

INSIGHTS FROM THE MAYOR OF LONDON'S ENERGY SYSTEMS PROGRAMME

A Presentation for Community Energy London members

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MAYOR OF LONDON

Agenda

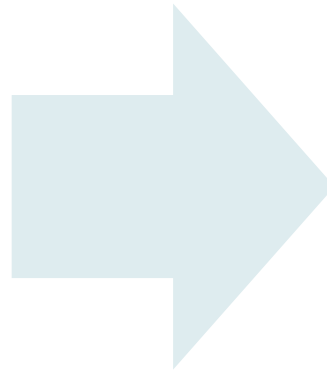
- An introduction to the Mayor of London's environmental policies
- Energy for Londoners objectives and the importance of a 'Smart Energy Systems' approach
- The FlexLondon programme – emerging replicable use cases
- Early programme insights
- Home Response – Domestic DSR Innovation
- Discussion

What do we need to do?

Decarbonisation requires pulling out ‘all the stops’. Smart Energy Systems will play a key role alongside other interventions.

London Environment Strategy

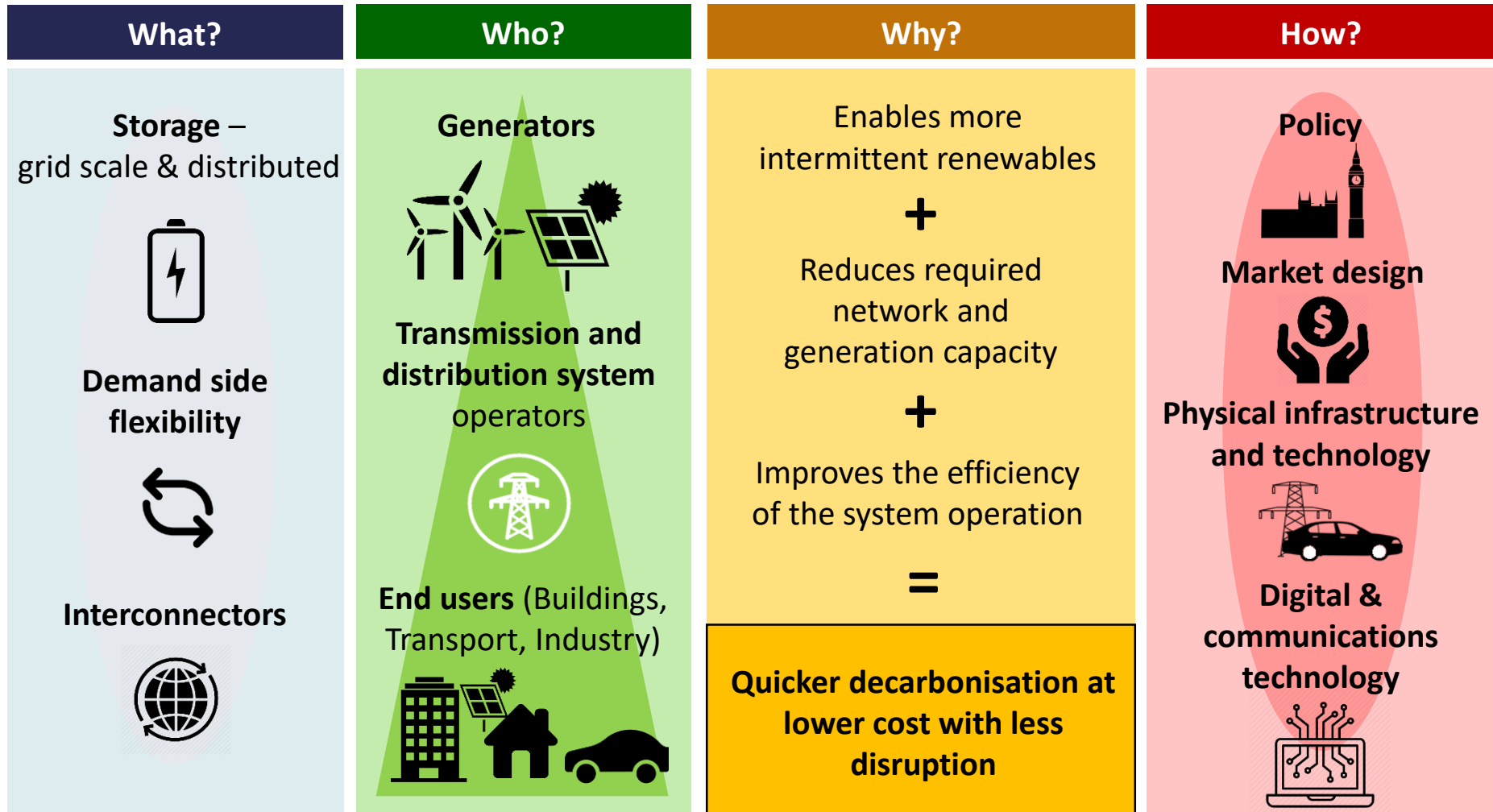
- *“Make London a **zero carbon city by 2050**, with energy efficient buildings, clean transport and clean energy”*
- *“6.2 Develop clean and smart, integrated energy systems utilising local and renewable energy resources”*



- Energy efficiency will have to increase dramatically, leading to homes and workplaces being highly insulated
- The fossil fuels used for heating and powering buildings, transport, and industry will have to be replaced by renewable electricity and gas
- By 2030 15% of demand met by renewable and district energy (incl 1GW Solar pv installation)
- London’s grids will need to become smarter at balancing energy demand with available supply
- Low carbon travel will be the default option.

