



# **LOW CARBON ENERGY FOR SOUTH LONDON**

Sutton Decentralised Energy Network

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Resilient energy networks are critical for energy security... integrated heat networks are being developed that can provide efficient reliable heat to whole communities.

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Ed Davey, Former Secretary of State for Energy and Climate Change, UK Energy Investment: Networks, January 2015

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Our ambition is to become a key supplier of low carbon heating in the South London area and prove that local authorities are leading the way on proactively seeking to address sustainability issues.

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Councillor Jayne McCoy,  
Chair, Housing, Economy and Business Committee,  
London Borough of Sutton

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# Foreword

Sutton has long been committed to environmental sustainability and reducing our carbon footprint. We are renowned for our green credentials demonstrated by our status as the UK's first One Planet borough.

We are now pushing the boundaries further by setting up the Sutton Decentralised Energy Network (SDEN) to provide low carbon energy across South London.

SDEN will use energy generated by our new Energy Recovery Facility to provide low carbon heating and hot water to homes and businesses in Sutton and neighbouring boroughs. It also has the potential to expand by harnessing energy from other businesses which is currently wasted.

Around 725 homes in the new Felnex development will be the first to benefit from our local energy network, and we are in discussions about how we can expand the network across the borough and beyond with the potential to serve 19,000 homes.

Our plans are backed by the Government and the Greater London Authority. The Department of Energy and Climate Change has also cited SDEN as a leading example of best practice.

This is a great opportunity to deliver energy that is truly sustainable: economically, environmentally and socially.

We want you to be a part of it and this prospectus outlines the vision and explains how you can get involved.



**Councillor Jayne McCoy**  
**Chair, Housing, Economy and Business Committee**  
**London Borough of Sutton**

# Executive summary

This Sutton Decentralised Energy Network (SDEN) prospectus sets out our plans for a low carbon heat network in Sutton.

Energy generated has potential to deliver low carbon energy to the equivalent of 19,000 homes. SDEN will not only deliver these environmental benefits but also has the potential to drive economic regeneration, by enabling developers and building owners to meet their planning and regulatory obligations in respect of sustainability, as well as reducing costs.

## SDEN will provide:

- 1 Low carbon heat, using energy from the Energy Recovery Facility in Beddington and delivering it to the north east of the borough. We want to expand the network more widely across Sutton and into neighbouring boroughs.
- 2 This heat will be delivered as hot water, which can be used to meet the heating and domestic hot water requirements of connected buildings.
- 3 Phase 1 will serve the Felnax development, providing approximately 3.3 GWh of heat and save 900 tonnes of CO<sub>2</sub> emissions per annum, with future phases expected to increase this to over 5,000 tonnes.
- 4 Heat charges will offer parity with the whole life cycle cost of alternative energy sources such as gas-fired boilers.
- 5 Any profits from the scheme will be reinvested to benefit the residents of the borough, such as measures to address fuel poverty.
- 6 Heat supplies will be completely resilient and available throughout the year, with top-up and backup boilers providing security during maintenance.



## Benefits to developers

- Reductions in construction costs
- Increased lettable floor area in developments due to reduced plant space
- Enables developers to meet planning regulations more easily and cheaply
- Reduced exposure to green/carbon taxes and levies
- Avoids ongoing heating plant maintenance, servicing and replacement
- Better resilience than conventional heat supplies
- Participation in a scheme that will deliver significant carbon savings to South London

