

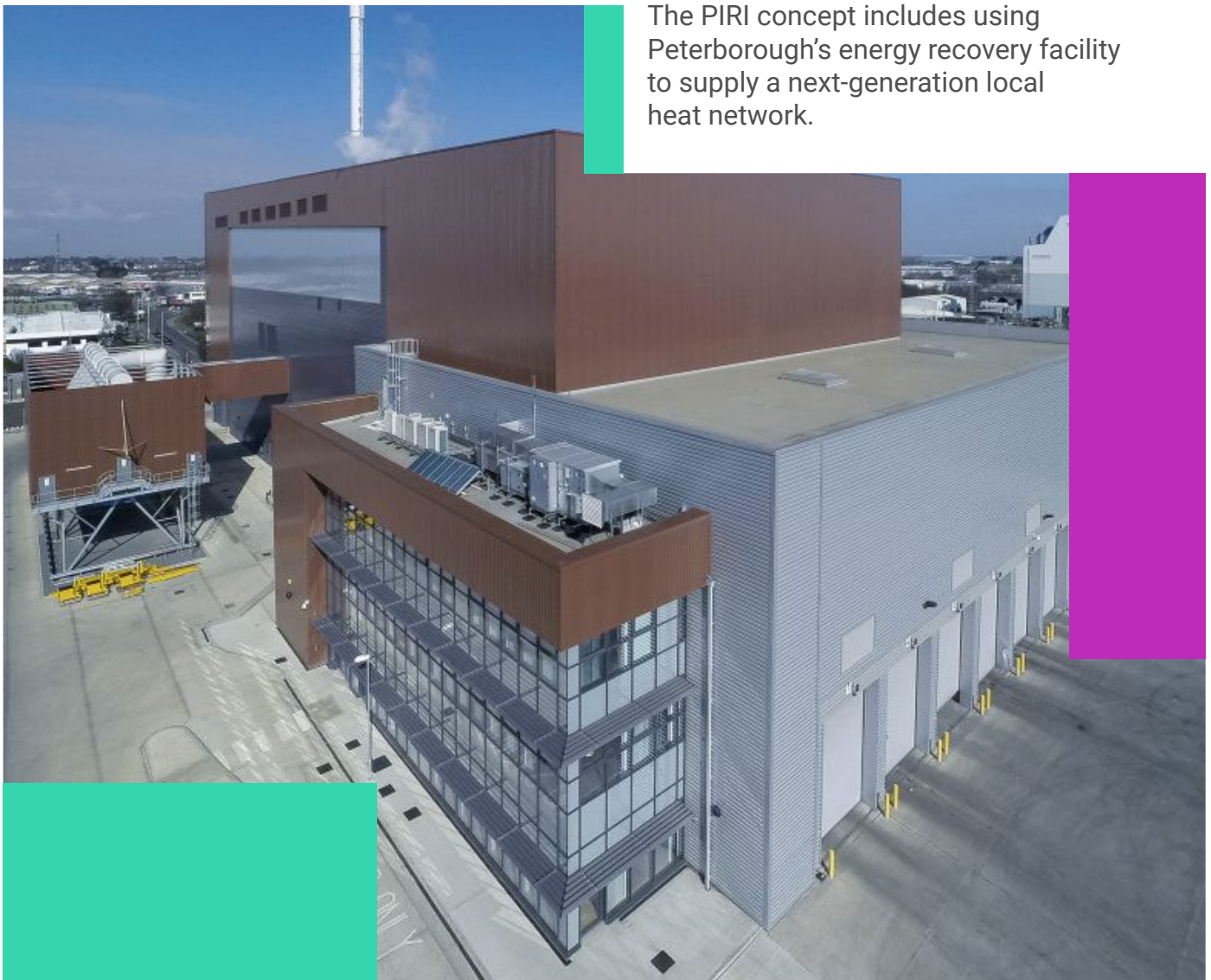


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# Prospering from the Energy Revolution

# Peterborough Integrated Renewables Infrastructure (PIRI)

Project fact sheet



The PIRI concept includes using Peterborough's energy recovery facility to supply a next-generation local heat network.

