

A transition to a civic energy future

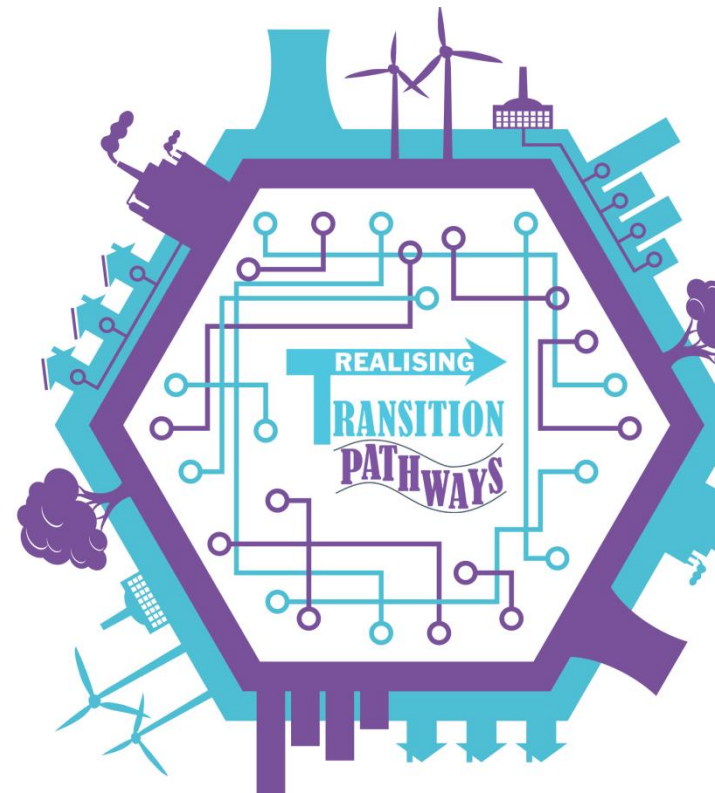
Technological and infrastructural requirements

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#DistributingPower





Whole systems analysis for a UK more electric low carbon energy future

- A £3.17million continuation of the successful 'Transition Pathways' project that ran 2008 to 2012.
- Interdisciplinary team: power systems engineers, environmental scientists, social scientists, energy economists and socio-technical transition scholars
- EPSRC funded collaboration of 9 universities:

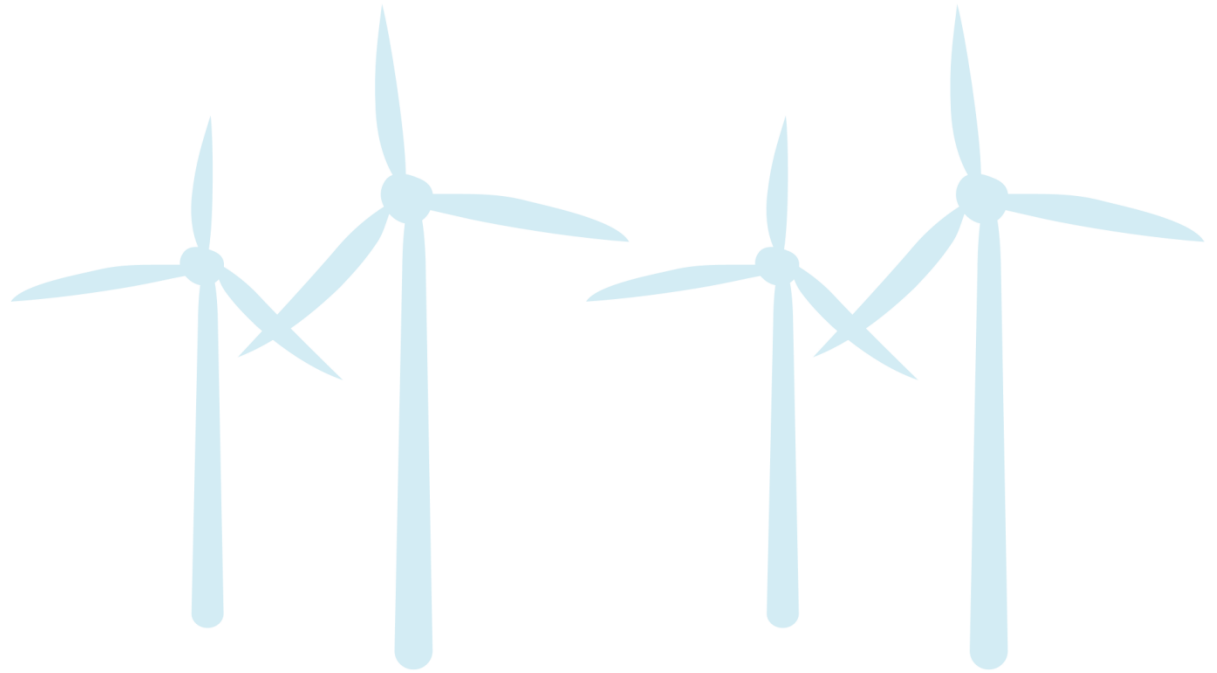


The Thousand Flowers Pathway

Thousand Flowers: This pathway is characterised by a greatly expanded role for civil society in delivering distributed low-carbon generation.

