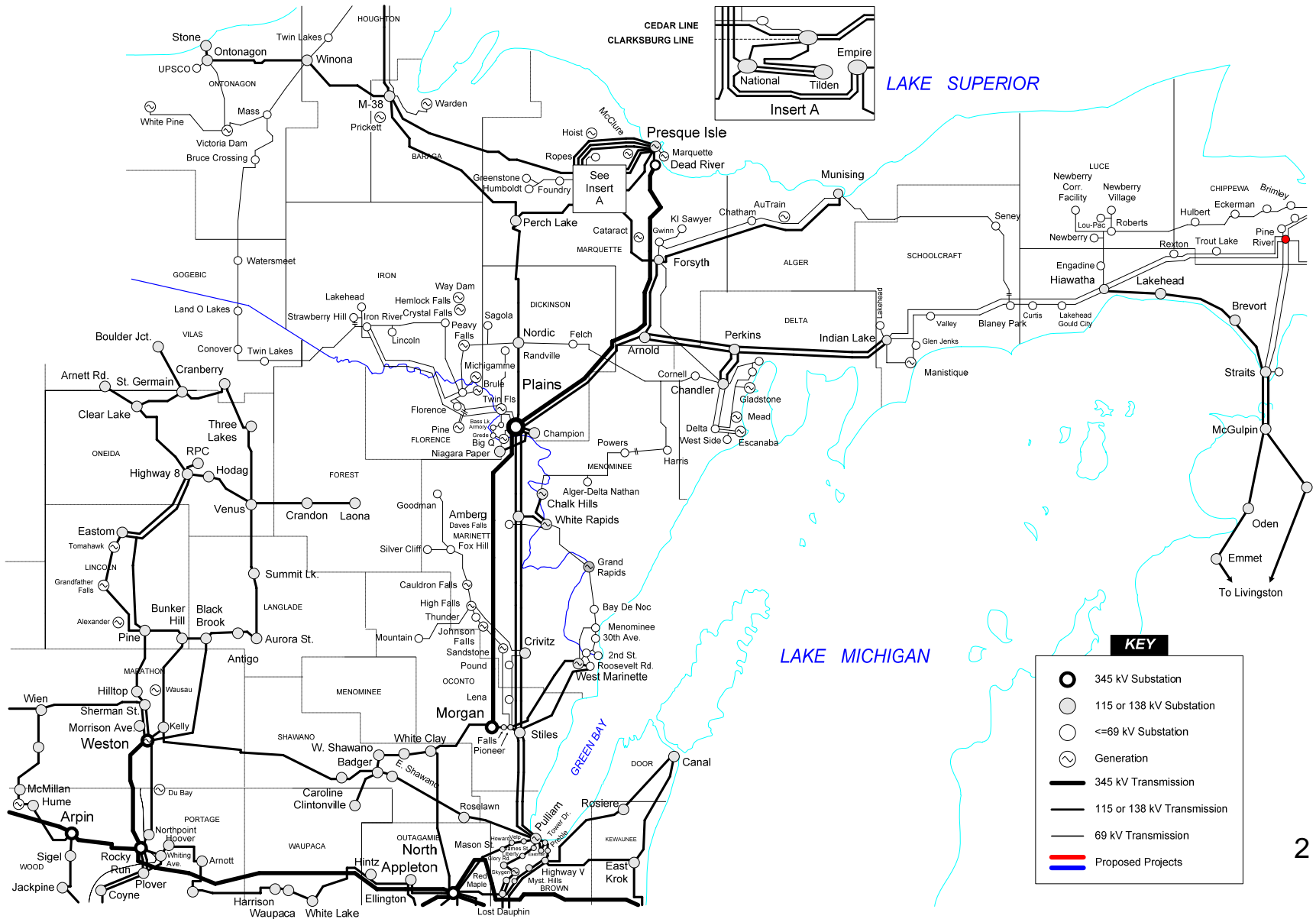




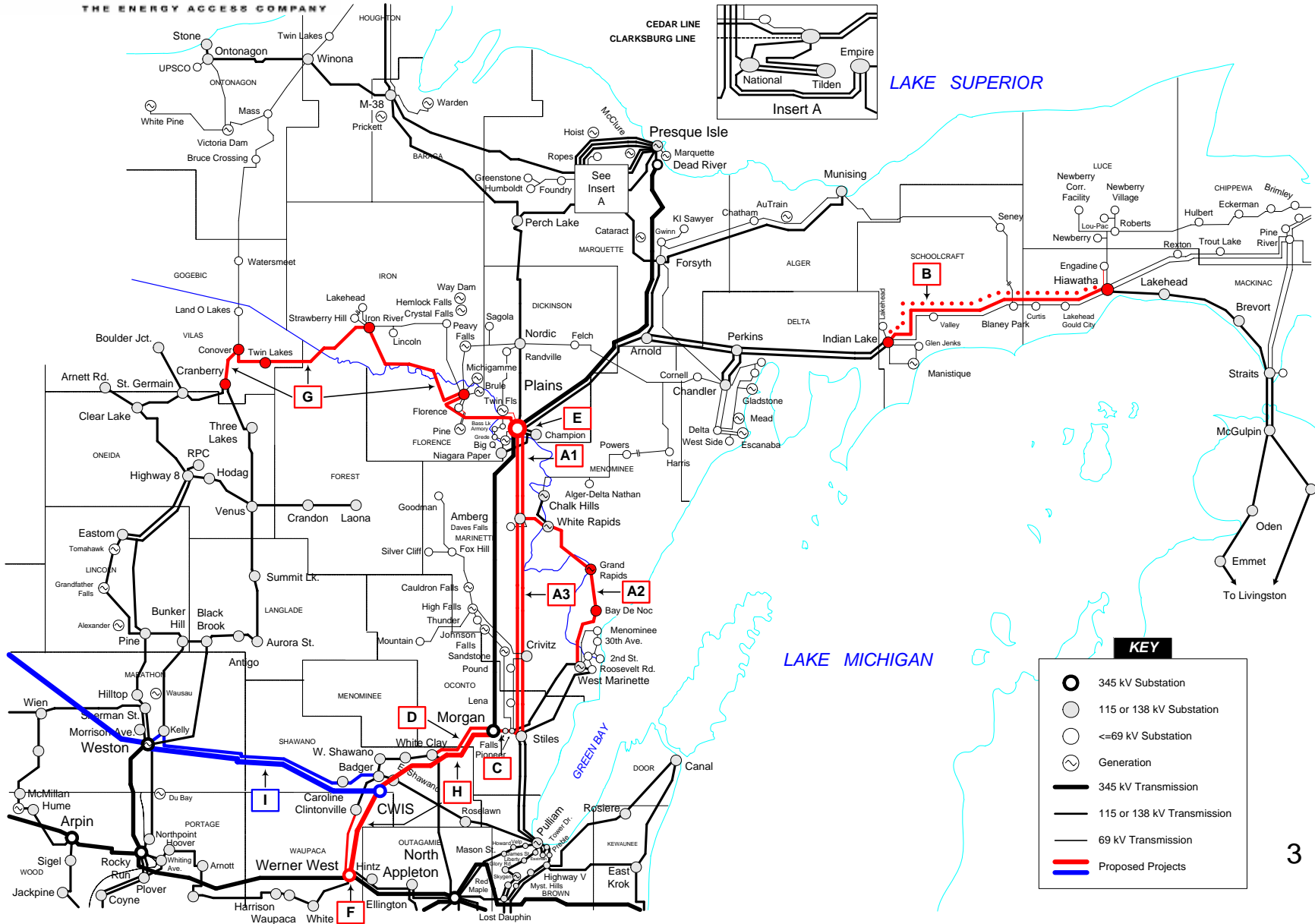
# Northern Umbrella Plan Update

September 17, 2008

# System Prior to NUP Projects



# Northern Umbrella Plan



**KEY**

- 345 kV Substation
- 115 or 138 kV Substation
- <=69 kV Substation
- ⚡ Generation
- 345 kV Transmission
- 115 or 138 kV Transmission
- 69 kV Transmission
- Proposed Projects



## NUP Projects

### Completed Projects:

- A: Plains – Stiles 138 kV Rebuild
- B: Indian Lake – Hiawatha 69 kV to 138 kV Rebuild
- C: Morgan – Stiles 138 kV Rebuild
- D: Morgan – White Clay 138 kV Up-rate
- E: Add 2<sup>nd</sup> Plains Transformer (*Project cancelled in Feb. 2008*)
- F: New Werner West 345/138 kV Substation

### In-progress Projects:

- G: Cranberry – Conover – Plains Project
- H: Morgan – Werner West 345 kV Line (including Clintonville – Werner West 138 kV)
- I: Gardner Park – Central Wisconsin 345 kV Line (for generator interconnection)



# Project Overview and Status

## G. Cranberry-Conover-Plains

- Scope
  - Phase 1: New 15 miles of 115kV line (overhead and underground) from Cranberry to new Lakota Road Substation with modifications at various substations including Conover SS
  - Phase 2: Rebuild 69kV line from Conover SS to Iron River SS to 138kV including new Iron Grove SS
  - Phases 3 and 4: Rebuild 69kV line from Iron River SS to Plains SS to 138kV (single, double and triple circuit configurations) with modifications at various substations including Aspen SS



# Project Overview and Status

## G. Cranberry-Conover-Plains (cont'd)

- Phase 1 -- Schedule/Status
  - New line between Cranberry and Lakota Rd Substation placed in service 6/6/08.
  - ROW restoration and miscellaneous activities (such as landscaping at Lakota Rd.) in progress
  
