



# Creating places where smart energy can thrive: Lessons from Bristol and London

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# Outline of presentation

- The starting points
- How to think (about smart energy in cities)
- Does size or place matter (in relation to smart energy)?
- The need to focus on ‘the first next steps’ (to create the conditions for further successful action)



## The starting points

- There's more 'talking' than 'doing' on smart energy and a huge gap between current practice and aspirations.



## THE ASPIRATION

By the early 2020s, having taken an integrated approach to smart meter roll-out & city-wide data capture & analytics, Bristol will have a public-interest organisation orchestrating smart use, distribution and supply of heat & power across the city.

See [www.cse.org.uk/bsecc](http://www.cse.org.uk/bsecc)





## The starting points

- There's more 'talking' than 'doing' on smart energy and a huge gap between current practice and aspirations.
- Smart energy is 'means' not 'ends' (so set goals for it – and/or be clear which existing goals it helps to achieve).
- 'Smart energy' will happen anyway, but maybe not as well as it could in a given place, nor so well for citizens and businesses.
- So purposeful effort will be required to make it work at city scale.









**ENERGY SYSTEM**  
potential/need (e.g.  
opportunities to curb  
energy waste and  
reduce/shift peaks)

People need to  
be willing and  
engaged so they  
participate

The data and IT  
needs to be  
available and  
able to  
'do its thing'

**All conditions  
need to be met  
– at city-scale**

Regulations need to  
enable access with  
market rules  
rewarding system  
value created

Commercials need  
to stack up so it's  
worth someone  
doing it

# What can smart energy help to achieve?

- Curbing energy waste and peak demand
- Enhancing the value of local renewable energy generation
- Smarter approaches to tackling fuel poverty
- Rolling out EVs smartly, maintaining system integrity and keeping costs low
- Developing fine grain understanding of city energy system

# What could smart energy do for London?

The activities enabled by smart energy can contribute to a wide range of the Mayor's significant strategic objectives and policy goals for London:

Zero carbon by 2050 (incl. energy and transport)\*

Lower energy bills for Londoners (consumers and businesses)\*

Tackling fuel poverty                      Decentralised energy in new build\*

Better air quality (\* if EVs are key component)

Smart London with high quality, efficient infrastructure\*

Leading global city (by being open and competitive\*)

Reinvigorated communities & better social integration

Jobs & skills in digital & clean tech

Some of these goals require effective application of smart energy techniques (marked \* above). Others can be enhanced by it (by creating new insights and opportunities for action and potentially reducing costs).

Does  
**size** or  
place  
matter?



# Does city-scale make sense?

## Strengths

- Active network management
- Faster social norming and cultural change
- Smart interventions to tackle fuel poverty
- Heating, cooling, storage and electric vehicles

## Weaknesses

(Bristol twist possible?)

- Smart meter roll-out co-ordination
- Early adopter concentrations
- Local data capabilities
- Capitalisation of demand-side services

