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

Workshop 4
4 April 2019

Welcome & PIAG update

Simon Roberts
CSE

Agenda – Workshop 4

11.15 Colleague updates

12.00 Capabilities of public interest users of smart-meter data

MAIN DISCUSSION – DRAFT OF FINAL PIAG PAPER

12.15 Recap on the PIAG process - & main findings so far

12.45 Lunch

13.15 Why new 'public interest' thinking on smart meter data will be important

13.45 Proposed PIAG conclusions - Principles for policy makers

14.30 Proposed PIAG recommendations

15.30 Next steps

- Finalising report
- July close-down event – 19 or 22 July
- PIAG Phase 2

Colleague Updates

- BEIS
- Ofgem
- Citizen's Advice
- DNO
- Elexon
- Smart DCC
- Electralink
- Energy Systems Catapult
- UCL Smart Energy Research Lab
- Other colleagues

Capabilities of public interest users of smart meter data

PIAG Stimulus Paper 8

Nicky Hodges

Centre for Sustainable Energy

PIAG Stimulus Paper 8 – Capabilities of public interest users of smart meter data

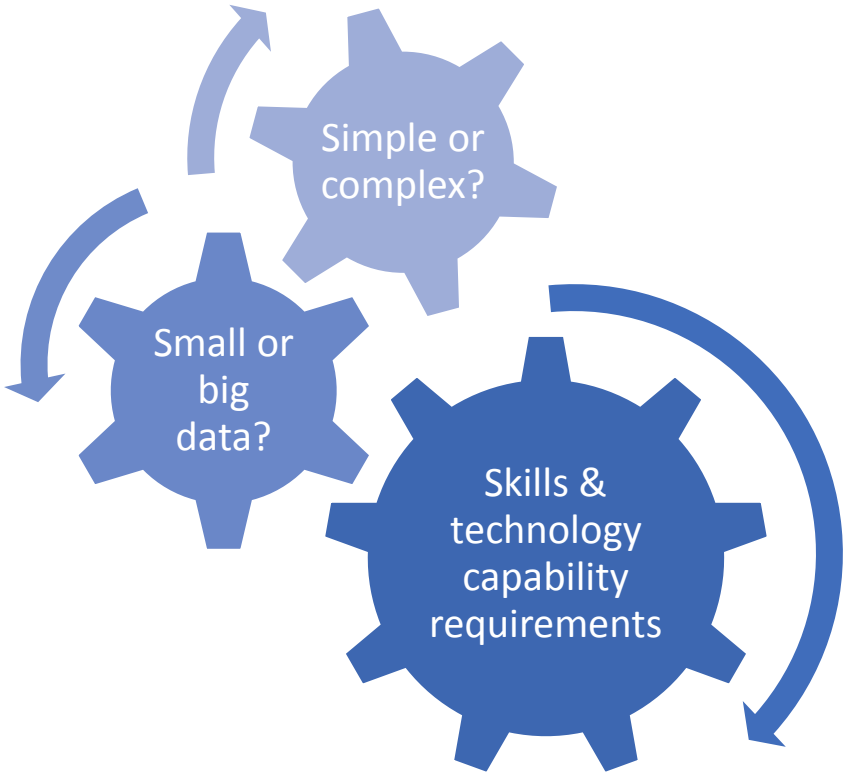
looks at

- Capabilities needed by end users of smart meter output data
- Assumes trusted processor handles input data
- Organisational capabilities
- Specific knowledge and skills
- Software / hardware technology requirements

Organisational capabilities

- Enabling culture
- Governance
- Legal compliance
- Collaboration / knowledge exchange
- Staff (or partners) with specialist skills
- Decision-maker quality to interpret analytic outputs
- Technical infrastructure appropriate to specific use

Capability requirements



What for?

- Policy brief on domestic energy consumption
- Match battery storage solution with local peak electricity demand
- Evaluate investment programme
- Distributional analysis model for policy options
- City-wide spatial analysis of heat and power demand profile

Advanced uses: skills & technology requirements

- Problem solving skills
- Handling data and statistics
- Cooperation competencies and other ‘soft skills’
- Energy system domain knowledge
- Energy system modelling
- Computer programming (e.g. R, Python)
- Data management and analysis tools (e.g. SQL, HiveQL, Java)
- Spatial data analysis tools (e.g. Quantum GIS, Spatialite, PostGIS)
- Specialised technologies to integrate and analyse very large volumes of data. (e.g. Hadoop, and other “NoSQL” tools)

