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Driving energy efficiency in the UK's large energy users: Findings from the evaluation of the CRC Energy Efficiency Scheme

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Outline:

- Introduction to the CRC and evaluation aims
- Headline findings from the CRC evaluation
- Some lessons learned

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Introduction to the CRC energy efficiency scheme:

- CRC applies to large non-energy intensive organisations and is designed to incentivise energy efficiency and cut emissions
- Participants include supermarkets, water companies, banks, universities, local authorities and all central government departments
- Phase 1 ran from April 2010 to March 2014
- Participants had electricity consumption greater than 6000 MWh in 2008 (Phase 1) or mandated government departments

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CRC Policy drivers:

- The CRC scheme requires:
  - Participants report their carbon emissions annually
  - Participants buy and surrender carbon allowances
  - Senior management responsible for compliance
  - Regulatory bodies report carbon emissions for CRC participants and take enforcement action for non-compliance

- So the main drivers are:
  - Awareness of energy efficiency (especially board level)
  - Financial cost of compliance
  - Reputation (annual reporting, enforcement for non-compliance)

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Objectives of the CRC evaluation:

A. Assess the extent that the CRC has delivered reductions in emissions by the take-up of energy efficiency measures

B. Identify the barriers & drivers to energy efficiency and assess the extent to which the CRC has overcome barriers and emphasised drivers

C. Assess whether the CRC has delivered abatement in a cost-effective manner.

D. Identify how the CRC has been delivered and whether it has been administered effectively

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Key elements of the evaluation methodology:

Quantitative survey

- Over 900 interviews
- **AIM:** gather data on energy efficiency behaviours.

Econometric analysis

- **AIM:** to investigate differences in energy consumption patterns between the CRC and comparison groups

Qualitative research

- **AIM:** to explore the reasons behind any changes in energy efficiency behaviour

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Impact of the CRC:

- Consistent evidence that the CRC has had a beneficial impact on energy efficiency behaviour and has had some positive influence on the take-up of energy efficiency measures

- The CRC reduced carbon emissions by an **annual average of 6-8% between 2010 and 2012**

- And reduced electricity consumption by an **annual av. of 3-5%**

  - Tentative gas consumption results: for CRC org's with highest gas use there was a significant reduction in gas consumption (~30%) compared to main comparison group (those below threshold)
  - CRC impacts may have declined since the early stages of the scheme

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Impact - types of organisations:

- Organisation size
  - Smaller organisations tended to report more CRC influence (larger organisations took early action)
  - However, econometric research found that the CRC had the greatest impact at the extremes of electricity consumption (top 25% = 75% of total energy and emissions reductions)
- Public vs private
  - Private sector impact appears stronger than public sector.
- But effects not universal – some reported pre-CRC action:
  - Those with high energy costs relative to total costs
  - Sensitivity to reputational drivers and/or environmental factors
  - Larger-scale organisations

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Strong awareness driver:

- Majority of organisations said that their main driver for action was energy prices
- Awareness and finance were also important drivers

- Awareness raised through Senior involvement in actions to comply with the CRC (e.g. signing off purchase of allowances)

"I think it is fair to say the [CRC] is one of the drivers that ensures that carbon and energy remains higher up the agenda in our organisation, because obviously we have a statutory duty to comply with that scheme."

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Strong financial driver:

- Driven by the cost of allowances:
  - Raised awareness
  - Slightly improved the business case for energy efficiency investments
  - Two-thirds said that they included the CRC in business cases

"…the CRC helped me in a way of engaging the board to say here's cost of about [nearly £100,000], here's a big pot of money which is coming out…and it did help to focus the board a bit to say what can we do."

