic-M38

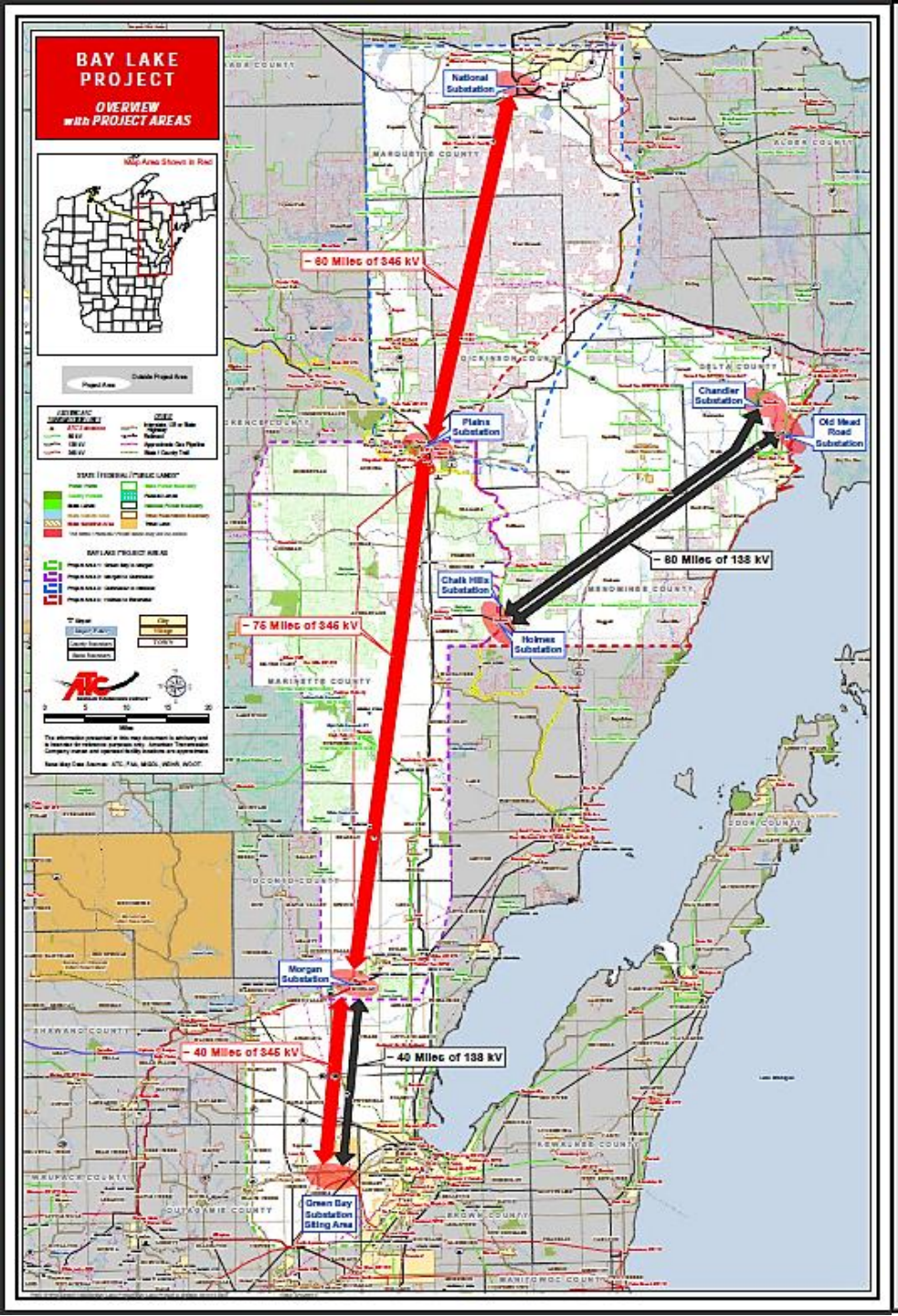
- Rebuild 22 miles of existing 69-kV line through Baraga and Houghton counties
  - Existing line is nearly 60 years old (age and condition)
  - Subject to overloads under certain conditions, especially during maintenance outages or forced outages
  - Completion of engineering targeted for Q4 2012
  - Procurement of Land Rights is underway
  - Construction to begin Q1 2013
  - Targeted in-service date Q3 2013
  - Estimated at $19.9M

