

## Decentralised Energy: Democratic decarbonisation or just an energy system planner's worst nightmare?

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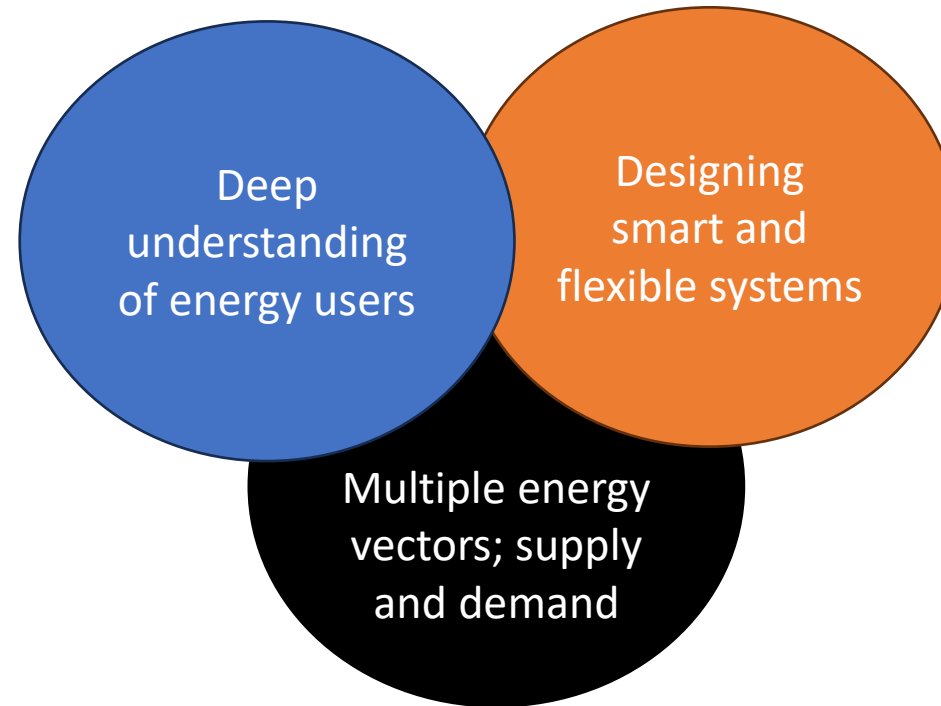
The Association for Decentralised Energy

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# What is decentralised energy?

Not just small-scale,  
or geographically distributed...



*"Smart local energy systems (SLES) bring together energy supply, storage, heat, transport and buildings in a local area. They connect them in a smart way using data and digital technologies, and provide new ways for people, communities, and other local stakeholders to get involved"*

**Prospering from the Energy Revolution**

([ukri.org/what-we-do/browse-our-areas-of-investment-and-support/prospering-from-the-energy-revolution/](https://ukri.org/what-we-do/browse-our-areas-of-investment-and-support/prospering-from-the-energy-revolution/))

# A little bit of history...

- Our energy system started from a decentralised, user focused approach
- 1792: William Murdoch lights his house in Cornwall with coal gas
- National grids weren't introduced until around 150 years later



# Why democratise decarbonisation?

- ‘Do with’, not ‘do to’
- More effective; greater justice
- Wider benefits: encouraging positive spillover effects?

