

# Creating a Sustainable South Tyneside

June 2022



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# Declaring a Climate Change Emergency

Climate change is a global emergency that requires **ambitious local action**. STC recognises this, having declared a climate emergency in 2019 and pledging to become “carbon neutral by 2030”. STC developed “Sustainable South Tyneside”, a **Climate Change Strategy and Action Plan**, which identifies high-impact opportunities across all service areas to help mitigate the effects of climate change.



The Council motion declares:

- A pledge to take all necessary steps to make South Tyneside Council carbon neutral by 2030
- Produce a comprehensive Climate Change Strategy with clear and unambiguous targets for carbon reductions supported by a 5 year action plan by 31st March 2020
- Regular reports to full Council

The **Climate Change Strategy and Action Plan**, sets out ambitious plans, driving investment and innovation, to deliver several pioneering sustainable energy projects. If we are to tackle climate change, **innovation in this area is essential**.



# Innovation

## Nature Based Solutions

- Tree planting
- Restore estuaries
- Enhance biodiversity and nature corridors
- Stronger Shores project

## Re-engineering our industrial heritage

Major Renewable Energy projects including

- Viking Energy Network
- Hebburn Minewater
- West Holborn Renewable Energy Network

## Future Development

- Economic recovery plan 'Green jobs'



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## Viking Energy Network Jarrow (VENJ)

First major energy scheme STC have embarked upon. Innovative combination of renewable technologies, generating electricity and harnessing heat from the River Tyne to feed into a number of buildings across Jarrow.

CO2 reduction of 1100 tons per annum resulting from a combination of on-site energy generation and high efficiency of renewable technologies compared to traditional energy production methods.

Total cost £12.8m with £4.5m contribution from ERDF innovation fund.



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# VENJ Scheme Technologies

Ground breaking scheme, UK first **combination of renewable technologies** including;

- 850 kWth river source heat pump
- 1000 kWp solar farm
- 850 kWe Combined Heat & Power
- 300 kW Solar thermal heat collection
- 1 MWh storage battery (lithium)
- 50m<sup>3</sup> thermal store (hot water)
- Pre-insulated plastic heating pipe
- Live control – measures load in each building, learns consumption & selects lowest cost technologies to run
- Expected completion June 2023



# Hebburn Minewater Scheme

- One of the first district heating schemes in the UK to utilise mine water as an energy source.
- Provide renewable heat by harvesting mine water from Hebburn Colliery as a geothermal resource in a district heating network.
- Project currently under construction, expected completion March 2023.
- Total cost £10m. £4.9m contribution from ERDF innovation fund.

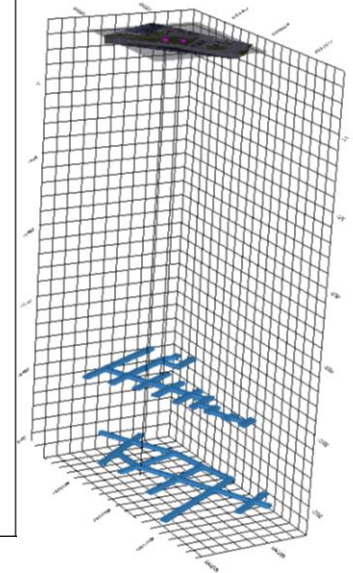
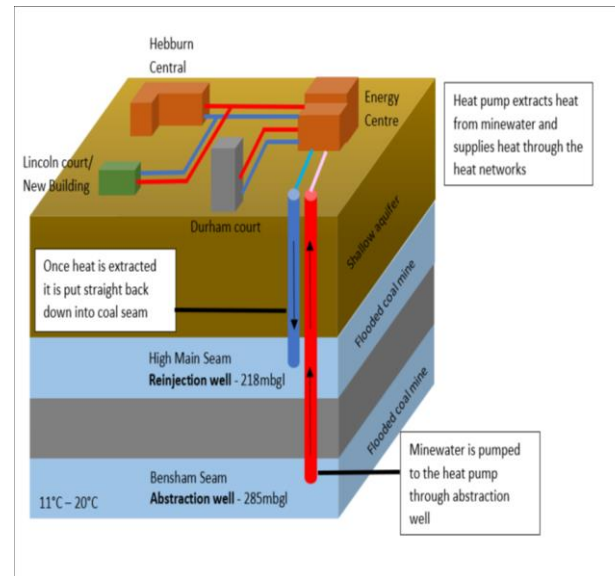


# Hebburn Minewater Scheme Overview

Provide renewable heat by harvesting mine water from Hebburn Colliery, forming a district heating network to heat 111 residential flats (Durham Court) and two other public buildings (Lincoln court/ New Building) and two other public buildings (Energy Centre)

The project will be one of the first district heating schemes to utilise mine water in the UK to heat council owned properties

