



Florida Public Service Commission Staff Workshop on Smart Meters

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Silver Spring Networks



Company Overview



- Celebrating a decade of success
- The leading provider of open networking technology for the smart energy network
- Global reach with over 12M homes and businesses connected
- HQ in Silicon Valley with offices in Australia, Brazil, UK

Why Do Utilities Select SSN?



Open Standards



Secure



Scalable



Reliable



Extensible



High Performance

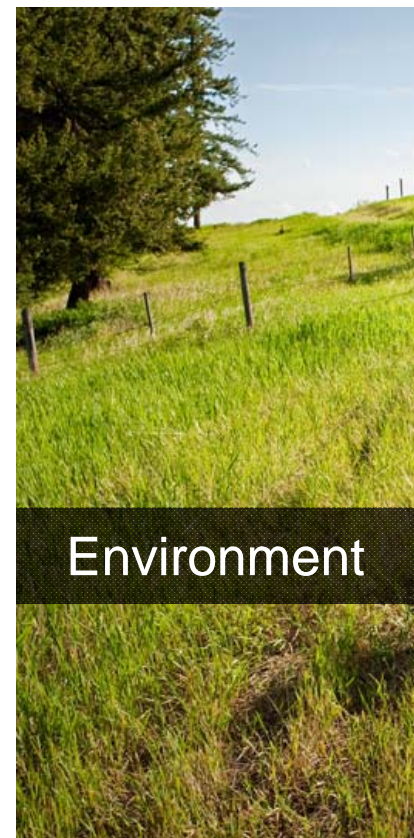
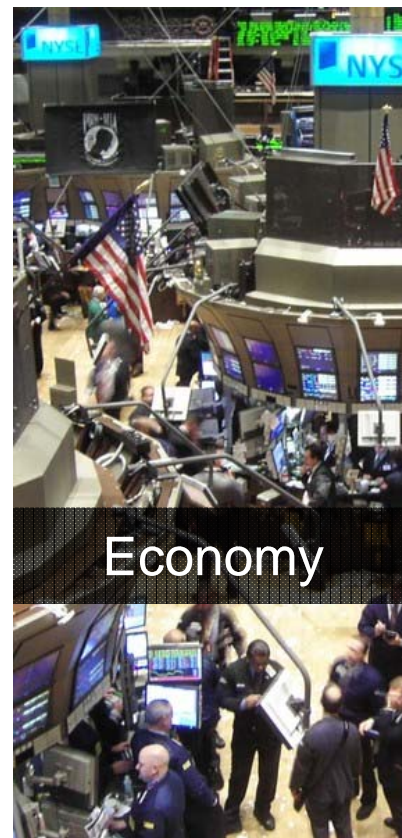
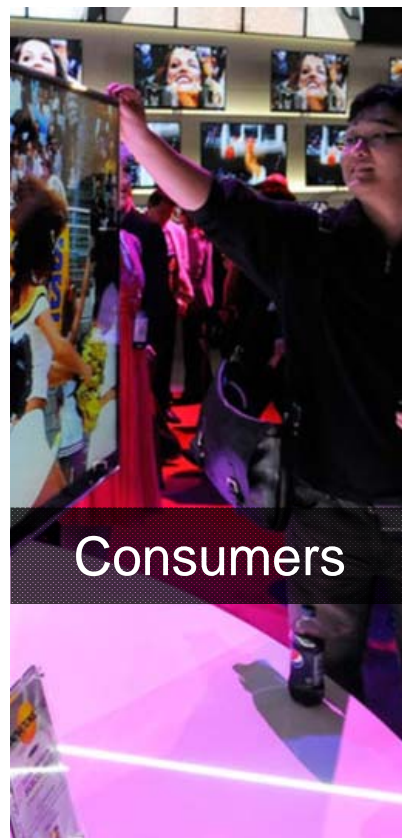
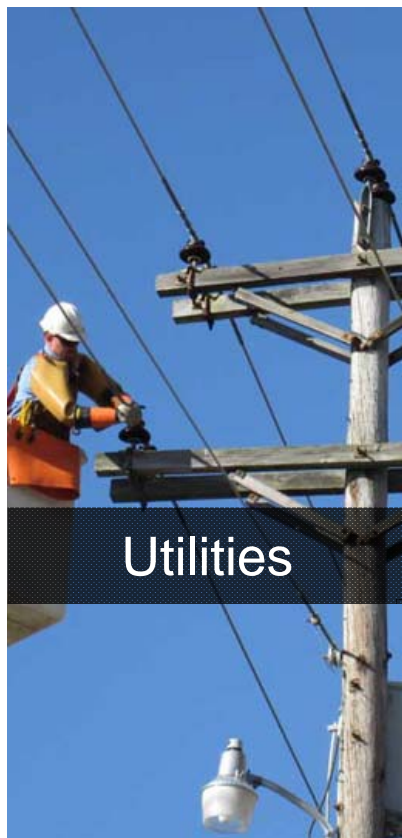


