

GreenSCIES prospectus

A soft market testing exercise for potential partners and investors in a smart energy system that integrates new low carbon energy technologies across heat, cooling and mobility.



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Introduction

Islington Council is leading the way in local green energy systems in a bid to become a net zero carbon London borough by 2030. We're taking bold, ambitious steps to realise our vision. Our Bunhill Heat and Power Network, for example, was the first in the world to take waste heat from the London Underground to provide lower-cost green energy to residents and businesses in the borough.

Tackling inequality, and particularly fuel poverty, is an

important commitment and the council has made the provision of affordable heat and energy a priority. GreenSCIES is an innovative solution to create a community-based smart energy system, taking advantage of local energy generation to create a scalable, low carbon energy grid for the near future.

Islington Council is conducting a soft market test consultation to assess what potential partners and investors would like to see in the GreenSCIES project.



Figure 1: Bunhill 2 Energy Centre

What is GreenSCIES?

GreenSCIES (Smart Community Integrated Energy Systems) is a consortium of 15 public and private organisations working together to deliver a detailed design for a smart energy system that integrates new low carbon energy technologies across heat, power and mobility.

Innovative technical and business model approaches will be developed to take advantage of local power generation and local waste heat, thereby significantly reducing carbon emissions and driving down the cost of heat for local users. The smart energy grid will also help reduce local air pollution.

It has a clear pathway for replication elsewhere in the UK.

It will be a community-based project with wide stakeholder engagement including local residents and businesses but also with policy makers and replicators. Currently, the project is in the detailed design phase of the network. It is focused on an area that could connect 33,000 residents and nearly 70 businesses.

How GreenSCIES works

The detailed design will provide an ultra-low temperature fifth generation heat network with distributed low carbon heat pumps to supply heating and cooling. The system will enable users to exchange heat between buildings, recovering low-grade waste heat from data centres and the London Underground.

Each decentralised energy centre will provide hubs for photovoltaic (PV) electricity generation, electric vehicles and vehicle-to-grid (V2G) charging/storage alongside large-scale batteries. The hubs can then be used for Demand Side Response to flex with electricity grid requirements/tariffs using a sophisticated artificial intelligence control system.

This will be the first large smart energy system in the UK that integrates energy technologies across heat, power and transport, allowing for wide-scale replication.

