

UKERC Technology and Policy Assessment

Explaining the impact of policy on consumer energy bills

Scoping note and review protocol

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Phil Heptonstall
Rob Gross

Imperial College Centre for Energy Policy and Technology

THE UK ENERGY RESEARCH CENTRE (UKERC)

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The Technology and Policy Assessment (TPA) Theme of UKERC

The TPA was set up to inform decision-making processes and address key controversies in the energy field. It aims to provide authoritative and accessible reports that set very high standards for rigour and transparency. Subjects are chosen after extensive consultation with energy sector stakeholders and upon the recommendation of the TPA Advisory Group, which is comprised of independent experts from government, academia and the private sector.

The primary objective of the TPA is to provide a thorough review of the current state of knowledge. New research, such as modelling or primary data gathering may be carried out when essential. It also aims to explain its findings in a way that is accessible to non-technical readers and is useful to policymakers.

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Introduction

The UKERC technology and policy assessment (TPA) team was set up to address key controversies in the energy field and to provide authoritative inputs to decision-making processes through accessible and credible reports that set very high standards for rigour and transparency. The principles by which the TPA will ensure these standards are described in Box 1 below:

Box 1: UKERC Technology and Policy Assessment Guiding Principles

In order to achieve its goals the TPA will ensure:

- Appropriate stakeholder participation and engagement including
 - Consultation on prospective assessment questions
 - Consultation on emerging findings
- Clarity and transparency of analysis, including
 - Clear, published criteria for choosing and refining questions
 - Protocols that can be readily criticised and replicated
- Expert scrutiny and the consideration of a range of perspectives, including
 - Selection of an expert team to work on each assessment
 - Appointment of advisors to bring a range of perspectives to each assessment
 - The solicitation of commentary and input during the assessment process
 - Exposure of findings to peer review

TPA question selection criteria

The TPA management team and UKERC Research Director, in consultation with stakeholders, will select questions according to the following criteria:

- Does the question reflect the concerns of users?
- Is the question relevant to current energy policy debate and/or the objectives of the UKERC and UK energy policy?
- Are there important areas of conflict or confusion that a TPA assessment could help overcome?
- Can the question be made sufficiently concise as to allow it to be addressed within the timeframe and resource limits of the TPA?
- Is the question amenable to a synthesis assessment based on existing evidence? For example, is the question sufficiently tightly defined? Is an adequate evidence base both available and accessible?

The subject of this TPA project

Introduction and context: the subject and its importance

The cost of energy for consumers in the UK has been a source of continuing debate and discussion, both in energy policy circles and in the wider public discourse. Concerns have been expressed both over the size of bills and the contribution that policies to incentivise low-carbon generation and energy saving make to the total cost of energy to consumers (Thomas, 2017a). This is despite the fact that the average share of household incomes that is spent on energy bills has been relatively stable over recent decades (Evans, 2017), although some suggest that costs are now rising at a faster rate than in the past (Cox, 2017).

There is also a clear area of tension between some in the energy supply industry, who ascribe recent price rises to government policies, and the UK government who argue that low-carbon generation and energy saving policy costs make up a relatively small component of total bills (Thomas, 2017b).

In response to these concerns, the UK government announced in August of this year that they have commissioned a review of the key factors affecting energy bills (albeit with an apparent focus on electricity), including 'energy and carbon pricing, energy efficiency, distributed generation, network regulation, innovation and R&D', with the terms of reference including 'recommending ways to keep energy prices as low as possible' (BEIS, 2017).

Earlier this year, the UKERC Technology and Policy Assessment team consulted with stakeholders over which projects to take forward in the remainder of phase three of UKERC (Gross et al., 2017). Stakeholders felt that the impact of government policies on consumer bills was a key policy issue that reflects the concerns of users, is very relevant to current policy debates, where there are substantial areas of controversy, and where a TPA review could usefully contribute to the debate. Stakeholders felt that the research question could be made sufficiently concise as to allow it to be addressed within the timeframe and resource limits of a rapid evidence assessment, provided that the focus was on an international review of policy practice through a case study approach, drawing on the literature on how policies are paid for as well as critiques of different methodologies.

Research question

The overarching question which this project will address is:

How do the impacts of government policies paid for through consumer bills differ between countries?

The focus is on comparing how policies are paid for, including methodological differences (if any) in assessing how the size of policy impacts are determined, the mix of policies and how transparently policy impacts are communicated to consumers.

