A Brave New World – Customers and the DSO

Lessons from Low Carbon London

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Dr Richard Carmichael, ICL Learning Laboratory
Presentation overview

- DNOs and the residential customer sector
- A new ‘profile class 1’?
- LCL trial customer engagement strategies and feedback
- Delivering a network dToU tariff scheme
- Smart meters, smart engagement
DNOs and residential customers

When does the DNO interact with domestic customers?

1. New Connections

Profile Class 1
Weekday Load Average

2. Meter cut-outs

3. Outage Management

4. Power quality investigations
# Low Carbon London Trials

## Customer engagement strategies

<table>
<thead>
<tr>
<th>Smart Meter Sample</th>
<th>5,815 residential customers - LPN</th>
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</thead>
<tbody>
<tr>
<td><strong>Trial period</strong></td>
<td><strong>Recruitment:</strong></td>
</tr>
<tr>
<td></td>
<td>• Q4 2011 – Q3, 2012</td>
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<td></td>
<td><strong>Data collection:</strong></td>
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<tr>
<td></td>
<td>• until Q4, 2013</td>
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<tr>
<td><strong>Recruitment</strong></td>
<td>• Supplier-led, opt-in</td>
</tr>
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<td></td>
<td>• Balanced, representative sample</td>
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<tr>
<td><strong>Survey</strong></td>
<td>2,140 surveys completed, detailing customers’ :</td>
</tr>
<tr>
<td></td>
<td>• Demographics</td>
</tr>
<tr>
<td></td>
<td>• Household characteristics</td>
</tr>
<tr>
<td></td>
<td>• Installed appliances &amp; loads</td>
</tr>
</tbody>
</table>
Using this information
Using this information

Analysis & figures by Matt Woolf, Learning Laboratory
Using this information

Spring Sunday

Analysis & figures by Matt Woolf, Learning Laboratory
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Peak demand in July 2013

Peak demand in February 2013

Analysis and figures by James Schofield, Learning Laboratory.
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Appliance Survey - Relative Importance

Analysis by: Alex Whitney, Mark Bilton and Goran Strubac, Learning Laboratory
Delivering a network ToU tariff scheme
Consumer engagement & the LCL
Residential Dynamic Pricing Trial

Low Carbon London Learning Laboratory

Dr Richard Carmichael
(with thanks to James Schofield & Dr Mark Bilton)
Data collection

- Household data
- Appliances

- face-to-face/telephone
- range of households
- broad range of topics
- June–Dec
- ~26 so far

Dynamic ToU Trial

ToU Survey

ToU interviews

Appliance
Survey

2013
Early findings – customer savings

Economy Alert Vs Standard Variable Tariff

• $dTou$ costs to date = £384.99 /household

• Standard Variable Tariff costs to date = £400.33 /household

• $dTou$ is ~4% cheaper

• Range –25% to +11%
1. Tariff complexity

“it wasn’t complex because they told you when it was high and when it was low, the costing you know, it’s only with kids that because we have got kids that that it wasn’t for us.”

“Yes, I don’t think it is … it doesn’t come across to me as complex, in fact what I was saying to this guy on the phone was I would love to be able to see some options.”

2. Explanations wanted – will assume the worst if not

“I don’t feel, how do I say, this is all been done with consumers in mind or with the environment in mind and I expect there is also a healthy amount of, well if we play around enough, we will probably be able to increase our profits in the future because people won't really know what's happening.”

“I just need to know that it’s been done for an efficient reason…”

3. Division of labour and behaviours

“I suppose, it's the washing machine, it's me!” (female trialist)
Delivering a network dToU tariff scheme

Clear customer responses:

• Robust sample

• Marked responsiveness

• Observed HIGH price flexibility: 11%

Analysis & Figure by Imperial College London: Alex Whitney, Mark Bilton, Goran Strubac

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Delivering a network dToU tariff scheme

LCL Trial - Flexibility and performance

<table>
<thead>
<tr>
<th>Participants</th>
<th>Sample flexibility (%)</th>
<th>Individual Response (kW)</th>
<th>Total Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,107</td>
<td>11</td>
<td>0.07</td>
<td>77 kW</td>
</tr>
</tbody>
</table>
Smart meters, smart engagement
How does a DSO interact with domestic customers?

1. New Connections
   Multiple Load Profiles

2. Meter cut-outs
   2% DNO intervention rate for national smart meter rollout

3. Outage Management

4. Power quality investigations

5. New, active services
   …network-driven ToU tariffs?
UK Power Networks Innovation Portfolio

For more information about all our projects:

• Come and talk to us on our stands here at the conference
• Visit our new website ukpowernetworks.co.uk/innovation
• Sign up for our newsletter
Thank you

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