Smart Meters Provide Multiple Financial Benefits to Consumers

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Smart meters provide multiple financial benefits to consumers – 4 areas

1. Enhanced customer service via operational improvements
   - Remote meter reading/more accurate bills
   - Automatic connects/disconnect
   - Automated outage detection – faster detection, faster restoration

2. Customer energy management benefits
   - Price response benefits from smart rates
   - Conservation, energy management, and load control benefits

3. Utility cost savings (e.g., avoided investments in generation, transmission, and distribution)

4. Platform for distributed generation (e.g., rooftop solar), plug-in hybrid electric vehicles, and home area networks
Typical smart meter business case – must pass benefit-cost test to gain regulatory approval

**Quantifiable benefits:**
- Demand response/smart rates
- Direct load control
- Information-induced conservation
- Operating Benefits
  - Remote meter reading
  - Automated outage detection
  - Remote connect/disconnect

**Other benefits:**
- Building block to Smart Grid, PHEVs, and DG
- Gateway for home area networks (HAN)/smart apps

![AMI Benefits – SCE example](chart.png)

- Price Response
- Load Control
- Conservation
- Operating Benefits
Today’s focus: Customer energy management benefits of smart meters

1. Demand response due to smart rates
2. Information induced conservation/energy management
Smart rates coupled with technology empower and engage customers (multiple pilot results)

Quantified benefits:
Smart price coupled with enabling technology reduce peak demand 20% - 40%

Customers save money!
As customers on smart rates shift usage, percent of “winners” increases to almost 80%
Based on recent pilot results, most low income customers benefit from dynamic rates*

Empirical evidence based on 3 recent pilots

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*Forthcoming IEE whitepaper, June 2010
Based on pilot results, 80-90% of low income customers will benefit from smart rates.

Distribution of Dynamic Pricing Bill Impacts
- Low Income Customers on CPP Rate -

Change in Monthly Bill
Before Customer Response
After Customer Response

"Winners" "Losers"
Low income customer responsiveness to smart rates ranges from 50%-200% of avg customer.

- PG&E SmartRate 2009: 50%
- PG&E SmartRate 2008: 66%
- California SPP: 69%
- BGE 2008: 100%
- CL&P's PWEP Program: 100%
- Pepco DC: 200%

Note: The California SPP and Pepco DC low income results are compared to non-low income customers, not the average customer.
Over a dozen utilities now partnering with vendors (e.g., Opower) to help customers manage energy by taking advantage of real time smart meter information.

- **Old approach:** Utilities send out monthly “Energy Reports” to motivate customer action and compare to neighbors
  - Avg. cost $0.03 per kWh saved.
  - Energy savings of 2-3% each month

- **New approach:** taking advantage of smart meters by providing “real time” energy updates [e.g., ComEd pilot].

Utility Partners:

- Sempra Energy®
- ComEd* An Exelon Company
- Dominion
- Puget Sound Energy The Energy To Go Great Things
- Southern California Edison®
- Xcel Energy®
- Nationalgrid
- SMUD

* Large-Scale Customer Engagement

**Flagship Product – Home Energy Report™**
Commonwealth Edison’s major AMI pilot with customer-centric design: testing smart rates and information induced conservation (May/June launch)

- **Customer education innovations**
  - Web energy management tools including comparisons; educational modules; monthly updates
  - In home displays, programmable communicating thermostats
  - Community support/partnering with CUB and CNT

- **Customer energy management assistance**
  - Via bill comparisons, web tools, call center, monthly educational meetings

- **About 131,000 customers**
  - 8,500 on smart rates
  - 120,000 smart energy mgmt tools
Smart meters provide financial benefits to customers: today and in future

Benefits today

- Operational savings/benefits from smart meters
- Price response benefits – multiple dynamic pricing pilot results quantify benefits. Forthcoming IEE whitepaper shows low income benefits.
- Load control benefits
- Customer energy management benefits/community approaches and partnerships

Future benefits

- Platform for clean energy future (e.g., DG, PHEVs)
Smart meter platform combined with new technologies will take EE and DR to new levels

…It’s all about giving customers the tools & the know-how to be smarter energy consumers. Educate, educate, educate!

HAN communication

SmartMeter communication
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