Expectations of DNOs & Willingness to Pay for Improvements in Service

VOLUME 2: APPENDICES

Prepared by:

Accent
Chiswick Gate
598-608 Chiswick High Road
London
W4 5RT

Prepared for:

OFGEM
9 Millbank
London
SW1P 3GE

Contact:	Miranda Mayes	Contact:	Laura Nell & James Hope
E-mail:	miranda.mayes@accent-mr.com		
Tel:	020 8742 2211		
Fax:	020 8742 1991		

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APPENDIX A

Socio Economic Group (SEG) Classifications

ABs

These represent approximately 17% of the total population. Group A includes: professional people; very senior managers in business or commerce; top civil servants; retired people who were previously one of the foregoing and their widow/widowers. Group B includes: middle management executives in large organisations; principal officers in local government or the civil service; top management or owners of small business concerns, educational and service establishments; and retired people who were previously in group B and their widow/widowers.

C1C2s

These represent approximately 51% of the total population. C1 includes: junior management; owners of small establishments; all others in non-manual positions; retired people who were previously in the C1 group and their widow/widowers. C2 includes: all skilled manual workers; manual workers with responsibility for other people; retired people who were previously in the C2 group if receiving pensions from their job; widows/widowers of those in C2 if receiving pensions from their late spouse's job.

DEs

These represent approximately 32% of the population. D includes: all semi-skilled and unskilled manual workers; apprentices and trainees to skilled workers; retired people previously in group D with pensions from their job; widows/widowers of those in D if receiving pension from their spouse's job. E includes: those entirely dependent on the state long-term through sickness, unemployment, old age or other reasons; those unemployed for a period exceeding six months; casual workers and those without a regular income.

APPENDIX B

Postcodes Covered by the Survey
(Note: domestic totals differ from those used in the presentation of the data,
ie 150 per cell, as the data presented has been weighted to reflect equal
cells of 150 interviews per DNO area)

Postcodes Sampled in the Domestic Survey

CN East		CN West		EDF Energy Netwks EPN		EDF Energy Netwks LPN		EDF Energy Netwks SPN		SSE - Hydro		SSE - Southern		
Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Total Number sampled
B77	18	B32	7	AL1	10	BR1	15	BN1	9	AB1	20	BH1	7	86
CV4	4	B35	21	CB1	5	DA1	5	BN3	1	AB2	6	BH2	2	44
CV5	6	B44	3	CB9	5	DA8	10	BR6	15	AB3	3	BH6	1	43
DE2	18	B62	9	CM1	7	E10	3	CT1	5	AB4	25	BH8	1	68
DE5	1	B73	17	CO1	10	E11	4	CT2	5	DD2	6	BH9	7	50
DE7	1	B97	10	CO2	4	E12	1	CT5	5	DD8	7	OX2	7	35
LE1	23	B98	10	CO3	2	E17	2	CT6	5	FK8	10	OX5	9	61
LE3	1	DY3	5	CO4	4	E6	14	DA1	10	IV1	1	PO1	12	47
LE9	6	HR2	5	CO9	8	E7	1	DA9	5	IV2	5	PO9	8	38
LN2	10	ST6	15	EN1	13	IG1	6	RH1	31	PA3	22	RG1	11	108
LN4	9	SY3	5	EN4	1	IG3	8	RH2	9	PH1	3	RG2	33	68
LN6	10	WS	21	IP2	4	IG4	1	TN1	15	PH2	17	SN1	24	92
MK1	5	WS3	10	IP3	6	IG5	4	TN2	15	PH3	26	SN5	6	72
MK2	15	WS6	11	LU2	6	IG8	9	TN3	10			SO1	3	54
MK6	10			LU4	2	IG9	2	TN8	10			SO2	2	26
NG1	1			MK4	8	N5	11					SO4	11	31
NG3	1			NR1	5	N7	3					SO5	6	15
NG4	2			NR9	6	N9	7							15
NG5	1			RM1	10	SE1	5							16
NG6	1			SG2	6	SW1	15							22
NG9	6			SG7	5	W11	15							26
				SS3	6	W6	10							16
				SS8	5									5
				WD1	14									14
														0
														0
Totals	**149**		**149**		**152**		**151**		**150**		**151**		**150**	**1052**

CE - YEDL		CE - NEDL		United Utilities		WPD - South Wales		WPD - South West		SP Manweb		SP Distribution		
Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Postcode	Number sampled	Total Number sampled
BD	16	DH2	21	BB1	10	CF1	16	EX1	10	CH1	2	DG4	8	83
DN	28	DH3	3	BB8	3	CF3	1	EX2	8	CH2	5	EH1	20	68
HD	4	DL	3	BB9	10	CF4	9	EX3	22	CH4	13	EH2	2	63
HU	25	DL1	10	CA1	4	CF5	7	EX4	11	CH5	16	EH5	3	76
HU1	10	DL2	1	CA3	6	LD1	5	EX5	8	CH7	1	EH9	1	32
HU5	1	DL3	11	M20	1	LD2	5	EX8	5	CH8	14	G3	2	39
HU6	3	HG	25	M21	2	LD3	5	PL8	6	LL1	24	G4	8	73
HX	4	NE2	22	M25	3	LD6	5	PL9	8	LL2	14	G72	2	58
LS	6	NE3	2	M26	1	LD8	5	TQ3	2	LL3	17	G74	4	37
LS2	14	NE4	4	M3	1	NP1	16	TQ4	16	LL4	9	G75	19	79
S	27	SR5	6	M31	1	NP2	12	TQ5	1	LL5	12	KA7	13	72
WF	7	SR6	18	M32	17	NP4	1	TQ9	1	LL6	3	KY1	12	59
WF1	6	TS1	2	M33	1	SA1	33	TR1	48	SY1	7	ML2	9	106
		TS2	22	M41	2	SA3	12	TR2	3	SY2	12	ML4	5	56
				M45	7	SA5	1	TR4	1			ML7	2	11
				OL1	19	SA6	19					PA1	13	51
				OL2	8							PA2	8	16
				OL3	0							PA3	1	1
				OL4	3							TD1	8	11
				OL5	1							TD3	1	2
				OL9	9							TD5	10	19
				SK1	1									1
				SK2	3									3
				SK3	6									6
				SK5	4									4
				SK7	2									2
				SK8	24									
Totals	151		150		149		152		150		149		151	1028

Table 1: Postcodes Sampled in Business Survey

CN East		CN West		EDF Energy Networks EPN		EDF Energy Networks LPN		EDF Energy Networks SPN		SSE - Hydro		SSE - Southern		
Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Total Number Sampled
BE23	1	B11	1	AL1	1	BA18	1	BN1	1	AB10	1	BA11	1	7
CR7	1	B12	1	AL4	1	BR1	1	BN10	1	AB11	2	BA13	1	8
DE14	1	B17	3	AL5	1	BR2	1	BN12	1	AB12	2	BA14	1	10
GQ2	1	B18	2	CB11	2	BR5	2	BN2	1	AB14	1	BA20	1	10
LE1	1	B26	1	CB7	2	CR0	3	BN21	1	AB15	1	BA21	1	10
LE15	1	B3	1	CB8	1	CR9	1	BN22	1	AB16	1	BA22	1	7
LE16	14	B32	1	CB9	1	CW11	3	BN3	4	AB21	1	BA3	1	25
NG17	2	B42	1	CM1	1	DA1	1	BN41	1	AB23	2	BA4	1	9
NG18	17	B50	2	EN6	1	DA14	2	BN43	1	AB24	1	BH17	1	25
NG19	1	B6	2	FG1	1	DA17	1	CR6	1	AB30	1	BH19	1	8
NG3	1	B60	3	GL11	1	DA2	1	CT10	1	AB31	2	BH20	1	10
NG31	1	B61	1	GU2	1	DA8	1	CT14	1	AB38	2	BH21	1	8
NG7	1	B64	2	HP2	1	E10	1	CT17	1	AB41	2	DT2	2	10
NN1	1	B65	2	HP27	2	E14	5	CT18	1	AB42	1	DT3	1	13
NN8	1	B66	2	IP13	1	E15	1	CT19	1	AB43	2	DT4	1	9
PE10	1	B68	1	IP24	1	EC1N	3	CT3	1	AB51	2	DT6	1	10
S40	2	B69	1	IP25	1	EC2A	1	CT4	1	AB54	1	GL54	1	8
S43	12	B70	2	IP3	1	IG1	1	CT5	3	DD1	1	GL7	1	21
S44	3	B72	1	IP33	1	IG8	1	CT9	3	DD10	1	GU14	1	11
S45	5	B98	1	IP9	1	KT1	1	DA4	2	DD11	1	GU15	1	12
S64	8	BS37	2	LN4	1	KT2	1	DA9	1	DD2	1	GU28	1	15
		CV36	2	LU1	1	LS28	2	GU23	1	DD3	2	OX14	1	9
		DY4	1	LU2	1	NG31	1	GU24	1	DD4	2	OX15	1	7
		GL16	1	LU3	1	SE1	1	KT12	1	DD8	1	OX16	2	7
		GL19	1	ME8	1	SE15	1	KT13	1	DD9	2	OX26	1	7
		GL20	1	N1	1	SE23	1	KT16	2	FK9	1	OX29	3	9
		GL5	1	N19	1	SE28	1	KT19	1	HS1	1	OX3	1	6
		GL51	2	NP11	1	SE8	1	KT6	1	HS2	1	OX44	1	7
		GL55	1	NR28	1	SM4	1	KT8	1	IV1	1	PO18	1	6
		HR1	1	NR33	1	SW10	1	ME10	3	IV11	1	PO19	1	8
		HR4	1	NR34	1	SW11	1	ME12	1	IV12	1	PO20	1	6
		HR8	1	NR4	1	SW12	1	ME13	2	IV15	1	PO22	2	8
		SY7	1	NR7	1	SW16	1	ME14	1	IV2	1	PO3	1	6
		TF1	5	NW1	1	SW17	1	ME16	1	IV24	1	PO30	1	10
		TF12	1	NW4	1	SW18	1	ME20	1	IV28	1	PO33	1	6
		TF3	2	OX2	1	SW1P	2	ME7	1	IV30	3	PO36	1	9
		TF7	1	P75	1	SW1V	1	RH1	2	IV49	1	RG1	1	8
		WR5	1	PE1	1	SW1W	1	RH12	1	IV51	1	RG12	2	7
		WS10	3	PE13	1	SW1X	1	RH13	1	IV6	1	RG17	1	8
		WS11	6	PE16	1	SW20	1	RH15	1	KA27	2	RG19	2	13
		WS15	4	PE18	1	SW3	1	RH16	1	KW1	1	RG2	1	9
		WS2	1	PE19	2	SW7	1	RH17	1	KW15	1	RG21	1	7
		WS3	1	PE2	3	SW8	2	RH19	1	KY13	2	RG22	2	10
		WS8	2	PE28	1	TA6	1	RH2	2	PA20	1	RG29	1	9
		WS9	2	PE29	1	W10	2	SM2	1	PA23	1	RG7	1	7
		GU1 *	1	PE3	1	W1C	1	TN15	1	PA29	1	SL0	1	7
				PE30	1	W1G	1	TN20	2	PA34	2	SL6	2	7
				PE38	1	W1S	1	TN22	1	PA35	1	SL8	1	4
				PL26	1	W1T	2	TN23	1	PA38	1	SN1	1	3
				SG12	2	W1W	1	TN24	2	PA42	1	SN10	1	4
				SG4	1	W2	1	TN3	1	PA43	1	SN4	1	3
				SG5	1	WC1A	1	TN30	1	PA75	1	SO14	1	3
				SG6	1	WC1E	2	TN38	3	PH1	1	SO19	1	2
				SL1	1	WC1H	1	TN4	1	PH10	1	SO23	1	2
				SL9	1	WC2	1	TN40	1	PH12	1	SO31	1	2
				SS11	1	WC2H	1	TN9	3	PH23	1	SO43	1	3
				SS14	1					PH26	1	SO50	1	1
				SS2	1					PH41	1	SP10	1	
				SS7	2					PH7	1	SP2	1	
				W3	1					ZE1	1	TW16	1	
				WD23	1					EH1 *	1	TW18	1	
				WD4	1							TW6	1	
				WD6	1							TW7	1	
				NE1 *	1							UB2	1	
				NE11 *	1							UB3	2	
												UB8	1	
Total	76		77		73		75		76		77		76	530

CE - YEDL		CE - NEDL		United Utilities		WPD - South Wales		WPD South West		SP Manweb		SP Distribution		
Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Postcode	Number Sampled	Total Number Sampled
BD1	1	DH1	2	BB1	1	CF10	4	BA5	1	CH1	2	DD12	1	12
BD10	1	DL1	1	BB12	2	CF14	3	BA6	1	CH2	1	DG1	1	10
BD14	1	DL10	1	BB3	1	CF15	1	BS1	2	CH3	1	DG11	2	9
BD18	1	DL11	1	BB4	2	CF23	1	BS11	2	CH4	1	DG6	1	9
BD20	2	DL12	1	BB5	1	CF3	2	BS13	1	CH41	3	DG9	2	12
BD21	2	DL13	1	BB7	1	CF31	1	BS14	1	CH44	3	EH10	1	10
BD22	1	DL14	1	BB9	2	CF44	1	BS16	1	CH45	1	EH11	1	8
BD3	1	DL15	1	BD23	1	CF48	3	BS21	1	CH5	3	EH12	1	11
BD7	1	DL5	2	BD24	1	CF62	1	BS22	2	CH63	1	EH17	1	9
DH1	1	DL7	1	BL1	3	CF63	3	BS27	1	CH65	2	EH2	1	12
DN14	2	DL8	2	BL2	1	CF72	2	BS30	1	CH7	4	EH20	1	13
DN15	1	FA40	1	BL6	1	HR3	1	BS4	1	CW2	1	EH21	1	7
DN21	1	HG2	1	CA1	1	LD2	1	BS49	1	CW6	1	EH25	1	7
DN22	1	HG3	1	CA14	2	LD7	1	BS5	2	CW7	1	EH3	4	12
DN31	1	HG4	1	CA28	1	LD8	1	BS8	1	CW9	1	EH39	2	8
DN32	1	HG5	1	CA3	1	NP10	2	EX17	1	HX3	1	EH44	2	9
DN38	1	NE11	1	CA6	1	NP12	2	EX18	1	L12	1	EH51	1	8
DN5	1	NE12	2	CA7	1	NP15	1	EX2	2	L21	2	EH52	1	10
DN9	1	NE13	1	FY1	1	NP19	1	EX31	1	L24	2	EH54	1	8
HD2	1	NE20	1	FY2	2	NP20	1	EX34	1	L30	2	EH8	1	9
HD6	1	NE21	2	FY7	1	NP22	3	EX36	3	L34	2	G1	1	13
HD9	1	NE22	1	FY8	1	NP23	1	EX39	4	L37	2	G2	1	11
HU1	2	NE28	2	L39	1	NP4	5	EX5	1	LL15	2	G20	2	15
HU3	1	NE3	2	LA1	2	NP44	2	EX6	1	LL16	1	G22	1	10
HU7	1	NE33	2	LA14	1	NP7	2	EX8	2	LL17	1	G32	4	13
HU8	1	NE37	1	LA2	1	SA1	3	PL1	3	LL18	2	G40	1	12
HU9	1	NE38	4	LA22	1	SA11	1	PL13	1	LL19	2	G41	1	11
LF25	1	NE4	2	LA23	1	SA12	2	PL14	1	LL21	1	G46	1	9
LS10	1	NE43	1	LA3	1	SA14	2	PL17	1	LL26	1	G51	1	8
LS12	2	NE46	2	LS18	1	SA19	1	PL21	1	LL36	1	G52	1	9
LS15	1	NE47	1	M12	1	SA32	2	PL24	1	LL40	1	G53	1	8
LS23	1	NE48	1	M15	1	SA38	1	PL27	1	LL41	1	G71	1	7
LS25	1	NE49	1	M17	1	SA4	1	PL31	1	LL52	1	G72	1	7
LS27	1	NE6	3	M2	1	SA43	1	PL4	1	LL53	2	G74	2	11
S1	1	NE61	2	M28	1	SA44	1	PL6	1	LL54	1	G81	1	8
S18	1	NE66	1	M31	1	SA47	1	TA1	1	LL55	1	J78	1	7
S41	1	NE9	2	M34	1	SA48	2	TA19	1	LL57	1	KA1	2	10
S5	1	SR7	1	M40	1	SA6	2	TA4	2	LL60	1	KA12	1	9
S60	2	SR8	1	M45	1	SA61	1	TQ1	1	LL65	2	KA13	1	9
S63	1	TS12	3	M6	2	SA62	2	TQ14	2	LL72	1	KA21	1	12
S65	1	TS16	1	OL1	1	SA64	2	TQ2	2	LL77	2	KA30	1	10
S7	1	TS18	2	OL18	1	SA73	2	TQ4	2	PR9	3	KA9	1	12
S75	1	TS2	2	PR2	1	SY23	2	TR14	2	S11	1	KY11	1	10
S9	2	TS20	1	PR3	3			TR15	2	WA10	3	KY15	1	12
WF15	1	TS21	2	PR5	1			TR18	1	WA16	2	KY16	1	8
WF16	1	TS23	2	PR6	2			TR26	1	ST5 *	1	KY4	1	8
WF6	1	TS25	3	PR7	1					SY21 *	1	KY7	1	7
WF7	1	TS3	2	S18	2					SY23 *	1	KY8	1	7
DL7 *	1	TS9	1	SK1	1							ML11	1	4
HG4 *	1			SK11	1							ML3	1	3
ST1 *	1			SK13	1							ML4	1	3
ST10 *	1			SK14	2							ML5	1	4
ST13 *	2			SK15	1							ML7	1	4
ST18 *	1			SK23	1							NL6	1	3
ST3 *	2			SK3	1							PA1	1	4
ST4 *	2			SK4	1							PA11	1	4
ST5 *	1			SK9	1							PA15	1	3
ST6 *	1			WA11	1							PA2	1	3
ST7 *	1			WA15	1							PA3	1	3
SY21 *	1			WA3	2							PA4	1	4
SY7 *	2			WN5	1							PA7	1	4
SY8 *	1			WN6	1							TD1	1	3
TS14 *	1			WN7	1							TD12	1	3
TS23 *	1											TD15	1	2
												TD5	1	1
												ZE1 *	1	1
Total	75		75		78		75		65		75		79	522

* not stated; DNO known & stated

APPENDIX C

Domestic Recruitment Questionnaire

Accent

RQ number: ☐☐☐   **URN:** ☐☐☐☐

Interviewer name: ☐   **Interviewer no:** ☐☐☐   **Date:** ☐☐☐   **Time:** ☐☐☐

Introduction

Good morning/afternoon/evening. My name is …… and I am calling from Accent. We are an independent market research company and I am carrying out research on behalf of Ofgem, the gas and electricity industry regulator. Ofgem is responsible for protecting consumers through promoting competition, wherever appropriate, in the energy sector and through regulating the monopoly companies which run the gas and electricity networks. Ofgem has commissioned us to explore what improvements could be made to the service provided by electricity distributors. Please could I speak to the person responsible – either jointly or solely – for paying the electricity bill? **(INTERVIEWER: PLEASE NOTE THAT ANYONE WHO PAYS THEIR BILL AS PART OF THEIR RENT IS OUT OF SCOPE; STUDENTS & THOSE LIVING IN SHARED PROPERTIES THAT SHARE A BILL CAN BE INTERVIEWED PROVIDING THEY ARE IN A POSITION TO ANSWER FOR THE GROUP AS A WHOLE)**

IF "NO" TRY AND PERSUADE ELSE THANK & CLOSE
IF "CALL BACK" PLEASE RECORD DATE AND TIME OF NEW APPOINTMENT BELOW, THANK AND CLOSE
IF "YES" PLEASE PROCEED TO SCREENING SECTION

SCREENING APPOINTMENT 1	DATE		TIME	
SCREENING APPOINTMENT 2	DATE		TIME	
SCREENING APPOINTMENT 3	DATE		TIME	

WHEN SPEAKING TO APPROPRIATE CONTACT CONTINUE WITH SCREENING

Screening

Good morning/afternoon/evening. My name is .... and I am calling from Accent. We are an independent market research company carrying out research for Ofgem. Ofgem is responsible for protecting consumers through promoting competition, wherever appropriate, in the energy sector and through regulating the monopoly companies which run the gas and electricity networks. Ofgem has commissioned us to explore what improvements could be made to the service provided by electricity distributors. This is a *bona fide* market research exercise. It is being conducted under the Market Research Society Code of Conduct which means that any answers you give will be treated in confidence. Can you spare 2-3 minutes to run through a few questions to check that you are eligible to take part in this research?

Q1.   Do you or any of your close family work or have worked in the recent past in any of the following professions: marketing, advertising, public relations, journalism, market research, the energy industry (i.e. electricity or gas) or the water industry?

  1   yes **THANK & CLOSE**   2   no

Q2   What is the job title of the chief wage earner of your household or, if you are the chief wage earner, your own job title? if retired, probe whether state or private pension. if state only code as 'e'. if private ask what their occupation was prior to retirement? **probe**

What are/were his/her/your qualifications/responsibilities? **PROBE**

WRITE IN AND CODE SEG ....

1. A
2. B
3. C1

4. C2
5. DE
6. Not stated **THANK & CLOSE**

CHECK QUOTAS

Q3.   Have you experienced any power cuts lasting more than just a few minutes over the last 3 years that you were not warned about?

1. yes
2. no

3. can't remember

CHECK QUOTAS AND PROCEED IF POSSIBLE

Q4.   Which of the following age groups do you fall into?

1. 16-29
2. 30-49

3. 50+
4. refused

Q5.   ASK: Could you please tell me the first half of your postcode?

ENTER 1ST HALF; IE, IF SW14 2PG ENTER SW14; IF W1 5RT ENTER W1

And the second half please?
ENTER 2ND HALF; IE, IF SW14 2PG ENTER 2PG

INTERVIEWER: ENSURE THAT THE FIRST HALF OF THE POSTCODE MATCHES ONE OF YOUR YOUR POSTCODE QUOTAS; IF NOT, THANK & CLOSE, AS YOU WILL NOT BE ABLE TO PROCEED THROUGH THE MAIN INTERVIEW IF IT DOES NOT.

Q6.   Do you consider that you live in an urban or rural area?

1. urban
2. rural

CHECK QUOTA & PROCEED IF POSSIBLE

Q7.   Does your energy cost 10% or more of your total household income each year or less than 10% of your total household income?

