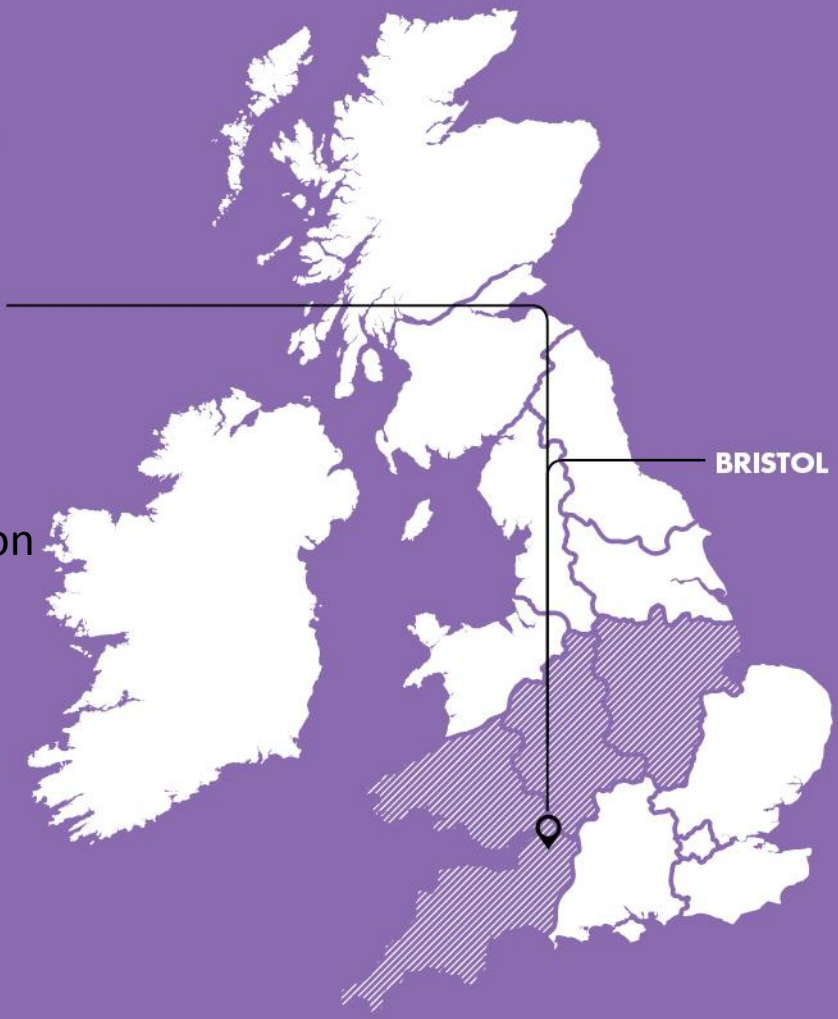
WESTERN POWER DISTRIBUTION

SOLA BRISTOL

PROJECT SOLA BRISTOL

Domestic Installation Report



LCN Fund Low Carbon Networks

BRISTOL CITY COUNCIL

UNIVERSITY OF BATH

KNOWLE WEST MEDIA CENTRE

SIEMENS

Sola Bristol Domestic Property Installation Report

Contents

1. Introduction

This report aims to give an understanding of the process and impact of the proposed domestic installations, in 30 domestic properties in the project area, based on the experiences gained through the first domestic installations. This report is a requirement under the Ofgem direction, before further installations are commenced.

2. Project Overview

BRISTOL is an alternative method to enable high density photo voltaic solar generation to connect to the low voltage network more efficiently through using an in home battery and variable tariffs.
The project aim is to address the technical constraints that DNOs expect to arise on Low Voltage networks as a result of the adoption of solar PV panels. The trial uses in-home battery storage to provide benefits to customers and aid the DNO with network management. The project aims to have thirty houses, ten schools and an office with solar PV and a battery. The solar PV is connected directly to the battery using a DC connection. The AC lighting circuits in the premises are converted to DC to enable customers to run small appliances on DC directly from the PV/battery.
The battery is "shared" between the customer and the DNO. The customer will be provided with a variable tariff to encourage electricity use at times of high PV generation and to use electricity stored by the battery when the network is heavily loaded. The DNO will be able to communicate with the battery to charge and discharge it to help with network management.

The project aims to:

- solve the network problems which arise when a number of customers in a local area connect PV solar panels to their house
- investigate how a battery installed in the home can help customers to manage their energy usage and save money on their bills
- test how customers respond when offered different electricity tariffs throughout the day
- explore the benefits of utilising direct current (DC) in the home, rather than the traditional alternating current (AC).

