Smart Local Energy Systems (SLES)

Definition

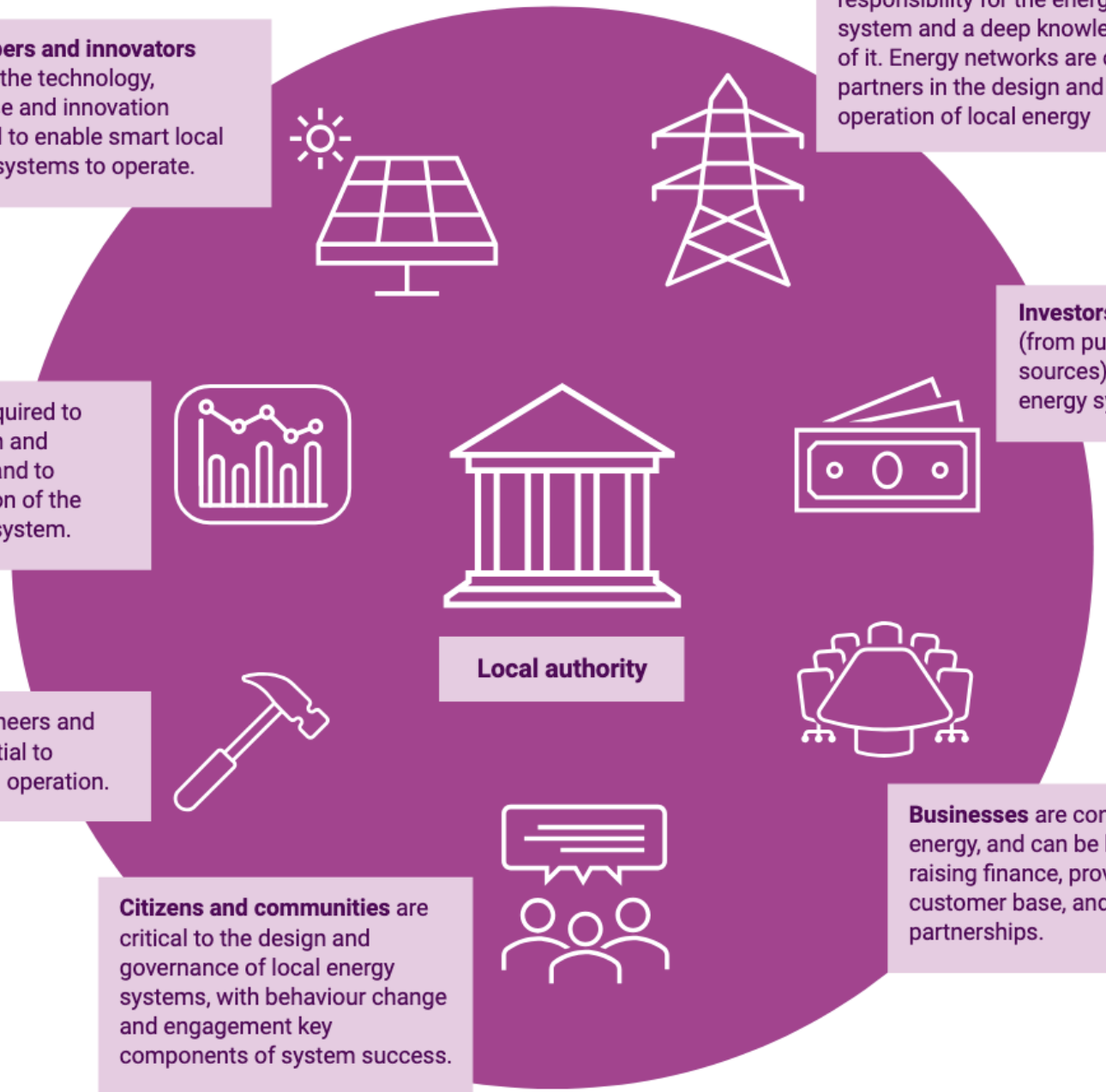
- **Smart**: information and communication technologies, automation and self-regulation, system dynamics, and smarter decision-making.
- **Local:** can be defined spatially, socially, or by the location of network infrastructure and generation resources
- **Energy:** multiple vectors, supply and demand, socio-technical, and institutional
- **Systems:** a [complex] group of interacting or inter-related **elements** that act according to a set of rules to form a unified whole

Another Definition - The Four D's

- **Decarbonise**: Deliver Net-Zero Targets
- **Decentralise**: Do it locally
- **Digitise:** Deliver a Smart System of Interconnected Things
- **Democratise:** Engage people in the decision making

What's the Goal?

- A smart local energy system brings together energy supply, storage, heat, transport and buildings in a local area and connects them in a smart way using data and digital technologies.



Developers and innovators provide the technology, expertise and innovation required to enable smart local energy systems to operate.

Energy networks have responsibility for the energy system and a deep knowledge of it. Energy networks are crucial partners in the design and operation of local energy

Investors can provide funding (from public and private sources) to make smart local energy systems a reality.

Data experts are required to manage information and design local plans, and to support the operation of the "smart" side of the system.

Tradespeople, engineers and installers are essential to system delivery and operation.

Citizens and communities are critical to the design and governance of local energy systems, with behaviour change and engagement key components of system success.

Businesses are consumers of energy, and can be key to raising finance, providing a customer base, and supporting partnerships.

Elements

- Technical
- Social
- Governance
- Economic
- Environmental

- Energy Efficient Homes
- Renewable Energy Generators
- Heat Networks
- Electric Vehicles
- Battery Storage
- The Internet of Things

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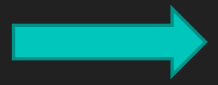

- Energy users
- Community Groups
- Fuel Poverty
- Public assets
- Development of Local Skills

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- Technical
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- National Government Policies
- Local Government Policies
- Citizen's Assemblies
- Local Area Plans
- Democratisation

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- Public Sector Funding
- Private Sector Funding
- Community Shares
- Local Employment

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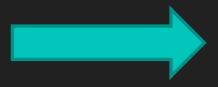

- Carbon Emissions Targets
- Clean air
- Warmer homes

National Savings

Analysis by the EnergyREV consortium shows that developing more integrated, place-based energy systems across the country could lead to savings of up to £1.7bn per year by 2040 compared to a one-size-fits all approach.

Recent work by PwC also shows that investment in net zero at the local level would require just £58bn in investment to unlock energy savings for consumers worth £108bn, versus £195bn investment for £58bn in savings from a purely national approach.

This value is typically created through:

- Reducing network reinforcement costs
- Targeting energy solutions locally
- Maximizing local generation and consumption
- Addressing fuel poverty
- Creating new business opportunities
- Retaining money in the local economy