
Smart Grid: A Public Private Partnership Imperative

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(NIST/U.S. Dept. of Commerce)

ANSI Delegation to PASC 34

Why does this matter?

- ❑ Huge payoff for “getting this right”
- ❑ Significant consequences for errors
- ❑ Emerging technology
- ❑ Multi-disciplinary
- ❑ Challenging public policy issues
- ❑ Experiences and lessons learnt can guide future efforts in similar scenarios

Smart Grid – A U.S. National Priority

“It is the policy of the United States to support the modernization of the Nation's electricity [system]... to achieve...a Smart Grid.”

United States Congress, EISA 2007



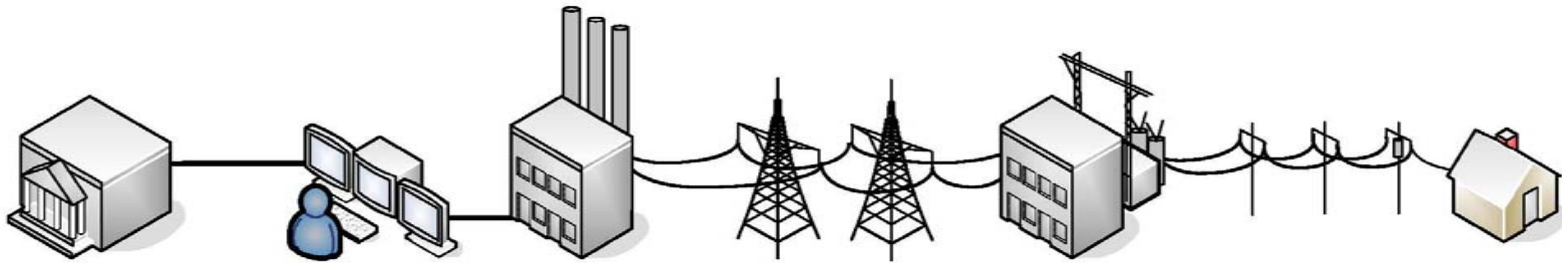
“We’ll fund a better, smarter electricity grid and train workers to build it...”

President Barack Obama

“To meet the energy challenge and create a 21st century energy economy, we need a 21st century electric grid...” Secretary of Energy Steven Chu

“A smart electricity grid will revolutionize the way we use energy, but we need standards ...” Secretary of Commerce Gary Locke

