

# Energy Strategy

for Stoke-on-Trent and Staffordshire LEP

Energy Strategy executive summary



# Executive summary

Stoke-on-Trent and Staffordshire Local Enterprise Partnership (LEP) has recognised that **future energy provision**, both the supply and demand is a key part of unlocking **future growth potential**.

The current energy infrastructure will come under increasing strain as the area develops; this presents a threat to future business and housing development but also an opportunity to invest in innovation that can overcome these challenges, providing a unique selling point for investment in the local energy supply chain.

Stoke-on-Trent and Staffordshire are at the forefront of efforts to increase renewable energy supply and increase decentralised energy provision. This was demonstrated with the Powerhouse Central Stoke-on-Trent and Staffordshire City Deal, agreed in 2014. This provided almost £20 million of capital funding to help deliver the UK's first at-scale low-carbon heat network within Stoke-on-Trent. Local partners have also delivered a £140 million Energy from Waste Plant at Four Ashes in South Staffordshire, supported through the City Deal. This investment in energy infrastructure in the city has also created additional opportunities to accelerate local energy infrastructure improvements and use energy innovation and generation to power economic growth, address economic and health inequality and transform the city's labour market in the longer term.

There are a number of innovative projects of national importance within the county from the Stoke-on-Trent heat network fed by deep geothermal energy, to the Smart Energy Network Demonstrator (SEND) project at Keele University.

The overall vision for Stoke-on-Trent and Staffordshire within the Local Enterprise Partnership's Strategic

Economic Plan is to achieve an economy growth of 50% and generate 50,000 jobs over the 10 years from 2017. Energy has been identified as a priority area here due to the physical, locational and research assets, particularly in the energy sector and supply chain. The strong presence of energy generation companies highlights the possibility to expand the sector even further. There is an opportunity to build on the presence of established and growing companies such as Alstom, ABB, JCB, General Electric, Goodwin International Engineering, Siemens Wind Power and the sustainable energy programme centred around the City Deal.

Stoke-on-Trent and Staffordshire LEP have developed an energy vision to describe the future state of the local energy system in 2030 and put an action plan in place to achieve this.

## Summary

Stoke-on-Trent and Staffordshire are uniquely placed to capture the opportunities of a rapidly changing energy system. From landmark smart energy projects through to comprehensive infrastructure investments, the region is poised to be at the forefront of the energy revolution. The LEP must continue to support and encourage the innovative and multi-vector solutions arising from the demonstrator models being developed to help to scale the solutions, upskilling the local workforce and growing the low carbon economy.

## Energy Vision

### 2030 Vision Statement

Stoke-on-Trent and Staffordshire is a **leader in smart energy** and the development of smart cities. The county is a leader in community energy generation and has a secure, distributed energy generation and supply system based on low carbon and renewable participation backed by strong digital infrastructure, delivering reliable and **low-cost energy** to businesses and communities.

## Smart

Integrate the UK's **first** fully integrated smart city network, building on expertise from SEND



## Heat



Build on the success of the Stoke-on-Trent city centre heat network and further district heat in Staffordshire

≤10%



Fuel poverty reduced below **10%**

## Generate



**Increase** low carbon and renewable energy generation proportion of Staffordshire energy consumption

57%



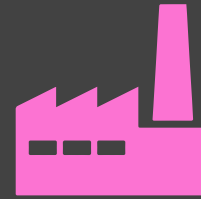
Carbon emissions reduced in line with UK targets, a **57%** reduction on 1990 levels

To achieve the goals of the strategy, four separate sectors have been considered, which each have their own challenges and opportunities:



### Residential

- Energy efficiency
- Addressing fuel poverty
- New build energy consumption
- Increased renewable energy generation



### Commercial and Industrial

- Smart energy sector
- Ceramic sector decarbonisation
- Improved energy efficiency
  - Heat networks
- Renewable energy generation



### Transport

- Sustainable transport use
- Low carbon transport infrastructure
- Improving air quality



### Public sector

- Improved energy and resource efficiency
  - Community energy
- Renewable energy generation
  - Knowledge and skills
- Planning and development

## Flagship projects

### Smart Energy Network Demonstrator (SEND)

Based on Keele University's privately owned and operated utility networks (power, gas, heat, telecoms, water and wastewater), the University is developing Europe's first 'at scale' multi-energy vector Smart Energy Network Demonstrator – a living laboratory where new low-carbon technologies and interventions can be researched, developed and tested in a real-world environment.

**This is a landmark project for Staffordshire, representing the largest such demonstrator in Northern Europe.**

The University is working with businesses, graduates and academics to research and develop a wide range of smart energy innovations, from cross-vector technologies and updated approaches to demand side management, through to behavioural interventions, new approaches to low-carbon generation and storage, and revised contexts for regulatory or business models. It will engage with an anticipated 270 businesses.

### Staffordshire Business Environment Network (sben)

Staffordshire Business & Environment Network (sben) was launched in 1992, providing a membership organisation, entitling members to subsidised and free initiatives from within the sben portfolio.

**sben** is managed by its Organisers Group made up of members of the network and lead by a Chairperson and Management committee and is supported by Staffordshire County. **sben** offers business support through the Low Carbon Business Evolution Programme (LCBEP) which helps businesses across Stoke on Trent and Staffordshire reduce their carbon footprint and increase energy efficiency, supported by European funding.

Eligible businesses (SMEs) can receive a free specialist low carbon review around either energy efficiency or Environmental Management System (EMS) Gap Analysis. It also offers a Low Carbon Enterprise Grant of between £2,000 – £20,000 for up to 60% of eligible costs.

### Stoke-on-Trent City Heat Network

The Stoke-on-Trent District Heat Network is the UK's first ever low-carbon heat network system on this scale, and will help heat thousands of homes and businesses in the city.

The planned heat source is geothermal and will tap into water that is almost 3km underground but has a high temperature to produce up to 45 GWh a year, save 10,000 tonnes of CO<sub>2</sub> a year, and lower energy costs by up to 10 per cent. The geothermal plant will transfer this heat to a closed loop of district network pipes which then provide heating across areas of the city. The city council will be an initial customer, with a range of other public and private sector customers subsequently due to come on board. It is expected that over 18km of piping will have been laid by 2021 in the city.

**£500 Million investment is being leveraged through this project in the next 6-7 years in district heating, smart energy systems, and further energy generation opportunities.**

This will lead ultimately to affordable and clean energy for the city, benefiting the local economy in many ways – employment, new housing, increased local skills and greater incoming investment.

## Governance and implementation

To facilitate delivery of the strategy there are a number of initial and ongoing actions necessary which are set out below.

Action	Timescale	Owner
Adopt LEP Energy Strategy	December 2018	LEP Board
Establish ongoing steering group for monitoring of strategy implementation	2019	SSLEP
Reflect energy strategy into development of Local Industrial Strategy	2019-20	SSLEP
Produce dashboard for ongoing strategy monitoring of key indicators	2019	SSLEP
Monitor progress against targets using dashboard for LEP Board	Ongoing	SSLEP



Our team of multi-disciplinary consultants provides project engineering services to ensure our customers get the results they expect from their energy projects.

We use our unique experience to scope opportunities in changing energy markets, provide engineering detail to high level plans which are realistic and practicable and can then project manage and provide quality assurance throughout the project life cycle to ensure successful delivery.

Prepared by Encraft

[www.egnida.co.uk](http://www.egnida.co.uk)

