Drivers of Change: The New Pressures Faced by Electric Utilities

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The Current Business Model

- High capital cost industry
- Long-lived assets
- Investments recovered through volumetric sales based on “just and reasonable” rates
- Investments must be “used and useful” to be eligible for recovery
- “Obligation to serve” in exclusive service territories
Utilities must balance:
- Reliability
- Affordability
- Environmental performance

Opportunity to earn “authorized rate of return” = Regulatory Compact

Major threat – Long term revenue erosion = Death Spiral
Existing Challenges to Business Model

- Utility-sponsored energy efficiency
  - Compensation for lost revenues
  - Financial incentives
  - Guaranteed cost recovery

- Cogeneration/CHP/PURPA/Net Metering
  - “Anti-cogen” rates
  - Standby rates
  - Utility ownership
New Challenges

- Declining sales volumes
  - Poor economy
  - Higher rates to cover fixed costs – transmission build–out, deferred maintenance, new environmental regulations
  - Energy efficiency and conservation
  - Customer–owned generation, e.g. DG, CHP

- Remember that utilities have relied on sales growth to recover fixed costs and offset rate increases
INDUSTRY TRENDS – Conservation/Efficiency

Figure 75. U.S. electricity demand growth, 1950-2040 (percent, 3-year moving average)
Low to Flat Load Growth

NSP-M Load Forecasts

NSP-M Retail Sales Trends

GWh

2011 Fall Forecast

0.9% -3.1% 0.3%
New Challenges (2)

- Falling costs for customer-owned generation, especially solar – 10% DG by 2020?
- Desire for in-state renewable development, both utility-owned and otherwise to keep jobs and dollars in state’s economy
...and declining costs

Total installed cost for <10 kW systems

Source: LBNL, DOE, BNEF, RMI Analysis
New Challenges (3)

- Need for massive investment to maintain transmission and distribution systems
- Risks of centralized generation – future of microgrids?
- 111(d) for new and existing coal plants
  - Retire, repower or replace?
  - Carbon capture and storage?
Minnesota Microgrids: Barriers, Opportunities, and Pathways toward Energy Assurance

- Microgrid Institute (www.microgridinstitute.org) completed study, report, and policy roadmap on Sept. 30, 2013
- Rapid technology advances (PV, storage, CHP, control systems) and rising needs for resilience are driving interest in microgrids
- Other drivers: growing interest in local self-reliance, renewable energy integration, and grid modernization to support local economic development
- Barriers include utility business model conflicts, onerous interconnection policies, and limited opportunities to monetize value streams
- Several states and federal agencies are supporting community microgrid development directly and through policy changes
- Utility interconnection and integration practices are evolving to allow more flexible operation of DG and microgrids
- Microgrids serving as incubators for Utility 2.0 business model concepts
- Microgrids considered for non-transmission alternatives, smart grid, and self-healing network applications
Recent Activities

2013 Legislation
  ◦ Changes to net metering
  ◦ Solar Energy Standard – 1.5% by 2020
  ◦ Value of Solar Tariff
  ◦ Solar incentives
  ◦ Community solar gardens
  ◦ Industrial EE, CHP incentives
  ◦ Studies:
    ◦ 40% RES by 2030
    ◦ Value of On-site energy storage
    ◦ Minnesota Energy Future
Closing Thoughts

- Need new metrics for a new utility business environment
- Models will likely be different for IOU’s, cooperatives, municipal utilities
- Utilities as providers of energy services vs. commodity electricity
- Look forward to the rest of the day!