



Capital Project Update Northern Umbrella Plan Update

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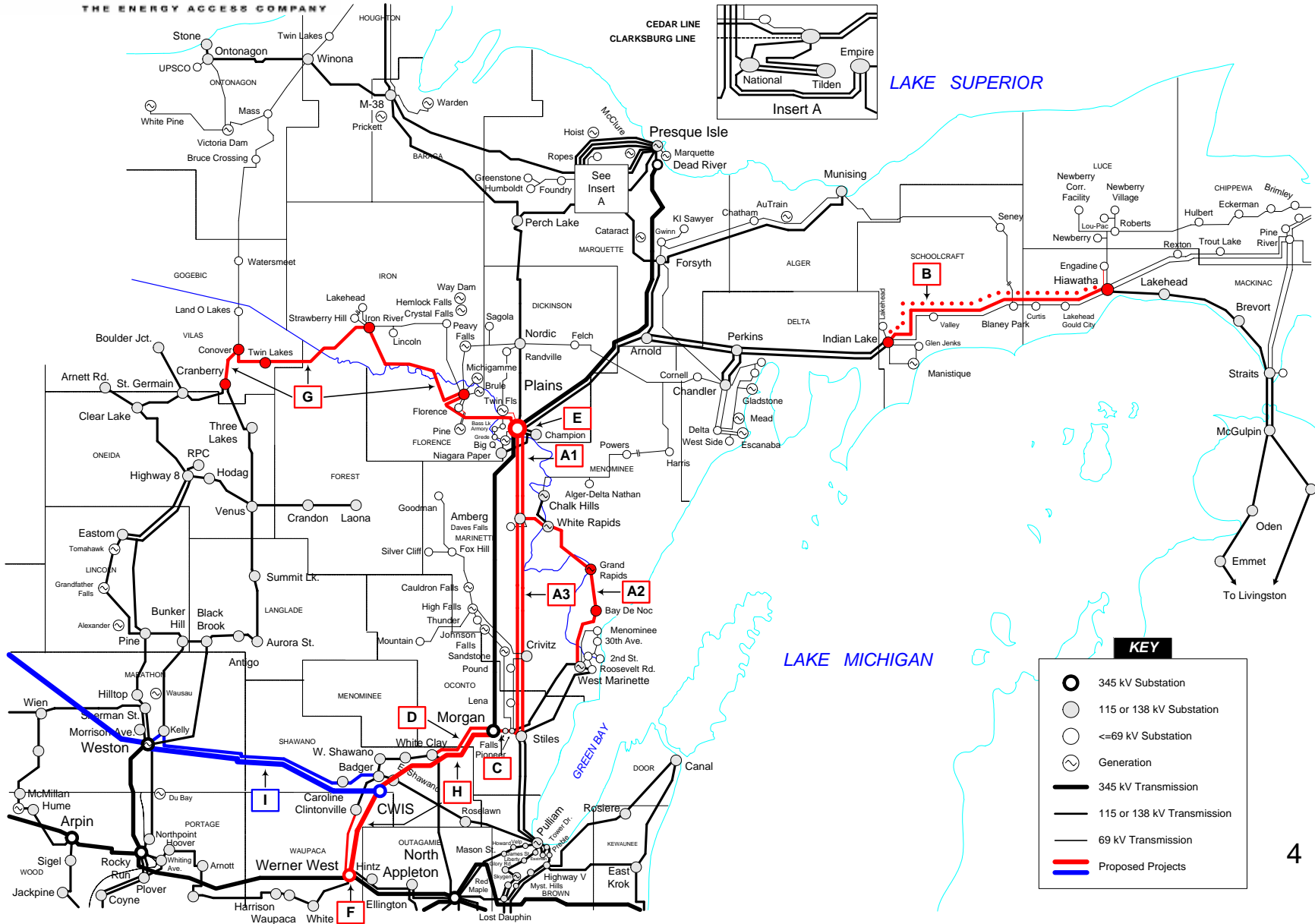
Overview

- **Northern Umbrella Plan (9)**
- **Network Projects (8)**
- **Asset Renewal Transmission Line Projects (6)**
- **Asset Renewal Substation Projects (19)**
- **Distribution Interconnections (4)**