The Prospering from the Energy Revolution challenge programme ran from 2018 to 2023.  
For more in-depth information on the programme and the projects see:  
<https://www.ukri.org/what-we-offer/browse-our-areas-of-investment-and-support/prospering-from-the-energy-revolution/>

# Peterborough Integrated Renewables Infrastructure (PIRI)

<b>Dates:</b> April 2020 – July 2022	<b>Project partners:</b> Peterborough City Council (lead) Element Energy Ltd SSE Enterprise Ltd Cranfield University Smarter Grid Solutions Ltd SWECO UK Ltd	<b>SLES components:</b> Heat networks Electricity networks EV infrastructure Energy from waste Energy as a service
<b>UKRI funding:</b> £1.0m		
<b>Link:</b> <a href="https://pirienergy.co.uk/">https://pirienergy.co.uk/</a>		

<b>What is the project?</b>	PIRI combines a next-generation heat network, private wire electricity network, and electric vehicle infrastructure in a holistic smart local energy system (SLES). It brings together electricity and heat output from a waste plant with storage and the supply of both electricity and heat. PIRI unlocks efficiencies not deliverable under traditional energy system models, and serves as a blueprint for other cities.
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<b>What has been delivered? What has been successful?</b>	<ul style="list-style-type: none"><li>✓ A technical specification for the heat and electricity private wire networks, supplied by an energy from waste plant owned by Peterborough County Council, and with additional heat from the River Nene delivered through water-source heat pumps.</li><li>✓ A business proposition for delivery of the multi-vector heat and electricity system with a rate of return capable of attracting commercial investment.</li><li>✓ A detailed learning review which has captured the knowledge generated through the PIRI process in order to ensure that it is available for future SLES projects.</li></ul>
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## Barriers encountered and outcomes

<b>Barrier</b>	The licence exemption framework for electricity supply and electricity distribution places significant constraints on the ownership options of the electricity private wire and who can act as electricity supplier.
<b>Outcome</b>	The proposed commercial model involves Peterborough City Council (PCC) as owner of the electricity component of the scheme and acting as the electricity supplier. This allows the project to operate under a licence exemption through PCC's ownership of the source of electricity. This is not the project's preferred outcome and it is still actively investigating ways in which a private investor could deliver the SLES.
<b>Barrier</b>	The commercial viability of the heat network as a standalone project was marginal pre-optimisation, however the combined PIRI scheme across electricity and heat has significantly improved prospects.
<b>Outcome</b>	The proposal has explored ways in which heat and electricity are combined in a single multi-vector SLES investment opportunity which shows a potential internal rate of return in excess of 8%.

<b>Impacts</b>	Forecast GHG savings in 2032:	1.9% (Range: 0.0% to 5.6%)
	Forecast energy and network savings in 2032:	£0.70m (Range: £0.53m to £0.80m)
	Match funding:	£1.2m

<b>Top lessons learnt</b>	<ol style="list-style-type: none"><li>1. Delivery of a major infrastructure project involves overcoming a range of practical, contractual and commercial constraints which can have a significant impact on the overall design, investment and ownership models for the project.</li><li>2. Designing the business model and ensuring that proposals are capable of delivering a viable return on investment represents a challenge which needs to inform and be informed by the technical design of the scheme itself.</li><li>3. Ultimately, there is a viable business case for a significant scale multi-vector SLES project in Peterborough which can reduce energy bills and support heat and electricity decarbonisation across 19 non-domestic customers in the city.</li></ol>
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<b>What's next?</b>	<ul style="list-style-type: none"><li>• The proposal is moving into commercialisation phase with the outline business plan and delivery model being further developed and considered by Peterborough City Council with the objective of delivering Phase 1 and 2 of PIRI by 2025/26.</li><li>• Peterborough has recently been awarded £14.5 million from the Green Heat Network Fund to develop a smart energy network, putting the PIRI concept into practice.</li></ul>
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