Smart Grid Investment Grant Project Update

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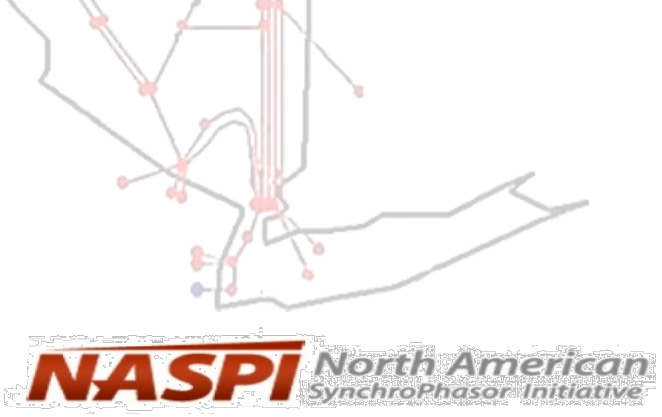
NASPI Work Group Meeting
October 12-13, 2011
San Francisco, CA



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Project Participants

- **New York ISO**
  - ***Project Manager – Kathleen Dalpe***
    - **kdalpe@nyiso.com**
    - **(518) 356-7657**
  - ***Business Owner – Rich Dewey, Senior Vice President & Chief Information Officer***

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Project Participants

New York Transmission Owners (TOs)

- Central Hudson Electric & Gas
  - *1 PMU, 1 PDC*
- Consolidated Edison
  - *14 PMUs, 2 PDCs*
- Long Island Power Authority
  - *2 PMUs, 1 PDC*
- National Grid
  - *12 PMUs, 1 PDC*
- New York Power Authority
  - *4 PMUs, 2 PDCs*
- New York State Electric & Gas
  - *5 PMUs, 1 PDC*
- Rochester Gas & Electric
  - *1 PMU, 1 PDC*

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Project Participants

- Quanta Technologies, Inc.
  - *Crowe Horwath LLP*
  - *PMOLink LLC*
- EPRI
- EnerNex
- ABB

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Project Timeline

Location	Activity Name	KV Level	Units	Start	Finish	Remaining Units	2012					
							Q4	Q1	Q2	Q3	Q4	Q1
Capacitors			804	11-Sep-11	15-Feb-13		22	94	88	89	495	16
Central Hudson			35	11-Sep-11	30-Jun-12		22		13			
National Grid			286	11-Sep-11	31-Dec-12			70	61	55	100	0
NYSEG			320	04-Jun-12	31-Dec-12						320	
O&R			64	11-Jun-12	15-Feb-13				14	34		16
RGE			99	15-Sep-11	31-Dec-12			24			75	
PDC			9	11-Sep-11	09-Aug-12		2	3	2	2		
Central Hudson			1	01-Nov-11	30-Jun-12				1	0		
ConEd			2	11-Sep-11	30-Mar-12		1	1				
LIPA			1	01-Oct-11	31-Dec-11		1					
National Grid			1	11-Sep-11	31-Jul-12					1		
NYPA			2	02-Jan-12	15-Jan-12			2				
NYSEG			1	28-Jun-12	09-Aug-12					1		
RGE			1	19-Apr-12	31-May-12				1			
PMU			39	24-May-11 A	07-Jan-13		5	6	10	15	1	2
Central Hudson			1	01-Nov-11	30-Jun-12				1	0		
ConEd			14	24-May-11 A	30-Sep-12		3	4	6	1		
LIPA			2	01-Oct-11	31-Dec-11		2					
National Grid			12	01-Apr-12	31-Jul-12					12		
NYPA			4	01-Feb-12	18-May-12			2	2			
NYSEG			5	17-May-12	07-Jan-13					2	1	2
RGE			1	08-Mar-12	31-May-12				1			

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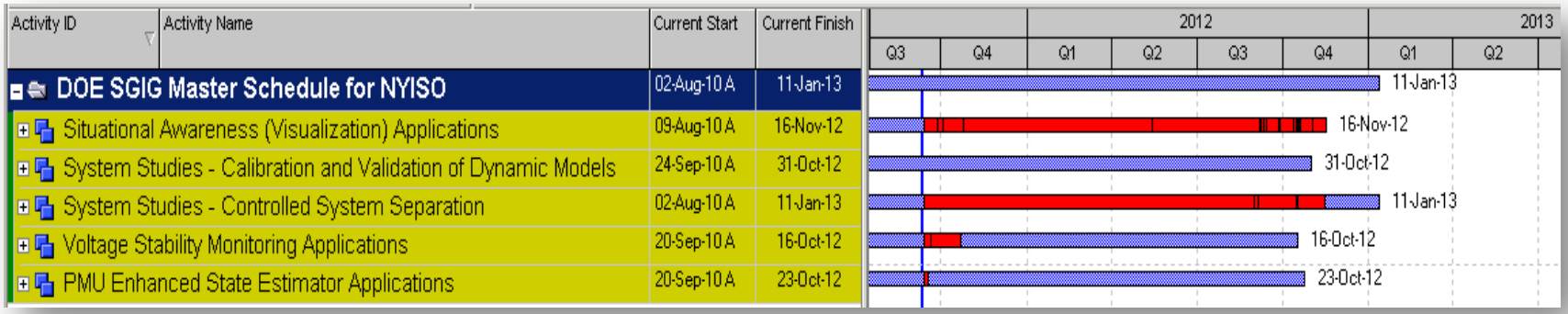
Project Timeline



