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Housing, batteries and flexibility

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www.projectscene.uk



Project SCENe Community Energy Demonstrator

Aims to develop and investigate:

- Community resilience to changes in energy provision, particularly with regard to finances and infrastructure
- Means to reduce fuel poverty and increase energy security
- A future-proof community energy infrastructure with increased community and grid efficiencies utilising renewable energy systems
- Socioeconomic benefits to individuals and the community
- The formation of neighbourhood 'hubs/nodes/networks' to build community capital
- Behaviour change instigated by this bottom-up approach
- Business Model Templates that can be used by any developer or ESCO in the UK

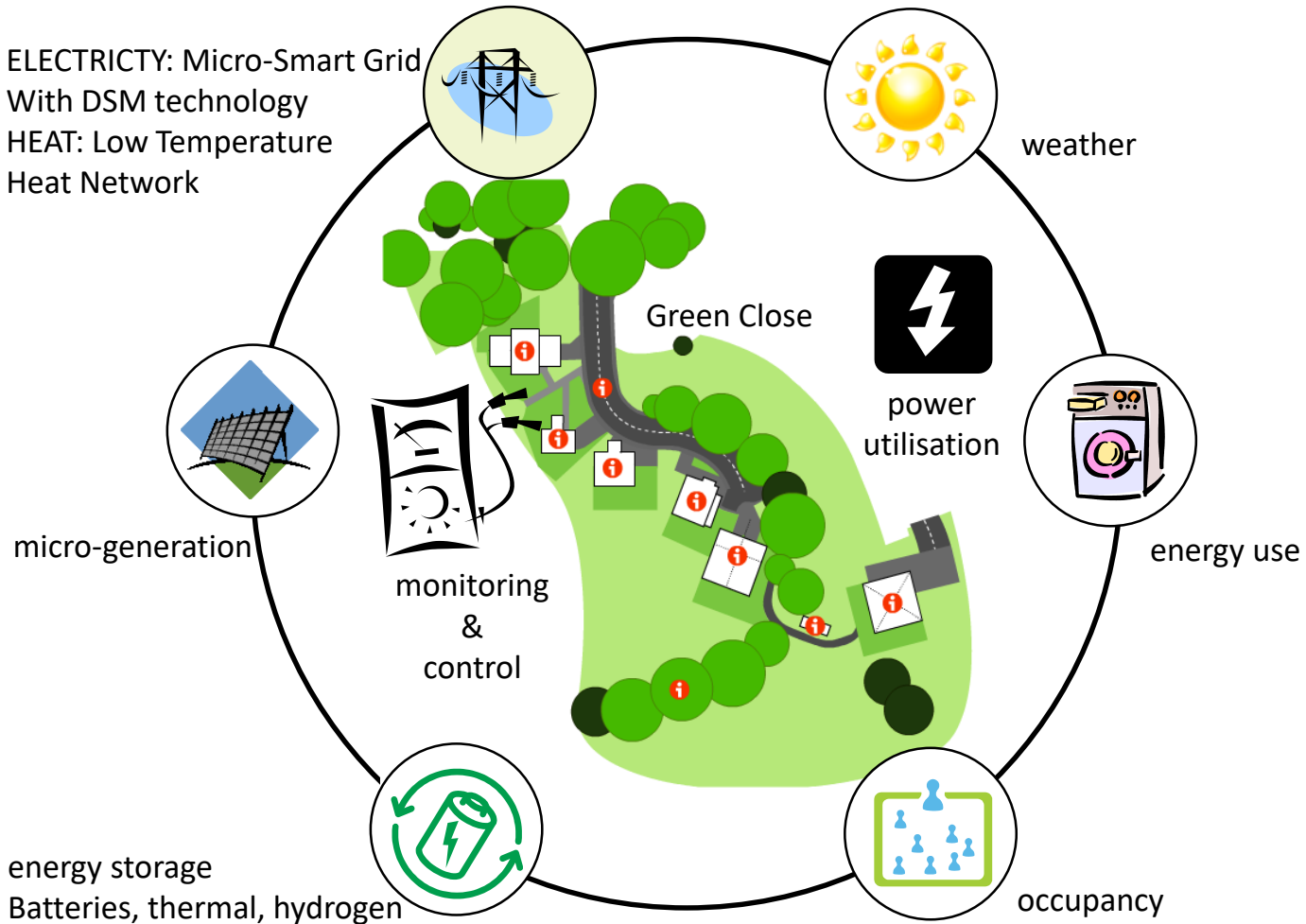
Creative Energy Homes: showcase of innovative energy efficient solutions for sustainable homes & communities



iSEC: intelligent Smart Energy Community



ELECTRICITY: Micro-Smart Grid
With DSM technology
HEAT: Low Temperature
Heat Network



