Ofgem’s approach to smart metering

Philip Davies
Director of Retail Markets and Environmental Policy
Agenda

- Why smart metering?
- Experience to date with competition
- The smart meter business case
- Ofgem’s role
The drivers for looking at smart meters

- Public interest in carbon reduction (energy efficiency)
- EU Energy Services Directive
- Greater focus on customers taking control of their energy use
- Drive for customers to have increased information and greater choice
- International smart metering experiences
Many options: costs increase with benefits

<table>
<thead>
<tr>
<th>Option</th>
<th>Manual read</th>
<th>Remote read</th>
<th>2 way Comms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>£ 7-10</td>
<td>£30-40</td>
<td>£30-80</td>
</tr>
<tr>
<td>Auto Meter Reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automated Meter Management</td>
<td></td>
<td></td>
<td>£50-90</td>
</tr>
<tr>
<td>AMM + Interval Metering</td>
<td></td>
<td></td>
<td>* NOT including system &amp; installation costs</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Electricity Credit Meter*</th>
<th>Gas Credit Meter*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual read</td>
<td>£ 7-10</td>
<td>£19-22</td>
</tr>
<tr>
<td>Remote read</td>
<td>£30-40</td>
<td>£35-45</td>
</tr>
<tr>
<td>2 way Comms</td>
<td>£30-80</td>
<td>£70-80</td>
</tr>
<tr>
<td>2 Way with more frequent read detail</td>
<td>£50-90</td>
<td>£90-110</td>
</tr>
</tbody>
</table>

* NOT including system & installation costs
### International experience, mainly electricity

<table>
<thead>
<tr>
<th>Country</th>
<th>Main Driver</th>
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<tbody>
<tr>
<td>Victoria (Australia)</td>
<td>Decrease fraud and improve accuracy of billing</td>
</tr>
<tr>
<td>California (USA)</td>
<td>Decrease summer peak (rapidly increasing)</td>
</tr>
<tr>
<td>Ontario (Canada)</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
</tr>
<tr>
<td>Northern Ireland</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
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</tbody>
</table>

- Relevance of these drivers to GB is limited (GB drivers may differ)
- Too early to judge extent of benefits realised elsewhere
- Mainly introduced in context of monopoly provision
GB has metering competition
GB has metering competition

- Electricity metering competition introduced in 2003, gas in 2004
- Moved away from monopoly provision after complaints of poor service, lack of choice, high costs and poor technology choices
- Suppliers now primarily responsible – ‘Supplier Hub’ (in-house or 3rd party metering business appointed)
- Price controls for metering put in place to manage transition
Each of the “incumbent” electricity suppliers is part of a group that owns a metering business (and in most cases a distribution business)

<table>
<thead>
<tr>
<th>Retailer</th>
<th>Incumbent retail regions</th>
<th>Any GB distribution holdings?</th>
</tr>
</thead>
</table>
| Powergen (EON)                    | East Midlands  
North West (Norweb)  
Eastern                                 | Yes                           |
| Scottish and Southern Energy (SSE)| North Scotland (Scottish Hydro)  
Southern                            | Yes                           |
| npower (RWE)                      | South Wales (Swalec)  
Northern  
Yorkshire  
Midlands                             | No                            |
| Scottish Power                    | Manchester & North Wales (Manweb)  
South Scotland (Scottish)            | Yes                           |
| EDF Energy                        | Power)  
London  
South West (SWEB)  
South Eastern (Seeboard)             | Yes                           |

[Map of Great Britain showing regions and distribution networks]
Competition can occur in:

- Provision of new and replacement meters
- Provision of installed meter asset base (refinancing)
- Meter operation and maintenance
The business case for smart meters
Many potential benefits considered

