



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
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Current Business Model (2)

- Utilities must balance:
 - Reliability
 - Affordability
 - Environmental performance
 - Opportunity to earn “authorized rate of return” = Regulatory Compact
 - Major threat – Long term revenue erosion = Death Spiral
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Existing Challenges to Business Model

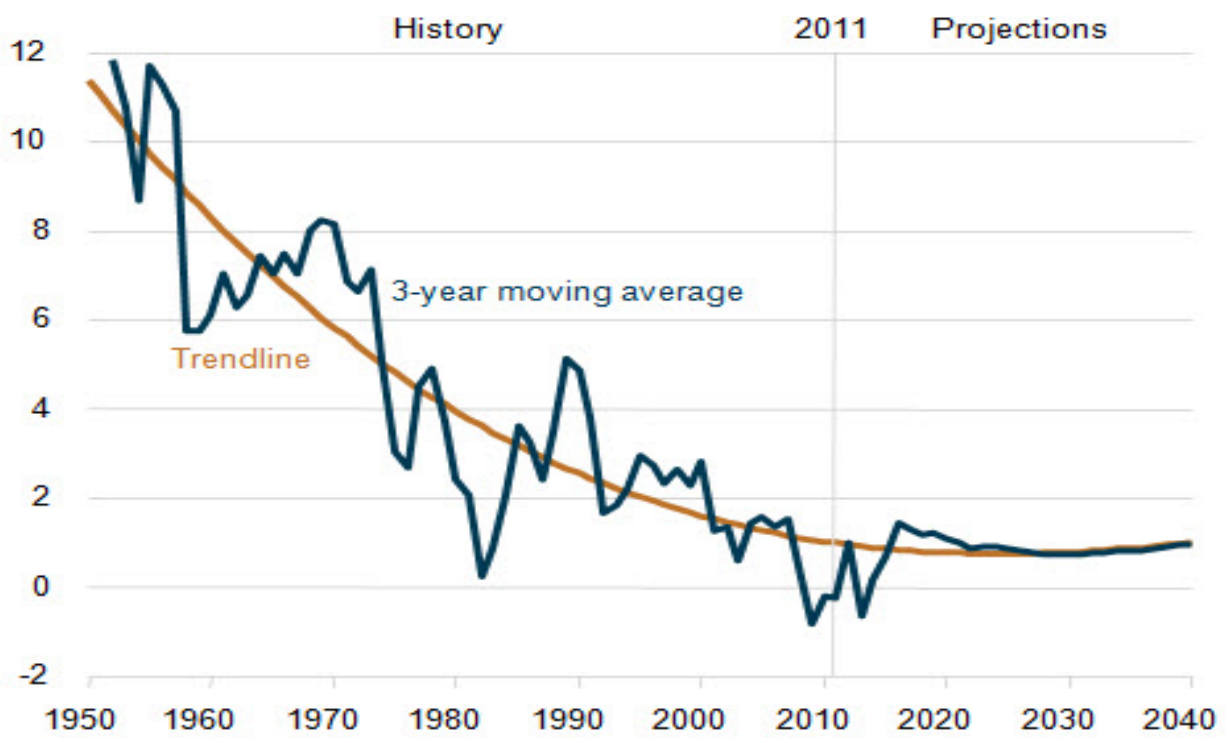
- Utility-sponsored energy efficiency
 - Compensation for lost revenues
 - Financial incentives
 - Guaranteed cost recovery
 - Cogeneration/CHP/PURPA/Net Metering
 - “Anti-cogen” rates
 - Standby rates
 - Utility ownership
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New Challenges