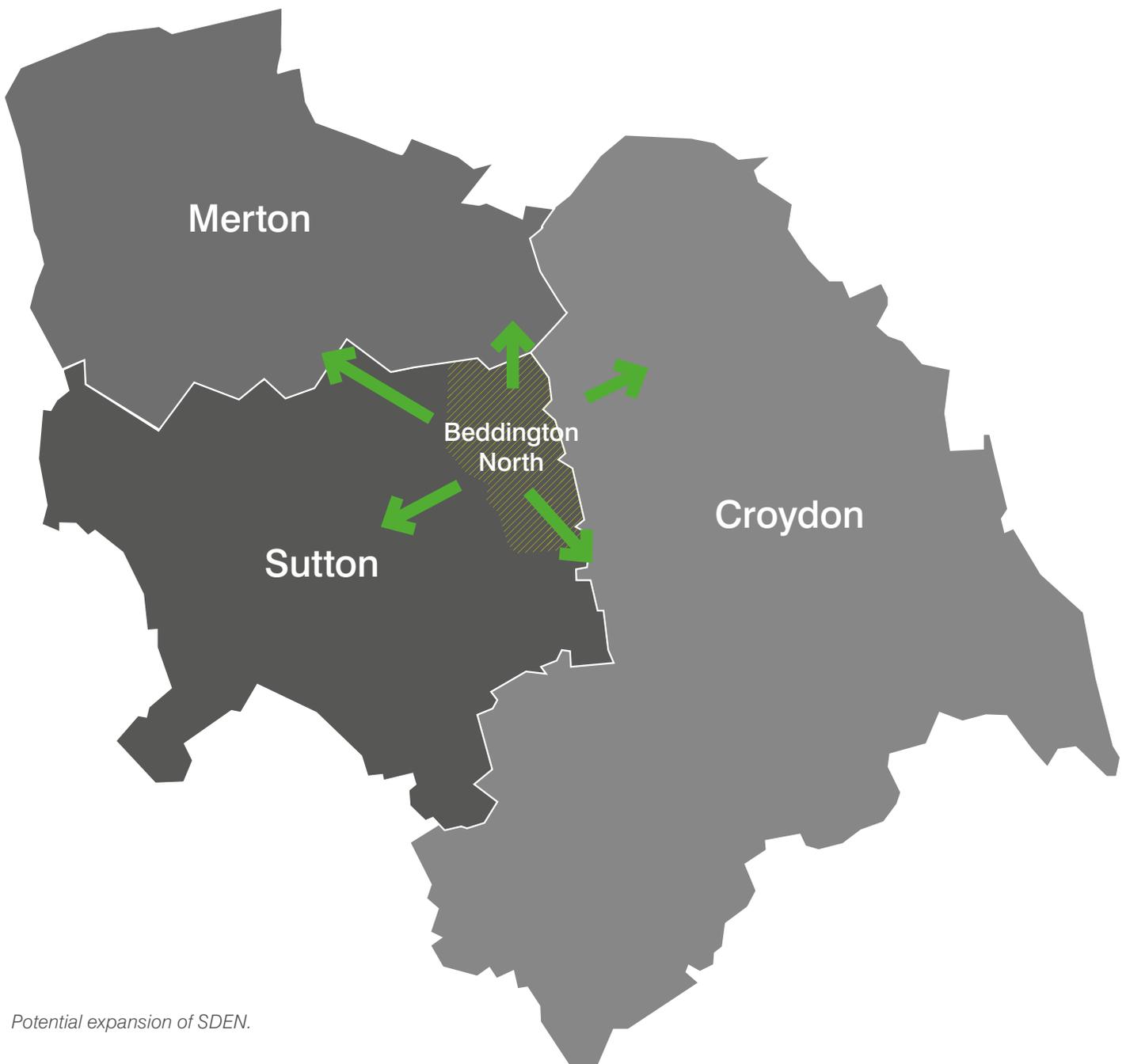
## Greener energy, greener businesses

The SDEN offers us the opportunity to harness other local heat sources produced by other businesses in the area.

Combined with the Energy Recovery Facility in Beddington, the SDEN offers the potential for developments in Sutton and neighbouring boroughs to benefit from low carbon energy.

This will help those businesses to reduce their carbon footprint, support Sutton to lower carbon emissions and help to expand the network further.

We are exploring connections to existing sites, including St Helier Hospital and Carshalton College, as well as residential developments. Neighbouring boroughs of Merton and Croydon are also working with us to expand the network across South London.



*Potential expansion of SDEN.*

# Our vision

Our ambition is to utilise local sources of heat to become a key supplier of low carbon heating in South London.

