

# NYSERDA MDMS Kick-off Meeting Minutes

2014-02-18 10AM

Attendees:

| Name                  | Organization |
|-----------------------|--------------|
| Michael P. Razanousky | NYSERDA      |
| Dejan Sobajic         | NYISO        |
| Zack Smith            | NYISO        |
| Kevin S. DePugh       | NYISO        |
| George Smith          | NYSRC        |
| George Loehr          | NYSRC        |
| Bob Zavadil           | EnerNex      |
| Dave Mueller          | EnerNex      |
| Jiaxin Ning           | EnerNex      |

Comments and Responses:

1. Well define the types of disturbances going to be studied in the project

The target disturbances are “large disturbances” that have short-term adverse impact on system angle stability. Usually, these types of disturbances are generation perturbation-driven and likely to result in inter-area angle instability and loss of synchronism within cycles or seconds. In addition, EnerNex is also going to investigate load perturbation-driven disturbances to check whether the NY system is apt to expose to short-term voltage instability.

2. Analytical Methods

### 2.1 Instability detection (online and real-time)

To cope with large disturbances, EnerNex needs to introduce nonlinear dynamic analytical tools which can quantitatively describe the system characteristics out of linear region around its operating points. The search scope, as of now, will be focusing on certain advanced signal processing tools, which are oriented for the utilization of PMUs.

In addition, kinetic energy of generation groups may be a study of interest to explore also based on the utilization of PMUs.

Monitoring elements may include, but limit to, generator phase angles and speed, electrical bus phase angles, electrical bus voltages, system frequencies, critical interface power flows, and circuit breaker statuses.

## 2.2 Mitigation Measures

Depending on the types of disturbances, EnerNex will investigate control schemes including, but not limited to, under-frequency load shedding, over-frequency generator settings, controlled system separation, and/or the combination of the above.

In particular, the under-frequency load shedding scheme need to be paid more attention, for it may be subject to modification.

## 3. Dependability and Security of the Mitigation Measures

The proposed mitigation measures shall be verified by the 'large disturbance' scenarios for its dependability, while also be verified by the 'normal disturbance' scenarios for its security.

## 4. Framework of the Project

A detailed framework is expected to be proposed and approved by all parties as the first essential task at the very beginning of the project. Based on literature review and preliminary study, EnerNex will come up with a Framework for group discussion and approval to guarantee the quality of the project and satisfaction of partners. The Framework along with preliminary study on instability detection methods is anticipated to be submitted for the group discussion and approval upon the completion of Task 2.1.

## 5. Non-disclosure on Critical Energy Infrastructure Information (CEII)

To protect the critical energy infrastructure information of the NYISO, the project will also build a generic IEEE test system for algorithm development and verification. The accomplishments of the project can be, therefore, published without violation of non-disclosure agreement.