- Places civil society in a central role
- Develops a 'civic' energy sector
- Localises energy value
- Is a major transition, but no more major than privatisation and liberalisation
- Means new roles for local authorities and much deeper citizen engagement

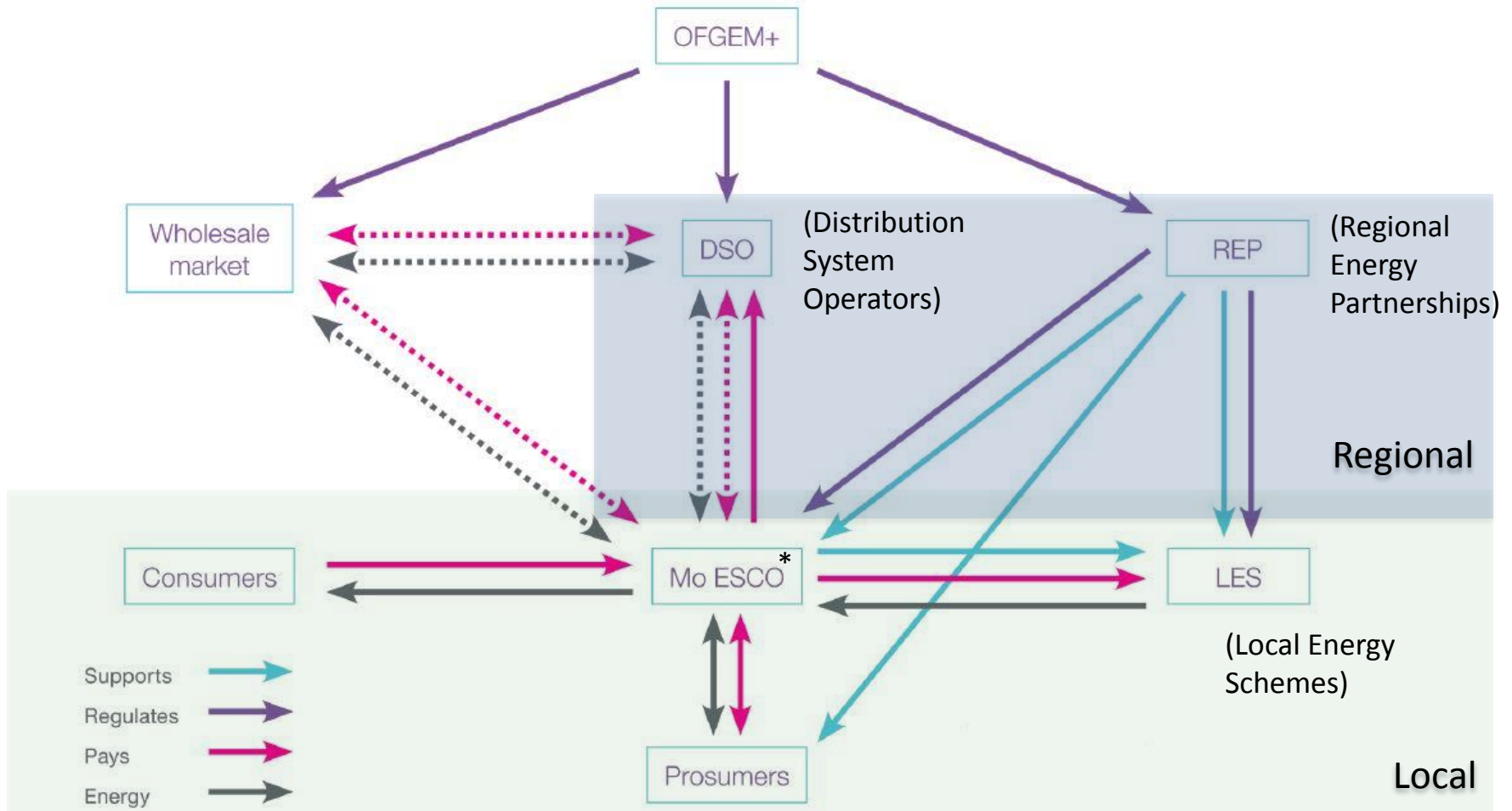
HEADLINE MESSAGES



A distributed energy system opens up new avenues for financing the energy transition, but challenges incumbent utility business models.