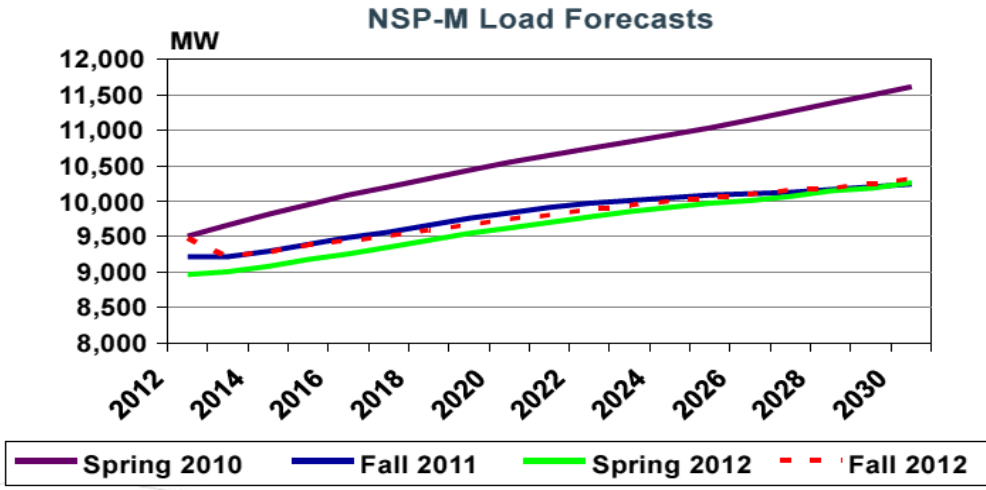
- Declining sales volumes
 - Poor economy
 - Higher rates to cover fixed costs – transmission build-out, deferred maintenance, new environmental regulations
 - Energy efficiency and conservation
 - Customer-owned generation, e.g. DG, CHP
 - Remember that utilities have relied on sales growth to recover fixed costs and offset rate increases
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INDUSTRY TRENDS - Conservation/Efficiency

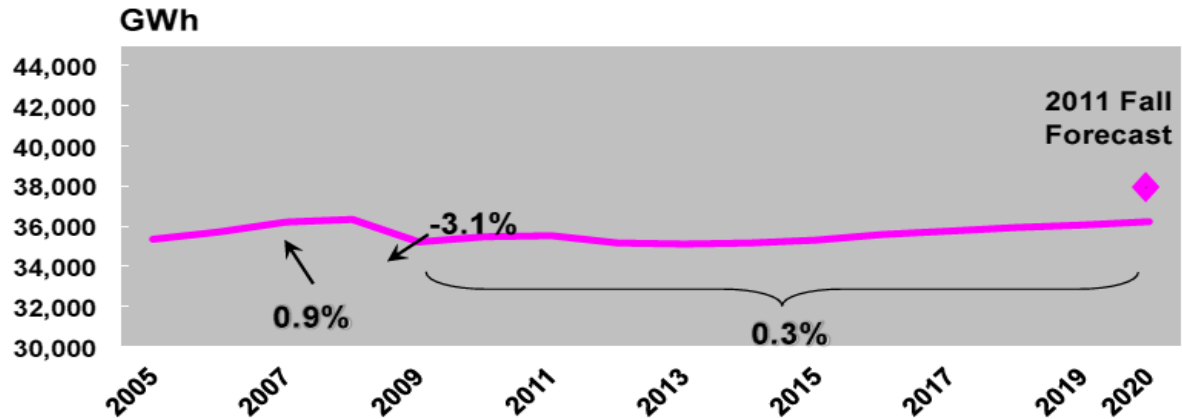
Figure 75. U.S. electricity demand growth, 1950-2040
(percent, 3-year moving average)