System Needs & Issues that NUP Addresses

- Occurrence of Blackouts
- Redispatch costs/Binding constraints
- Rhinelander Loop load serving
- Limited import/export capability between WI and MI
- Transmission Service Requests
- Eastern U.P. reliability and operating flexibility
- Low voltages in the western U.P.
- Transformer loadings in the Fox Valley area
- Impact of proposed Weston generation
- Presque Isle stability/U.P. export limitations
- Age and condition

Northern Umbrella Plan



KEY

	345 kV Substation
	115 or 138 kV Substation
	$\leq 69\text{ kV}$ 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

In-progress Projects:

F: New Werner West 345/138 kV Substation

G: Cranberry – Conover – Plains Project

H: Morgan – Werner West 345 kV Line (including Clintonville – Werner West 138 kV)

I: New Weston – Central Wisconsin 345 kV Line (for generator interconnection)

Planned Projects:

E: Add 2nd Plains Transformer



Project Overview and Status

Plains-Stiles 138kV Rebuild

- Re-conductor Amberg to White Rapids complete
- Rebuild White Rapids to West Marinette complete
- Rebuild Plains to Stiles complete



Project Overview and Status

Second Transformer at Plains

- Scope
 - Add a second 345/138 kV, 250MVA transformer
- Schedule/Status
 - Will obtain authorization in early 2007
 - Start design in 2007
 - Install in 2008 or 2009
 - Under review by ATC Planning & ATC Construction Department



Project Overview and Status

New Werner West Substation

- Certificate of Authority from PSCW in June 2005
- Construction started in April 2006 with an expected December 2006 completion
- All equipment/material on site
- Engineering complete



Cranberry – Conover – Plains

Pre-certification activities	June 2004 – Sept 2006
ATC Executive approval	July 2005
ATC Board approval	July 2005
File CPCN application	November 2005
*CPCN Order received	Late November 2006
Construction activities	April 2007-Dec. 2009
Project completion and in-service	December 2009*

*Order was expected to be received late September '06. Late order receipt may jeopardize total project completion date and will impact intermediate milestone date of completing the Cranberry-Conover phase of the project.



New Morgan-Werner West 345kV Line

ATC Executive approval	February 2005
ATC Board approval	February 2005
File CPCN application	March 2005
CPCN issued	June 2006
Pre-construction activities <i>(Surveying, engineering, real estate, material procurement)</i>	January 2006 – October 2007
Construction period	January 2007 – December 2009
Project in-service	December 2009



New Gardner Park-Central WI 345kV line

ATC Executive approval	February 2005
ATC Board approval	February 2005
File CPCN application	March 2005
CPCN issued	June 2006
Pre-construction activities <i>(Surveying, engineering, real estate, material procurement)</i>	January 2006 – October 2007
Construction period	January 2007 – December 2009
Project in-service	December 2009



Project Status Summary

Project Name	Key Need Drivers	Projected In-Service Date	Projected Cost	Status
A: Plains – Stiles 138 kV Rebuild	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: Indian Lake – Hiawatha 69 kV to 138 kV Rebuild	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
C: Morgan – Stiles 138 kV Rebuild as double circuit	Transfer capability	May 2006	\$8.0M	Complete