Waterside Regeneration Area



Trent Basin Vision



- Low energy, contemporary housing
- Building a new community

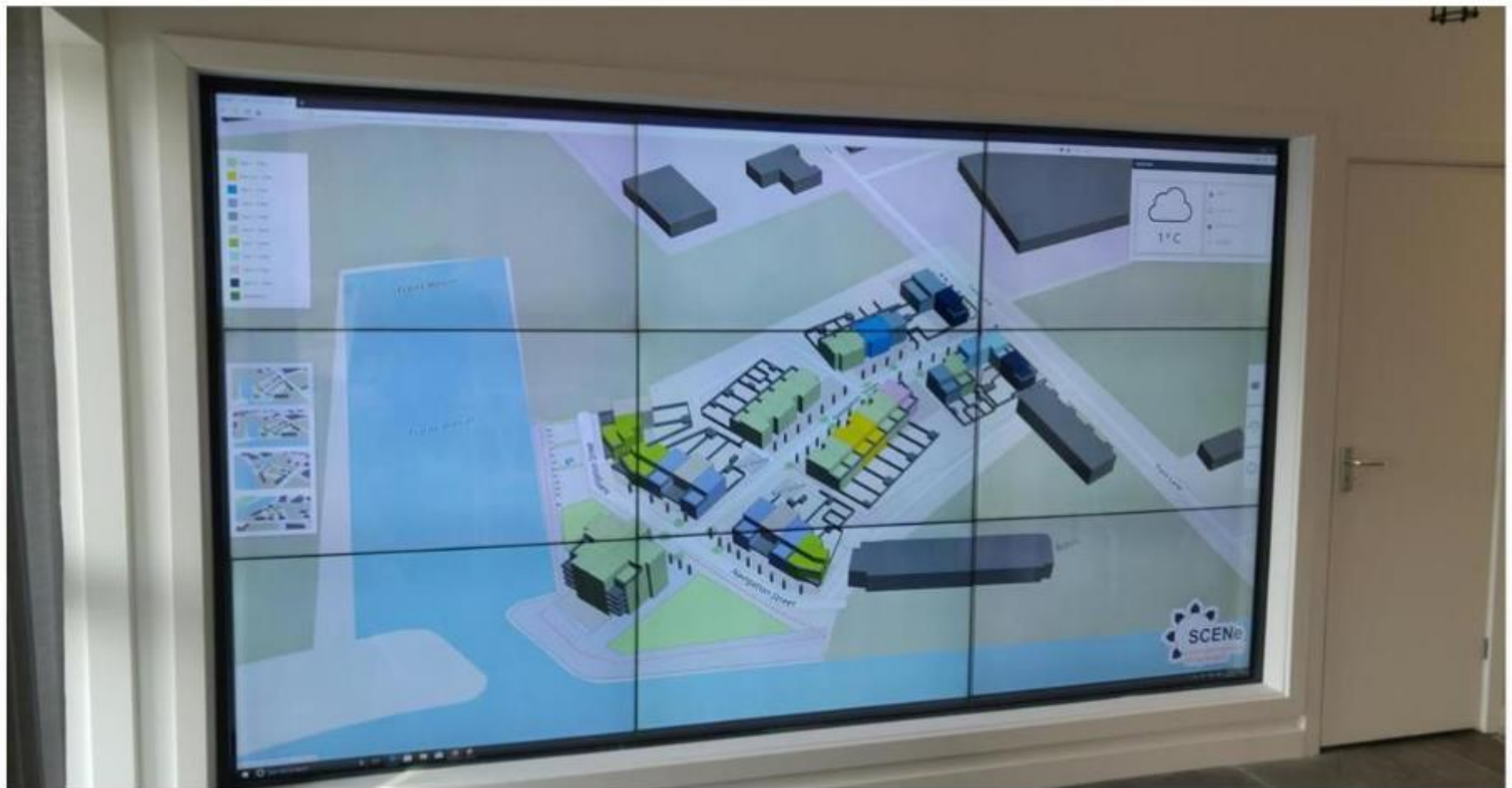




ERA Funded Energy Hubs – Generation, Storage & Use (*people*)