• EcoHome Installation

The Initial installation in the first domestic setting (the BCC EcoHome) was undertaken on the 12th – 14th December 2012. Following a brief training course, six BCC electricians installed the equipment using a detailed installation guide developed by project partner Siemens. There were technical issues with the configuration of the Studer Inverter and the DC/DC Converter, that resulted in further delays before the solar panels could be incorporated into the system, these issues are explained in greater detail within the Six monthly report, published in June 2013.

The batteries were connected and the DC system has been running since this installation date. The Studer unit was replaced on 21st March 2013, but further technical problems were encountered with the DC/DC converter. This required further testing by PE and Siemens. An updated DC/DC converter was installed on 29th April and from this date the full system has been working without any problems.

- **Substation Installation**

The first Network Manager Unit was installed in Marwood Rd substation, in Knowle West, on 18th July and commissioned. Marwood Rd was chosen as it feeds property 3, which is one of the initial trial homes. The unit is working and in Communication with Siemens and the property. There is a minor issue with the meter accuracy at current levels below 20A and Siemens are investigating a solution to this.

It is expected that the following 11 substation installations will take approximately one day each to install and an hour to commission. There was no CML or CI impact on customers.

- **Property 2 & 3 recruitment**

2 customers had expressed an interest in becoming the next trial homes for the project. They were invited to the EcoHome on 2nd May for a guided tour of the installation and to experience the DC lighting. The system was explained as was the expected works that would be required within their properties. Following this both customers agreed to participate in the next phase. Detailed surveys of their properties, both electrical and structural were completed.

3. Pre Installation Surveys

Before any construction work commenced detailed surveys' were carried out in the following areas:

- Structural survey of Loft area
- Electrical Survey

Structural report

The report was carried out By Casley Rudland Surveyors at 60 Cossington rd, a typical example of all the potential homes included in the project. As it turned out this particular home was not selected as either property 2, or 3, but will be included in the next phase of the project. As all the homes were built at the same time and are of similar construction, It is representative of the type of home selected.

A typical Knowle West Street

The report recommended that additional support was required to support the weight of the batteries. Bristol City Council (BCC) has undertaken this work prior to installation.

The full report and calculations can be found in Appendix 1

Electrical report

BCC undertook a detailed survey of the 2 selected properties and have concluded that the wiring and layout of the homes is acceptable for the Sola Bristol installation.
There were issues with the Solar Panel wiring being too close to the mains gas installation, and a requirement to alter the wiring on the smoke alarm system, to keep it on the AC mains, not the proposed DC system.

Both these issues were resolved prior to installation.

4. Remedial works prior to installation

Structural Issues
With the permission of the tenant, the BCC carpentry team arranged to re-enforce the roof trusses as per the structural report prior to the installation of the batteries. At the same time they created a walk way and battery support platform to enable safe working and installation. This was completed on both property 2 & 3.

Electrical issues

Property 2: Mains smoke alarms wired direct from fuse board, pv control equipment 90mm from gas mains

Property 3: Smoke alarms wired direct from fuse board, original fuse board less than 150mm from gas pipe

BCC Maintenance and Engineering department arranged for the original Solar Contractor to return and correct the wiring issues in relation to the proximity to the gas main.
They also ensured that all smoke alarms had their own AC supply.

5. Installation Timeline

Property 2

12th August. Loft Boarding and structural re-enforcement
13th August. Battery Lift into loft space and construction of battery box
14th -16th August Installation of Sola Bristol Equipment and conversion of house lighting to DC.
16th August G59 relay testing. System commissioning and switch on.

Property 3

19th August. Loft Boarding and structural re-enforcement
20th August. Battery Lift into loft space and construction of battery box
21st -23rd August Installation of Sola Bristol Equipment and conversion of house lighting to DC.
23rd August G59 relay testing. System commissioning and switch on.

6. Installation works

Property 2

12th August. BCC contract carpentry team completed structural re-enforcement and created walkway and battery platform.

13th August. Pickfords collected batteries, delivered to site and lifted into loft area.

14th August. BCC electricians collected kit and delivered to site by 08.30am. Battery Control Transfer Box (BCTB), Studer Inverter and battery box lifted into loft, and mounted in position. Ac mains cable to loft area needed to be extended to new Studer position. The existing Inverter needed to be removed from its mounting. This proved difficult as there was a release mechanism that the install team were not aware of. The original installer was consulted and the procedure explained. The PV cables from the isolation switch to the Studer were not provided and needed to be made up by the original installer (This was an oversight, and has now been resolved for all remaining installations).
There was also missing 50mm cables from the BCTB to the Studer. Arrangements were made to have these cables couriered to site to arrive before 10am on the 16th.