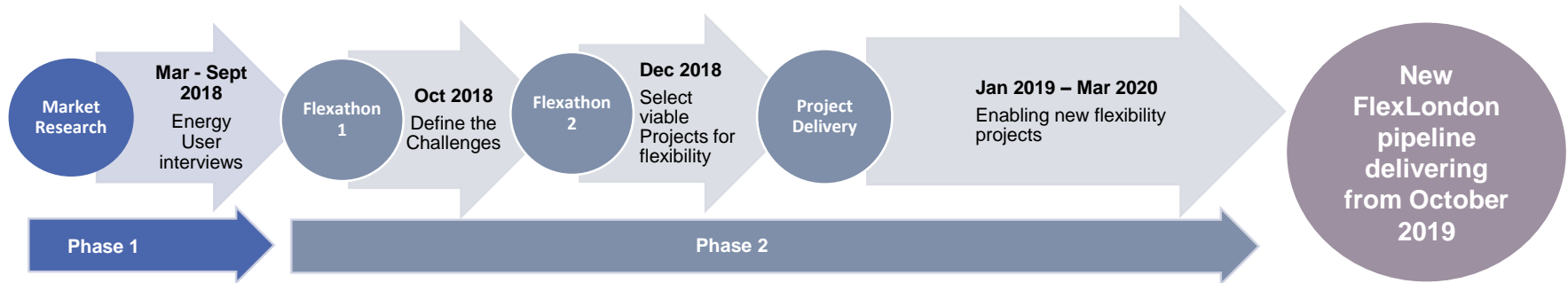
What does the delivery of a smart energy system look like?

Creating an integrated & flexible energy system by coordinating supply & demand across heat, transport & power



The FlexLondon Programme

FlexLondon is a Mayor of London initiative to accelerate the uptake of smart low carbon energy flexibility and is designed to facilitate projects that will demonstrate how London can access a potential 1GWe of untapped flexible demand.



Phase 2 (in progress) is about creating a pipeline of project opportunities that can start ‘flexing’ as soon as possible.

FlexLondon Progress (in numbers) to date

- 2 Flexathon Events held in Q4/2018, and Data 'Hackathon' in Q2 2019
- 34 energy users engaged
- **15 challenged defined**
- **11 projects (pipeline and active)**
- 122 innovators registered with FlexLondon
- 70+ solutions proposed for projects by innovators
- Advisory Board with members from industry, Government, research and consulting

Types of Projects underway:

- Power - Aggregating solar PV across multiple sites for flexibility potential with storage
- Heat - Electric Storage heating for social housing residents
- Transport - Use of street cabinets for charge points and grid flexibility services
- Integration – Maximising use of CHP, with battery storage and community off-takers for electric charging
- Replacing diesel generators for flexibility, future proofing, and resilience?

Programme Insights (to date)

A lot of valuable detailed learning points to date..... some high level messages:

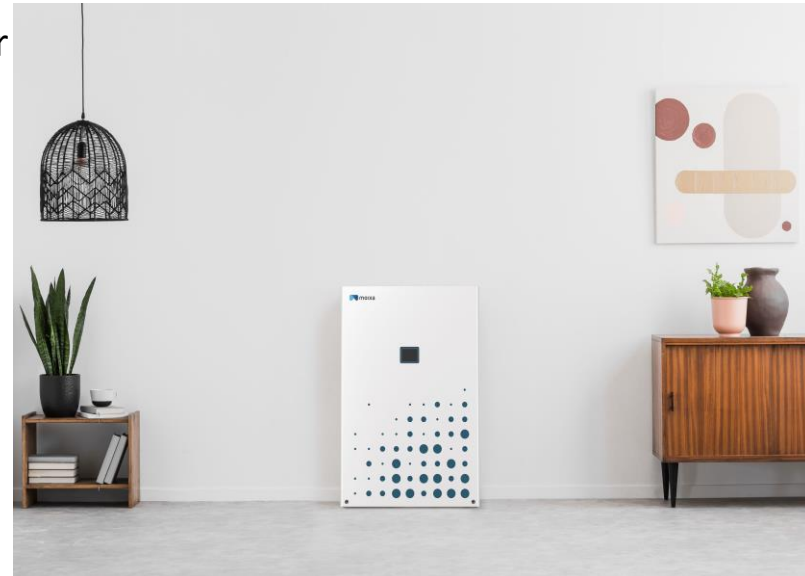
- Energy Flexibility is a **new concept** to many organisations – requires education, change & engagement process to move from interest to commercial value; need senior sponsors
- Enterprise and Local non-energy value is there but still difficult for organisations to build into business cases (in absence of market signals). **Carbon** in particular, is **not a consistent driver** for flexibility across the city
- GIS mapping is very helpful for organisations to identify where there is particular local value in flexibility and **opportunities for local collaboration** (incl thinking beyond their own boundaries and silos).
- **Data is a key enabler** of building a value case as well as operating a flexibility-enabled project, but is difficult to access, clean, use in a timely way or consistently apply for an organisation's operational efficiency.
- The **local value case is variable** (not the same in every borough or neighbourhood in London): The financial value from flexing is not great enough, lengthy enough or consistent enough across London to make the flexibility business case strong enough.
- Danger of **DSR-Flexibility being delivered with high-carbon solutions** (eg diesel gen)

