

# Energy policy effectiveness and systematic evidence reviews

EEEN Forum, 23rd November, 2017

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## Research Fellow – Policy Effectiveness

- Evidence Reviews for Scottish Energy Policy
- 1<sup>st</sup> year Pilot study – Heat policy

## EEEN Forum, 23rd November 2017

- Energy policy making and evidence
- Evidence reviews
- Evidence review topic: private household investment in energy efficiency

# Evidence and energy policy-making

## Energy policy

- Decision making under uncertainty – technical, economic, social and political uncertainty
- Contested views – vested interests and a politicised area of policy
- Multiple (competing) objectives – environmental sustainability, social equity and security of supply

## **Evidence:** “that which tends to prove or disprove something”

- Hierarchy: are some forms or sources of evidence more valuable than others?
- Supply: What are the sources?
- Demand: When is it needed?

# Evidence of energy policy effectiveness



## Open social system

- Counterfactuals: difficult to create controlled experimental conditions?
- Quantitative and qualitative evidence

## Multiple contexts

- Different national contexts engaging in energy system transition
- Different sources of policy effectiveness evaluation

## Evidence of effectiveness

- Conflicting claims
- Patterns of effectiveness

# Evidence reviews –

## ‘what works.....for whom, in what context, at what time?’



### Conventional ‘narrative’ evidence review

- Selective use of evidence to present a case
- No explanation of how evidence sources were chosen



### Systematic evidence review

- Transparent process of evidence gathering
- Comprehensive assessment of potentially conflicting evidence



### Evidence reviews for Scottish energy policy

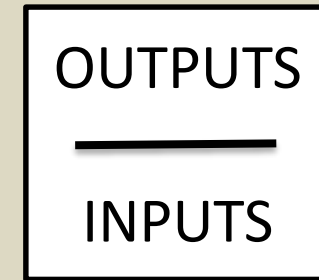
- Broader policy question rather than single policy interventions
- Synthesis of ex-post evidence for ex-ante assessments



# Multiple effectiveness criteria - efficiency, equity and institutional fit

## Efficiency

- Public resource inputs to policy goal outputs



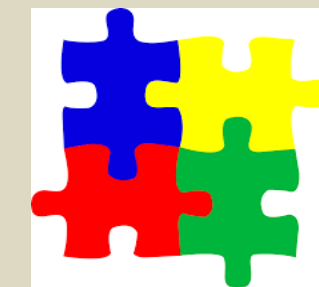
## Equity

- Who pays and who benefits from policy action?



## Institutional fit

- Effective policy options from other policy contexts



# UK Energy Research Centre (UKERC) – Technology and Policy Assessment



## A review of regional and global estimates of unconventional gas resources

A report to the Energy Security Unit of the Joint Research Centre of the European commission

September 2012

### Authors

Christophe McGlade, University College London (UCL) Energy Institute  
Jamie Speirs, Imperial Centre for Energy Policy and Technology (ICEPT), Imperial College London  
Steve Sorrell, Sussex Energy Group (SEG) at University of Sussex



A report for UKERC by  
UKERC Technology & Policy Assessment Function



## Low carbon jobs:

The evidence for net job creation from policy support for energy efficiency and renewable energy