Smart Grid = Electrical Grid + Intelligence



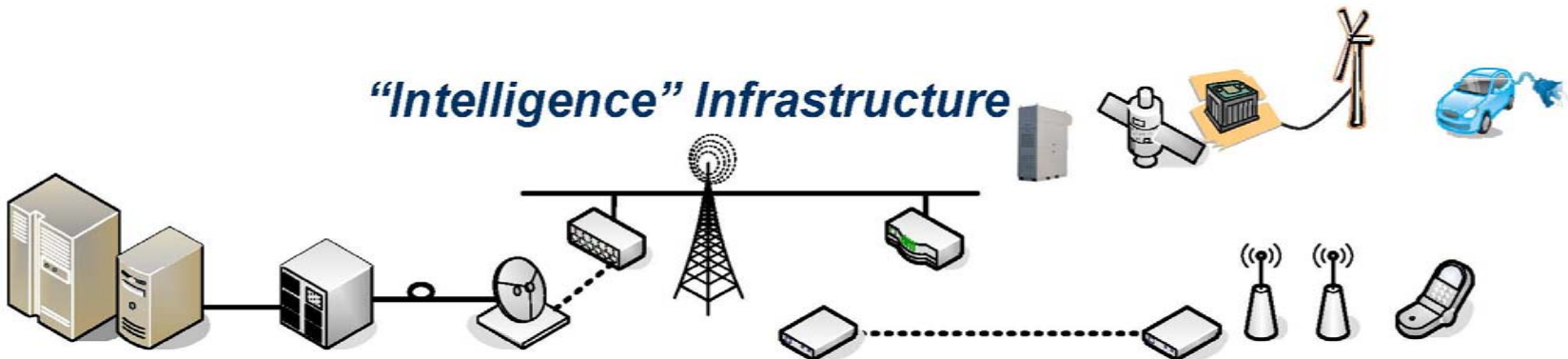
Electrical Infrastructure

Combining electrical and communication grids requires interoperability

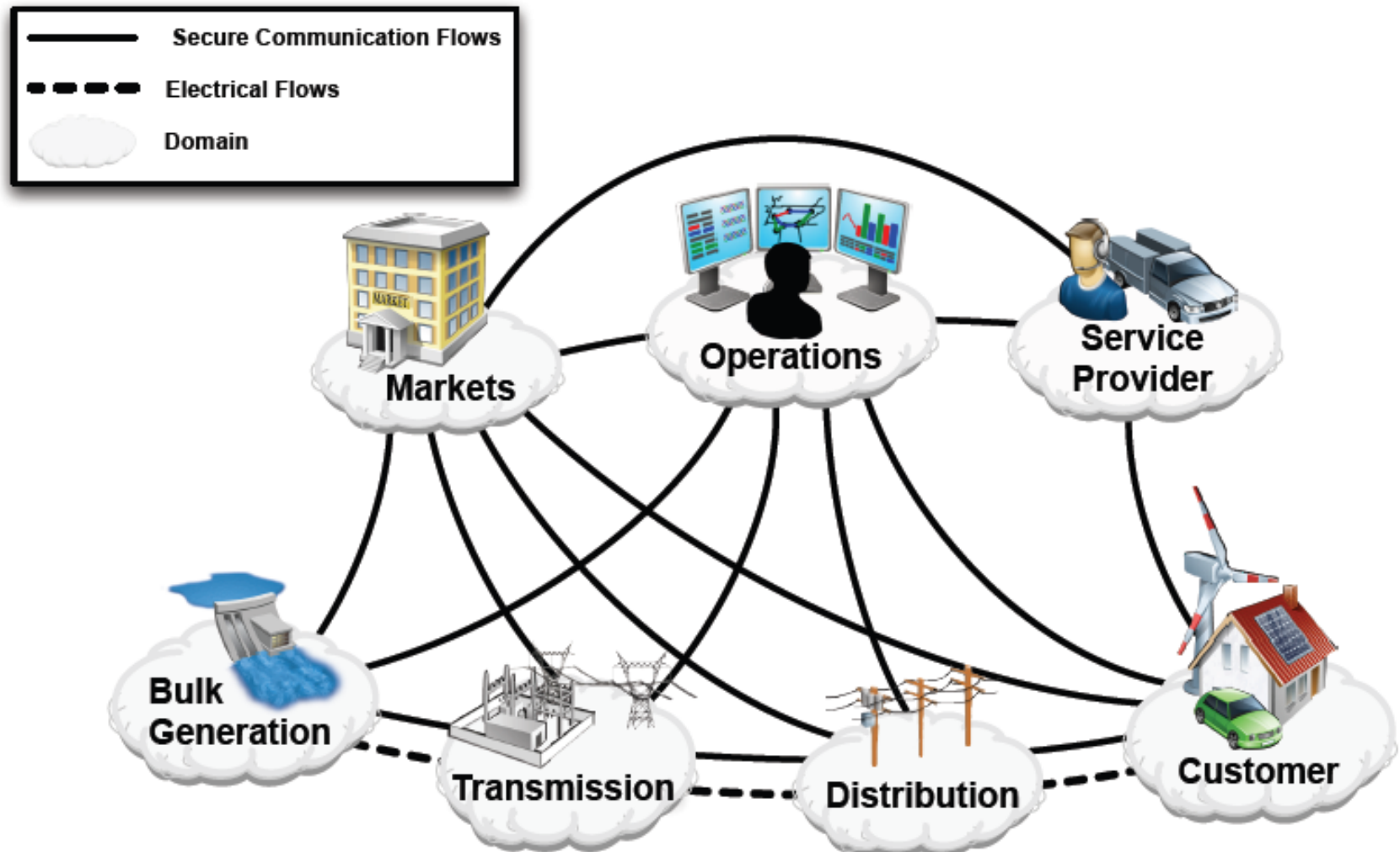
Interoperability requires reliable standards and validated performance