15th August. The new wiring for the 2 USB charging boxes was completed in positions preferred by the customer. The position of the Sola Bristol consumer unit was agreed with the customer and mounted on the wall. This was then wired in, along with the BCTB, the USB charger boxes and the Studer Inverter. The battery box was constructed and the batteries linked together. All light switches and fittings were changed in readiness for the DC connection except the bathroom fitting. All circuits however were left on AC so that the customer's lights were still in use.

16th August. Moixa attended site to update communication units, for property 2 & 3, in the consumer unit to replicate the settings used during the FAT tests. G59 tester arrived on site as planned at 09.30am. The expected cable had not arrived before 10am as planned, and after several calls to the courier it was realised that it had been incorrectly dispatched to the wrong depot. It was urgently re-directed and promised for 2pm. This was later delayed again to 5pm. It was then decided to delay the G59 and commissioning tests to the following week so as not to inconvenience the customer further.
22nd August. Missing cable was on site and installed by the BCC electricians. All bulbs were changed for DC LED's Bathroom light fitting changed to DC. G59 tests were completed by 12.30pm. Whilst commissioning the Sola Bristol system it was found that there were issues with the Moixa communications unit. The on-site engineer from Siemens tried to fix this, with conference call guidance from Moixa, to no avail. The decision was made to run the system in stand-alone mode without the communications unit and re configure the Studer accordingly. Siemens then removed the suspect unit for further diagnostic testing. The results of this can be found in Appendix 1.
All this was explained to the customer and it was agreed that once the issue was resolved, an appointment would be made to install the communications unit. This was made for Wednesday 4th September. On this day Siemens completed the communications upgrade and commissioned the complete system. The communications path was tested and proved.

On-going works

The completed Loft Installation

A post installation interview can be found by following https://vimeo.com/album/2493044 The password is sola

Property 3

19th August. BCC Carpentry contractor failed to turn up as planned.

20th August. BCC Carpentry contactor commenced work, but due to the delayed start, the loft boarding was not complete when the batteries were delivered by Pickfords. This caused confusion and undue disruption to the customer as it was agreed that Pickfords would move on to their next job and return later that day to complete the lift. This was done by 15.00hrs.
The customer was concerned as she had been told by BCC through KWMC that there would be a preliminary visit on Friday 16th August by the loft contractor and work would start on Monday 19th (as planned). She waited home both days but the carpentry contractor did not start until Tuesday 20th.

21st August. Following the previous days issues WPD met with the customer and the BCC electrician teams to ensure that she was happy to continue and to give an assurance that work was back on schedule.
BCC electricians collected kit and delivered to site by 08.30am. Battery Control Transfer Box (BCTB), Studer Inverter and battery box lifted into loft, and mounted in position. The previous issues with missing PV and 50mm cables had been resolved so were not a problem in property 3. The mains cable in the loft did not need extending and the removal of the existing inverter went without any issues.
The customer had installed a bespoke ceiling fan in the living room and insisted this was to stay in situ. As it is not possible to run this off the DC network thought was given to wiring this light separately so that it remained on AC. There were concerns over other lamp shades and light fittings, but agreement was reached on replacements, with WPD providing a £50 voucher to the

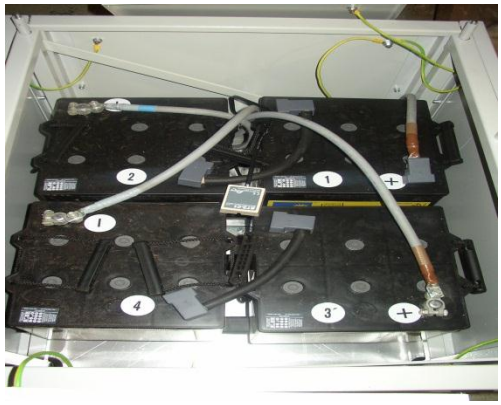
customer so that she could choose suitable replacements. This was also extended to Property 2 and is thought that this approach will be rolled out to all accepted participants.

