The Situational Awareness Challenge

Tom Bowe  
Executive Director Reliability & Compliance  
bowet@pjm.com
Why Are We Here?

- NERC Operating Committee
  - Import of Situational Awareness to Ops
  - Area of Interest to the OC and NERC Community
  - Events Analysis Sub-Committee
    - Great Work and Focus
- Industry’s Commitment to Learning & Excellence
Purpose of My Presentation

• Frame the Discussion for the Conference

• Help Focus the Outcomes

My Outline:

1. Systems Approach to Situational Awareness
2. Objectives of Conference
PJM’s Current Capabilities Reflect our Past Lessons Learned
0830 - SOS Conference Call
0940 - Heavy Voltage Schedule Implemented
1110 Possum Point VEPCO Trips
1123 Poletti NYPP 600MW Unit Trips
1130 - SOS Conference Call
1150-1245 Rapid Voltage Decay
1159 - PJM calls on East CT’s to raise Voltages
1215 - 1st Voltage Violations
1218 - Loading out of Merit Generation
1221 - Loading CT’s for Whitpain Transformers
1225 - PHASE II dropped from 1700 to 1200 MW’s
1230 - PJM provides 400 MW’s of Emergency to NY - Studies do not indicate this assistance is hurting PJM
1235 - PECO reports actual overloads on Whitpain Tran
1244 - PJM Loading all Eastern Generation
1254 - Max Schedule and Max Emergency Loaded
1300 - PJM declares 5% Voltage Reduction and Load Management & Load Dump Warning
1300 - System Load is 50,600 MW’s
1310 - System Begins Recovery
1345 - 5% Voltage Reduction Cancelled
1500 - Change contingency from East Transfers to West
1530 - SOS Conference Call
1530 - PJM goes back on cost
1600 - PJM stops management Market
1607 - MAX Schedule Generation Released
1625 - Load Management Released (GEN not following)
1700 - SOS Conference Call
1999 Heat Wave Event’s Categories of Causes

1. Voltage Operating Criteria and Procedures
2. Generation Data and Procedures
3. Planning/Operating Studies and Power System Modeling
4. Energy Management System (EMS) Related Process
5. Load Power Factor Criteria
6. Communication and Training
7. Energy Market

A Systems Approach to The Event

INPUTS
1. Operating Criteria and Procedures
2. Generation Data
6. Load Power Factor

PROCESSES
3. Studies and
4. EMS Related Process
6. Comms & Training

OUTPUTS
SITUATIONAL AWARENESS
Conference Objectives

• Learn – What is working well – where are the challenges?
• Identify Work
• Engage rather than attend this conference

• What is missing from the agenda:
  – Resilience & Situational Awareness?
    • What can we do to protect ourselves from cyber threats
    • As we get better, do we also have to fear greater reliance
      = how can capabilities still work with reduced data?
  – NERC ‘s Real-time Tools Task Force Report
1. NERC and participants - Identify three key learning themes

2. Identify work for the OC and/or its sub-committees (EAS, ORS) to address/reinforce these themes

3. Individually - our Homework!
   a. Ensure there is no gap between what we have learned at this conference and what we as organizations are doing
   b. Gain two new contacts for further sharing
   c. Commit to one process/technique to improve back home
Create Questions and drive the Conference to answer them