Project Status Summary

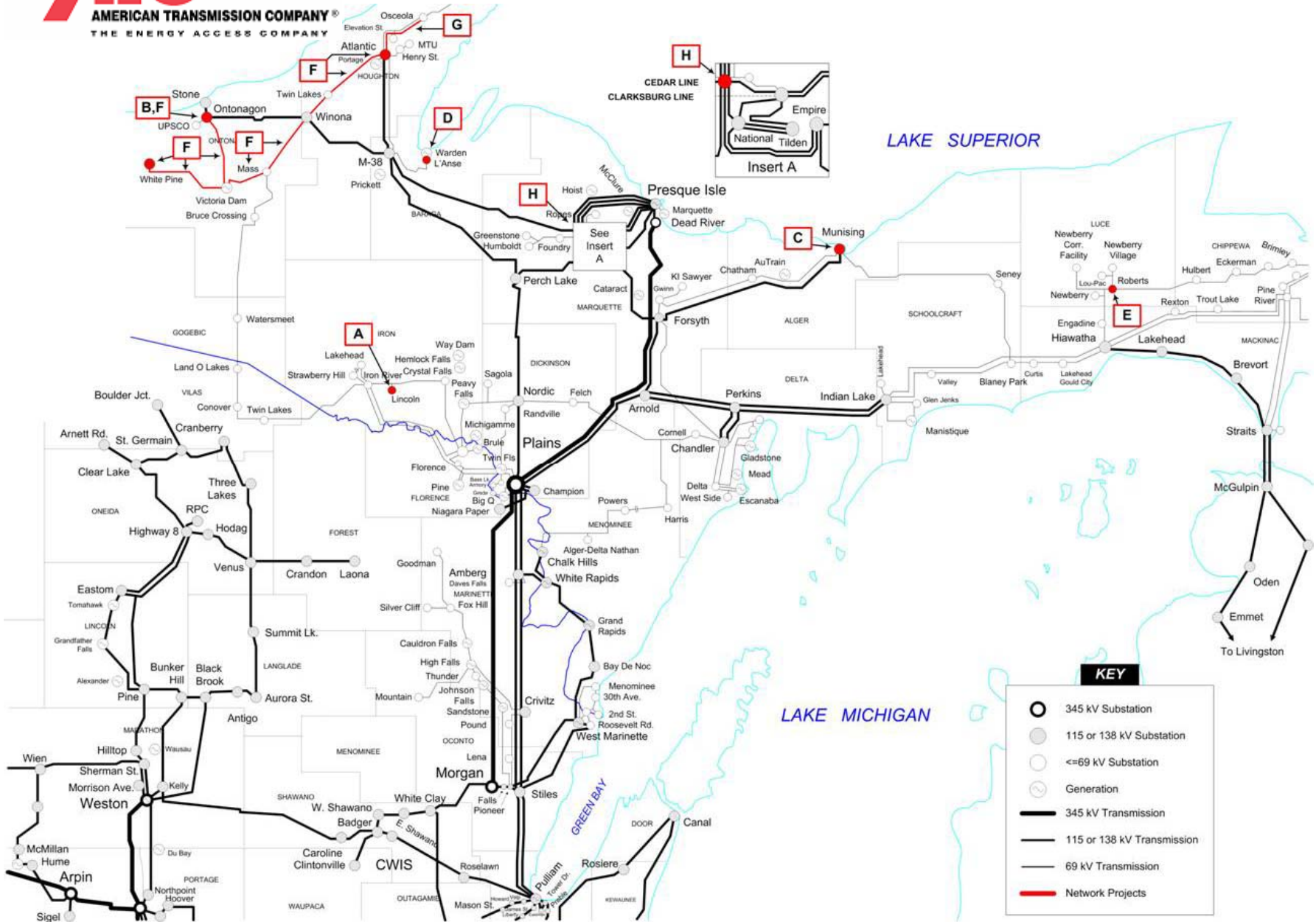
Project Name	Key Need Drivers	Projected In-Service Date	Projected Cost	Status
D: Morgan – White Clay 138 kV uprate (eventual rebuild as part of Element H)	Transfer capability	March 2005	\$0.4M	Project Complete.
E: Add 2 nd Plains transformer (250 MVA 345/138 kV)	Transfer capability	2008	\$5.4M	No PSCW approval required. Scheduled for 2008.
F: New Werner West Substation with 345/138 kV transformer	TLR mitigation, system security	December 2006	\$15.3M	Construction ~98% complete with Test & Commissioning underway. Expect to meet the inservice date.
G: Cranberry – Conover – Plains Project	Transfer capability; Transmission service; Reliability, physical condition	December 2009 or later	\$118.7M	CPCN submitted to PSCW in Nov 2005, still waiting for Order
• Rebuild 69 kV Conover – Plains to 138 kV		Late 2009	-	Work scheduled to begin in 2008
• New 115 kV Cranberry – Conover		Early to mid 2008	-	Work scheduled to begin in 2007
H: New Morgan – Werner West 345 kV line & Clintonville – Werner West 138 kV line	Transfer capability, reliability, and network service.	2009	\$132.3M	Surveying and easement acquisition underway to support construction 1Q07. Construction Management Plan in regulatory review.
I: New Gardner Park – Central Wisconsin 345 kV line & Central Wisconsin 345 kV switching station	Required for new Weston 4 generation	2009	\$131.5M	Surveying and easement acquisition underway to support construction 1Q07. Construction Management Plan in regulatory review.



