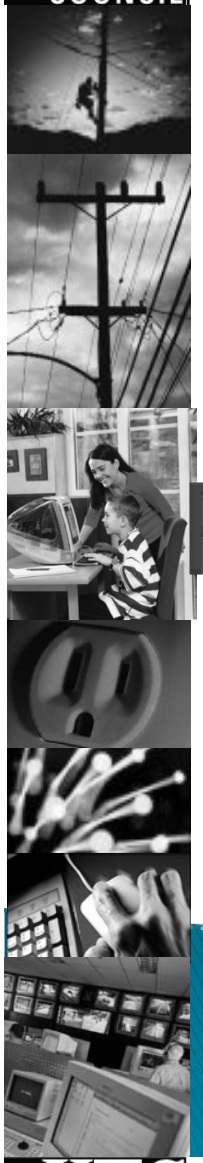

Spectrum, Smart Grid and Protecting Critical Infrastructure

Utilities Telecom Council

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The Voice of Critical Infrastructure Communications

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About UTC

- UTC is the international association for the Telecom and IT interests of utilities and other critical infrastructure industries
- Since 1948, UTC has advocated for policies that promote utilities' private internal communications to support their core missions
- UTC's members include all kinds of utilities, from large investor-owned utilities to relatively small municipal and cooperative utilities
- UTC chairs the Critical Infrastructure Communications Coalition, which includes all major electric, water and gas organizations

Radio Spectrum Inventory Bill

- Harmful to national security, homeland security and public safety
  - Fosters easy, internet based access to information that should be secure
  - Puts Critical Infrastructure Industries (CII) at risk
- Meaningless exemption process
  - CII have no “legal” prohibitions, just expected to maintain security and privacy
  - Hold generic exemption proceedings
- At a minimum, need Department of Homeland Security to review submissions

Smart Grid Challenges

- **Smart grid requires 2-way communications all across utility service territories to support:**
  - Advanced metering infrastructure, dynamic pricing, demand response, distribution automation, distributed generation, Supervisory Control & Data Acquisition (SCADA), electric transportation
- **Smart grid needed to meet near-term issues:**
  - Demand expected to increase by >20% over next 20 years
  - But, many regions were dangerously close to safe reserve margins
  - New generation options have challenges – cost, climate change, siting, renewables, efficiency standards
  - NERC / FERC Critical Infrastructure Protection requirements

Why Utilities Need Spectrum

- **Smart grid communications networks have special requirements**
  - Latency, coverage, reliability/availability, throughput and security
  - Depends on criticality of each application
- **Utilities lack suitable communications at and beyond the distribution substation**
  - Only 46% of substations have access to 2-way communications, and <30% of that is broadband
  - 72% of intelligent grid devices will need upgraded communications
  - 91% of customers will need communications upgrade to support smart grid
- **Utilities need access to 30 MHz of spectrum below 2 GHz to meet throughput and coverage needs**
  - Estimate based on WiMAX voice, video and data system
  - Existing spectrum, commercial services, and unlicensed radio are inadequate

Why Utilities Need Their Own Communications Systems

- **Commercial carriers are not reliable.**
  - Limited battery backup, coverage is spotty, congestion a problem, poor service restoration times
- **Utilities need to control their communications systems.**
  - Safety and security of crews and infrastructure at risk if dependent on third parties/networks
  - NERC/FERC reliability requirements impose additional liability
- **Utility systems are cost-effective and designed for durability and reliability**
  - Costs must be justified to state regulators and depreciation periods are long
  - Unlike commercial systems which are designed for maximum capacity and short depreciation

What Spectrum Will / Won't Do

- Access to spectrum will:
  - Reduce costs
  - Meet near-term and long-term needs
  - Promote interoperability
  - Encourage market/equipment development
  - Remove barriers to deployment
  - Ensure long-term stability
- Spectrum for smart grid won't:
  - Create inefficiencies – spectrum can be shared
  - Favor technologies – spectrum gives options
  - Compete with carriers – spectrum is for private / internal, and utilities will still use carriers

How Spectrum Can Be Shared

- **With Federal Government**
  - 1800-1830 MHz or other similar band below 2 GHz for fixed data / video
  - No reallocation of spectrum or relocation of users
  - Single Memorandum of Understanding
    - Between a CII representative association such as UTC and the appropriate federal agency, such as the Department of Energy, to cover nationwide shared use.
  - Frequencies would be classified, protecting CII/HS

- **With Public Safety**
  - 700 MHz spectrum for voice communications.
  - Priority access for and interoperability with utility communications.
  - Statewide licensing that conforms to utility service territories.

How Pole Attachments Can Promote Broadband

- Adopt one rate for broadband attachments to eliminate rate subsidies and discourage disputes.
- Enforce the terms of pole attachment agreements to discourage "sign and sue" and unauthorized attachments.
- Refrain from imposing one-size-fits-all requirements for access.
- Deregulation, not reregulation, will promote a partnership in pole attachments!

Ways the FCC Can Help

- Radio Spectrum Inventory Act
  - Support limited exemption to protect utility information from public disclosure
- National Broadband Plan
  - Support access to spectrum for smart grid
  - Spectrum may be shared – but utilities need certainty and uses must be compatible
  - Encourage carriers to improve their networks
  - Encourage partnership in pole attachments
- Ongoing Coordination
  - Work with Federal agencies and Congress to facilitate timely and effective access to spectrum for smart grid.
  - Allow utility representatives to serve on Emergency Response Interoperability Center Advisory Board