

# Smart Meter Energy Data: Public Interest Advisory Group (PIAG)

## Workshop 2 18 July 2018

# Welcome & Introductions

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# Agenda – Workshop 2

- Housekeeping
- Colleague updates
- Public interest use-cases : data attributes, privacy & access implications
- Consumer research – scoping discussion
- Networks & smart meter energy data – scoping discussion
- PIAG workshop 3 (20 November 2018)
- AoB & Close

# Colleague Updates

- BEIS
- Ofgem
- Citizen's Advice
- DNO
- Elexon
- UCL SMRP
- Other colleagues

# **Public interest use-cases : data attributes, privacy & access implications**

**Simon Roberts & Nicky Hodges**  
**CSE**

## Public interest use-cases for smart meter data: outline

- Review public interest use-cases which emerged from a set of stakeholder interviews, conversations with other stakeholders, and insights from project team
- Consider what smart meter data (electricity and gas) adds to realisation of use case
- Understand how smart meter data would need to be processed to meet the use case (the INPUTS)
- Understand what data would need to be released to meet the use case (the OUTPUT)
- Explore the implications for data access and privacy.

# Public interest use-cases for smart meter data: data requirements and access and privacy implications

- What are the potential ‘public interest’ use cases?
- What positive difference could smart meter data make to each use case?
- Which attributes of smart meter data (and other data) are needed to deliver each use case?
- What access to smart meter data and associated processing is required for each use case?
- How do these fit with current and emerging arrangements for data access and processing?
- What is the nature of the data that needs to be ‘released’ to enable the realisation of the use case?
- How do these relate to privacy concerns and other consumer sensitivities?

## Public interest use-cases: refresh on stakeholder research

- Interviews with: GLA; Energy Systems Catapult; NEA; Southern Housing; Energy Local; West Midlands LEP; Wigan Borough Council; Citizens Advice; ADE; Cornwall Insight; Committee on Climate Change; Carbon Disclosure Project (& ex Islington council).
- Explored understanding & extent of engagement to date, areas of potential public interest uses of smart meter data,
  - Some exploration of data requirements and privacy issues
  - Understanding and views on data access
- Also drawing on conversations with range of other key stakeholders (BEIS, ENA, National Grid, Ofgem etc) and insights from project team.