Northern Umbrella Plan Summary

- Current estimated cost for all projects is \$558 million
- Total project spending to date is approximately \$187 million (through September 2006)
- Of the 9 projects –
 - 4 are complete and in-service
 - 4 are in various stages of design and construction
 - 1 is in planning
- Construction and completion of all projects is expected in late 2009 per current plan with the possible exception of the Cranberry-Conover-Plains Project

Network Projects



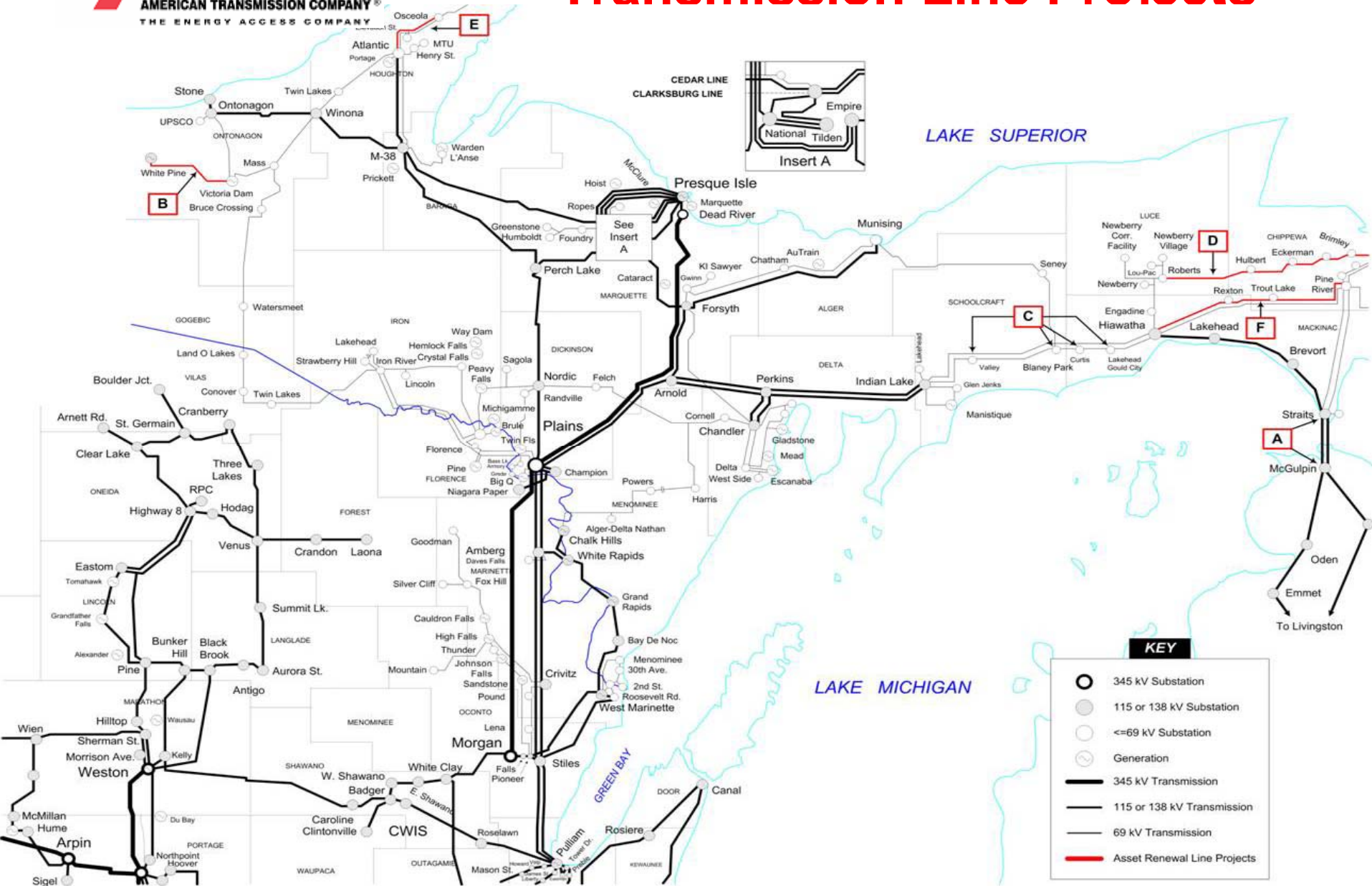


Network Projects

Project Name/System Location	Project Description/Key Need Drivers	Projected ISD	Projected Cost	Status
A. Lincoln SS	Install cap bank to address potential low voltages	Complete	\$0.8 million	In-service
B. Ontonagon SS	Install cap banks, rtu, replace OCB to address potential low voltages	6/1/2007	\$1.9 million	Design started, below grade construction started, long lead equipment has been ordered.
C. Munising SS	Install cap bank to address potential low voltages	TBD	TBD	Work not yet started by Construction Department
D. L'Anse SS	Install cap bank to address potential low voltages	TBD	TBD	Work not yet started by Construction Department
E. Roberts SS	Install cap bank to address potential low voltages	TBD	TBD	Work not yet started by Construction Department
F. White Pine Gen.	Various line and substation upgrades to meet TSR request	6/1/2008	Under Development	Activities underway are to develop project scope, cost, schedule and execution plans.
G. Laurium #2	Line uprate to address potential overloads	Under Development	Under Development	Activities underway are to develop project scope, cost, schedule and execution plans.
H. North Lake SS	New substation to replace Cedar Substation to address reliability concerns, equipment obsolescence and condition issues	Under Development	Under Development	Activities underway are to develop project scope, cost, schedule and execution plan. Phase 1 challenge is planned for late '06. Design will commence in the first half of 2007.