Conclusion re user capability requirements

- Generic capabilities : organisational, technology and data handling skills
- Scale and complexity of intended use matters
- Resourcing constraints affect in-house capabilities of some actors
- Availability of improved official statistics / analytic outputs would enable organisations with limited capabilities to use for public interest

Main Discussion – Draft of final PIAG paper

1. Recap on the PIAG process - & main findings so far
2. Why new 'public interest' thinking on smart meter data will be important
3. Proposed PIAG conclusions - Principles for policy makers
4. Proposed PIAG recommendations
5. Finalising report

Recap on the PIAG process & main findings so far

Maxine Frerk

Sustainability First

Recap – Timely discussion in wider context

- Smart meter rollout central to energy transition but with strong privacy protections through the DAPF (and GDPR)
- Other countries growing interest in access to aggregated data by academics and local government – but all draw on existing central repository of smart meter data
- Other sectors grappling with growth in data balancing privacy and public interest (eg health) – growing interest in “data ethics”
- Digital Economy Act 2017 gave new powers to ONS to gather data from private and public sector bodies for research and statistical purposes

Recap – range of use cases identified by stakeholders

1. National and sub-national domestic sector energy statistics (more detail and quicker) – enables wider participation in policy dialogue
2. Local-level energy system planning (infrastructure and intervention planning and monitoring etc) eg Bristol City Council
3. Data for analysis and modelling to support policy making, research and insight e.g. distributional impacts
4. Improved intervention design and targeting – NO (consent)
5. Local electricity system 'live' monitoring to trigger reactions/ interventions in real time - NO
6. Service innovation and development and testing of early stage designs/algorithms etc (same data as use case 3)

Recap – need to distinguish input and output data

- There is no database of the smart meter data.
- To create any dataset requires the individual level smart meter records (the INPUTS) to be captured and processed by someone (an authorised “trusted processor”) – in a privacy friendly way.
- To create use-case datasets (the OUTPUTS) which are aggregated / anonymised and hence should not raise any privacy concerns.

2: Local energy system planning INPUTS

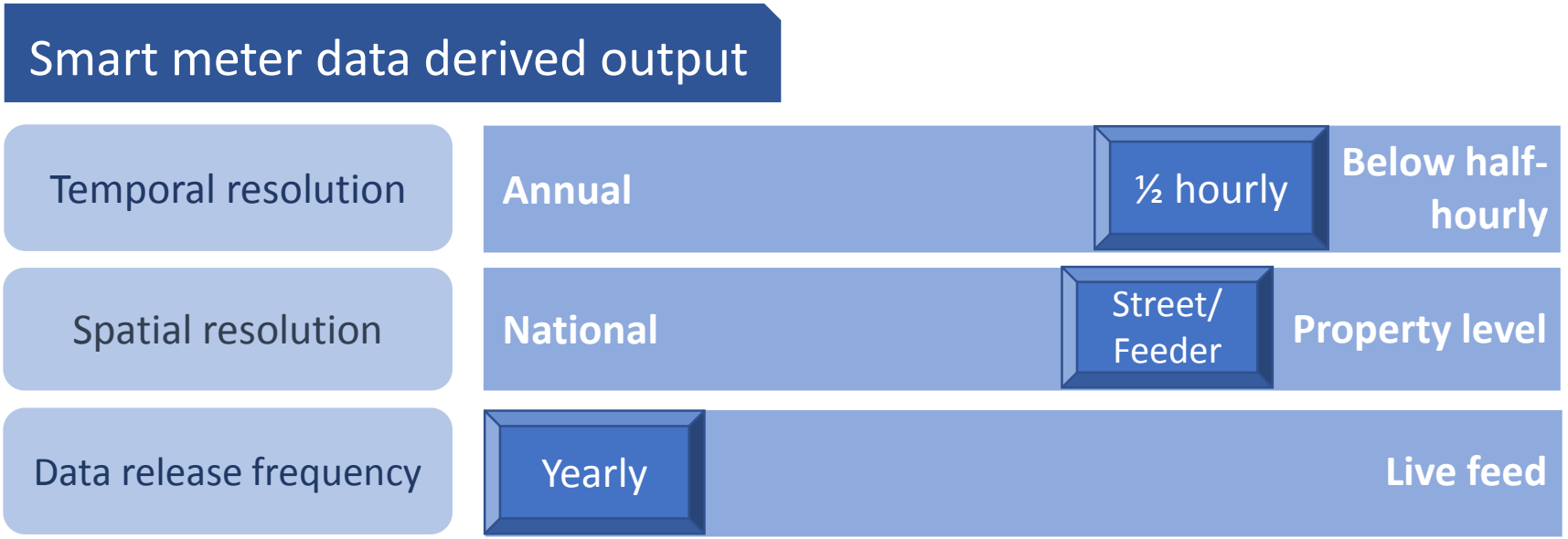
Smart meter data requirements

Temporal resolution	Annual	½ hourly	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	Single level hh marker?	ata for sehold
Other energy data	**Yes**	EV charging point data, export & local generation Non-domestic energy consumption data	