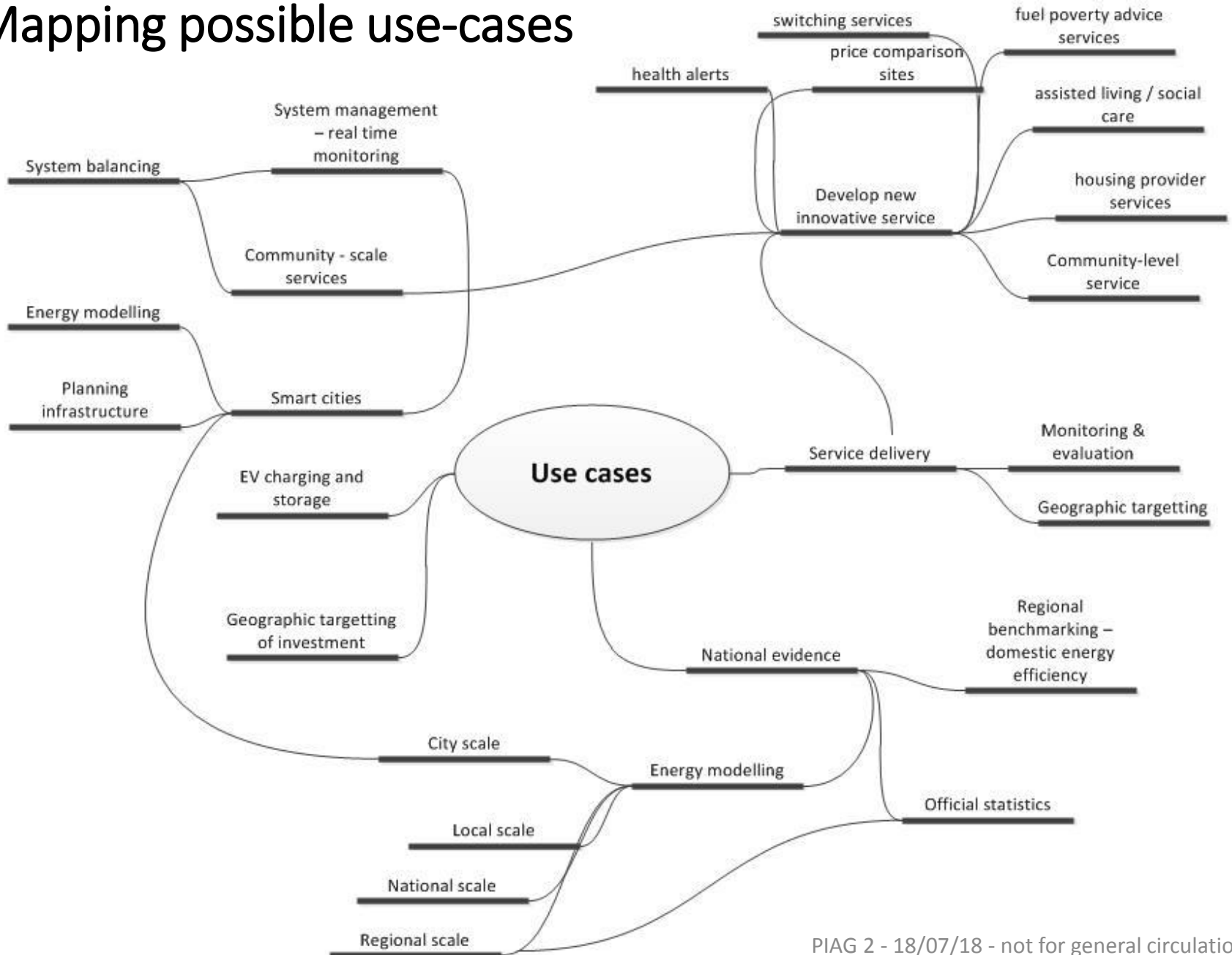
# Public interest use-cases: stakeholder-identified examples of use-cases (I)

- National and sub-national statistics, models for analysis & policy making (incl. distributional impacts), data dashboard
- Better data on energy: decarbonisation progress; impacts of energy saving measures; EV charging patterns; volume & location of export
- Enforcement / accountability – building standards, complex heating systems, energy service contract monitoring
- Widespread & strong interest in use of smart meter data to improve planning, design, targeting & delivery of services for public benefit
  - Area-specific decarbonisation strategy
  - Energy efficiency investment / measures
  - Housing stock management
  - Advice services
  - Tackling fuel poverty / cold homes / health issues
  - Switching services

## Public interest use-cases : stakeholder-identified examples of use-cases (II)

- Interest in opportunities for new services
  - Time Of Use tariffs
  - Flexible balancing
  - Remote automated control of domestic devices
  - Peer to peer sharing services
  - Consumer visibility of own energy use / shared community use
  - Safeguarding services – predictive & monitoring
  - Trusted digital assistant to broker own energy use
  - Predictive maintenance of electrical devices by manufacturer
- Emphasis on equality issues: need for non-commercial services / services to meet needs of disadvantaged groups

# Mapping possible use-cases



## Assessing the stakeholder-identified use-cases

Range of stakeholder-identified use-cases clearly in the public interest, with smart meter data enabling users to: enhance understanding of household energy use patterns; enable better system planning; sharpen modelling; improve policy design and targeting.

Many of the stakeholder-identified use-cases are about new services for consumers supported by smart meter data. *We believe that there is no public interest argument to impose such services without householder consent (so consent needed for data access anyway).* They therefore sit outside the public interest remit of PIAG.

However, there is a public interest in many of these services coming to market. That may only be possible if proponents have access to decent smart meter data representative of their target markets to test their service designs.