22nd August. The customer requested only 1 x USB box to be fitted, and this was completed. The position of the Sola Bristol consumer unit was agreed with the customer and mounted on the wall. This was then wired in, along with the BCTB, and the Studer Inverter. The battery box was constructed and the batteries linked together. All light switches and fittings were changed in readiness for the DC connection except the bathroom fitting. All circuits however were left on AC so that the customer's lights were still in use. The G59 relay was tested by the same tester that had completed property 2 earlier in the day. Due to the issues with the Moixa communications unit at property 2 it was decided in consultation with the customer, not to commission the installation, but to leave the AC system in place until Weds 4th September, when the communications issue would be resolved and the system could be commissioned correctly.

23rd August. BCC electricians completed the wiring for the bespoke ceiling fan to remain on AC.

On the 4th September Siemens completed the installation of the communications upgrade as per property 2. The complete system was then tested and commissioned.
All communications paths were tested and proved, including the communications link to the Network Management unit at Marwood Rd sub-station. Data was seen by Siemens in their Newcastle facility.

The completed Loft Installation



The battery Bank

Appendix 2 is a full report, from the University of Bath on customer engagement issues following the post installation interviews.

Appendix 4 documents the results of the post installation meeting with Bristol City Council to address the issues encountered during these installations.

7. Testing and Commissioning

Siemens have provided on-site support throughout both installations and the Marwood Rd sub-station installation.

All testing and commissioning was completed by Siemens. Property 2 is currently a stand-alone system, as the associated sub-station does not yet have the network management unit

installed. Property 3 is a complete system in communication with its sub-station at Marwood Rd and Siemens.

Appendix 3 contains a full report from Siemens along with the data protection protcols.

8. On going WIP

Work is now progressing with the development of the Tablet for the customer interface. There is a meeting between Siemens and KWMC on the 17th Sept to finalise the proposed visualisation tools, and this will then be presented to the tenants of properties 2 & 3 for their input.

Appendix 1. Structural report docs

CASLEY RUDLAND

Consulting Structural Engineers 199 Whiteladies Road Clifton Bristol BS8 2SB Tel: 07860 369064 & 07836 342747

PROJECT: 60 Cossington Road Bristol BS4 1DP	Date: May 2013	Project No: 1130513
TITLE: Structural Calculations for support of batteries located in roof void	Made by: BS	Sheet No: Synopsis
	Checked by: DC	

Proposed works:

60 Cossington Road is a two storey end of terrace of four houses built by the local authority probably in the 1930's. Construction is in traditional materials with load bearing masonry walls supporting suspended timber floors and a pitched timber roof clad with tiles.

Solar panels have been fitted to one roof pitch and storage batteries are to be located in the roof void.

These calculations check the existing ceiling and roof timbers to support this extra weight and make recommendations for improvements.

Summary of Structural Requirements

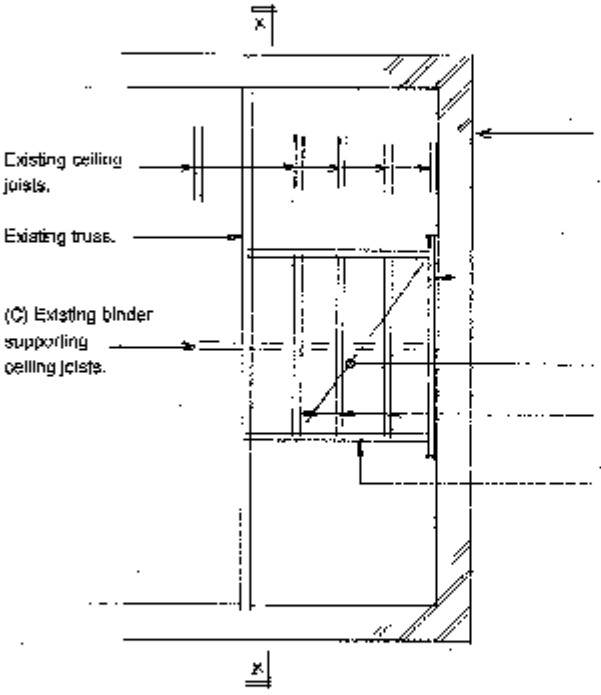
Existing roof framing	The existing roof is well framed with 50 x 100 jack rafters spanning from the ridge to external walls. The span of the rafters is split by a 75 x 135 purlin that is supported on timber trusses at approximately 1.65m centres. 50 x 100 celing joists at 400 centres span across the building and are supported mid span on a 50 x 100 binder spanning between the trusses. The ceiling joists could support the weight of the batteries but the binder fails. Consequently an independent frame of beams must be provided to support the decking on which the battery stand is supported. See sketch SK01 for details of this timber framing. The binder is identified as (C).
Existing trusses	The truss closest to the end gable wall will support the beams of the battery decking. An analysis of this truss with this extra loading gave a significantly increased moment in the bottom tie. To reduce this moment to a negligible amount a 47 x 150 tie (D) should be provided as indicated on sketch SK01. Fix tie to existing truss rafters with M12 bolts. Provide 50 square x 3mm thick washer plates under nuts.
Battery stand support	The battery stand should be supported on 20mm ply decking fixed to 47 x 150 grade C16 timber joists (A) at 400 centres. Joists (A) should be supported on 47 x 150 grade C16 timber beams (B). Beams (B) to be supported on the bottom truss member and on the gable masonry wall. Fix a 47 x 150 timber wall plate (E) to the gable wall with 4 number M12 chemical anchors. Provide 50 square x 3mm thick washer plates under nuts.
Battery stand	See Power Electronics Systems Ltd drawing 3PE 2630 01GA
Structural Calculations	See sheets 1 to 14 of Battery support calculations and sheets 1 to 3/1 of Truss calculations.