1. yes, 10% or more
2. no, less than 10%
3. don't know

CHECK QUOTA & PROCEED IF POSSIBLE

Invitation

Thank you for answering those questions. You are in scope for our survey, which will take about 25 minutes to run through. Would you be willing to take part in the survey, either now or at a later date? You will be given £5 to thank you for your time.

Yes now **GO TO CAPI INTERVIEW**
Yes at a later date **RECORD DETAILS BELOW**
No **PERSUADE AND REASSURE; IF STILL NO THANK & CLOSE**

RESPONDENT NAME				
TELEPHONE NUMBER (HOME)				
TELEPHONE NUMBER (WORK)				
PREFERRED INTERVIEW: DATE			**TIME**	
RESCHEDULED INTERVIEW 1	**DATE**		**TIME**	
RESCHEDULED INTERVIEW 2	**DATE**		**TIME**	

RECORD ADDRESS ON BACK PAGE FOR REASONS OF DATA PROTECTION

Confirmation

I confirm that this interview was conducted under the terms of the MRS Code of Conduct and is completely confidential

Interviewer's signature: ....

THANK RESPONDENT FOR THEIR HELP IN THIS RESEARCH

INTERVIEWER: PLEASE ENSURE YOU REMOVE THIS PAGE BEFORE RETURNING THIS RECRUITMENT QUESTIONNAIRE TO ACCENT

PROPERTY NAME OR NUMBER	
2ND LINE OF ADDRESS	
TOWN/VILLAGE	
POSTCODE	

APPENDIX D

Main Domestic Questionnaire

| Record no: | | | | | Computer no: | | | |

| Interviewer name: | | Interviewer no: | | | | | Date: | | | | Time: | | | |

Main Questionnaire - Intro

Good morning/afternoon/evening. My name is .... and I am from Accent. We are an independent market research company carrying out research for Ofgem, the gas and electricity regulator. Thank you for agreeing to participate in the survey. The questionnaire will take about 25 minutes. You do not have to answer questions you do not wish to and you can terminate the interview at any point.

Q0(1) **INTERVIEWER: PLEASE RECORD THE DNO ARE THAT YOU ARE INTERVIEWING IN BELOW**

CN East
CN West
EDF Energy Networks EPN
EDF Energy Networks LPN
EDF Energy Networks SPN
SSE – Hydro
SSE - Southern
CE – YEDL
CE – NEDL
United Utilities
WPD - South Wales
WPD South West
SP Manweb
SP Distribution

Q0(2) **INTERVIEWER, PLEASE ENTER THE FIRST HALF OF THE POSTCODE FROM Q5 ON YOUR RECRUITMENT QUESTIONNAIRE**

AND THE SECOND HALF

Q3.   DP PLEASE ASSIGN DNO AREA BASED ON DATABASE CHECK

CN East
CN West
EDF Energy Networks EPN
EDF Energy Networks LPN
EDF Energy Networks SPN
SSE – Hydro
SSE - Southern
CE – YEDL
CE – NEDL
United Utilities
WPD - South Wales
WPD South West
SP Manweb
SP Distribution

Q1B   **DP, PLEASE CHECK THAT Q1 MATCHES Q0(1), IF NOT SHOW:**

The postcode entered does not match the DNO area that you have said that you are interviewing in; please check the DNO area has been entered correctly and the postcode has been entered correctly.

IF YOU MAKE THE CHECK AND YOU ARE STILL UNABLE TO PROCEED, PLEASE CALL YOUR SUPERVISOR OR THE ACCENT FIELD TEAM TO DISCUSS AND TO SEE WHETHER IT IS POSSIBLE FOR YOU TO CONTINUE.

DP: ROUTE BACK TO Q0(1)

Q2.   dummy

Q3.   **interviewer: please enter whether you are surveying in an urban or rural area from q6 on your recruitment questionnaire**

Q3B   **DUMMY**
Q3C   **DUMMY**

Q3D   **INTERVIEWER: PLEASE ENTER SEG FROM Q2 ON THE RECRUITMENT QUESTIONNAIRE**

A   C2
B   DE
C1

Q3E   **INTERVIEWER: PLEASE ENTER AGE FROM Q4 ON THE RECRUITMENT QUESTIONNAIRE**

16-29   50+
30-49

Q3F   **INTERVIEWER: PLEASE ENTER WHETHER THEIR ENERGY COST 10% OR MORE OF THEIR ANNUAL HOUSEHOLD INCOME OR LESS, FROM Q7 IN THE RECRUITMENT QUESTIONNAIRE**

Q3G   **INTERVIEWER: PLEASE ENTER WHETHER THE RESPONDENT HAS EXPERIENCED ANY CUTS FROM Q3 ON THE RECRUITMENT QUESTIONNAIRE**

This interview is about electricity distribution rather than supply. In other words, it is about the company that runs the local network of wires or cables that transmit electricity, rather than the company that you pay the bill to. [Showcard A.] They are the ones who are responsible for the wires and cables; they are also responsible for:

- restoring the power supply if there is a power cut
- operating an emergency telephone line for any problems with power related issues
- connecting customers to their local network
- ensuring the right voltage gets to business and consumers
- investigating any complaints or problems that customers have regarding their electricity distribution service.

Q4.   Can you please tell me what you pay each year for your electricity? **[RECORD AMOUNT]**

1. knows annual amount **GO TO Q5**
2. knows quarterly amount **GO TO Q6**
3. knows monthly amount **GO TO Q7**
4. doesn't know any of the above **GO TO Q9**

Q5.   record annual amount then **GO TO Q8**

Q6.	record quarterly amount then **GO TO Q8**

Q7.	record monthly amount then **GO TO Q8**

Q8.   Your electricity bill for the year is roughly/exactly **[AMOUNT OF BILL FROM Q5, OR (Q6 * 4) OR (Q7 * 12), AS APPLICABLE].** Is this correct?

    1. Yes
    2. No **IF Q4 = 1 GO TO Q5; IF Q4 = 2 GO TO Q6; IF Q4 = 3 GO TO Q7**

Q9.   £xx of your current electricity bill goes towards distribution. **WHERE XX IS AS FOLLOWS**

    IF Q4 NE 4 AND:

    Q1=1: Q8*xx *to come*

    IF Q4 = 4

Experiences

Q10.   The remainder of this questionnaire is split into a number of sections. In the first section, I would like you to look at your experiences with respect to electricity distribution issues. In the last 12 months, have you experienced any unplanned power cuts lasting more than 3 minutes (that is, any that you were not warned about)?

    1. Yes
    2. No
    3. Don't know/can't remember

Q11.   **IF 'YES' IN Q10; OTHERS GO TO Q13.** How many of these unplanned cuts have you had in the past 12 months? **ENTER NUMBER OF 999 FOR DON'T KNOW**

Q12.   On the last occasion that you had an unplanned power cut in excess of 3 minutes, how long did it last? **INTERVIEWER: RECORD IN MINUTES (EG 1 HOUR = 60, 2 HOURS = 120 ETC); ENTER NUMBER OF 999 FOR DON'T KNOW**

Q13.   And have you experienced any planned power cuts (ie ones that you were given advance warning of) in the past 12 months?

    1. Yes
    2. No
    3. Don't know/can't remember

Q14.   **IF 'YES' IN Q13; OTHERS GO TO Q16.** How many of these planned cuts have you had in the past 12 months? **ENTER NUMBER OF 999 FOR DON'T KNOW**

Q15.   On the last occasion that you had a planned power cut, how long did it last? **INTERVIEWER: RECORD IN MINUTES (EG 1 HOUR = 60, 2 HOURS = 120 ETC); ENTER NUMBER OF 999 FOR DON'T KNOW**

Q16.   **DUMMY; ALL SKIP TO Q17**

Q17. **IF 'YES' IN Q10 OR Q13; OTHERS GO TO Q21.** Who, if anybody, did you contact on the last occasion you experienced a power cut?

1. Supplier
2. Distributor
3. Both supplier and distributor
4. No one
5. Don't know/can't remember

Q18. **IF 2 OR 3 IN Q17; OTHERS GO TO Q20.** Did you manage to get through to either an operator or a recorded message at your distributor?

1. Yes , operator
2. Yes, recorded message
3. Yes, both
4. No
5. Don't know/can't remember

Q19. **IF LE 3 IN Q18 ASK; OTHERS GO TO Q20.** Did you get all the information you wanted when you made the call to your distributor?

1. Yes
2. No
3. Don't know/can't remember

Q20. **ASK ALL** Has your distributor ever contacted you or called you back during an unplanned power cut?

Yes
No
Don't know

Power Supply Expectations

Q21. Do you believe it is reasonable for a power cut to occur in severe weather, ie a major storm or flooding? **[SHOWCARD B] DO NOT PROMPT**

1. Yes
2. yes, in a major storm, but not flooding
3. Yes, in flooding but not a major storm
4. No
5. Don't know

Q22. And what is the maximum number of unplanned power cuts lasting more than 3 hours that an electricity company should be allowed in any one year before compensation is paid to their customers? **ENTER NUMBER OF 999 FOR DON'T KNOW**

Q22B **IF Q22 = 999 GO TO Q23.** So you feel that compensation should be paid after **Q22** unplanned power cuts lasting more than 3 hours: is that correct?

1. yes
2. no go to **Q22**

Q23. In normal conditions, how quickly would you expect power to be restored following an unplanned power cut?

DO NOT PROMPT

1. Within 1 hour
2. Within 2-3 hours
3. Within 4-5 hours
4. Within 6-10 hours
5. Within 11-15 hours
6. Within 16-18 hours
7. 18 hours or more

Q24. And in normal conditions, after how long (ie after how many hours of a power cut) should a distributor be required to pay compensation to a consumer? **INTERVIEWER: ENTER NUMBER IN HOURS OR 999 FOR DON'T KNOW; IF RESPONDENT SAYS 'IMMEDIATELY' PLEASE ENTER '0'**

Q25. If there had been a major storm affecting 100,000 customers in your distribution company's area, how quickly would you expect your power to be restored in such a case, to the nearest hour?

DO NOT PROMPT

ENTER RESPONSE IN HOURS OR 999 FOR DON'T KNOW

Q26. Do you think that distribution companies should be doing more to reduce the impact of severe weather on their networks?

1. Yes
2. No
3. Don't know/can't remember

Q26B Why do you think they should be doing more?

Q27. Do you think that your distribution company should be taking any steps to reduce their company's impact on the environment?

1. yes
2. no
3. don't know

Q28. **IF YES TO Q27; OTHERS GO TO Q29.** What should they be doing?

Attitudes towards Standards & Targets

Ofgem, the gas and electricity regulator, has put in place a number of standards which distributors are required to meet. If they fail to meet them then customers are entitled to compensation, which is designed to compensate for the inconvenience rather than for any resultant costs to you, which it is anticipated will be covered by your insurance. I am going to run through some of the standards and ask a question about each.

Q29.   The first one [GS2]: **[SHOWCARD C]** If your electricity supply fails during normal weather conditions because of a problem on your distribution system, your distributor will restore it within 18 hours of first becoming aware of the problem. If they fail and you make a valid claim within three months of the date the supply is restored, they will arrange for you to receive a compensation payment. You will also receive further compensation for each additional 12 hours you are without supply. Were you aware of this standard?

    1.   Yes
    2.   No
    3.   Not sure

Q30.   The next one [GS2A]: **[SHOWCARD D]** If your electricity supply fails because of a problem on the distribution system and you are without power for three hours or more, on four or more different occasions in any single year (April to March) you are entitled to a compensation payment. You must make a valid claim for this payment within three months of the end of the year to which the claim applies. Were you aware of this standard?

    1.   Yes
    2.   No
    3.   Not sure

Q31.   The next one [GS4]: **[SHOWCARD E]** If your distributor needs to switch off your power to work on the network they will give you at least 2 days' notice. If they fail to give 2 days' notice or switch your electricity off on a different day, then you can claim (within 1 month of the failure) a compensation payment. Were you aware of this standard?

    1.   Yes
    2.   No
    3.   Not sure

Stated Preference

INSERT SP GENERATOR

Experiment 1:

Q 0 SPINT1DOMNOTLPN
I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions, over #5#/#10# years
- and the average length of these power cuts
- the number of short interruptions of less than 3 minutes likely to be experienced over #5#/#10# years
- and the provision of information during a power cut.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

REFER RESPONDENT TO SHOWCARD F1 FOR A FULL LIST OF THE ATTRIBUTES AND LEVELS FOR THIS EXERCISE.

Q 0 SPINT1DOMLPN
I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions, over 10 years
- and the average length of these power cuts
- as well as the number of short interruptions of less than 3 minutes likely to be experienced over 10 years.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

REFER RESPONDENT TO SHOWCARD F2 FOR A FULL LIST OF THE ATTRIBUTES AND LEVELS FOR THIS EXERCISE.

Experiment 2:

Q 0 SPINT2DOM
In this second exercise we are going to look at:
- the time required to restore your electricity supply as a result of problems not related to weather
- compensation if your electricity is not restored in this time
- the number of interruptions lasting 3 or more hours in a year which entitles you to a compensation payment
- the amount of notice that you must be given before planned interruptions to your electricity supply.

When considering the compensation levels, please note that compensation is designed to compensate for the inconvenience rather than for any resultant costs to you, which it is anticipated will be covered by your insurance. Note additionally, that whenever your supply is interrupted, your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Once again you will be presented with three alternatives for electricity distribution: your current service (described 'as now') and two alternatives with differing service levels and costs.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

REFER RESPONDENT TO SHOWCARD G FOR A FULL LIST OF THE ATTRIBUTES AND LEVELS FOR THIS EXERCISE.

Experiment 3:

Q 0 SPINT3DOMNOTLPN

In this third exercise we are going to looking at investments in the following areas:
- an ongoing commitment to underground overhead lines in areas of outstanding natural beauty and national parks for amenity reasons
- the average number of customers that could be affected by major storms
- expenditure on flood defences
- investment to current mobile generation equipment and vehicles to reduce carbon emissions.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

REFER RESPONDENT TO SHOWCARD H1 FOR A FULL LIST OF THE ATTRIBUTES AND LEVELS FOR THIS EXERCISE.

Q 0 SPINT3DOMLPN

In this third exercise we are going to looking at investments in the following areas:
- provision of information during a power cut
- expenditure on flood defences
- investment to current mobile generation equipment and vehicles to reduce carbon emissions.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

REFER RESPONDENT TO SHOWCARD H2 FOR A FULL LIST OF THE ATTRIBUTES AND LEVELS FOR THIS EXERCISE.

Package Experiments:

Q 0 SPINT4ALL

In this final exercise we would like you to consider all of the factors that we have shown you in the first three exercises. We appreciate that this is a difficult task, but it is important to us to understand how you value specific services, when comparing the entire package that could be offered by your electricity distribution company.

In order to simplify the exercise we have grouped the services into three groups, as presented in the previous exercises. All of the services in these groups will be presented at three levels: the current level, the lowest service level (shaded light grey) and the best possible level (shaded dark grey). We will also show you the associated change in your annual electricity bill.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose, given these choices.

As before, please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Validation Questions

I would now like to ask you a few questions about the choice exercises that you have just done.

Q32.   Were you able to make the comparisons in the choices we presented you?

   1. Yes **GO TO Q34**
   2. No

Q33.   Why weren't you able to make the comparisons in the choices?

   ....

Q34.   In the choices, did you find each of the levels of service we described realistic & easy to understand?

1. Yes **GO TO Q36**
2. No

Q35. Which levels did you feel were not realistic or easy to understand? Code all that apply

frequency of power cuts over 3 minutes
average duration of power cuts over 3 minutes
short interruptions
provision of information
restoration of supply (time taken)
compensation for restoration of supply
compensation for multiple interruptions
notice given of planned interruptions
(NOT SHOWN IF Q1=4) undergrounding
(NOT SHOWN IF Q1=4) network resilience to severe weather
(ONLY SHOWN IF Q1=4) network resilience to flooding
replacement of mobile generation equipment and vehicles with those using less polluting fuels
cost

Q36. **DUMMY**

Q37. **DUMMY**

....

Contingent Valuation Questions

I would now like you to think about the total amount that YOU and YOUR household would be prepared to pay per year, if anything, for all of the possible improvements discussed in the previous exercises, at their highest level, that could be made by your distributor. Please just consider your OWN circumstances. These improvements would be paid for on an annual basis and would be over and above inflation.

Please think carefully about how much you really can afford and where the additional money would come from and try to be as realistic as possible.

ROTATE STARTING POINTS
STARTING POINT ONE: £5

Q37(1) I would now like to ask you the maximum amount you would be willing to pay each year in order to have all the possible improvements put in place at their HIGHEST level. This amount is in addition to any planned increases in your bill and over and above inflation, and is each year. Would you be willing to pay £5 more each year?

yes GO TO Q37(4)
no GO TO Q37(2)

Q37(2) Would you be willing to pay £3 a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q37(16)
no GO TO Q37(16)

Q37(3) **DUMMY**

Q37(4) Would you be willing to pay £15 a year more, over and above inflation, for all the highest level of improvements?

    yes GO TO Q37(5)
    no GO TO Q37(16)

Q37(5) Would you be willing to pay £25 a year more, over and above inflation, for all the highest level of improvements?

    yes GO TO Q37(16)
    no GO TO Q37(16)

STARTING POINT TWO: £10

Q37(6) I would now like to ask you the maximum amount you would be willing to pay each year in order to have all the possible improvements put in place at their highest level. This amount is in addition to any planned increases in your bill and over and above inflation, and is each year. Would you be willing to pay £10 more each year?

    yes GO TO Q37(10)
    no GO TO Q37(8)

Q37(7) **DUMMY**

Q37(8) Would you be willing to pay £3 a year more, over and above inflation, for all the highest level of improvements?

    yes GO TO Q37(16)
    no GO TO Q37(16)

Q37(9) **DUMMY**

Q37(10) Would you be willing to pay £25 a year more, over and above inflation, for all the highest level of improvements?

    yes GO TO Q37(16)
    no GO TO Q37(16)

STARTING POINT THREE: £15

Q37(11) I would now like to ask you the maximum amount you would be willing to pay each year in order to have all the possible improvements put in place at their highest level. This amount is in addition to any planned increases in your bill and over and above inflation, and is each year. Would you be willing to pay £15 more each year?

    yes GO TO Q37(15)
    no GO TO Q37(14)

Q37(12) **DUMMY**

Q37(13) **DUMMY**

Q37(14) Would you be willing to pay £3 a year more, over and above inflation, for all the highest level of improvements?

   yes GO TO Q37(16)
   no GO TO Q37(16)

Q37(15) Would you be willing to pay £25 a year more, over and above inflation, for all the highest level of improvements?

   yes GO TO Q37(16)
   no GO TO Q37(16)

Q37(16) What is the maximum amount you would be willing to pay over and above inflation, for all the BEST level of improvements?

PLEASE SPECIFY.
IF 'ZERO' GO TO Q37(17)
IF NOT 'ZERO' GO TO SUBSEQUENT QUESTION

Q37(17) What were your reasons for not wanting to pay any more for the improvements to your electricity distribution services?

Relative Priorities

Q38. Thank you for going through those exercises with me. Could you now tell me how you would feel if you were to get a power cut lasting 2 hours over the next 12 months that you were not warned about? Please use a scale of 1 to 4, where 1 is equal to extremely unhappy, 2 is very unhappy, 3 is quite unhappy and 4 is indifferent

   1. Extremely unhappy
   2. Very unhappy
   3. Quite unhappy
   4. Indifferent

Q39. And using the same scale, how would you feel if you were to get a power cut lasting 2 hours over the next 12 months that you **WERE** warned about?

   1. Extremely unhappy
   2. Very unhappy
   3. Quite unhappy
   4. Indifferent

Q40. And using the same scale, how would you feel if the length of the power cut was to increase from an average of (DNO SPECIFIC DATA) minutes to (DNO SPECIFIC DATA +20) minutes?

   1. Extremely unhappy
   2. Very unhappy
   3. Quite unhappy
   4. Indifferent

Demographics & Contextual Questions

Q41. Finally, I would like to ask you a few questions to help with the analysis of this study. First, how many, if any, children do you have in your household under the age of 5?

Q42. And which of the following best describes your total annual household income, before tax and other deductions? **SHOWCARD I**

1. Under £10,000
2. £10,000 - £20,000
3. £20,001 - £30,000
4. £30,001 - £40,000
5. £40,001 - £50,000
6. £50,001 - £60,000
7. Over £60,000
8. Don't know
9. Refused

Thank you for your help in this research

This research was conducted under the terms of the MRS code of conduct and is completely confidential. If you would like to confirm my credentials or those of Accent please call the MRS free on 0500 396999. **HAND OVER THE THANK YOU SLIP.**

Please can I take a note of your name and where we can contact you for quality control purposes?

Respondent name: ....

Telephone: home:.. work:..

Thank you

I confirm that this interview was conducted under the terms of the MRS code of conduct and is completely confidential

Interviewer's signature: ....