2: Local energy system planning OUTPUT



- Need non-domestic consumption data and local generation data too
- Other existing datasets available to LAs (e.g. IMD) could be overlaid at street/feeder level (by LA) to improve understanding and aid targeting

Recap – routes to the data

Trusted processor – the role played by ONS (under DEA) in other sectors: clear principles set out in legislation for how privacy protected in the process

Options for **input data**:

- Suppliers - where they have consent to collect granular data
- Networks (electricity DNOs) – subject to privacy plans being approved
- Settlement (depends on Ofgem proposals on wider reform)
- Someone else given the role

Recap – proposed way forward

Shorter term –

- ONS or BEIS using existing powers
- Collecting data from suppliers (as now – but more granular)

Longer term –

- Wider range of options
- Dependent on direction taken on wider reforms (eg settlement, sources of gas data)
- Could require legislative change

Annex – Summary of PIAG project papers

https://www.smartenergydatapiag.org.uk/

Kieran Dodds

Sustainability First

Annex – PIAG Project Papers

Public Interest Advisory Group papers available at https://www.smartenergydatapiag.org.uk/	
Kick-off stimulus paper	Initial Meeting – 30 November 2017
Working Note	Clarifying what smart meter data could add to the public interest: public interest questions to frame PIAG's work
Stimulus paper 1	Background to ICO Guidance on anonymisation and annex on data access privacy legal framework
Stimulus paper 2	International experience – smart meter data access
Stimulus paper 3	Data ethics – a review of the landscape
Stimulus paper 4	Stakeholder perspectives on smart meter energy data and potential public interest use-cases
Stimulus paper 5	Public interest use-cases: data attributes, data requirements, and associated privacy and access implications
Stimulus paper 6	Consumer research on access to smart meter energy data
Ipsos MORI research report	Customer thinking on privacy in relation to smart meter data for 'public interest' use
Stimulus paper 7	Possible routes to smart meter data for public interest uses
Stimulus paper 8	Capability requirements of public interest data user organisations
PIAG final report	Final paper for discussion by PIAG on 4 April 2019
Annex to PIAG final report	Summary of PIAG project papers

PIAG draft paper – context for today's discussion

Aim this afternoon

- PIAG draft paper is outcome of an 18-month process. Framed topic, background research & info, debated, explored & iterated w PIAG group → developed a common understanding
- Recognition that :
  - Each organisation at PIAG table may not necessarily support the detail of every conclusion & recommendation – *but that* -
  - PIAG paper is a largely 'fair' reflection of the PIAG group process
- Today, want to understand how far a broad consensus on draft – incl key areas of agreement / disagreement

Finalising the paper after today

- Preface to paper : we will circulate proposed words about the PIAG process and 'status' of the PIAG report
- By Friday 12 April we look to you for :
  - Written feedback
  - Bi-lateral calls
- Early May – a final revise to PIAG – & a conf call if needed
- w/bg 13 May – 'low-key' publication of final paper to PIAG members – and via PIAG micro-site
- Close-down event – **19 or 22 July**

Why new ‘public interest’ thinking on smart meter data access will be important

Simon Roberts

Centre for Sustainable Energy

‘Privacy concerns collide with the public interest in data’ Gillian Tett. Financial Times opinion piece. 25 January 2019

Friday 25 January 2019 ★ † FINANCIAL TIMES

Opinion

Privacy concerns collide with the public interest in data

FINANCE

Gillian Tett

Late last year Statistics Canada — the agency that collects government figures — launched an innovation: it asked the country's banks to supply "individual-level financial transactions data" for 500,000 customers to allow it to track economic trends.

The agency argued this was designed to gather better figures for the public interest. However, it tipped the banks into a legal quandary. Under Canadian law (as in most western countries) companies are required to help StatsCan by supplying operating information. But data privacy laws in Canada also say that individual bank records are confidential.

When the StatsCan request leaked out, it sparked an outcry — forcing the agency to freeze its plans. "It's a mess," a senior Canadian banker says, adding that the laws "seem contradictory".

Corporate boards around the world should take note. In the past year, executive angst has exploded about the legal and reputational risks created when private customer data leak out, either by accident or in a cyber hack. Last year's Facebook scandals have been a hot debating topic among chief executives at this week's World Economic Forum in Davos, as has the EU's General Data Protection Regulation.