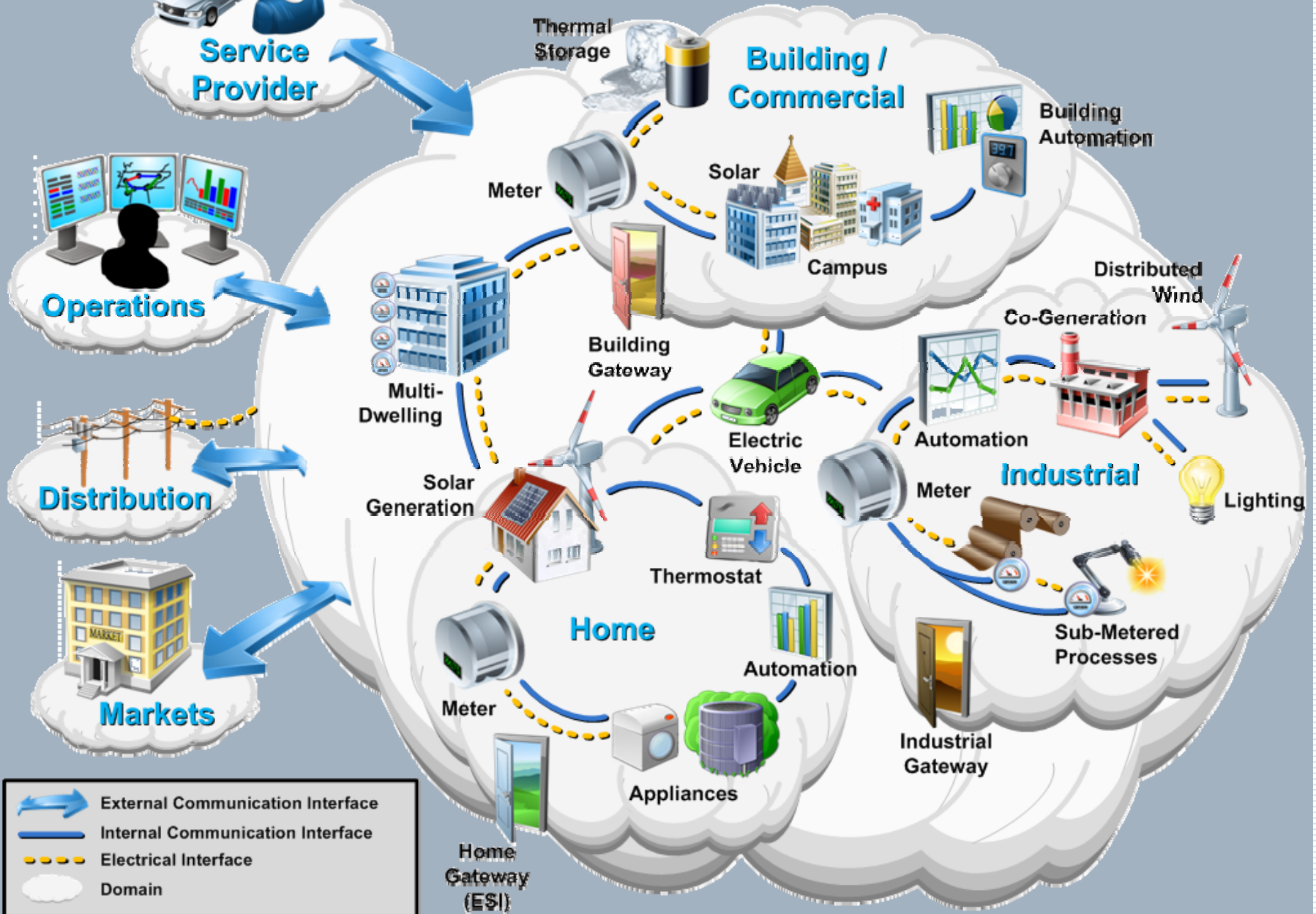
"Intelligence" Infrastructure



