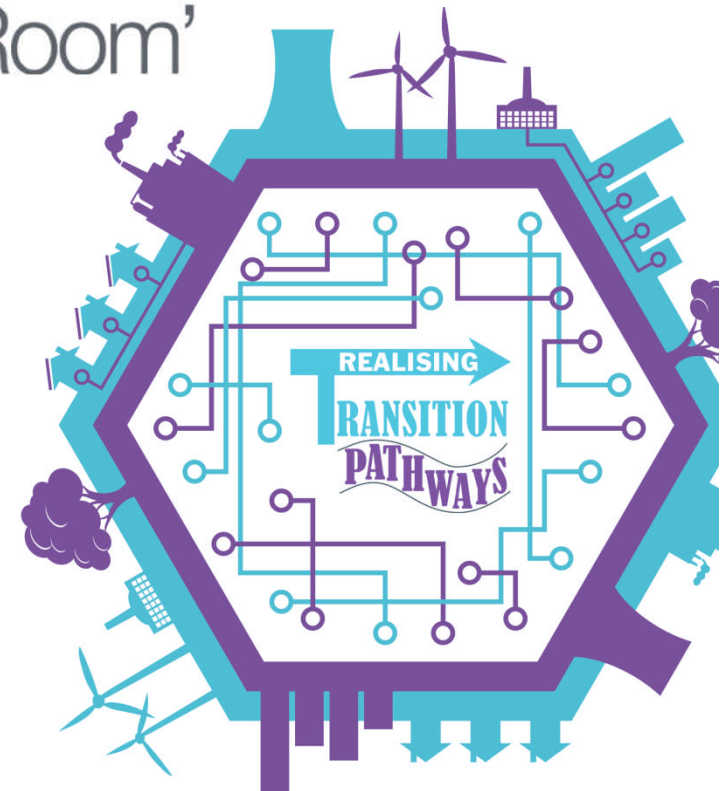


Distributing Power

A transition to a civic energy future

Report of the Realising Transition Pathways
Research Consortium 'Engine Room'





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:



Transition pathways

- 3 Alternative Pathways of Scenarios
- All reduce greenhouse gas emissions by 80% in 2050 compared to 1990

Market Rules: After the creation of a broad policy framework, the state allows competition and private companies to deliver sustainable, affordable energy.

Central Coordination: Central to this pathway is the role of the nation state in actively delivering the transition.

