SmartGridCity Pilot Testing of Time-of-Use Rates

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SmartGridCity

- Boulder, Colorado
- IT infrastructure
- Communication network
- Automated substations and feeders
- Current and voltage sensors
- Two-way meters
- Customer Web portal
- In-home devices



Source: Xcel Energy





Proposed Pricing Pilot

- Public Service seeks to test three rate options for residential customers in SmartGridCity:
 - Time-Of-Use (TOU) —different rates for on-peak and off-peak periods
 - Critical Peak Pricing (CPP) —different rates for on-peak and off-peak periods with special on-peak rates during critical peak times (approximately 1% of hours)
 - Peak Time Rebate (PTR) —rebates paid for consumption below an estimated baseline during critical peak times (approximately 1% of hours)
- Rates built upon the base rate design for residential customers (tiered rates)
- Implemented in conjunction with unmodified ECA rates (fuel clause) and PCCA rates (IPP capacity)



Proposed Pilot Design

- Approximately 2,000 customers in pilot
 - Earnings erosion at a "manageable level" (lost revenue)
- Pilot participants may not have PV panels and may not be participants in the Savers Switch load control programs (except for under the TOU rate option).
- The selection of rates is optional
- Customers may select enabling technologies to enhance their participation in the pilot
 - Coordinated DSM program offering for in-home energy management devices.
- Recovery of costs through its electric Demand-Side Management Cost Adjustment (DSMCA) rider.
 - Initial estimate: \$402,300





Research Questions

- The pilot will explore three primary research questions with respect to each rate:
 - 1. Does the rate reduce peak demand and energy consumption?
 - 2. Does the rate reduce a carbon footprint?
 - 3. Does the rate defer capital spending for distribution and transmission?





Commission Approvals

- Approved Public Service's plan to initially open pilot participation to some 2,000 volunteers beginning in October 2010 (Phase I)
- Ordered Public Service to expand the pilot by an additional 5,000 participants who would be randomly selected (Phase II)
- Directed Public Service to carefully target the installation of in-home energy control devices
- Approved the recovery of pilot costs through DSMCA on an annual basis after they have been incurred
- Required that the costs of the in-home devices installed after the Phase II random selection process (for pricing pilot participants and for control group customers) be included in the costs of the SmartGridCity Pricing Pilot and recovered as pricing pilot costs





Phase II Update

- Commission concerned over the costs of in-home energy management device installations
 - Public Service estimated installations would cost \$500,000 -\$600,000 for 750 - 1,000 devices
- Budget provided in the pre-implementation plan for 2011 shows a total cost of approximately \$1.5 million for Phase II
 - Approximately \$861,000 of this amount is associated with the in-home devices required for the pilot.
- Price tag less than the potential costs the Company offered in testimony (\$1 - \$1.5 million)
- Overall cost of Phase II appears reasonable given the marketing and evaluation activities associated with the pilot





Other Pilots



Source: Brattle Group





Differentiated Results





Enabling Technology Impacts



