Consumer Perspective on Smart Grid/Smart Meter Deployment

June 29, 2010

What is it?

- Smart Grid: T&D investments to "modernize" communications, sensors, grid design and operation: manage outages; energy storage; intermittent resources
- Smart meters: meters with digital, 2-way communications capability which can store data and enable remote reading, connection, disconnection and outage detections. Two-way capability and storage enables "dynamic pricing" (e.g. time of use rates) and pre-payment.
- Customer side of the meter: In Home Display Devices

Smart Grid v. Smart Meters

- Smart meters are one component of Smart Grid
- Smart Grid is not dependent on Smart meter installation
- Federal policies are not mandatory; states have discretion about adopting any PURPA policies, including Smart Grid policies in the Energy Policy Acts of 2005 and 2007
- Smart Grid and Smart Meter deployment are primarily state regulatory matters

Summary:

- Smart grid deployment should focus on making the grid better: interconnected between regions, more efficient, reliable, and secure.
- Regulators should prioritize distribution system automation components with immediate, demonstrable, and direct value for consumers over smart meters.
- Consumer concerns about smart meters must be addressed before billions of dollars of ratepayer money is invested:
  - Do ratepayers bear all the financial risk?
  - Are benefits overstated or based in sound evidence?
  - What are the impacts of new pricing plans on consumers, especially vulnerable groups?
  - Has the state updated its consumer protections to address new technology?
- Consumer Experience in States with Smart Meters Raise Alarms
- Maryland Recently rejected Baltimore Gas and Electric's Smart Meter proposal due to speculative benefits and risks to consumers

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Costs and Financial Risk

- Costs in the billions of dollars: Metering costs over $5B in California alone. Cost of $200-400 per meter
- Continued payments for current, working meters
- Utilities often seek separate tracker to assure cost recovery outside of a base rate case: consumers bear full responsibility for costs regardless of whether estimated benefits are actually produced
- Costs for in-home displays and "smart" appliances not included in utility estimates
- Potential for higher bills for low use and low income customers

Costs and Financial Risk

- New technologies: who bears risk of wrong choice? [VCRs vs. DVDs vs. DVRs]—Texas allowed Oncor (Dallas area) to recover $93 million from ratepayers for meters that were never installed and another $686 million for meters with newer technology

- Technology is largely unproven—errors in California resulted in bills that quadrupled

- Smart Metering proposals may be only a down payment on unknown future Smart Grid investments

Consumer Concern about Benefits

- Operational cost savings: meter reading; field operations; remote connect and disconnect. Much of the savings is in workforce reduction.
- However, the majority of estimated benefits are based on demand response producing savings based on assumptions about sustained consumer behavior and estimates of future wholesale prices of capacity and energy
- Demand response benefits have yet to be proven in any full scale implementation of dynamic pricing
- Benefits are often estimated over a 15-20 year period

CONSUMER CONCERNS ABOUT BENEFITS

- Has there been an analysis of alternative means to obtain DR results from residential customers: direct load control works and is less costly; do not need smart meters to control major appliances
- Consumer inconvenience v. energy efficiency: Consumers do not believe doing their laundry at 2am to save money is a benefit. Deaf ear to consumer needs creates backlash
- Can low use and low income/elderly customers see benefits or only costs?
- Who bears the risk that these estimates are wrong?

