PAP02 Extended Work - Guidance on Use of Wireless in the Smart Grid

> Proposed Framework Updated 13Jun2011

# Objectives

- Provide a fact-based assessment of wireless standards and representative technology implementations of those standards (using specific spectrum) for their ability to satisfy the business needs for the Smart Grid
- Build upon and extend NISTIR 7761
- Accomplished within 6-9 months of voluntary resources

# In - Scope

- Wireless standards specifications, and representative technology implementations of those standards
- Spectrum in the range <700 MHz <6GHz
- AMI networks and Distribution FANs
- "Last Mile" and backhaul networks
- Account for representative real-world deployment areas and their characteristics of: RF propagation factors, endpoint deployments, business application requirements

# Out of - Scope

- Pricing or Costs (CapEx or OpEx)
- Simulation modeling of the wireless standards and technologies
- Detailed base-station and subscriber lat/lon RF propagation network design with associated detail clutter and typo terrain data

## **Framework Basics**

- Use a model Smart Grid area concept described by:
  - Endpoint population and density category characteristics, based on USA-state census track data
  - RF propagation representative characteristics
  - NISTIR 7761 business application requirements

#### Framework Basics - cont'd

- Wireless standards/technology and spectrum modeling of the model area:
  - Using a multi-worksheet spreadsheet tool (with generalized parameter input for design factors)
  - Minimum output: quantity of wireless std/tech/spectrum network gear required by endpoint density category, incremental gear type/count for RF propagation factors & engineering work-arounds for subscribers, and declarations of no endpoint coverage conditions

## Framework Basics - cont'd

- Deliverables "Guidelines for use of Wireless in the Smart Grid", (a separate NISTIR or volume or appendix to NISTIR 7761) containing:
  - Overview of process
  - Description of model Smart Grid Area and Characteristics
  - Description of Wireless Standards (with representative technologies and utilized spectrum bands and amount.
  - Matrix and summary of the assessment results categorized by wireless standard, spectrum band and containing: network gear type/count by density category, with incremental counts by RF propagation factor, noting work around conditions and areas of no coverage provided

### Framework Basics - cont'd

Proposed Framwork Details r0.1 tab Cell & External Inputs Linkage



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# WorkPlan / Timelines

WBS	Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6
Data Gathering: finalize model area characteristics, wireless stds, techs, spectrum, appropriate wireless models						
Design and prototype spreadsheet assessment model, includes specifying inputs, outputs, format						
Populate and assess other wireless stds/spectrum/tech						
Vett Assessment w/n PAP02						1
Assemble Content and write guidance						
PAP02 Review and Recommend to SGIP						