There is a significant amount of analysis available on how policies impact on bills with notable UK examples including (DECC, 2014, CCC, 2017, Ofgem, 2017). These analyses, on the face of it, make it very clear how typical energy bills across different categories of consumers are composed, with similar analyses also available in relation to several other countries e.g. (Ei, 2016, Australian Energy Regulator, 2017, Thalman and Wehrmann, 2017).

This raises the question as to why, given that detailed information appears to be available, is there a continuing disagreement over how policies influence consumer bills. It is possible to speculate that, in the UK at least, it may in part be a result of the plethora of policies (both current and past) and taxes which affect bills, further complicated by certain groups of consumers benefitting from compensatory actions to mitigate the impacts of specific policies. Uncertainty and confusion may also arise from a lack of clarity over whether the area of concern is the unit cost or energy (for example the cost per kWh of electricity) or the total size of bills, since some policies may put upward pressure on the former and other policies may put downward pressure on the latter through, for example, improved energy efficiency. Further confusion may be caused where low-carbon policy impacts e.g. (Thomas, 2017b) are conflated with concerns over market structures and supplier profit margins e.g. (Thomas, 2017d).

UKERC TPA Approach

The TPA approach learns from the practice of systematic review, which aspires to provide more convincing evidence for policymakers and practitioners, avoid duplication of research, encourage higher research standards and identify research gaps. This *evidence based* approach is common in areas such as education, criminal justice and healthcare.

The goal is to achieve high standards of rigour and transparency. However, energy policy gives rise to a number of difficulties for prospective systematic review

practitioners and the approach is not common in energy. We have therefore set up a process that is inspired by the evidence based approach, but that is not bound to any narrowly defined method or techniques.

This assessment protocol describes this process in detail. It provides a specification of the means by which we will consult stakeholders and solicit expert input, specifications for searching the literature, and criteria against which relevant findings will be assessed.

Assessment sequence

The TPA has identified a series of steps that need to be undertaken in each of its assessments. These steps, derived from the practise of *systematic review* in non-energy policy analysis, are outlined in Figure 1 below.

Figure 1 – typical process for TPA studies

Scoping prospective issues	Solicit expert input	Define criteria for assessment	Review literature	Synthesis and analysis	Prepare draft report	Consult, peer review and refine	Publish and promote
Questions/issues							
What are key problems and issues	Need to reflect a range of informed opinion	Ensure transparent, rigorous and replicable process	Need to review literature thoroughly	Need to apply rigorous criteria to evaluation of relevant studies	Need to identify key issues and discuss initial findings with stakeholders	Need to seek peer review and gain wide ranging criticism of initial work	Need to ensure report reaches key audience
Actions							
Write scoping note	Appoint expert group	Develop assessment protocols	Apply protocol to literature search	Apply protocol to evaluation and synthesis of literature	Write preliminary draft assessment	Host stakeholder workshop to discuss draft report	Design and graphics
Seek feedback from advisory group	Hold expert/stakeholder workshop	Discuss expert group and AG	Detailed and transparent 'trawl'	Detailed and transparent assessment of evidence base		Send draft report for peer review	Publication
Seek feedback from online listing of initial scoping		Place protocols in public domain	Identify relevant sources			Make appropriate revisions to draft report	Launch events
Outputs							
Scoping note	Web publication of expert group	Assessment protocols			Draft report	Final report	Published report

Since this project will be a rapid evidence assessment rather than a full-length systematic review, the process will be adapted so that it fits into the desired project timescale of 3–4 months total duration. This will be achieved through a combination of:

- Restricting the expert group to a maximum of 3–4 people and engaging with expert group members bilaterally rather than in group meetings.
- Constraining the research question(s) to a tightly defined area, which will be reflected in a much lower number of search terms than is normal for a full systematic review.
- Focussing exclusively on the most clearly relevant literature (see the ‘Relevance ratings’ section below).
- The final project report will be considerably shorter than the normal 30–40,000 words of a typical TPA review report.
- On completion, the report will be published on the UKERC TPA website and the findings presented to key stakeholders through bilateral follow-up meetings (rather than a formal report launch event).

Expert Advisors

The project team will engage with a small team of expert advisors who can bring their experience and perspectives to bear on the subject. The expert advisors will be asked to comment on the scope of the project and the proposed approach, advise and assist the project team in the selection of relevant evidence sources, and review draft results. The expert advisors will be announced in due course and will be listed in the main project report. At this stage it is envisaged that experts will be drawn from the CCS, Ofgem, an independent or industry-related expert, and possibly BEIS.

