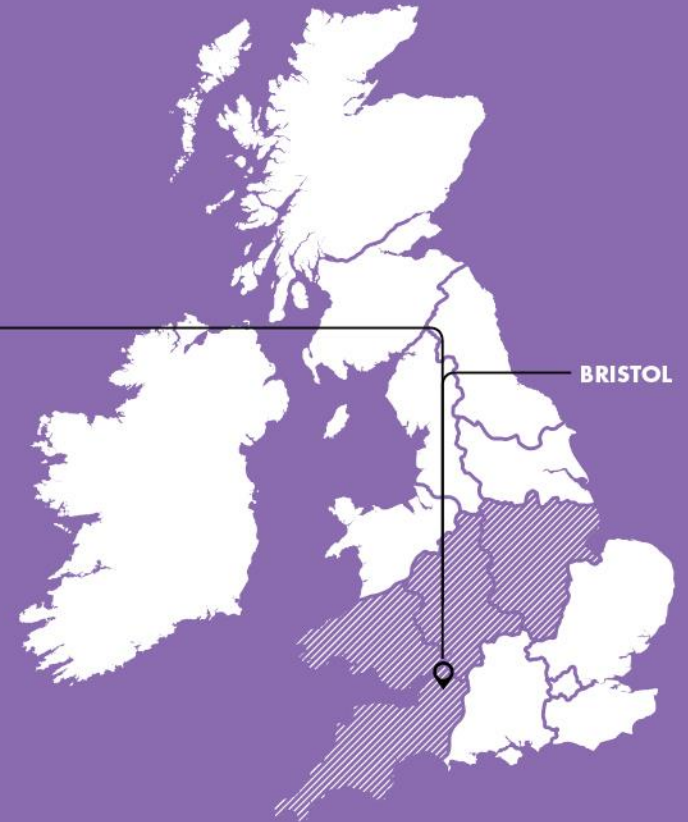


PROJECT SOLA BRISTOL

Second Tier Reward

Panel Presentation



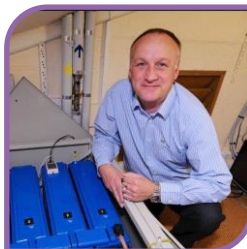
Introductions



Roger Hey is Western Power Distribution's Future Networks Manager



Paul Jewell is Western Power Distribution's Policy Manager



Mark Dale is a Western Power Distribution Innovation Engineer



Richard Hampshire is CGI UK's lead for Future Utilities

General | Q1

1. Please tell us, what are the exceptional outcomes from your project **(max 3)**? Please emphasise the truly exceptional outputs and/or transformational impact of project outputs on GB electricity networks? **(making clear comparison with what was expected at time of Project Direction)**
 - Excellence in Customer Engagement
 - 21% of consumers eligible to participate were converted to become participants
 - All but 1 participant were retained throughout the duration of SoLa BRISTOL
 - Approaches developed through SoLa BRISTOL are embedded 'Business as Usual' practice for customer engagement
 - Members of the WPD Innovation team regularly support the communication team in articulating the importance of stakeholder engagement.
 - A ground-breaking study of the interaction of customer, network, commercial, social and economic facets in domestic level smart grids on the Low Voltage networks
 - SoLa BRISTOL provided insights about the impacts on networks of 'behind the meter' combination of low carbon technologies such as PV, battery storage and behaviour (in response to influencers such as time of use tariffs)
 - Consumers now have meaningful choices in how they meet their energy needs through fully commercialised offerings via companies such as project partner Moixa, with substantial claimed energy savings
 - Learning from SoLa BRISTOL , via Moixa, was cited by BEIS and Ofgem in their join publication "Upgrading or Energy System", which is in turn referenced by the Clean Growth Strategy
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General | Q2

2. How has the project changed the culture of innovation in your organisation? Provide evidence of this change.

- SoLa BRISTOL has been integral to the development of our approach to engaging with consumers.
 - This has been informed by the success in recruiting trial participants
 - 21% of consumers eligible to participate were converted to become participants
 - All but 1 participant were retained throughout the duration of SoLa BRISTOL
- Whilst this started in innovation, these approaches are embedded 'Business as Usual' practice. This is evidenced by:
 - WPD is consistently ranked at the top of Ofgem's Stakeholder Engagement and Customer Vulnerability Incentive
 - Members of the WPD Innovation team regularly support the communication team in articulating the importance of stakeholder engagement to the wider WPD community based on the lessons from SoLa BRISTOL

General | Q3

3. How has this Second Tier Reward incentive influenced your project management and operational practices? Provide evidence.

