Perspectives on Smart Grid Implementations

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Outline

Smart Grid Vision

State of the Industry

Industry Transformation is Needed

Our view: San Diego Gas & Electric, a Sempra Energy utility
Vision

Electric grid evolves

- Ubiquitous communications backbone
- Operational technologies
- Information technologies
A smart, integrated grid

Detects and fixes emerging problems

Incorporates measurement, diagnostics and feedback

Re-routes power flows

Enables loads and distributed resources

Uses modern tools
Good for the Environment

Enables renewable and clean energy

Enables Vehicle-to-Grid interface

Reduces spinning reserves

Supports customer choice
Utility of Today

Electro-Mechanical

Heavy use of old radio technology

Few sensors

Limited automation
Utility of the Future

Digital

Advanced communication

Self healing

Lots of sensors

Automated control

Smart Meters
Three paths to starting a regional smart grid

Organic – business as usual
- Huge capital expenditures as assets retire
- New technologies lead to declining costs

Utility of the future
- Spread costs across several projects

Smart Meter
- Communication infrastructure is key
- Digital electric meters are also sensors
A National Agenda
SDG&E Smart Grid Drivers / Challenges

Aging Infrastructure

Help Achieve / Integrate policy goals
  • Regional Energy Strategy 2030
  • CA Loading Order

Potential Challenges
  • Regulatory Changes
  • Cost
  • Complexity
  • Technology Advances
SDG&E Smart Grid Next Steps

Advanced metering infrastructure

Technologies improve operations

Distribution automation

Distributed generation

DOE and CEC funded Smart Grid Research
Summary

Industry knows what is needed
- Barriers exist – including risk, rates, standards, security

Some steps are underway
- Federal legislation
- Few large projects

Much work is needed
- More projects
- State regulatory
- Standards

SDG&E making large strides
- Smart Meter – Smart Grid
- Utility of the Future – Smart Grid
- Partnerships with industry groups
- Collaboration with many utilities
Thank You

Terry Mohn, Technology Strategist
Sempra Energy utilities