Smart Meters
Opt-Out Options

Michigan Public Service Commission
Staff Working Session

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Briefing Outline

Policy Issues
- What are the policy issues?
- What are the Technical options?
- Technical option assessment
- Policy implications
- Supporting public policy
Policy Issues

- Should advanced meters be mandatory or voluntary?

- How to craft an opt-out option that does not undermine the advanced metering or utility system smart grid business case?

- How should the cost of an opt-out provision be allocated?
  - Costs should be allocated to those that opt-out, or
  - Costs should be “socialized” and distributed across all customers.

- What are the implications of a smart meter opt-out provision for rate, demand response, electric vehicle, and other smart grid initiatives?
### Policy Objectives

<table>
<thead>
<tr>
<th>For the opt-out customer</th>
<th>Utility</th>
<th>All Other Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low cost</td>
<td>Acceptable Cost</td>
<td>Little or no cost impact</td>
</tr>
<tr>
<td>Credibility</td>
<td>• System Functions&lt;br&gt;• System Maintenance&lt;br&gt;• Limited operational impacts</td>
<td>System Functionality</td>
</tr>
<tr>
<td>Low or zero radio emission exposure</td>
<td>Minimal compromise of overall smart meter network function</td>
<td>No Service Impacts</td>
</tr>
</tbody>
</table>

*Security is an objective for all.*
## The Meter /Communication Options

<table>
<thead>
<tr>
<th>Meter Option</th>
<th>Meter Location</th>
<th>Com. Option</th>
<th>Interval Data</th>
<th>Data Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Electromechanical (Legacy)</td>
<td>Wall</td>
<td>None</td>
<td>No</td>
<td>Requires Visit</td>
</tr>
<tr>
<td>2 Simple Digital</td>
<td>Wall</td>
<td>None</td>
<td>No</td>
<td>Requires Visit</td>
</tr>
<tr>
<td>3 Automated: Walk/Drive-by</td>
<td>Wall</td>
<td>Radio-on</td>
<td>No</td>
<td>Requires Visit</td>
</tr>
<tr>
<td>4 Advanced / Smart Meter</td>
<td>Wall</td>
<td>Radio-off</td>
<td>Yes</td>
<td>Requires Visit</td>
</tr>
<tr>
<td>5 Advanced / Smart Meter</td>
<td>Wall</td>
<td>Radio-on</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
<tr>
<td>6 Advanced / Smart Meter</td>
<td>Pole Top, remote</td>
<td>Radio-on</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
<tr>
<td>7 Advanced / Smart Meter</td>
<td>Wall</td>
<td>WiMAX</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
<tr>
<td>8 Advanced / Smart Meter</td>
<td>Wall</td>
<td>Cellular Telephone</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
<tr>
<td>9 Advanced / Smart Meter</td>
<td>Wall</td>
<td>Landline Telephone</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
<tr>
<td>10 Advanced / Smart Meter</td>
<td>Wall</td>
<td>Power Line</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
<tr>
<td>11 Advanced / Smart Meter</td>
<td>Wall</td>
<td>Wired Broadband</td>
<td>Yes</td>
<td>On-demand</td>
</tr>
</tbody>
</table>

Notes:
Landline telephone line is dedicated to meter, installed by utility.
## Meter Applications: Customer Options

<table>
<thead>
<tr>
<th>Meter Option</th>
<th>Rate Options</th>
<th>Billing Options</th>
<th>Customer Data Access</th>
<th>In-Home Display Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Electromechanical (Legacy)</td>
<td>1,2</td>
<td>1</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2 Simple Digital</td>
<td>1,2</td>
<td>1</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3 Automated: Walk/Drive-by</td>
<td>1,2</td>
<td>1</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4 Advanced / Smart Meter</td>
<td>1,2,3,4,5</td>
<td>1</td>
<td>Yes (delayed)</td>
<td>No</td>
</tr>
<tr>
<td>5, 6 Advanced / Smart Meter</td>
<td>1,2,3,4,5</td>
<td>1,2,3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7-11 Advanced / Smart Meter</td>
<td>1,2,3,4,5</td>
<td>1,2,3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Rate Options:
1. Flat  
2. Tiered  
3. TOU / PTR *  
4. Dynamic (CPP, VPP)*  
5. RTP *

### Billing Options:
1. Standard monthly meter read cycle  
2. Custom billing date  
3. EE, DR option analysis

* Necessary to support electric vehicles, storage, ancillary services
Meter Applications: System Options

- Improved service & delivery efficiency
  - Outage management
  - Automated feeder reconfiguration
  - Voltage optimization
  - Energy assurance under system stress
  
  *If a very small % of sites opt out.