However, there is another important side to this Big Data debate: must companies provide private digital data to public bodies for statistical and policy purposes? Or to put it another way, it is time to widen the debate beyond emotive privacy issues to include the public interest and policy needs.

The issue has received little public debate thus far, except in Canada. But it is becoming increasingly important. Companies are sitting on a treasure trove of digital data that offers valuable real-time signals about economic activity. This information could be even more significant than existing statistics, because they struggle to capture how the economy is changing.

Take Canada. StatsCan has hitherto tracked household consumption by following retail sales statistics, supplemented by telephone surveys. But consumers are becoming less willing to answer their phones, which undermines the accuracy of surveys, and consumption of digital services cannot be easily pursued. "Traditional statistics gathering methods are no longer sufficient to accurately measure Canada's economy and social changes," chief statistician Anil Arora wrote in a statement posted on the agency's Twitter feed, after news leaked about its bank data project.

> Some tech companies are starting to volunteer information to government bodies

Employment data are also problematic. Statistical agencies have traditionally tracked these by collecting payroll figures from companies, again supplemented with surveys. But a rising proportion of workers are partly — or completely — living off sporadic freelance digital work. "We need new ways of measuring the gig economy," argues Laura Tyson, an economics professor at University of California, Berkeley.

Some statistical agencies have tried to respond by using new public data sources. A couple of years ago, for example, the UK's Office for National Statistics won the legal right to use anonymised tax data.

But the biggest data collections sit inside private companies. Big groups know this, and some are trying to respond. Google has created its own measures to track inflation, which it makes publicly available. JPMorgan and other banks crunch customer data and publish reports about general economic and financial trends.

Some tech groups are even starting to volunteer data to government bodies. LinkedIn has offered to provide anonymised data on education and employment to municipal and city bodies in America and beyond, to help them track local trends; the group says this is in the public interest for policy purposes, as "it offers a different perspective" than official data sources.

But it is one thing for LinkedIn to offer anonymised data when customers have signed consent forms permitting the transfer of data; it is quite another for banks (or other companies) who have operated with strict privacy rules.

If nothing else, the CanStat saga shows there urgently needs to be more public debate, and more clarity, around these rules. Consumer privacy issues matter (a lot). But as corporate data mountains grow, we will need to ask whether we want to live in a world where Amazon and Google — and Mastercard and JPMorgan — know more about economic trends than central banks or finance ministries.

Personally, I would say "no". But sooner or later politicians will need to decide on their priorities in this brave new Big Data world; the issue cannot be left to the half-hidden statisticians.

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Why new 'public interest' thinking on smart meter data access will be important

- Smart meter data becoming available changes the context in which policy-making will be taking place and in which regulators need to design and oversee markets & regulated practice
- Data-enabled shifts towards a smarter system change the nature of the practices and infrastructure choices which can optimise system nationally and locally
- The market incumbents will have fine grain data but the policy-makers and regulators will not.
- Nor will potentially valuable new entrants/initiative-takers (e.g. cities, innovators, etc.)
- Current lack of access to smart meter data will exacerbate information imbalance between the regulator and the regulated
- Without the data, policy-makers and regulators will find some key aspects of their work extremely difficult: e.g. distributional impact assessments of proposed policies; 'fairness' assessments of emerging practices (e.g. ToU tariffs)

Proposed Principles for Policy-Makers - PIAG Conclusions

Maxine Frerk

Sustainability First

Proposed Principles for Policy-Makers - PIAG Conclusions - 1

- **Access to smart meter data for public policy purposes is essential to avoid policy makers 'flying blind' into the energy transition**
  - The smart meter rollout will deliver significant benefits in helping transform the GB energy system;
  - Regulators and policy makers will need better data if they are to oversee this more data-driven energy system, facilitated by the rollout of smart meters;
  - Smart meter data therefore has a clear public interest value to support better decision making and evaluation, in line with the broader government agenda;
  - Making anonymised granular consumption data available will also enable new sources of value and new actors to emerge.

Proposed Principles for Policy-Makers - PIAG Conclusions - 2

- **Government should draw on existing arrangements used in other sectors to enable access to smart meter data for a public interest purpose while protecting privacy**
  - In considering the privacy implications there is a need to distinguish the ***inputs*** (which may raise privacy issues) from the ***outputs*** (which do not, because they will contain only aggregated or anonymised data);
  - The role of the ***trusted processor*** adopted in other sectors can bridge that gap
  - Existing principles under the Digital Economy Act for data handling by a trusted processor should be considered adequate for addressing any privacy concerns around smart meter data;
  - This focus on secure handling of the data means that there does not need to be a trade-off between respecting and protecting consumer privacy and using data to serve the public interest;
  - There are incremental actions that can be taken now under existing legislation to provide improved data and these should be taken forward.