APPENDIX E

Domestic Targets Achieved

Residential Targets Achieved

		Total	Experience of unplanned cuts			SEG			Age			Fuel Poor		Rural/Urban	
Weighted data			Yes, in past 12 months	Yes, in past 3 years	No, not in past 12 months or 3 years	AB	C1C2	DE	16-29	30-49	50+	Yes	No	Urban	Rural
CN East		150	68	13	59	22	73	55	31	64	56	11	124	119	31
			45%	9%	39%	15%	49%	37%	21%	43%	37%	7%	83%	79%	21%
CN West		150	113	15	19	22	77	51	22	65	63	9	136	120	30
			75%	10%	13%	15%	51%	34%	15%	43%	42%	6%	91%	80%	20%
EDF Energy Networks EPN		150	76	14	54	29	70	51	21	73	56	18	108	116	34
			51%	9%	36%	19%	47%	34%	14%	49%	37%	12%	72%	77%	23%
EDF Energy Networks LPN		150	52	19	71	41	63	47	32	73	46	34	99	150	0
			35%	13%	47%	27%	42%	31%	21%	49%	31%	23%	66%	100%	0%
EDF Energy Networks SPN		150	90	12	44	32	74	44	30	57	63	34	108	125	26
			60%	8%	29%	21%	49%	29%	20%	38%	42%	23%	72%	83%	17%
SSE - Hydro		150	40	4	97	26	86	37	29	64	57	20	109	94	56
			27%	3%	65%	17%	57%	25%	19%	43%	38%	13%	73%	63%	37%
SSE - Southern		150	77	8	60	28	89	33	26	62	62	51	89	123	27
			51%	5%	40%	19%	59%	22%	17%	41%	41%	34%	59%	82%	18%
CE - YEDL		150	44	8	90	15	81	53	35	54	62	42	74	124	26
			29%	5%	60%	10%	54%	35%	23%	36%	41%	28%	49%	83%	17%
CE - NEDL		150	47	15	84	24	82	44	38	56	56	21	116	120	30
			31%	10%	56%	16%	55%	29%	25%	37%	37%	14%	77%	80%	20%
United Utilities		150	56	19	72	29	72	49	26	71	53	12	132	135	15
			7%	37%	13%	48%	19%	48%	33%	17%	47%	35%	8%	88%	90%	10%
WPD - South Wales		150	64	21	54	14	81	55	36	63	51	40	72	110	40
			7%	43%	14%	36%	9%	54%	37%	24%	42%	34%	27%	48%	73%	27%
WPD South West		150	91	10	44	27	84	39	28	63	59	12	134	95	55
			7%	61%	7%	29%	18%	56%	26%	19%	42%	39%	8%	89%	63%	37%

SP Manweb		150	69	10	68	26	75	49	32	47	71	24	117	121	29
		7%	46%	7%	45%	17%	50%	33%	21%	31%	47%	16%	78%	81%	19%
SP Distribution		150	59	3	82	36	76	38	39	64	47	13	121	127	23
		7%	39%	2%	55%	24%	51%	25%	26%	43%	31%	9%	81%	85%	15%

APPENDIX F

Business Recruitment & Main Questionnaire

Record no: ☐☐☐☐   **Computer no:** ☐☐☐

Interviewer name: ☐   **Interviewer no:** ☐☐☐☐   **Date:** ☐☐☐   **Time:** ☐☐☐

Introduction

Good morning/afternoon/evening. My name is …… and I am calling from Accent. We are an independent market research company carrying out research on behalf of Ofgem, the gas and electricity regulator. Ofgem is responsible for protecting consumers through promoting competition, wherever appropriate, in the energy sector and through regulating the monopoly companies which run the gas and electricity networks and have commissioned us to explore what improvements could be made to the service provided by electricity distributors. Please could I speak to the person responsible for paying the company's electricity bill? (**PROMPT IF NECESSARY**: this could be the company's Energy Manager, Facility Manager, Finance Director or Owner/Manager)

IF "NO" TRY AND PERSUADE ELSE THANK & CLOSE
IF "CALL BACK" PLEASE RECORD DATE AND TIME OF NEW APPOINTMENT BELOW, THANK AND CLOSE
IF "YES" PLEASE PROCEED TO SCREENING SECTION

SCREENING APPOINTMENT 1	DATE		TIME	
SCREENING APPOINTMENT 2	DATE		TIME	
SCREENING APPOINTMENT 3	DATE		TIME	

WHEN SPEAKING TO APPROPRIATE CONTACT CONTINUE WITH SCREENING

Screening

Good morning/afternoon/evening. My name is …… and I am calling from Accent. We are an independent market research company and I am carrying out research on behalf of Ofgem, the gas and electricity industry regulator. Ofgem is responsible for protecting consumers through promoting competition, wherever appropriate, in the energy sector and through regulating the monopoly companies which run the gas and electricity networks and has commissioned us to explore what improvements business and domestic customers would most like to see to the service supplied by electricity distribution companies. This is a *bona fide* market research exercise, which is being conducted under the Market Research Society Code of Conduct. As we are looking for a range of different people to take part in our research could you please spare 2 or 3 minutes to run through a couple of questions to see if you are in scope for the study?

RQ1   **PLEASE ENTER WHETHER YOU HAVE BEEN REFERRED TO A HEAD OFFICE SITE OR WHETHER YOU ARE INTERVIEWING SOMEONE AT THE SITE ON THE SAMPLE**

   1.   head office   2.   sample site

RQ1B   **IF RQ1 = 1 (IE HEAD OFFICE)** write town where site is located here (ie town on sample), **ELSE GO TO RQ2.**

   Town:..

RQ1B2 **ASK:** Could you please tell me the first half of: **READ OUT EITHER**

IF RQ1=2 (SAMPLE SITE) "your postcode"

OR

IF RQ1=1 (HEAD OFFICE REFERRAL) "the postcode of your **(READ OUT THE TOWN WHERE SITE ON SAMPLE IS LOCATED)** site"?

ENTER 1ST HALF; IE, IF SW14 2PG ENTER SW14; IF W1 5RT ENTER W1

ENTER 2ND HALF; IE, IF SW14 2PG ENTER 2PG

RQ1C **LIAM, USE POSTCODE DATABASE CHECK TO ASSIGN DNO AREA THAT THEY ARE SURVEYING IN; CROSS CHECK AGAINST QUOTAS**

CN East
CN West
EDF Energy Networks EPN
EDF Energy Networks LPN
EDF Energy Networks SPN
SSE – Hydro
SSE - Southern
CE – YEDL
CE – NEDL
United Utilities
WPD - South Wales
WPD South West
SP Manweb
SP Distribution

RQ1C2 Would you describe the area where

IF RQ1 = 2 (SAMPLE SITE) "your organisation"
OR
IF RQ1 = 1 (HEAD OFFICE REFERRAL) "that site at RQ1B"

is located as urban or rural?

1. Rural
2. Urban
3. Don't know **MANUAL ASSIGNATION WILL BE NECESSARY AFTER THE INTERVIEW IS COMPLETED**

RQ2 Is the maximum electricity demand for: **READ OUT EITHER**

     IF RQ1 = 2 (SAMPLE SITE) "your organisation"
     OR
     IF RQ1 = 1 (HEAD OFFICE REFERRAL) "that site at RQ1B"

     READ OUT RESPONSE CODES

1	<100kWh	3	1MW+
2	100kWh - <1MW	4	**DO NOT READ** don't know

RQ3 Can you please tell me what:

IF RQ1 = 2 (SAMPLE SITE) "you pay each year for your electricity?"
OR
IF RQ1 = 1 (HEAD OFFICE REFERRAL) "you pay each year for your electricity at that site at RQ1B?"

     knows annual amount **GO TO RQ6**
     knows quarterly amount **GO TO RQ7**
     knows monthly amount **GO TO RQ8**
     doesn't know any of the above **GO TO RQ4**

RQ4 **IF RQ3=4 ASK, ELSE GO TO RQ6:** Does it fall into either of the following bands?

     <£30,000 per annum
     £30,000-£275,000 per annum
     DO NOT READ OUT: No/Don't know

RQ5 **IF RQ2 GE 3 AND RQ3 = 4 AND RQ4 = 3 ASK, ELSE GO TO RQ6:** Would it be possible to source a bill for me so that you can tell me your bill size, as we will be unable to complete the interview without some indication of your bill size?

     Yes, **ARRANGE TIME TO CALL BACK & CLOSE INTERVIEW**
     No **THANK & CLOSE**

RQ6 **ASK IF RQ3=1 ELSE GO TO RQ7.** record annual amount then **GO TO RQ10**

RQ7 **ASK IF RQ3=2 ELSE GO TO RQ8.** record quarterly amount then **GO TO RQ9**

RQ8 **ASK IF RQ3=3 ELSE GO TO RQ9.** record monthly amount then go to **RQ9**

RQ9 Your electricity bill for the year is roughly **[AMOUNT OF BILL FROM RQ6, OR (RQ7 * 4) OR (RQ8 * 12), AS APPLICABLE].** Is this correct?

     3. Yes
     4. No **IF RQ3 = 2 GO TO RQ7; IF RQ3 = 3 GO TO RQ8**

     [IF NO, RECHECK AND RECALCULATE ELECTRICITY BILL]

RQ10 FOR DP ONLY: CALCULATION & QUOTERING OF COMPANY SIZE

     QUOTA CHECK SHOULD BE:

     IF RQ2=1 CODE AS SMALL SITE
     IF RQ2=2 CODE AS MEDIUM SITE
     IF RQ2=3 CODE AS LARGE SITE
     IF RQ2=4 AND RQ4=1 CODE AS SMALL SITE
     IF RQ2=4 AND RQ4=2 CODE AS MEDIUM SITE

IF RQ2=4 AND RQ4=3 CODE AS LARGE SITE
[IF RQ2=4 AND RQ3 NE 4] AND [RQ6 OR RQ9] <£30,000 CODE AS SMALL SITE
[IF RQ2=4 AND RQ3 NE 4] AND [RQ6 OR RQ9 £30,000-£275,000 CODE AS MEDIUM SITE
[IF RQ2=4 AND RQ3 NE 4] AND [RQ6 OR RQ9 > £275,000] CODE AS LARGE SITE

RQ11   FOR DP ONLY FOR LINK TO Q14 AND SP GENERATOR £ [CALCULATE 20% OF BILL] **NOTE: IF RQ3=4 AND RQ10=SMALL SITE USE £25,000 AS THE DEFAULT FOR SMALL BUSINESSES; IF RQ3=4 AND RQ10=MEDIUM SITE USE £125,000 FOR MEDIUM BUSINESSES.**

RQ12 DUMMY

RQ13   Have you experienced any power cuts at: **READ OUT EITHER**

IF RQ1 = 2 (SAMPLE SITE) "the company"
OR
IF RQ1 = 1 (HEAD OFFICE REFERRAL) "that site at RQ1B"

…lasting more than 3 minutes in the last 3 years that you were not warned about?

1. yes   3.   don't know/can't remember
2. no

CHECK QUOTAS AND PROCEED IF POSSIBLE

RQ14   What industry sector does your company fall into?

1. Manufacturing
2. Engineering
3. Construction
4. Distribution
5. Transport
6. Public Utilities
7. Finance/banking/insurance
8. Business Services
9. Publishing
10. Social/Education/Medicine/Justice
11. Other Government
12. Retail
13. Leisure/Catering
14. Mail order
15. Other (Specify)

RQ15   dummy

RQ16   And which country within the UK is

IF RQ1 = 2 (SAMPLE SITE) "the company"
OR
IF RQ1 = 1 (HEAD OFFICE REFERRAL) "that site at RQ1B"

located in?

1.   England
2.   Scotland
3.   Wales
4.   Northern Ireland

RQ17   Thank you. As part of the interview I would like you to look at some material which I can either email or post to you.   Which would you prefer?

1.   Email
2.   Post
3.   Neither **THANK & CLOSE**

RQ18   Record email/postal address

....

PLEASE CHECK EMAIL ADDRESS CAREFULLY BY SPELLING BACK TO RESPONDENT

RQ19   Would it be OK to post this material to you and arrange to carry out the interview in a few days once you've received it?

1.   No – **THANK & CLOSE**
2.   Yes – **RECORD NAME AND ADDRESS THEN GO BACK TO RECRUITMENT SECTION AND ARRANGE TIME AND SEND OUT CORRECT SET OF SHOW MATERIAL**

....

RESPONDENT NAME	
JOB TITLE	
COMPANY NAME	
TELEPHONE NUMBER	
ADDRESS (for posting):	
EMAIL ADDRESS (if business)	

Main Questionnaire - Intro

Good morning/afternoon/evening. My name is .... and I am from Accent. We are an independent market research company carrying out research for Ofgem, the gas and electricity regulator. Thank you for agreeing to participate in the survey. The questionnaire will take about 20 to 25 minutes. You do not have to answer questions you do not wish to and you can terminate the interview at any point.

Q43.   DUMMY QUESTION ALL SKIP TO Q47

Q44.   DUMMY

Q45.   DUMMY QUESTION; ALL SKIP TO Q47

Q46.   DUMMY QUESTION; ALL SKIP TO Q47

Q47.   First, can I confirm that you have received the information pack that we sent you and that you have it with you at the moment or can see the survey information in front of you?

1.   yes, hard copy
2.   yes, web
3.   no **REARRANGE INTERVIEW AND RESEND INFO PACK IF NEEDED**

Q48. Could you please have a look at the first page of the section called Stated Preference questions that we sent you. Could you please confirm the URN number …..which is shown on the top left hand side of the front page? **INTERVIEWER TYPE IN URN AND CHECK THAT IT'S CORRECT**

....

1. Correct URN given
2. Incorrect URN **REARRANGE INTERVIEW AND RESEND INFO PACK**

Q49. Please now tell me what number it says next to SP Card ID: **INTERVIEWER TYPE IN SP CARD ID AND CHECK THAT IT'S CORRECT**

....

1. Correct SP ID given
2. Incorrect SP ID given **REARRANGE INTERVIEW AND RESEND INFO PACK**

Q50. And finally what number does it say next to Issue Number? **INTERVIEWER TYPE IN ISSUE NUMBER AND CHECK THAT IT'S CORRECT**

1. Correct Issue number given
2. Incorrect Issue number given **REARRANGE INTERVIEW AND RESEND INFO PACK**

This interview is about electricity distribution rather than supply. In other words, it is about the company that runs the local network of wires or cables that transmit electricity, rather than the company that you pay the bill to. **[SHOWCARD A.]** They are the ones who are responsible for the cables and wires; they are also responsible for:

- restoring the power supply if there is a power cut
- operating an emergency telephone line for any problems with power related issues
- connecting customers to their local network
- ensuring the right voltage gets to business and consumers
- investigating any complaints or problems that customers have regarding their electricity distribution service.

Q51. **DUMMY QUESTION, NOW ASKED AS PART OF RQ**

Q52. **DUMMY QUESTION, NOW ASKED AS PART OF RQ**

Q53. **DUMMY QUESTION, NOW ASKED AS PART OF RQ**

Q54. **DUMMY QUESTION, NOW ASKED AS PART OF RQ**

Q55. **DUMMY QUESTION, NOW ASKED AS PART OF RQ**

Q56. Approximately 20% of your current electricity bill currently goes towards electricity distribution, which means about £**RQ11** of your annual bill goes towards distribution.

INTERVIEWER, IF ASKED, PLEASE STATE THAT THIS FIGURE IS BASED ON THE INFORMATION THEY GAVE YOU ABOUT THEIR ELECTRICITY BILL SIZE, OR COMPANY SIZE, AT THE TIME OF RECRUITMENT.

IF YOU DIDN'T KNOW YOUR BILL SIZE, THEN THIS IS AN AVERAGE AMOUNT FOR A FIRM IN YOUR CATEGORY OF USAGE.

Q57.   The remainder of this questionnaire is split into a number of sections. In the first section, I would like you to look at your experiences with respect to electricity distribution issues. In the last 12 months, have you experienced at this site at RQ1B any unplanned power cuts lasting **MORE** than 3 minutes (that is, any that you were not warned about)?

> 4. Yes
> 5. No
> 6. Don't know/can't remember

Q58.   **IF 'YES' IN Q57; OTHERS GO TO Q60** How many of these unplanned cuts have you had in the past 12 months? **ENTER NUMBER OR 999 FOR DON'T KNOW**

Q59.   On the last occasion that you had an unplanned power cut in excess of 3 minutes, how long did it last? **INTERVIEWER: RECORD IN MINUTES (EG 1 HOUR = 60, 2 HOURS = 120 ETC); ENTER 999 IF DON'T KNOW OR REMEMBER**

Q60.   And have you experienced any planned power cuts (ie ones that you were given advance warning of) in the past 12 months?

> 4. Yes
> 5. No
> 6. Don't know/can't remember

Q61.   **IF 'YES' IN Q60; OTHERS GO TO Q64** How many of these planned cuts have you had in the past 12 months? **ENTER NUMBER OR 999 FOR DON'T KNOW**

Q62.   On the last occasion that you had a planned power cut, how long did it last? **INTERVIEWER: RECORD IN MINUTES (EG 1 HOUR = 60, 2 HOURS = 120 ETC); ENTER NUMBER OR 999 FOR DON'T KNOW**

Q63.   **DUMMY; ALL SKIP TO Q22**

Q64.   **IF 'YES' IN Q57 OR Q60; OTHERS GO TO Q69.** Who, if anybody, did you contact on the last occasion you experienced a power cut?

> 6. Supplier
> 7. Distributor
> 8. Supplier & distributor
> 9. No one
> 10. Don't know/can't remember

Q65.   **IF 2 OR 3 IN Q64; OTHERS GO TO Q68.** Did you manage to get through to either an operator or a recorded message at your distributor?

> 6. Yes , operator
> 7. Yes, recorded message
> 8. Yes, both
> 9. No
> 10. Don't know/can't remember

Q66.   **IF Q65 LE 3 ASK, ELSE GO TO Q68.** Did you get all the information you wanted when you made the call to your distributor?

> 1. Yes

2. No
3. Don't know/can't remember

Q67. **DUMMY**

Q68. Has your distributor ever contacted you or called you back during an unplanned power cut?

Yes
No
Don't know

Q69. In the last 12 months, have you experienced, at this site, any voltage fluctuations (that is, any that you were not warned about)? These are sometimes referred to as surges or dips.

1. Yes
2. No
3. Don't know/can't remember

Q70. **IF 'YES' IN Q69; OTHERS GO TO Q71.** How many of these surges or dips have you had in the past 12 months? **ENTER NUMBER OR 999 FOR DON'T KNOW**

Q71. Has your business implemented any measures, or invested in any equipment, to protect the business and/or keep it running in the event of a power cut or a dip or surge in supply?

Yes
No
Don't know

Q72. **IF YES TO Q71 ASK, ELSE GO TO Q73.** And how much has your business invested in any measures or equipment?

£
Refused

Q73. Does your business's insurance cover you in the event of a loss of business as a result of a power cut?

yes
no
don't know

Power Supply Expectations

Q74. Do you believe it is reasonable for a power cut to occur in severe weather, ie a major storm or flooding? **[SHOWCARD B] DO NOT PROMPT**

6. Yes
7. yes, in a major storm, but not flooding
8. Yes, in flooding but not a major storm
9. No
10. Don't know

Q75. And what is the maximum number of unplanned power cuts lasting more than 3 hours that an electricity company should be allowed in any one year before compensation is paid to a business customer? **ENTER NUMBER OF 999 FOR DON'T KNOW**

Q33B   **IF Q75 = 999 GO TO Q76.** So you feel that compensation should be paid after **Q75** unplanned
power   cuts lasting more than 3 hours: is that correct?

3. yes
4. no **GO TO Q75**

Q76.   In normal conditions, how quickly would you expect power to be restored following an unplanned
power cut?

DO NOT PROMPT

8. Within 1 hour
9. Within 2-3 hours
10. Within 4-5 hours
11. Within 6-10 hours
12. Within 11-15 hours
13. Within 16-18 hours
14. 18 hours or more

Q77.   And in normal conditions, after how long (ie after how many hours of a power cut) should a
distributor be required to pay compensation to a business? **ENTER NUMBER IN HOURS OR 999 FOR
DON'T KNOW; INTERVIEWER: IF RESPONDENT SAYS 'IMMEDIATELY' PLEASE ENTER '0'**

Q78.   If there had been a major storm affecting 100,000 customers in your distribution company's area,
how quickly would you expect power to be restored in such a case, to the nearest hour?

DO NOT PROMPT

ENTER RESPONSE IN HOURS OR 999 FOR DON'T KNOW

Q79.   Do you think that distribution companies should be doing more to reduce the impact of severe
weather on their networks?

4. Yes
5. No
6. Don't know/can't remember

Q37B   Why do you think they should be doing more?

Q80.   Do you think that your distribution company should be taking any steps to reduce their company's
impact on the environment?

4. yes
5. no
6. don't know

Q81.   **IF YES IN Q27; OTHERS GO TO Q82.** What should they be doing?

Q82.   Would you like information to be available from your DNO on how you can be more energy
efficient and, if so, in what format?

no
Yes, leaflet
Yes, email
Yes, via a telephone information line
Yes, site visit

Other **SPECIFY**

Attitudes towards Standards & Targets

Ofgem, the regulator for the gas and electricity market, has put in place a number of standards which distributors are required to meet. If they fail to meet them then customers are entitled to compensation, which is designed to compensate for the inconvenience rather than for any resultant costs to your business, which it is anticipated will be covered by your insurance. I am going to run through some of the standards and ask a question about each.

Q83.   The first one is: If your electricity supply fails during normal weather conditions because of a problem on your distribution system your distributor will restore it within 18 hours of first becoming aware of the problem. If they fail and you make a valid claim within three months of the date the supply is restored, they will arrange for you to receive a compensation payment. You will also receive further compensation for each additional 12 hours you are without supply. Were you aware of this standard?

4.   yes
5.   no
6.   not sure

Q84.   The next one is: If your electricity supply fails because of a problem on your distribution system and you are without power for three hours or more, on four or more different occasions in any single year (April to March), you are entitled to a compensation payment. You must make a valid claim for this payment within three months of the end of the year to which the claim applies. Were you aware of this standard?

1.   yes
2.   no
3.   not sure

Q85.   The next one is: If your distributor needs to switch off your power to work on the network they will give you at least 2 days' notice. If they fail to give 2 days' notice or switch your electricity off on a different day, then you can claim (within 1 month of the failure) a compensation payment. Were you aware of this standard?

1.   yes
2.   no
3.   not sure

Stated Preference

Experiment 1:

Q 0 SPINT1BUSNOTLPN
I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions, over #5#/#10# years
- and the average length of these power cuts
- the number of short interruptions of less than 3 minutes likely to be experienced over #5#/#10# years
- and the provision of information during a power cut.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your site's electricity bill. Improved

service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Q 0 SPINT1BUSLPN

I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions, over 10 years
- the average length of these power cuts
- and the number of short interruptions of less than 3 minutes likely to be experienced over 10 years.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your site's electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Experiment 2:

Q 0 SPINT2BUS

In this second exercise we are going to look at:
- the time required to restore your electricity supply as a result of problems not related to weather
- compensation if your electricity is not restored in this time
- the scheduling of appointments by your distributor
- and the amount of notice that you must be given before planned interruptions to your electricity supply.

When considering the compensation levels, please note that compensation is designed to compensate for the inconvenience rather than for any resultant costs to your business, which it is anticipated will be covered by your insurance. Note additionally, that whenever your supply is interrupted, your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Again, you will be presented with three alternatives for electricity distribution: your current service (described 'as now') and two alternatives with differing service levels and costs.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Experiment 3:

Q 0 SPINT3BUSNOTLPN

In this third exercise we are going to looking at investments in the following areas:
- the average number of customers that could be affected by major storms
- expenditure on flood defences
- investment to current mobile generation equipment and vehicles to reduce carbon emissions
- provision of energy efficiency advice.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Q 0 SPINT3BUSLPN

In this third exercise we are going to looking at investments in the following areas:
- provision of information during a power cut
- expenditure on flood defences
- investment to current mobile generation equipment and vehicles to reduce carbon emissions
- provision of energy efficiency advice.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Package Experiments:

Q 0 SPINT4ALL

In this final exercise we would like you to consider all of the factors that we have shown you in the first three exercises. We appreciate that this is a difficult task, but it is important to us to understand how you value specific services, when comparing the entire package that could be offered by your electricity distribution company.