Asset Renewal Transmission Line Projects



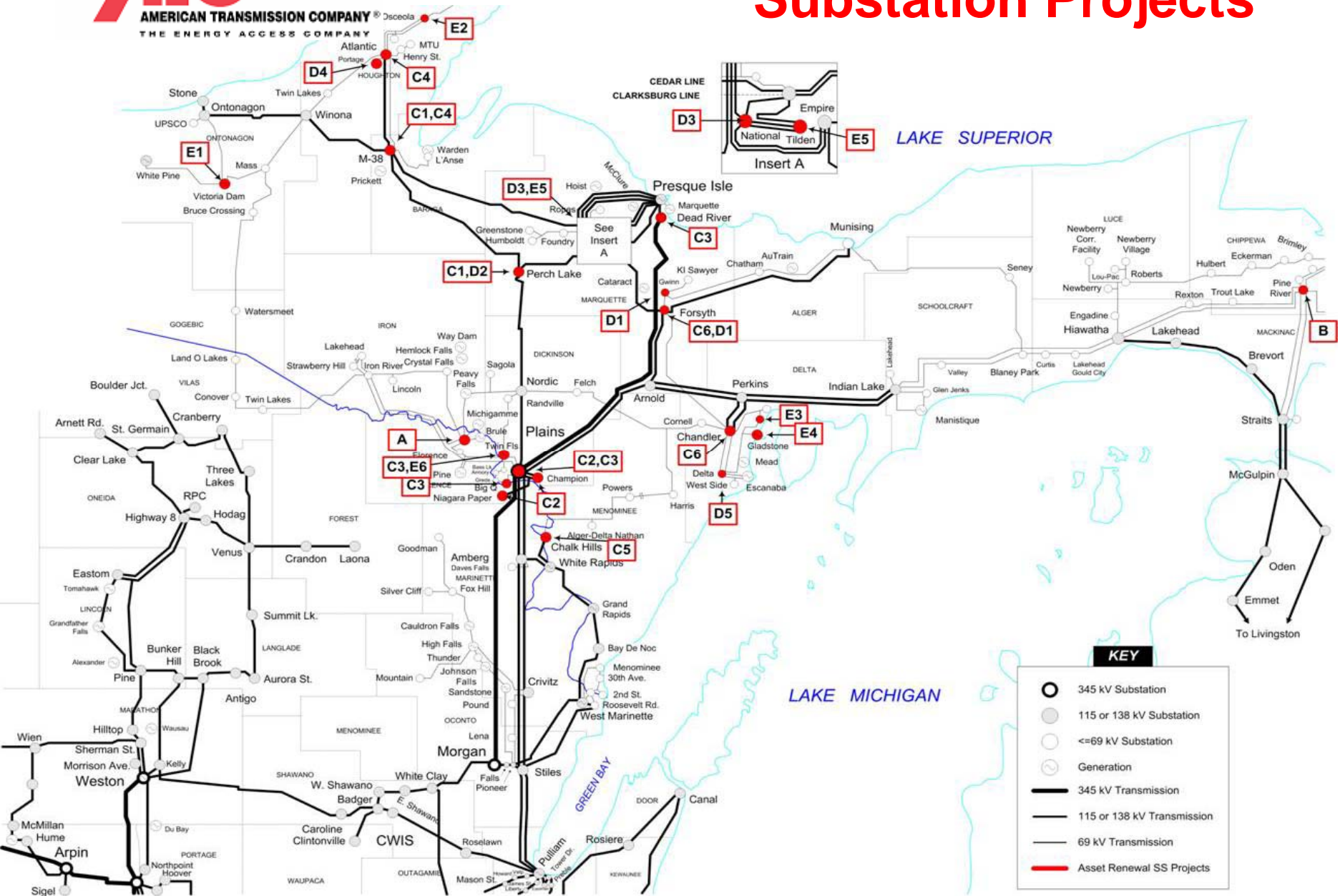


Asset Renewal Transmission Line Projects

Project Name/ System Protection	Project Description/ Key Need Drivers	Projected ISD	Projected Cost	Status
A. L9901 Riser Stations Pt. LaBarbe & McGulpin	Upgrade riser stations to improve pipeline monitoring and communication to the station	Complete	\$0.5 million	In-service
B. White Pine - Victoria SS	Replace insulators on some structures due to recent failures	12/31/2006	\$0.4 million	Project is approved. Construction work will begin in November '06.
C. L6913	Replace line switches on the tap into Lakehead-Gould City substation due to condition and performance	TBD	TBD	Work not yet started by Construction Department
D. L6952	Install lightning arrestors and grounding at each structure to address lack of protection	Under Development	Under Development	Pre-approval work will start in early '07 to develop project scope, cost, schedule and execution plans.
E. Laurium #1	Line rebuild to current 69kV standards and with a shield wire to address insufficient lightning protection	Under Development	Under Development	Activities underway are to develop project scope, cost, schedule and execution plan. Phase 1 challenge is planned for late '06. Design will commence in the first half of 2007.
F. L6908	Rebuild line from Hiawatha to Indian Lake due to condition and age of wood poles	Under Development	Under Development	Pre-approval work will start late '07 or early '08 to develop this project scope, cost, schedule and execution plans.