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

The Distributing Power report focuses on Thousand Flowers



The Thousand Flowers Pathway

- 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

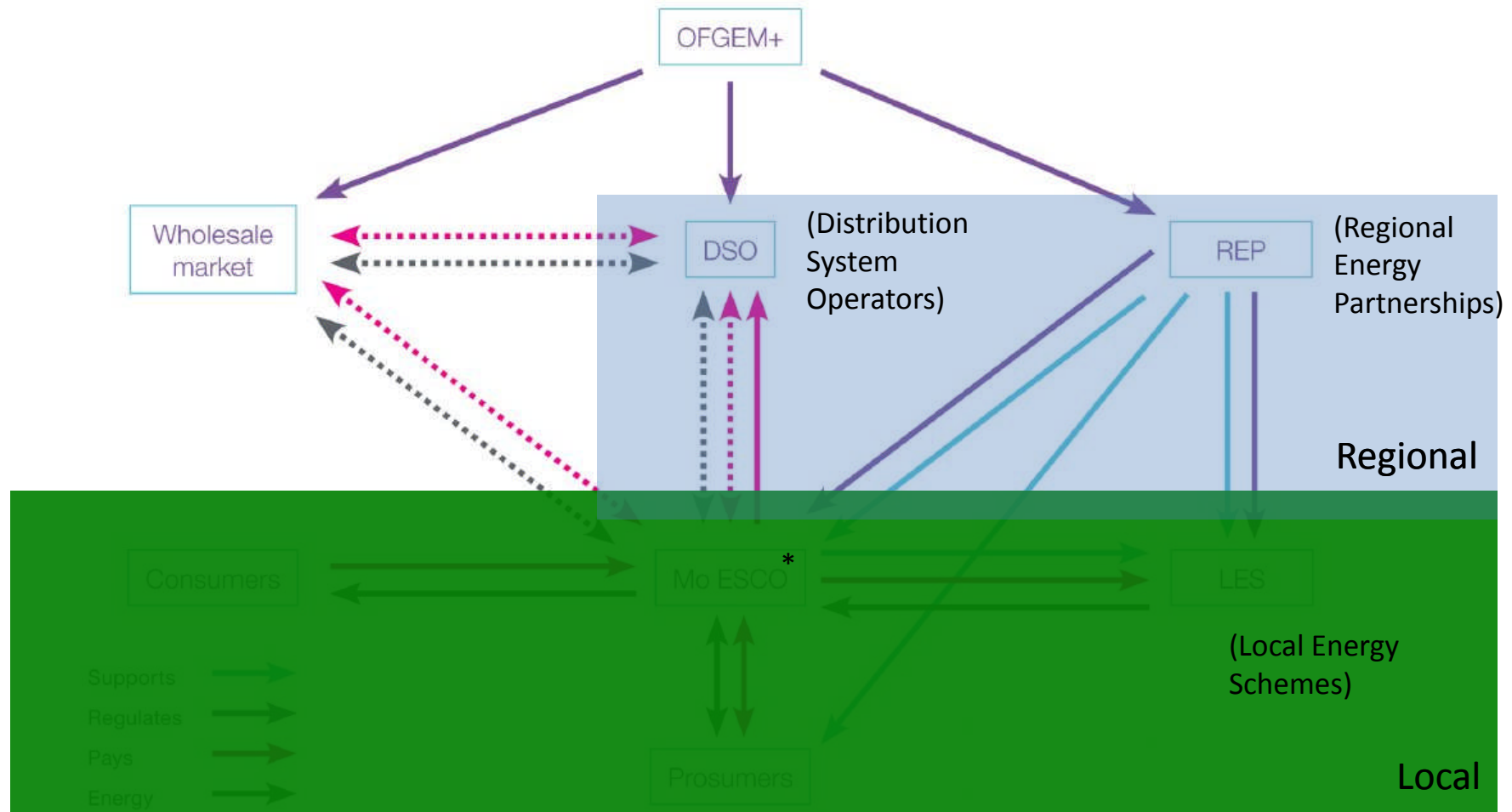
HEADLINE MESSAGES



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

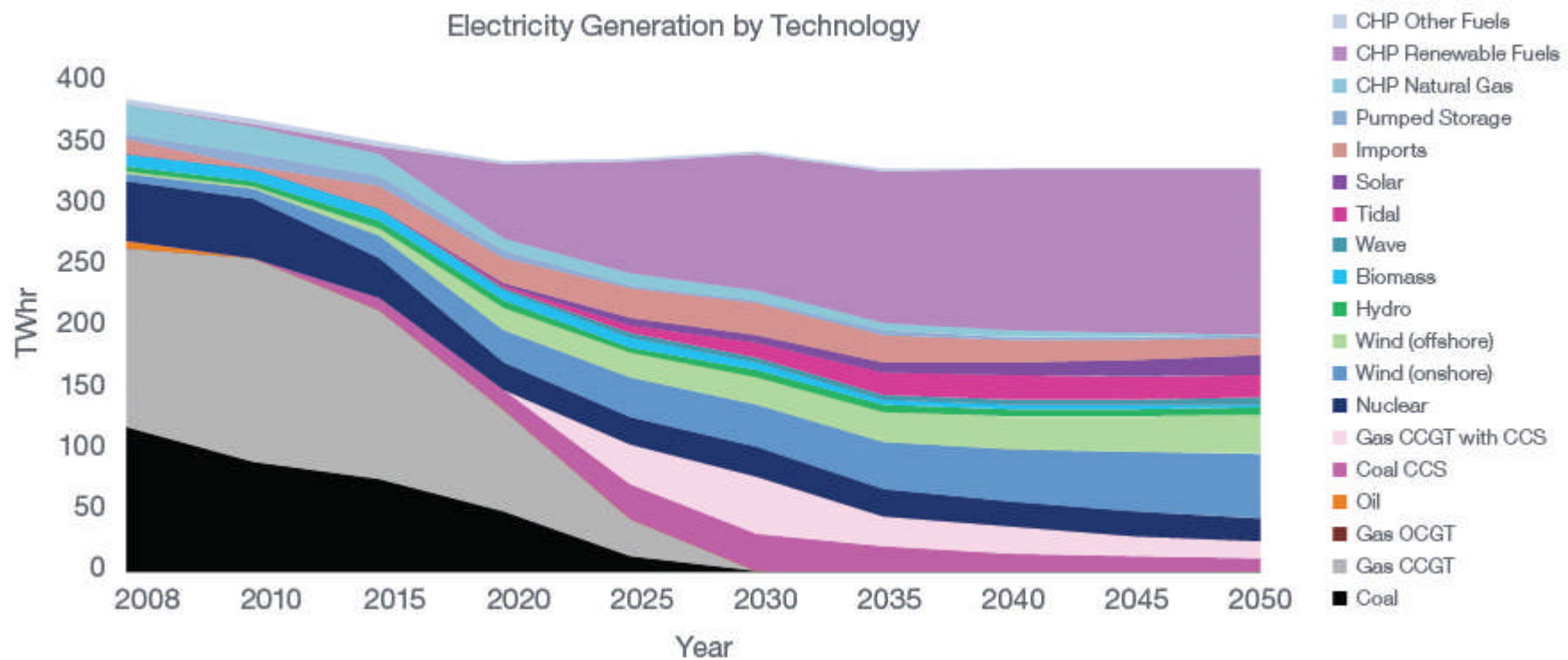
- A system based on many small- and medium-sized producers reduces dependence on very large scale finance and investment in centralised generation.
- This opens the energy system up to investment from citizens, municipalities, SME's, and other new forms of finance. This increases the types of capital 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.

