



Local authority pathway

Real life illustration: The Bunhill heat and power network (BHPN) Phase 2

The Bunhill heat and power network (BHPN) Phase 2 in the London Borough of Islington recycles waste heat from the London Underground to provide a low carbon, low-cost heat source. The project involved the construction of a new Energy Centre which extracts heat from the underground system and distributes it through a network of pipes with heat pumps. The network provides demand response services to the grid and serves 1,350 local homes which are largely existing council housing. It also provides heat to businesses and leisure centres built in the 1930-1980s. Phase 2 is an extension of the original network, Bunhill Phase 1, which is powered by a Combined Heat and Power (CHP) engine that produces electricity and captures waste heat to heat buildings and provide hot water.

Table 1: Mapping the BHPN PHASE 2 project to the Local authority pathway

Local Authority Pathway: Drivers and Enablers	BHPN Phase 2 Case study
National policy drives local regional policy.	Islington Council is committed to reducing carbon emissions. They are on target to reduce carbon emissions in the borough from 2005 levels by 40% in 2020 and, in June 2019, they declared a Climate Emergency and pledged to work towards making Islington net zero carbon by 2030.
Social & environmental awareness	This project plays an important role in Islington’s commitment to reducing carbon emissions, helping lower heating bills, improving air quality, and making the capital more self-sufficient in energy.
Government funding	Bunhill Heat and Power Network was partly funded by the London Borough of Islington, the EU Celsius project and is supported by Network Rail and Transport for London.
Financial, legal and logistics support as well as professional technical and management support	<p>Several partners supported the council:</p> <p>Ramboll – carried out feasibility studies to confirm that the heat pump concept was financially and technically viable and oversaw procurement and delivery.</p> <p>Gleeds – acted as cost manager during the project.</p> <p>Inner Circle Consulting – worked alongside Islington’s internal team to strengthen project leadership and enhance internal capacity.</p> <p>London South Bank University – analysed the real-life performance of the scheme, evaluating its benefits and identifying how best it can be applied.</p> <p>Topic Plan – provided Testing and Commissioning assurance for the project.</p>
Incentivised local authority and council	The success of BHPN phase 1 encouraged the council to extend the network to supply heat and hot water to 550 additional properties, as well as creating capacity to add further private connections in the future. The council manages the heat network itself, earning revenue from electricity and heat sales, which enables savings to be passed onto residents via reduced heating and hot water bills. Government and EU funding further incentivised this second phase
Local advocacy for local community through the council/local support for grid growth	There was extensive local community consultation to secure planning permission in the densely populated urban area. A film was created with the local community including local school, Moreland Primary, to provide information and generate support for both phases of the network. Islington council tenants received 10% discount on their heating charges, creating further support for the network.

Local Authority Pathway: Drivers and Enablers	BHPN Phase 2 Case study
Effective audit process	An external company Gleeds, acted as cost manager during the project, valuing the amount of work carried out under the contract. There was no public or private subsidy for the operational costs of the project. The project is publicly owned to ensure it is the public who benefits.
Openness for innovation in the region	The Bunhill project is an extension of the existing Bunhill heat and power network which has been providing cheaper, greener heat to over 800 homes since 2012. Success in the first phase facilitated EU and other sources of funding.
Emergence of a smart grid	<p>The project provides demand response to the grid by consuming electricity directly (heat pump only operation), operating with no electrical load on the national grid (heat pump and CHPs both operating) and exporting electricity to the national grid (CHP only operation)</p> <p>As part of the EU-funded Celsius Project, it will serve as a blueprint of best practice to help cities develop replicable projects to evolve into energy smart cities.</p>

The upscaling of the Bunhill project from Phase 1 to 2 is an example of a project accumulation upscaling pattern. In this case, Phase I of the project was extended and linked to Phase 2, thereby increasing the number of service providers and customers and available funding, as well increased technology diversification with the innovative use of waste heat from the London Underground using heat pumps in addition to the CHP unit used in phase 1.

Insights from practitioner interviews concerning the upscaling of the Bunhill example can be found in the full report, available from the EnergyREV website: [Pathways for the upscaling of smart local energy systems](#).

References

BHPN (2020), [Bunhill heat and Power Network](#). Islington Council.

About EnergyREV

EnergyREV was established in 2018 (December) under the UK's Industrial Strategy Challenge Fund Prospering from the Energy Revolution programme. It brings together a team of over 50 people across 22 UK universities to help drive forward research and innovation in Smart Local Energy Systems.

EnergyREV is funded by UK Research and Innovation, grant number EP/S031898/1.

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