

Table UP-8B-E: UP Collaborative Preliminary Solutions Groups Performance Matrix

Eastern U.P. Projects To Address System Operations Needs										
					Eastern U.P. System Operations Needs					(For complete central U.P. solution sets, see Escanaba area)
U.P. Zone	Map Item #	Solutions Description	Estimated Cost	In Service Year	Standing Op Guides (W-E / E-W Splits)	N-1-1 (Maintenance, etc), Straits SS	N-1-1 (Maintenance, etc), Lower MI	High Voltage, Light Load	Post-Split Voltage Excursions	N-1-1 (Maintenance, etc), Central U.P.
Eastern	E-AR1	Minimum 6904/6905 Asset Renewal	\$5M	2016	Not Adequate	Not Adequate	Not Adequate	Not Adequate	Not Adequate	Not Adequate
Eastern	E-AR2	Minimum 6921/6923 Asset Renewal	\$4M	2016	Not Adequate	Not Adequate	Not Adequate	Not Adequate	Not Adequate	Not Adequate
Eastern	E8	New Indian Lake-Hiawatha 138 kV line, energize the non-operative circuit, SS work at ILK/HIA	\$4M	2012	Not Adequate	Improved	Not Adequate	Not Adequate	Not Adequate	Not Adequate
Eastern	E32	Install shunt reactors (10/15 MVAR) on Straits 138/69 xfmr tertiaries	\$0.6M	2012	Not Adequate	Not Adequate	Not Adequate	Adequate	Not Adequate	Not Adequate
Eastern	E4	Rebuild @ 69/69kV w/T2-4/0	\$35M	2014	Improved (E-W only)	Slightly Improved	Slightly Improved	Not Adequate	Improved (E-W only)	Not Adequate
Eastern	E23, E2, E30	Rebuild Straits-Pine River at 138/138 kV, rebuild Pine River-9 Mile at 138/69 kV, 150 MVA 138/69 kV xfmrs at Pine River/9 Mile, uprate the Straits-McGulpin 138 kV lines #1 & #3, new 69 kV radial tap to Frontier	\$76M	2012 for Frontier	Improved (E-W only)	Slightly Improved	Slightly Improved	Not Adequate	Improved (E-W only)	Not Adequate
Eastern	E3_40	2 138 kV 40° PAR (phase-shifters) @ Straits	\$16-20M	2012	Nearly Adequate	Improved	Improved	Improved	Adequate	Improved
Eastern	E31	Install AC-DC-AC 138 kV power flow control at Straits	\$35M	2012	Adequate	Improved	Improved	Adequate	Adequate	Improved
Eastern	E3_40, E8, E32	2 138 kV 40° PAR (phase-shifters) @ Straits, new Indian Lake-Hiawatha 138 line, shunt reactors @ Straits	\$20.6-24.6M	2012	Adequate	Nearly Adequate	Nearly Adequate	Adequate	Adequate	Improved
Eastern	E31, E8	Install AC-DC-AC 138 kV power flow control at Straits, new Indian Lake-Hiawatha 138 line	\$39M	2012	Adequate	Nearly Adequate	Nearly Adequate	Adequate	Adequate	Improved