



BSI presents a long-term vision for the role of standards in developing the UK's heat networks market

The industry challenge

To help reach its ambitious 2050 net zero target, the UK must take drastic action to reduce CO₂ emissions across all sectors of the economy. At the heart of the UK's pathway to net zero is the decarbonization of the energy sector, as it continues to transition away from its historic reliance on fossil fuels.

The way we produce and use energy is changing. From how power is generated; to the way we heat our homes, deploy zero-emission vehicles and phase out petrol and diesel ones; look for a whole-system switch to new, clean fuels such as hydrogen; and enable a grid that is flexible, secure, interoperable and fully integrated.

Within that wider context, it is recognized that heat networks will play a significant part in the long-term decarbonization of heating, and thus, of the UK's energy system.

The UK Government's Clean Growth Strategy (CGS) highlights the need to build and extend heat networks across the country in areas of high heat demand density such as urban centres, campuses and business parks.

Additionally, the Scottish Government's Heat Networks (Scotland) Act 2021 aims to contribute to Scotland's climate change targets by regulating heat networks in a way that encourages investment, develops supply chains and builds consumer awareness and acceptance.

The policy and legislative support for the growth of the heat networks market has evolved significantly over the last few years, reflecting the UK's wider decarbonization ambitions and net zero targets. However, there are still challenges to overcome to enable the market's successful growth in line with the UK's energy system transformation and decarbonisation goals.

To enable the successful, safe and continued growth of the UK heat networks market, a comprehensive long-term vision needs to be put in place, and significant knowledge gaps need to be addressed. An in-depth understanding of how new, industry-led, consensus-based guidance could fill in such gaps is therefore critical.

The Department for Business, Energy and Industrial Strategy (BEIS) and the Energy and Climate Change Directorate of the Scottish Government therefore asked BSI to carry out a pre-standardization research project that could support the heat networks market framework and help put in place the foundations for future low-carbon heat networks.

This acknowledged the important role that standards can play in supporting the growth of the market through building consensus, filling in knowledge gaps and developing consistent practices and processes, as well as BSI's unique position as the UK's National Standards Body (NSB).

BSI, alongside BEIS and the Scottish Government, recognized previous work and good practice that has helped develop the UK's heat network market, and were keen to understand what part NSB-led standards could play in building on these existing foundations.

BSI's solution

To address this challenge, BSI carried out a pre-standardization research project to support the development of the UK heat networks market, maintaining a focus on the decarbonization of heat and consumer protection.

The project set out to:

- Identify, scope out and outline the standards infrastructure that can support the development of an effective, long-term policy and regulatory framework for the UK heat networks market

- Consider and recommend standards development that can accelerate and ensure the safe, transparent and consumer-focused growth of the market, while bearing in mind the potential cost of standards implementation and compliance
- Ensure collaboration between key stakeholders engaged in the investment, design, manufacture and operation of UK heat networks
- Build upon existing standards and industry initiatives, while addressing additional standards gaps and needs acknowledged by industry, government, and other stakeholder groups.

Gaining market insight

The project started with a comprehensive overview of all existing and developing standards applicable to heat networks, not only standards produced by National Standards Bodies (NSBs) and international standards organizations, but also key industry standards and guidance.

BSI's Research and Intelligence team carried out 19 qualitative interviews with key industry stakeholders. Participants were from a wide range of industries from across the private and public sector, including: utilities, operators, developers, local and central government and consultants.

The interviews were conducted to help understand the future needs of the heat networks market and the aspirations for its continued development. By adopting this approach, the team were able to identify and validate the potential standards opportunities and prioritize those most likely to accelerate the future growth of the heat networks market.

Specific technical areas highlighted that would benefit from new standards, included: calculations for carbon content and heat loss; equipment such as heat pumps, heat exchangers and meters; hydraulics; and more generic areas such as data standards and operations and maintenance.



Two webinar sessions – one for BEIS' stakeholders and one for the Scottish Government's stakeholders – were then held. At these events the outcomes of BSI's standards landscape research and stakeholder interviews were shared and further feedback was elicited.

The result

Further analysis, aided by technical experts building upon the collected industry insights, confirmed that a critical point has been reached in the development of the heat networks market and that there is a need for safe and consistent growth, driven by standards and good practice.

With this in mind, the [project report published by BSI](#) made high-level recommendations for the creation of a robust heat networks standards infrastructure and pointed to the potential mechanisms and activities that can be deployed to prioritize and take these recommendations forward.

The key recommendations put forward to UK Government include:

- The development of an initial cluster of standards to address the challenges, and capture the growth opportunities, as identified by key market players. These range from standards with wide, cross-heat networks scopes and applicability, through to standards that focus on individual heat networks aspects or processes, to single issue-focussed standards. The standards recommended include: a guidance or framework standard; introducing CP1: Heat networks: Code of Practice for the UK (2020)¹, owned and published by CIBSE, as a formal standard; and standards to address specific gaps around calculations, hydraulics and equipment.
- Wider recommendations for activities that go beyond new standards development and enable the effective use and uptake of standards in a way that fits within, and supports, the evolving heat networks market and policy framework. These include the creation of a certification and testing regime, skills development and training to address skills gaps, as well as interaction with policy and regulation to ensure alignment between standards and a long-term policy and vision.



Next steps

The outcomes of this project, detailed in the report, are intended to inform the deliverables of a potential Phase 2 standardization programme for heat networks that includes the key standards activities outlined above.

The extensive industry research and engagement activities carried out by BSI, underpinned by our unique position as a neutral convenor of stakeholders, are a vital step forwards in creating a solid knowledge infrastructure for the development of this market.



About the sponsors

The Department for Business, Energy and Industrial Strategy (BEIS)

BEIS was created in July 2016 after a merger between the Department of Energy and Climate Change and the Department for Business, Innovation and Skills. BEIS brings together responsibility for business, industrial strategy, and science and innovation with energy and climate change policy.

The Energy and Climate Change Directorate of the Scottish Government

The Energy and Climate Change Directorate is responsible for helping Scotland become a prosperous low-carbon economy, with secure, affordable and sustainable energy; promoting Scotland's climate change, clean energy and energy efficiency programmes internationally; working locally to help individuals, businesses and communities make sustainable choices.

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