<table>
<thead>
<tr>
<th>Supplier benefits</th>
<th>Network benefits</th>
<th>Customer benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoided meter reading costs</td>
<td>Losses – technical</td>
<td>Energy efficiency – reduced bills</td>
</tr>
<tr>
<td>Reduced call centre activity</td>
<td>Losses – non-technical</td>
<td>Avoided capacity capital expenditure associated with reduction in peak demand</td>
</tr>
<tr>
<td>Reduced PPM special visits</td>
<td>Better outage detection – faster reconnection</td>
<td></td>
</tr>
<tr>
<td>Avoided billing costs</td>
<td>T&amp;D avoided network costs associated with reduction in peak demand</td>
<td></td>
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<tr>
<td>Improved final read process</td>
<td></td>
<td></td>
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<tr>
<td>Simplified change of supplier process</td>
<td></td>
<td></td>
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<tr>
<td>Switching between PPM/credit functionality</td>
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<td></td>
</tr>
<tr>
<td>Lower disconnection costs</td>
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</table>

Darker shading: Benefits from sophisticated AMM meter only.
In the current market, for the mass of customers, the business case does not add up for suppliers.

- Costs recouped over the life of the customer (5 years)
- Discount rate: 10%
Adjustments to the existing framework could improve the supplier case

Cost recouped over life of asset (20 years), 6% discount rate

- Make reads more frequent
- Remove visual inspection
- Existing supplier benefit
- Low risk cost of capital
- No asset stranding
- Capital Cost

Electricity credit meter (Remote read)
Customer benefits not captured by suppliers

- Lower bills from reduced consumption
- Emissions savings from load reduction
- Lower bills from shifting consumption (time of use pricing)
- Avoided new investment in peak generation and network infrastructure

Remote read smart meter

Sophisticated smart meter
Including customer benefits makes the economic case closer for remote read meters.

Costs recouped over asset life, 3.5% discount rate

Remote read / simpler smart meter
More sophisticated smart meters cost more, but bring proportionally greater customer benefits.
Evidence to quantify likely scale of customer benefits is very weak, particularly for gas.
Cost / benefit conclusions

- Suppliers unlikely to universally roll-out innovative meters in the existing regulatory framework, although suppliers may install smart meters for some customer groups
  - e.g. hard to read meters, PPM

- More sophisticated meters more beneficial to consumers, but there is little evidence to quantify benefits not captured by suppliers

- As a carbon reduction measure, sophisticated meters may be valuable although value relative to alternative measures is unclear
### Why would GB want ‘smart’ meters?

#### Main supplier benefits:
- Cost saving from remote reading
- Remote switching between prepayment and credit

#### Limited by 2 year inspection requirement

#### Wider customer benefits
- Peak shifting
- Energy efficiency

#### Avoid cost of peak capacity

#### Reduce total consumption and carbon emissions

Requires advanced smart meter specification
The role of the regulator
Framework for Ofgem Policy Choices

<table>
<thead>
<tr>
<th>Metering Competition</th>
<th>or</th>
<th>Rebundle to Network Op</th>
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<tr>
<td>Address Barriers</td>
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<tr>
<td>Supplier Obligation</td>
<td></td>
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<tr>
<td>Rebundle into networks</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Market Forces</th>
<th>or</th>
<th>Mandated</th>
</tr>
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<tbody>
<tr>
<td>Trial</td>
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Await evidence
Ofgem’s way forward: Commitment to competition

Customers want more information to save energy and reduce their bills – not smart meters per se

Trial to investigate customer response

- Ofgem is managing the trial for government to inform policy and better understand customer behaviour

Address Barriers to Innovation

- Establishing a working group to deliver interoperability
Interoperability work aims to limit the need for technical meter replacement.
Other Ofgem-led actions

**Competition Act investigation:** We are investigating whether certain contracts are restricting the functioning of the competitive market

**EEC:** If trials demonstrate benefits, we will accredit smart metering under EEC

**Metering Price Controls:** Designed to protect consumers while promoting competition – currently consulting on whether can remove

**PPMs:** Programme of measures to address PPM specific issues, including reviewing issues in supply licence

**Settlement:** We are taking into account work facilitating smart meters and will input where necessary, e.g. interoperability outcomes.
Promoting choice and value for all gas and electricity customers