So we need to consider whether there are ways smart meter data could enable this sort of innovation test bed.

# Stakeholder-identified use-cases: Direct consumer services are 'out of scope' for PIAG

- Interest in opportunities for new services
  - Time Of Use tariffs
  - Flexible balancing
  - Remote automated control of domestic devices
  - Peer to peer sharing services
  - Consumer visibility of own energy use / shared community use
  - Safeguarding services – predictive & monitoring
  - Trusted digital assistant to broker own energy use
  - Predictive maintenance of electrical devices by manufacturer

# Public interest use-cases: for consideration

## Use-cases

Use-cases	Smart meter data required	Other data required
1. National and sub-national domestic sector energy statistics (more detail and quicker)	Yes	No
2. Local-level energy system planning (infrastructure and intervention planning and monitoring etc)	Yes	Other energy data
3. Data for analysis and modelling to support policy making, research and insight (e.g. household energy use, distributional impacts, policy impact evaluation etc)	Yes	Yes
4. Improved intervention design and targeting	Yes	Yes
5. Local electricity system 'live' monitoring to trigger reactions/interventions in real time	Not if 'live' sub-station data available	No
6. Service innovation and development and testing of early stage designs/algorithms etc	Yes	Yes

## Some key considerations

- There is no database of the smart meter data.
- To create any dataset to enable the realisation of any use-case therefore requires the individual level smart meter records to be captured and processed by someone (e.g. an authorised “trusted processor”).
- We need to distinguish between the privacy issues potentially associated with this processing exercise (the INPUTS to create the datasets needed by the use-cases) and the privacy issues potentially associated with those use-case datasets subsequently becoming available (the OUTPUT).

# Understanding different data attributes

## Smart meter data requirements

Temporal resolution

Annual

Below half-hourly

Spatial resolution

National

Property level

Data capture frequency

Yearly

Live feed

## Other data requirements

Building information

None

Detailed fabric info for individual building

Socio-demographics

Area-level info

Rich data for each household

Other energy data

Yes / No

e.g. EV charging point data

e.g. Non-domestic energy consumption data



# Understanding different data attributes

## Smart meter data requirements

Temporal resolution	Annual	½ hourly	Below half-hourly		
Spatial resolution	National	LA	LSOA	Street/Feeder	Property level
Data capture frequency	Yearly	Monthly	Live feed		

## Other data requirements

Building information	None	Building age/type/size	Detailed fabric info for individual building
Socio-demographics	Area-level info	LSOA	Rich data for each household
Other energy data	Yes / No	e.g. EV charging point data e.g. Non-domestic energy consumption data	

# Public interest use-cases: for consideration

## Use-cases

	Smart meter data required	Other data required
<b>1. National and sub-national domestic sector energy statistics (more detail and quicker)</b>	Yes	No
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6. Service innovation and development and testing of early stage designs/algorithms etc	Yes	Yes

# 1: National and sub-national energy statistics INPUTS

## Smart meter data requirements

Temporal resolution	Annual	<b>½ hourly</b>	Below half-hourly
Spatial resolution	National	Pr	<b>Property level</b>
Data capture frequency	Yearly	<b>Quarterly</b>	Live feed

## Other data requirements

Building information	<b>None</b>	Detailed fabric info for individual building
Socio-demographics	Area-level info	<b>Single level hh marker?</b> data for household
Other energy data	Not for domestic sector energy statistics but will need non-domestic data for full national and local energy stats	

# 1: National and sub-national energy statistics **OUTPUT**

## Smart meter data derived output

Temporal resolution	Annual	Average seasonal daily profiles, peaks etc	Below half-hourly
Spatial resolution	National	Anything above LSOA	Property level
Data release frequency	Yearly	Quarterly	Live feed

- Much faster, more accurate and more detailed energy statistics
- E.g. average daily profiles by season for consumption, peak, export etc
- Aggregated spatially and temporally
- Trend analysis available as dataset grows over years