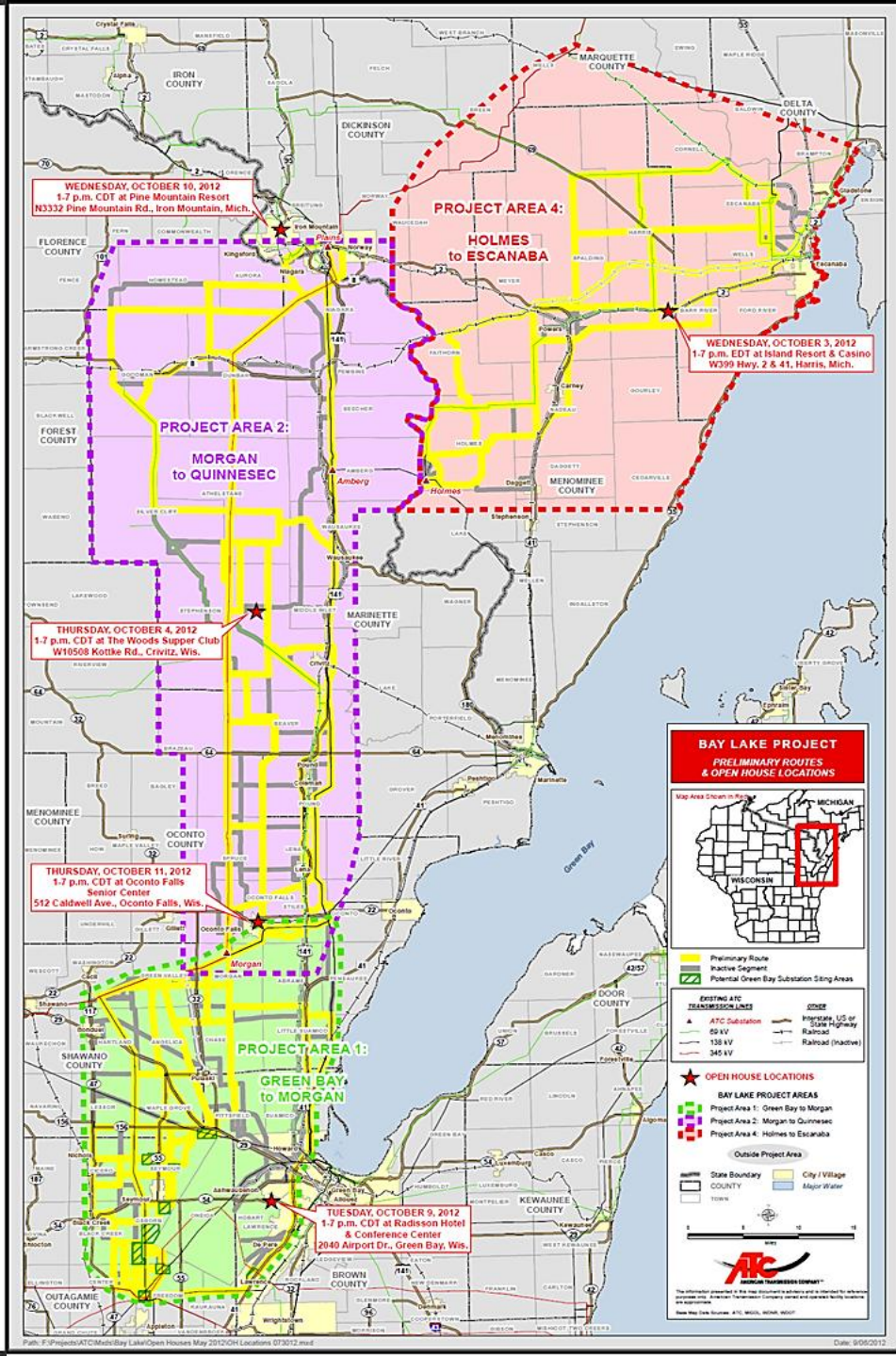
ATC's Bay Lake Project

- The need for Bay Lake is driven by multiple factors
  - Generation changes (unit retirements, unit conversions, reduced plant output, market dispatch of generators)
  - Addition of new loads and load growth
  - Maintenance outages are difficult to schedule without placing the entire northern portion of system at risk
  - Existing generation may be affected by changing EPA rules with very short compliance deadlines
- Despite improvements that have been made, transmission capacity has been "used up" as soon as they are placed into service

ATC's Bay Lake Project

- New 345-kV line from the Green Bay area to Ishpeming
  - **Green Bay – Morgan segment approved by MISO under Appendix A of MTEP12 (Out-of-Cycle)**
  - **Morgan – Plains segment is being evaluated under MISO's "Northern Area Study"**
  - **Plains – National segment is being evaluated under MISO's "Northern Area Study"**
- New 138-kV line from the Green Bay area to the existing Morgan Substation
  - **Candidate for inclusion in Appendix A of MTEP12**
- New 138-kV line between the Holmes Substation and Old Mead Road substation
  - **Approved by MISO under Appendix A of MTEP12 (Out-of-Cycle)**
- 138-kV Static Var Compensator near Amberg substation
  - **Approved by MISO under Appendix A of MTEP12 (Out-of-Cycle)**


BAY LAKE PROJECT
OVERVIEW with PROJECT AREAS
Map Area Shown in Red
National Substation
Plains Substation
Chandler Substation
Old Mead Road Substation
Chalk Hills Substation