In order to simplify the exercise we have grouped the services into three groups, as presented in the previous exercises. All of the services in these groups will be presented at three levels: the current level, the lowest service level (shaded light grey) and the best possible level (shaded dark grey). We will also show you the associated change in your annual electricity bill.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose, given these choices.

As before, please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Validation Questions

I would now like to ask you a few questions about the choice exercises that you have just done.

Q86.   Were you able to make the comparisons in the choices we presented you?

  1. Yes **GO TO Q34**
  2. No

Q87.   Why weren't you able to make the comparisons in the choices?

  ....

Q88.   In the choices, did you find each of the levels of service we described easy to understand and realistic?

  1. Yes **GO TO Q90**

2. No

Q89. Which levels did you feel weren't easy to understand or realistic? **CODE ALL THAT APPLY**

frequency of power cuts over 3 minutes
average duration of power cuts over 3 minutes
short interruptions
provision of information
restoration of supply (time taken)
compensation for restoration of supply
making and keeping appointments
notice of planned interruptions
(NOT SHOWN IF Q1=4) network resilience to severe weather
(ONLY SHOWN IF Q1=4) network resilience to flooding
replacement of mobile generation equipment and vehicles with those using less polluting fuels
cost

Q90. **DUMMY**

Q91. **DUMMY**

....

....

Contingent Valuation Questions

I would now like you to think about the total amount that YOU, at this site, would be prepared to pay per year, if anything, for all of the possible improvements, at their highest level, that could be made by your distributor. These improvements would be paid for on an annual basis and would be over and above inflation.

Please think carefully about how much your organisation could afford and where the additional money would come from and try to be as realistic as possible.

ROTATE STARTING POINTS
STARTING POINT ONE: 5% OF THEIR DISTRIBUTION BILL.

Q49(1) I would now like to ask you the maximum amount you would be willing to pay each year in order to have all the possible improvements put in place at their HIGHEST level. This amount is in addition to any planned increases in your bill and over and above inflation, and is each year. Would you be willing to pay 5%, ie (Q14 * 5%) more each year? **DP: If Q14= "0" (ie a large business that doesn't know what their bill size is) please simply state "Would you be willing to pay 5% more each year? The same applies for each question.**

yes GO TO Q49(4)
no GO TO Q49(2)

Q49(2) Would you be willing to pay 3%, ie (Q14 * 3%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(16)
no GO TO Q49(16)

Q49(3)   **DUMMY**

Q49(4) Would you be willing to pay 15%, ie (Q14 * 15%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(5)
no GO TO Q49(16)

Q49(5) Would you be willing to pay (Q14* 25%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(16)
no GO TO Q49(16)

STARTING POINT TWO: 10% OF THEIR DNO BILL

Q49(6) I would now like to ask you the maximum amount you would be willing to pay each year in order to have all the possible improvements put in place at their highest level. This amount is in addition to any planned increases in your bill and over and above inflation, and is each year. Would you be willing to pay 10%, ie (Q14* 10%) more each year?

yes GO TO Q49(10)
no GO TO Q49(8)

Q49(7)   **DUMMY**

Q49(8) Would you be willing to pay 3%, ie (Q14* 3%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(16)
no GO TO Q49(16)

Q49(9)   **DUMMY**

Q49(10) Would you be willing to pay 25%, ie (Q14* 25%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(16)
no GO TO Q49(16)

STARTING POINT THREE: 15% OF DNO BILL

Q49(11) I would now like to ask you the maximum amount you would be willing to pay each year in order to have all the possible improvements put in place at their highest level. This amount is in addition to any planned increases in your bill and over and above inflation, and is each year. Would you be willing to pay 15%, ie (Q14* 15%) more each year?

yes GO TO Q49(15)
no GO TO Q49(14)

Q49(12) **DUMMY**

Q49(13) **DUMMY**

Q49(14) Would you be willing to pay 3%, ie (Q14* 3%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(16)
no GO TO Q49(16)

Q49(15) Would you be willing to pay 25%, ie (Q14* 25%) a year more, over and above inflation, for all the highest level of improvements?

yes GO TO Q49(16)
no GO TO Q49(16)

Q49(16) What is the maximum amount you would be willing to pay over and above inflation, for all the BEST level of improvements?

PLEASE SPECIFY.
IF 'ZERO' GO TO Q49(17)
IF NOT 'ZERO' GO TO SUBSEQUENT QUESTION

Q49(17) What were your reasons for not wanting to pay any more for the improvements to your electricity distribution services?

Relative Priorities

Q92.   Thank you for going through those exercises with me. Could you now tell me how you would feel if your business were to get a power cut lasting 2 hours over the next 12 months that you were not warned about? Please use a scale of 1 to 4, where 1 is equal to extremely unhappy, 2 is very unhappy, 3 is quite unhappy and 4 is indifferent

        5.   Extremely unhappy
        6.   Very unhappy
        7.   Quite unhappy
        8.   Indifferent

Q93.   And using the same scale, how would you feel if your business were to get a power cut lasting 2 hours over the next 12 months that you **WERE** warned about?

        5.   Extremely unhappy
        6.   Very unhappy
        7.   Quite unhappy
        8.   Indifferent

Q94.   And using the same scale, how would you feel if the length of the power cut was to increase from an average of (DNO SPECIFIC DATA) minutes to (DNO SPECIFIC DATA +20) minutes?

        5.   Extremely unhappy
        6.   Very unhappy
        7.   Quite unhappy
        8.   Indifferent

Demographics & Contextual Questions

Q95.   Finally, could you please tell me how many sites your company has in the UK?

Q96.   DUMMY

Thank you for your help in this research

This research was conducted under the terms of the MRS code of conduct and is completely confidential. If you would like to confirm my credentials or those of Accent please call the MRS free on 0500 396999. **HAND OVER THE THANK YOU SLIP.**

Please can I take a note of your name and where we can contact you for quality control purposes?

Respondent name: ....

Telephone: home:.. work:...

Thank you

I confirm that this interview was conducted under the terms of the MRS code of conduct and is completely confidential

Interviewer's signature: ....

APPENDIX G

Business Targets Achieved

Business Interviews Achieved by Size & Experience of Cuts

	Total	Size			Experience of unplanned power cuts		
		Small	Medium	Large	Yes in past 12 months	Yes in past 3 years	No
	1,052	685	256	111	401	176	400
	100%	100%	100%	100%	100%	100%	100%
CN East	76	50	21	5	27	16	24
		66%	28%	7%	36%	21%	32%
CN West	77	49	17	11	31	13	27
		64%	22%	14%	40%	17%	35%
EDF Energy Networks EPN	73	45	18	10	32	12	23
		62%	25%	14%	44%	16%	32%
EDF Energy Networks LPN	75	50	20	5	25	10	35
		67%	27%	7%	33%	13%	47%
EDF Energy Networks SPN	76	49	22	5	38	11	26
		64%	29%	7%	50%	14%	34%
SSE - Hydro	77	56	14	7	39	11	22
		73%	18%	9%	51%	14%	29%
SSE - Southern	76	50	20	6	35	13	23
		66%	26%	8%	46%	17%	30%
CE - YEDL	75	42	25	8	29	16	23
		56%	33%	11%	39%	21%	31%
CE - NEDL	75	50	15	10	24	9	34
		67%	20%	13%	32%	12%	45%
United Utilities	78	48	22	8	21	17	33
		62%	28%	10%	27%	22%	42%
WPD - South Wales	75	47	18	10	31	8	32
		63%	24%	13%	41%	11%	43%
WPD South West	65	40	15	10	20	18	24
		62%	23%	15%	31%	28%	37%
SP Manweb	75	58	9	8	20	7	41
		77%	12%	11%	27%	9%	55%
SP Distribution	79	51	20	8	29	15	33
		65%	25%	10%	37%	19%	42%

Business Interviews Achieved by Business Sector

	Total	DNO CN East	CN West	EDF Energy Netwks EPN	EDF Energy Netwks LPN	EDF Energy Netwks SPN	SSE - Hydro	SSE - Southern	CE - YEDL	CE - NEDL	United Utilities	WPD - South Wales	WPD South West	SP Manweb	SP Dist.
	1,052	76	77	73	75	76	77	76	75	75	78	75	65	75	79
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Manufacturing	307	17	26	16	15	16	15	25	26	27	29	35	18	18	24
	29%	22%	34%	22%	20%	21%	19%	33%	35%	36%	37%	47%	28%	24%	30%
Engineering	67	4	7	7	2	4	1	4	7	8	2	3	3	7	8
	6%	5%	9%	10%	3%	5%	1%	5%	9%	11%	3%	4%	5%	9%	10%
Construction	46	6	2	7	3	7	4	3	1	1	1	1	1	5	4
	4%	8%	3%	10%	4%	9%	5%	4%	1%	1%	1%	1%	2%	7%	5%
Distribution	42	5	8	4	3	1	1	3	2	3	3	2	3	1	3
	4%	7%	10%	5%	4%	1%	1%	4%	3%	4%	4%	3%	5%	1%	4%
Transport	16			1	1	1	3	1	2		2	2	1	1	1
	2%			1%	1%	1%	4%	1%	3%		3%	3%	2%	1%	1%
Public Utilities	4						1		2	1					
	0%						1%		3%	1%					
Finance/banking/ insurance	22	1		1	3	4		2		4	3			1	3
	2%	1%		1%	4%	5%		3%		5%	4%			1%	4%
Business Services	71	5	5	4	6	9	3	6	5	3	4	5	7	4	5
	7%	7%	6%	5%	8%	12%	4%	8%	7%	4%	5%	7%	11%	5%	6%
Publishing	27			3	5	3	3	1	2	3	4	1		1	1
	3%			4%	7%	4%	4%	1%	3%	4%	5%	1%		1%	1%
Social/Education/ Medicine/Justice	107	6	8	9	14	4	11	5	8	6	6	3	12	12	3
	10%	8%	10%	12%	19%	5%	14%	7%	11%	8%	8%	4%	18%	16%	4%
Other Government	25	4	1	2			1		2		2	2	5	3	3
	2%	5%	1%	3%			1%		3%		3%	3%	8%	4%	4%
Retail	166	20	14	11	12	9	14	13	9	7	12	9	9	15	12
	16%	26%	18%	15%	16%	12%	18%	17%	12%	9%	15%	12%	14%	20%	15%
Leisure/Catering	78	5	3	5	9	8	13	4	3	6	7	4	3	3	5

	7%	7%	4%	7%	12%	11%	17%	5%	4%	8%	9%	5%	5%	4%	6%
Mail order	3		1							1			1		
	0%		1%							1%			2%		
Agriculture	23	3		2			5		1	2	1	3	1	1	4
	2%	4%		3%			6%		1%	3%	1%	4%	2%	1%	5%
Religious	3		1							1	1				
	0%		1%							1%	1%				
Charity	14		1				2	3		1		2	1	1	3
	1%		1%				3%	4%		1%		3%	2%	1%	4%
Repairs	5					1			2		1	1			
	0%					1%			3%		1%	1%			
Service (non-specific)	15				1	5		3	2	1		2		1	
	1%				1%	7%		4%	3%	1%		3%		1%	
Electrical/IT	4				1	2		1							
	0%				1%	3%		1%							
Other	7			1		2		2	1					1	
	1%			1%		3%		3%	1%					1%	

APPENDIX H

Show Material

Residential Main – LPN Only

Showcard A

Who are Distributors - What do They do?

Own the wires and cables

Duty to connect any customer requiring electricity within their area and maintain the connection

Must maintain an efficient cost-effective and coordinated system to distribute electricity e.g. the overhead lines, etc

Showcard B

GS2A – Multiple Interruptions

If your electricity supply fails because of a problem on the distribution system and you are without power for three hours or more, on four or more different occasions in any single year (April to March) you are entitled to a compensation payment.

You must make a valid claim for this payment within three months of the end of the year to which the claim applies.*

* Additionally, whenever your supply is interrupted your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Showcard E

GS4 – Notice of Planned Interruption to Supply

If your distributor needs to switch off your power to work on the network they will give you at least 2 days' notice.

If they fail to give 2 days' notice or switch your electricity off on a different day, then you can claim a compensation payment (within 1 month of the failure).*

* Note that whenever the distributor needs to take you off supply or carry out planned work, they stand to lose future revenue from customers and the revenue they lose increases the longer you are off supply.

Showcard H2: Exercise 3 Attributes

- **Provision of information during a power cut:**
  - automated messages or telephone operators to respond to customer calls
  - automated messages or telephone operators to respond to customer calls plus call backs to provide information updates
  - automated messages or telephone operators to respond to customer calls plus text messages to provide information updates
  - automated messages or telephone operators to respond to customer calls plus helpline for customers reliant on medical equipment
- **Number of major electricity sites across GB exposed to a potential flood risk:**
  - as now, ie around 1000 major electricity sites across GB exposed to a potential flood risk
  - Reduced from 1000 to 950
  - Reduced from 1000 to 900
  - Reduced from 1000 to 850
- **Investment (by distributor) to current mobile generation equipment and vehicles reduce carbon emissions:**
  - continue usage of current equipment & vehicles
  - replace 5% per year with those using less polluting fuels
  - replace 10% per year with those using less polluting fuels

Showcard I: Income Bands

1. Under £10,000

2. £10,000 - £20,000

3. £20,001 - £30,000

4. £30,001 - £40,000

5. £40,001 - £50,000

6. £50,001 - £60,000

7. Over £60,000

Showcard A

Who are Distributors - What do They do?

| ELECTRICITY GENERATORS |
| e.g. Powergen, British Energy |

| THE NATIONAL GRID |
| National Grid Electricity Transmission (NGET) operates the pylons and wires for transmitting electricity at high voltages |

| ELECTRICITY DISTRIBUTION BUSINESSES |
| Electricity is transformed to lower voltages for local distribution where it is conducted by underground cables or wires on poles |

| SUPPLIERS |
| Companies who sell to and bill customers such as NPower and British Gas |

| CUSTOMERS |
| Including business customers, large and small, and domestic customers |

Own the wires and cables

Duty to connect any customer requiring electricity within their area and maintain the connection

Must maintain an efficient cost-effective and coordinated system to distribute electricity e.g. the overhead lines, etc

GS2 – Supply Restoration
During Normal Weather

If your electricity supply fails during normal weather conditions because of a problem on your distribution system, your distributor will restore it within 18 hours of first becoming aware of the problem.

If they fail and you make a valid claim within three months of the date the supply is restored, they will arrange for you to receive a compensation payment. You will also receive further compensation for each additional 12 hours you are without supply.*

Additionally, whenever your supply is interrupted your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

GS2A – Multiple Interruptions

If your electricity supply fails because of a problem on the distribution system and you are without power for three hours or more, on four or more different occasions in any single year (April to March) you are entitled to a compensation payment.

You must make a valid claim for this payment within three months of the end of the year to which the claim applies.*

Additionally, whenever your supply is interrupted your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

GS4 – Notice of Planned Interruption to Supply

If your distributor needs to switch off your power to work on the network they will give you at least 2 days' notice.

If they fail to give 2 days' notice or switch your electricity off on a different day, then you can claim a compensation payment (within 1 month of the failure).*

Note that whenever the distributor needs to take you off supply or carry out planned work, they stand to lose future revenue from customers and the revenue they lose increases the longer you are off supply.

Showcard F1: Exercise 1 Attributes

- Number of power cuts longer than 3 minutes in normal weather conditions:
  - as now for your area
  - less than now (different options will be given)
  - more than now (different options will be given)
- Average length of power cuts:
  - current average for your area
  - less than now (different options will be given)
  - more than now (different options will be given)
- Number of short interruptions of less than 3 minutes in normal weather conditions:
  - as now for your area
  - less than now (different options will be given)
  - more than now (different options will be given)
- Provision of information during a power cut:
  - automated messages or telephone operators to respond to customer calls
  - automated messages or telephone operators to respond to customer calls plus call backs to provide information updates
  - automated messages or telephone operators to respond to customer calls plus text messages to provide information updates
  - automated messages or telephone operators to respond to customer calls plus helpline for customers reliant on medical equipment

Showcard G: Exercise 2 Attributes

- Time required to restore electricity supply as a result of problems not related to weather:
  - as now, ie guaranteed within 18 hours
  - guaranteed within 12 hours (better than now)
  - guaranteed within 6 hours (better than now)
- Compensation if your electricity is not restored in this time:
  - as now, ie £50 plus £25 for each additional 12 hour period
  - £50 plus £50 for each additional 12 hour period
  - £60 plus £25 for each additional 12 hour period
  - £60 plus £50 for each additional 12 hour period
  - £100 plus £25 for each additional 12 hour period
  - £100 plus £50 for each additional 12 hour period
- Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment:
  - as now, ie compensation after 4 interruptions
  - better than now, ie compensation after 3 interruptions
  - worse than now, ie compensation after 5 interruptions
- Amount of notice you must be given before planned interruptions to electricity supply:
  - as now, ie 2 days notice
  - better than now, ie 5 days notice
  - better than now, ie 10 days notice

Showcard H1: Exercise 3 Attributes

- **Commitment to undergrounding overhead lines in areas of outstanding natural beauty and national parks for amenity reasons:**
    - as now: 1.5% of overhead lines per annum
    - worse than now, ie 0% of overhead lines per annum
    - better than now, ie 3% of overhead lines per annum
    - better than now, ie 5% of overhead lines per annum
- **Number of customers affected by major storms:**
    - as now for your area
    - 20% more than now
    - 10% more than now
    - 10% less than now
    - 20% less than now
- **Number of major electricity sites across GB exposed to a potential flood risk:**
    - as now, ie around 1000 major electricity sites across GB exposed to a potential flood risk
    - Reduced from 1000 to 950
    - Reduced from 1000 to 900
    - Reduced from 1000 to 850
- **Investment (by distributor) to current mobile generation equipment and vehicles reduce carbon emissions:**
    - continue usage of current equipment & vehicles
    - replace 5% per year with those using less polluting fuels
    - replace 10% per year with those using less polluting fuels

Showcard I: Income Bands

1. Under £10,000

2. £10,000 - £20,000

3. £20,001 - £30,000

4. £30,001 - £40,000

5. £40,001 - £50,000

6. £50,001 - £60,000

7. Over £60,000

Business Showcards - All

Showcard A

Who are Distributors - What do They do?
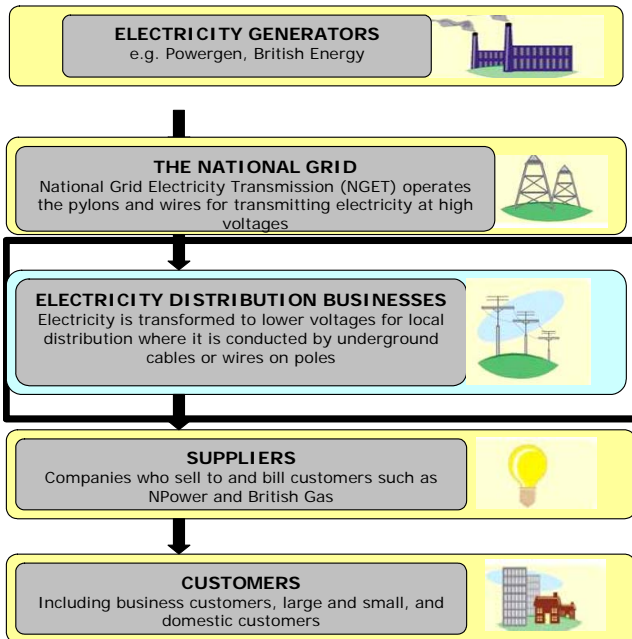
```
┌─────────────────────────────────────┐
│ ELECTRICITY GENERATORS               │
│ e.g. Powergen, British Energy        │
└─────────────────────────────────────┘
                │
┌─────────────────────────────────────┐
│ THE NATIONAL GRID                    │
│ National Grid Electricity            │
│ Transmission (NGET) operates the     │
│ pylons and wires for transmitting    │
│ electricity at high voltages         │
└─────────────────────────────────────┘
                │
┌─────────────────────────────────────┐
│ ELECTRICITY DISTRIBUTION BUSINESSES  │
│ Electricity is transformed to lower  │
│ voltages for local distribution where│
│ it is conducted by underground       │
│ cables or wires on poles             │
└─────────────────────────────────────┘
                │
┌─────────────────────────────────────┐
│ SUPPLIERS                            │
│ Companies who sell to and bill       │
│ customers such as NPower and         │
│ British Gas                          │
└─────────────────────────────────────┘
                │
┌─────────────────────────────────────┐
│ CUSTOMERS                            │
│ Including business customers, large  │
│ and small, and domestic customers    │
└─────────────────────────────────────┘
```

Own the wires and cables

Duty to connect any customer requiring electricity within their area and maintain the connection

Must maintain an efficient cost-effective and coordinated system to distribute electricity e.g. the overhead lines, etc

Showcard B

APPENDIX I

SP Attributes and Levels

GAME 1: DOMESTIC

	Attributes and Levels	Levels	Base	Levels (Detail)	Comment
	Frequency of Power Cuts over 3 minutes	**7**			**y = 5 years for all DNOs apart from LPN, SP Manweb, UU and SP Distribution where it = 10 years**
Base	Average number of power cuts longer than 3 minutes in normal weather conditions as now, ie x in y years		x = AVG DNO		
+ Level	Average number of power cuts longer than 3 minutes in normal weather conditions x in y years (less than now)			x = AVG DNO -3, -2, -1	
- Level	Average number of power cuts longer than 3 minutes in normal weather conditions x in y years (more than now)			x = AVG DNO 1, 2, 3	
	Duration of Loss of Power	**9**			**For LPN, we used figures in Sofia's excel sheet with 40 as a base (ie +2, +4, +6, +8, -2, -4, -6, -8)**
Base	Average duration of power cut x minutes		x = AVG DNO		
+ Level	Average duration of power cut x minutes (less than now)			x = AVG DNO -20, -15, -10, -5	
- Level	Average duration of power cut x minutes (more than now)			x = AVG DNO +5, +10, +15, +20	
	Frequency of Short Interruption (less than 3 minutes)	**5**			**y = 5 years for all DNOs apart from LPN, SP Manweb, UU and SP Distribution where it = 10 years. For LPN showed base of 1 in 10 and 1 in 6, 1 in 8, 1 in 12 and 1 in 14 years**
Base	Average number of power cuts shorter than 3 minutes in normal weather conditions as now, ie x in y years		x = AVG DNO		
+ Level	Average number of power cuts shorter than 3 minutes in normal weather conditions as x in y years			x = AVG DNO -1, -2	
- Level	Average number of power cuts shorter than 3 minutes in normal weather conditions x in y years			x = AVG DNO +1,+2	
	Provision of Information	**4**			**In Experiment 3 for LPN**
Base	Information provided during power cuts: a telephone information line		No proactive communication		
Level 1	Information provided during power cuts: a telephone information line plus call backs to provide information updates			Call back	
Level 2	Information provided during power cuts: a telephone information line plus text messages to provide information updates			Text	
Level 3	Information provided during power cuts: a telephone information line plus helpline for customers reliant on medical equipment			PSR Line	

