



## Weaving a contribution story from multiple workstreams and imperfect counterfactuals – evaluation of UK Climate Change Agreements scheme

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### EXTENDED ABSTRACT

This presentation explores the challenges of assessing additionality within an evaluation of the second Climate Change Agreements (CCA) scheme in the UK, which aims to promote energy efficiency in energy intensive industries while protecting the competitiveness of these industries. The presentation describes the use of contribution analysis within a theory-based evaluation, to bring together both subjective and objective evidence from analysis of CCA scheme data, qualitative, quantitative, quasi-experimental research and economic modelling.

### Background

The second Climate Change Agreements (CCA) scheme aims to promote energy efficiency in energy intensive industry while protecting the competitiveness of these industries. The voluntary scheme offers companies with energy intensive processes significant discounts on the Climate Change Levy (a key carbon tax) in return for meeting energy or carbon efficiency targets agreed between Government and sectors. This evaluation faced two key methodological challenges:

- (1) How to combine objective and subjective evidence, to reduce the risk from imperfect and asymmetric information
- (2) How to combine evidence from various comparison groups, none of which – in itself - offered a perfect counterfactual to the CCA scheme

### Methodology

The overarching methodology chosen for the evaluation was contribution analysis, based around a theory of change (ToC). Contribution analysis<sup>1</sup> provided a framework for piecing together a patchwork of evidence, both subjective and objective, including evidence about the behaviour of CCA participants and comparison groups. Our research examined the influence of the second CCA scheme compared to other policies affecting energy intensive industries, including the EU Emissions Trading System (EU ETS), the CRC Energy Efficiency Scheme, the Climate Change Levy and the first CCA scheme in the UK.

We used this framework to draw together evidence across a wide range of workstreams including: a literature review on industry voluntary agreements; econometric analysis of CCA impacts on energy efficiency and economic variables at site level, involving comparison of CCA and non-CCA sites; analysis of target performance and energy use by CCA participants as reported through the CCA scheme; a quantitative survey of

<sup>1</sup> Mayne, J. (2011). Addressing cause and effect in simple and complex settings through contribution analysis. In *Evaluating the Complex*, R. Schwartz, K. Forsee, and M. Marra (Eds.), Transaction Publishers, New Jersey.

CCA participants, including recent joiners; qualitative research with CCA participants, non-participants and recent leavers; and macro-economic modelling of the environmental and economic impacts of the scheme.

## Results

The evaluation found that the second CCA scheme had contributed to its objectives, both in terms of energy efficiency and competitiveness. The evaluation findings have been published by BEIS and are only briefly summarized in the presentation<sup>2</sup>. This presentation focuses on the role of contribution analysis in weaving together the contribution story across different workstreams.

A ToC was developed at the start of the evaluation, summarizing how the scheme was intended to work, distinguishing between the impacts of the CCA scheme and the impacts of external factors (e.g. economic activity, energy prices, technological change, other energy policies). Contribution analysis was the central method used to refine the ToC in an iterative way as the evaluation proceeded. This involved exploration of alternative causal explanations for observed outcomes, and the assembly of evidence to test plausible, reasonable explanations about whether and how the scheme has contributed to these outcomes. There was a risk of self-reported findings from CCA participants and industry sector bodies providing a partial view, including a risk of information asymmetry since respondents could choose what they reported in surveys and interviews, so the contribution analysis drew strongly on quasi-experimental research (in the micro-econometric and macro-economic modelling workstreams) to cross-check subjective evidence against objective findings.

Comparison groups were used in the quasi-experimental research and qualitative research to provide further cross-checks on subjective evidence. The comparison groups comprised some firms that had not joined the CCA, some that were not eligible and some that had recently left the scheme. No single comparison group could be identified that would provide a full answer to the question of how firms would have behaved in the absence of the second CCA scheme. But consideration of different, imperfect comparison groups provided valuable insights and evidence for the contribution analysis.

The evaluation team reviewed emerging evidence across all the workstreams through quarterly synthesis workshops, by telephone and face-to-face. The workshops were used to cross-check findings between workstreams, to identify areas where further analysis was needed to strengthen the emerging contribution story and to identify opportunities for using evidence from one workstream to strengthen the work of another. A technical expert and an evaluation expert were involved throughout, advising on ways to strengthen the analysis.

While the iterative assessment of the ToC emerging from this process provided an overview of the 'overall' impact of the CCA policy, contribution stories were also developed to explain the ways in which the CCA policy influenced different types of CCA participants. Emerging findings from the contribution analysis were tested with stakeholders at face-to-face workshops before final findings were reported to BEIS. The synthesis report drew on evidence from all the workstreams to present findings against the evaluation questions, as well as a final assessment of the ToC and illustrative contribution stories for different types of CCA participants.

## Conclusion

The contribution analysis approach brought a robust framework with which to bring together, challenge and explore the diverse range of evidence collected. This was an example of an iterative and emerging synthesis process, combining objective and subjective evidence to reduce the risk from imperfect and asymmetric information, and involving collaboration between the different workstreams to tackle some of the questions at the heart of the evaluation. Each workstream had a vital role to play, with some providing objective evidence of impact, some estimating the scale of this impact and others helping to explain the CCA's contribution to change.

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<sup>2</sup> BEIS (2020). Evaluation of the second Climate Change Agreements scheme: synthesis report. BEIS Research Paper Number 2020/014. Accessed at: <https://www.gov.uk/government/publications/second-climate-change-agreements-scheme-evaluation>