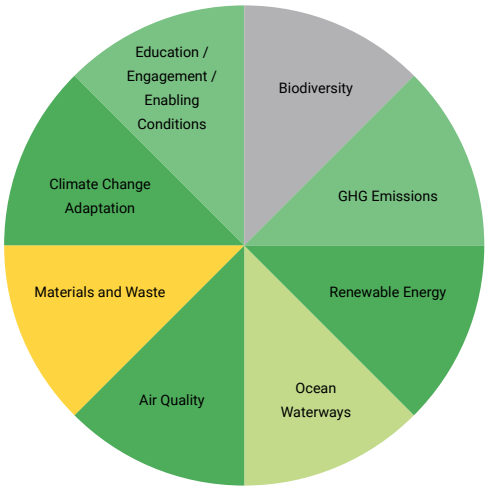
Plymouth Heat Networks Delivery FINAL



Assessment ID: PLY818

Assessment Author: Jonathan Selman

Assessment Project Summary:

Procurement of a Development Partner to deliver low carbon heat networks over several zones, defined through national legislation. These heat networks will use waste or renewable heat to displace use of gas boilers and therefore generate carbon savings.

Assessment Final Summary:

The proposal for a strategic heat network will create many long term positive benefits and outcomes, including: a significant scale of GHG emission reductions; improvements in air quality; reduction in temperature of urban water being discharged into the sea; a significant increase in deployment of waste and renewable energy; an increase in resilience to climate change, by the provision of cooling solutions; and a programme of education, skills, training and jobs associated with the green sectors. The impact on biodiversity is expected to be neutral or insignificant, and the impacts of construction waste or material use during the construction phase can be minimised through relevant measures.

Biodiversity Score: 3

Biodiversity Score Justification: No known impacts- primarily in streets and footpaths with limited or no biodiversity value.

Biodiversity Score Mitigate: No

GHG Emissions Score: 5

GHG Emissions Score Justification: This approach is driven by decarbonisation and will make very significant carbon reductions through displacement of fossil fuels. Heating buildings comprises 28% of Plymouth's carbon emissions. Annual carbon savings with significant build out for both zones have been estimated to be 31,000tCO2, which represents over 3% of the current city emissions but we would expect the carbon savings to higher as this network is expanded and to be in excess of 5%. Estimated carbon savings for the southern zone are 26,000tC02/ annum. This is therefore an intervention with significant impact in the journey to a net zero city.

GHG Emissions Score Mitigate: No

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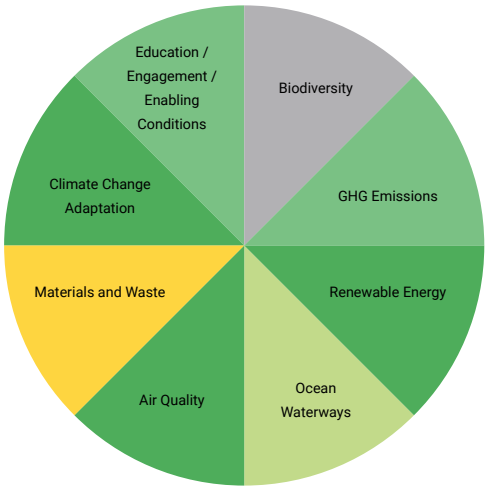

Renewable Energy Score: 5

Renewable Energy Score Justification: The source of heating for the heat network will come from larger waste heat sources, which are readily available and underutilised, but also through the deployment of heat pumps (water and air) to use for hot water, space heating or cooling. The southern area is based principally around two large waste heat sources; the South West Water Central Plant, and the Devonport Energy from Waste plant. At Derriford the scheme is focused around waste heat from the NHS medical waste incinerator, together with expanding the existing ground source scheme at Plymouth Marjon University to provide heating and cooling across this area.

Renewable Energy Score Mitigate: No

Ocean and Waterways Score: 4

Ocean and Waterways Score Justification: Removing heat from treated effluent arising from the central water treatment work in Cattedown before it is discharged into the sea.

Ocean and Waterways Score Mitigate: No

Air Quality Score: 5

Air Quality Score Justification: The displacement of fossil fuel heat sources, primarily gas, which produces NOX emissions and is a very significant air pollutant, by using waste and renewable sources will significantly improve air quality.

Air Quality Score Mitigate: No

Materials and Waste Score: 2

Materials and Waste Score Justification: Construction process will generate some waste and material use.

Materials and Waste Score Mitigate: Yes

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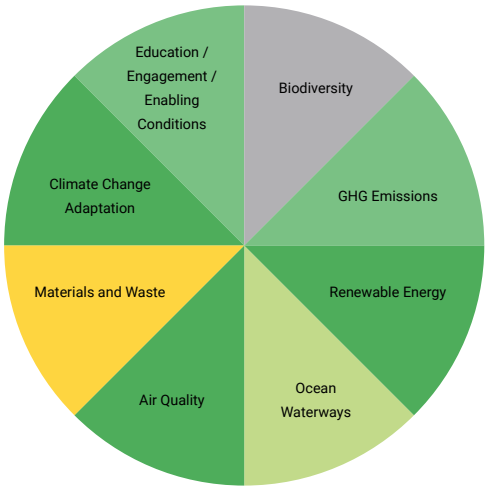

Materials and Waste Revised Score: 2

Materials and Waste Revised Score Justification: Requirement to be included in contract for construction waste management and other provisions.

Climate Change Adaptation Score: 5

Climate Change Adaptation Score Justification: The heat network proposals will create greater resilience to climate change, by providing a cooling solution, as cooling demand increases, and will permanently remove heat from the urban heat island rather than exacerbating this, as traditional air conditioning tends to, by rejecting this heat into an already hot atmosphere.

Climate Change Adaptation Score Mitigate: No

Education / Engagement / Enabling Conditions Score: 5

Education / Engagement / Enabling Conditions Score Justification: This long term project will help building owners to decarbonise rapidly through connecting to the heat network. Social value outputs will create training, skills and jobs and also facilitate wider education. Community engagement will be a key and necessary part of the strategy.

Education / Engagement / Enabling Conditions Score Mitigate: No

Wheel Key

- Long lasting or severe negative impact
- Short term or limited negative impact
- No impact or neutral impact
- Short term or limited positive impact
- Long lasting or extensive positive impact