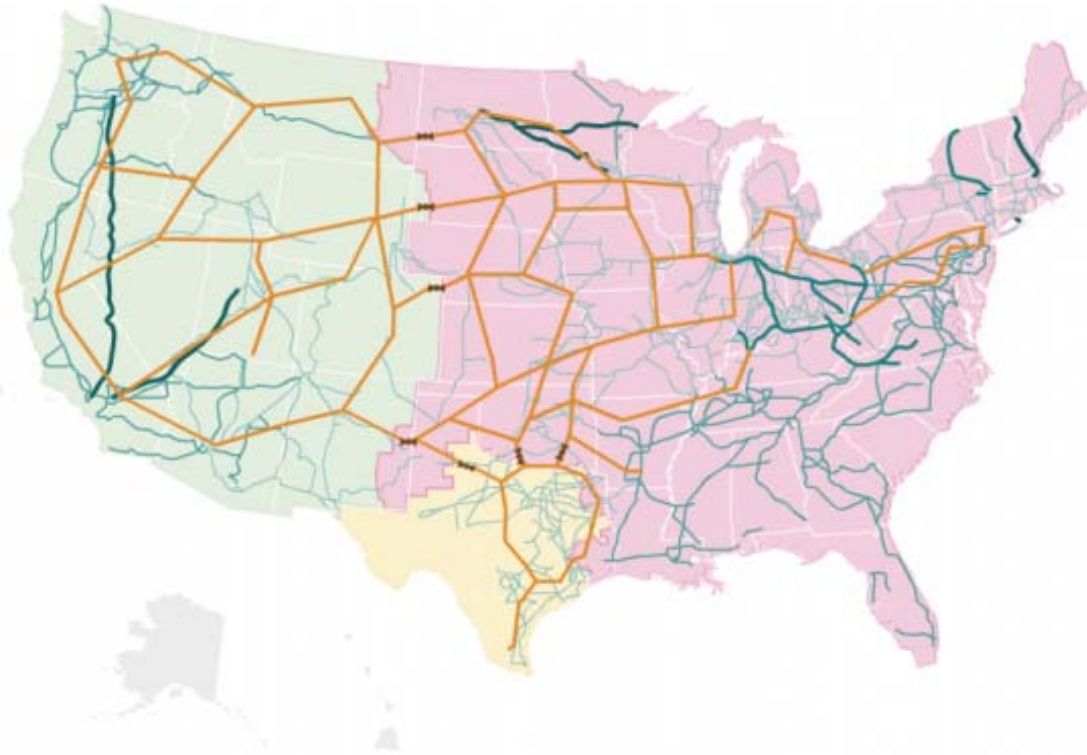
Smart Grid – A System of Systems Paradigm



