Climate policy and energy pricing in the UK

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OECD Green Growth and Sustainable Development Forum

Session 1: Social implications of green growth – energy sector reform and its impact on households

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Acknowledgements

This presentation is based on two reports published in 2013: *Energy Use Policies and Carbon Pricing in the UK* (available [here](#)) and *Household Energy Use in Britain: a Distributional Analysis* (available [here](#)).

The former report was jointly authored by the Institute for Fiscal Studies (IFS) and the Grantham Research Institute (GRI) at the London School of Economics. The latter report was authored by the IFS.

The presenter co-authored both reports while at the IFS.

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Views are those of the authors and not the IFS, Frontier Economics, the GRI, the London School of Economics or the funders.

Figures and results are accurate at the time of publication.
The UK energy use policy landscape is complex
(At least) ten policies affect marginal prices differently by user and fuel

- Reduced VAT rate for domestic energy
- Energy Company Obligation
- Warm Home Discount
- Renewables Obligation
- EU Emissions Trading Scheme
- Climate Change Levy
- Climate Change Agreements
- Carbon Price Support Rate
- Carbon Reduction Commitment
- Small-scale Feed-in Tariffs

- Affects electricity and gas prices
- Affects domestic prices
- Affects electricity prices only
- Affects small firm prices
- Affects medium-size firm prices
- Affects large (energy-intensive) firm prices
This leads to very different implicit carbon prices... ...which is inefficient when trying to reduce emissions at least cost

Household gas prices are effectively net subsidised because of reduced-rate VAT

Source: Energy Use Policies and Carbon Pricing in the UK.
Note: Figures are for 2013–14
There is an economic case to remove the implicit VAT subsidy and introduce a new gas tax for households …

… to make carbon prices facing households more consistent, reduce emissions and raise revenues for the government

<table>
<thead>
<tr>
<th>Household energy price elasticity</th>
<th>Revenue (£ billion)</th>
<th>Change in CO₂ emissions (m tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8.2</td>
<td>0</td>
</tr>
<tr>
<td>-0.3</td>
<td>7.5</td>
<td>-8.4</td>
</tr>
<tr>
<td>-0.8</td>
<td>6.4</td>
<td>-22.3</td>
</tr>
<tr>
<td>-1.0</td>
<td>5.9</td>
<td>-27.9</td>
</tr>
</tbody>
</table>

Epsey and Epsey (2004) meta-analysis suggests short-run elasticity of -0.3 and long-run elasticity of -0.8

For an elasticity of -0.3 this represents a cut of 7% in domestic emissions
Though this would have clear adverse distributional effects

On average, the cost to the poorest decile would be £5.64 per week, around 3.3% of income

For the richest decile the average cost is £8.01 per week, around 0.7% of income

Across all households the average cost is £6.30 per week, or 1.2% of income
Revenues could be used to fund compensating changes to the tax and benefit system

<table>
<thead>
<tr>
<th>Reform</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Increase tax thresholds, tax credits, means-tested benefits by 1.2%*</td>
<td>£2.6 billion</td>
</tr>
</tbody>
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Additionally:
- Increase pension credit by £8 per week
- Increase means-tested unemployment support by £4 per week
- Increase income support by £4 per week
- Increase benefits cap limit by £4 per week
- Increase family elements of tax credits by £8 per week
- Increase working tax credit for single adults by £8 per week
- Increase working tax credit for couples by £4 per week
- Increase incapacity benefits by £4 per week

Total cost of additional reforms: £4.6 billion

*To compensate for estimated impact of energy price increases on overall Consumer Prices Index

Overall reform package costs £7.2 billion, around £0.4 billion less than the revenue generated from the energy tax reforms allowing for short-run behavioural responses
The overall effect of the package would be progressive

Households in the poorest 40% of the income distribution would be net gainers, on average

Average losses are slightly larger in the 7th and 8th decile than among the richest 20%

Source: Household Energy Use in Britain: a Distributional Analysis. Note: Based on IFS Tax and Benefit Microsimulation Model, TAXBEN
Though a significant proportion of poorer households would still lose out, reflecting difficulties in targeting those affected.

Around a quarter of households in the poorest decile would be at least £1 per week worse off.

Around half of those in the middle of the income distribution are at least £1 per week worse off.
There may be other ways to compensate low-income households that lose out

- **Little scope for even more generous benefit increases**
  - Only 10 to 20% of poorer households on benefits are net losers
  - Much more would need to be spent to turn them into net winners
  - Very significant benefit increases also have negative effects on work incentives

- **Money could be spent on paying for better home insulation**
  - Energy tax increases would increase salience of need for better insulation
  - Could also be tied into planned ‘smart meter’ rollout in UK
  - Cost of paying for all remaining potential low-cost cavity wall insulation and loft insulation in domestic properties estimated at around £2 billion
  - Spending around £0.5 billion on measures could fund:
    - 300,000 hard to treat cavity wall insulations
    - 100,000 internal solid wall insulations
    - 200,000 boiler replacements
    - 50,000 external solid wall insulations
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