Activity ID	Activity Name	Current Start	Current Finish
	DOE SGIG Master Schedule for NYISO	02-Aug-10 A	11-Jan-13
	Situational Awareness (Visualization) Applications	09-Aug-10 A	16-Nov-12
	System Studies - Calibration and Validation of Dynamic Models	24-Sep-10 A	31-Oct-12
	System Studies - Controlled System Separation	02-Aug-10 A	11-Jan-13
	Voltage Stability Monitoring Applications	20-Sep-10 A	16-Oct-12
	PMU Enhanced State Estimator Applications	20-Sep-10 A	23-Oct-12

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Phasor Measurement Units

- Seven TO organizations in project
  - *Total of 50 PMUs (39 new + 11 existing)*
  - *Each TO is selecting its own PMU equipment from common minimum requirements set by the project*
- PMU placement study dictated what signals were to be monitored at each location
- Number of substations with PMUs -- 50
- Sample rate -- 60 samples per second
- Range of PMUs being installed
  - *Disturbance Fault Recorders (DFRs)*
  - *Dynamic Disturbance Recorders (DDRs)*
  - *Stand-alone*

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Phasor Measurement Units

- **Installation rate**
  - ***Installing 39 new PMUs by EOY 2012 and folding in 11 existing PMUs***

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PDCs and Communications

- **Phasor Data Concentrators (PDCs)**
  - *ISO control centers*
  - *TO primary control centers*
  - *Some TO secondary control centers*
  - *One field PDC*
- **Archive**
  - *Envisioned to hold Real-Time, one year of full resolution data, seven years of event specific data*

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PDCs and Communications

- **Communications System**
  - ***Communication links to TOs will be fiber based from two separate Telecomm vendors***
  - ***Virtual Private LAN Service (VPLS) – cloud-based architecture***
  - ***Managed by NYISO***

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Major Project Goals

- Low Frequency Oscillation Monitor
- Voltage Stability Monitor
- Offline Study for model calibration
- Offline Study of viability of Controlled System Separation

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Major Application Goals

- All TOs will have access to visualization apps through TO portal
- Wide Area Situational Awareness (WASA) will be provided through third-party vendor - TBD
- Phasor enhanced State Estimation function planned to begin validation in 2012
- Hardware and software installations scheduled to be complete by 4th quarter 2012

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Challenges & Lessons Learned

- **Biggest technical challenges to date?**
  - ***Changing Standards / Future Proofing***
  - ***Calibration of Signals / Testing***

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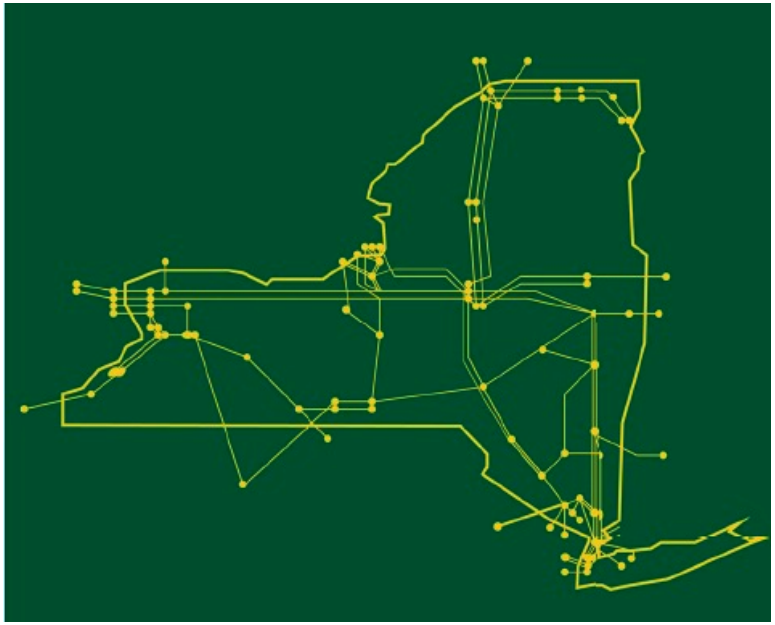

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