GAME 2: DOMESTIC

	Attributes and Levels	Levels	Base	Levels (Detail)	Comment
	Restoration of Supply - Normal Weather	3			
Base	Restoration of electricity supply as a result of problems not related to weather: as now, ie guaranteed within 18 hours		18		
Level 1	Restoration of electricity supply as a result of problems not related to weather: guaranteed within 12 hours (better than now)			12	
Level 2	Restoration of electricity supply as a result of problems not related to weather: guaranteed within 6 hours (better than now)			6	
	Compensation for Failure to Restore Supply	6			
Base	Compensation if your electricity is not restored in this time as now, ie £50 plus £25 for each additional 12 hour period		£50; £25		
Level 1	Compensation if your electricity is not restored in this time: £50 plus £50 for each additional 12 hour period			£50; £50	
Level 2	Compensation if your electricity is not restored in this time: £60 plus £25 for each additional 12 hour period			£60; £25	
Level 3	Compensation if your electricity is not restored in this time: £60 plus £50 for each additional 12 hour period			£60; £50	
Level 4	Compensation if your electricity is not restored in this time: £100 plus £25 for each additional 12 hour period			£100; £25	
Level 5	Compensation if your electricity is not restored in this time: £100 plus £50 for each additional 12 hour period			£100; £50	
	Compensation for Multiple Interruptions	3			
Base	Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment as now, ie compensation after 4 interruptions		4		
+ Level	Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment: compensation after 3 interruptions			3	
- Level	Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment as now, ie compensation after 5 interruptions			5	
	Planned Interruptions to Electricity Supply	3			
Base	Amount of notice that customers must be given before planned interruptions to electricity supply as now, ie 2 days notice		2		
Level 1	Amount of notice that customers must be given before planned interruptions to electricity supply: 5 days notice			5 days	
Level 2	Amount of notice that customers must be given before planned interruptions to electricity supply: 10 days notice			10 days	

GAME 3: DOMESTIC

	Attributes and Levels	Levels	Base	Levels (Detail)	Comment
	Undergrounding	**4**			**LPN excluded**
Base	An ongoing commitment to underground overhead lines in areas of outstanding natural beauty and national parks for amenity reasons. As now: 1.5% of overhead lines per annum		1.5%		
Level 1	0% of overhead lines per annum			0% (none)	
Level 2	An ongoing commitment to underground overhead lines in areas of outstanding natural beauty and national parks for amenity reasons. 3% of overhead lines per annum			3%	
Level 3	An ongoing commitment to underground overhead lines in areas of outstanding natural beauty and national parks for amenity reasons. 5% of overhead lines per annum			5%	
	Network Resilience to Major Storms	**5**			**Not for LPN**
Base	Number of customers affected by major storms: x customers on average in a year		x = DNO		
Level 1	Number of customers affected by major storms: x customers on average in a year (20% more than now)			x = DNO +20%	
Level 2	Number of customers affected by major storms: x customers on average in a year (10% more than now)			x = DNO +10%	
Level 3	Number of customers affected by major storms: x customers on average in a year (10% less than now)			x = DNO -10%	
Level 4	Number of customers affected by major storms: x customers on average in a year (20% less than now)			x = DNO -20%	
	Network Resilience to Flooding	**4**			
Base	Currently around 1000 major electricity sites across GB are exposed to a potential flood risk		Current		
Level 1	Reduce the number of sites across GB exposed to a potential flood risk from 1000 to 950			Increase by 5%	
Level 2	Reduce the number of sites across GB exposed to a potential flood risk from 1000 to 900			Increase by 10%	
Level 3	Reduce the number of sites across GB exposed to a potential flood risk from 1000 to 850			Increase by 15%	
	Reduction of Carbon Emissions	**3**			
Base	Replacement of mobile generation equipment & vehicles with those using less polluting fuels: continue usage of current equipment & vehicles		As now		
Level 1	Replacement of mobile generation equipment & vehicles with those using less polluting fuels: replace 5% per year with those using less polluting fuels			Replace 5% pa	
Level 2	Replacement of mobile generation equipment & vehicles with those using less polluting fuels: replace 10% per year with those using less polluting fuels			Replace 10% pa	
	ADDITIONAL VARIABLE				
	Costs (for all games)	**9**		**2%, 5%, 10%, 15%, current, -2%, -5%, -10%, -15%**	**Only applied to distribution aspect, but full energy bill shown.**

GAME 1: BUSINESS

	Attributes and Levels	Levels	Base	Levels (Detail)	Comment
	Frequency of Power Cuts over 3 minutes	7			**y = 5 years for all DNOs apart from LPN, SP Manweb, UU and SP Distribution where it = 10 years**
Base	Average number of power cuts longer than 3 minutes in normal weather conditions as now, ie x in y years		x = AVG DNO		
+ Level	Average number of power cuts longer than 3 minutes in normal weather conditions x in y years (less than now)			x = AVG DNO -3, -2, -1	
- Level	Average number of power cuts longer than 3 minutes in normal weather conditions x in y years (more than now)			x = AVG DNO 1, 2, 3	
	Duration of Loss of Power	9			**For LPN, we used figures in Sofia's excel sheet with 40 as a base (ie +2, +4, +6, +8, -2, -4, -6, -8)**
Base	Average duration of power cut x minutes		x = AVG DNO		
+ Level	Average duration of power cut x minutes (less than now)			x = AVG DNO -20, -15, -10, -5	
- Level	Average duration of power cut x minutes (more than now)			x = AVG DNO +5, +10, +15, +20	
	Frequency of Short Interruption (less than 3 minutes)	5			**y = 5 years for all DNOs apart from LPN, SP Manweb, UU and SP Distribution where it = 10 years. For LPN showed base of 1 in 10 and 1 in 6, 1 in 8, 1 in 12 and 1 in 14 years**
Base	Average number of power cuts shorter than 3 minutes in normal weather conditions as now, ie x in y years		x = AVG DNO		
+ Level	Average number of power cuts shorter than 3 minutes in normal weather conditions as x in y years			x = AVG DNO -1, -2	
- Level	Average number of power cuts shorter than 3 minutes in normal weather conditions x in y years			x = AVG DNO +1,+2	
	Provision of Information	4			*In Experiment 3 for LPN*
Base	Information provided during power cuts: a telephone information line		No proactive communication		
Level 1	Information provided during power cuts: a telephone information line plus call backs to provide information updates			Call back	
Level 2	Information provided during power cuts: a telephone information line plus text messages to provide information updates			Text	

GAME 2: BUSINESS

	Attributes and Levels	Levels	Base	Levels (Detail)	Comment
	Restoration of Supply - Normal Weather	3			
Base	Restoration of electricity supply as a result of problems not related to weather: as now, ie guaranteed within 18 hours		18		
Level 1	Restoration of electricity supply as a result of problems not related to weather: guaranteed within 12 hours (better than now)			12	
Level 2	Restoration of electricity supply as a result of problems not related to weather: guaranteed within 6 hours (better than now)			6	
	Compensation for Failure to Restore Supply	16			**Med/large bus: £100, whatever is the greater of 0.5%, 1%, 2% or £50, £150, £200 Med/large bus: plus £25, whatever is the greater of 0.5%, 1%, 2% or £50, £75, £100**
Base	Compensation if your electricity is not restored in this time as now, ie £100 plus £25 for each additional 12 hour period				
Level 1	Compensation if your electricity is not restored in this time: £50 plus £25 for each additional 12 hour period				
Level 2	Compensation if your electricity is not restored in this time: £50 plus £50 for each additional 12 hour period				
Level 3	Compensation if your electricity is not restored in this time: £50 plus £75 for each additional 12 hour period				
Level 4	Compensation if your electricity is not restored in this time: £50 plus £100 for each additional 12 hour period				
Level 5	Compensation if your electricity is not restored in this time: £100 plus £50 for each additional 12 hour period				
Level 6	Compensation if your electricity is not restored in this time: £100 plus £75 for each additional 12 hour period				
Level 7	Compensation if your electricity is not restored in this time: £100 plus £100 for each additional 12 hour period				
Level 8	Compensation if your electricity is not restored in this time: £150 plus £25 for each additional 12 hour period				
Level 9	Compensation if your electricity is not restored in this time: £150 plus £50 for each additional 12 hour period				
Level 10	Compensation if your electricity is not restored in this time: £150 plus £75 for each additional 12 hour period				
Level 11	Compensation if your electricity is not restored in this time: £150 plus £100 for each additional 12 hour period				
Level 12	Compensation if your electricity is not restored in this time: £200 plus £25 for each additional 12 hour period				
Level 13	Compensation if your electricity is not restored in this time: £200 plus £50 for each additional 12 hour period				
Level 14	Compensation if your electricity is not restored in this time: £200 plus £75 for each additional 12 hour period				
Level 15	Compensation if your electricity is not restored in this time: £200 plus £100 for each additional 12 hour period				

	Making and Keeping Appointments	**2**			
Base	Scheduling appointments with customers. Offer and keep appointments within a 2 hour slot, as now			2 hour	
Level 1	Offer and keep timed appointments			timed	
	Planned Interruptions to Electricity Supply	**3**			
Base	Amount of notice that customers must be given before planned interruptions to electricity supply as now, ie 2 days notice		2		
Level 1	Amount of notice that customers must be given before planned interruptions to electricity supply: 5 days notice			5 days	
Level 2	Amount of notice that customers must be given before planned interruptions to electricity supply: 10 days notice			10 days	

GAME 3: BUSINESS

	Attributes and Levels	Levels	Base	Levels (Detail)	Comment
	Network Resilience to Major Storms	**5**			**Not for LPN**
Base	Number of customers affected by major storms: x customers on average in a year		x = DNO		
Level 1	Number of customers affected by major storms: x customers on average in a year (20% more than now)			x = DNO +20%	
Level 2	Number of customers affected by major storms: x customers on average in a year (10% more than now)			x = DNO +10%	
Level 3	Number of customers affected by major storms: x customers on average in a year (10% less than now)			x = DNO -10%	
Level 4	Number of customers affected by major storms: x customers on average in a year (20% less than now)			x = DNO -20%	
	Network Resilience to Flooding	**4**			
Base	Expenditure on flood defences: current expenditure		Current		
Level 1	Expenditure on flood defences: increase by 5%			Increase by 5%	
Level 2	Expenditure on flood defences: increase by 10%			Increase by 10%	
Level 3	Expenditure on flood defences: increase by 15%			Increase by 15%	
	Reduction of Carbon Emissions	**3**			
Base	Replacement of mobile generation equipment & vehicles with those using less polluting fuels: continue usage of current equipment & vehicles		As now		
Level 1	Replacement of mobile generation equipment & vehicles with those using less polluting fuels: replace 5% per year with those using less polluting fuels			Replace 5% pa	
Level 2	Replacement of mobile generation equipment & vehicles with those using less polluting fuels: replace 10% per year with those using less polluting fuels			Replace 10% pa	
	Energy Efficiency Advice	**5**			
Base	Provision of advice by energy distributor: as now, ie no information provided				
Level 1	Provision of advice by energy distributor: through leaflets or e-mails				
Level 2	Provision of advice by energy distributor: through helplines				
Level 3	Provision of advice by energy distributor: by proactively telephoning customers				
Level 4	Provision of advice by energy distributor: through site visits				
	ADDITIONAL VARIABLE				
	Costs (for all games)	9		2%, 5%, 10%, 15%, current, -2%, -5%, -10%, -15%	Only applied to distribution aspect, but full energy bill shown.

Frequency of Power Cuts, different levels for different DNOs

DNO	worst state	worse state 2	worse state 1	Current State	better state 1	better state 2	best state
CN East	7 in 5 years	6 in 5 years	5 in 5 years	**4 in 5 years**	3 in 5 years	2 in 5 years	1 in 5 years
CN West	9 in 5 years	8 in 5 years	7 in 5 years	**6 in 5 years**	5 in 5 years	4 in 5 years	3 in 5 years
EDF - EPN	7 in 5 years	6 in 5 years	5 in 5 years	**4 in 5 years**	3 in 5 years	2 in 5 years	1 in 5 years
EDF - LPN	7 in 10 years	6 in 10 years	5 in 10 years	**4 in 10 years**	3 in 10 years	2 in 10 years	1 in 10 years
EDF - SPN	8 in 5 years	7 in 5 years	6 in 5 years	**5 in 5 years**	4 in 5 years	3 in 5 years	2 in 5 years
SSE - Hydro	9 in 5 years	8 in 5 years	7 in 5 years	**6 in 5 years**	5 in 5 years	4 in 5 years	3 in 5 years
SSE - Southern	8 in 5 years	7 in 5 years	6 in 5 years	**5 in 5 years**	4 in 5 years	3 in 5 years	2 in 5 years
CE - YEDL	7 in 5 years	6 in 5 years	5 in 5 years	**4 in 5 years**	3 in 5 years	2 in 5 years	1 in 5 years
CE - NEDL	7 in 5 years	6 in 5 years	5 in 5 years	**4 in 5 years**	3 in 5 years	2 in 5 years	1 in 5 years
UU	12 in 10 years	10 in 10 years	8 in 10 years	**6 in 10 years**	4 in 10 years	2 in 10 years	1 in 10 years
WPD S. Wales	8 in 5 years	7 in 5 years	6 in 5 years	**5 in 5 years**	4 in 5 years	3 in 5 years	2 in 5 years
WPD S. West	7 in 5 years	6 in 5 years	5 in 5 years	**4 in 5 years**	3 in 5 years	2 in 5 years	1 in 5 years
SP Manweb	12 in 10 years	10 in 10 years	8 in 10 years	**6 in 10 years**	4 in 10 years	2 in 10 years	1 in 10 years
SP Distribution	12 in 10 years	10 in 10 years	8 in 10 years	**6 in 10 years**	4 in 10 years	2 in 10 years	1 in 10 years

Duration of Power Cuts, different levels for different DNOs

DNO	worst state	worse state 3	worse state 2	worse state 1	Current State	better state 1	better state 2	better state 3	best state
CN East	120	115	110	105	**100**	95	90	85	80
CN West	160	155	150	145	**140**	135	130	125	120
EDF - EPN	125	120	115	110	**105**	100	95	90	85
EDF - LPN	48	46	44	42	**40**	38	36	34	32
EDF - SPN	110	105	100	95	**90**	85	80	75	70
SSE - Hydro	155	150	145	140	**135**	130	125	120	115
SSE - Southern	110	105	100	95	**90**	85	80	75	70
CE - YEDL	100	95	90	85	**80**	75	70	65	60
CE - NEDL	115	110	105	100	**95**	90	85	80	75
UU	115	110	105	100	**95**	90	85	80	75
WPD S. Wales	95	90	85	80	**75**	70	65	60	55
WPD S. West	85	80	75	70	**65**	60	55	50	45
SP Manweb	105	100	95	90	**85**	80	75	70	65
SP Distribution	105	100	95	90	**85**	80	75	70	65

Frequency of Short Interruptions, different levels for different DNOs

DNO	worst state	worse state	Current State	better state	best state
CN East	7 in 5 years	6 in 5 years	**5 in 5 years**	4 in 5 years	3 in 5 years
CN West	12 in 5 years	11 in 5 years	**10 in 5 years**	9 in 5 years	8 in 5 years
EDF - EPN	8 in 5 years	7 in 5 years	**6 in 5 years**	5 in 5 years	4 in 5 years
EDF - LPN	1 in 6 years	1 in 8 years	**1 in 10 years**	1 in 12 years	1 in 14 years
EDF - SPN	6 in 5 years	5 in 5 years	**4 in 5 years**	3 in 5 years	2 in 5 years
SSE - Hydro	17 in 5 years	16 in 5 years	**15 in 5 years**	14 in 5 years	13 in 5 years
SSE - Southern	9 in 5 years	8 in 5 years	**7 in 5 years**	6 in 5 years	5 in 5 years
CE - YEDL	5 in 5 years	4 in 5 years	**3 in 5 years**	2 in 5 years	1 in 5 years
CE - NEDL	5 in 5 years	4 in 5 years	**3 in 5 years**	2 in 5 years	1 in 5 years
UU	6 in 10 years	5 in 10 years	**4 in 10 years**	3 in 10 years	2 in 10 years
WPD S. Wales	17 in 5 years	16 in 5 years	**15 in 5 years**	14 in 5 years	13 in 5 years
WPD S. West	12 in 5 years	11 in 5 years	**10 in 5 years**	9 in 5 years	8 in 5 years
SP Manweb	12 in 10 years	10 in 10 years	**8 in 10 years**	6 in 10 years	4 in 10 years
SP Distribution	6 in 10 years	5 in 10 years	**4 in 10 years**	3 in 10 years	2 in 10 years

Network resilience to storms, in number of customers affected by storms, different levels for different DNOs

	worst state (+20%)	worse state (+10%)	**Current State**	better state (-10%)	best state (-20%)
CN East	216000	198000	180000	162000	144000
CN West	216000	198000	180000	162000	144000
EDFE EPN	312000	286000	260000	234000	208000
EDF - LPN					
EDFE SPN	48000	44000	40000	36000	32000
SSE Hydro	96000	88000	80000	72000	64000
SSE Southern	168000	154000	140000	126000	112000
CE YEDL	72000	66000	60000	54000	48000
CE NEDL	120000	110000	100000	90000	80000
UU	72000	66000	60000	54000	48000
WPD S Wales	72000	66000	60000	54000	48000
WPD S West	168000	154000	140000	126000	112000
SP Manweb	72000	66000	60000	54000	48000
SP Distribution	72000	66000	60000	54000	48000

APPENDIX J

Examples of SP Choices

Example Of Choice from 1st Experiment (Domestic LPN)

Which electricity distribution service would you choose?

	As Now	**Alternative 1**	**Alternative 2**
Average number of power cuts longer than 3 mins in normal weather conditions	4 in 10 years	**5 in 10 years (worse than now)**	**1 in 10 years (better than now)**
Average duration of power cut	40 mins on average	**44 mins on average (worse than now)**	**42 mins on average (worse than now)**
Average number of power cuts shorter than 3 mins in normal weather conditions	1 in 10 years	**1 in 12 years (better than now)**	1 in 10 years
Annual Electricity Bill	£200 (no change)	**£198 (£2 decrease)**	**£206 (£6 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 2nd Experiment (Domestic LPN)

Which electricity distribution service would you choose?

	As Now	**Alternative 1**	**Alternative 2**
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	Guaranteed within 18 hours	**Guaranteed within 6 hours (better than now)**
Compensation provided if your electricity is not restored in this time	£50 plus £25 for every additional 12 hour period	**£60 plus £25 for every additional 12 hour period**	**£60 plus £50 for every additional 12 hour period**
Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment	Compensation after 4 interruptions	Compensation after 4 interruptions	Compensation after 4 interruptions
Amount of notice that customers must be given before planned interruptions to electricity supply	2 days notice	**10 days notice**	**5 days notice**
Annual Electricity Bill	£200 (no change)	**£209 (£9 increase)**	**£202 (£2 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 3rd Experiment (Domestic LPN)

Which electricity distribution service would you choose?

	As Now	Alternative 1	Alternative 2
Information provided during power cuts	Automated messages or telephone operators to respond to customer calls	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**	**Automated messages or telephone operators to respond to customer calls, plus text messages to provide information updates**
Number of major electricity sites across GB exposed to a potential flood risk	Around 1000 major electricity sites	Around 1000 major electricity sites	**Reduce to 950 major electricity sites**
Investment to reduce carbon emissions	Continue usage of current equipment and vehicles	Continue usage of current equipment and vehicles	Continue usage of current equipment and vehicles
Annual Electricity Bill	£200 (no change)	**£197 (£3 decrease)**	**£208 (£8 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 1st Experiment (Domestic Non-LPN)

Which electricity distribution service would you choose?

	As Now	**Alternative 1**	**Alternative 2**
Average number of power cuts longer than 3 mins in normal weather conditions	4 in 5 years	4 in 5 years	**7 in 5 years (worse than now)**
Average duration of power cut	100 mins on average	**80 mins on average (better than now)**	**120 mins on average (worse than now)**
Average number of power cuts shorter than 3 mins in normal weather conditions	5 in 5 years	**6 in 5 years (worse than now)**	**6 in 5 years (worse than now)**
Information provided during power cuts	Automated messages or telephone operators to respond to customer calls	**Automated messages or telephone operators to respond to customer calls, plus helpline for customers reliant on medical equipment**	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**
Annual Electricity Bill	£200 (no change)	**£202 (£2 increase)**	**£191 (£9 decrease)**
Choice (mark "X" in preferred option)	▢	▢	▢

Example Of Choice from 2nd Experiment (Domestic Non-LPN)

Which electricity distribution service would you choose?

	As Now	**Alternative 1**	**Alternative 2**
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	**Guaranteed within 12 hours (better than now)**	**Guaranteed within 6 hours (better than now)**
Compensation provided if your electricity is not restored in this time	£50 plus £25 for every additional 12 hour period	**£100 plus £25 for every additional 12 hour period**	**£60 plus £25 for every additional 12 hour period**
Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment	Compensation after 4 interruptions	**Compensation after 3 interruptions**	**Compensation after 3 interruptions**
Amount of notice that customers must be given before planned interruptions to electricity supply	2 days notice	2 days notice	2 days notice
Annual Electricity Bill	£200 (no change)	**£203 (£3 increase)**	**£208 (£8 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 3rd Experiment (Domestic Non-LPN)

	As Now	**Alternative 1**	**Alternative 2**
Commitment to undergrounding overhead lines in areas of outstanding natural beauty and national parks for amenity reasons	1.5% of overhead lines per annum	1.5% of overhead lines per annum	**5% of overhead lines per annum**
Number of customers affected by major storms	180000 customers on average in a year	**162000 customers on average in a year (10% better than now)**	**144000 customers on average in a year (20% better than now)**
Number of major electricity sites across GB exposed to a potential flood risk	Around 1000 major electricity sites	**Reduce to 900 major electricity sites**	**Reduce to 950 major electricity sites**
Investment to reduce carbon emissions	Continue usage of current equipment and vehicles	**Replace 5% per year with those using less polluting fuels**	**Replace 5% per year with those using less polluting fuels**
Annual Electricity Bill	£200 (no change)	**£205 (£5 increase)**	**£209 (£9 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 1st Experiment (Business LPN)

Which electricity distribution service would you choose?