CASLEY RUDLAND

Consulting Structural Engineers 199 Whiteladies Road Clifton Bristol BS8 2SB Tel: (0117) 9732727

PROJECT:	60 Cossington Road Bristol BS4 1DP	Date:	May 2013	Project No:	111305/3
TITLE:	Detail of timber framing for battery support stand in roof void	Made by:	CR	Sheet No:	SK 01
		Checked by:	DC	Scale:	1: 50

NOTE:
All timbers to be grade C16 min.
Refer to synopsis sheet for description of proposed works.



End gable wall.

(E) 47 x 150 timber wall plate fixed to masonry with 4 number M12 diameter chemical anchors. Use 50 sq x 3mm thick washers under nuts.

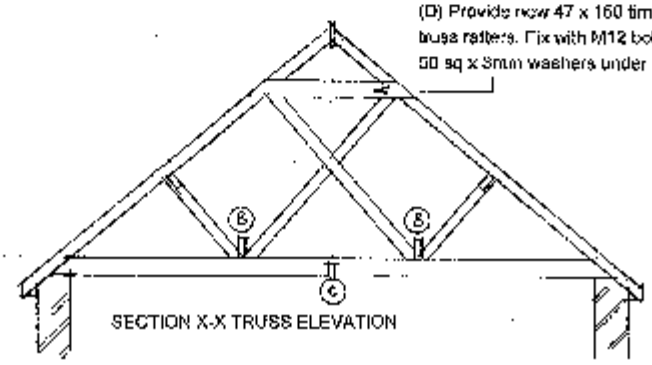
20mm ply decking to support battery stand.

(A) 47 x 150 timber joists @ 400 centres.

(B) 47 x 150 timber beams supporting joists (A).

Beams (A) and (B) not to load existing ceiling joists.

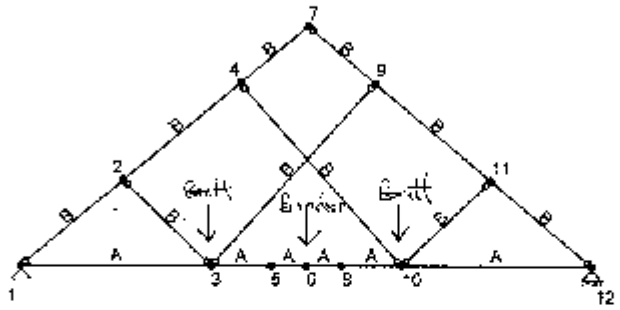
PART PLAN OF ROOF



SECTION X-X TRUSS ELEVATION

CASLEY RUDLAND Consulting Structural Engineers Bristol	Proj: Admin_SP **Date:** 30/05/13	**Ref :** Truss check exising **Page:** 1
	Admin's ScratchPad 60 COSSINGTON ROAD	

Location : MAIN TRUSS WITH BATTERY LOADS AT NODES



Materials Table - units: N/mm²

Type	E
Timber	9800

Sections Table - units: cm²,cm⁴

Code	Description	A	I
A	47x175 SS	82.25	2099.09
B	47x100 SS	47.00	391.67

Joints Table - units: mm

Joint	X	Y
1	0	0
2	820	686
3	1533	0
4	1755	1472
5	2015	0
6	2300	0
7	2300	1930
8	2585	0
9	2845	1472
10	3067	0
11	3780	686
12	4600	0