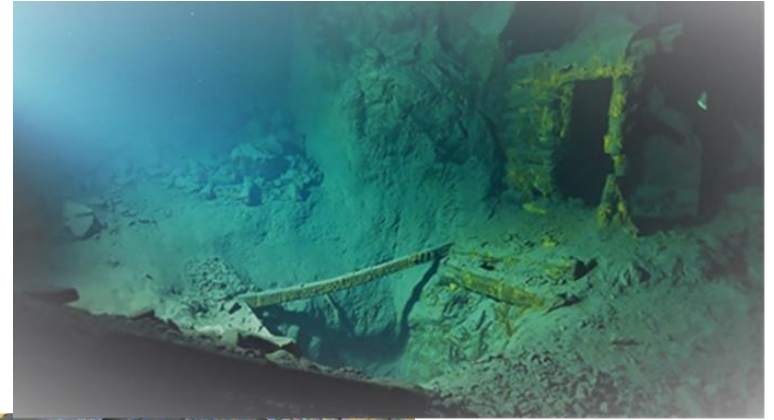
It is expected to deliver CO2 reductions of 319 tons per annum and lay the foundation for the future network development



## Future Expansion – Borehole and Pump Size

Considering the future expansion, the size of the boreholes has been increased so that more heat can be extracted for future expansion of the district heating scheme, resulting in greater carbon savings.

Increasing the borehole and pump sizes increased costs by 30% (approximately £250k), but will double the energy being extracted, enabling future expansion further out into Hebburn.



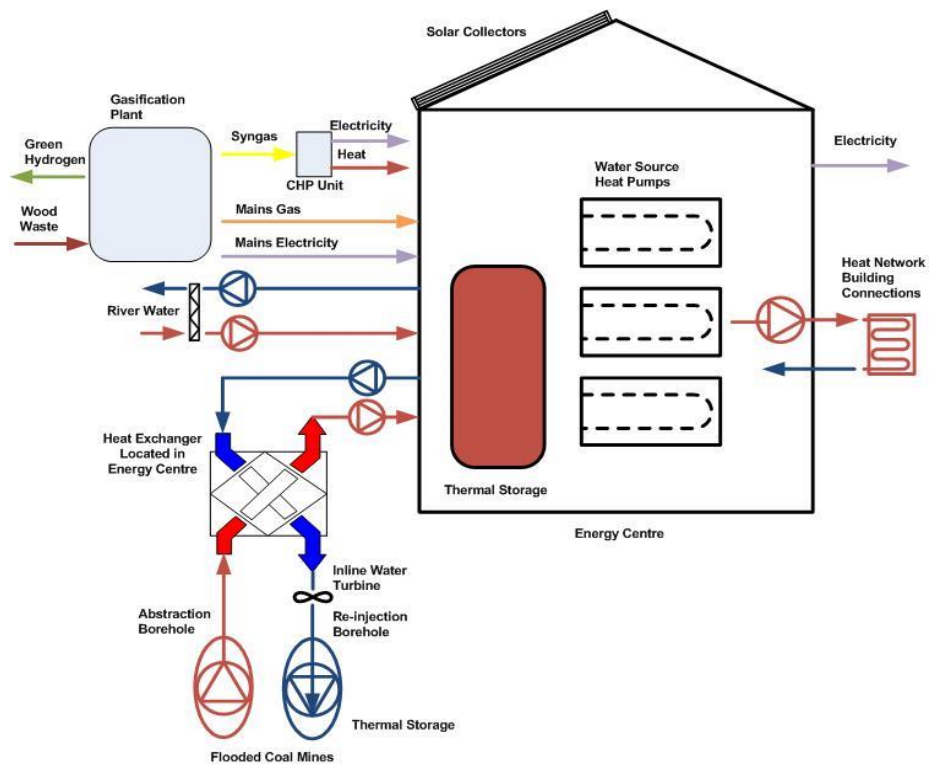


# West Holborn Renewable Energy Network

- Low carbon district heat network across South Shields (~5km). Total carbon emissions saving is expected to be 2500 tonnes per annum. Mixture of technologies;
- 3 x 1.5 mWh (minewater) water source heat pump
- 1 x 1mWhh (river water) water source heat pump
- 3,000 tonnes waste wood p/a, 900 kW wood gasification plant producing Syngas and Green hydrogen
- 900 kWt / 60 kWe Combined Heat & Power generator
- Solar panels and cladding 800 kWp capacity / Floating solar options
- 300 m<sup>3</sup> thermal storage
- Storage 1 mWh Lithium Ion Batteries
- Hydro turbine generator in re-injection well
- Deep mine heat storage
- 4.8 Km Heating pipe network and 2Km private wire electrical network



# Example Energy Centre Schematic



# Decarbonisation Fund

- BEIS £1bn grant for decarbonisation schemes
- Total of 26 STC schemes were granted £8m funding
- Schemes include Solar PV Panels, LED lighting, Ground Source Heat Pumps, Battery Storage and drilling of boreholes for West Holborn Energy Network
- All schemes now complete
- Further round of decarbonisation funding will be released shortly



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## Future Plans

- Creation of Fourth Energy Centre at Middlefields depot, predominately designated for production of electricity and green Hydrogen
- Expansion of Jarrow, Hebburn and West Holborn Energy Networks and linking West Holborn to Middlefields Energy Centre
- Further Investment in our building and street lighting
- Provision of additional heat networks with low temperature water distribution to existing domestic properties (Ambient Loop)
- Continued monitoring of South Tyneside's performance in terms of reducing Carbon to ensure we are on target to achieve carbon neutral by 2030



# Questions



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