

Appendix #	Subject	Reference in proforma
Appendix 1	University of Bath letter of engagement and support, and their data analysis methodology	Boxes 1, 18
Appendix 2	Memorandum of Understanding between WPD and npower	Box 25
Appendix 3	Customer communications pack	Box 2
Appendix 4	Installing monitoring in LV substations	Box 4
Appendix 5	Support letters – University of Bristol / WAG	Boxes 18, 23
Appendix 6	Sample extract of Arbed data (anonymised)	Box 23
Appendix 7	RFQ issued to meter installers re the installation of voltage sensors at end of feeders / Provisional design of end-of-feeder voltage monitors	Box 25
Appendix 8	An overview on the concept of network templates	Box 1

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2		Extract of real Arbed data provided by WAG - locations have been anonymised by WPD under confidentiality agreement										
3												
4		Postcode	FLAT / HOUSE	No Of Beds	Construction Type	Age	T/ET/SD	EWI	Loft 300mm	Arbed Measure No 1	Arbed Measure No 2	
5		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
6		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
7		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
8		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
9		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
10		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
11		XX nn nYY	H	3	Cornish	1953	T		1	1 EWI	-	
12		XX nn nYY	H	3	Cornish	1953	E/T		1	1 EWI	-	
13		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
14		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
15		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
16		XX nn nYY	H	3	Cornish	1953	T		1	1 EWI	-	
17		XX nn nYY	H	3	Cornish	1953	E/T		1	1 EWI	-	
18		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
19		XX nn nYY	H	3	Cornish	1953	SD		1	1 EWI	-	
20		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
21		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
22		XX nn nYY	H	3	Traditional Cavity	1968	E/T		1	1 EWI	ASHP	
23		XX nn nYY	H	3	Traditional Cavity	1968	E/T		1	1 EWI	ASHP	
24		XX nn nYY	H	3	Traditional Cavity	1968	T		1	1 EWI	ASHP	
25		XX nn nYY	H	3	Traditional Cavity	1968	T		1	1 EWI	ASHP	
26		XX nn nYY	H	3	Traditional Cavity	1968	E/T		1	1 EWI	ASHP	
27		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
28		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
29		XX nn nYY	H	3	Traditional Cavity	1968	E/T		1	1 EWI	ASHP	
30		XX nn nYY	H	3	Traditional Cavity	1968	T		1	1 EWI	ASHP	
31		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
32		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
33		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
34		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	
35		XX nn nYY	H	3	Traditional Cavity	1968	SD		1	1 EWI	ASHP	

LV Network Templates for a Low-carbon Future – Appendices

Anonymised sample Arbed data.xls [Compatibility Mode] - Microsoft Excel															
O18															
	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	POSTCODE	House Age	House Wall Construction	House Wall Insulation	Built Form	Is Mains Gas Available?	Fuel Type	Boiler Type	Flue Type	1998 Or Newer	boiler efficiency	Water Heating	H/W Cylinder Insulation Thickness	Loft Insulation Main (mm)	Arbed Measure 1
37	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
38	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
39	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
40	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
41	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
42	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
43	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
44	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
45	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
46	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)		Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
47	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)		Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
48	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)		Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
49	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)		Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
50	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)		Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
51	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)		Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
52	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
53	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
54	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	SWH - to roof between	
55	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
56	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
57	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
58	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
59	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
60	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
61	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
62	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
63	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
64	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
65	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
66	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
67	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
68	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
69	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
70	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
71	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
72	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
73	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
74	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
75	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
76	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
77	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
78	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
79	XX nn nYY	1975 - 81	Cavity	Filled Cavity	House	Yes	Gas (Mains)	Normal	Fan	Yes	78	Boiler/Main 38mm	150	PV - to south facing ro	
80															

Key:

EWI = External wall installation	ASHP = Air Source Heat Pump
SWH = Solar Water Heating	PV = Photovoltaic