Asset Renewal Substation Projects

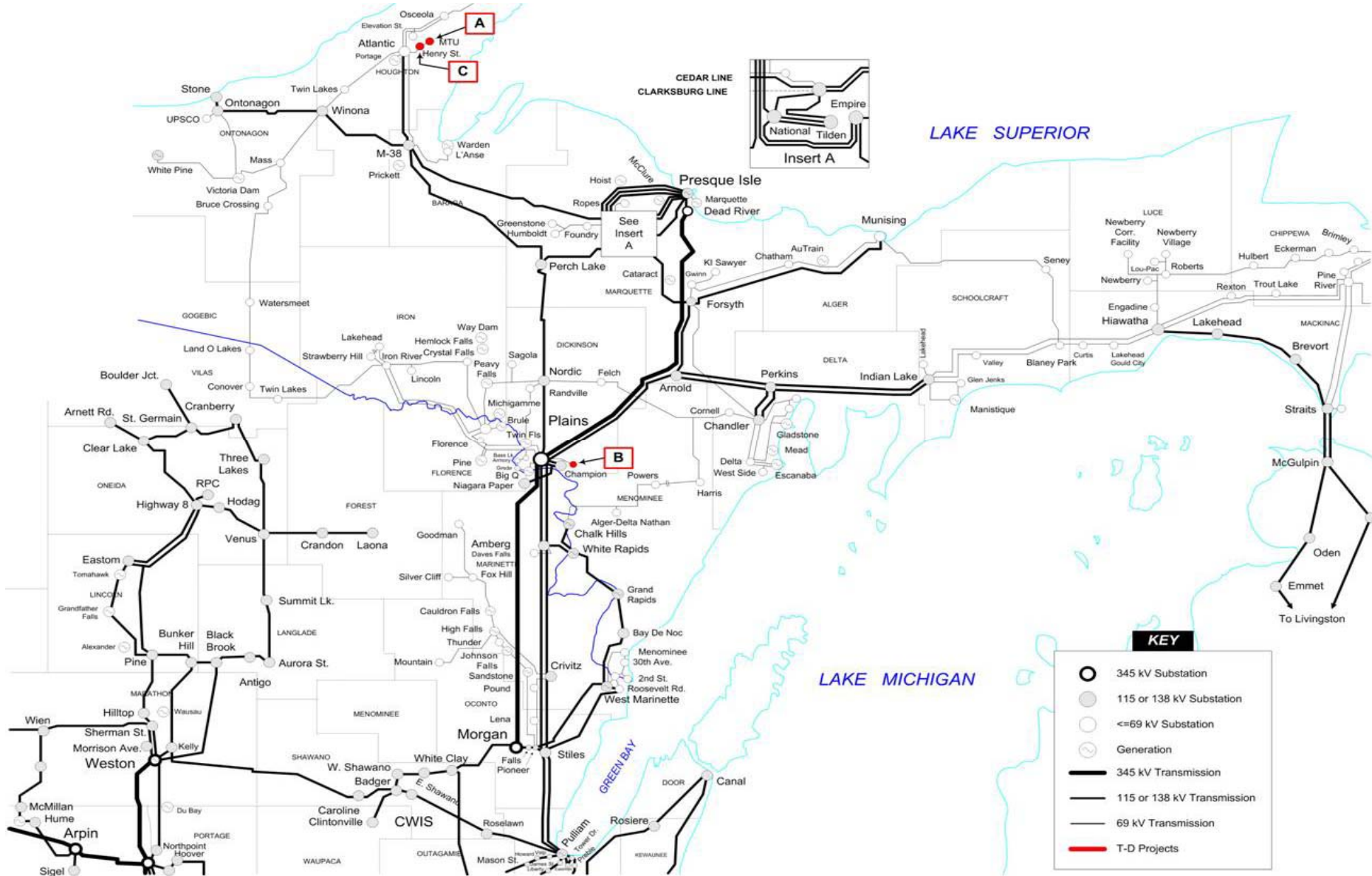




Asset Renewal Major Substation Projects

Project Name/ System Location	Project Description/ Key Need Drivers	Projected ISD	Projected Cost	Status
A. New Aspen SS	Build new 69kV ring bus substation to replace existing Brule Substation due to age & condition, access, maintenance challenges and environmental risk	12/31/2007	\$7.8 million	Below grade construction in Fall '06, above grade construction in Summer of '07, line cutovers in Fall of '07, Brule retirement in early Winter '07.
B. Pine River SS	Rebuild existing substation to current ATC standards due to condition and risk of existing equipment	Under Development	Under Development	Activities underway are to develop project scope, cost, schedule and execution plan. Phase 1 challenge is planned for early '07. Design will commence in the first half of 2007.
C. Relay upgrade work at Perch Lake, M38, Plains, Niagara, Champion, Twin Falls, Big Q, Dead River, Atlantic, Chalk Hills, Chandler, and Forsyth Substations to address mostly equipment and technology obsolescence. Projects have various in-service dates and cost estimates. Projects may also include equipment upgrade work and RTU installations.				