Broad Coverage



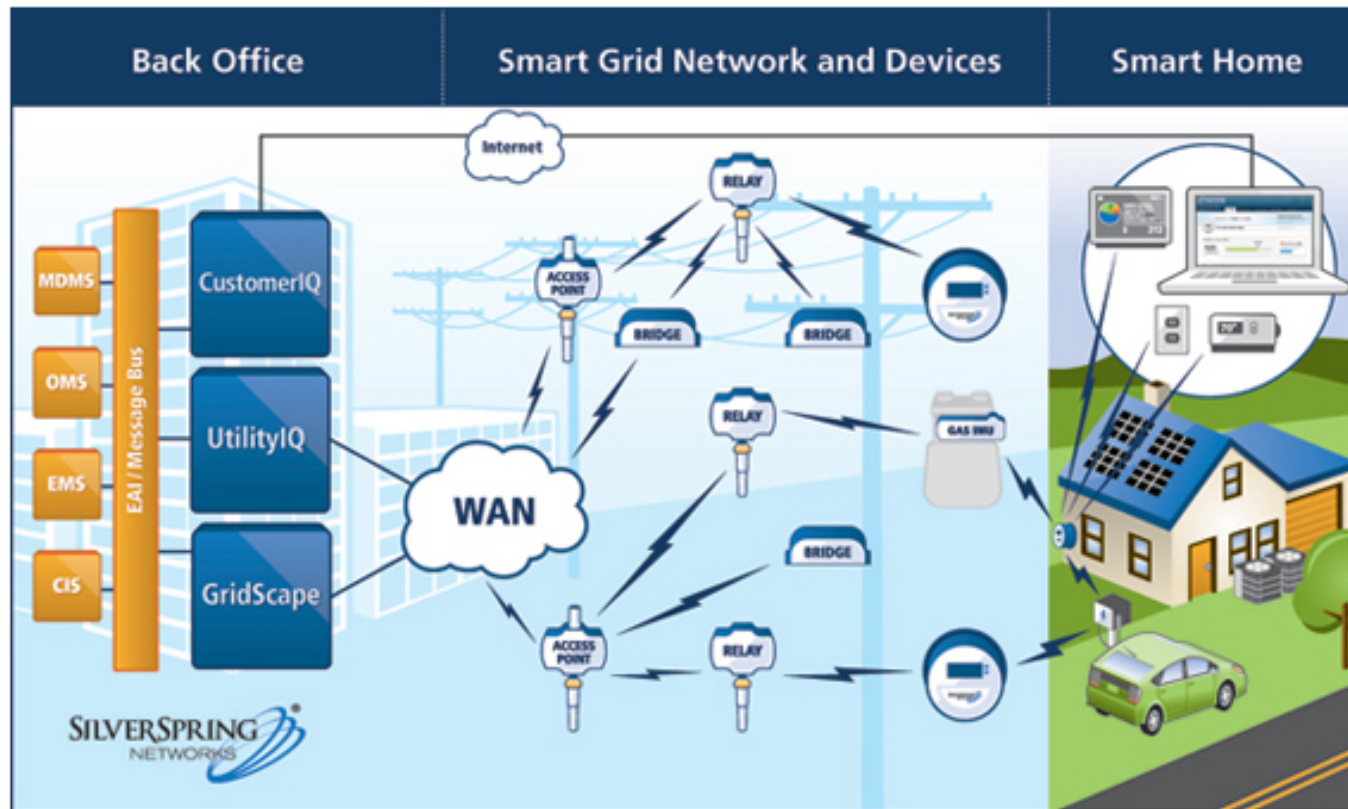
Cost Effective

Who Benefits?