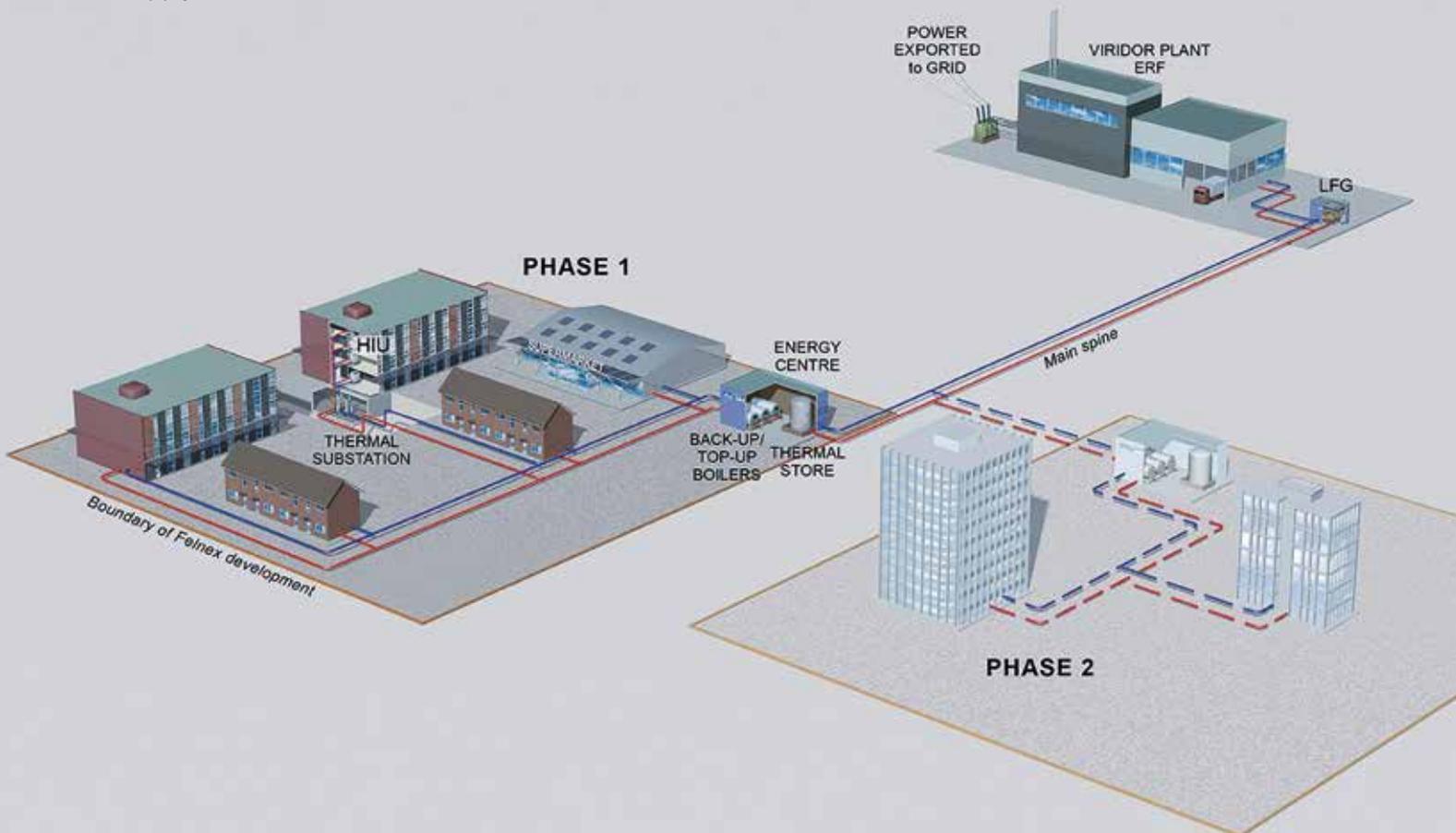
We are pleased to introduce SDEN, a truly ground-breaking initiative that will ultimately deliver low carbon supplies of hot water for heating and domestic hot water uses across South London. SDEN will significantly reduce fossil fuel use, contributing towards our goal of becoming a zero carbon borough by 2025.

## Think big, start small

We are already working on Phase 1 of our network which will supply heat to around 725 homes and a supermarket at the new Felnax development. It will supply 3.3 GWh of heat.

Next we will look to expand the network across South London. We have the potential to provide enough energy to meet a heat demand equivalent to 19,000 homes.

**We want to work with you to tap into this sustainable, low carbon supply.**



## Highly insulated pipes to efficiently transport the heat

**Steel carrier pipe** which carries the low carbon hot water to consumers

**Alarm wires** which will immediately detect any faults on the network

**Polyurethane foam insulation** to ensure heat losses are kept to a minimum

**Polyethylene outer casing** to prevent stones and other materials from damaging the insulation and ensuring ground water is kept away from the pipes which could cause corrosion

# How will it work?

The Sutton Decentralised Energy Network will provide low carbon heating and domestic water to homes and businesses.