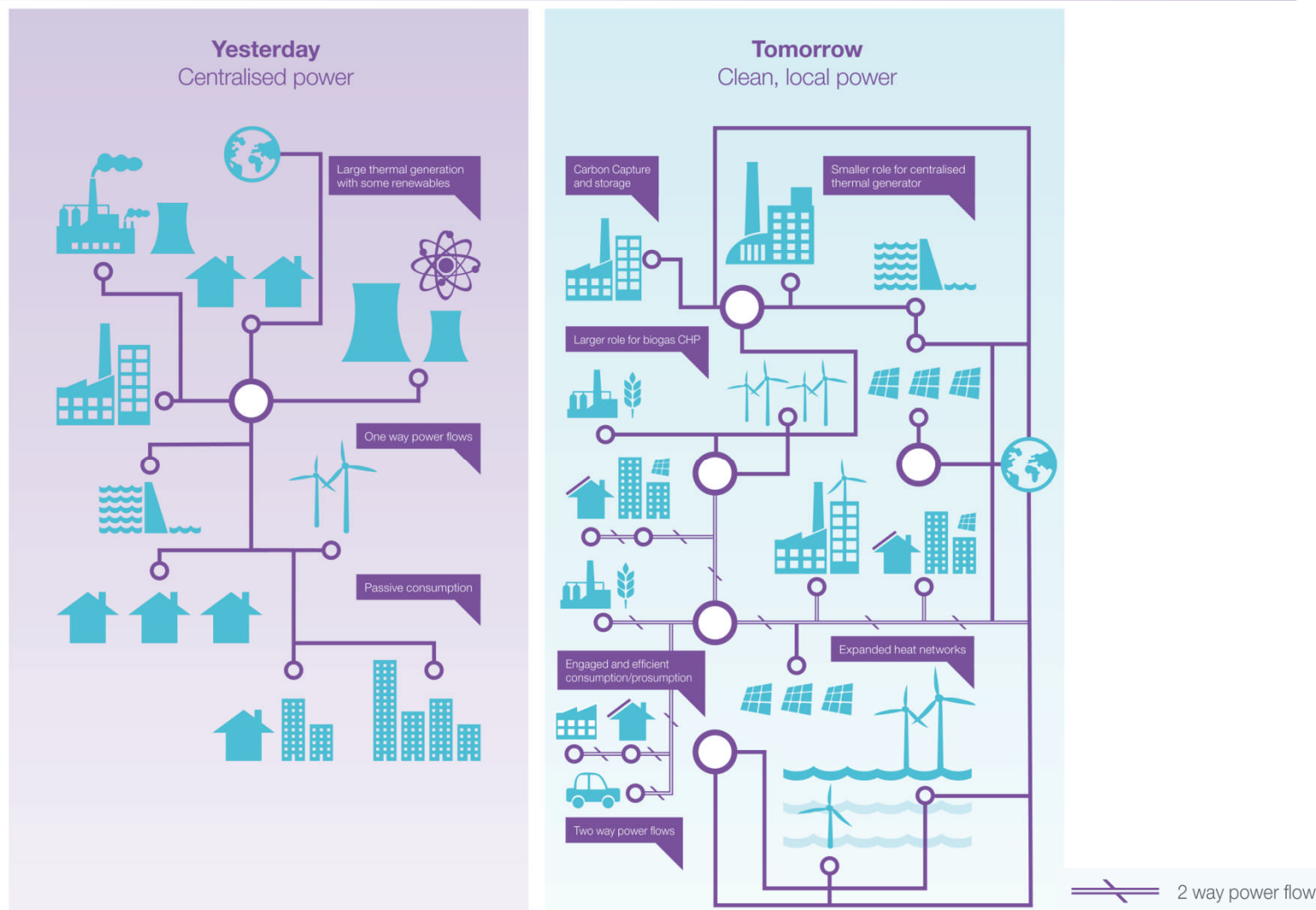


*(Municipally-Owned Energy Service Companies)

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



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



Impact

- Presented to Scottish Government
- Used by the International Energy Agency
- Presented at the Paris COP
- Led to further work with DECC and Ofgem on Local Supply
- Scientific paper submitted to Energy Policy
- Led to new partnerships and impacts for early career researchers

Conclusions

- Examined the potential for a distributed energy future for the UK
 - investigated the technological trajectory it could follow
 - proposed an institutional architecture compatible with its development.
- **Defined a new understanding** of the potential for participation in the energy transition by actors who, in the UK at least, have played only a passive or marginal role in energy system change.
- **Contributed to the policy, academic, and practitioner debates** in a descriptive rather than prescriptive manner