- A system based on many small- and medium-sized producers reduces dependence on very large scale finance and investment in centralised generation.
- This opens the energy system up to investment from citizens, municipalities, SME's, and other new forms of finance. This increases the types of capital available to the energy system.
- At the same time, traditional utility business models face challenges from renewable generation and supply market share.

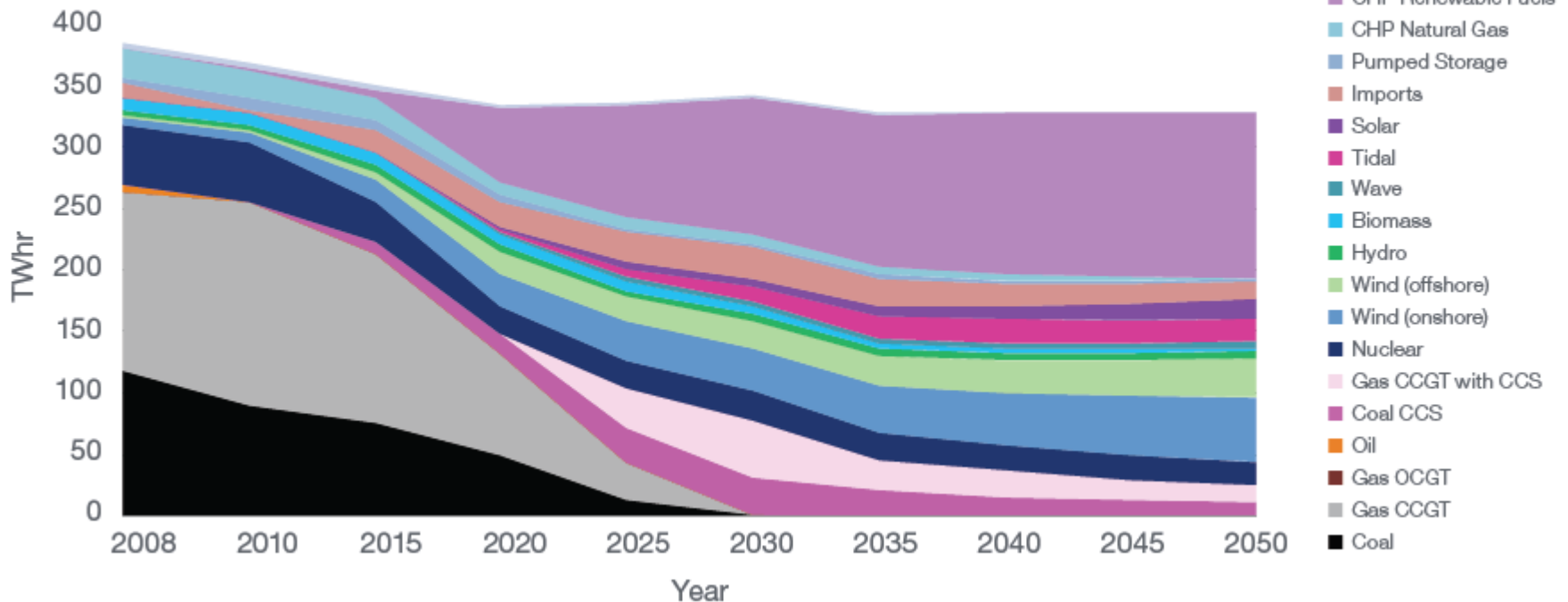
A local and regional approach to distributed energy is vital.