	As Now	Alternative 1	Alternative 2
Average number of power cuts longer than 3 mins in normal weather conditions	4 in 10 years	3 in 10 years (better than now)	5 in 10 years (worse than now)
Average duration of power cut	40 mins on average	38 mins on average (better than now)	44 mins on average (worse than now)
Average number of power cuts shorter than 3 mins in normal weather conditions	1 in 10 years	1 in 12 years (worse than now)	1 in 10 years
Annual Electricity Bill	£25000 (no change)	£25250 (£250 increase)	£23500 (£1500 decrease)
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 2nd Experiment (Business LPN)

Which electricity distribution service would you choose?

	As Now	Alternative 1	Alternative 2
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	Guaranteed within 18 hours	**Guaranteed within 12 hours (better than now)**
Compensation provided if your electricity is not restored in this time	£100 plus £25 for every additional 12 hour period	**£200 plus £50 for every additional 12 hour period**	**£200 plus £50 for every additional 12 hour period**
Scheduling of appointments with customers	Offer and keep appointments within a 2 hour slot	**Offer and keep timed appointments**	**Offer and keep timed appointments**
Amount of notice that customers must be given before planned interruptions to electricity supply	2 days notice	2 days notice	**10 days notice**
Annual Electricity Bill	£25000 (no change)	£25000 (no change)	**£25500 (£500 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 3rd Experiment (Business LPN)

Which electricity distribution service would you choose?

	As Now	**Alternative 1**	**Alternative 2**
Information provided during power cuts	Automated messages or telephone operators to respond to customer calls	Automated messages or telephone operators to respond to customer calls	Automated messages or telephone operators to respond to customer calls
Number of major electricity sites across GB exposed to a potential flood risk	Around 1000 major electricity sites	**Reduce to 950 major electricity sites**	**Reduce to 900 major electricity sites**
Investment to reduce carbon emissions	Continue usage of current equipment and vehicles	**Replace 10% per year with those using less polluting fuels**	**Replace 10% per year with those using less polluting fuels**
Provision of energy efficiency advice by energy distributor	No information provided	No information provided	**Helplines**
Annual Electricity Bill	£25000 (no change)	**£25250 (£250 increase)**	**£25500 (£500 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 1st Experiment (Business Non LPN)

Which electricity distribution service would you choose?

	As Now	Alternative 1	Alternative 2
Average number of power cuts longer than 3 mins in normal weather conditions	4 in 5 years	**6 in 5 years (worse than now)**	**7 in 5 years (worse than now)**
Average duration of power cut	95 mins on average	**110 mins on average (worse than now)**	**75 mins on average (better than now)**
Average number of power cuts shorter than 3 mins in normal weather conditions	3 in 5 years	**4 in 5 years (worse than now)**	3 in 5 years
Information provided during power cuts	Automated messages or telephone operators to respond to customer calls	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**
Annual Electricity Bill	£25000 (no change)	**£24750 (£250 decrease)**	**£25250 (£250 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 2nd Experiment (Business Non LPN)

Which electricity distribution service would you choose?

	As Now	**Alternative 1**	**Alternative 2**
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	**Guaranteed within 6 hours (better than now)**	Guaranteed within 18 hours
Compensation provided if your electricity is not restored in this time	£100 plus £25 for every additional 12 hour period	**£200 plus £25 for every additional 12 hour period**	**£200 plus £50 for every additional 12 hour period**
Scheduling appointments with customers	Offer and keep appointments within a 2 hour slot	Offer and keep appointments within a 2 hour slot	Offer and keep appointments within a 2 hour slot
Amount of notice that customers must be given before planned interruptions to electricity supply	2 days notice	**5 days notice**	**10 days notice**
Annual Electricity Bill	£25000 (no change)	**£26250 (£1250 increase)**	£25000 (no change)
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from 3rd Experiment (Business Non LPN)

Choice 1

Which electricity distribution service would you choose?

	As Now	Alternative 1	Alternative 2
Number of customers affected by major storms	100000 customers on average in a year	**120000 customers on average in a year (20% worse than now)**	**110000 customers on average in a year (10% worse than now)**
Number of major electricity sites across GB exposed to a potential flood risk	Around 1000 major electricity sites	**Reduce to 950 major electricity sites**	Around 1000 major electricity sites
Investment to reduce carbon emissions	Continue usage of current equipment and vehicles	Continue usage of current equipment and vehicles	**Replace 5% per year with those using less polluting fuels**
Provision of energy efficiency advice by energy distributor	No information provided	**Helplines**	No information provided
Annual Electricity Bill	£25000 (no change)	**£25500 (£500 increase)**	**£25250 (£250 increase)**
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from Packaging Experiment (Domestic LPN)

Choice 1

Which electricity distribution service would you choose?

	Alternative 1	Alternative 2	Neither
Average number of power cuts longer than 3 mins in normal weather conditions	**1 in 10 years (better than now)**	7 in 10 years (worse than now)	
Average duration of power cut	**32 mins on average (better than now)**	48 mins on average (worse than now)	
Average number of power cuts shorter than 3 mins in normal weather conditions	**1 in 14 years (better than now)**	1 in 6 years (worse than now)	
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	Guaranteed within 18 hours	
Compensation provided if your electricity is not restored in this time	£50 plus £25 for every additional 12 hour period	£50 plus £25 for every additional 12 hour period	
Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment	Compensation after 5 interruptions	Compensation after 5 interruptions	
Amount of notice that customers must be given before planned interruptions	2 days notice	2 days notice	
Information provided during power cuts	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**	Automated messages or telephone operators to respond to customer calls	
Number of major electricity sites across GB exposed to a potential flood risk	**Reduce to 850 major electricity sites**	Around 1000 major electricity sites	
Investment to reduce carbon emissions	**Replace 10% per year with those using less polluting fuels**	Continue usage of current equipment and vehicles	
Annual Electricity Bill	**£211 (£11 increase)**	**£204 (£4 increase)**	
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from Packaging Experiment (Domestic Non LPN)

Choice 1

Which electricity distribution service would you choose?

	Alternative 1	Alternative 2	Neither
Average number of power cuts longer than 3 mins in normal weather conditions	**1 in 5 years (better than now)**	7 in 5 years (worse than now)	
Average duration of power cut	**80 mins on average (better than now)**	120 mins on average (worse than now)	
Average number of power cuts shorter than 3 mins in normal weather conditions	**3 in 5 years (better than now)**	7 in 5 years (worse than now)	
Information provided during power cuts	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**	Automated messages or telephone operators to respond to customer calls	
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	Guaranteed within 18 hours	
Compensation provided if your electricity is not restored in this time	£50 plus £25 for every additional 12 hour period	£50 plus £25 for every additional 12 hour period	
Number of interruptions lasting 3 or more hours in a year which will entitle you to a compensation payment	Compensation after 5 interruptions	Compensation after 5 interruptions	
Amount of notice that customers must be given before planned interruptions	2 days notice	2 days notice	
Commitment to undergrounding overhead lines in areas of outstanding natural beauty and national parks for amenity reasons	None	**5% of overhead lines per annum**	
Number of customers affected by major storms	216000 customers on average in a year (20% worse than now)	**144000 customers on average in a year (20% better than now)**	
Number of major electricity sites across GB exposed to a potential flood risk	Around 1000 major electricity sites	**Reduce to 850 major electricity sites**	
Investment to reduce carbon emissions	Continue usage of current equipment and vehicles	**Replace 10% per year with those using less polluting fuels**	
Annual Electricity Bill	**£200 (no change)**	**£193 (£7 decrease)**	
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from Packaging Experiment (Business LPN)

Choice 1   Which electricity distribution service would you choose?

	Alternative 1	Alternative 2	Neither
Average number of power cuts longer than 3 mins in normal weather conditions	7 in 10 years (worse than now)	**1 in 10 years** **(better than now)**	
Average duration of power cut	48 mins on average (worse than now)	**32 mins on average** **(better than now)**	
Average number of power cuts shorter than 3 mins in normal weather conditions	1 in 6 years (worse than now)	**1 in 14 years** **(worse than now)**	
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	Guaranteed within 18 hours	
Compensation provided if your electricity is not restored in this time	£50 plus £25 for every additional 12 hour period	£50 plus £25 for every additional 12 hour period	
Scheduling of appointments with customers	Offer and keep appointments within a 2 hour slot	Offer and keep appointments within a 2 hour slot	
Amount of notice that customers must be given before planned interruptions	2 days notice	2 days notice	
Information provided during power cuts	**Automated messages or telephone operators to respond to customer calls,** **plus call backs to provide information updates**	**Automated messages or telephone operators to respond to customer calls,** **plus call backs to provide information updates**	
Number of major electricity sites across GB exposed to a potential flood risk	**Reduce to 850** **major electricity sites**	**Reduce to 850** **major electricity sites**	
Investment to reduce carbon emissions	**Replace 10% per year with those using less polluting fuels**	**Replace 10% per year with those using less polluting fuels**	
Provision of energy efficiency advice by energy distributor	**Site visits**	**Site visits**	
Annual Electricity Bill	**£25000** **(no change)**	**£26600** **(£1600 increase)**	
Choice (mark "X" in preferred option)	☐	☐	☐

Example Of Choice from Packaging Experiment (Business Non LPN)

Choice 1   **Which electricity distribution service would you choo**

	Alternative 1	Alternative 2
Average number of power cuts longer than 3 mins in normal weather conditions	7 in 5 years (worse than now)	**1 in 5 years (better than now)**
Average duration of power cut	115 mins on average (worse than now)	**75 mins on average (better than now)**
Average number of power cuts shorter than 3 mins in normal weather conditions	5 in 5 years (worse than now)	**1 in 5 years (better than now)**
Information provided during power cuts	Automated messages or telephone operators to respond to customer calls	**Automated messages or telephone operators to respond to customer calls, plus call backs to provide information updates**
Restoration of electricity supply in normal weather	Guaranteed within 18 hours	Guaranteed within 18 hours
Compensation provided if your electricity is not restored in this time	£50 plus £25 for every additional 12 hour period	£50 plus £25 for every additional 12 hour period
Scheduling of appointments with customers	Offer and keep appointments within a 2 hour slot	Offer and keep appointments within a 2 hour slot
Amount of notice that customers must be given before planned interruptions	2 days notice	2 days notice
Number of customers affected by major storms	120000 customers on average in a year (20% worse than now)	120000 customers on average in a year (20% worse than now)
Number of major electricity sites across GB exposed to a potential flood risk	Around 1000 major electricity sites	Around 1000 major electricity sites
Investment to reduce carbon emissions	Continue usage of current equipment and vehicles	Continue usage of current equipment and vehicles
Provision of energy efficiency advice by energy distributor	No information provided	No information provided
Annual Electricity Bill	**£25300 (£300 increase)**	**£27800 (£2800 increase)**
Choice (mark "X" in preferred option)	☐	☐

APPENDIX K

Introductions to the SP Experiments

Figure B1: Introduction to the first experiment (domestic, LPN)

Introduction

I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions, over 10 years
- and the average length of these power cuts
- as well as the number of short interruptions of less than 3 minutes likely to be experienced over 10 years.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B2: Introduction to the second experiment (domestic, LPN)

Introduction to exercise 2

In this second exercise we are going to look at:
- the time required to restore your electricity supply as a result of problems not related to weather
- compensation if your electricity is not restored in this time
- the number of interruptions lasting 3 or more hours in a year which entitles you to a compensation payment
- the amount of notice that you must be given before planned interruptions to your electricity supply.

When considering the compensation levels, please note compensation is designed to compensate for the inconvenience rather than for any resultant costs to you which it is anticipated will be covered by your insurance. Note additionally, that whenever your supply is interrupted, your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Once again you will be presented with three alternatives for electricity distribution: your current service (described 'as now') and two alternatives with differing service levels and costs.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B3: Introduction to the third experiment (domestic, LPN)

Introduction to exercise 3

In this third exercise we are going to looking at investments in the following areas:
- provision of information during a power cut
- number of major electricity sites across Great Britain exposed to a potential flood risk
- investment to current mobile generation equipment and vehicles to reduce carbon emissions.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B4: Introduction to the package experiment (domestic, LPN)

Introduction to the final exercise

In this final exercise we would like you to consider all of the factors that we have shown you in the first three exercises. We appreciate that this is a difficult task, but it is important to us to understand how you value specific services, when comparing the entire package that could be offered by your electricity distribution company.

In order to simplify the exercise we have grouped the services into three groups, as presented in the previous exercises. All of the services in these groups will be presented at two levels: the lowest service level (no shading) and the best possible level (shaded grey). We will also show you the associated change in your annual electricity bill.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose, given these choices.

As before, please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B5: Introduction to the first experiment (domestic, non-LPN)

Introduction

I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions
- and the average length of these power cuts
- the number of short interruptions of less than 3 minutes likely to be experienced
- and the provision of information during a power cut.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B6: Introduction to the second experiment (domestic, non-LPN)

Introduction to exercise 2

In this second exercise we are going to look at:
- the time required to restore your electricity supply as a result of problems not related to weather
- compensation if your electricity is not restored in this time
- the number of interruptions lasting 3 or more hours in a year which entitles you to a compensation payment
- the amount of notice that you must be given before planned interruptions to your electricity supply.

When considering the compensation levels, please note compensation is designed to compensate for the inconvenience rather than for any resultant costs to you which it is anticipated will be covered by your insurance. Note additionally, that whenever your supply is interrupted, your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Once again you will be presented with three alternatives for electricity distribution: your current service (described 'as now') and two alternatives with differing service levels and costs.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B7: Introduction to the third experiment (domestic, non-LPN)

Introduction to exercise 3

In this third exercise we are going to looking at investments in the following areas:
- an ongoing commitment to underground overhead lines in areas of outstanding natural beauty and national parks for amenity reasons
- the average number of customers that could be affected by major storms
- number of major electricity sites across Great Britain exposed to a potential flood risk
- investment to current mobile generation equipment and vehicles to reduce carbon emissions.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B8: Introduction to the package experiment (domestic, non-LPN)

Introduction to the final exercise

In this final exercise we would like you to consider all of the factors that we have shown you in the first three exercises. We appreciate that this is a difficult task, but it is important to us to understand how you value specific services, when comparing the entire package that could be offered by your electricity distribution company.

In order to simplify the exercise we have grouped the services into three groups, as presented in the previous exercises. All of the services in these groups will be presented at two levels: the lowest service level (no shading) and the best possible level (shaded grey). We will also show you the associated change in your annual electricity bill.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose, given these choices.

As before, please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B9: Introduction to the first experiment (business, LPN)

Introduction

I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions
- the average length of these power cuts
- and the number of short interruptions of less than 3 minutes likely to be experienced.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your site's electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B10: Introduction to the second experiment (business, LPN)

Introduction to exercise 2

In this second exercise we are going to look at:
- the time required to restore your electricity supply as a result of problems not related to weather
- compensation if your electricity is not restored in this time
- the scheduling of appointments by your distributor
- and the amount of notice that you must be given before planned interruptions to your electricity supply.

When considering the compensation levels, please note that compensation is designed to compensate for the inconvenience rather than for any resultant costs to your business, which it is anticipated will be covered by your insurance. Note additionally, that whenever your supply is interrupted, your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Again, you will be presented with three alternatives for electricity distribution: your current service (described 'as now') and two alternatives with differing service levels and costs.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B11: Introduction to the third experiment (business, LPN)

Introduction to exercise 3

In this third exercise we are going to looking at investments in the following areas:
- provision of information during a power cut
- number of major electricity sites across Great Britain exposed to a potential flood risk
- investment to current mobile generation equipment and vehicles to reduce carbon emissions
- provision of energy efficiency advice.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B12: Introduction to the package experiment (business, LPN)

Introduction to the final exercise

In this final exercise we would like you to consider all of the factors that we have shown you in the first three exercises. We appreciate that this is a difficult task, but it is important to us to understand how you value specific services, when comparing the entire package that could be offered by your electricity distribution company.

In order to simplify the exercise we have grouped the services into three groups, as presented in the previous exercises. All of the services in these groups will be presented at two levels: the lowest service level (unshaded) and the best possible level (shaded grey). We will also show you the associated change in your annual electricity bill.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose, given these choices.

As before, please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B13: Introduction to the first experiment (business, non-LPN)

Introduction

I am now going to go through four exercises with you, each of which will look at your preferences for a number of changes that your electricity distribution company could make to their services.

The first will look at:
- the number of power cuts greater than 3 minutes likely to be experienced in normal weather conditions
- and the average length of these power cuts
- the number of short interruptions of less than 3 minutes likely to be experienced
- and the provision of information during a power cut.

In addition to all of the above, because such changes involve differing levels of investment by your distribution company, the exercises will show the impact that such changes could have on your site's electricity bill. Improved service levels will result in an increase in your electricity bill. Alternatively, the distribution company could reduce service levels, which would result in savings on your bill.

In each choice you will be presented with three alternatives for the service offered by your electricity distribution company: your current service (described 'as now') and two alternatives with differing service levels and costs.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B14: Introduction to the second experiment (business, non-LPN)

Introduction to exercise 2

In this second exercise we are going to look at:
- the time required to restore your electricity supply as a result of problems not related to weather
- compensation if your electricity is not restored in this time
- the scheduling of appointments by your distributor
- and the amount of notice that you must be given before planned interruptions to your electricity supply.

When considering the compensation levels, please note that compensation is designed to compensate for the inconvenience rather than for any resultant costs to your business, which it is anticipated will be covered by your insurance. Note additionally, that whenever your supply is interrupted, your distributor stands to lose future revenue from customers and the revenue that they can lose increases the longer you are off supply.

Again, you will be presented with three alternatives for electricity distribution: your current service (described 'as now') and two alternatives with differing service levels and costs.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B15: Introduction to the third experiment (business, non-LPN)

Introduction to exercise 3

In this third exercise we are going to looking at investments in the following areas:
- the average number of customers that could be affected by major storms
- number of major electricity sites across Great Britain exposed to a potential flood risk
- investment to current mobile generation equipment and vehicles to reduce carbon emissions
- provision of energy efficiency advice.

Again, you will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose. Please think carefully about how much your business really can afford and where any additional money would come from and try to be as realistic as possible.

Figure B16: Introduction to the package experiment (business, non-LPN)

Introduction to the final exercise

In this final exercise we would like you to consider all of the factors that we have shown you in the first three exercises. We appreciate that this is a difficult task, but it is important to us to understand how you value specific services, when comparing the entire package that could be offered by your electricity distribution company.

In order to simplify the exercise we have grouped the services into three groups, as presented in the previous exercises. All of the services in these groups will be presented at two levels: the lowest service level (unshaded) and the best possible level (shaded grey). We will also show you the associated change in your annual electricity bill.

You will be presented with six sets of choices and in each case we would like you to say which electricity distribution service you would choose, given these choices.

As before, please think carefully about how much you really can afford and where any additional money would come from and try to be as realistic as possible.

APPENDIX L

Graphs of Trading At Different Cost Levels

Figure A1: Choices in Experiment 2 at given levels of cost for domestic consumers

Domestic LPN

Domestic non-LPN
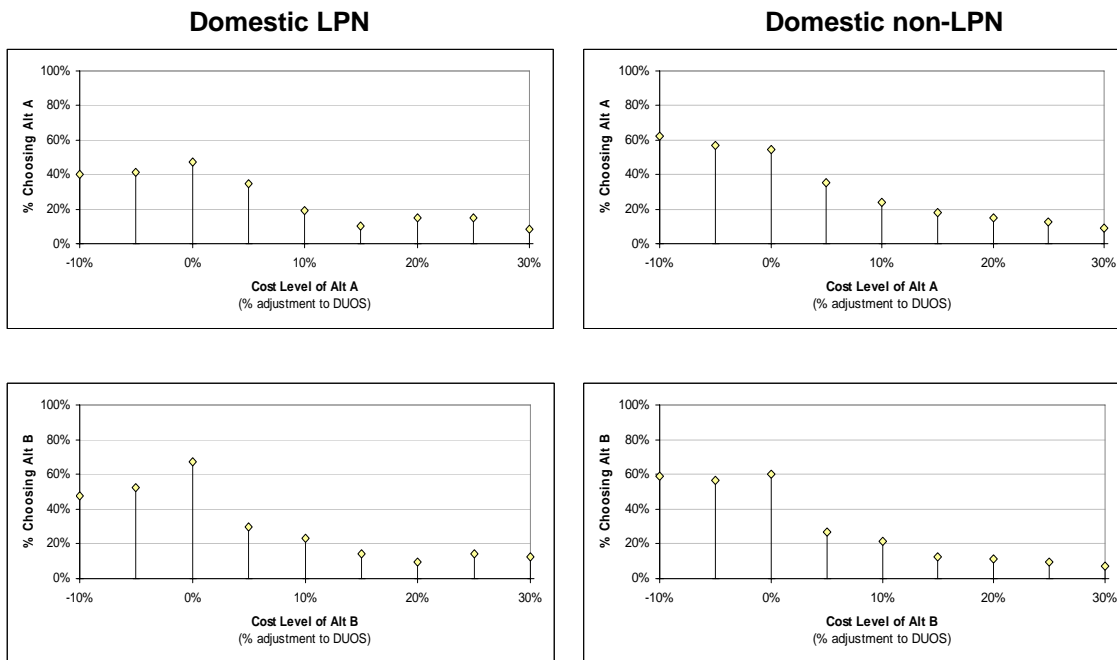
Figure A2: Choices in Experiment 2 at given levels of cost for business consumers

Business LPN

Business non-LPN
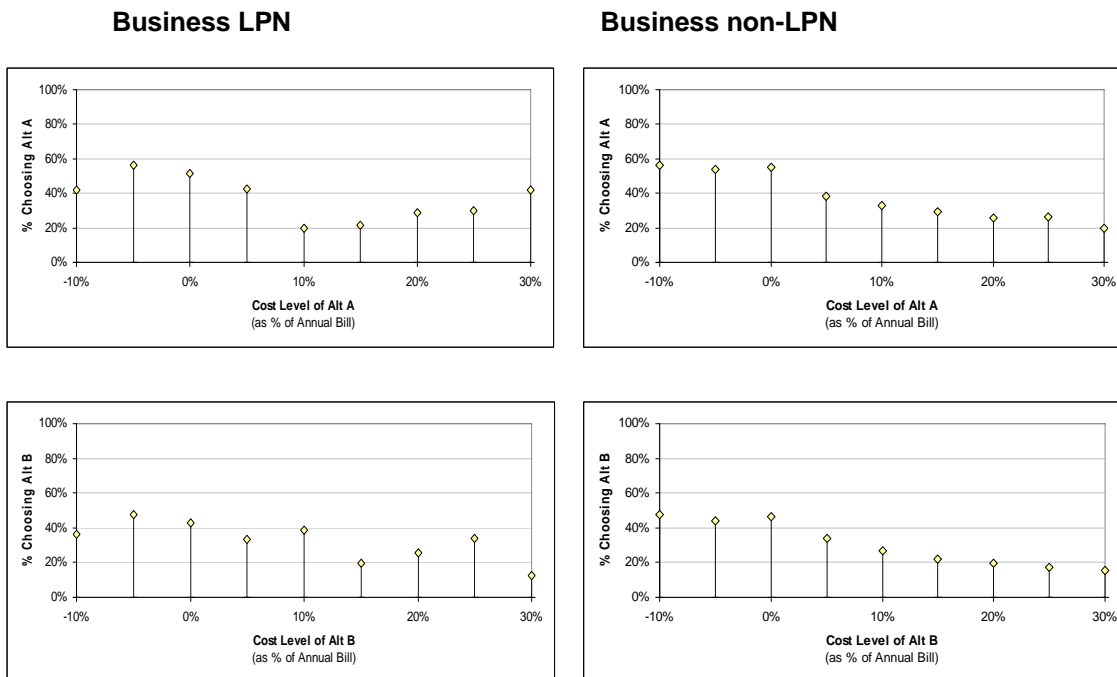
We observe the same pattern for domestic customers in experiment 2 as discussed in Section 5 for experiment 1. However, for business consumers in LPN area, the picture is somewhat mixed with still a substantial portion of customers indicating that they are willing to pay for the highest cost levels.