## Weaknesses

- Energy market rules and regulations
- Establishing a locus for action

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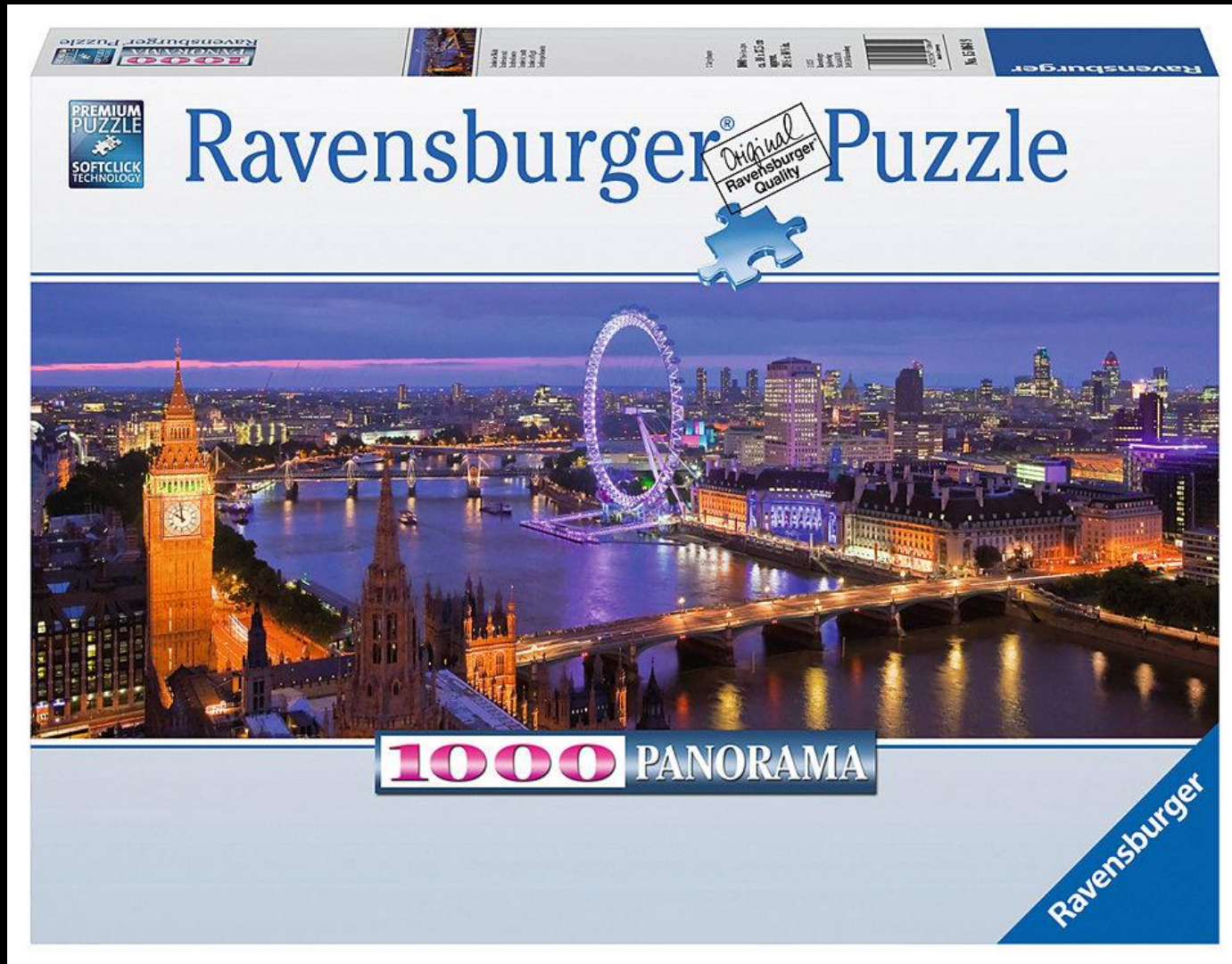
## Weaknesses

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- Establishing a locus for action

## Does city-scale make sense?

A meaningful Smart Energy City will only emerge in the early 2020s in Bristol (or anywhere in the UK) if, over the next 2-3 years, there are purposeful, co-ordinated, and ambitious smart energy initiatives in the city which can demonstrate enough benefit and gain to disrupt and shift the current market trajectory.

# The strategic intent – the picture on the box





**The current reality ...**



**(... and the picture on the box is changing all the time)**

## **Setting a growing ambition...**

### **Engaging**

*The Mayor and the GLA are actively engaged with a wide range of smart energy initiatives across London, helping to ensure that these are applied for the benefit of London's citizens, particularly those more vulnerable.*

### **Shaping**

*London has an extensive, co-ordinated programme of initiatives to influence and realise the use of smart energy applications, systems and technologies in the capital to meet the needs of its people and businesses and enable them to capture the social, environmental & economic benefits of doing so.*


### **Leading**

*Having taken an integrated approach to smart meter roll-out and city-wide energy data capture, London has a public interest organisation which is orchestrating a wide range of stakeholders in the smart use, distribution and supply of heat and power across the city.*



# Road mapping the Smart Energy City ‘Opportunities’

- Curbing energy waste and peak demand
- Enhancing the value of local renewable energy generation
- Smarter approaches to tackling fuel poverty
- Roll-out EVs smartly, maintaining system integrity and keeping costs low

