

# NIST Smart Grid Standards Roadmap Project Goals

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April 23, 2009



## The NIST Role

***Energy Independence and Security Act (EISA) of 2007  
Title XIII, Section 1305.  
Smart Grid Interoperability Framework***

In cooperation with the DoE, NEMA, IEEE, GWAC, and other stakeholders, NIST has “primary responsibility to coordinate development of a framework that includes protocols and model standards for information management to achieve interoperability of smart grid devices and systems...”

## Why NIST?

Smart Grid standards require integration of many NIST skills:

- Electric utility industry measurement research
- Advanced network technology
- Industrial controls and interfaces
- Buildings and electrical infrastructure
- Computer and network security
- Documentary standards expertise
- Testing and certification experience
- Reputation as a neutral “honest broker”, facilitator, and convener

## Progress to Date

2007

- EISA Assigned Standards Coordination Responsibility to NIST in December 2007

2008

- NIST Engaged Key Stakeholders, Including DOE and FERC, Other Agencies, and Industry
- NIST Formed Domain Expert Working Groups With Over 100 Companies Participating
- Launched Twiki Collaboration Website to Enhance Public Participation
- Initiated Development of Interoperability Knowledge Base
- Convened 3-day Workshop at Grid Interop Conference in November 2008

2009

- Key priority of new Administration
- \$4.5 billion DOE ARRA funding for Smart Grid, including \$10 million for NIST
- Urgency to establish standards becomes paramount
- NIST develops plan to accelerate progress

# There is an Urgent Need for Standards



## Example: Smart Meters

\$40 - \$50 billion dollar  
deployment nationwide

Underway now

ARRA will accelerate

Rapid technology evolution

Absence of firm standards

Source: Congressional Research  
Service Report

# How Many Standards are Needed? How Long?

## By Analogy – Next Generation Network for Telecom

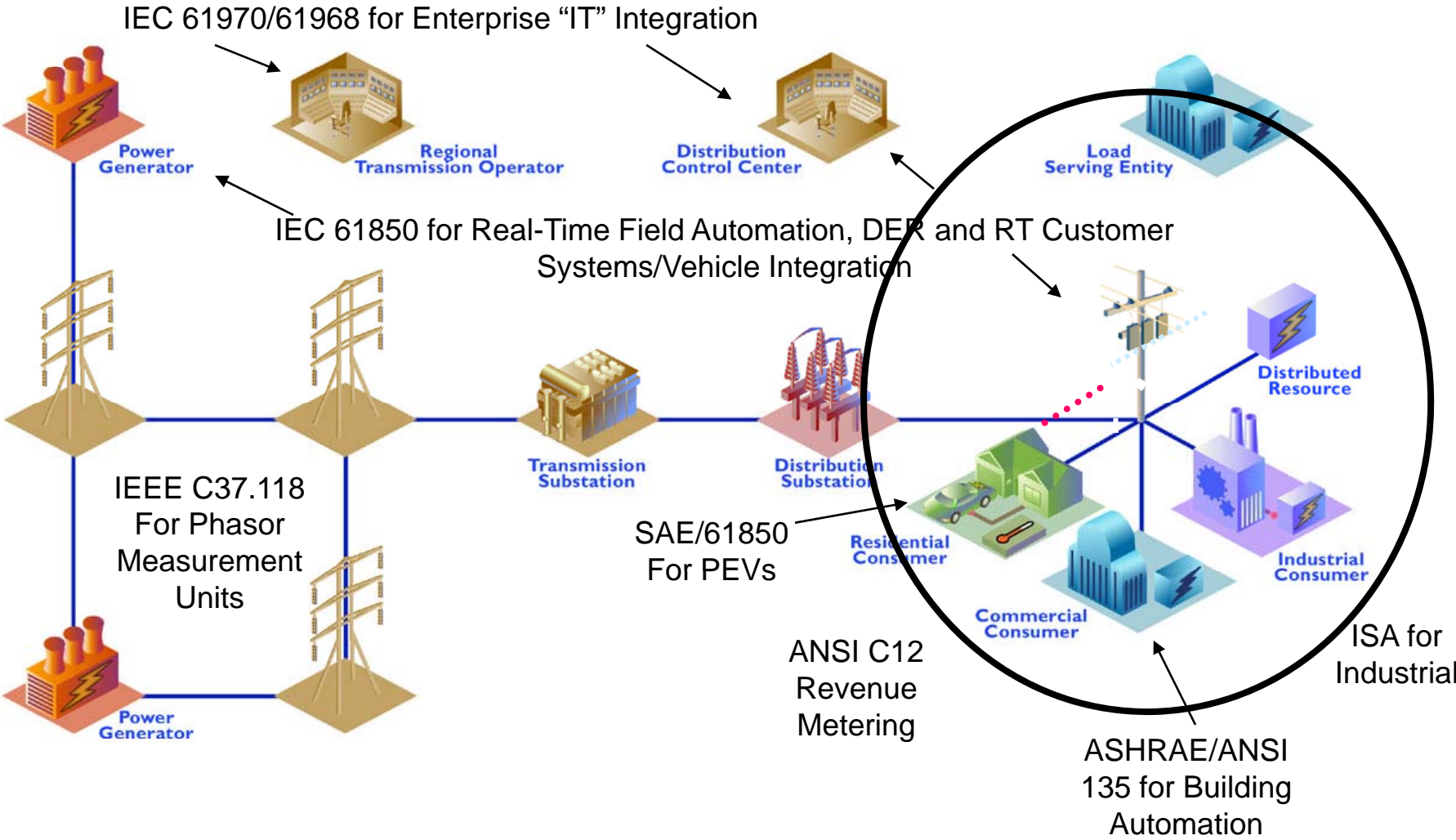
(Verizon FiOS is one example – integrates voice, video, data)

- Initial field trials in 2004
- Nationwide full deployment will take 10-15 years
- Standards work started in 2003
- Three principal standards bodies involved
- Release 1 standards finalized year-end 2005
- Release 2 finalized early 2008
- About 600 standards documents
- Mostly “mix & match” and extensions of existing standards
- Standards continue to evolve with new technology

## Smart Grid is about the same magnitude

- Key difference: many more standards bodies involved
- Strong coordination role needed

# Domains Where Standards Are Needed



# NIST Plan to Accelerate Progress

## Phase 1 Roadmap and Smart Grid Release 1

- EPRI Contract Awarded April 2, 2009
- Roadmap Workshops April 28-29 & May 19-20, 2009
- Sec.Commerce/Energy CEO-level meeting, early May
- Standards “Congress” July 2009
- Publication September 2009 Reflecting Consensus on
  - Architecture
  - Standardization Priorities
  - Selection of Release 1 Standards
  - Assignment of Responsibilities to Standards Development Organizations for Further Development
  - Timetable

## Phase 2 Public-Private Partnership for Longer- Term Evolution

- RFP in May 2009
- Smart Grid Interoperability Standards Panel Launch by End of 2009
  - Evolve Roadmap
  - Ongoing Coordination
  - Ensure Implementation

## Phase 3 Testing and Certification Framework

- Develop Plan by End of 2009
- Begin Implementation 2010
- Address both Interoperability and Security



# Phase 1: Roadmap and Release 1 Standards

## April 28-29 Workshop

- Define Architecture
- Evaluate existing standards
- Consensus on which can be endorsed now (R1)
- Identify issues

## May 19-20 Workshop

- Identify additional standards needed
- Priorities
- Responsibilities
- Timeline

## July Workshop

- Refine and complete roadmap

## September 2009 Report

# Smart Grid Organizational Structure: “Coordination Machinery”