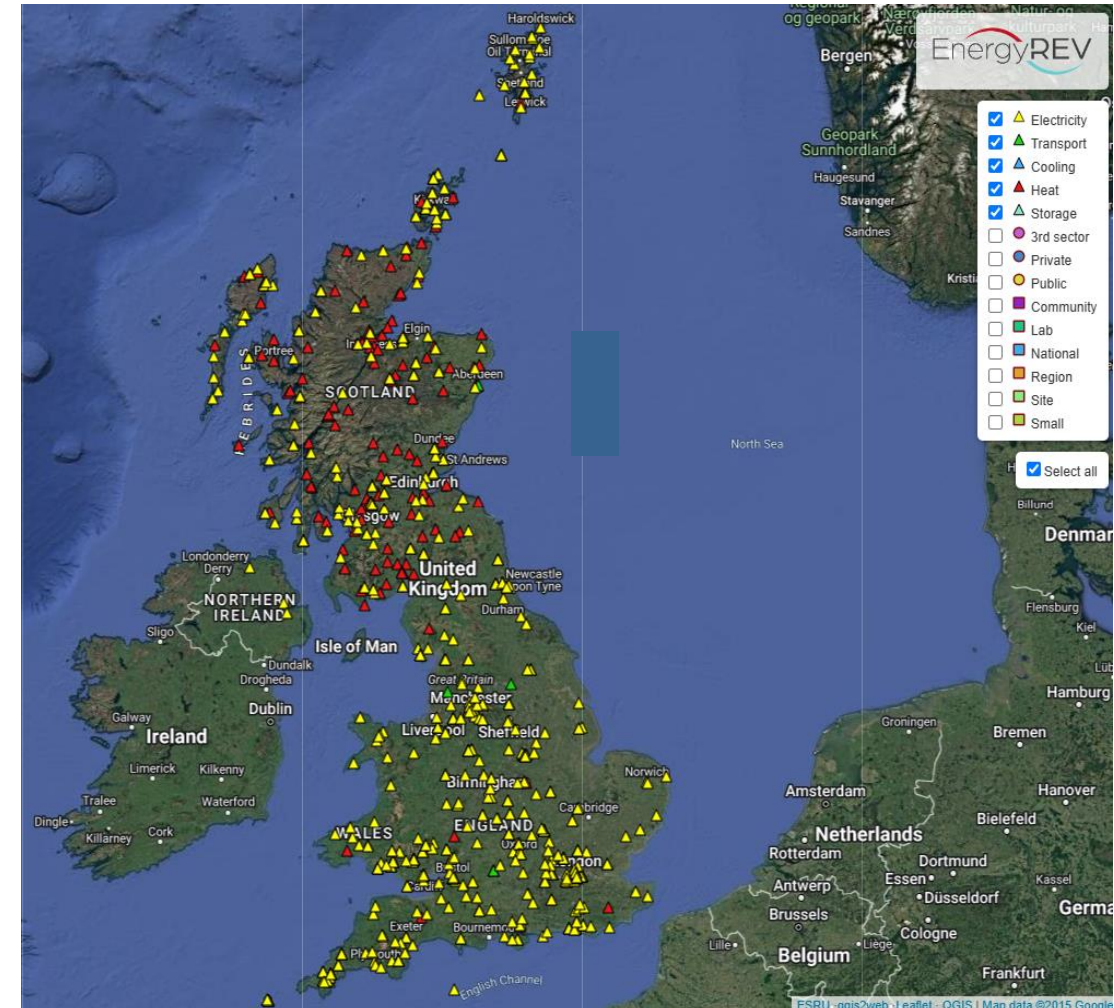


<https://ukerc.ac.uk/research/observatory/>

<https://ukerc.ac.uk/publications/justice-in-energy-efficiency/>

# How's it going so far?

- EnergyREV database of over 750 local and community energy projects across the UK
- Historically, operating on the fringes of, or separate from, the old system and vulnerable to policy and regulatory changes
- But that is changing fast...



<https://www.energyrev.org.uk/outputs/insights/a-gis-map-of-local-and-community-energy-projects-across-the-uk/>

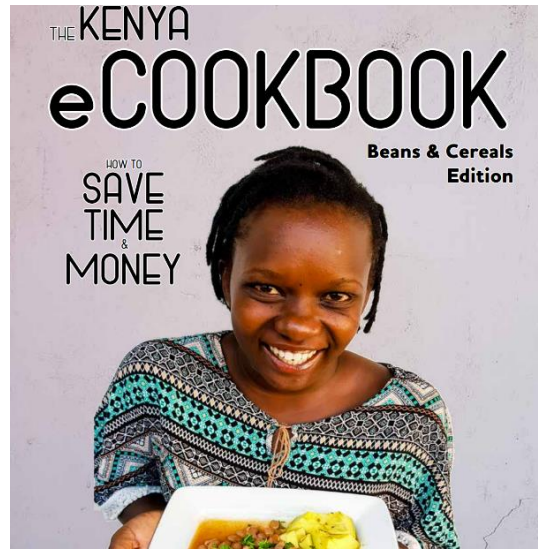
# A little bit of geography...