Research sources

A systematic review protocol typically provides a rationale for the choice of sources and lists the main databases, bibliographies, catalogues, personal contacts and other sources that are to be searched. It will also specify the years to be covered and the search criteria that will be used. As identified in the Assessment Sequence section above, the project team will adopt an approach that is consistent with the available timescale.

The initial set of key words, search terms and evidence categorisation are described below. These may be revised following discussion with the expert group members, and input from stakeholders where appropriate.

Search Terms

Energy sources	Actors	Descriptors
electricity	consumer	bill
gas	household	policy, policies
energy	industry, industrial	cost
		profit
		price
		wholesale

Combination of search terms

These search terms will be combined into a set of search strings and applied to the databases below. The search strings used and the total number of hits returned from each string will be recorded. Where a particular search string returns a large number of hits, only the first 100 results will be examined for initial relevance, based on the document title and abstract. The number of hits that are deemed relevant on this initial examination will be recorded, along with details of each document that passes this first stage assessment.

The initial search strings are listed below. These will be adapted and expanded (to include other terms from the table above) once the initial search results have been reviewed, subject to the available time constraints.

'electricity+consumer+bill+policy'

'energy+consumer+bill+policy'

'gas+consumer+bill+policy'

'electricity+consumer+bill+policies'

'energy+consumer+bill+policies'

'gas+consumer+bill+policies'

electricity+consumer+bill+cost'

'energy+consumer+bill+cost'

'gas+consumer+bill+cost'

Databases / sources

Google and google scholar will be used i.e. each search string will be applied to both google and google scholar.

Relevance ratings

The next step will be to assign a rating to each piece of evidence that appeared to be relevant based on the initial examination. This will allow the project team to subsequently focus their attention only on those documents which are most directly useful in addressing the research question.

These relevance ratings are:

1. Article shows clear data and/or discussion that is directly focussed on the research question.
2. Article shows clear data and/or discussion that is related to but is not directly focussed on the research question.
3. Article mentions at least one of the terms above, but is not focussed on the research question.
4. Article found to be irrelevant or duplicate on closer inspection.

References

- Australian Energy Regulator 2017. *State of the energy market, May 2017*. Australian Competition and Consumer Commission, Melbourne, Victoria.
- BEIS 2017. *Independent review to ensure energy is affordable for households and businesses*. Department for Business, Energy & Industrial Strategy, London.
- CCC 2017. *Energy prices and bills – impacts of meeting carbon budgets* Committee on Climate Change, London.
- Cox, J. 2017. UK energy bills rising at fastest rate since 2014, data reveals *Independent*, 20th September 2017.
- DECC 2014. *Estimated impacts of energy and climate change policies on energy prices and bills*. Department of Energy & Climate Change, London.
- Ei 2016. *The Swedish electricity and natural gas market 2015*. Swedish Energy Markets Inspectorate (Energimarknadsinspektionen, Ei), Eskilstuna.
- Evans, S. 2017. *In-depth: The challenges facing the Dieter Helm ‘energy cost’ review* [Online]. Carbon Brief. London Available: <https://www.carbonbrief.org/depth-challenges-facing-dieter-helm-energy-cost-review> [Accessed 26th September 2017].
- Gross, R., Heptonstall, P. & Hannah, R. 2017. *UKERC Technology and Policy Assessment, 2017 future topics consultation – final report*. UK Energy Research Centre, London.
- Ofgem. 2017. *Understanding the profits of the large energy suppliers* [Online]. London Available: <https://www.ofgem.gov.uk/gas/retail-market/retail-market-monitoring/understanding-profits-large-energy-suppliers> [Accessed 26th September 2017].
- Thalman, E. & Wehrmann, B. 2017. *What German households pay for power* [Online]. Clean Energy Wire CLEW Berlin Available: <https://www.cleanenergywire.org/factsheets/what-german-households-pay-power#dossier-references> [Accessed 26th September 2017].
- Thomas, N. 2017a. British Gas warns energy policy weighs heavily on bills. *Financial Times*, 3rd August 2017.
- Thomas, N. 2017b. Centrica to raise electricity prices 12.5% *Financial Times*, 1st August 2017.
- Thomas, N. 2017d. UK power distributors criticised for ‘huge’ profit margins. *Financial Times*, 5th September 2017.