RAPID ENERGY SAVINGS in LONDON’s HOUSEHOLDS to MITIGATE an ENERGY CRISIS

Behaviour, Energy and Climate Change Conference
Washington DC

Wednesday, November 30
Aurore Julien
mintchocolate76 Kaieda,METI "Asking major companies' to continue saving electricity. West Japan should maintain normal life and support Japanese economy". 3 days ago via web

ryongbo Starbucks is saving on electricity in Tokyo, Japan. http://plixi.com/p/84785951 3 days ago via Echophon

bboysiva @pandaboyfans Japan is saving electricity now. Therefore, the company is a night shift. My work is a foodstuffs company. 3 days ago via twicca

tokyonewsnow Japan Rail Electricity Saving by Jun Tsukida/Aflo http://dlvr.it/Kb9fc #tokyonews 4 days ago via dlvr.it

meganekkun Japan is saving electricity. The first thing I thought is "so, Misaka Mikoto's message has been passed around huh~" 4 days ago via web

gogomariada quake again!!! but i'm off to bed for saving on electricity, pray for all afflicted people here in japan. tomorrow'll be better day, i believe. 4 days ago via web

comtoshi RT @garethoconnor: 9pm #Japan: "@depepi: Tokyo is doing its best for electricity. The whole city is saving energy. Japanese should be proud of themselves" 4 days ago via Twitter for iPad

lindsayinfrance RT @garethoconnor: 9pm #Japan: "@depepi: Tokyo is doing its best for electricity. The whole city is saving energy. Japanese should be proud of themselves" 4 days ago via Twitter for iPad

causevision RT @garethoconnor: 9pm #Japan: "@depepi: Tokyo is doing its best for electricity. The whole city is saving energy. Japanese should be proud of themselves" 4 days ago via Twitter for iPad

nytiijm RT, @garethoconnor: 9pm #Japan: "@depepi: Tokyo is doing its best for electricity. The whole city is saving energy. Japanese should be proud of themselves" 4 days ago via Twitter for iPad
Today's Maximum Supply Capacity: 4,410 10 thousand kW
Jun 14. 8:30 Update

The forecasted maximum demand of today: 3,570 10 thousand kW (Time 14:00 ~ 15:00)
Jun 14. 8:30 Update
‘Saving energy in a hurry’ – Electricity savings achieved

Meier, 2006 Presentation
Energy security questioned as National Grid cuts off gas to factories

Exclusive: Severe weather and creaking power infrastructure lead to first tangible sign that fears over energy shortages are translating into supply disruption

Terry Macalister, energy editor

guardian.co.uk, Thursday 7 January 2010 14.00 GMT

Article history
Can an energy shortage be effectively mitigated through rapid energy savings in households, using London as a case study?

=> Quantification of savings achieved by the households in kWh
GREATER LONDON
7.75 million Londoners
600 sq miles
REMEMBER
TURN OFF LIGHTS
= High(ish) response rate
### Actions Londoners are willing to take to save energy

