

Status of NY North Country Wind Development and NE Coordination

IPSAC06

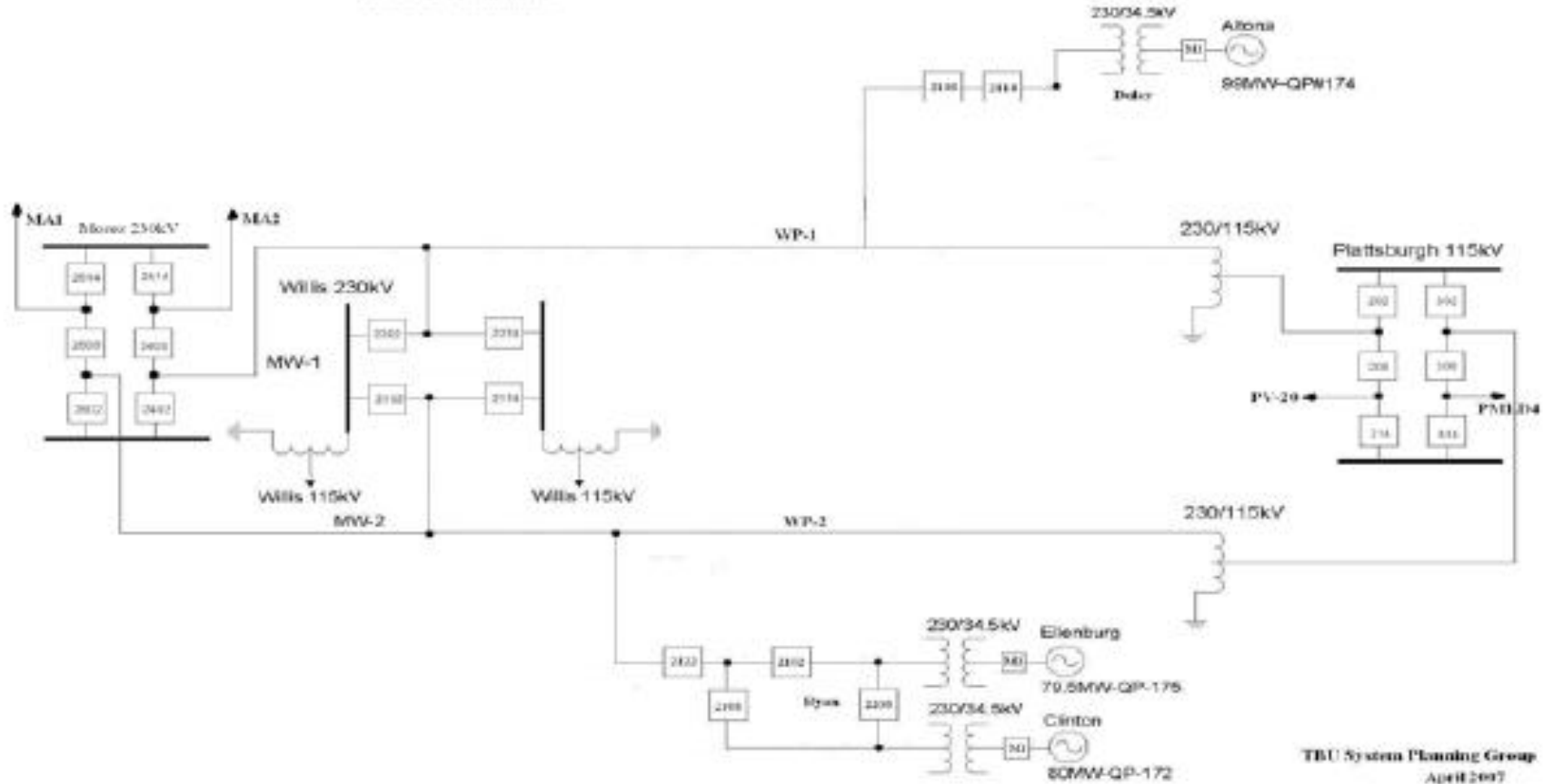
June 27, 2008

Background

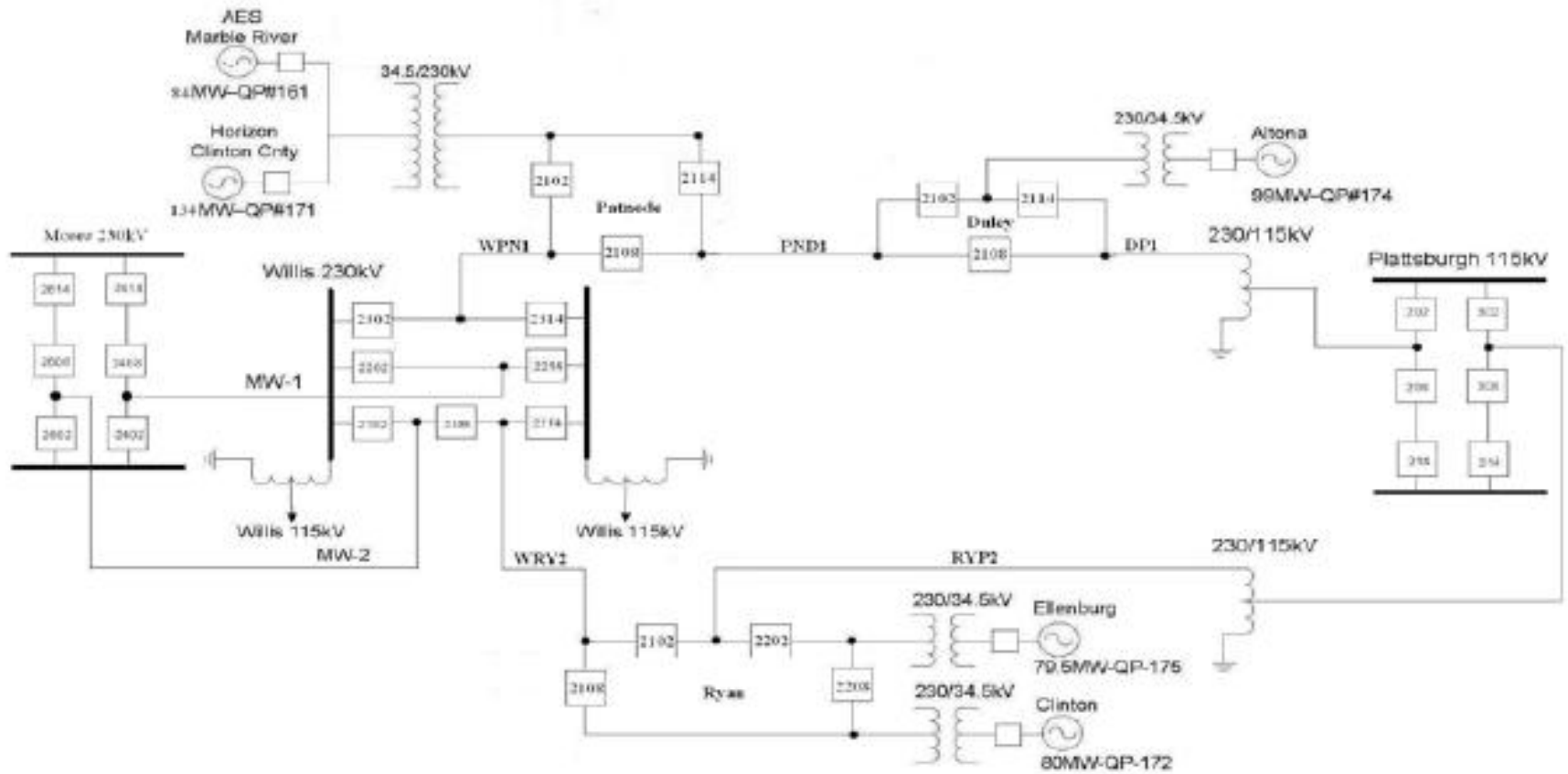
- Major wind resources are available in the Upstate New York Region
 - Approximately 475 MW of projects scheduled to be online in by end of 2008, from five separate generation facilities: Marble River I & II, Noble Clinton, Noble Ellenberg, and Noble Altona
 - Approximately 950 MW planned for 2011
- Current infrastructure not sufficient to transport this power by the end of 2008
 - Moses – Willis double circuit contingency is the most limiting factor
 - 360 MW maximum before thermal problems begin at Moses-Willis
 - Will require limiting output of area wind farms to prevent Moses-Willis contingency

Background

WIND FARM PROJECTS
 MOSES-WILLIS-PLATTSBURGH 230KV LINES MWP-1 & MWP-2
 Phase One Modifications



Background (cont.)



TBU System Planning Group
April 2007

Need for Further Study

- Coordinated New York and New England analysis required to assess the operation and future reinforcement of the area's transmission system
- Issues with North Country and Vermont network will need to be addressed
 - Existing transmission system cannot thermally handle the amount of generation in the area
 - Potential voltage concerns
 - Potential stability concerns
 - Existing special protection systems require re-evaluation
 - PV-20 Cross Trip special protection system
 - PV-20 OMS special protection system
 - Potential impact on phase angle regulators
 - Interaction with Vermont 10-year plan needs to be assessed