## The costs and impacts of intermittency – 2016 update

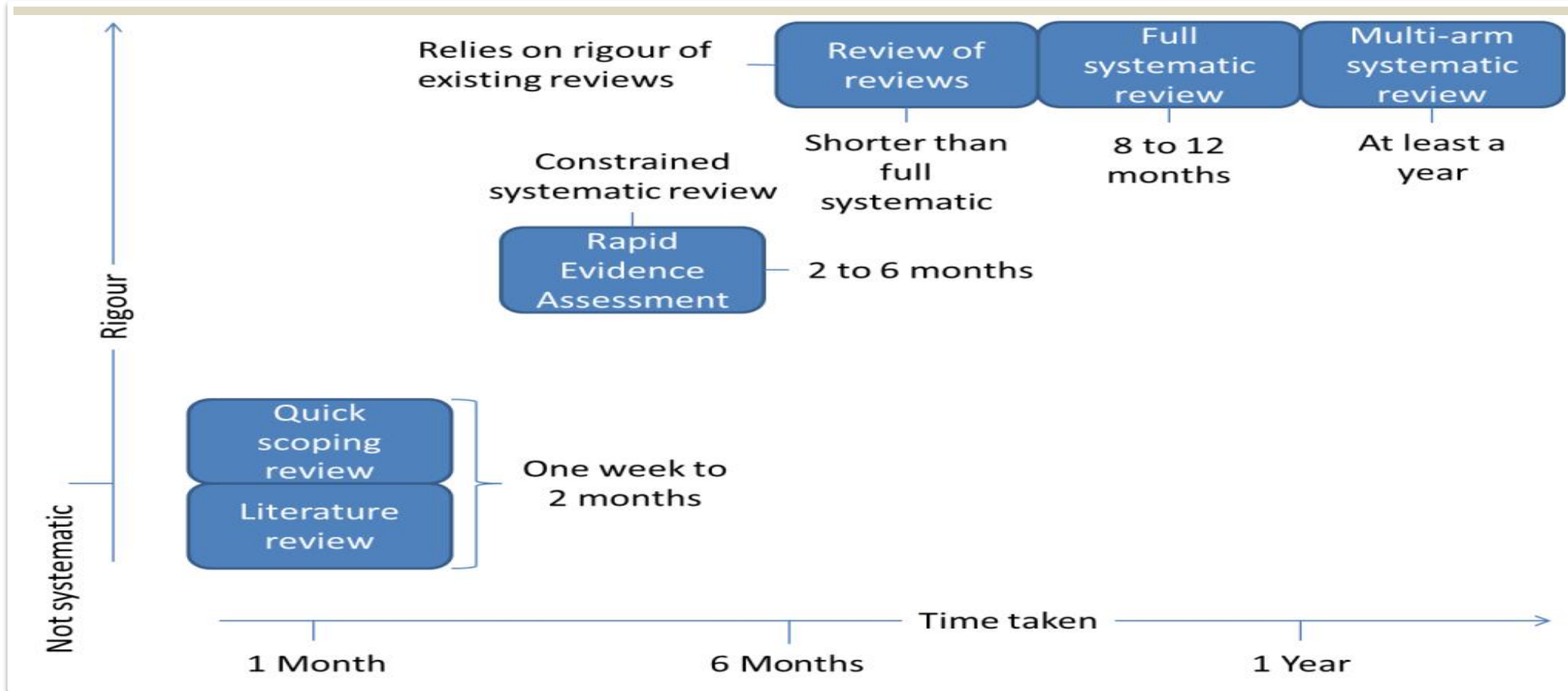
A systematic review of the evidence on the costs and impacts of intermittent electricity generation technologies

Philip Heptonstall, Robert Gross, Florian Steiner February 2017



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# Timescales for different forms of evidence review – UKERC TPA





# Topic selection - Private household investment in energy efficiency retrofit



## Policy question

- Topic relevant to current policy decision making
- Topic with a relevant evidence base that can be systematically reviewed

**Policy Outcome 1** in Residential Chapter of the Draft Climate Change Plan – “Improvements to the fabric of Scotland’s domestic buildings results in a reduction in their heat demand by 2032”

**Policy question** – “What can be done in Scottish Government policy to more effectively encourage private, ‘able to pay’ households to invest in energy efficient retrofit?”

# Pilot review



**Policy question** – “What can be done in Scottish Government policy to more effectively encourage private, ‘able to pay’ households to invest in energy efficient retrofit?”

## **Future of energy retrofit policy in Scotland**

- SEEP as a 15-20 year programme
- £10 billion estimated to bring “the vast majority of homes in Scotland to a rating of C by 2025”
- Public funding for SEEP likely to be much lower

## **Investment gap**

- Public and private reasons for investment in retrofit
- Potentially billions of £s of private household investment in retrofit