We will be laying a network of highly insulated steel pipes to deliver the hot water to our customers. This system will ensure that there will be minimal energy losses in our network and the pipes will be buried in the ground at a depth of approximately one metre. These pipes will have a lifespan of over 50 years.

The hot water being delivered across our network is very similar to that found in any conventional heating system. The amount of heat energy taken from our network is controlled by users – exactly the same as a heating or hot water system fed from a boiler located in a building.

Inside the property, the method used to deliver heating can remain the same, e.g. radiators or under floor heating, and we will work with users to ensure that these are controlled to maximise the efficiency of our system.

When the low carbon sources of heat are occasionally offline for maintenance, supplies of hot water will be maintained from our backup and top-up boilers. We will also be installing thermal stores around the network to ensure that we can use as much of the low carbon heat as possible when these sources are offline.

# When will it be delivered?

Homes on the Felnax Estate could be using SDEN in 2018.

We are already underway to deliver Phase 1 of our network. Specialist contractors are being procured to build and operate the network and back-up boilers for us.

In 2017 we will begin construction so a network of heat supplies will be ready by 2018.

We want future phases to follow rapidly by working alongside developers in South London.







# The benefits

A sustainable way of heating homes and businesses at no greater cost than a conventional boiler.

- 1 Very low carbon content** – our energy supplies will reduce carbon emissions by over 5,000 tonnes per year, that's the equivalent of 8,000 lorry journeys from London to Glasgow.
- 2 Resilient supplies** – we will provide a constant supply of hot water. Customers will not need to worry about their boilers breaking down.
- 3 Price parity** – we will set our prices by benchmarking them against the cost which would be paid using natural gas boilers on a whole life cycle cost basis.
- 4 No green premium** – our extremely green supplies come at no additional cost which is sometimes charged for low carbon energy.
- 5 Social benefits** – any profits will be reinvested into our communities including helping to tackle fuel poverty.
- 6 Employment** – building and operating the network will create 20 new jobs with many more employment opportunities as the network grows.
- 7 Integrating other heat sources** – we have the opportunity to harness sources of heat from other businesses in the borough.
- 8 Government and GLA support** – both the Department of Energy and Climate Change and the Greater London Authority back our Decentralised Energy Network.

# Conclusion

The Sutton Decentralised Energy Network is a unique opportunity to harness local sources of heat.

The majority of other decentralised energy networks across the UK use fossil fuels in high efficiency energy generation plants to generate heat.

We are different because we are using local sources of low carbon heat so we are truly sustainable: environmentally, socially and economically.

The network also supports Sutton's 'One Planet' strategy to create a sustainable low carbon economy.

We want you to join us in building a sustainable South London that benefits families and the environment for decades to come.

**Please join us**

Call us on  
**020 8770 5000**

or email  
**[opportunitiesutton@sutton.gov.uk](mailto:opportunitiesutton@sutton.gov.uk)**



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Not only is this project good for the environment by reducing our reliance on fossil fuels, it is also good for our residents as the income generated will be reinvested into local services.

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Councillor Ruth Dombey,  
Leader, London Borough of Sutton

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# Opportunity Sutton

The SDEN is one of a number of exciting initiatives run by Sutton Council's economic development arm, Opportunity Sutton. Others include:

- **Life Science Cluster** – the establishment of the world's second largest life science campus - the London Cancer Hub – specialising in cancer research, diagnosis, treatment and biotech commercialisation.
- **Tramlink** – the extension of the South London Tramlink network from Wimbledon to Sutton town centre and to the London Cancer Hub in Belmont.
- **Area Renewal** – promoting place-based investment to deliver growth and regeneration, currently targeted at Hackbridge and Beddington.
- **Open for Business** – establishing Sutton as an enterprising and enabling borough by attracting and strengthening local businesses.
- **Strengthening Town and District Centres** – increasing the resilience of Sutton's high streets by embracing change and meeting consumer needs.
- **Matching Skills with Demand** – ensuring Sutton residents have the skills required to meet the needs of businesses and potential future growth sectors.

**In 2013, Sutton Council also established its own local authority trading company, Opportunity Sutton Ltd, which operates through its two subsidiaries:**

- **SDEN Ltd** – the council's energy services company delivering supplies of low carbon heating.
- **Sutton Living Ltd** – the council's property development company that develops housing of all tenures.

**For more information on these projects please email [opportunitiesutton@sutton.gov.uk](mailto:opportunitiesutton@sutton.gov.uk)**