Holmes Substation
Morgan Substation
Green Bay Substation Siting Area
~ 80 Miles of 345 kV
~ 80 Miles of 138 kV
~ 75 Miles of 345 kV
~ 40 Miles of 345 kV
~ 40 Miles of 138 kV


WEDNESDAY, OCTOBER 10, 2012
1-7 p.m. CDT at Pine Mountain Resort
N3332 Pine Mountain Rd., Iron Mountain, Mich.
PROJECT AREA 4:
HOLMES
to ESCANABA
WEDNESDAY, OCTOBER 3, 2012
1-7 p.m. EDT at Island Resort & Casino
W399 Hwy. 2 & 41, Harris, Mich.
PROJECT AREA 2:
MORGAN
to QUINNESEC
THURSDAY, OCTOBER 4, 2012
1-7 p.m. CDT at The Woods Supper Club
W10508 Kottke Rd., Crivitz, Wis.
THURSDAY, OCTOBER 11, 2012
1-7 p.m. CDT at Oconto Falls
Senior Center
512 Caldwell Ave., Oconto Falls, Wis.
PROJECT AREA 1:
GREEN BAY
to MORGAN
TUESDAY, OCTOBER 9, 2012
1-7 p.m. CDT at Radisson Hotel
& Conference Center
2040 Airport Dr., Green Bay, Wis.
BAY LAKE PROJECT
PRELIMINARY ROUTES
& OPEN HOUSE LOCATIONS
OPEN HOUSE LOCATIONS
BAY LAKE PROJECT AREAS
Project Area 1: Green Bay to Morgan
Project Area 2: Morgan to Quinnesec
Project Area 4: Holmes to Escanaba
Outside Project Area

Siting Process for Identifying New Electric Transmission Corridors

Define Project Study Area

Define opportunities within project study area

Define and map sensitivities within project study area

Develop composite map of opportunities and sensitivities

Define potential siting corridors (3,000 feet) based on opportunities and sensitivities

ATC first round of open houses

Analyze and refine corridors

Conduct environmental characterization of routes

Select preliminary routes (500 feet)