The Vision for the Trent Basin Community Energy Hub





3D Community Interaction Model



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200 KWp URBAN SOLAR FARM





Tesla 2.1MWh Battery - 500kW inverter

E N E R G Y



Low Voltage Distribution Panels



Enclosure - Security and Acoustic Fencing

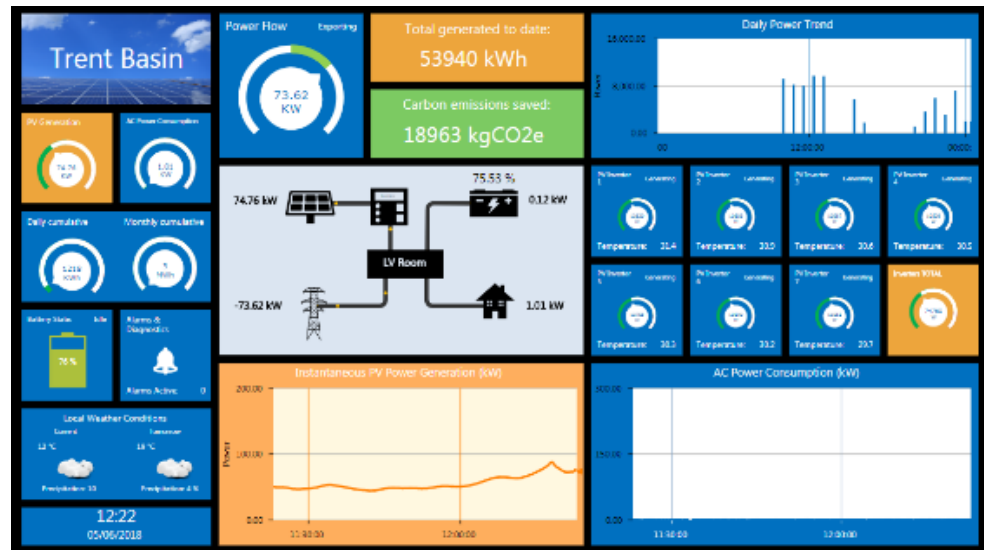
C E N T R E



Energy Centre Sub Station

Monitoring and Control

- Controls grid connectivity and energy flows
- Home to server for monitoring and control of community assets
- Aggregator interface for participation in grid services

