

EXECUTIVE SUMMARY

The Manchester Civic Quarter Heat Network (CQHN) is an innovative £20million energy solution located in the heart of the city. Its aim is to provide a sustainable heat and power system to several iconic buildings in and around the city of Manchester.

CQHN marks a significant step towards enabling Manchester City Council's ambitious net zero goals of becoming

zero carbon, zero waste and climate resilient by 2038.

We were tasked with the design and construction of the energy centre and heat network, as well as providing 30 year ongoing operational and maintenance support for the energy centre, which delivers a world-class energy infrastructure to a world-renowned city.

PROJECT OVERVIEW

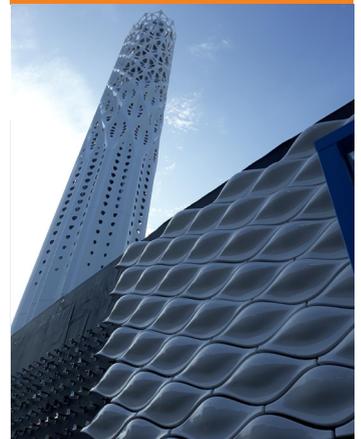
CQHN will provide a highly efficient source of heat and power for some of Manchester's most iconic buildings, acting as an enabler and facilitating a significant step towards the council's goals of becoming carbon-neutral by 2038.

The new network technologies consist of a 2km district heating network and an energy centre containing a 3.3MWe CHP engine and two 12MW gas boilers that will generate energy for landmarks including Manchester Town Hall and

Town Hall Extension, Central Library, Manchester Central Convention Centre, The Bridgewater Hall, Heron House and the Manchester Art Gallery.

Furthermore, the energy centre's flue, which has been named the Tower of Light has become a part of the city's iconic skyline.

PROJECT SUMMARY:



CLIENT

Manchester Metropolitan Council

PROJECT VALUE:

£20m+

TIMESCALE:

Jan 2019- Dec 2020

ESSENTIAL STATS

- > 30 Year Operation and Maintenance Contract
- > 40m Architecturally Designed Dispersion Flue
- > 2KM City-Wide District Heating Network
- > CHP Engine Size: 3.5MW

We designed the energy centre with attenuation solutions to ensure minimum noise emissions and the centre will be monitored to ensure it is within the accepted parameters.



“The Civic Quarter Heat Network will provide a highly efficient source of heat and power for some of Manchester’s most iconic buildings, making significant carbon reductions and contributing towards the city’s shared goal of becoming carbon-neutral by 2038.”

MANCHESTER CITY COUNCIL'S EXECUTIVE MEMBER FOR THE ENVIRONMENT, PLANNING AND TRANSPORT, COUNCILLOR ANGELIKI STOGIA

OUR SOLUTION

The Tower of Light is a 40m tall dispersion flue during the day, polished steel reflectors will move in a wave like motion in the wind to reflect sunlight into the tower’s chambers. During the night, LED lights directed at the polished reflectors will create moving light.

To ensure the Tower of Light was a positive addition to Manchester’s skyline, Manchester City Council shortlisted four of the UK’s leading architects to submit proposals for the energy centre’s design as part of a competition. We worked closely with the Council to organise the competition and support the design process. The winner of the competition was award-winning architect Tonkin Liu, who designed the energy centre to be both a structural and sculptural landmark for the city.

We installed the district heating, High Voltage (HV) and Communications network utilising best practice, working closely with the Council’s highways department to ensure there was minimal disruption to commuters, residents and local businesses in such a busy city.

The network will initially serve seven city centre civic buildings will grow in the future by connecting further buildings across the area in the future. The energy centre has also been future proofed to allow alternative renewable technologies to be installed.

Enabling local authorities to meet net zero targets

Manchester has set ambitious climate goals, aiming to become zero carbon, zero waste and climate resilient by 2038 - 12 years ahead of the countrywide target. Through the completion of this project, we have enabled several of Manchester City Council’s clean energy objectives including:

- To deliver carbon reductions
- To improve air quality through a reduction of carbon and nitrous emissions
- To provide a more resilient heat supply
- To create a system with power resilience equal to grid supply and that can be replicated across Manchester

Building a future-proof infrastructure

The network has been designed with the ability to grow and connect additional buildings in the future.

The initial phase of the project was designed to be future-proofed and facilitate ease of expansion as the network expands throughout Manchester. The first phase created this infrastructure which is now scalable and capable of meeting the needs of future phases.

It has the ability to add new energy generation and storage technologies over time with no disruption to the

customers’ supply. There is also space available for additional equipment to cater for a larger demand from future connections.

Managing stakeholder engagement

We proactively coordinated and managed stakeholder engagement with external partners and businesses to provide a seamless operation and create local community benefits. Examples of this include:

Local stakeholder engagement to communicate the works taking place and educate on the citywide benefits the scheme will bring

Social value commitment

We were committed to supporting the local community and economy during the project, employing 22 staff, including four apprentices and one graduate from Manchester. Throughout this time, 19% of the project value was spent with local contractors and through various fundraising efforts, managed to donate in excess of £15,000 to The Christie NHS Foundation, a leading cancer treatment facility in the area

To avoid unnecessary disruption, we took strategic measures to ensure minimal closure of public spaces and that noise was kept to a minimum by utilising attenuation equipment on construction apparatus.