**Now and in the context of an energy crisis**

**Preliminary non-weighted survey results**

<table>
<thead>
<tr>
<th>Action</th>
<th>I do this now</th>
<th>I don't do this now but would do this in a crisis</th>
<th>I would not do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch off the lights when I don't need them</td>
<td>89%</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>Boil the kettle with only as much water as needed</td>
<td>81%</td>
<td>13%</td>
<td>6%</td>
</tr>
<tr>
<td>Draw the curtains at night to keep the heat in</td>
<td>80%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Put lids on pots when cooking and use the correct hob size</td>
<td>76%</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>Switch off equipment at night when not needed</td>
<td>76%</td>
<td>19%</td>
<td>5%</td>
</tr>
<tr>
<td>Dry clothes naturally instead of using a tumble dryer</td>
<td>73%</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td>Take showers instead of baths</td>
<td>71%</td>
<td>18%</td>
<td>10%</td>
</tr>
<tr>
<td>Install low energy light bulbs in the whole home</td>
<td>70%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Unplug my phone charger when not used</td>
<td>68%</td>
<td>19%</td>
<td>13%</td>
</tr>
<tr>
<td>Turn down the heating and wear more clothes</td>
<td>55%</td>
<td>36%</td>
<td>9%</td>
</tr>
<tr>
<td>Heat only the rooms that are used in my home</td>
<td>55%</td>
<td>28%</td>
<td>18%</td>
</tr>
<tr>
<td>Switch off all equipment on standby at the plug</td>
<td>53%</td>
<td>37%</td>
<td>10%</td>
</tr>
<tr>
<td>Set the washing machine temperature to 30°C</td>
<td>51%</td>
<td>43%</td>
<td>33%</td>
</tr>
<tr>
<td>Never use a gaming console</td>
<td>43%</td>
<td>24%</td>
<td>33%</td>
</tr>
<tr>
<td>Take shorter showers to save hot water</td>
<td>34%</td>
<td>48%</td>
<td>18%</td>
</tr>
<tr>
<td>Use a microwave instead of the oven</td>
<td>29%</td>
<td>39%</td>
<td>32%</td>
</tr>
<tr>
<td>Use the hobs instead of an oven</td>
<td>29%</td>
<td>41%</td>
<td>30%</td>
</tr>
<tr>
<td>Use a computer or a laptop for less than 1 hour/day</td>
<td>22%</td>
<td>43%</td>
<td>36%</td>
</tr>
<tr>
<td>Heat only one room in my home</td>
<td>15%</td>
<td>43%</td>
<td>25%</td>
</tr>
<tr>
<td>Watch the television for less than 1 hour/day</td>
<td>13%</td>
<td>48%</td>
<td>39%</td>
</tr>
<tr>
<td>Never use an iron</td>
<td>12%</td>
<td>46%</td>
<td>42%</td>
</tr>
<tr>
<td>Eat food that doesn't need cooking or heating up</td>
<td>8%</td>
<td>53%</td>
<td>39%</td>
</tr>
<tr>
<td>Use candles instead of electric lighting</td>
<td>5%</td>
<td>61%</td>
<td>34%</td>
</tr>
<tr>
<td>Never use a vacuum cleaner</td>
<td>5%</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>Never use a kettle</td>
<td>5%</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>Wash all my clothes by hand</td>
<td>2%</td>
<td>50%</td>
<td>48%</td>
</tr>
</tbody>
</table>
Possible energy savings from different energy saving actions for a typical UK household (kWh/year)

- Wash all my clothes by hand
- Make sure the phone charger is not plugged in
- Put lids on pots when cooking and use the correct hob size
- Boil the kettle with only as much water as needed
- Use the hobs instead of an oven
- Never use a vacuum cleaner
- Never use a gaming console
- Switch off equipment at night when not needed
- Set the washing machine temperature to 30°C
- Use a microwave instead of the oven
- Use a computer or a laptop for less than 1 hour/day
- Never use an iron
- Take shorter showers to save hot water
- Switch off the lights when I don’t need them
- Stop using a kettle (stop drinking tea)
- Install low energy light bulbs in the whole home
- Switch off all equipment on standby at the plug
- Eat food that doesn’t need cooking or heating up
- Dry clothes naturally instead of using a tumble dryer
- Watch the television for less than 1 hour/day
- Use only candles instead of electric lighting
- Draw the curtains at night
- Take showers instead of baths
- Turn down the heating of my home and wear more clothes
- Heat only the rooms that are used in my home
- Heat only one room in my home

-1,000 - 1,000 2,000 3,000 4,000 5,000 6,000 7,000
Possible energy savings from different energy saving actions for a typical UK household (kWh/year)

- Turn down the heating of my home and wear more clothes
- Watch the television for less than 1 hour/day
- Heat only the rooms that are used in my home
- Heat only one room in my home
Preliminary conclusions

• Substantial savings are possible

preliminary findings
  - 20% electricity
  - 30% of natural gas

• Some measures are substantially more effective than others
The theory of reasoned action – Ajzen and Fishbein (1975 & 1980)
Aurore Julien
aurore.julien.09@ucl.ac.uk