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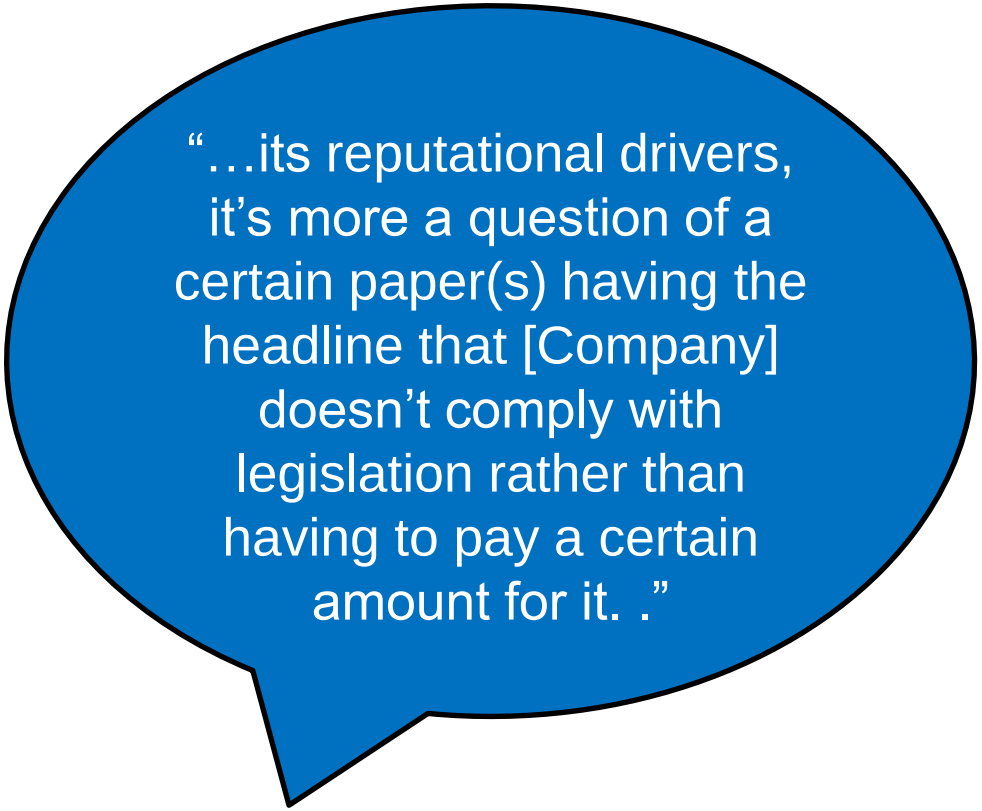
Weaker reputational driver:

- Reputation weaker overall because:
  - Changes to reporting process over time
  - Lower than expected media interest / not properly in public domain

But…

- Some firms were more susceptible to reputation (e.g. public facing)
- Fear of enforcement and possible negative publicity



Barriers to further action on energy efficiency

Barriers	% of respondents
Lack of funding/finance	**48%**
Too much uncertainty about long term benefits and costs	**10%**
Limitations of the premises	**8%**
Personnel resources not available to take forward	**8%**
There are no cost effective technologies available to us at the moment	5%
We don’t stand to benefit from taking action [split-incentives]	4%
Lack of support from board/senior management	4%
Lack of information on what’s possible	3%
Energy efficiency is not an organisational priority	3%
Lack of support from workforce	2%
Lack of trusted information	1%
No barriers	**21%**

(multiple response, all respondents, n=904)

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Qualitative findings on barriers:

- Many interviewees identified the capital cost of energy efficiency investments as a barrier
- Some reported that energy efficiency investments were often competing with other capital investments which had quicker payback rates
- Others mentioned that other corporate objectives (e.g. external or internal quality standards) constrained their action on energy efficiency

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Action due to the CRC:

- The CRC contributed to earlier action or action on a greater scale
  - Improvements in use of energy data systems and reporting;
  - Increased take-up of some technologies (e.g. energy efficient lighting, building controls, and voltage optimisers)

"It did accelerate the deployment of AMR [Automatic Meter Readings] early on, which was a bonus ... So that was a positive."

"CRC is an extra cost in the business – so there has been real focus in getting beneath the threshold. The cost of carbon is rising and will continue to do so (e.g. £16/tonne), so from an economic viewpoint we need to keep these costs down."

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Types of energy efficiency actions and perception of benefits:

- Measures undertaken by CRC participants were cost-effective, with paybacks generally under 5 years
- Lighting was the most popular technology for private and public participants, followed by building fabric, building controls, metering and boilers
- Most participants recognized that action led to wider benefits beyond reduced energy costs and CRC costs, primarily reputational benefits

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Conclusion: What have we learned

- CRC scheme **did** impact on energy efficiency behaviour
- Some non-participants' behaviour also affected by trying to stay below the threshold
- Announcement effect and stronger impact pre-policy and first year
- Compliance with the scheme and costs raised awareness
- Some organisations were affected by reputational driver but overall this was weaker than awareness or cost
- Reputational driver could have been boosted by more publicity for reports

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The reports are published here:

https://www.gov.uk/government/publications/evaluation-of-the-crc-energy-efficiency-scheme

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