

North Country – Vermont Study Northeast Coordinated System Plan

IPSAC07

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Overview

- Background and Scope of Work
- Status of Screening Study
 - Base case development
 - Contingency analysis
- Next Steps

Drivers for Northern NY and Vermont

- Transmission limitations in New York
 - Central East
 - Hudson Valley area
- Loss of source contingencies in New England are limited by Central East and PJM Interfaces
- A long-range plan is under development for Vermont to meet load growth
- Plans for wind generation interconnections in New York's North Country
- The Plattsburgh – Vermont tie (PV-20) has been subject to forced outages

Proposed Scope of Work

- Assumptions to be consistent with NY and NE regional system plans
 - Study 2012 and 2018 timeframes
- Complete transmission assessment analysis
- Identify need for improvements based on transmission adequacy performance
- Consider new 230kV tie between Plattsburgh and Vermont as part of the long-range Vermont plan
 - Provides another strong source to Burlington
 - Increases Central East limit by
 - Pushing more power across the interface towards New England
 - Offloading the limiting Utica-Albany portion of Central-East
 - Provides additional transmission capability between NY and VT

Base Case Development - Status

- 2012 power flow base cases developed for:
 - “As found” system
 - Plattsburgh – New Haven 230kV tie
 - Plattsburgh – Granite 230kV tie
- Cases reflect
 - Good representation of the New York and New England systems
 - Proposed PJM transmission expansion
- Work is continuing
 - Better representation of the PJM system
 - Refine transmission alternatives already considered
 - Develop and analyze additional transmission alternatives

Planning Alternatives Considered

- Plattsburgh – Essex – New Haven 230kV option
 - A 350 MVA phase angle regulator at Sandbar
 - Two 350 MVA 230kV/115kV transformers at Essex
 - A 450MV 345kV/230kV transformer at New Haven
 - Join the two 230kV busses at Plattsburgh
- Plattsburgh – Essex – Granite 230kV option
 - A 350 MVA phase angle regulator at Sandbar
 - Two 350 MVA 230kV/115kV transformers at Essex
 - Join the two 230kV busses at Plattsburgh

Contingencies Simulated

- Marcy – South north
- Marcy – South south
- New Scotland bus
- Granite - Comerford
- Salem Generator
- Moses-Willis, individually and together
- Plattsburg transformer
- PV20
- Marcy – Coopers Corner, Frasier – Edic
- Highgate

Contingencies Simulated (Cont)

- Ryan-Plattsburg
- Ryan-Plattsburg & Sandbar
- Hypothetical new facilities
 - New 230 tie to either New Haven or Granite
 - New Essex transformers

As Found System Base Case Summary

- New England load at 31,800 MW
- New York load at 33,400 MW
- PJM load at 154,200 MW
- QQQQ MW of wind generation in North Country
- Central East at 2783 MW
 - Utica – Albany at 2671 MW
 - Plattsburgh – Vermont 115kV tie (PV-20) at 112 MW
- Moses - South at 1696 MW
- All line flows and system voltages within normal ranges
 - Edic voltage at 117.7 kV
 - Rochester voltage at 117.4 kV
 - New Scotland voltage at 118.2 kV

Methodology

- Consider stressed Central East
 - Set up initial dispatch for approximately 2,750 MW of transfer
- Look to maintain similar transfer with additional New York-Vermont tie
 - Relief to Central East requires a shift of 600 MW to keep transfer levels the same
- Look at voltages of several key busses
 - Pre-feasibility screening aiming to give a rough idea of system performance.

Detailed Results - REDACTED

Preliminary Conclusions

- A new 230kV interconnection from New York to Vermont provides improved system performance
 - Increased transfers across Central East
 - Higher permissible loss of source contingency limits in New York and PJM Interfaces
- Should be considered an option for a long-range plan for Vermont to meet load growth
- Provides an additional outlet for wind generation in New York's North Country
- Provides a means of withstanding a long term outage of the Plattsburgh – Vermont tie (PV-20) tie

Next Steps

- Conduct more comprehensive analysis of the two options considered
 - Update base cases
 - Conduct more thorough transfer analysis
- Consider additional transmission alternatives
 - Plattsburgh – Essex with Essex – New Haven and Essex - Granite
 - Plattsburgh – New Haven 345kV
 - Others