Home Response – Domestic DSR Innovation

Home Response is a Mayor of London project to demonstrate how existing domestic electrical hot water immersion heaters and solar PV with battery energy storage can be controlled to provide flexible Demand Side Response (DSR) services in social housing households. The project is run with Element Energy, Moixa, Repowering London, UK Power Networks (UKPN), London boroughs and Housing Associations.

Home Response will:

- support UKPN and National Grid's needs for flexible grid capacity and balancing
- remotely control flexible demand for hot water and power
- manage everything for households
- engage and recruit 160 households
- Reward households for their flexibility
- trial business models that offer replication potential
- Unlock up to 0.5MW of energy demand flexibility

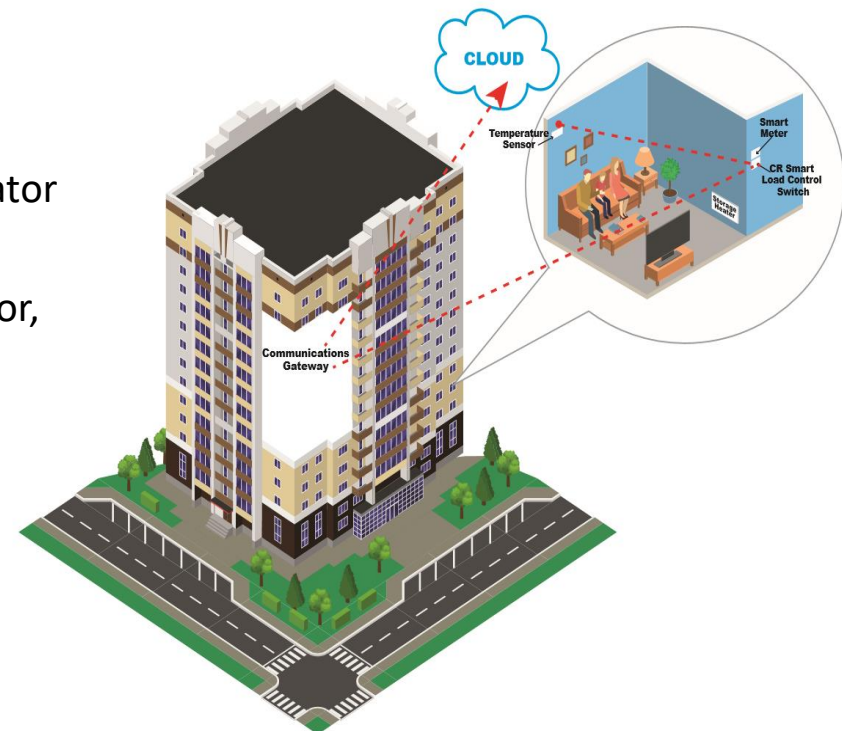


Types of Technology

- 1) Electricity battery storage in targeted tenanted properties with existing solar PV
- 2) Smart controls and timer switches for domestic hot water immersion heaters

Community Model:

- Incorporates a local intermediary between the aggregator and household
- Reduces recruitment and admin costs for the aggregator, while offering locally based support to customers
- DSR revenues will be shared between the aggregator, households and local intermediary
- Revenues can be used to support local community energy projects



HR Project Offer & Scale up Objectives

Housing Associations and Local Authorities

- No cost support to residents contributing towards fuel poverty and environmental objectives
- Estimated 600-800 households engaged on energy efficiency and low carbon innovation

Residents

- Local employment through recruitment of Energy Champion roles
- Up to £50 per household for participation
- Opportunity for participants to create a community fund and vote on fund priorities
- Free access to Moixa app for monitoring energy usage
- Offer of one-to-one energy advice

Scale up Objectives beyond the project

- Create new business and customer engagement models to reward Londoners' flexible use of energy and kick start household flexibility markets, with the aim to provide up to 1MW of flexibility services for grid operators by December 2022.

Discussion

- How is your organisation thinking about flexibility?
- Are any of the use cases or projects discussed relevant?
 - Indications that significant ‘underutilised’ solar pv assets exist across London (Local Authority buildings, Community Energy projects etc), how can storage support them (and how is flexibility being considered as part of the solutions proposed)?
- Do you have project learnings that you could share with the FlexLondon team?
- How can the Mayor support Community Energy projects to accelerate the deployment of flexibility solutions?

Thanks for listening



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