

Project ID	DIP100		
Long Title	SoLa Bristol		
Short Title			
Keywords	Region; Urban; Domestic; Electricity; Solar PV; DC Network; Direct Electric Storage; Power Quality & Grid Integration; Demand Response; LV Grid Monitoring; Stakeholder Engagement & Behaviour Change; Alternative Suppliers & Tariffs; Data Acquisition;		
Location (Town, Region, Country)	Bristol		England
Latitude and Longitude	51.44N		2.59W
OSGB code	ST 59 72		
Status	Complete		
Start Date	2011		
End Date	2016		
Description	<p>B.R.I.S.T.O.L. was the Buildings, Renewables and Integrated Storage, with Tariffs to Overcome network Limitations project.</p> <p>Our customers' energy demands are continually evolving; the design and operation of the Low Voltage (LV) distribution network needs to develop at the same rate. The introduction of Low Carbon Technologies is increasingly stressing the Low Voltage distribution network, in some areas preventing customers from connecting either generation or demand without conventional reinforcement.</p> <p>The project tested the following Hypothesis:</p> <ol style="list-style-type: none"> 1. Should new Low Carbon Technologies increase distribution network peaks and cause thermal overloads; then battery storage, demand response and DC networks could be an efficient solution, this is because conventional network reinforcement for short thermal overloads may not be the most efficient use of customers' money. 2. If DC networks in properties could be used to reduce network harmonics, phase distortion and improve voltage control then their use may be vital in the connection of Low Carbon Technologies. This is because the safe, efficient operation of distribution networks is reliant on the power quality and voltage being within statutory limits. 3. If DNOs and customers could share battery storage on DC networks with a variable tariff, then the mutual benefits may make battery storage financially viable. This is because battery storage could be a shared asset or sold to customers. 		
Sectors	Domestic, grid		
Funding Sources	Low Carbon Network Fund		
Budget £	£2.78 million (£2.2m from LCNF)		
Partners	Western Power Distribution, Siemens, University of Bath, Bristol City Council, Moixa		
Energy vectors	Electricity		

Scale (lab/site /small/community/region/national)	Region
Technologies demonstrated	LV grid monitoring, demand data acquisition, Solar PV, battery storage, DC network, network data acquisition,
Economic models demonstrated	Consumer behaviour change incentives, time-of-use tariffs, new commercial models, community engagement, deferred network investment
Other concepts demonstrated	Demand response, DNO-consumer engagement, grid constraint mitigation, low carbon retrofit, consumer impact analysis
Industry engagement	5 commercial customers
Consumer engagement	30 domestic customers
Project Reports (incl. links)	<p>Closedown report: https://www.westernpower.co.uk/docs/Innovation/Closed-projects/SoLa-Bristol/SoLa-Bristol-Closedown-Report-FINAL-090616-CLEAN.aspx</p> <p>Library: http://www.smarternetworks.org/project/prj_394/documents</p> <p>Papers: https://ieeexplore.ieee.org/abstract/document/6934654/ https://ieeexplore.ieee.org/abstract/document/6715032/ http://orca.cf.ac.uk/74693/1/Archi-DOCTpaper_AC_resub_vii_flat.pdf https://www.sciencedirect.com/science/article/pii/S2352152X17300889</p>
Datasets (incl. links)	
Website/social media	https://www.westernpower.co.uk/Innovation/Projects/Closed-Projects/SoLa-Bristol.aspx
Information sources	http://www.smarternetworks.org/project/prj_394