ATC second round of open houses

Evaluate preliminary routes

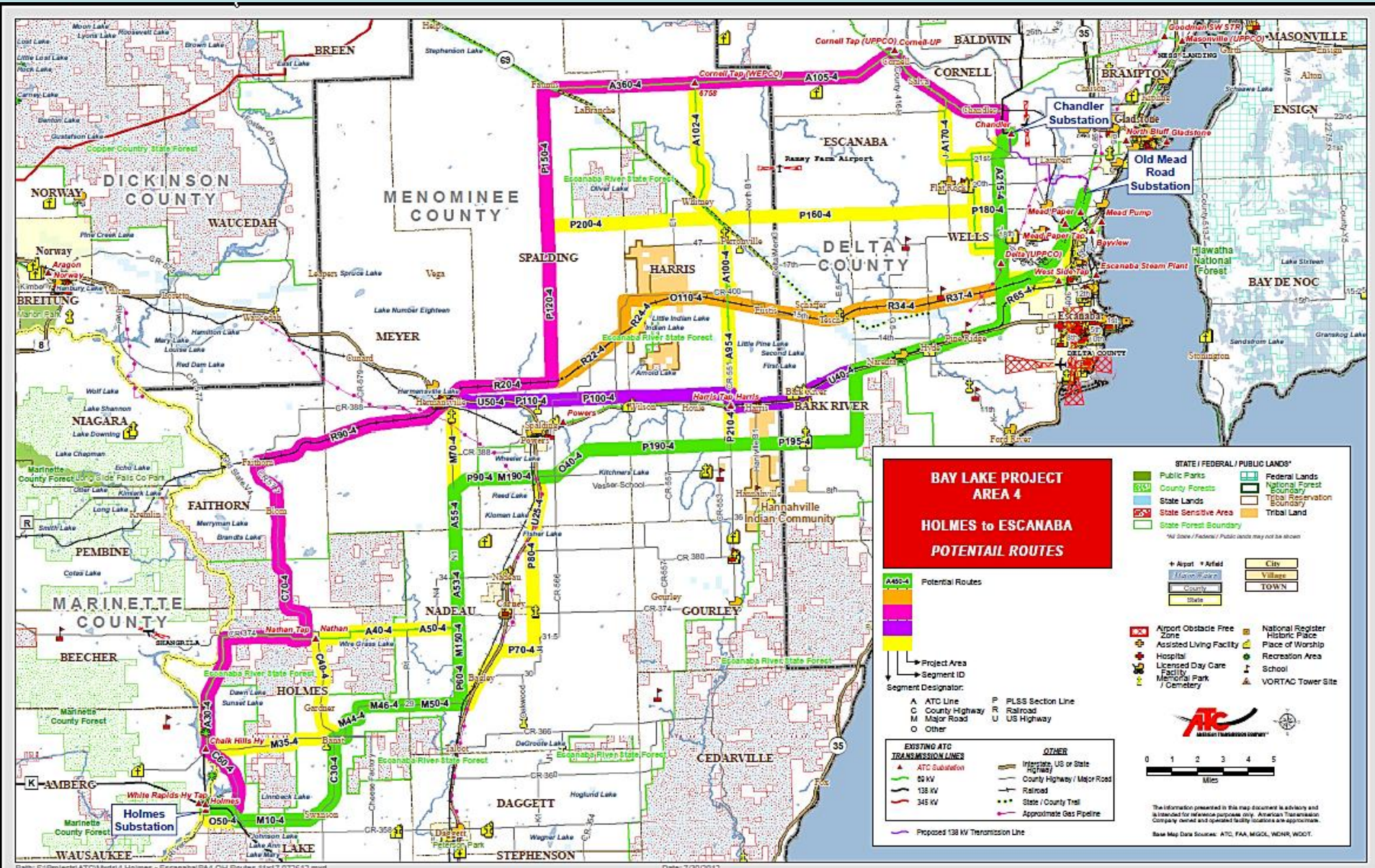
Select and map a minimum of two routes

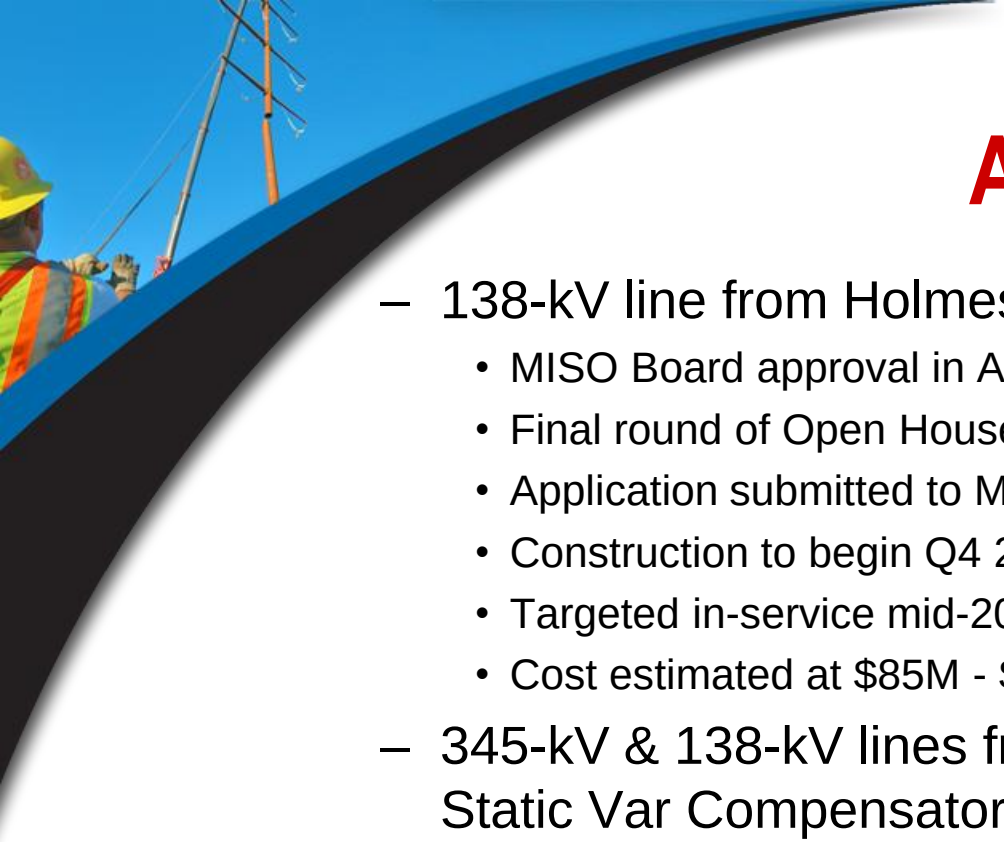
Continue environmental characterization of routes

ATC third round of open houses

ATC
AMERICAN TRANSMISSION COMPANY®

Holmes – Old Mead Road Potential Routes





ATC's Bay Lake Project

- 138-kV line from Holmes to Old Mead Road (Area 4)
  - MISO Board approval in August 2012
  - Final round of Open Houses Spring 2013
  - Application submitted to MPSC Q3 2013
  - Construction to begin Q4 2014
  - Targeted in-service mid-2016
  - Cost estimated at $85M - $127M
- 345-kV & 138-kV lines from Green Bay to Morgan and Static Var Compensator (Areas 1 and 2)
  - MISO Board approved the 345-kV segment and SVC in August 2012
  - MISO Board approval of the 138-kV segment anticipated Q4 2012
  - Final round of Open Houses Spring 2013
  - Application submitted to the PSCW Q1 2014
  - Construction to begin Q2 2015
  - Targeted in-service YE-2016
  - Cost estimated at $190M - $285M

Summary

- Additional transmission infrastructure is needed throughout the region to address:
  - Changes to generation and load
  - Risk of additional transmission outages
  - Reliability concerns
  - New EPA rules and regulations
  - Market changes/optimization
- ATC is committed to siting, designing, permitting and constructing transmission infrastructure to meet the current and future needs of the region