



Verizon's Approach to Smart Grid

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Verizon's Corporate Footprint

- Employees: > 210,000
- Global Company: provide services in 150 countries
- Facility Footprint: ~27,000 buildings worldwide
- Fleet: ~47,000 vehicles
- Cell Sites: ~42,000 in operation
- Electricity Usage: 9.9B kWh (2009)
- Fuel Usage: 56.1M gallons (2009)





Clean Energy Imperatives: Policy Priority for Obama Administration

Energy

- Update Infrastructure
- Produce More Energy at Home
- Increase Renewable Energy
- Implement New Usage Models
- Promote Energy Efficiency

Climate

- Need for greenhouse gas reduction – 60 to 80% in 40 years
- Power sector creates 40% of US greenhouse gas emissions
- Smart grid can reduce US emissions ~ 8% by 2020
- Develop energy capacity and demonstrate US leadership in clean energy and climate concerns

Security

- Breaking Dependence on Foreign Energy Sources
- Improve energy system security



What is Smart Grid?

- **For utilities:** “Smart Grid” is about overlaying the generation, transmission and distribution system with a proven and reliable communications and control network to enable:
 - More efficient and resilient operations
 - Two-way communications with customers
 - Distributed generation and storage
- **For customers:** “Smart Grid” itself is not of too much interest. If anything, they want energy-use information that enable more effective energy management . . . information that usually is associated with “Smart Homes” “Smart Buildings”
- **For Verizon:** Smart Grid and Smart Homes & Buildings are an opportunity to put our broadband networks and expertise to work in the service of:
 - Utilities looking for cost-effective ways to enhance and modernize their systems
 - Consumers & businesses looking for ways to save energy and dollars
 - The nation in the effort to achieve clean-energy leadership, create jobs, reduce dependence on foreign oil and reduce greenhouse gas emissions.



Advantage of Leveraging the U.S. Communications Industry

- **National reach**
- **Continued investment**
- **Interoperability for continuous and efficient network operation**
- **Security in all elements of network assets and operation**
- **Standards-based network elements**

- In last 5 years, U.S. communications providers have invested \$320 billion in their networks.
- Wireline broadband now available to more than 94% of all U.S. households.
- Commercial cellular networks reach nearly 100% of the U.S. population:
 - 3G Wireless Networks reach 95% of U.S. residences
- Industry-wide use of open standards architectures to achieve economies of scale and sustain manageable interoperability of components.
- Communications industry provides redundant and secure mission-critical services for government and large-enterprise customers.
- Verizon operates and manages >80 technologies for enterprise customer networks across our *own* network
- Verizon's networks provide broad security visibility, monitoring nearly 5 billion events a day.
- Verizon's independent ICSA lab certifies equipment for security compliance. www.icsalabs.com

We are in place and ready to help build a national smart grid, TODAY



Broadband, Smart Grid/Smart Homes & Buildings



Verizon brings solutions built around its wireless and wireline networks and its know-how with security and data management to support the deployment of the “Smart Grid” by a growing number of partners in the space.

- Formed partnerships with companies like Ambient, Current and Itron to provide turnkey solutions for “smart electricity meter” deployments
- Launched a pilot project in NC with IBM, Consert and Fayetteville Public Works to facilitate home and business energy management applications
- More than 1 million automated metering and smart grid endpoints under contract with more than 20 utilities