Copenhagen District Heating network  
<https://www.ramboll.com/en-gb/projects/energy/district-heating-for-1-million-people>



End use flexibility in California  
[www.ohmconnect.com](http://www.ohmconnect.com)



Clean cooking in Kenya  
<https://mecs.org.uk/>



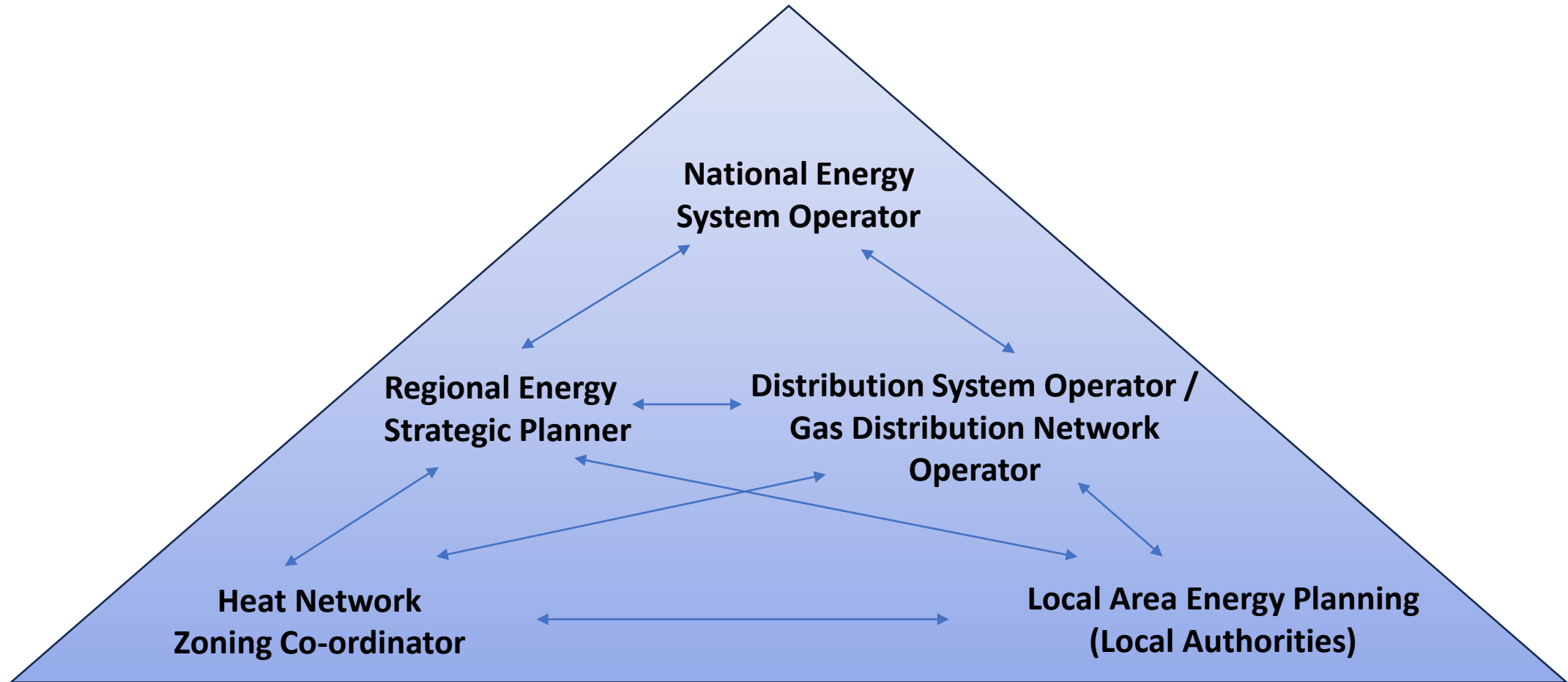
Photovoltaics in the Brazilian Amazon  
<https://news.mongabay.com/2022/01/in-the-brazilian-amazon-solar-energy-brings-light-and-new-opportunities/>

# Integrating decentralised systems

- Flexibility services and co-location to aid grid decarbonisation
- Heat networks as storage
- Circular economy approaches: using waste heat
- Recognising end use efficiency for its contribution to the system



# Energy system planning in a decentralised world



# What about the headaches?

- How do we best use flexibility? Locally or nationally?
- The link between zoning and local area energy planning: do we have the resources for effective community engagement?
- Dealing with uncertainty
- How does this affect Mission Control?
- Planning for managed decline





# Utopia or a nightmare?



- Decentralised energy is a 'must have'
- Quite a few thorny issues still to be sorted out
- Big data means opportunity... (think Octopus)
- Embrace complexity (think Amazon...)
- Digital deficit is a barrier
- Lots to do, but the prize is worth the effort!

Questions...

