

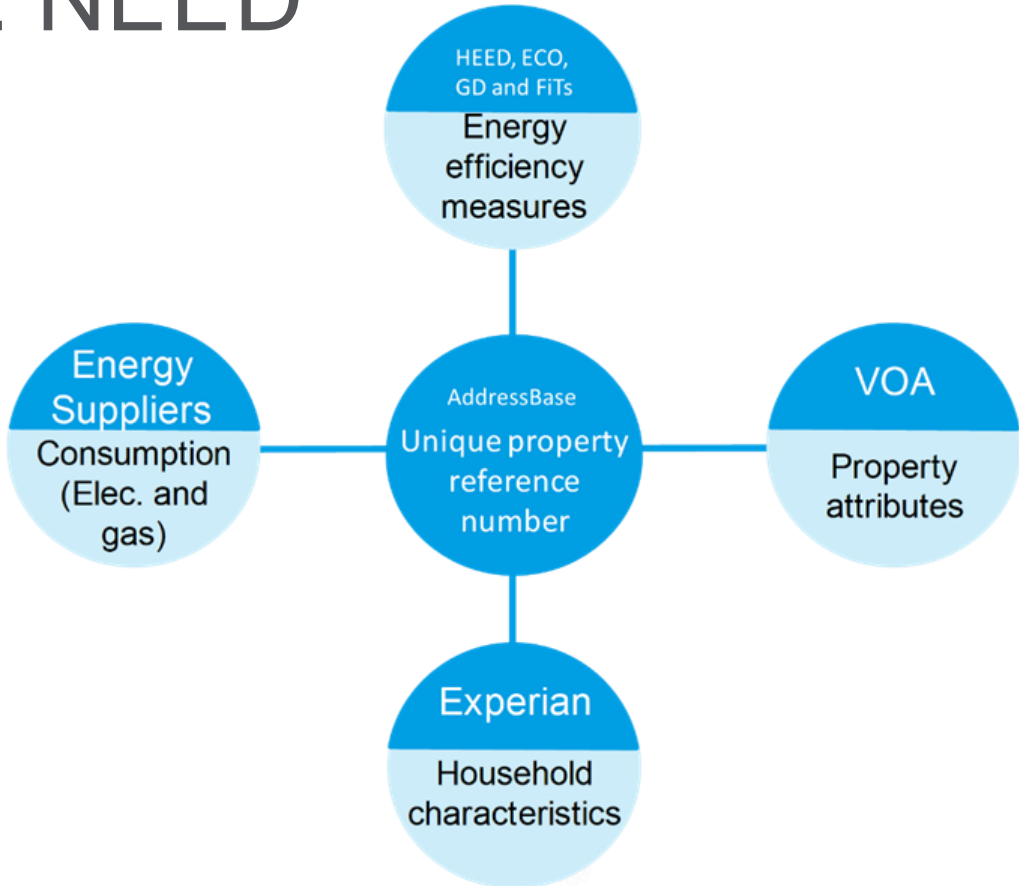
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# NEED: methods and uses for policy evaluation

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Department for  
Business, Energy  
& Industrial Strategy

# National Energy Efficiency Data-Framework: NEED



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# A brief history of NEED

- Originally an army of one (2011)
- Using existing meter data
- Just one laptop linked to SAS
- Years of legal agreements being made
- Tables published were decided on after external engagement

# And now...

- 4.5 FTEs
- Award for Statistical Excellence (2014)
- Diverse skills mix (Maths, Psychology, Physics, Finance)
- Automated publications
- Trialled use to identify fuel poverty
- New-ish tech (R, Python, SQL)

# Purpose

- Energy efficiency installations: finding what works
- Disseminate data on consumption to the public, enabling researchers and others in using it
- Generate regional data (eg: off the gas grid estimates)
- Provide information on UK energy consumption, efficiency measures, and property profiles
- TBC future uses