Members Table

CASLEY RUDLAND

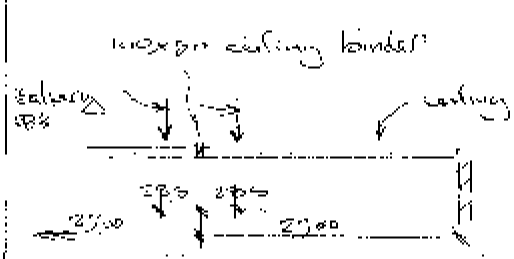
Consulting Structural Engineers 199 Whiteladies Road Clifton Bristol BS8 2SB Tel: (0117) 9732727

CALCULATIONS

PROJECT: 60 Cossington Rd	Date: 05/13	Project No: 1130513
	Made by: KD	
	Checked by	Sheet No 1

ITEM	ELEMENT	OUTPUT

Existing ceiling joist check



For design check see sht's 2 - 4

Existing FB's spanning onto 4 joists, see sht's 11 - 14

ITEM	ELEMENT				OUTPUT	
Qk	FB existing	=	0.50 /m	=	–	0.20 kN
Gk	Decking	=	0.12 × 0.4	=	0.048	–
Qk	"	=	0.75 × 0.4	=	"	0.30
Ceiling Gk	Existing ceiling	=	0.25 × 0.4	=	0.10	0.10
			No ceiling above under decking			0.20

Reactions for binder

Gk = 0.150 kN
Qk = 0.430 kN

Appendix 2

Test Home Householder Learning Report

Interviews have been conducted during the SoLa Bristol project to document the householder's experiences and to provide an opportunity for them to feedback about the project. During these interviews a number of themes have been identified. In the following report we discuss these themes. The report concludes with a list of learning points identified during the householder interviews.

Methodology:

We used a lightly guided interview technique to discuss the householders experiences during the installation stage of the project. A basic thematic analysis revealed several clear recurring themes. The themes appeared to be largely separate, each referring to a different issue that complicated or facilitated the project.

Theme One - Getting Involved

Both the homes had previous experience collaborating with the media centre, and in particular were familiar with Misty. The two houses were involved due to an invitation from Misty to take part.
One of the houses had previously applied to the government for solar panels but had not heard back, while the other family had not considered solar panels prior to the project.

Theme Two – Working with KWMC.

Misty was the original contact at KWMC on the project. Part way through the project she left for maternity. In the interim Sue provided support to the project, Sue had worked on a similar energy project with the community so she had an advantage because she knows a lot of the householders, and has previously worked on an energy project. Recently Jen has joined the project and is currently liaising with the householders about the project.
The two test homes have both commented on the value of having KWMC on the project. In particular they provide support for the householders and have been useful for communicating and providing updates about the project. In particular it was noted that during the battery install Jen worked hard to provide updates and details to the householders so that they understood why delays were occurring.

Theme Three – Money Saving

Both of the test homes have seen a monetary saving since having solar panels installed. The householders have seen their bills drop to around 65% of what they were paying previously and are anticipating that the battery packs will also further help them save money. One of the householders commented that she now pays more attention to her energy and has changed her electricity provider to get a better rate.

Theme Four – Behaviour Change

Both test homes reported that they have changed their energy behaviour since the project has begun. One family have changed their behaviour so that they now try to do laundry during the day (they used to do it in the evening). In the other family the daughter asks if she is allowed to switch the light on. Both also reported that they liked to see how much energy they were generating.

Theme Five – Communication

Communication has been integral during this project. There are a large number of partners involved in this project and it is important that there is effective communication between all of the partners and the householders.

It has been noted that at times the project has suffered due to miscommunication. In particular during the battery install a number of contractors and companies were involved. In some instances misunderstandings and insufficient communication meant that the project was delayed and consequently the householders were sometimes frustrated by the progress. The householders reported that they were happier about project delays when there was honesty about the issues.

While sometimes the householders have been frustrated by the lack of progress and miscommunication, it has been noted the progress was smoother when the project manager Mark Dale was present, as decisions could be made easily. The householders were also very positive about the involvement of KWMC staff who have worked hard to keep the householders informed of project changes and updates.

Theme Six – Battery Installation

It is early stages with the battery installation however both test homes have reported being excited to see how this impacts on their energy use and monetary savings. One householder noted that WPD had been quick to make changes during the install to improve the equipment and she also commented that the contractors who had installed the battery were very friendly and had helped her to move the furniture in the house to allow for easier access.