Customer

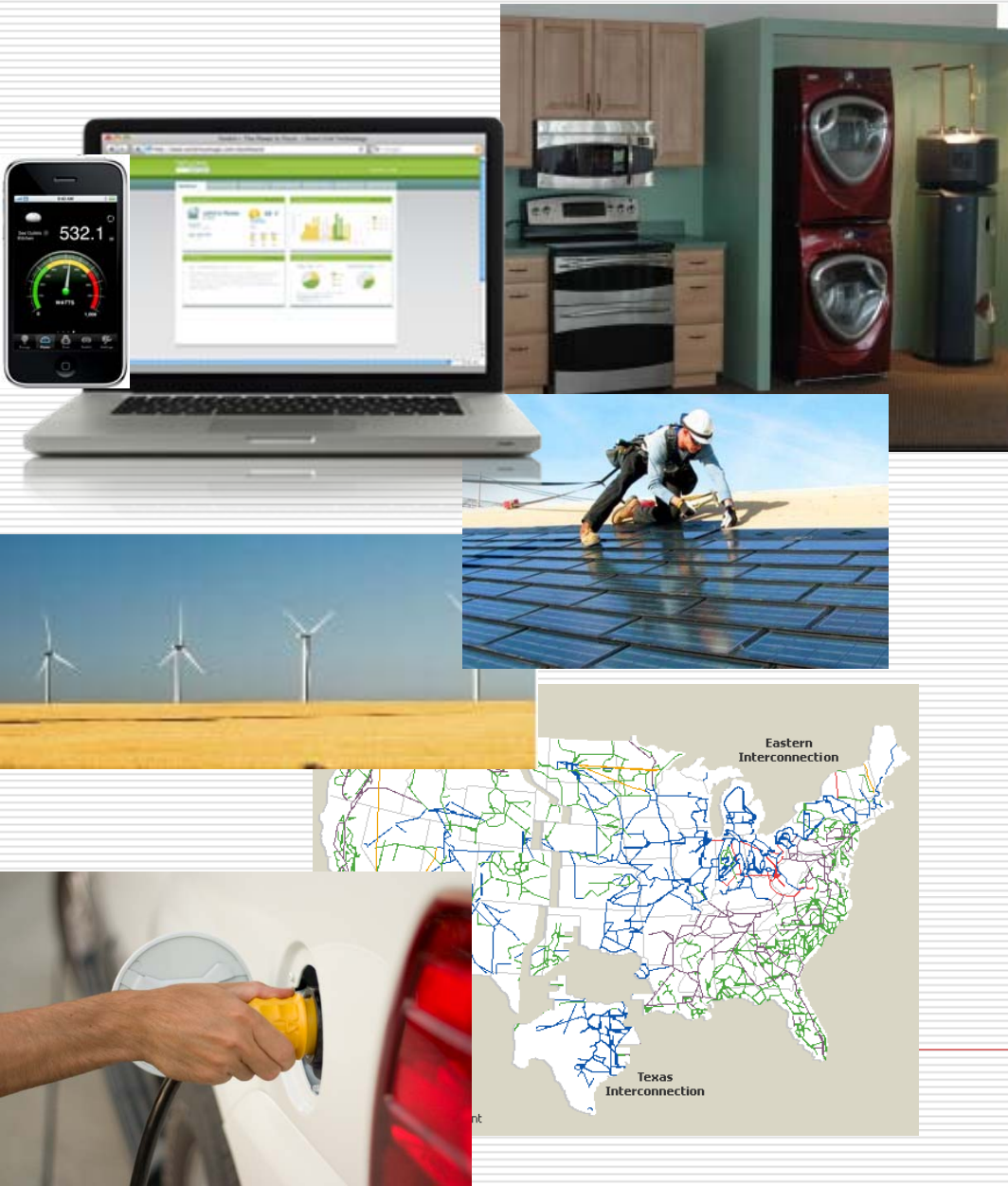


U.S. Electric Grid



- ❑ 3,100 electric utility companies
 - ❑ 10,000 power plants
 - ❑ 157,000 miles of high-voltage lines
 - ❑ 140 million meters
 - ❑ \$800 billion in assets
 - ❑ \$247 billion annual revenues
-

Smart Grid Goals



- ☐ Enable customers to reduce average and peak energy use
- ☐ Increase use of renewable sources
- ☐ Improve reliability and security
- ☐ Facilitate infrastructure for electric vehicles

Public Policy Considerations

Objectives: (in no particular order)

- ☐ Safety, health and environment
- ☐ Energy security
- ☐ Innovation
- ☐ Global competitiveness
- ☐ Trade
- ☐ Technology evolution
- ☐ IPR Protection
- ☐



Credit: J. Messerly

Credit: Jesse Lee



Standards Development Overlap with Public Policy Considerations

- ❑ Multi-disciplinary
- ❑ Diverse approaches to standards development
- ❑ Backward compatibility to avoid stranded investments
- ❑ Immediate standards needs – interoperability, product deployment, grant guidance, regulation, etc.



Credit: remodeling.hw.net

EVB Energy Ltd.



Statutory and Policy Framework

- ❑ **National Technology Transfer and Advancement Act (P.L. 104-113) Section 12(d):**

Except as providedall Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments

Statutory and Policy Framework

- ❑ Office of Management and Budget (OMB) Circular A-119: “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities”

...this circular directs agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical....The policies in this Circular are intended to reduce to a minimum the reliance by agencies on government-unique standards

Approaches to Standardization for Smart Grid – Examples*

□ Smart Grid Interoperability Panel

- Analysis and coordination
- Formal governance structure



Courtesy: techibuzz.com/GM Autos

□ ANSI Electric Vehicles Standards Panel

- Foster coordination and collaboration for deployment of EVs



Courtesy: windpowerfacts.net

Approaches to Standardization for Smart Grid – Examples* (*contd.*)

Common characteristics:

- Public-private partnerships
- Panels do not develop standards
- Participating standards developers develop standards
- Openness and transparency
- Bring together diverse stakeholders
- Enable rapid identification of needs and gaps

Closing thoughts

- ❑ Increasing number of emerging technologies that will have strong public policy overlap
- ❑ Balance of public policy considerations with policies enabling technology and market evolution is critical
- ❑ Mechanisms needed to build trust and foster close cooperation
- ❑ Strive for win-win solutions

Contact

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