# Public interest use-cases: for consideration

## Use-cases

	Smart meter data required	Other data required
1. National and sub-national domestic sector energy statistics (more detail and quicker)	Yes	No
<b>2. Local-level energy system planning (infrastructure and intervention planning and monitoring etc)</b>	Yes	Other energy data
3. Data for analysis and modelling to support policy making, research and insight (e.g. household energy use, distributional impacts, policy impact evaluation etc)	Yes	Yes
4. Improved intervention design and targeting	Yes	Yes
5. Local electricity system 'live' monitoring to trigger reactions/interventions in real time	Not if 'live' sub-station data available	No
6. Service innovation and development and testing of early stage designs/algorithms etc	Yes	Yes

## 2: Local energy system planning INPUTS

### Smart meter data requirements

Temporal resolution	Annual	½ hourly	Below half-hourly
Spatial resolution	National	Pr	Property level
Data capture frequency	Yearly		Live feed

### Other data requirements

Building information	None	Detailed fabric info for individual building
Socio-demographics	Area-level info	Single level data for hh marker? household
Other energy data	Yes	EV charging point data, export & local generation Non-domestic energy consumption data

## 2: Local energy system planning **OUTPUT**

### Smart meter data derived output

Temporal resolution	Annual	½ hourly	Below half-hourly
Spatial resolution	National	Street/Feeder	Property level
Data release frequency	Yearly		Live feed

- Need non-domestic consumption data and local generation data too
- Use-case requires reasonably fine temporal and spatial resolution for understanding system behaviour and for targeting interventions
- Other existing datasets available to LAs (e.g. IMD) could be overlaid at street/feeder level (by LA) to improve understanding and aid targeting

# Public interest use-cases: for consideration

## Use-cases

Use-cases	Smart meter data required	Other data required
1. National and sub-national domestic sector energy statistics (more detail and quicker)	Yes	No
2. Local-level energy system planning (infrastructure and intervention planning and monitoring etc)	Yes	Other energy data
<b>3. Data for analysis and modelling to support policy making, research and insight (e.g. household energy use, distributional impacts, policy impact evaluation etc)</b>	Yes	Yes
4. Improved intervention design and targeting	Yes	Yes
5. Local electricity system 'live' monitoring to trigger reactions/interventions in real time	Not if 'live' sub-station data available	No
6. Service innovation and development and testing of early stage designs/algorithms etc	Yes	Yes



# 3: Data for analysis and modelling INPUTS

## Smart meter data requirements

Temporal resolution	Annual	½ hourly	Below half-hourly
Spatial resolution	National	Pr	Property level
Data capture frequency	Yearly		Live feed

## Other data requirements

Building information	None	Detail in	As much data as possible
Socio-demographics	Area-level info		As much data as possible
Other energy data	Potentially useful (e.g. EV charging)		

### 3: Data for analysis and modelling **OUTPUT**

#### Smart meter data requirements

Temporal resolution

Annual

½ hourly

Below half-hourly

Spatial resolution

National

Property level –  
representative & synthetic

Data release frequency

Yearly

Live feed

#### Other data requirements

Building information

None

Property level –  
representative & synthetic

Socio-demographics

Area-level  
info

Household level –  
representative & synthetic

- Representative national dataset (by energy profile, housing and socio-demographics)
- Fully anonymised, with full year half-hourly smart meter dataset for each record

# Public interest use-cases: for consideration

## Use-cases

		Smart meter data required	Other data required
1. National and sub-national domestic sector energy statistics	✓	Yes	No
2. Local-level energy system planning (infrastructure and intervention planning and monitoring etc)	✓	Yes	Other energy data
3. Data for analysis and modelling to support policy making, research and insight (e.g. household energy use, distributional impacts, policy impact evaluation etc)	✓	Yes	Yes
4. Improved intervention design and targeting		Yes	Yes
5. Local electricity system 'live' monitoring to trigger reactions/interventions in real time		Not if 'live' sub-station data available	No
6. Service innovation and development and testing of early stage designs/algorithms etc		Yes	Yes

# Other public interest use-cases

## 4. Improved intervention design and targeting

- Combination of local dataset (from 2) and nationally representative dataset (from 3)

## 5. Local electricity system ‘live’ monitoring

- Will need to rely on release of substation data (e.g. Open LV) (with datasets from 2 and 3 assisting with targeting of ‘triggers’ for action)

## 6. Service development innovation test-bed

- Use nationally representative dataset (from 3)
- Does there need to be a ‘public interest’ screen for access?