Proposed Principles for Policy-Makers - PIAG Conclusions - 3

- **For the long-run, decisions on access to smart meter data for a public interest purpose should sit with government or the regulator rather than rely on securing the consent of individual consumers**
  - The public interest benefits of smart meter data are dependent on having a comprehensive picture based on a comprehensive dataset;
  - Engaging the public in debate about the use of data for public interest purposes is important but difficult and requires carefully structured and deliberative approaches to explain the issues;
  - It is not practical or realistic to do this in the context of securing individual consent from all consumers;
  - Decisions on what constitutes the public interest with respect to smart meter data access must be taken by government rather than left to individual choice.
  - Consumers at large stand to benefit from the use of smart meter data for public interest purposes.

Proposed PIAG recommendations – Access to smart-meter data for a public interest purpose

- **Broad agreement ?**
- **Important gaps ?**

Maxine Frerk

Sustainability First

Proposed PIAG Recommendations – Developing the case for access

- **BEIS and Ofgem** should consider carefully the data that they will need for effective oversight of an increasingly data-driven sector - for market monitoring and for policy design and evaluation, including understanding distributional impacts.
- **BEIS** should consider carefully the role that improved use of smart meter consumption and other data could play in discharging the expectations from wider government on use of administrative data for better statistics.
- PIAG members (e.g. **Committee on Climate Change** and **GLA**) to help articulate in more detail their requirements and the benefits that could be delivered through improved access to smart meter data.
- **All parties** to reflect on the potential for other smart meter data (in addition to gas and electricity consumption data) to serve a public interest purpose.
- **BEIS or Citizens Advice** should commission in-depth deliberative research on how consumers would feel about access to their smart meter data for different public interest purposes. **Other PIAG members** commissioning consumer research on smart meter data should consider extending it to include some of the issues raised in the Ipsos MORI report.

Proposed PIAG Recommendations- Taking forward improved data access – short term

- **BEIS and ONS** to consider where responsibility should sit between them for developing smart meter data collection under existing legislative powers.
- **BEIS / ONS** should open a discussion with Energy-UK about preparatory work to allow more granular data to be collected from suppliers (under existing legislative provisions) as the rollout approaches completion.
- **Any party** looking to make use of smart meter data for a public interest purpose should adopt the relevant ONS / DEA principles.
- **UCL and BEIS** should consider how outputs from the UCL Smart Energy Research Lab could be put to wider use outside the academic community to support public interest purposes including public policy making.

Proposed PIAG Recommendations – Keeping long term options open

- In considering options for development of settlement and other system reforms **Ofgem** should take into account the opportunities to improve the availability of data for public interest (as well as market) purposes.
- In considering the DNOs' privacy plans **Ofgem** should look, as far as practical, to encourage consistency of approach across the DNOs to facilitate potential use of that data at a whole systems level in future. Within the terms of their privacy plans, **DNOs** should take steps to work collaboratively on collection & storage of smart meter-data in standardised formats.
- **Ofgem and BEIS** should work with **gas distribution networks** and others to develop a clearer view of how gas smart meter data could be expected to deliver system benefits (eg supporting assessment of options for heat de-carbonisation) and the role of gas distribution networks in that.
- Policy makers in **BEIS and Ofgem** should identify what additional public benefit could be delivered across their future work programmes – and more widely - with access to smart meter data for a public interest purpose and reflect that in the regulatory framework to provide a clear legal route for access to the data.
- **Other parties** - ONS, Energy Systems Catapult, Smart DCC, the settlement bodies (Elexon and Xoserve), Electralink and energy retailers should all consider what future role their organisations might play, if any, in enabling access to smart meter data for a regulated or for a public interest purpose.

Proposed PIAG Recommendations - Wider smart meter framework

- **BEIS** and **Smart DCC** should continue to monitor the ease with which third parties can register as DCC users and access smart meter data (with the consumer's consent) given that certain potential public interest related uses could be delivered through that route.
- **BEIS** should monitor the deployment and use of CADs and what data is being collected on what terms - and be ready to act if necessary, to provide more transparency to consumers.

Next Steps ?

Judith Ward. Sustainability First

1. Finalising the PIAG report
2. Close-down event – 19 July (am) or 22 July 2019 (pm)
3. PIAG Phase 2
4. AoB & Close (16.00h)

Smart Meter Energy Data:
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