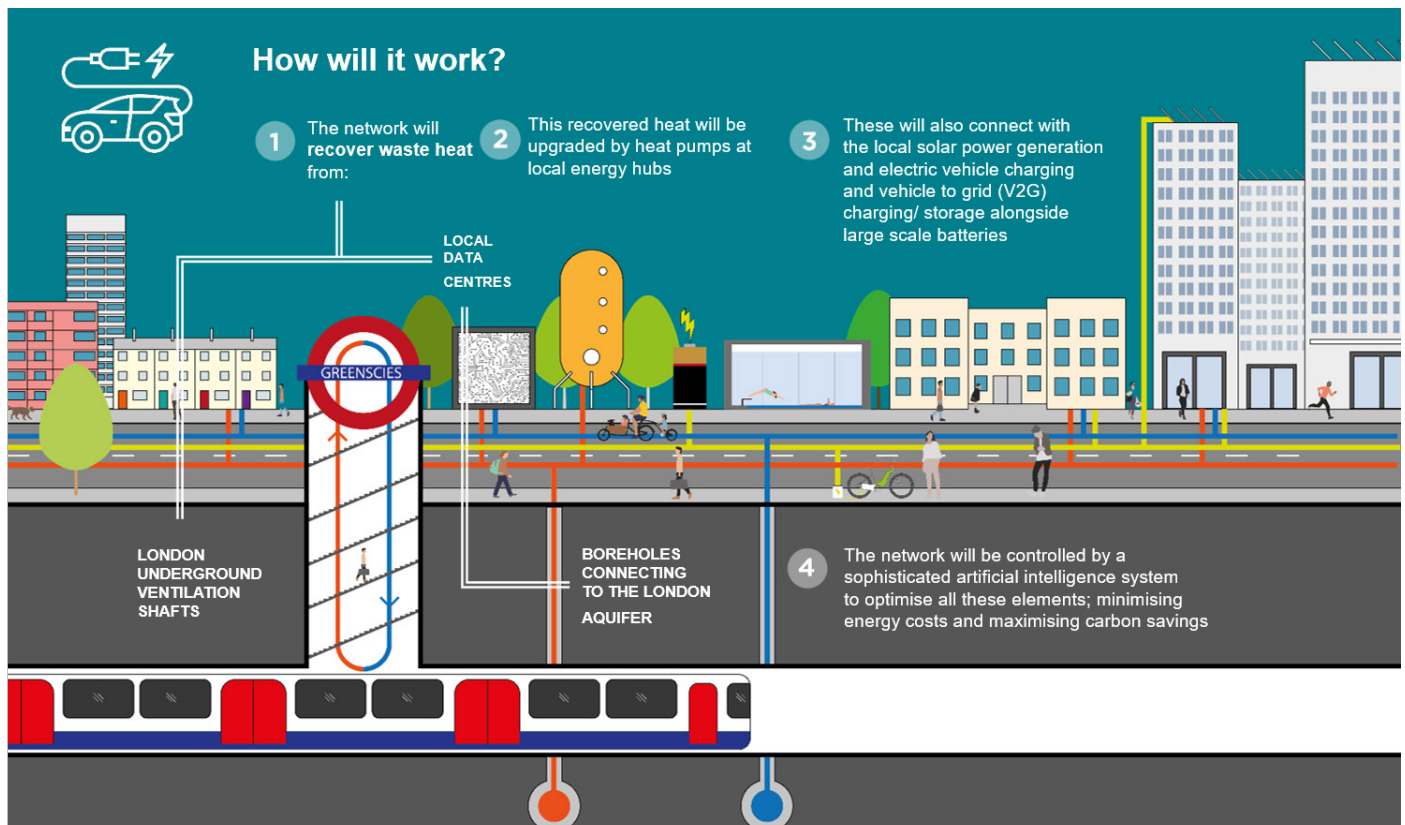


Figure 2: How GreenSCIES works

Why local energy systems?

Many countries are responding to global climate change by setting targets to cut carbon emissions by generating clean, renewable electricity from wind, wave and solar systems. This is already delivering major reductions in the electrical grid's carbon intensity in the UK.

Moving to a lower carbon energy system presents many opportunities to improve the way we heat and cool our homes and businesses, power appliances and industry, and fuel our vehicles.

Low carbon heating and cooling using heat pumps offers significant environmental benefits over conventional heating or cooling systems such as gas boilers or air-conditioners. They enable the sharing of heat between different applications or between buildings in a neighbourhood.

Sharing heat in this way provides an opportunity to deliver extremely efficient, ultra-low carbon, bivalent cooling and heating between buildings. Heat pumps also present the opportunity to utilise heat from secondary and renewable sources such as heat from the London Underground, which would otherwise be wasted.

Potential investment opportunities

GreenSCIES is an innovative, ground-breaking project that will provide an investable low carbon scheme unique in the UK.

The project is aimed to be replicable across different urban contexts, taking advantage of different types of waste or renewable heat such as industrial, mine water or ground heat.

GreenSCIES bridges the gap between different energy uses in a local area, maximising commercial opportunities for consumers of heat, cooling and energy for mobility (electric vehicles).

As an integrated system, GreenSCIES will tap into different markets with investment opportunities:

- Retail of heat and cooling:
 - Providing heat to housing and commercial buildings
 - Delivering cooling (removal of waste heat) to data centres and the London Underground network
- Electricity markets:
 - Demand Side Response
 - Decentralised power generation
 - Battery storage
- Electric vehicle charging points:
 - Private use charging points
 - Commercial vehicles (transport and HGVs)
 - Vehicle to Grid (V2G)

If your organisation is involved in any of these, we would like to hear from you through our soft market test questionnaire. You will find details at the end of this prospectus.

We are looking for institutional and private investors seeking long-term returns for energy-related infrastructure.

Other opportunities

We are also interested in hearing from industry stakeholders who have the knowledge and expertise to build the network. GreenSCIES will require the skills of a variety of contractors to create the initial infrastructure and ongoing maintenance. This could include (but is not limited to):

- Energy-related engineering and building solutions for low carbon heat and power generation
- Energy-related engineering and building solutions for power and heat storage
- Energy-related engineering and building solutions for heat networks
- Energy-related engineering and building solutions for energy transmission, distribution and power balancing services
- Renewable energy equipment and installation expertise

- Electric vehicle equipment and installation expertise
- IT and software companies with energy supply and demand solutions at all scales

If your organisation is involved in any of these, we would like to hear from you through our soft market test questionnaire.

