Using Synchrophasor Data to Determine Disturbance Location

NASPI Work Group Mtg. Joint Panel Session
October 24, 2018

Panel Overview

I.   Introductions

II. Consider functional entity roles and responsibilities related to disturbance response (5 mins).

III. Describe the value add for transmission and distribution applications (25 mins).

IV. Identify the data and network management challenges associated with using synchrophasor technology to locate and analyze disturbances (15 mins).

V.   Address questions from the audience (5 mins).

Introduction & Background

In 2015, The NASPI CRSTT began drafting series of papers to explore the following areas of interest and determine if value can be added by using synchrophasor-based applications:

1. **System Islanding Detection and Blackstart Restoration** **(June 2015).**
2. **Using Synchrophasor Data for Voltage Stability Assessment** **(Nov. 2015).**
3. **Using Synchrophasor Data for Phase Angle Monitoring** **(May 2016).**
4. **Using Synchrophasor Data for Oscillation Detection** **(Feb. 2018).**
5. **Using Synchrophasor Data to Determine Disturbance Location (Dec. 2018).**

Determining Disturbance Location

Purpose: Describe how synchrophasor technology can be used in the Real-time Operations Horizon to determine the nature, severity and location of disturbances on the electric system.

Primary Areas of Interest:

- How System Ops staff can use synchrophasor-based apps to analyze disturbances and identify actions that can be taken to return the electric system to an acceptable operating state.

- Potential safety, reliability and economic benefits for grid operators and electric utilities.

What's Constitutes a "Disturbance"?

The *Glossary of Terms Used in NERC Reliability Standards* defines a "Disturbance" as:

1. An unplanned event that produces an abnormal system condition.

2. Any perturbation to the electric system.

3. The unexpected change in ACE that is caused by the sudden failure of generation or interruption of load.

Functional Entity Roles & Responsibilities

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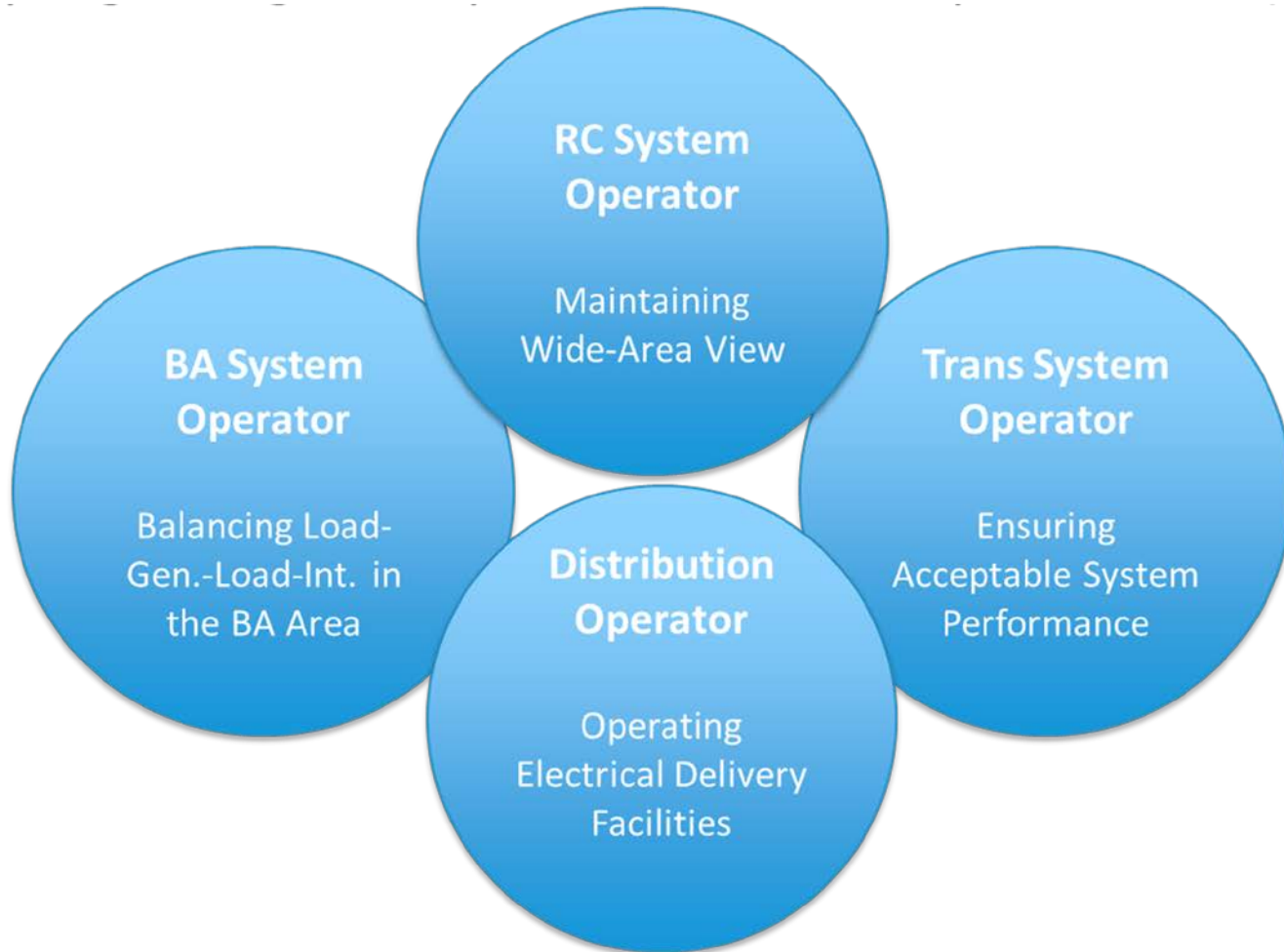
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