One of the householders reported delays due to the light fitting requirements. While a solution has now been found, she suggested that for the next set of installs each house needs to be checked thoroughly in advance.

There was a suggestion that future householders would benefit from more detail about the process, in particular with regards to the extent that lofts and rooms might need clearing to allow for access and wiring. However it was acknowledged that these were test homes so it was anticipated that for the main set of houses more detail would be available to the householders.

One of the householders noted that she has already been using the USB socket to charge her phone and was very appreciative of the contractors taking the time to ask her where she wanted it to be located.

Theme Seven – Tablet

Both test homes have expressed excitement for the tablets, and are keen to explore how the tablets can help them understand their energy use. KWMC have worked in conjunction with the householders to discuss different methods of explaining the energy use.

Theme Eight – Project Conclusion

Both householders have commented that they would like to know whether they will get to keep the equipment after the project concludes. Currently they are keen to keep the battery packs, however they have expressed concern that it will need suitable technical support and that it might be useful if WPD think about this now while contractors are installing the equipment.

Key Learning Points:

⇒ KWMC have proved vital for the project. There familiarity with the area and householders has benefitted the project.

⇒ Effective communication has been integral during this project. It is clear that in some areas this could be further improved, however the team are aware of this and have already taken action to document future communication methods.

⇒ Householders are aware that delays are possible; these are more easily managed when there is honesty about the delay.

⇒ During the install it is important that somebody with authority is present, and that they are able to liaise with all of the contractors to ensure the install process is smooth.

⇒ Both of the test homes have reported benefits from the project, these include monetary savings and behavioural changes.

⇒ Householders appreciated the friendly nature of the contractors.

⇒ Future installs could be improved by providing more detail about the process including the length of the install and the space and access requirements.

⇒ Householders are keen to know more about their energy use and are looking forward to using the tablets to explore this further.

⇒ The householders are keen to know about the future for the project. In particular they would like to know what form of support will be available if the batteries stay in the houses after the project concludes.

⇒ https://vimeo.com/album/2493044 is the link to the KWMC video containing pre and post installation interviews.

Appendix 3

SoLa BRISTOL
Commissioning & Communications Overview (including Data Protection)

Commissioning and Communications Overview.

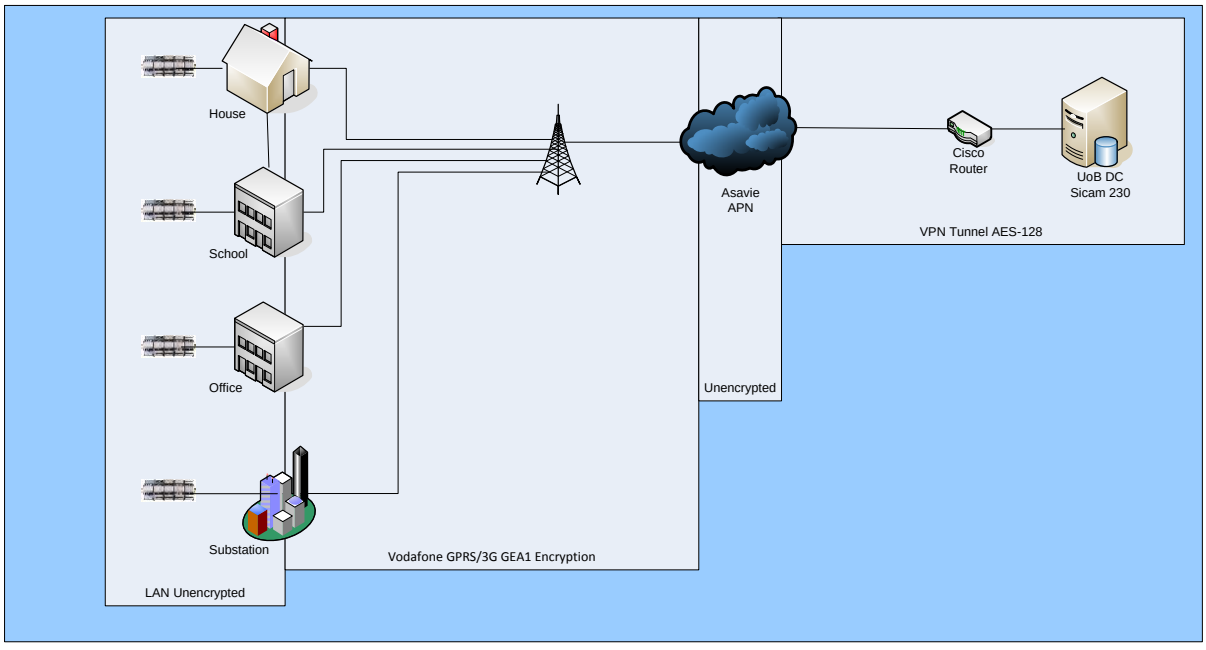
Commissioning of trial properties two and three were completed on 04.09.13. Efforts during this day resulted in successful set-up and data transfer between the Marwood Road substation, house 18 (Property 3) and the data concentrator which is currently held at Siemens, Newcastle – please note this will be transferred to the University of Bath during the domestic installation roll-out. Further to this house 4 was also successfully commissioned on a 'stand-alone' basis. These installations supplement that of the Bristol City Council 'EcoHome' completed earlier in the calendar year.
The day started with the commissioning of Property 3 communications system, this ensured that data could be transferred between the local substation at Marwood Road and the homes internal control system. An issue had been identified previously with this aspect of the communications network due to the incorrect supply of a connector by a third party to Siemens – this issue has been logged and corrected with the supplier. Initially the wiring & communications connections were reviewed and approved, modifying one cable to compensate for the issue highlighted above – specifically that between the Moixa HUB-002 and the Studer X-Comm unit. Once complete the Studer parameters were updated to represent the final system (including communications to the local substation rather than being 'stand-alone'). Property 3 was then signed off with the team then moving to property 2 to complete the same works, though without the updated Studer parameters due to this being a stand-alone system, as the Network Management unit is not yet installed in the sub-station. The final visit of the day involved a database update at Marwood Road substation to allow the communications link from property 3 back to the Data Concentrator. Signals were confirmed as received from an engineer at both Marwood Road and local to the Data Concentrator at Siemens.

