



NERC TPL-001-1  
Transmission System  
Planning Requirements

**Zach Smith**

*Manager, Transmission Studies*

*New York Independent System Operator*

**Transmission Planning Advisory Subcommittee**

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# Background

- ◆ Update and consolidation of existing NERC standards TPL-001 through TPL-006
  - *Applicable to Planning Coordinators (PC) and Transmission Planners (TP)*
- ◆ Standard Authorization Request: 4/30/2006
- ◆ First draft: 2/15/2007
- ◆ Current status
  - *Version 5 – January 6, 2010*
  - *Pre-ballot review: January 20 – February 19*
  - *Voting to begin shortly after 2/19, last for 10 days*

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# Overview

- ◆ Establishes transmission system planning performance requirements for the Bulk Electric System (BES) within the planning horizon
  - *Covers a broad spectrum of system conditions*
  - *Wide range of contingencies*
- ◆ Requires an annual “Planning Assessment” supported by current and/or past studies
  - *Near-term (1-5 years) and Long-term (6-10 years)*
  - *Covers steady state, short circuit, and stability*
  - *Allows studies 5 years old or less as support*

# Overview (continued)

- ◆ **Steady state analysis**
  - *Peak load: years 2, 5, one long-term year (6-10)*
  - *Off-peak load: year 5*
  - *Evaluate contingencies that are “expected to produce more severe system impacts”*
  - *Sensitivity analysis is required*
- ◆ **Stability analysis**
  - *Peak and Off-peak load: year 5*
  - *Long-term horizon analysis as necessary*
  - *Must model dynamic loads (induction motors)*
  - *Sensitivity analysis is required*

# Issue #1: Requirements for all BES

- ◆ Definition of BES is uncertain at this time
  - *Indications of 100 kV and above bright line*
- ◆ NYISO is PC and TP for New York State, with exception of National Grid footprint (TP)
- ◆ NYISO would be required to:
  - *Evaluate contingency events for all BES equipment*
  - *Evaluate all corrective action plans for BES*
  - *Evaluate all spare equipment strategies*
- ◆ Significantly more responsibility than NYISO has today

## Issue #2: Spare Equipment Strategy

- ◆ Requires PC & TP (NYISO) to assess the impact of the possible unavailability of any piece of equipment with a lead time of one year or more
  - *Essentially applies to all BES transformers for which there are not spares available*
  - *Interpretation: requires determining probability of losing a piece of equipment*
- ◆ This is well beyond the existing scope of NYISO's responsibilities
- ◆ From a reliability standpoint, redundant to N-1-1 contingency requirement

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## Issue #3: Annual Current Studies

- ◆ Requires annual current steady-state studies
  - *Peak load: years 2, 5, one long-term year (6-10)*
  - *Off-peak load: year 5*
- ◆ NYISO annually performs Area Transmission Review
  - *Peak load analysis of 5-year case*
- ◆ NYISO bi-annually performs RNA
  - *Peak load analysis of years 1 through 10*
  - *Most recent RNA is always considered “current”*
- ◆ NYISO does not find it necessary to perform off-peak load steady state analysis
- ◆ This requirement would be unduly burdensome with no benefit to reliability

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## Issue #4: Year One

- ◆ The first year of the planning horizon
- ◆ Defined as planning window that begins 12-18 months from the end of the current calendar year
- ◆ If Year One is two calendar years out, what is year two? year five?
  - *According to the drafting team, year five is still year five*
- ◆ Difficult to define years one through five
- ◆ Clarification needed to ensure compliance

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## Issue #5: Sensitivity Analysis

- ◆ For steady-state and stability analysis, requires varying one or more of the following:
  - *Forecasted Load, Demand Side Management*
  - *Expected Transfers*
  - *In-service dates of transmission facilities*
  - *Reactive resources*
  - *Generation additions, retirements, dispatch*
  - *Duration of planned transmission outages*
- ◆ List is fairly limited, yet required. Should be list of suggested sensitivities instead.
- ◆ May require sensitivities with no objective

## Issue #6: Dynamic Load Modeling

- ◆ Requires stability models to represent the dynamic behavior of loads, considering the behavior of induction motor loads
- ◆ NYISO has not modeled dynamic loads, and no such modeling has been benchmarked
  - *The simulated response may not be realistic*
- ◆ Requires a level of detail beyond the current scope of NYISO's responsibilities

## Issue #7: Corrective Actions

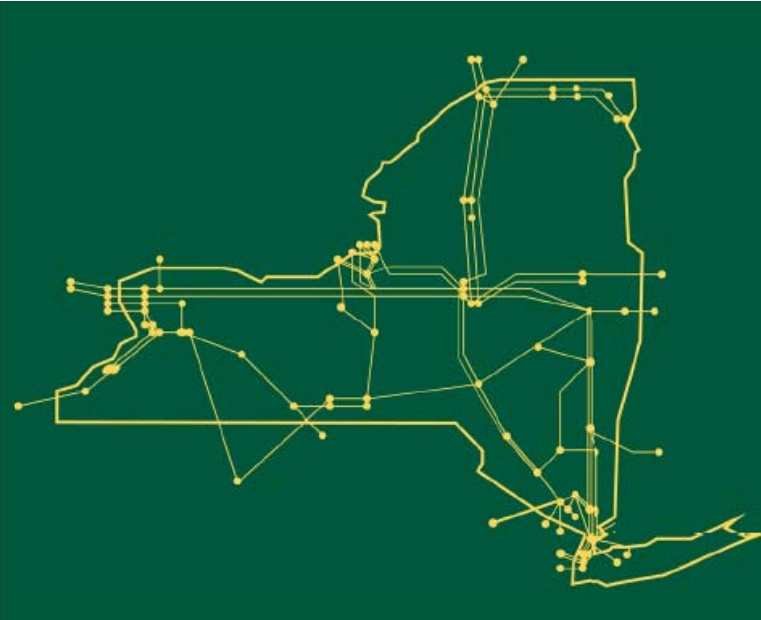
- ◆ Corrective Action Plans must be included in Planning Assessment to address how performance requirements will be met
- ◆ Standard states “Such actions may include:”
  - *Language not clear if actions are limited to the specified list*
- ◆ List does not include runback/tripping of HVDC
  - *Direct impact on Chateauguay, Phase II, others*
- ◆ Lack of clarity and lack of HVDC action is unacceptable

# Conclusion

- ◆ NYISO's major concerns were described here
  - *NYISO has many more concerns and comments*
- ◆ Draft standard is overly prescriptive in certain areas and too open to interpretation in others
- ◆ NYISO has commented on all these issues during previous comment periods for the standard
- ◆ NYISO does not support an affirmative voting recommendation on the current draft of the proposed standard

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