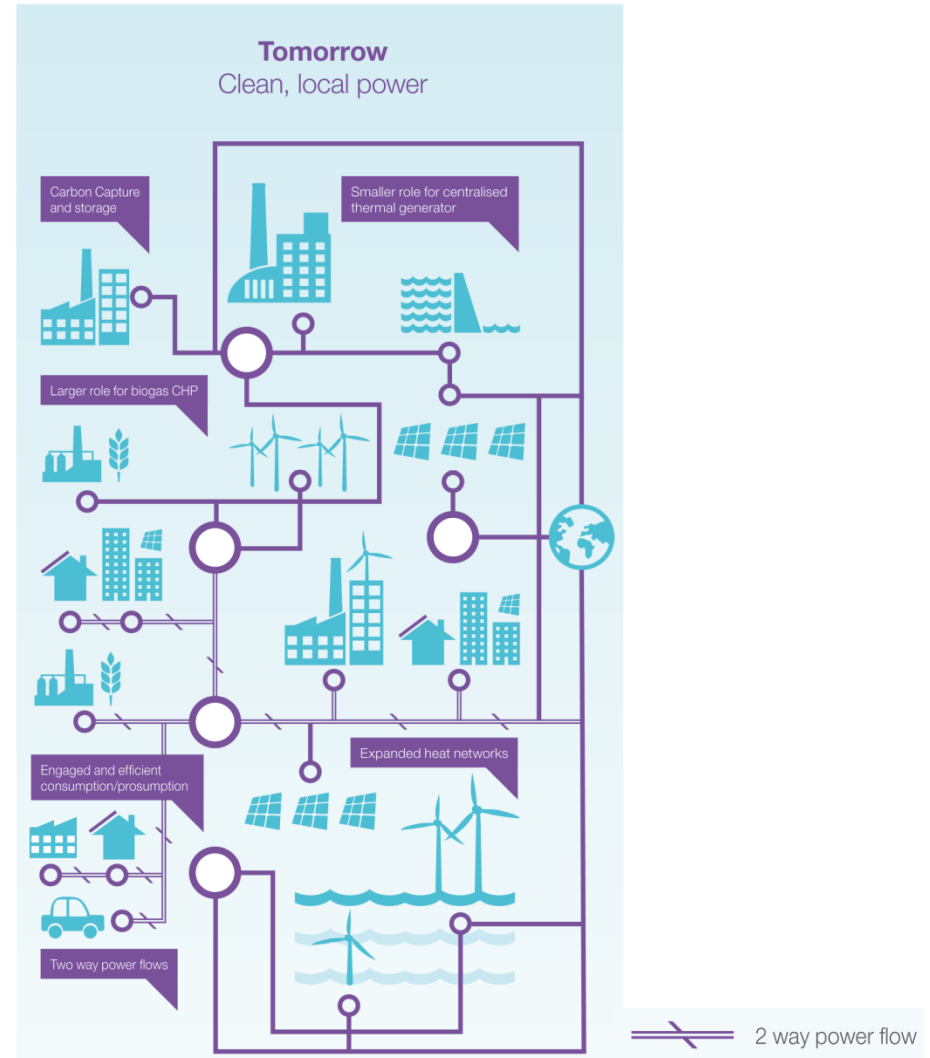
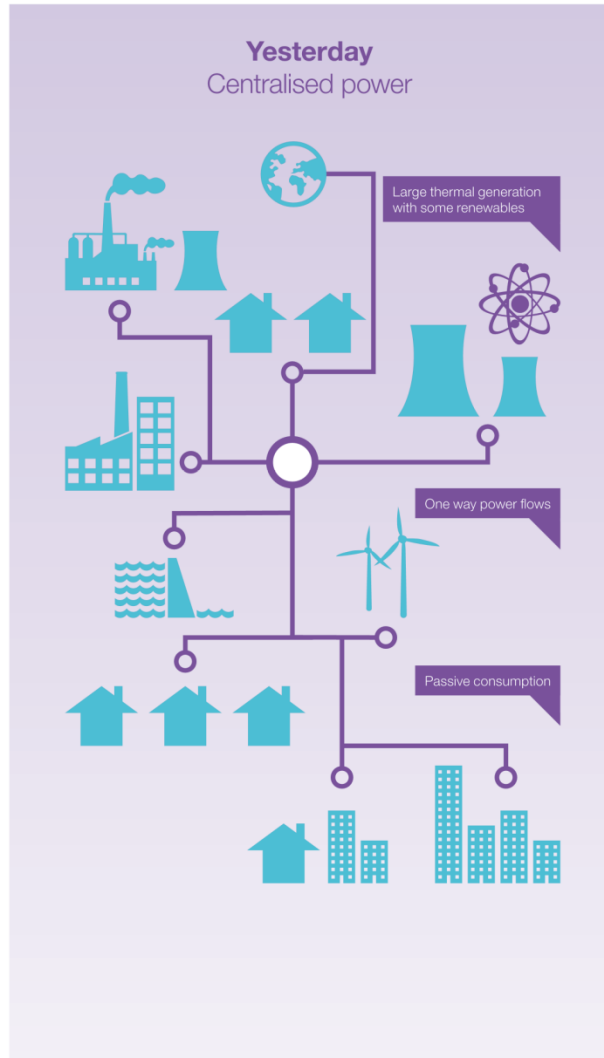
*(Municipally-Owned Energy Service Companies)

It is possible to meet 50% of final electricity demand using distributed generation by 2050, but new infrastructures and emerging technologies are key.

Electricity Generation by Technology



All projections of the UK's energy future rely on some level of international interconnection and a distributed energy future is no different.



The Thousand Flowers pathway relies on strong demand reduction and demand side participation and management

- Novel forms of user participation
- Pushing the boundaries of energy efficiency to 2050
- Energy system not an anonymous entity, but a critical infrastructure in which all actors play a role
- Successful initiatives equip the system with more flexibility
- Optimal use of the nation's wide renewable resources
- Resulting in large reduction in energy use, greater system resilience and better environmental performance



Moving Forward

Technological and infrastructural requirements

- Encouraging new and innovative financing
- Local and regional support and coordination
- Promote use of new and emerging generation technologies (and control)
- Local systems does not (necessarily) mean islanded systems
- Demand Side cannot be ignored