# Policy options



Policy instruments	Examples	Effectiveness
Information based	<ul style="list-style-type: none"><li>• Energy Performance Certificates</li><li>• Smart meters</li></ul>	<ul style="list-style-type: none"><li>• Does it change behaviour and actually impact on retrofit uptake?</li></ul>
Market based incentives	<ul style="list-style-type: none"><li>• Subsidies for energy efficiency retrofit</li><li>• Tax changes for retrofit goods/services</li></ul>	<ul style="list-style-type: none"><li>• How much would have been done without subsidies/tax changes?</li></ul>
Regulation	<ul style="list-style-type: none"><li>• Private rental market</li><li>• Owner-occupiers</li></ul>	<ul style="list-style-type: none"><li>• Guaranteed effectiveness?</li></ul>

# Key words: finance, mechanism, energy, efficiency



Scopus - Document search

97 document results

TITLE-ABS-KEY (finance AND mechanism AND energy AND efficiency)

Search within results...

Refine results

Limit to Exclude

Year

- 2017 (6)
- 2016 (8)
- 2015 (5)
- 2014 (12)
- 2013 (5)

Author name

- Americano, B.B. (2)
- Delina, L.L. (2)
- Earni, S. (2)
- La Rovere, E.L. (2)

Analyze search results

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	Document title	Authors	Year	Source	Cited by
1	Analysis and recommendations for building energy efficiency financing in Malaysia	Hor, K., Rahmat, M.K.	2017	Energy Efficiency pp. 1-17 Article in Press	0
2	Lessons learned from studying public initiatives to support energy efficiency finance in Thailand from 1992 to 2014	Streitferdt, V., Chirattananon, S., Du Pont, P.	2017	Energy Efficiency 10(4), pp. 905-923	0
3	Public sustainable-energy requirements and innovation in UK PFI school projects	Badi, S.	2017	Construction Management and Economics 35(4), pp. 218-238	0
4	Bridging the industrial energy efficiency gap – Assessing the evidence from the Italian white certificate scheme	Stede, J.	2017	Energy Policy 104, pp. 112-123	1
5	Achieving growth within the UK's Domestic Energy Efficiency Retrofitting Services sector, practitioner experiences and strategies moving forward	Gooding, L., Gul, M.S.	2017	Energy Policy 105, pp. 173-182	0



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# Key words: finance, mechanism, energy efficiency



Leverage review evidence database - Excel

Analysis and recommendations for building energy efficiency financing in Malaysia

	A	B	C	D	E	F	G
1	Key words	No.	Relevance rating	Notes	Geographic a	Authors	Title
2	finance	1	4	Energy efficiency financing in Thailand. The review will explore the strengths and gaps of the available schemes and will propose energy efficiency investment in South East Asia. This paper focuses on public initiatives that support one of the main barriers: access to capital. Interviews with 21 experts from government, the private sector and academia	Malaysia	Hor K., Rahmat M.K.	Analysis and recommendations for building energy efficiency financing in Malaysia
3	mechanism	2	4	provided the core data for Do school PFI projects tak account of sustainable	Thailand	Streitferdt V., Chirarat	Lessons learned from studying public initiatives to support energy efficiency finance in Thailand from 1992 to 2014
4	energy	3	2	This paper investigates and assesses the elements of the Italian industrial energy white certificate scheme that help overcome several	UK	Badi S.	Public sustainable-energy requirements and innovation in UK PFI school projects
5	efficiency	4	3	Assess the preference of decion makers for diferent types of EPContracting using a multi-criteria tool	Italy	Stede J.	Bridging the industrial energy efficiency gap – Assessing the evidence from the Italian white certificate scheme
6		5	0		UK	Gooding L., Gul M.S.	Achieving growth within the UK's Domestic Energy Efficiency Retrofitting Services sector, practitioner experiences a
7		6	4		China	Qin Q., Liang F., Li L.,	Selection of energy performance contracting business models: A behavioral decision-making approach
8		7	1			Liu J., Harkin J., Magu	Scalable Networks-on-Chip Interconnected Architecture for Astrocyte-Neuron Networks

Combined search Search 1 Search 2 Search 3 Search 4 Search 5 Sheet6 FACTOR LONG LIST

# Summary



## Long term energy policy goals

- Energy system transitions with goals for 2050
- SEEP as a 15-20 year programme

## Evidence reviews for Scottish energy policy

- Synthesis of available evidence on policy effectiveness
- Pilot year review of energy retrofit policy

# Contact details



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