- Customer services
  - Remote service on/off
  - Remote demand limiting

  Completely precluded for opt out customers.
Meter Opt-Out Decisions

- California
- Maryland
- Vermont
- Naperville, IL
- Nevada
- Burbank, CA
- Georgia
- Quebec

Other / Pending Decisions
- Detroit Edison, MI
- Glendale Water and Power, CA
- Texas, Arizona
- Department of Energy and Climate Change, UK
- BC Hydro, Canada
California

- Decision by CPUC for all IOUs
- Meter type
  - Legacy meter
    - PG&E and SDG&E: induction meter
    - SCE: induction meter or drive-by meter
- Fees*
  - $75 at start
  - $10 monthly

*Fees lower for disadvantaged customers.
Maryland

- Legislature mandated smart meters in 2008
  - Maryland PSC authorized deployments
  - Many details not yet resolved
  - No opt out decision

- Meter type
  - House Bill 878 in committee
  - Calls for opt out with analog meter

- Fees
  - TBD
Vermont

- Decision by Central Vermont Public Service
  - Largest utility in the state
  - Merging with 2nd largest (Green Mountain Power)
- Meter type
  - Analog meter
- Fees
  - $0 to start
  - $10 monthly
Naperville, IL

- Decision by Naperville City Council
- Meter type
  - Commercial electronic meter (no radio)
- Fees
  - Illinois law forbids certain cross-subsidies, cited by City Council: Opt out accounts bear all costs.
  - $68.35 to start
  - $24.75 monthly
Nevada

- Decision by PUC of Nevada
- Meter type
  - Drive-by meter
- Fees
  - Determination in process
  - Opt out accounts to bear full opt out costs
- Opponents vow court fight
Burbank, CA

- Decision by Burbank City Council
  - Have declared they will follow CPUC example
- Meter type
  - Digital meter proposed (no radio)
- Fees (current Burbank Water & Power proposal)
  - $165 to start
  - $20 monthly
Georgia

- Decision by legislature
  - Senate Bill 459 requires free opt out
  - Passed 9 March 2012
  - House action pending

- Meter type
  - Analog meter

- Fees
  - Pending legislation requires $0 fees
Quebec

- Decision by Hydro Quebec
  - Program proposed by utility, details pending
- Meter type “non-radio”
- Fees proposed
  - Régie de l’énergie principle: *Options by individuals are paid for by those who request them.*
  - $98 + tax to start
  - $17 + tax monthly
## Opt-Out: Cost of Service Impacts

<table>
<thead>
<tr>
<th>Recurring Costs</th>
<th>One-time Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monthly manual read</td>
<td>• Opt out meter</td>
</tr>
<tr>
<td>• Off-cycle reads</td>
<td>• Customer education</td>
</tr>
<tr>
<td>• Service switching</td>
<td>• Remediate network impacts</td>
</tr>
<tr>
<td>• Billing process</td>
<td>• Meter shop facilities, training</td>
</tr>
<tr>
<td></td>
<td>• IT accounts, records, billing</td>
</tr>
<tr>
<td></td>
<td>• Restore smart meter</td>
</tr>
<tr>
<td>– Nonstandard process</td>
<td></td>
</tr>
<tr>
<td>– Read errors</td>
<td></td>
</tr>
<tr>
<td>– Maintain obsolete IT</td>
<td></td>
</tr>
<tr>
<td>• Registration shortfall</td>
<td></td>
</tr>
<tr>
<td>• Cash flow delay</td>
<td></td>
</tr>
</tbody>
</table>
Opt-Out: Who Pays

- Traditional regulatory axiom: *Non-standard service customers pay the cost of that service.*
- Costs per opt-out account (typical)
  - Monthly recurring cost $10 to $50
  - One-time up-front cost $150 to $800
  - Vary widely with
    - Utility size, IT resources, etc.
    - Number of opt-out accounts
- Key question:
  *What, if any, opt-out costs should be “socialized”?*
Opt-Out: Implications

- Will smart meter opt-out homes be allowed to require the utility to relocate transformer radios to distant poles?
- Will public libraries have to provide WiFi-shielded carrels?
- Will opt-out accounts be in-eligible for smart grid benefits?
  - EV charging
  - TOU rates
One Pragmatic View ...

- No verifiable basis for concern
  - Radio emission, health concerns unproven
  - Accuracy verified
- <2% of customers request opt out
  - Likely to decline over time as benefits increase
  - Diverse concerns, difficult to satisfy with a single solution
- Opt out program and related costs are high
  - Costs will be continue to be challenged
  - Exposure leads to higher cost legislative action
- One good answer: KISS
  - Leave the legacy meter in place
  - Call it done

Little value in arguing about it.
Pro-active Steps to Minimize Customer Concerns

- For utilities that have not yet initiated smart metering
- Inform / educate customers in advance
  - Create realistic expectations
    - Smart grid plans, purposes, costs, benefits
    - Smart grid issues, timing, consequences
  - Validate bills (new meters vs. old) before bill activation
  - Help customers derive personal value from smart meter data
    - Access to tools / web site on Day 1
    - Give customers choices
    - Offer transition plans, alternatives

If customers are to be more involved, utilities must proactively inform them.
Future Issues – Future Risks

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