D. Equipment upgrade work at Gwinn, Forsyth, Perch Lake, National, Portage and Delta Substations mostly to address equipment obsolescence. Projects have various in-service dates and cost estimates. Projects may also include equipment upgrade work and RTU installations.				
E. ATC RTU additions at Victoria, Osceola, Masonville, Gladstone, Tilden and Twin Falls Substations to improve communications. Projects have various in-service dates and cost estimates.				

Distribution Interconnections





Distribution Interconnections

Project Name/ System Location	Project Description/ Key Need Drivers	Projected ISD	Projected Cost	Status
A. MTU SS	69kV line relocation to accommodate yard expansion at MTU SS	N/A	N/A	In-service
B. Norway DIC	L6160 Tap to new Norway SS	7/1/2007	Under Development	Activities underway are to develop project scope, cost, schedule and execution plans.
C. Henry Street DIC	UPPCO request for interconnection	TBD	TBD	ATC Planning waiting for LIRF change form from customer
D. Watson DIC	Alger Delta request for interconnection	12/31/06	TBD	Design underway. Construction to start shortly to complete transmission line work.



Zone 2 Capital Projects Activity Summary Late 2006-2008

- **36 distinct projects are forecasted to be worked on in this time frame in addition to those projects identified as part of the Northern Umbrella Plan**
- **Individual project cost estimates range from \$0.3 million to \$7.8 million excluding NUP Projects**



Questions & Feedback