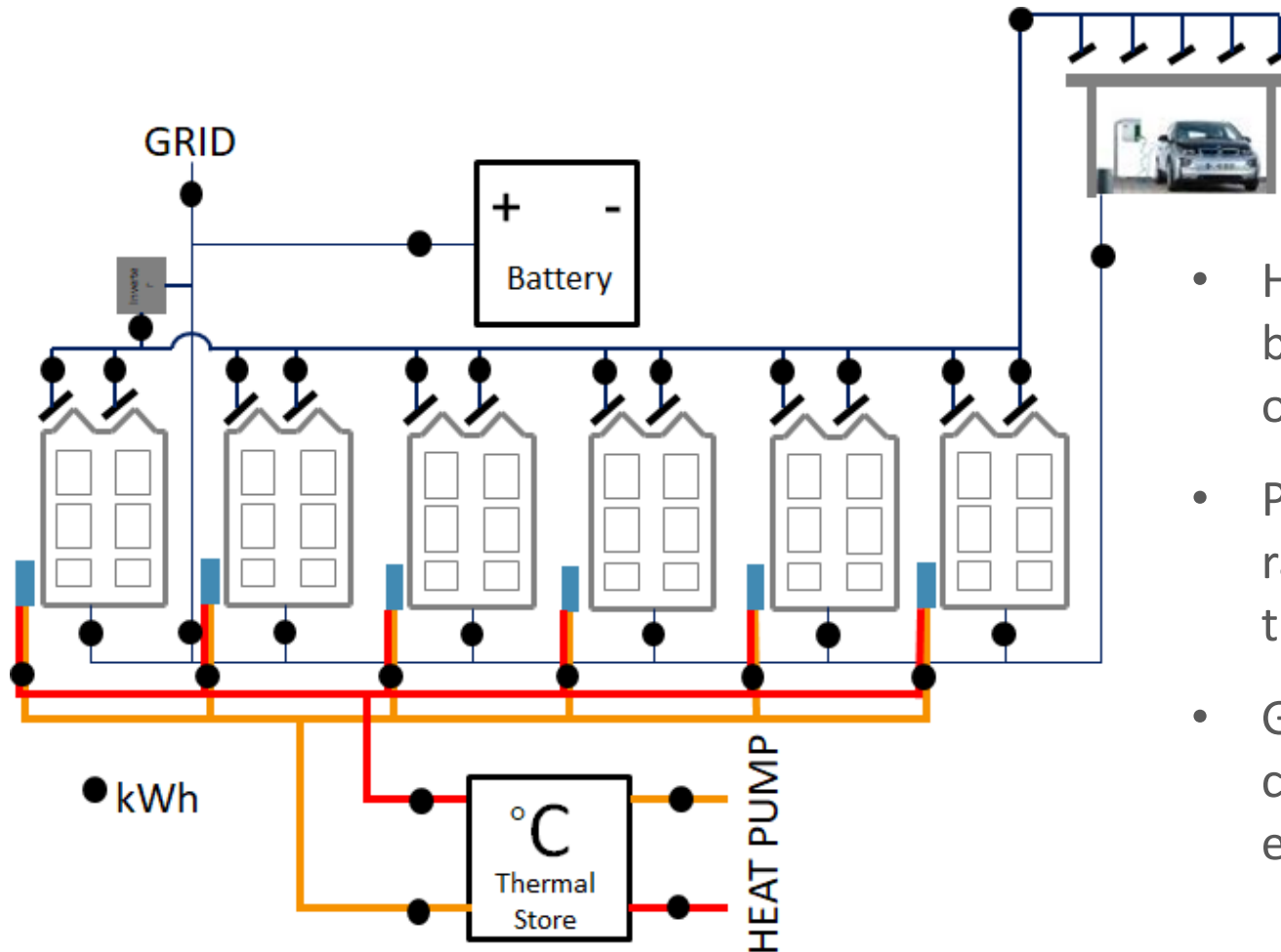


Grid services

- Solar generation is routed to the energy centre not directly consumed by the household
- This scale allows participation in grid services that generate revenue that is partially redistributed to the community
- Two schemes currently ongoing
 - Power Purchase Agreement (PPA); revenue from exported generation
 - Firm Frequency Response (FFR); revenue for contributing to help balance grid frequency



Heat network and EVs



- Heat network and EVs bring new arbitrage opportunities
- Power heat pumps rather than discharge the battery
- Generate revenue for charging when surplus energy