Data Protection

There are four areas over which data for the Bristol SoLa trial is transmitted.

1. Within the monitored building on the local Ethernet LAN
2. Over Air transmission from the monitored building LAN to a private APN using Vodafone GPRS/3G
3. Within the Asavie Private APN routing infrastructure within the Vodafone network
4. Over a VPN from the Asavie APN to the SICAM 230 Data Server using the University of Bristol network

- Data Traffic on the local LAN at the House, School, Office or Substation is un-encrypted
- Data Traffic between the House, School, Office or Substation and the Asavie APN is encrypted using the standards GPRS/3G GEA1 Encryption Standard.
    - The encryption key is embedded in the device SIM and also stored in the HLR (Home Location Register) of the telecoms provider (Vodafone)
- Data routed within the APN is un-encrypted.
    - But is secured by the telecoms security standards
- Data egressing from the Asavie APN to the Data Server is via a VPN and encrypted using the AES 128 encryption standard
- On demand archive data exported from the Data Server onto a USB drive is unencrypted.



- LAN – Local Area Network
- APN – Access Point Name
- GPRS – General Packet Radio Service

- VPN – Virtual Private Network
- AES – Advanced Encryption Standard
- HLR – Home Location Register
- GEA1 – GPRS Encryption Algorithm 1
- USB – Universal Serial Bus

Appendix 4

Notes from Installation Issues Meeting 28th Aug

Attendees:
Paul Court BCC
Jon Brookes BCC
Justin Ricks KWMC
Jenny Rolfe KWMC
Mark Dale WPD

Following the issues that arose during the first 2 property installs, the following actions have been agreed to make sure that the remaining installs run smoothly:

- A first point of contact for all installation issues will be set up. This will be Jenny Rolfe from KWMC. Sue MacKinnon will also be available if required. Contact details are:

  Jennifer Rolfe
  0117 903 0444
  jennifer.rolfe@kwmc.org.uk

  Sue Mackinnon
  0117 903 0444 ext 212
  sue@kwmc.org.uk
  Working days: Mon – Thurs
- Paul Court has requested Siemens support on the final commissioning day on all domestic installs. BCC do not feel confident with the equipment to undertake this role themselves
  - Mark Dale to Action with Siemens

- It was thought that the tasks of loft boarding and battery installation need to be separated from the electrical installations. It was agreed that Mark Dale and Paul Court will draw up a program of works for the remaining 27 properties once Ofgem give their approval to commence works.
  - Mark Dale & Paul Court to action

- BCC call centre staff to be briefed by Jon Brookes on the project, and all 'live' project properties to be highlighted.
  - Jon Brookes to Action

- Information label with Sola Bristol logo and all emergency contact numbers to be produced, to fix to front of consumer unit in customers properties.
  - Mark Dale to Action