

Project ID	DIP010		
Long Title	Celsius Smart Cities – Waste Heat Capture from the Underground		
Short Title	Celsius		
Keywords	Community; Urban; Multi-sector/Grid; Heat; Waste Heat Recovery; District Heating; Thermal Storage; Energy Strategy Development;		
Location (Town, Region, Country)	London		England
Latitude and Longitude	51.53N		0.10W
OSGB code	TQ 321 824		
Status	Complete		
Start Date	2013		
End Date	2017		
Description	<p>The London Underground's mid-tunnel ventilation shaft and UK Power Network's electricity substation have been identified as sources of waste heat that could be utilised within the local Bunhill Heat and Power Network. This demonstrator will look at how these sources of waste heat can be captured and integrated into this local district heating system. Transport for London operate the London Underground, and the tube network is the source of heat for the project. Their vent shaft at City Road is where the heat is being captured as well as being the location of the new Energy Centre that is being built as part of the Celsius project. In order to assist the project, they are demolishing the existing vent shaft and building a new one, which will house the heat exchanger that will provide the heat to the extended district heating network.</p> <p>This demonstrator will also consider how this could form the beginning of a strategically important energy hub that will allow the subsequent extension of the heating system in the area. The second part of this demonstrator will be the integration of a thermal store to help with energy balancing in the area. This demonstrator will develop an understanding of how waste heat can be economically captured and utilised within a local district heating system and how a thermal store can help with the balancing of both surplus electricity and heat within their respective networks.</p>		
Sectors	Multi-sector/Grid		
Funding Sources	FP7-ENERGY		
Budget £	Undefined for sub-project		
Partners	GLA, UK Power Networks, London Borough of Islington, London Underground, LSE, Imperial College		
Energy vectors	Heat		
Scale (lab/single/small)	Community		

/community/region/national)	
Technologies demonstrated	Waste heat recovery, thermal storage
Economic models demonstrated	
Other concepts demonstrated	
Industry engagement	Industry partners
Consumer engagement	
Project Reports (incl. links)	<a href="https://www.cibse.org/getmedia/986e75ae-08e5-469b-ac8e-c1e671e63dfd/TS2017-11-2DaviesSlides.aspx">https://www.cibse.org/getmedia/986e75ae-08e5-469b-ac8e-c1e671e63dfd/TS2017-11-2DaviesSlides.aspx</a> Research paper. <a href="http://researchopen.lsbu.ac.uk/852/">http://researchopen.lsbu.ac.uk/852/</a>
Datasets (incl. links)	
Website/social media	<a href="http://celsiuscity.eu/Demonstrator/waste-heat-capture-and-utilisation%E2%80%8B/">http://celsiuscity.eu/Demonstrator/waste-heat-capture-and-utilisation%E2%80%8B/</a> <a href="https://www.euroheat.org/knowledge-centre/bunhill-heat-power-capturing-waste-heat-london-underground/">https://www.euroheat.org/knowledge-centre/bunhill-heat-power-capturing-waste-heat-london-underground/</a>
Information sources	As above