Figure A3: Choices in Experiment 3 at given levels of cost for domestic consumers
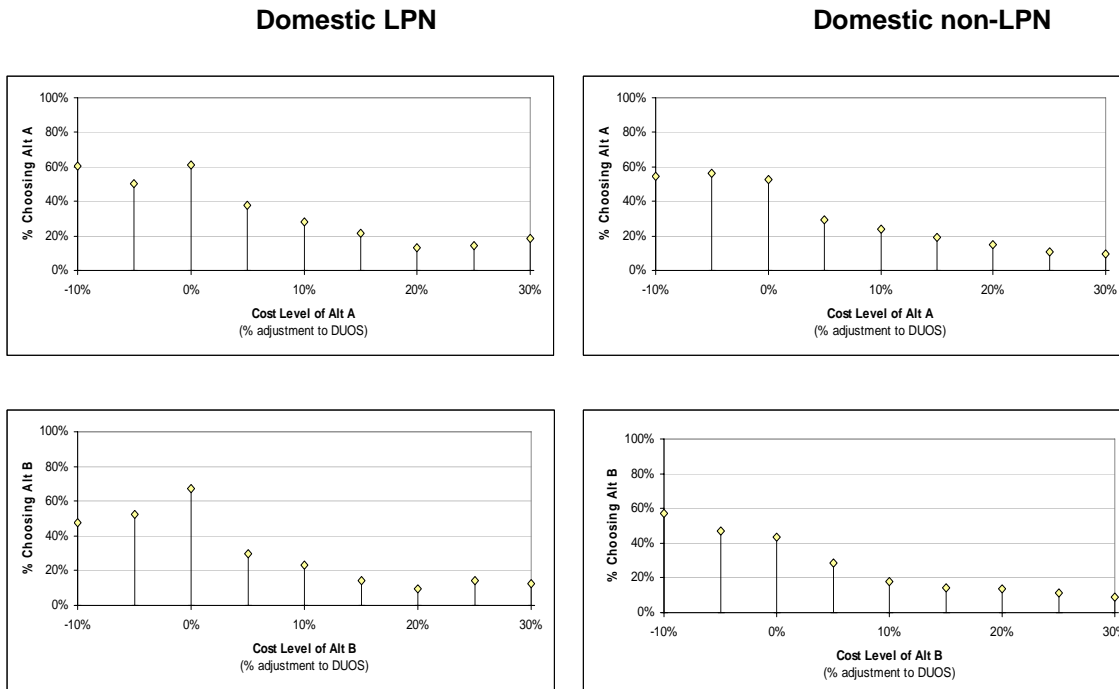
Figure A4: Choices in Experiment 3 at given levels of cost for business consumers
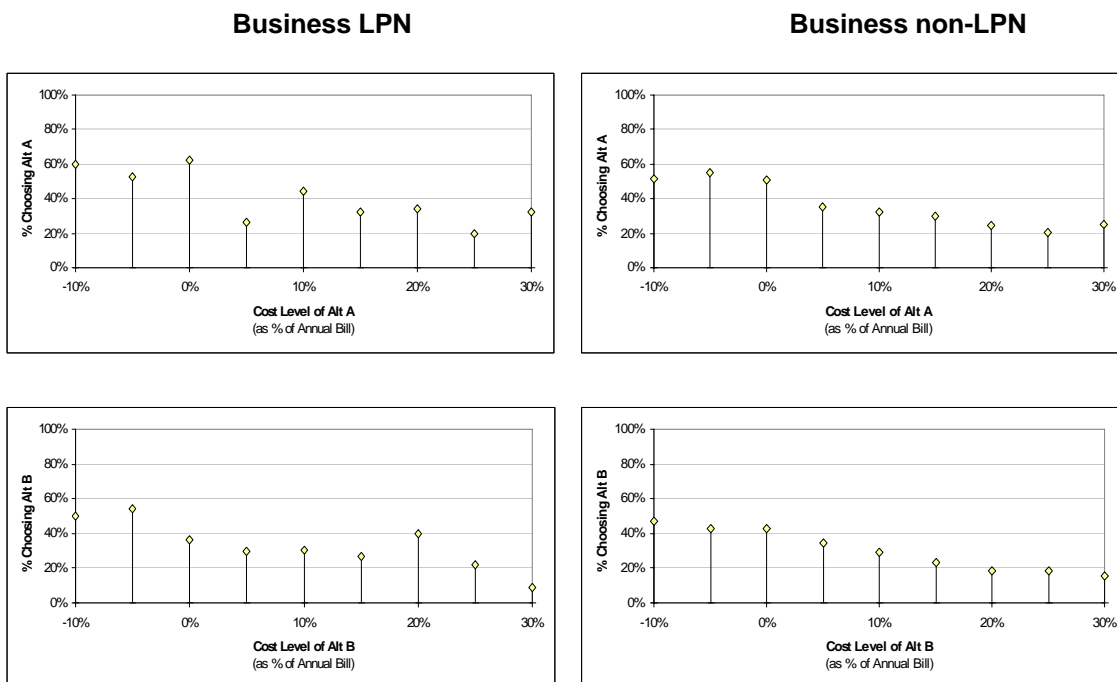
In experiment 3, the tendencies are similar to those found in experiment 2.

Figure A5: Choices in Experiment 4 at given levels of cost for domestic consumers

Domestic LPN

Domestic Non-LPN
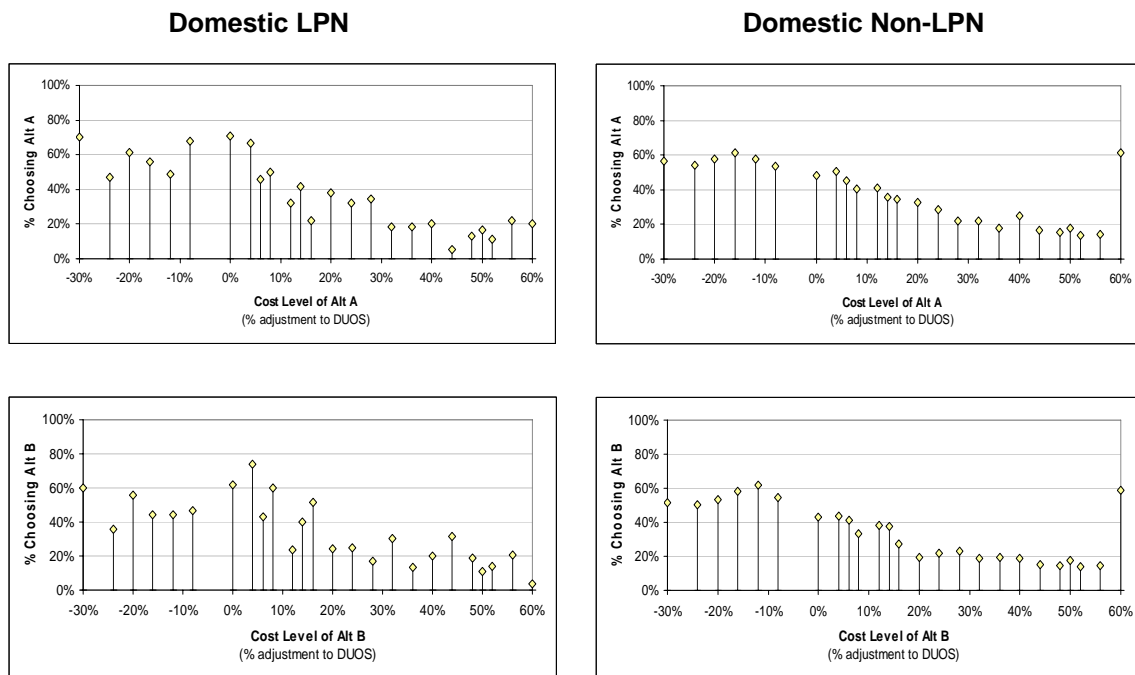
Figure A6: Choices in Experiment 4 at given levels of cost for business consumers

Business LPN

Business non-LPN
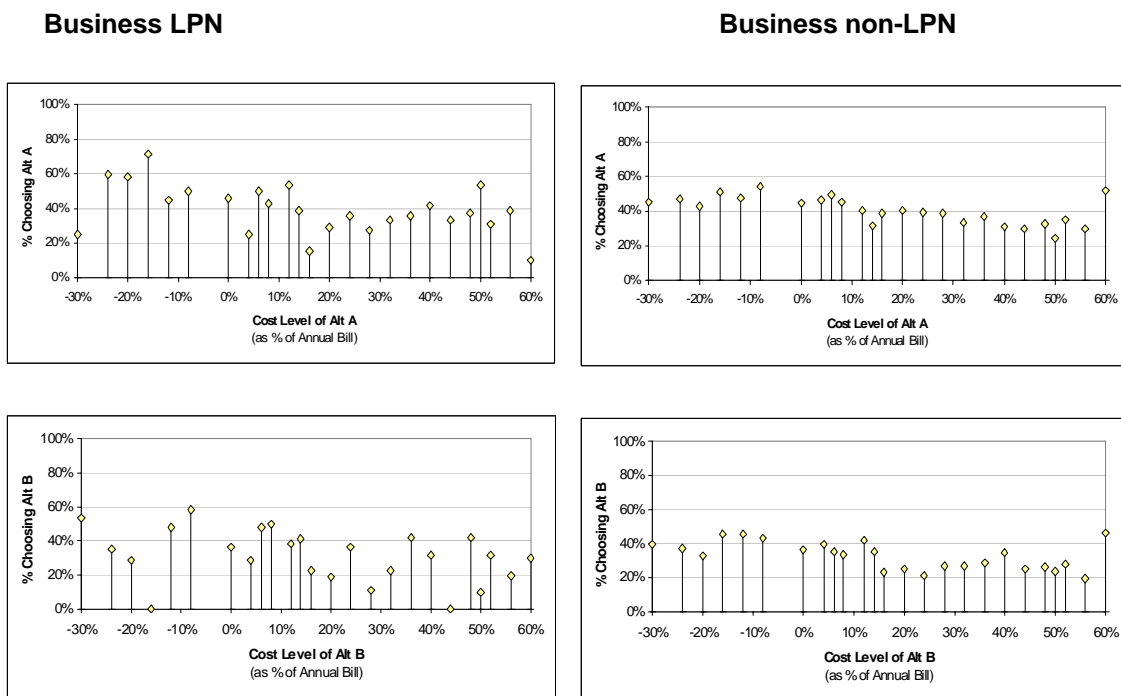
For experiment 4, again for domestic customers we see a decline in the proportion of customers who are willing-to-pay the highest values, but again the picture is more mixed for the business customers suggesting that some businesses are willing to pay higher values than what was tested in the SP experiments.

APPENDIX M

Model Coefficients

In reporting the model we present a number of model fit statistics, as described in the following table.

Statistic	Definition
Observations	The number of observations included in the model estimation.
Final log (L)	This indicates the value of the log-likelihood at convergence. The log-likelihood is defined as the sum of the log of the probabilities of the chosen alternatives, and is the function that is maximised in model estimation. The value of log-likelihood for a single model has no obvious meaning; however, comparing the log-likelihood of two models estimated on the same data allows the statistical significance of new model coefficients to be assessed properly through the Likelihood Ratio test.
D.O.F.	Degrees of freedom, i.e. the number of coefficients estimated in this model. Note that if a coefficient is fixed to zero then it is not a degree of freedom.
$Rho^2(0)$	The rho-squared measure compares the log-likelihood (LL(final)) to the log-likelihood of a model with all coefficients restricted to zero (LL(0)): $Rho^2(0) = 1 - LL(final)/LL(0)$ A higher value indicates a better fitting model.
$Rho^2(c)$	If we compare the log-likelihood (LL(final)) value obtained with the log-likelihood of a model with only constants (LL(c)) we get: $Rho^2(c): 1 - LL(final)/LL(c)$ Again a higher value indicates a better fitting model.

In interpreting the coefficient values the following points should be considered.
- **A positive coefficient** means that the variable level or constant has a positive impact of utility and so reflects a higher probability of choosing the alternatives to which it is applied.
- **A negative coefficient** means that the variable level or constant has a negative impact on utility and so reflects a lower probability of choosing the alternative to which it is applied.
- **Some coefficients are multiplied by continuous variables** and therefore reflect the disutility per unit of the variable, e.g. cost, which reflect the relative disutility per additional pound on the respondent's electricity bill or number of power cuts, which reflects the relative disutility per power cut change.
- **The service attribute coefficients are applied to categorical variables**; these therefore reflect the total utility increase or decrease for that variable, relative to a base situation, e.g. the increase in utility as a result of reducing the time for restoration of supply from 18 hours to 12 hours.
- **The constants in each model** reflect preferences for the alternatives to which they are applied. For example, the ASC_AsNow constants demonstrate the underlying preference for choosing the "As Now" alternatives, over and above any value that is associated with the service attributes.
- **A *positive* value for a constant** indicates that the respondent is *more likely* to choose that alternative, and a ***negative* value** indicates that the respondent is *less likely* to choose that alternative. In general the "As Now" constants are positive, indicating that on average these respondents prefer to choose the "as now situation".

The value shown after each coefficient estimate is the t-ratio. This defines the (statistical) significance of the coefficient estimate; regardless of the sign, the larger the t-ratio, the more significant the estimate. A coefficient with a t-ratio greater than +/-1.960 is estimated to be significantly different from zero at the 95% confidence level. A t-ratio of +/-1.645 is significantly different from zero at the 90% confidence interval.

The model results before and after the jack-knife procedure are presented in the following tables, with the latter having corrected estimates of the standard errors on the coefficients, and hence corrected t-ratios. The jack-knife procedure is discussed in more detail in Appendix O.

Non-LPN Domestic Model Results

Summary statistics

Observations	46176
Final Log Likelihood	-41266.7
D.O.F	105
Rho²(0)	0.187
Rho²(c)	0.172

Coefficient	Before jack-knife		After jack-knife	
	Estimate	t-ratio	Estimate	t-ratio
Cost Coefficients				
Household income under £10,000	-0.0684	-33.1	-0.0679	-13.4
Household income £10,000 - £20,000	-0.0582	-36.1	-0.0580	-14.2
Household income £20,001 - £30,000	-0.0474	-31.1	-0.0471	-14.3
Household income £30,001 - £40,000	-0.0454	-27.6	-0.0452	-15.0
Household income £40,001 - £50,000	-0.0332	-19.7	-0.0329	-8.8
Household income £50,001 - £60,000	-0.0321	-13.1	-0.0317	-6.7
Household income over £60,000	-0.0222	-10.8	-0.0220	-6.9
Household income unknown	-0.0552	-37.7	-0.0549	-18.3
Service Attributes				
Experiment 1 Reductions of Power Cuts over 3 mins, (per cut per year, from base), all DNOs except EDF-LPN	0.1055	11.7	0.1052	11.0
Increases in Power Cuts over 3 mins (per cut per year, from base), CN East	0.1159	4.4	0.1154	4.5
Increases in Power Cuts over 3 mins (per cut per year, from base), CN West	0.1585	6.3	0.1568	4.7
Increases in Power Cuts over 3 mins (per cut per year, from base), EDF-EPN	0.1739	6.5	0.1723	5.9
Increases in Power Cuts over 3 mins (per cut per year, from base), EDF-SPN	0.1791	6.6	0.1780	6.7
Increases in Power Cuts over 3 mins (per cut per year, from base), SSE-Hydro	0.1077	3.6	0.1058	3.4
Increases in Power Cuts over 3 mins (per cut per year, from base), SSE-Southern	0.1351	5.5	0.1346	5.8
Increases in Power Cuts over 3 mins (per cut per year, from base), CE-YEDL	0.0678	2.6	0.0671	2.4
Increases in Power Cuts over 3 mins (per cut per year, from base), CE-NEDL	0.2402	7.7	0.2384	6.7
Increases in Power Cuts over 3 mins (per cut per year, from base), UU	0.4613	8.2	0.4565	6.6
Increases in Power Cuts over 3 mins (per cut per year, from base), WPD S. Wales	0.1836	6.1	0.1818	5.6
Increases in Power Cuts over 3 mins (per cut per year, from base), WPD West	0.1995	7.5	0.1979	5.5
Increases in Power Cuts over 3 mins (per cut per year, from base), SP Manweb and SP Distribution	0.1890	4.9	0.1870	3.9
Preference term for the current frequency in Power Cuts over 3 mins, SP Distribution	0.3507	3.1	0.3482	2.5
Reductions in average duration of power cuts (per min, from base), all DNOs except EDF-LPN, SSE-Hydro, UU and SP Manweb	0.0176	6.3	0.0175	5.8
Increases in average duration of power cuts (per min, from base), all DNOs except EDF-LPN, SSE-Hydro, UU SP Manweb, CN East, SSE-Southern, CE-NEDL	0.0338	10.4	0.0337	12.8
Increases in average duration of power cuts (per min, from base), CN East	0.0000	n/a	0.0000	n/a
Increases in average duration of power cuts (per min, from base), SSE-Southern	0.0256	3.5	0.0255	3.4
Increases in average duration of power cuts (per min, from base), CE-NEDL	0.0540	6.1	0.0533	4.6
Changes (reductions or increases) in average duration of power cuts (per min, from base), SSE-Hydro	0.0318	6.7	0.0318	6.3
Changes (reductions or increases) in average duration of power cuts (per min, from base), UU	0.0424	9.3	0.0423	9.1
Changes (reductions or increases) in average duration of power cuts (per min, from base), SP Manweb	0.0113	2.6	0.0113	2.2
Preference term for the current average duration of power cuts, SSE-Hydro	0.0000	n/a	0.0000	n/a
Reductions in number of short interruptions (per interruption per year, from base), all DNOs except EDF-LPN, EDF-EPN, CE-YEDL, CE-NEDL and SP Distribution	0.0806	5.4	0.0806	5.4
Reductions in number of short interruptions (per interruption per year, from base), EDF-EPN	0.1450	4.5	0.1463	3.4
Reductions in number of short interruptions (per interruption per year, from base), CE-NEDL	0.1156	3.2	0.1151	2.5
Reductions in number of short interruptions (per interruption per year, from base), SP Distribution	0.3376	4.2	0.3354	3.9