	2018	2019	2021	2025
<p><b>DOING</b></p> <p>Things to do now for impact now</p>	<ul style="list-style-type: none"> <li>★ Engage with energy suppliers, Smart Energy GB and the boroughs to establish co-ordinated approach to smart meter roll-out across London and associated London-oriented communications, including driving and procuring effective support programme for more vulnerable households. ● ● ● ● ●</li> <li>★ Conduct regular smart energy practice/inter-stakeholder analysis under common 'Smart Energy for London' banner to establish collaborative approach and spot and realise partnership opportunities. ● ● ● ● ● ● ● ●</li> <li>★ Stimulate higher take up of smart energy services in public and commercial buildings (with Better Buildings Partnership). ● ● ● ●</li> <li>★ 'Serialize up' all relevant policies and programmes across the GLA to embed smart energy considerations. ● ● ● ● ● ● ● ●</li> <li>★ Establish portal within London Database for GLA, TfL, other public bodies and willing organisations to start and visualise their energy data and encourage 'challenges' to reveal energy saving opportunities and improve system management (including local 'power matching') and the services needed to realise them. ● ● ● ● ● ● ● ●</li> <li>★ Make public the importance of smart energy to the GLA and the Mayor in terms of the societal objectives and benefits it can help to achieve and the need for concerted action to keep smart energy focused on these objectives. ● ● ● ● ● ● ● ●</li> <li>★ Develop an innovation enabling programme to identify smart energy innovation and market development opportunities across the capital and associated funding streams and drivers. ● ● ● ● ● ● ● ●</li> </ul>	<ul style="list-style-type: none"> <li>★ Recruit households, businesses and public bodies to share their data on London smart energy dashboard and run 'challenges' to reveal energy saving and smarter system opportunities and promote provision of services to realise them. ● ● ● ● ● ● ● ●</li> <li>★ Enhance new 'smart energy ready' planning policies in new developments. ● ● ● ● ● ● ● ●</li> <li>★ Deliver programme of work emerging from London's DSR pilot to study (including lobbying for market developments required to realise it). ● ● ● ● ● ● ● ●</li> <li>★ Work closely with UKPN, TfL and others to ensure EV charging systems are smartly optimised for network management, low carbon and affordability. ● ● ● ● ● ● ● ●</li> <li>★ Building out of regularly convened stakeholder/practitioner 'Smart Energy for London' group, co-ordinate and enable a suite of smart energy initiatives taking place in the city, focused on meeting citizens needs and creating opportunities for local business. ● ● ● ● ● ● ● ●</li> <li>★ Sustain London-oriented smart meter roll-out communications and support programme for vulnerable households (as smart meters are installed) to ensure they can enjoy the benefits of smart energy. ● ● ● ● ● ● ● ●</li> <li>★ Ensure all public bodies actively involved in demand side services markets, led by GLA with shared procurement frameworks for aggregator and associated analytical and system control services. ● ● ● ● ● ● ● ●</li> <li>★ Make smart energy a strong and active dimension of Smart London activities. ● ● ● ● ● ● ● ●</li> </ul>	<ul style="list-style-type: none"> <li>★ Ensure all smart energy activities in the capital have link in to Smart Energy for London programme, to accelerate market take-up, ensure integrated solutions and continuing innovation, with strong focus on delivering on objectives. ● ● ● ● ● ● ● ●</li> <li>★ With smart meter roll-out approaching completion, use London smart energy data to identify optimum set of tariffs for different customer groups, particularly vulnerable households, and procure them through suppliers. ● ● ● ● ● ● ● ●</li> <li>★ Make 'peak avoidance alert' and 'see how alerts' as standard on traffic apps, transport data and weather forecasts in communications and public discourse in London. ● ● ● ● ● ● ● ●</li> <li>★ Work with UKPN and other network operators to ensure London has the most dynamic and efficient DSR and network management services markets and optimised EV charging network and etc. ● ● ● ● ● ● ● ●</li> </ul>	<p>London is a smart energy city with GLA and Mayor continuing to ensure interests of the capital's citizens and businesses are the central drivers of further developments. ● ● ● ● ● ● ● ●</p>