Low to Flat Load Growth



NSP-M Retail Sales Trends

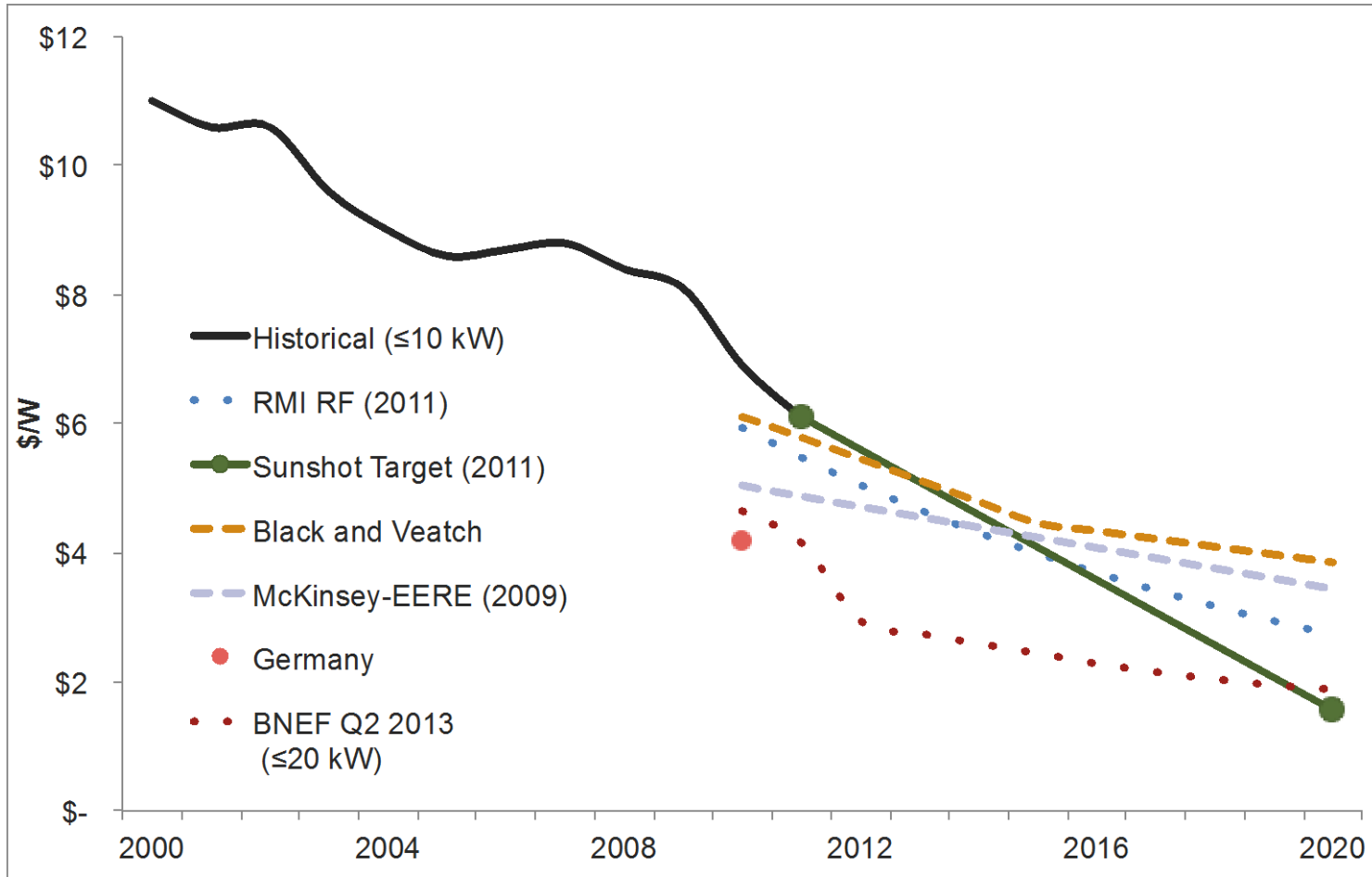


New Challenges (2)

- 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
 - Risks of centralized generation, potential growth of micro-grids
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...and declining costs

Total installed costs for <10 kW systems



Source: LBNL, DOE, BNEF, RMI Analysis

New Challenges (3)

- New efficiency opportunities
 - Smart grid
 - Demand response
 - New technologies, e.g. LED lighting
 - Do current customer usage patterns represent short-term response to bad economy, or long-term behavioral changes?
 - Decoupling experiments – making utilities indifferent to declining sales volumes?
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New Challenges (4)

- 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?
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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
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Recent Activities (cont.)

- 2015 legislative proposals include:
 - Raising RES to 40%, or adding existing large hydro
 - Repealing CIP in 2016
 - Changes to net metering
 - Incentives for EV's, CNG/propane vehicles, storage, solar thermal, geothermal heat pumps
 - Eliminating VOS, Made in MN Solar, Solar Rewards
 - Distribution planning/studies
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Closing Thoughts

- Utilities and regulators face significant challenges in meeting evolving customer demands
 - Models will likely be different for IOU's, cooperatives, municipal utilities
 - Disruptive technologies will continue to emerge
 - Utilities as providers of energy services vs. commodity electricity
 - Look forward to your questions and dialogue!
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