# Publication June 2018

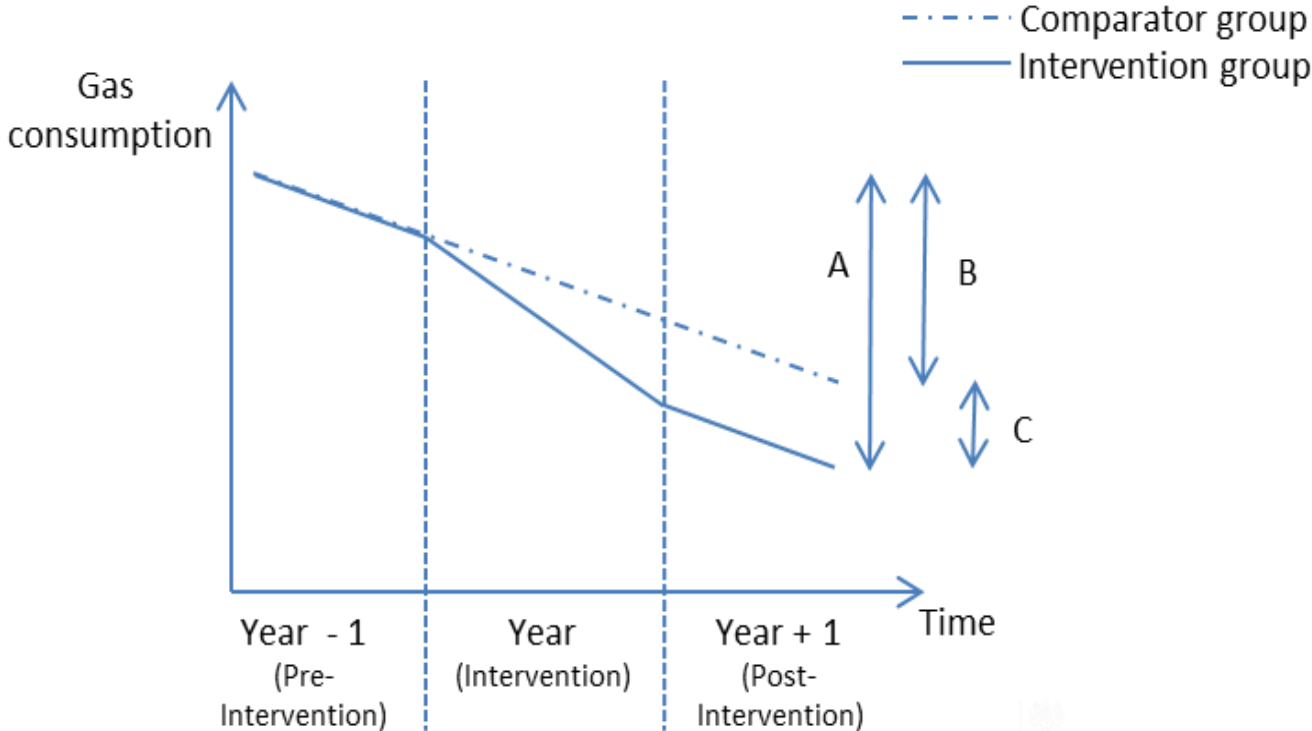
- Average gas consumption increased
- Solid Wall Insulation most impactful home improvement measure
- Getting harder to assess impacts of installed measures
- Findings on energy consumption fit intuition

# Assessing innovative measures under ECO3

- What is the real world impact of installing different “innovative measures” on energy use?
- Expect assessed impact to be lower than lab results (SAP)
- Only need address and date of installation and ready to go!

# Method of assessment

## “Difference-in-difference”



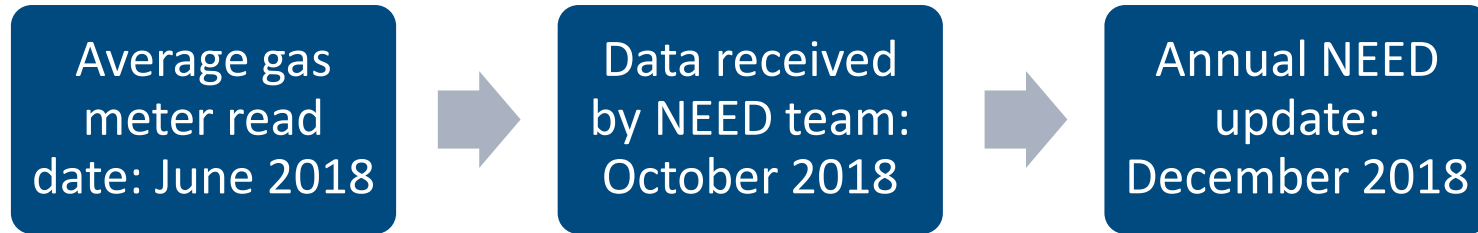


# Pros and cons

- **Benefits of difference-in-difference:**  
Controls for all other effects (in theory)  
Easy to understand
- **Downsides:**  
Requires large sample  
Includes effects occupier changes and behavioural effects  
Payment for performance = difficult when behavioural dependence  
Control group getting muddier  
Gas meter readings are spread out

And yet...

# The time lag



- New lag from installation to impact assessment: 18 – 30 months
- Electricity time lag also reduced
- Payment for performance = difficult when the wait is long (how long is long?)

# Alternative methods

- Regression  
Are the old ones the best?
- Machine learning  
A fancier regression
- Bayesian  
Factor in prior knowledge

# Once we have a figure...



- Publish the impact of the technology as National Statistics, which are picked up by consumer advice websites
- Reward energy efficiency measures delivered under ECO3
- Useable for lenders to estimate payback time (work in progress)
- Inform incentivisation of best technologies (future)

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# Generalising results

- Ensuring the “final answer” is representative of the UK housing stock
- How could NEED’s UK results be used in other countries?
- Could NEED get a figure which is representative of another country’s housing stock?

Thank you

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NEED team main publications:

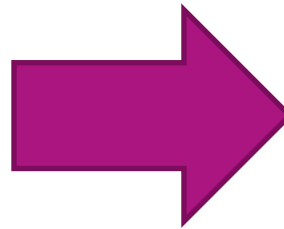
<https://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework>

<https://www.gov.uk/government/collections/sub-national-gas-consumption-data>

<https://www.gov.uk/government/collections/sub-national-electricity-consumption-data>

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# Tech stack



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