Goal: Operation and Relief of System Constraints

- NYISO, NYPA, VELCO, ISO-NE have agreed to conduct a series of operational studies to coordinate the operation and future reinforcements of the area
 - NGRID and NYSEG will be included in future meetings
 - Phase One Studies
 - Focus on operation of the area's 2009 system conditions
 - ~475 MW of new Wind Generation
 - Convert taps of the Moses-Plattsburgh circuits to ring buses
 - Phase Two Studies
 - Assess potential reinforcements to allow increased area generation
 - Potential application of new SPS
 - Phase Three Studies
 - Assess impact of planned 2011 wind integration, total of ~950 MW

Goal: Operation and Relief of System Constraints (cont.)

- Planning studies will integrate upgrades from various planning initiatives
 - PV-20 Line
 - Reconductoring
 - 230 kV/345 kV levels
 - May consider additional 230 kV running to New Haven, VT
 - Vermont 10-year plan
 - Should be finished by end of calendar year
 - New York upgrades
 - Special protection systems

Approach

- The planned wind generation interconnections to the area's transmission system will require various coordinated assessments
 - Thermal
 - Voltage
 - Stability

Next Steps

- Stage One Planning Studies begin in coming weeks and will be completed by the end of 2008
 - Identify operating guides to ensure coordinated reliable operation
 - All-facility in conditions
 - Facility-out conditions
- Study complements work going on at NYISO
 - Work complements both the NYISO's Comprehensive Wind Study, and other studies such as the Moses-South Stability Analysis