Northern Maine Reliability Solution - Transmission
Final Plan

Proposed Solution: New 138 kV transmission line from Woodstock, NB to the MPS Lines 6910 and 6920

Solution Requirements

1) Transmission Upgrade Requirements

The following upgrade elements are required to achieve the targeted reliability results.

NEW BRUNSWICK SYSTEM REQUIREMENTS	MAINE PUBLIC SERVICE SYSTEM MINIMUM REQUIREMENTS
New line and substation work on Canadian side of the border	**New line and substation work on U.S. side of the border**
Rebuild at Woodstock Substation for 138 kV line interconnection - Minimal addition of one 138 kV breaker	**New substation north of Mullen for 138 kV connection with Lines 6910 & 6920** - 100 MVA 138/69 kV transformer at new substation - One 138 kV high side breaker - One 69 kV breaker
Addition of one 138 kV breaker at Beechwood in series with 1126-1 breaker	
Addition of one 138 kV breaker at Keswick in series with 1125-26 breaker (*)	
Addition of one 10 MVAR capacitor bank at St. Leonard	**Addition of capacitor bank at Flo's Inn Substation**
Addition of one 10 MVAR capacitor bank at Woodstock	
Addition of one 12.6 MVAR capacitor bank at Ortonville	
Upgrade Kedgewick 69kV sub to 138kV and feed from 1110 out of St. Andre	

***MPS has targeted this series breaker to deal with a very serious bulk power N-1-1 contingency.**

2) Transmission Operating Requirements for the New Brunswick System

The following operating procedures are required to achieve the necessary reliability results, under extreme stressed conditions.

For New Brunswick loads greater than 2,500 MW, at least five Mactaquac units spinning (G1-G3 at 201 MW total, G5 and G6 run as synchronous condensers)
69kV Beechwood Under Voltage Load Shedding (UVLS) for 345kV Keswick 3-3 stuck breaker
69kV Iroquois Line 70 and Line 72 UVLS for contingencies involving loss of 345 kV Line 3012
For further consideration: when the load of the northern portion of the MPS load exceeds 25 MW, that portion of the system will be removed from radial mode

3) Confirmation of Capacitor Banks in Service Required for the New Brunswick System

The following capacitor banks must be in service to achieve the necessary reliability results.

138kV, 37.5 MVAR Capacitor Bank at Norton
69kV, 10.8 MVAR Capacitor Bank at Bathhurst