New Pricing Methods:

- Dynamic pricing—distinct from static pricing, where every kilowatt hour priced the same, regardless of when used.
- Time of use—electricity usage priced differently at different hours; not necessarily directly tied to wholesale market
- Real time pricing—retail price changes hourly or even more often based on wholesale market prices
- Critical peak pricing—retail price changes during critical peak periods of high wholesale price and/or shortages.
- Prepayment—pre-pay for usage; meter shuts off when money runs out

Consumer Concerns with Dynamic Pricing Options

- Based on the assumption that all or most customers can shift usage or reduce usage according to their "sensitivity to price"
- Control or confusion: How do ratepayers manage all the information? There is a cost to in home displays, web based information and "smart" appliances
- Consumers are not "empowered" if they have to choose between paying high rates to run the AC on a hot day or risk to health
- Are these pricing options for residential customers the most cost effective way to reduce system peak load and reduce generation supply prices?
- Some pilots show that consumers do not reduce overall usage and some increase overall usage, even if shifting away from peak

Consumer Concerns With Dynamic Pricing

- Consumers want and need stable and fixed prices for service essential to their health and well being
- Time of Use rates have proven unpopular with consumers
- Would dynamic pricing be mandatory?
- Concern about bill impacts on some customer groups: low income; elderly; disabled. These groups generally have lower "elasticity" and cannot shift usage to other times of day
- Also others such as shift workers, those who work at home, stay-at-home parents.

Prepayment via Smart Meters

- Targets payment-troubled
- Higher rates
- "self-disconnect"
- Eliminates health and safety protections such as weather disconnection bans and pay at the door

Consumer Concerns about Consumer Protections

- Remote disconnection:
  - California results document significant increase in volume of disconnections with smart meters
  - elimination of premise visit increases risk of wrongful or disputed disconnection
  - heath and safety risks
- Pre-payment; service limiters
- Accuracy and reliability of the meters and communications systems
- Security
- New privacy concerns: is anyone home? Is data sold for marketing purposes? Who controls customer information? Who can access this data and for what purpose?

Consumer Backlash in California

- Thousands of complaints filed and hundreds turn out for public hearings
- Usage and bills doubled or tripled after smart meter installed
- Fires, shorted out appliances, interference with systems
- PG&E Records: 23,000 improperly installed, 11,400 failed to retain consumer usage data, 9,000 trouble connecting to wireless network.
- Counties of Sonoma, San Francisco, and Santa Clara have passed resolutions calling for a moratorium on Smart Meter installation until CPUC independent investigation is done.
- 75% increase in PG&E shut offs of low-income households documented by Division of Ratepayer Advocates.

Maryland PSC Rejected BGE Smart Meter Proposal

"The proposal asks BGE's ratepayers to take significant financial and technological risks and adapt to categorical changes in rate design, all in exchange for savings that are largely indirect, highly contingent and a long way off. We are not persuaded that this bargain is cost-effective or serves the public interest, at least not in its current form. But we invite BGE to revisit its proposal in light of this order…."

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Maryland PSC Rejected BGE Smart Meter Proposal

- Found that all financial risk would be on ratepayers
- Rejected use of tracker surcharge—investment should be in base rates
- Nearly 80% of purported benefits were highly speculative
- Assumptions about savings based on new and difficult to predict energy markets
- Rejected mandatory time of use rates
- Were persuaded that low-income, elderly, medically vulnerable and others could not shift usage and realize benefits of time of use rates

How to be smart about Smart Grid and Smart Meters:

- Smart Grid investments for T&D systems should be linked to delivery of customer benefits:
  - Establish a baseline that identifies current status of smart grid investments in T&D systems
  - Condition rate recovery to enforceable reliability objectives—reduce frequency and duration of outages; reduce customer outage costs
  - Target distribution investments where they are likely to have most significant results
  - Demonstrate ability to integrate intermittent resources and distributed resources

How to be smart about Smart Grid and Smart Meters:

- Consumers should not bear all the risk if presumptions about benefits are wrong.
- Do not use trackers; treat investment as any other using standards of "used and useful" and prudent investment.
- Do no mandate dramatic changes in retail rate design for residential customers.
  - Dynamic and time-based price programs must remain optional on an "opt in" basis.
  - Rewards in the form of credits for peak usage reduction should be the preferred approach.
  - A voluntary approach to dynamic pricing or relying on Peak Time Rebates has been successfully demonstrated to result in peak load reduction without link to dynamic pricing.