- Phase 2 -- Schedule/Status
  - Line rebuild complete to Twin Lakes Substation (in-service mid-August '08)
  - Line rebuild to new Iron Grove Substation in progress
  - NFS Special Use Permit in Nicolet Forest received, still outstanding in Ottawa Forest
  - Planned in-service February/March '09
  
- Phase 3 & 4 -- Schedule/Status
  - OH line and substation design/procurement activities are underway
  - Obtaining of required new and updated easements will start to be obtained during 4<sup>th</sup> quarter '08
  - Construction planned to start March '09
  - Planned in-service June '10



## New Morgan-Werner West 345kV Line (52.8 Mi)

ATC Executive approval	2/05
ATC Board approval	2/05
File CPCN application	3/05
CPCN issued	6/06
Morgan – White Clay, 13.2 Mi Werner West – Clintonville, 17.5 Mi Clintonville – Highway 22, 7.7 Mi Highway 22 – White Clay, 15.4 Mi Werner West SS, 345/138 kV	Complete 10/7 32% Complete Construction 12/08 - 4/09 Construction 4/09 - 10/09 Complete 12/06
Construction period, ~58% Complete	1/07-12/09
Project in-service	12/09



## New Gardner Park-Central WI 345kV line (51 Mi)

ATC Executive approval	2/05
ATC Board approval	2/05
File CPCN application	3/05
CPCN issued	6/06
Belle Plain Tap – Highway 22, 1.1 Mi Caroline – Belle Plain Tap, 6.9 Mi Structure 773 – Whitcomb, 20.33 Mi Gardner Park – Structure 773, 6.53 Mi Whitcomb – Caroline, 16.1 Mi Highway 22 Substation	Complete 6/07 Complete 7/07 Complete 4/08 95% Complete Construction 9/08 - 3/09 73% Complete
Construction period; ~ 78% Complete	1/07 – 12/09
Project in-service	December 2009





# Project Status Summary

Project Name	Key Need Drivers	Projected In-Service Date	Projected Cost	Status
<b>A: Plains – Stiles 138 kV Rebuild</b>	Physical condition; transfer capability; solution also results in a more robust parallel path for 2/3 of P-S corridor		\$94.3M	Complete
•A1: Plains – Amberg		October 2005	-	Complete
•A2: Amberg – West Marinette		November 2005	-	Complete
•A3: Amberg – Stiles		October 2006	-	Complete
<b>B: Indian Lake – Hiawatha 69 kV to 138 kV Rebuild</b>	TLR mitigation; voltage support; physical condition; local load-serving in Manistique area; required operating guide that splits the U.P. system			Complete
•Phase 1 – Rebuild Indian Lake – Glen Jenks		August 2004	\$6.1M	Complete
•Phase 2 – Rebuild as double circuit 138 kV, operate at 69 kV		March 2006	\$46.2M	Complete
•Phase 3 – Convert to 138 kV operation		N/A	N/A	Not part of the Northern Umbrella Plan
<b>C: Morgan – Stiles 138 kV Rebuild as double circuit</b>	Transfer capability	May 2006	\$8.0M	Complete



# Project Status Summary

Project Name	Key Need Drivers	Projected In-Service Date	Projected Cost	Status
<b>D:</b> Morgan – White Clay 138 kV uprate (eventual rebuild as part of Element H)	Transfer capability	March 2005	\$0.4M	Project Complete.
<b>E:</b> Add 2 <sup>nd</sup> Plains transformer (250 MVA 345/138 kV)	Transfer capability	Cancelled		Cancelled
<b>F:</b> New Werner West Substation with 345/138 kV transformer	TLR mitigation, system security	December 2006	\$14.2M	Project Complete.
<b>G:</b> Cranberry – Conover – Plains Project	Transfer capability; Transmission service; Reliability, physical condition	See below	\$127.6M	
• Phase 1: New 115 kV Cranberry – Conover		June 2008	-	In-service. Energized first week of June '08.
• Phase 2, 3 & 4: Rebuild 69 kV Conover – Plains to 138 kV		June 2010	-	Design/procurement activities started. Will design/construct from west to east.
<b>H:</b> New Morgan – Werner West 345 kV line & Clintonville – Werner West 138 kV line	Transfer capability, reliability, and network service.	2009	\$139.0M	See Page 8 for detailed status. Project under construction and on schedule.
<b>I:</b> New Gardner Park – Central Wisconsin 345 kV line & Central Wisconsin 345 kV switching station	Required for new Weston 4 generation	2009	\$124.3M	See Page 9 for detailed status. Project under construction and on schedule.



# Northern Umbrella Plan Summary

- Current estimated cost for all projects is \$560.1 million
- Total project spending to date is approximately \$421 million through August 2008
- Of the 9 projects –
  - 5 are complete and in-service
  - 3 are in various stages of design and construction
  - 1 has been cancelled
- Construction and completion of all projects expected in mid-2010