In-Home Monitoring

Temperatures

Relative Humidity

Carbon Dioxide

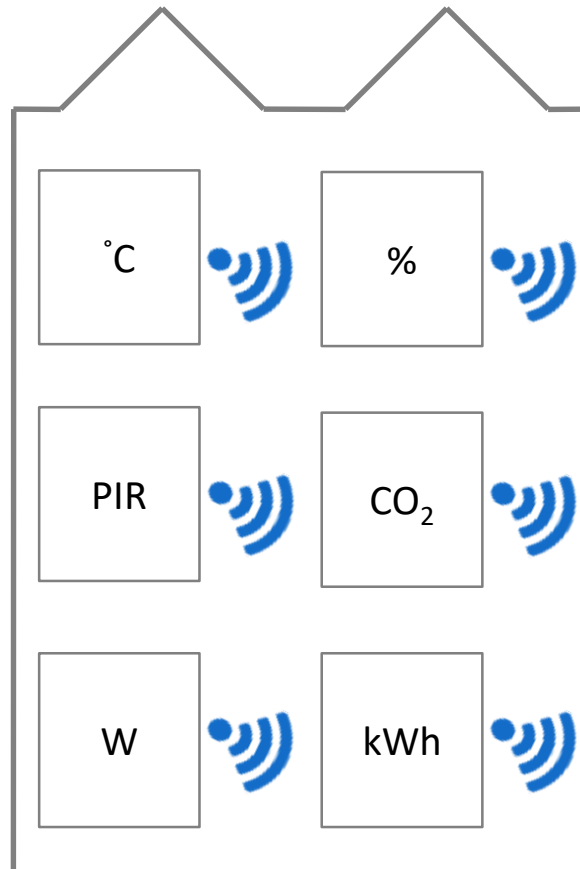
Occupancy

Power and Energy

- Total Electricity
- Circuits

Thermal Energy

- Hot Water
- Space Heating



Azure Cloud



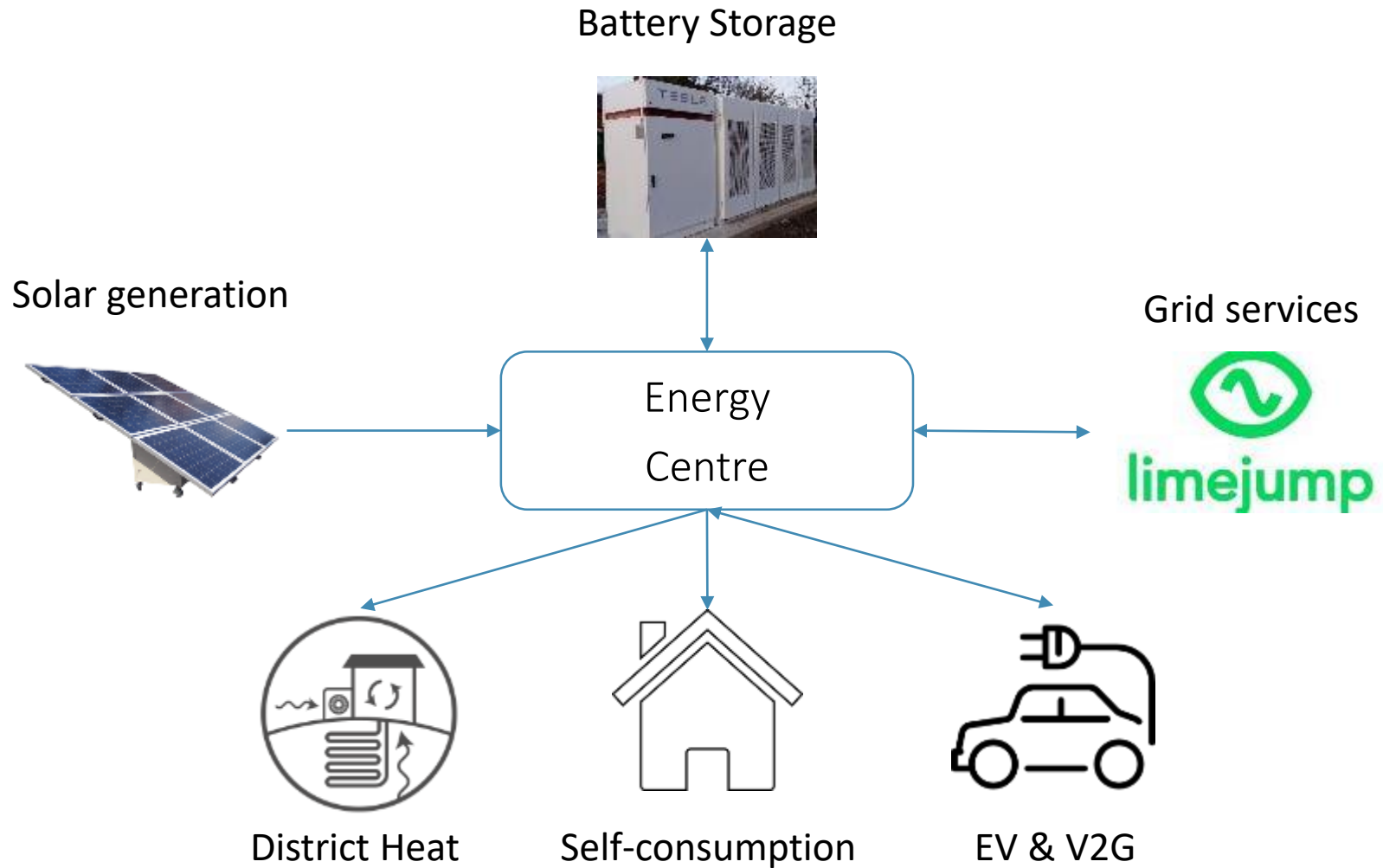
Broadband



Wi-Fi

SCENe Hub

The (Near) Future





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Thank You

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