<p><b>PREPARING</b></p> <p>Things to do now for impact in 1-2 years</p>	<ul style="list-style-type: none"> <li>★ Engage directly with UKPN to develop strong partnership on smart energy activities and future network strategy for London. ● ● ● ● ● ● ● ●</li> <li>★ Develop a specification for a smart energy data portal (linked to London Database), including data protection and privacy compliance requirements. ● ● ● ● ● ● ● ●</li> <li>★ Examine potential benefits and costs of creating a London-focused C&amp;D (and other routes to acquiring consumer smart energy data for above portal) (open access options). ● ● ● ● ● ● ● ●</li> <li>★ Establish how planning policy can be used to drive smart energy 'realities' in new developments. ● ● ● ● ● ● ● ●</li> <li>★ Ensure smart energy strategies are at heart of all Opportunity Area Planning Frameworks. ● ● ● ● ● ● ● ●</li> <li>★ Ensure new London Local Map enables use of smart energy data layers. ● ● ● ● ● ● ● ●</li> <li>★ Develop guidance for boroughs on smart energy master planning. ● ● ● ● ● ● ● ●</li> <li>★ Identify sources of funding for smart energy development, piloting, enable markets testing and work through collaboration. ● ● ● ● ● ● ● ●</li> <li>★ Identify opportunities and partners to test smart energy developments for more vulnerable households. ● ● ● ● ● ● ● ●</li> <li>★ Work with TfL and UKPN on roll-out of EV charging points and associated charging services to ensure they are optimised for network value. ● ● ● ● ● ● ● ●</li> </ul>	<ul style="list-style-type: none"> <li>★ Engage fully with UKPN and S&amp;G N (SW London) on BEIS-ESD plans, identifying key barriers to optimised network development and operation that could be addressed through action by GLA, Mayor, boroughs and other civil society organisations. ● ● ● ● ● ● ● ●</li> <li>★ Identify gaps in practice and further opportunities for initiative-taking. ● ● ● ● ● ● ● ●</li> <li>★ Scale up smart energy services, piloted in first two years, which are shown to provide benefits to most vulnerable households. ● ● ● ● ● ● ● ●</li> <li>★ Review extent to which 'serialising up' of policies and programmes is resulting in smarter solutions (and address failings where revealed). ● ● ● ● ● ● ● ●</li> <li>★ Working with UKPN and smart energy practitioners, develop and test London-wide 'peak alert' apps to encourage load shedding and 'see how' apps to make more of renewable generation. ● ● ● ● ● ● ● ●</li> <li>★ Support and enable tests of domestic sector DSR automation services with associated tier of see tariffs and pro-consumer supply at scale. ● ● ● ● ● ● ● ●</li> </ul>	<ul style="list-style-type: none"> <li>★ Review and update planning policies in light of latest developments in smart energy sector and emerging system requirements. ● ● ● ● ● ● ● ●</li> <li>★ Evaluate nature of smart energy benefits (and costs) reaching most vulnerable households and if necessary develop new initiatives to enable greater participation and a fairer share of benefits on offer. ● ● ● ● ● ● ● ●</li> </ul>	
<p><b>EXPLORING</b></p> <p>Things to do which create conditions which impact more possible in future</p>	<ul style="list-style-type: none"> <li>★ Commission study into near term potential for demand side response (DSR) and peak load reduction and shifting across London, its potential value, and the market developments required to realise it. ● ● ● ● ● ● ● ●</li> <li>★ Consider risks to the Mayor and GLA's role as a financial broker on smart energy that may arise from GLA moving into the energy supply market through Energy for Londoners. ● ● ● ● ● ● ● ●</li> <li>★ Include specific 'smart energy' topics on Mayor's new Smart London Board. ● ● ● ● ● ● ● ●</li> <li>★ Build relationship with smart energy teams in BEIS and DfE to ensure London perspective is heard and reflected in national smart energy policy. ● ● ● ● ● ● ● ●</li> </ul>	<ul style="list-style-type: none"> <li>★ Determine governance arrangements for further development and co-ordination of smart energy activities across London, including commercial model if viable. ● ● ● ● ● ● ● ●</li> </ul>		



## Concluding remarks

- Acknowledge the yawning gulf between aspiration (the talking) and current practice (the doing).
- Focus on how ‘smart’ helps us meet genuine societal needs.
- City-scale approach to smart energy has much to offer but it’s not integral to policy making and regulatory practice.
- Sorting this out requires multi-disciplinary thinking and purposeful action (the current trajectory is sub-optimal).
- Don’t get stuck worrying about nailing down the long-term. Define and take ‘the first next steps’ because these create the conditions for future success.
- It won’t look pretty or organised at first (it’s disruption!).



# Thank you

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RELENTLESS  
OPTIMISM

Rose Vickers, Jamaica Street Artists, Bristol