Wired Group

Unleashing latent value in distribution utility businesses

SMART GRID VISIONING AND ROADMAP DEVELOPMENT

The Wired Group makes its unique and relevant primary and secondary research expertise conveniently available, helping utilities and communities establish grid modernization and utility performance goals consistent with a future vision.

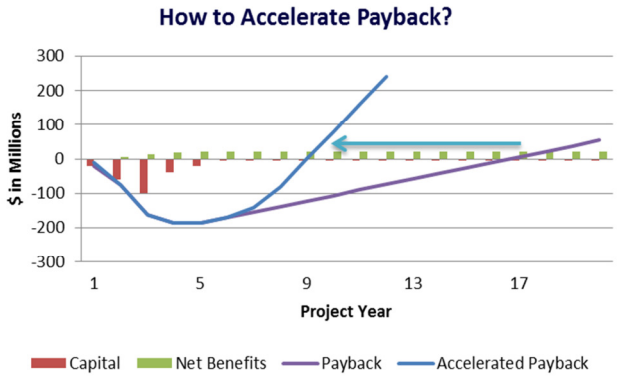
Utilities and the communities they serve want to know: Are we on the right track?

Historically, distribution investments have had predictable outcomes. Increased investment led to improved grid reliability and efficiency, and communities trusted the advice of the experts running their utilities. Today, the stakes (funding requests) are much higher and the future is much more cloudy (with significant and fundamental change in customer and utility markets and technology likely).

Our experience indicates the value delivered by smart grid investments varies widely from utility to utility. Further, we believe that the success of any grid modernization investment is based in large part on knowing the intended goals:

- Improve grid and customer efficiency?
- Reduce capacity costs?
- Speed restoration or reduce storm impact?
- Reduce operations and maintenance costs?
- Accommodate high levels of customer generation?

The Wired Group's visioning process helps communities and utilities anticipate the type of grid and utility they will need a decade or two from now



The Opportunity

Regardless of grid or utility status, a Wired Group visioning process can help utilities and communities answer many challenging questions:

- What roles do we want our distribution grid and utility to fulfill for our community?
- On what capabilities and outcomes should utilities be focused given modernization costs?
- How can we ensure technology choices are appropriate to goals, risks, and rewards?

Visioning Deliverables

The product of a Wired Group visioning process is a roadmap that defines roles, responsibilities, and expectations 10 years hence for a grid and utility that serves a community, including:

(Continued on reverse)

(Smart Grid Visioning and Roadmap Development, continued)

Anticipated Needs and Challenges

- PV Solar/customer generation
- Flat or falling sales volumes
- Rapid-charging electric vehicles
- Physical and cyber attacks
- Increasingly severe weather

Performance Targets and Timelines

- Capital Investment/O&M Costs
- Outage Restoration & Storm Resilience
- Demand Reduction at Peak Capacity
- Grid Efficiency
- Customer Choice and Service Levels
- Safety

Policy and Ratemaking Reforms

- Decoupling
- Net Metering
- Performance Incentives & Penalties

Minimum Requirements and Characteristics

- Communications Networks
- Flexibility and Interoperability
- Risk Management
- Benefit-cost Ratios
- Customer Engagement

Available Technologies and Options

- Advanced Metering Infrastructure
- Fault Location and Isolation
- Undergrounding
- Voltage and Power Factor Control
- Distributed Energy Resource Management
- Home Energy Management

In addition the Wired Group 's visioning process accommodates community-specific characteristics, concerns, and interests:

- The current status of a grid and utility
- Unique customer base considerations
- Regional dynamics (wholesale/retail market structures, customer generation, etc.)
- Local interest topics (RPS, net metering, data privacy/security, prepay, etc.)

The Wired Group 's visioning process solicits participation from all stakeholder groups and typically requires 3 to 9 months to complete.

Experience

Wired Group Customized Smart Grid Seminars are led by company president Paul Alvarez, author of *"Smart Grid Hype & Reality -- A Systems Approach to Maximizing Customer Return on Utility Investment".* He has led the only two comprehensive, independent reviews of smart grid deployment performance, including:

- **SmartGridCity™ (Boulder, Colorado) for Xcel Energy**
- **Duke Energy's Cincinnati deployment for the Ohio Public Utilities Commission.**

In addition, the Wired Group has conducted multiple secondary research reviews to guide evaluation protocol development, validate results, and synthesize best practices in smart grid design and optimization. Examples prepared for the Smart Grid Consumer Collaborative include:

- **Smart Grid Economic and Environmental Benefits – A Review and Synthesis of Available Research**
- **Technical and Economic Concepts Related to the Smart Grid – A Guide for Consumers**

All of these materials are in the public domain and can be downloaded at www.wiredgroup.net.

Contact Paul Alvarez to discuss your utility business/grid visioning, roadmap development, and strategy needs at x-801 or at palvarez@wiredgroup.net.