For clarity, the council is not seeking and will not enter into discussions with or to procure 'delivery only' contractors at this stage. Expressions of Interest from such contractors will be noted and acknowledged but not acted upon.

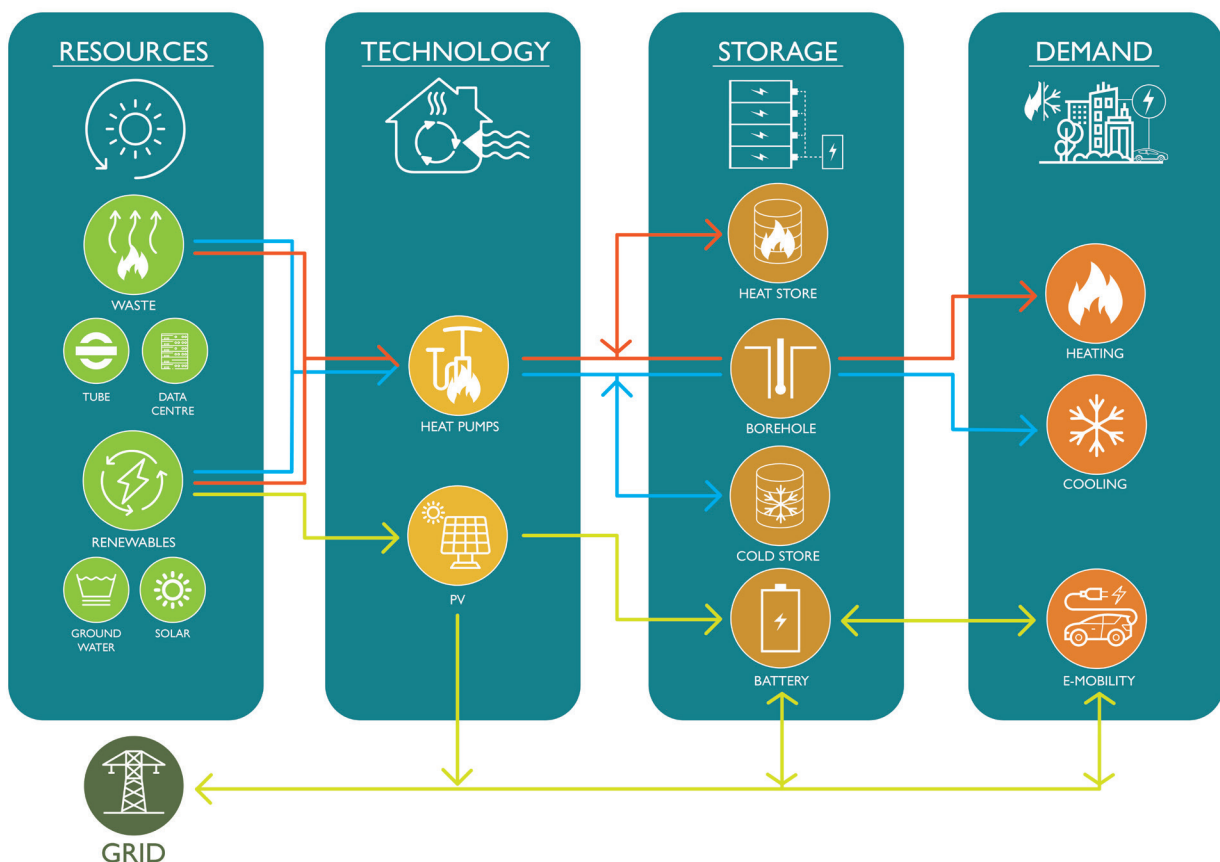


Figure 3: GreenSCIES components

How can I become involved?

We are carrying out a market consultation and review to match the technical and commercial requirements of the system to the interests of potential partners who wish to become involved.

If you would like to find out more, please visit the London Tenders Portal:

<https://procontract.due-north.com>

where you will need to register your company.

You will receive an email confirming your username and password once you've been accepted.

Use your username and password to log into the London Tenders Portal and express your interest in 2021-0036 Islington Smart Local Energy System (GreenSCIES) – market test.

Shortly after, you will receive a second email containing a link to access the questionnaire.

Additional details can also be found at:

www.greenscies.com

The deadline for responding to the questionnaire is 5pm on Friday, 12 February, 2021.

Contact details:

energyservices@islington.gov.uk