Silver Spring Networks Smart Grid Overview

The SSN network is designed to support reliable, timely billing and on-demand messaging. It also provides a foundation for a broad set of future utility and ratepayer / consumer benefits.



Network infrastructure includes Silver Spring Networks Access Points (APs) and Relays that forward data from endpoints across the utility's backhaul or WAN infrastructure into the back office.

SSN's Meter Components

The Silver Spring Networks' meter Communications Module is an option board that installs easily and provides internal wireless networking advanced meter reading capability

- Provides full security and encryption to meet rigorous industry standards
- One-watt transmitter provides full, two-way wireless communications
- Provides greater efficiency while improving customer satisfaction with a scalable platform for adding advanced services – both today and tomorrow



Silver Spring Networks Smart Meter Specifications

per FCC certification

Silver Spring-enabled smart grid devices not only meet the Federal Communications Commission (FCC) rules, but in actual usage, transmit significantly less frequently

FCC Rule:	15.247
Frequency Bands:	RFLAN 902-928 MHz ZigBee 2.4-2.48 GHz
Transmit Power:	RFLAN 30 dBm (1000 mW) at 902 MHz ZigBee 22dBm (160mW) at 2.4 GHz
Antenna Gain:	RFLAN 4 dBi (2.5 times) at 902 MHz ZigBee 1 dBi (1.25 times) at 2.4 GHz
Duty Cycle (Estimate Max): (over 30 minute period)	RFLAN 4% ZigBee 10%

Radio Frequency (RF) Power Density

Comparison in the Everyday Environment

Source	RF Output Compared to Standing Two Feet from a Smart Meter
Standing in front of an active microwave over, two feet from the door	550 times more
Holding a walkie-talkie to your head	55 – 4,600 times more
Holding an active cell phone to your head	3.3 – 1,100 times more
Using a laptop computer	1.1 – 2.2 times more
Sitting in a Wi-Fi cyber café	1.1 – 2.2 times more

Source: Health Impacts of Radio Frequency from Smart Meters by California Council on Science and Technology, April 2011

Silver Spring Networks monitors regulatory and scientific developments related to human exposure to RF emissions and relies on expert scientific conclusions related to RF exposures and potential health effects

Smart Grid Security

Consumer Question: Is My Data Protected?

Short Answer: Yes!

Long Answer: Still Yes!



Security Risks	Secure?	Security Mechanisms?
Back Office: External Threat	✓	Authentication & Authorization, Access Controls, ...
Back Office: Internal Threat	✓	Above Plus Physical Protection, Two-Party Controls & more
Wide-Area Network Snoop	✓	PKI-based Encryption at multiple layers
Mesh Network Snoop	✓	PKI-based Encryption at multiple layers
Physical Device Access	✓	HSM, Data Encryption, Layers of Data Validation
...many more	✓	Proven, modern, IP-based technologies, all independently verified by 3 rd -party security experts

Highest Level of Security in the Industry

What's at Stake: Proven Benefits

1. **Billing Accuracy**
 2. **Access to Data by Consumers**
 3. **Improved Customer Service**
 4. **Faster Power Restoration**
 5. **...and many more benefits in the years to come**
- ➔ Smarter Grid = Better Service and Value to the Consumer**

Reference Materials

Benefits:

<http://www.silverspringnet.com/pdfs/whitepapers/SilverSpring-Whitepaper-Improving-Electric-Reliability-SmartMeters.pdf>

<http://www.silverspringnet.com/pdfs/whitepapers/SilverSpring-Whitepaper-JumpStartEnergyEfficiency.pdf>

RF:

<http://www.silverspringnet.com/resources/understanding-radio-frequency.html>

<http://www.silverspringnet.com/pdfs/whitepapers/SilverSpring-Whitepaper-RadioFrequency.pdf>

Security:

<http://www.silverspringnet.com/pdfs/whitepapers/SilverSpring-Whitepaper-SmartGridSecurity-MythsReality.pdf>

Thank You!



Altogether **Brilliant.**[™]