# Concluding remarks

- Smart meter data can add significant value to existing public interest use-cases (e.g. national/sub-national energy stats, representative dataset for analysis and modelling)
- Smart meter data can enable new use-cases to be realised (e.g. local energy system planning, intervention targeting, and test-bed for development of new services)
- Use-cases can be realised with smart meter data in ways where the OUTPUT dataset would not risk any compromise of privacy.
- But ALL new datasets to meet ALL use-cases require INPUTS which involve capture of individual smart meter records (and, for some, data-matching at individual record level)
- Need to think about what “trusted processor” to do this looks like and how authorised and controlled (to address privacy concerns)

# Next steps

- Reflect on comments and discussion here
- Refine this presentation for wider circulation
- Finish drafting associated paper on use-cases and data attributes - for comment (September)
- Reflect on comments and finalise and publish final paper (October)

# Consumer research – scoping discussion

Maxine Frerk

Sustainability First

# Consumer research – summary of research

- Wide range of different views on privacy issues
- Understanding the benefits – to them and to society more generally – is important to most people
- ENA personas - Happy to share; Depends who's asking; Quid pro quo; Big brother.
- For smart meter data the concerns are about visibility around lifestyle and risk that will be charged more or exposed to marketing
- Some mistrust of profiling even on aggregated data and concerns about sale of data to third parties
- Energy system planning seen as positive benefit



## Consumer research – gaps we could fill

- Gas versus electricity
- Attitudes to different public policy uses and users
- What could provide assurance (eg commitment not to sell on)
  
- Views?
- Any other research people are aware of or planning?

# Networks & smart meter data

## – scoping discussion

Maxine Frerk  
Sustainability First

# Networks & smart meter data – current framework

- DNOs want smart meter data for operational and planning purposes
- Gas networks thinking less advanced
- DNOs entitled to access to a range of technical data (max demand, export, voltage alerts etc)
- But to access granular consumption data have to put a privacy case to Ofgem
- WPD have just had their case approved:
  - Aggregate data at feeder level (some single properties – c1%)
  - Pseudonimisation of data
- National Grid not covered by current DAPF – exploring options
- SMETS1 v SMETS2
- Non-domestic customer data

## Networks & smart meter data – issues for future consideration

- Importance of non-domestic customer data?
- Input to BEIS DAPF review?
- Networks as a source of public policy data? Fit with DSO role? – assume regulated role
- Need for a common approach across networks?
- Value in other “technical” data (inc export)

# Future Workshop Topics & Forward Programme

## Workshop 3 – November 2018

- Public interest use-cases – a final look
- Consumer Research - findings
- Privacy vs public interest ‘balance’ – what does this mean for consents ?
- Draft ‘Public Interest’ Principles - & their application
- Possible access routes to smart meter data for public interest purposes
- What capability might be needed to make use of meter data for public interest purposes

# Future Workshop Topics & Forward Programme – 2

## Workshop 4 – March 2019

- **Finalise PIAG Principles** – to address what principles might need to be put in place to access smart meter data for public interest purposes for:
  - (1) UCL Smart Meter Research Portal (national) and
  - (2) possible access more widely (sub-national)
- **PIAG Report** – facilitating access to smart meter data for public interest purposes.

May cover issues such as : SMRP – public interest access approaches & rules ; possible support for public interest actors to access data; possible approaches to capacity building and / or curation; CAD pairing in the public interest – privileged access ?

# Next PIAG Meeting – 20 November 2018

## AoB & Close

# Smart Meter Energy Data: Public Interest Advisory Group (PIAG)

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