The Second Tier Reward incentive influenced our approach to the projects as follows:

- Whilst Second Tier Successful Delivery Reward mechanism ensured delivery of the project, the Second Tier Reward incentive ensured the project approach supported delivery into 'Business as Usual'
- This led to the following changes to delivery approach:
 - WPD linked Policy, Strategy and Innovation teams
 - Policy engineers involved in innovation projects from the outset
 - This was to ensure that the project approach remained aware of BaU integration challenges ,and
 - Policy engineers, who would own changes to BaU, had an opportunity to influence and understand the project outcomes

SoLa BRISTOL example:

- Adoption of customer engagement learning into 'Business as Usual'
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General | Q4i

4. Please detail any datasets/other IP, generated as part of the project, that has been shared with other DNOs, academia? What efforts did you take to improve access and usability of any such data for interested users (over and above what was proposed in your original full submission and any subsequent project directions, if applicable)?

| Organisation(s) | Data used | Purpose | Date |
|---------------------------|---|--|------------|
| Bath University | Load data, network connectivity, customer profiles for primaries around Bath | The use of this data is only permitted for use by the licensee to Model the consumption of the city of Bath for the final year project of Joshua Olaleye. | 14/05/2018 |
| Element Energy | Half-hourly electricity demand data for 2,836 non-domestic customers, along with business name metadata, first assembled in the Modelling Demand Profiles in the I&C Sector project | The use of this data is only permitted for use by the licensee for developing profile shapes and associated data to feed into the non-domestic comparative feedback software tool being developed by the licensee. | 25/05/2018 |
| Energy Savings Trust, UCL | Various sets of load data and customer information | To support the development of the EDAM 2 tool for creating regionalised load estimates and forecasts for National Grid. Data will only be passed on to National Grid in the form of aggregated archetypes which will contain no Persona Data. Work will be in collaboration with University College London who will be subject to a separate data sharing agreement. | 14/10/2014 |

General | Q4ii

4. Please detail any datasets/other IP, generated as part of the project, that has been shared with other DNOs, academia? What efforts did you take to improve access and usability of any such data for interested users (over and above what was proposed in your original full submission and any subsequent project directions, if applicable)?

| Organisation(s) | Data used | Purpose | Date |
|------------------------|--------------------|--|------------|
| Heriot Watt University | Solar Storage Data | To establish how battery storage can both support grid requirements and demonstrate the capability to shift renewable electricity usage away from solely generation hours, in order to assess the effectiveness of this technology to reduce exposure to network fluctuations and market volatility. | 19/12/2017 |
| Reading University | SoLa Bristol data | Modelling uptake/cost-benefits of photovoltaics and batteries by individual households as part of work for the Engineering and Physical Sciences Research Council (EPSRC) with Prof. Gilbert from University of Surrey. | 19/12/2017 |

Project Specific | Qi

- i. Please explain the claimed £600k benefit to customers due to this project.
- The estimated £0.6m benefits stated are based on capacity release through customer installations of battery storage. Basis of calculation:
 - 5,000 installations in UK homes, as stated by Simon Daniel, CEO of Moixa in his email
 - Note: Moixa forecast their installed base to exceed 50,000 installations by 2020¹
 - Average 2kW inverter associated with each installation
 - Assumed 20% of the installations in sufficient concentration on constrained networks and able to be used to peak lop when networks constrained
 - Therefore, network capacity unlocked through customer side battery use for peak lopping = 2MW
 - Value of associated network reinforcement avoidance / deferral = £0.6m

Sources:

¹ https://www.smartsolarukireland.com/article/101887/Moixa_expansion_continues_with_plans_for_100000_battery_Virtual_Power_Plant

Project Specific | Qii

- ii. Please explain how the knowledge dissemination activities are beyond those expected as part of full submission?
- The 72 external dissemination events and activities were beyond the level envisaged at FSP, although only dissemination mechanisms were specified in the final submission
 - The extension of the Schools programme with GalloManor to align with the SoLa BRISTOL timescale, providing additional education and engagement opportunities beyond those originally envisaged
 - Support for Bristol City Council's successful bid to become 2015 European Green Capital
 - This provided an additional platform to provide SoLa BRISTOL with exposure and additional dissemination opportunities at both a national and international level
 - http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2013/06/Indicator-12-Energy-Performance_BRISTOL.pdf (Section 12 A3b and B2b)
 - Entry into the first Solar Power Portal awards, where SoLa BRISTOL won the Best Residential Energy Storage Project provided an additional platform to raise awareness of the project
 - <https://www.cleanenergynews.co.uk/news/storage/solar-power-portal-awards-2017-spotlight-energy-storage>
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Summary

- SoLa BRISTOL was a ground-breaking study of the interaction of customer, network, commercial, social and economic facets of “behind the meter” low carbon technologies in domestic level smart grids on the Low Voltage networks in 2010.
 - Project involved novel combinations of low carbon technologies such as PV, battery storage and time of use tariffs that could facilitate uptake of additional solar PV and deliver savings for both customers and networks
 - Through project partner Moixa, learning from SoLa BRISTOL was cited by BEIS and Ofgem in their joint publication “Upgrading or Energy System”, which is in turn referenced by the Clean Growth Strategy
 - Moixa CEO is on record as stating that, “SoLa BRISTOL was a pioneering UK project evaluation of residential energy storage deployment and DC (residential) micro-grids”
 - The project was included in Bristol City Council's winning bid to become 2015 European Green Capital
 - SoLa BRISTOL won the Best Residential Energy Storage Project at the first Solar Power Portal awards
 - Over 21% of the eligible customers signed up to participate in the project
 - The learning from SoLa BRISTOL has helped define WPD’s approach to engaging with customers for innovation projects and has informed our approach to Business as Usual customer engagement.
 - The success of taking the learning into Business as Usual is reflected in WPD being consistently ranked at the top of Ofgem’s Stakeholder and Customer Vulnerability Incentive.
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Thank You

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