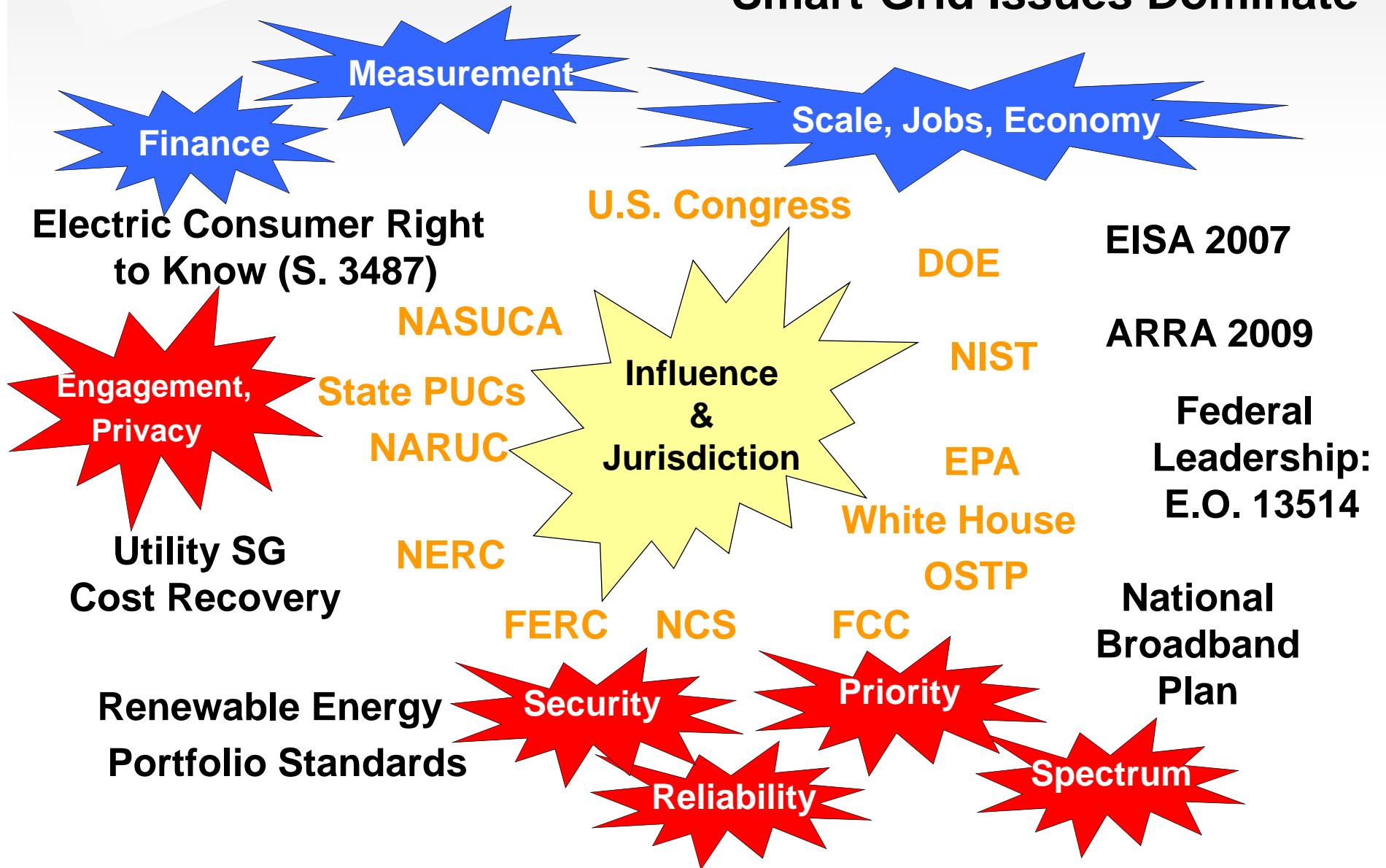
Verizon planning to bring “Smart Home” and “Smart Building” solutions to market later this year that will enable customers to better manage their energy use:

- A typical household reduces its energy use by up to 15% when real-time information is made available to the members, according to a national study

GeSI's Smart2020 Categories



Complex Federal & State Policy Landscape: Smart-Grid Issues Dominate





Challenge for National Broadband Plan

FCC Recommendation: Modernize the Electric Grid with Broadband, Making it more Reliable and Efficient

- Utility sector Mindset is to “Own & Control”
- Utility Objections feel like “Refusal to Deal”

Solution?

- “Earn it” . . . not assume “Deserve it”
 - ✓ Deepen Knowledge and Bridge the “Confidence Gap” – e.g., VZ/UTC Study
 - ✓ Establish Broad and Deep Relationships
 - ✓ Will take Sustained, Consistent effort



Smart-Grid Policy Challenge I.

Utility business models and cost-plus, regulated pricing

- Utility sector is hampered by the lack of an “ecosystem of innovation” due to prevailing regulatory paradigm and resulting business model.

Solution?

- Leverage the vibrant innovation in communications sector.
- Mine the communications sector for lessons that might be applied to electric utilities.



Smart-Grid Policy Challenge II.

Lack of customer awareness of or demand for smart grid applications

- Energy consumption traditionally is a passive purchase. Open question if will change
 - ✓ Standards issues
 - ✓ Privacy & security
 - ✓ Energy use information from meters or in-home sensors

Solution?

- Accelerate development of the Smart Home and Smart Building markets, which are adjacent to but different from Smart Grid



Smart-Grid Policy Challenge III.

Fragmented nature of energy regulation

- Provision of electricity is local in many respects, and highly regulated.
- The shift toward “Smart Grid,” which could become a national interoperable network, will entail an enhanced level of state and federal cooperation and oversight of an array of issues.

Solution?

- Reassess the dynamics of state/federal electricity regulation.