



# Birmingham District Energy

**Birmingham's District Energy Scheme was conceived in 2003, and the first 25 year energy supply agreement with Birmingham District Energy Company was signed in 2006.**

The Birmingham District Energy Scheme is playing a pivotal role in Birmingham City Council's climate change strategy, which aims to reduce CO2 emissions by 60% by 2027.

The scheme is a working partnership between EQUANS and Birmingham City Council and includes three district energy networks, all built and operated by EQUANS, under the name of Birmingham District Energy Company (BDEC).

The overall network comprises three schemes, Broad Street, a Tri-generation (heat, power and cooling) led system, and two Eastside Schemes, Aston and Birmingham Children's Hospital, both CHP led systems (heat and power). Customers include the International Convention Centre, Barclaycard Arena, Library of Birmingham, residential and educational buildings on Aston campus and council housing. The scheme makes extensive use of highly efficient largescale combined heat and power (CHP) technologies, and uses conventional boilers for 'top up', standby and increased resilience.

BDEC's three core schemes initially involved the supply of energy to ten prestigious users from both the public and private sectors. However, due to the scheme's significant delivery of financial and carbon savings to its consumers, it has rapidly expanded to supply several third party private developments.

The first phase (the Broad Street scheme) encompassed a range of buildings in the central business district served by an Energy Centre at the International Convention Centre (ICC), and was launched in October 2007. Further phases began operation at Aston University during 2009 and Birmingham Children's Hospital in 2010. The schemes are also being extended into several regeneration areas across the city and, ultimately, all of these 'sub-schemes' will be linked together to improve resilience and maximise energy saving opportunities.

The Birmingham District Energy scheme has enjoyed rapid growth since its inception, enabling the on-going expansion of the scheme and its combined low carbon plant capacity, as more customers have come on stream. As the scheme evolves, EQUANS innovative approach ensures that low carbon technologies are applied to maximum effect.

For example, the Birmingham Children's Hospital scheme (which includes a connection to Birmingham City Council's Lancaster Circus) features a low carbon energy centre housing a 1.6 MWe CHP, designed and built by BDEC and is expected to save 4,300 tonnes of CO2 emissions per annum. Overall, the scheme is saving over 15,000 tonnes of CO2 per annum compared to traditional systems.



## Birmingham Development Plan

"The Birmingham Development Plan 2031, approved in 2016, is a statutory plan which sets out the spatial vision and a strategy for the sustainable growth of Birmingham for the period up to 2031. The BDP provides the key part of the city's statutory planning framework, guiding decisions on all development and regeneration activity in the city throughout this period. It sets out the expectations from developers with regards Low and Zero Carbon Energy Generation in Policy TP4 as follows:

New developments will be expected to incorporate the provision of low and zero carbon forms of energy generation or to connect into low and zero carbon energy generation networks where they exist wherever practicable and unless it can be demonstrated that the cost of achieving this would make the proposed development unviable.

In the case of residential developments of over 200 units and non-residential developments over 1,000sq.m. first consideration should be given to the inclusion of Combined Heat and Power (CHP) generation or a network connection to an existing CHP facility. However the use of other technologies – for example solar voltaics or thermal systems, wind turbines, biomass heating or ground source heating – will also be accepted where they will have the same or similar benefits, there is no adverse impact on amenity and, in the case of ground source heating, environmental risks can be adequately managed.

Smaller developments should also connect to a District Heating Scheme where such schemes exist, unless it is demonstrated that such a connection is not practicable or viable.

Encouragement will also be given to the development and implementation of new technologies which reduce energy consumption such as Smart Grid and promoting new homes to Smart Grid ready.

The well-established city centre heat network can enable developer compliance with the City Council's planning policy set out in the BDP.

*"BDEC already provides low carbon energy to some of the most prestigious buildings in the city centre and the scheme continues to offer landlords and developers the chance to connect to one of the UK's largest heating networks for a secure, affordable and low carbon energy supply."*

- Waheed Nazir, Strategic Director of Economy (Interim), Birmingham City Council.



### Key facts

- ☒ 60,000+ MWh of heat per annum
- ☒ 47,000+ MWh of electricity from the CHP plant
- ☒ 100°C/60°C Hot water flow/return temperatures
- ☒ 18,000+ tonnes of CO2 saved per annum
- ☒ 12 km of insulated distribution pipe
- ☒ 0.5°C temperature loss per km of pipe
- ☒ 8,000+ MWh of chilled water per annum
- ☒ Electricity supplies synchronised with the National Grid