Increases in number of short interruptions (per interruption per year, from base), all DNOs except EDF-LPN, SSE-Hydro, CE-YEDL, CE-NECL, UU and SP Distribution	0.1057	6.7	0.1050	6.4
Increases in number of short interruptions (per interruption per year, from base), SSE-Hydro	0.2157	5.1	0.2147	4.6
Increases in number of short interruptions (per interruption per year, from base), CE-NEDL	0.1994	5.1	0.1989	4.9
Increases in number of short interruptions (per interruption per year, from base), SP Distribution	0.3511	3.9	0.3481	4.3
Increases in number of short interruptions (per interruption per year, from base), UU	0.5459	7.4	0.5412	6.6
Changes (reductions or increases) in number of short interruptions (per interruption per year, from base), CE-YEDL	0.0737	3.5	0.0735	3.0
Preference term for the current frequency in short interruptions, CN East	-0.2694	-2.9	-0.2668	-2.2
Preference term for the current frequency in short interruptions, CD-YEDL	0.2463	2.7	0.2470	3.4
Preference term for the current frequency in short interruptions, WPD S. Wales	0.0000	n/a	0.0000	n/a
Preference term for the current frequency in short interruptions, SP Manweb	0.0000	n/a	0.0000	n/a
Automated messages or telephone operators to respond to customer calls (base)	0.0000	n/a	0.0000	n/a
Base, plus call backs to provide information updates	0.2780	6.2	0.2768	6.4
Base, plus text messages to provide information updates	0.1884	4.1	0.1879	4.4
Base, plus helpline for customers reliant on medical equipment	0.2337	5.1	0.2332	5.0
Experiment 2				
Restoration of supply in 18 hours (base), all	0.0000	n/a	0.0000	n/a
Restoration of supply in 12 hours, all DNOs except EDF-LPN, EDF-EPN, SSE-Hydro, UU, WPD S. Wales, WPD S. West, SP Manweb	0.2768	10.4	0.2761	9.9
Restoration of supply in 12 hours, EDF-EPN	0.5229	8.8	0.5232	7.5
Restoration of supply in 12 hours, SSE-Hydro	0.0000	n/a	0.0000	n/a
Restoration of supply in 12 hours, UU	0.6220	10.5	0.6197	9.7
Restoration of supply in 12 hours, WPD S. Wales	0.4768	7.1	0.4777	6.1
Restoration of supply in 12 hours, WPD S. West	0.4289	6.4	0.4269	5.6
Restoration of supply in 12 hours, SP Manweb	0.0000	n/a	0.0000	n/a
Restoration of supply in 6 hours, all DNOs except EDF-LPN, EDF-EPN, SSE-Hydro, UU, WPD S. Wales, WPD S. West, SP Manweb	0.4670	17.0	0.4653	15.7
Restoration of supply in 6 hours, EDF-EPN	0.7360	12.4	0.7344	9.2
Restoration of supply in 6 hours, SSE-Hydro	0.4319	6.5	0.4330	6.6
Restoration of supply in 6 hours, UU	0.8399	13.9	0.8366	10.6
Restoration of supply in 6 hours, WPD S. Wales	0.6966	10.0	0.6957	8.3
Restoration of supply in 6 hours, WPD S. West	0.6822	10.1	0.6795	8.0
Restoration of supply in 6 hours, SP Manweb	0.1241	2.0	0.1227	2.3
Preference term for the current time to restore supply, CN East	0.0000	n/a	0.0000	n/a
Preference term for the current time to restore supply, SSE-Hydro	-0.6536	-5.8	-0.6514	-5.6
Preference term for the current time to restore supply, CE-YEDL	0.0000	n/a	0.0000	n/a
Preference term for the current time to restore supply, SPD S. Wales	0.0000	n/a	0.0000	n/a
Fixed compensation for restoration of supply (per £)	0.0000	n/a	0.0000	n/a
Variable compensation for restoration of supply (per £)	0.0020	5.2	0.0020	5.3
Compensation after 5 interruptions	0.0000	n/a	0.0000	n/a
Compensation after 4 interruptions (base)	0.0000	n/a	0.0000	n/a
Compensation after 3 interruptions	0.1777	9.9	0.1775	10.1
Notice for planned interruptions, 2 days (base)	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 5 days, age 16-29	0.2359	5.3	0.2351	4.5
Notice for planned interruptions, 10 days, age 16-29	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 2 days (base)	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 5 days, age 30-49	0.1207	3.7	0.1209	2.8
Notice for planned interruptions, 10 days, age 30-49	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 2 days (base)	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 5 days, age 50+	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 10 days, age 50+	0.0000	n/a	0.0000	n/a
Experiment 3				
No undergrounding of overhead lines (base)	0.0000	n/a	0.0000	n/a
Undergrounding of 1.5% overhead lines per annum, household income under £10,000	0.1772	3.1	0.1754	2.6
Undergrounding of 1.5% overhead lines per annum, household income under £10,	0.1721	4.7	0.1720	4.4

000 - £30, 000				
Undergrounding of 1.5% overhead lines per annum, household income over £30, 000	0.3517	7.7	0.3511	7.2
Undergrounding of 1.5% overhead lines per annum, household income unknown	0.0000	n/a	0.0000	n/a
Undergrounding of 3% overhead lines per annum, household income under £10, 000	0.2434	4.2	0.2411	3.6
Undergrounding of 3% overhead lines per annum, household income under £10, 000 - £30, 000	0.3584	9.4	0.3577	8.5
Undergrounding of 3% overhead lines per annum, household income over £30, 000	0.4629	9.8	0.4619	9.0
Undergrounding of 3% overhead lines per annum, household income unknown	0.1567	5.3	0.1573	4.5
Undergrounding of 5% overhead lines per annum, household income under £10, 000	0.2958	4.9	0.2938	4.4
Undergrounding of 5% overhead lines per annum, household income under £10, 000 - £30, 000	0.4153	10.9	0.4139	9.3
Undergrounding of 5% overhead lines per annum, household income over £30, 000	0.5017	10.5	0.4977	7.9
Undergrounding of 5% overhead lines per annum, household income unknown	0.1690	5.8	0.1686	7.5
Reductions in numbers of customers affected by storms (per 1000, from base), all DNOs except EDF-LPN and UU	0.0069	7.0	0.0069	5.0
Reductions in numbers of customers affected by storms (per 1000, from base), UU	0.0331	5.3	0.0327	4.7
Increases in numbers of customers affected by storms (per 1000, from base), all DNOs except EDF-LPN, SSE-Hydro, UU and SP Distribution	0.0106	9.8	0.0106	8.7
Increases in numbers of customers affected by storms (per 1000, from base), SSE-Hydro	0.0309	5.1	0.0304	5.4
Increases in numbers of customers affected by storms (per 1000, from base), UU	0.0285	4.4	0.0283	4.2
Increases in numbers of customers affected by storms (per 1000, from base), SP Distribution	0.0368	5.3	0.0367	4.9
Around 1000 electricity sites across GB exposed to flooding (base)	0.0000	n/a	0.0000	n/a
Around 850-950 electricity sites across GB exposed to flooding, all DNOs except WPD S. West	0.1158	5.1	0.1147	5.6
Around 850-950 electricity sites across GB exposed to flooding, WPD S. West	0.2613	4.2	0.2603	3.7
Preference term for the current number of electricity sites across GB exposed to flooding, SSE-Hydro	-0.6536	-5.7	-0.6511	-4.6
Continued usage of current equipment and vehicles (base)	0.0000	n/a	0.0000	n/a
Replace 5% per year with those using less polluting fuels, all except SEG3 and household income over £60, 000	0.2537	9.3	0.2535	7.7
Replace 5% per year with those using less polluting fuels, SEG3 but household income under £60, 000	0.4411	11.6	0.4401	8.6
Replace 5% per year with those using less polluting fuels, not SEG3 but household income over £60, 000	0.7309	5.7	0.7214	4.3
Replace 5% per year with those using less polluting fuels, SEG3 and household income over £60, 000	0.8350	4.0	0.8081	3.2
Replace 10% per year with those using less polluting fuels, all except SEG3 and household income over £60, 000	0.3343	11.9	0.3334	10.1
Replace 10% per year with those using less polluting fuels, SEG3 but household income under £60, 000	0.4928	13.0	0.4914	9.5
Replace 10% per year with those using less polluting fuels, not SEG3 but household income over £60, 000	0.8168	6.4	0.8017	4.2
Replace 10% per year with those using less polluting fuels, SEG3 and household income over £60, 000	1.5040	6.2	1.4228	2.9
Preference term for the current usage of equipment and vehicles, CE-YEDL	0.0000	n/a	0.0000	n/a
Preference term for the current usage of equipment and vehicles, WPD S. Wales	0.0000	n/a	0.0000	n/a
Preference terms for "As Now" options				
CN East	0.0000	n/a	0.0000	n/a
CN West	0.0000	n/a	0.0000	n/a
EDF-EPN	0.0000	n/a	0.0000	n/a
EDF-SPN	0.0743	2.6	0.0762	1.2
SSE-HYD	0.9446	9.2	0.9416	8.2
SSE-Southern	0.0000	n/a	0.0000	n/a
CE-YEDL	0.3506	11.6	0.3495	6.1
CE-NEDL	0.0000	n/a	0.0000	n/a
UU	0.0000	n/a	0.0000	n/a
WPD S. Wales	0.5499	14.2	0.5490	8.9
WPD S. West	-0.1197	-2.7	-0.1188	-1.7
SP Manweb	-0.1450	-4.4	-0.1423	-2.4
SP Distribution	0.0000	n/a	0.0000	n/a
Experiment 1	0.4782	8.8	0.4778	9.4
Experiment 2	0.2628	7.5	0.2622	7.0

Experiment 3	0.3886	10.7	0.3874	8.3
Experiment 4, No Choice	-0.3673	-7.2	-0.3668	-6.0
Packaging Valuations				
Group 1 - highest service levels relative to lowest levels	0.6757	14.7	0.6728	14.0
Group 2 - highest service levels relative to lowest levels	0.3122	7.2	0.3108	8.5
Group 3 - highest service levels relative to lowest levels	0.6849	15.3	0.6815	13.6
Scaling Coefficients				
Experiment 1, base	1.0000	n/a	1.0000	n/a
Experiment 2	1.9791	34.5	1.9767	20.3
Experiment 3	1.7294	33.6	1.7251	19.1
Package experiment	0.6733	31.8	0.6727	15.9

LPN Domestic Model Results

Summary statistics

Observations	4944
Final Log Likelihood	-4526.1
D.O.F	38
Rho²(0)	0.167
Rho²(c)	0.133

Coefficient	Before jack-knife	
	Estimate	t-ratio
Cost Coefficients		
Household income under £10,000	-0.0853	-10.6
Household income £10,000 - £30,000	-0.0620	-10.7
Household income over £30,000	-0.0250	-6.8
Household income unknown	-0.0680	-11.3
Service Attributes		
Experiment 1		
Frequency of Power Cuts over 3 mins (over 10 years, from base)	0.2650	11.1
Change in average duration of power cuts (per min)	0.0110	3.1
Number of short interruptions (per interruption, from base)	4.7380	3.4
Experiment 2		
Restoration of supply guaranteed in 18 hours (base)	0.0000	n/a
Restoration of supply guaranteed in 12 hours	0.1379	2.0
+ Restoration of supply guaranteed in 12 hours, persons less than 30 yrs	0.7484	4.5
Restoration of supply guaranteed in 6 hours	0.2340	3.2
+ Restoration of supply guaranteed in 6 hours, persons less than 30 yrs	0.6134	3.8
+ Restoration of supply guaranteed in 6 hours, household income over £60,000	0.9118	4.3
Fixed compensation for restoration of supply (per £)	0.0036	2.8
Variable compensation for restoration of supply (per £)	0.0000	n/a
Compensation for multiple interruptions, after 4 interruptions (base)	0.0000	n/a
Compensation for multiple interruptions, after 5 interruptions	0.0000	n/a
Compensation for multiple interruptions, after 3 interruptions	0.1255	2.2
Notice for planned interruptions, 2 days (base)	0.0000	n/a
Notice for planned interruptions, 5 days	0.1331	2.0
Notice for planned interruptions, 10 days	0.0838	1.3
Experiment 3		
Automated messages or telephone operators to respond to customer calls (base)	0.0000	n/a
Base, plus call backs to provide information updates	0.1019	1.8
Base, plus text messages to provide information updates	0.0000	n/a
Base, plus text messages to provide information updates, persons less than 30 yrs	0.5410	3.7
Base, plus helpline for customers reliant on medical equipment	0.0000	n/a
Around 1000 electricity sites across GB exposed to flooding (base)	0.0000	n/a
Around 950 electricity sites across GB exposed to flooding	0.0000	n/a
Around 900 electricity sites across GB exposed to flooding	0.1301	2.0
Around 850 electricity sites across GB exposed to flooding	0.1301	2.0
Continued usage of current equipment and vehicles (base)	0.0000	n/a
Replace 5% per year with those using less polluting fuels	0.2485	4.3
Replace 10% per year with those using less polluting fuels	0.2485	4.3
Preference terms for "As Now" options		
Experiment 1 - main survey	0.7014	9.4
Experiment 2 - main survey	0.3337	3.5
Experiment 2 - main survey, persons over 50 years	0.4138	3.9
Experiment 3 - main survey	0.0192	0.3
Experiment 3 - main survey, persons over 50 years	0.3617	3.7
Package Experiment - main survey - no choice	-0.5642	-3.9

	Experiment 1 - pilot survey	-0.0841	-0.9
	Experiment 2 - pilot survey	-0.3097	-2.6
	Experiment 3 - pilot survey	-0.2658	-3.0
	Package Experiment - pilot survey - no choice	-1.2990	-4.5
	Packaging Valuations		
	Group 1 - highest service levels relative to lowest levels	0.5918	5.2
	Group 2 - highest service levels relative to lowest levels	0.1315	1.3
	Group 3 - highest service levels relative to lowest levels	0.1547	0.9
	Scaling Coefficients		
	Experiment 1, base	1.0000	n/a
	Experiment 2	1.6699	9.6
	Experiment 3	1.7717	9.8
	Package experiment	0.8313	9.5
	Pilot data, relative to main survey data	1.1638	12.1

Non-LPN Business Model Results

Summary statistics

Observations	21360
Final Log Likelihood	-21255.1
D.O.F	83
Rho²(0)	0.094
Rho²(c)	0.082

Coefficient	Before jack-knife		After jack-knife	
	Estimate	t-ratio	Estimate	t-ratio
Cost Coefficients				
Small and Medium Companies	-15.4189	-22.5	-15.3726	-16.2
Large Companies	-19.5027	-16.3	-19.3371	-10.8
Service Attributes				
Experiment 1				
Reductions of Power Cuts over 3 mins, non-manufacturing (per year, from base)	0.7831	5.2	0.7818	5.6
Reductions of Power Cuts over 3 mins, manufacturing (per year, from base)	1.1235	5.7	1.1153	3.5
Reductions of Power Cuts over 3 mins, SPM (per year, from base)	2.5899	3.6	2.5448	2.9
Increases in Power Cuts over 3 mins (per year, from base)	1.6144	10.5	1.6079	12.5
Increases in Power Cuts over 3 mins, SPD (per year, from base)	4.6677	5.6	4.6241	5.3
Reduction in average duration of power cuts (per min, from base)	0.0149	3.8	0.0148	4.5
Increases in average duration of power cuts (per min, from base)	0.0224	5.5	0.0223	6.3
Reductions in number of short interruptions (per interruption, from base)	0.8137	4.2	0.8147	3.6
Increases in number of short interruptions (per interruption, from base)	0.7625	4.0	0.7591	3.6
Increases in number of short interruptions, SPN (per interruption, from base)	1.4441	2.9	1.4202	2.7
Automated messages or telephone operators to respond to customer calls (base)	0.0000	n/a	0.0000	n/a
Base, plus call backs to provide information updates	0.0000	n/a	0.0000	n/a
Base, plus text messages to provide information updates	0.0000	n/a	0.0000	n/a
Experiment 2				
Restoration of supply in 18 hours (base)	0.0000	n/a	0.0000	n/a
Restoration of supply in 12 hours, all DNOs except WPD S Wales	0.4279	9.8	0.4256	8.1
Restoration of supply in 12 hours , WPD S Wales	0.6713	4.9	0.6672	4.2
Restoration of supply in 6 hours, small and medium businesses, not WPD	0.6287	12.5	0.6259	10.3
Restoration of supply in 6 hours, large businesses, not WPD	1.0430	10.0	1.0359	8.5
Restoration of supply in 6 hours, WPD S Wales, small and med businesses	0.9067	6.3	0.8945	4.4
Restoration of supply in 6 hours, WPD S Wales, large businesses	1.3072	4.1	1.2289	2.3
Fixed compensation for restoration of supply (per £)	0.0000	n/a	0.0000	n/a
Variable compensation for restoration of supply (per £)	0.0000	n/a	0.0000	n/a
Offer and keep appointments within a 2 hour slot (base)	0.0000	n/a	0.0000	n/a
Offer and keep timed appointments	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 2 days (base)	0.0000	n/a	0.0000	n/a
Notice for planned interruptions, 5 days, usage from 100kWh to 1MW+	0.2135	4.3	0.2110	3.3
Notice for planned interruptions, 10 days, usage from 100KWh to 1MW+	0.2135	4.3	0.2110	3.3

Experiment 3				
Changes in numbers of customers effected by storms (per 1000, from base), CNE	0.0102	4.4	0.0100	5.2
Changes in numbers of customers effected by storms (per 1000, from base), CNW	0.0137	5.9	0.0136	4.3
Changes in numbers of customers effected by storms (per 1000, from base), EPN	0.0037	2.5	0.0037	1.9
Changes in numbers of customers effected by storms (per 1000, from base), SPN	0.0372	3.7	0.0365	2.7
Changes in numbers of customers effected by storms (per 1000, from base), HYD	0.0202	4.2	0.0204	3.3
Changes in numbers of customers effected by storms (per 1000, from base), SOU	0.0092	3.5	0.0090	3.3
Changes in numbers of customers effected by storms (per 1000, from base), YED	0.0174	2.7	0.0171	2.4
Changes in numbers of customers effected by storms (per 1000, from base), NED	0.0140	3.7	0.0141	3.5
Changes in numbers of customers effected by storms (per 1000, from base), UU	0.0251	3.9	0.0247	3.1
Changes in numbers of customers effected by storms (per 1000, from base), SWA	0.0362	5.4	0.0359	3.9
Changes in numbers of customers effected by storms (per 1000, from base), SWE	0.0091	3.1	0.0091	3.1
Changes in numbers of customers effected by storms (per 1000, from base), SPM	0.0297	4.6	0.0293	3.8
Changes in numbers of customers effected by storms (per 1000, from base), SPD	0.0271	4.2	0.0270	4.3
Around 1000 electricity sites across GB exposed to flooding (base)	0.0000	n/a	0.0000	n/a
Around 950 electricity sites across GB exposed to flooding	0.1012	2.9	0.1014	2.9
Around 900 electricity sites across GB exposed to flooding	0.1012	2.9	0.1014	2.9
Around 850 electricity sites across GB exposed to flooding	0.1012	2.9	0.1014	2.9
Continued usage of current equipment and vehicles (base)	0.0000	n/a	0.0000	n/a
Replace 5% per year with those using less polluting fuels	0.3284	8.1	0.3277	5.8
Replace 10% per year with those using less polluting fuels, small companies	0.4380	9.3	0.4371	8.1
Replace 10% per year with those using less polluting fuels, med and large companies	0.4907	8.6	0.4903	6.6
No information provided	0.0000	n/a	0.0000	n/a
Leaflets or e-mails	0.1482	4.0	0.1473	5.5
Helplines	0.1482	4.0	0.1473	5.5
Proactively telephone customers	0.1482	4.0	0.1473	5.5
Site visits	0.1482	4.0	0.1473	5.5
Preference terms for "As Now" options				
Experiment 1, CNE	0.4388	3.5	0.4363	1.8
Experiment 1, CNW	0.6143	4.9	0.6126	2.7
Experiment 1, EPN	0.3530	2.8	0.3548	1.8
Experiment 1, SPN	0.3703	2.7	0.3672	1.9
Experiment 1, HYD	0.6174	5.0	0.6196	3.8
Experiment 1, SOU	0.5322	4.4	0.5261	2.9
Experiment 1, YED	0.3754	3.0	0.3739	2.2
Experiment 1, NED	0.3170	2.5	0.3255	1.4
Experiment 1, UU	0.2403	2.1	0.2417	1.4
Experiment 1, SWA	0.3662	2.9	0.3741	1.5
Experiment 1, SWE	0.7960	6.1	0.7952	4.2
Experiment 1, SPM	0.4944	3.7	0.4924	2

Experiment 1, SPD	0.2570	2.1	0.2507	1.2
Experiment 2, CNE	0.1247	1.6	0.1195	1.0
Experiment 2, CNW	0.2281	3.1	0.2263	1.6
Experiment 2, EPN	-0.0199	-0.3	-0.0157	-0.1
Experiment 2, SPN	0.1437	1.9	0.1456	1.2
Experiment 2, HYD	0.1439	1.9	0.1464	1.2
Experiment 2, SOU	0.0576	0.8	0.0628	0.4
Experiment 2, YED	0.2507	3.3	0.2456	1.7
Experiment 2, NED	0.0975	1.3	0.0970	1.1
Experiment 2, UU	0.0192	0.3	0.0189	0.2
Experiment 2, SWA	0.0921	0.8	0.0997	0.9
Experiment 2, SWE	0.1425	1.8	0.1451	0.9
Experiment 2, SPM	-0.0357	-0.5	-0.0357	-0.3
Experiment 2, SPD	0.1110	1.5	0.1133	0.7
Experiment 3, CNE	0.4509	5.1	0.4450	3.4
Experiment 3, CNW	0.2570	2.9	0.2563	1.6
Experiment 3, EPN	0.1093	1.2	0.1165	0.8
Experiment 3, SPN	0.2349	2.7	0.2376	1.6
Experiment 3, HYD	0.2902	3.4	0.2940	2.8
Experiment 3, SOU	0.3463	4.0	0.3484	3.0
Experiment 3, YED	0.1091	1.2	0.1066	0.8
Experiment 3, NED	0.0942	1.1	0.0985	0.8
Experiment 3, UU	0.1551	1.8	0.1521	1.0
Experiment 3, SWA	0.2012	2.3	0.2087	1.6
Experiment 3, SWE	0.1433	1.6	0.1465	1.0
Experiment 3, SPM	0.1054	1.2	0.1031	0.8
Experiment 3, SPD	0.1054	1.2	0.1008	0.7
Experiment 4, No Choice	0.2930	3.4	0.2900	2.2
Packaging Valuations				
Group 1 - highest service levels relative to lowest levels	1.3679	13.7	1.3616	9.9
Group 2 - highest service levels relative to lowest levels	0.8296	10.3	0.8260	8.3
Group 3 - highest service levels relative to lowest levels	0.9055	10.9	0.9021	8.5
Scaling Coefficients				
Experiment 1, base	1.0000	n/a	1.0000	n/a
Experiment 2	1.5343	17.4	1.5289	14.3
Experiment 3	1.4761	17.3	1.4660	14.3
Package experiment	0.5811	15.4	0.5801	12.6

LPN Business Model Results

Summary statistics

Observations	2136
Final Log Likelihood	-2117.0
D.O.F	24
Rho²(0)	0.098
Rho²(c)	0.067

	Before jack-knife		After ja
Coefficient	**Estimate**	**t-ratio**	**Estimate**
Cost Coefficients			
Small Companies	-10.3070	-5.0998	-9.8353
Medium Companies	-10.3070	-5.0998	-9.8353
Large Companies	-27.2054	-4.9356	-25.7884
Service Attributes			
Experiment 1			
Frequency of Power Cuts over 3 mins (per year, from base)	2.9848	8.1453	2.9387
Change in average duration of power cuts (per min, from base)	0.0000	n/a	0.0000
Reduction in number of interruptions (per interruption, from base)	0.0000	n/a	0.0000
Increase in number of interruptions (per interruption, from base)	3.0318	0.9643	2.9643
Experiment 2			
Restoration of supply guaranteed in 18 hours (base)	0.0000	n/a	0.0000
Restoration of supply guaranteed in 12 hours	0.4024	3.2913	0.3640
Restoration of supply guaranteed in 6 hours	0.5873	3.8515	0.5321
Fixed compensation for restoration of supply (per £) - small companies	0.0000	n/a	0.0000
Variable compensation for restoration of supply (per £) - small companies	0.0000	n/a	0.0000
Fixed compensation for restoration of supply (per £) - medium companies	0.0000	n/a	0.0000
Variable compensation for restoration of supply (per £) - medium companies	0.0000	n/a	0.0000
Fixed compensation for restoration of supply (per £) - large companies	0.0000	n/a	0.0000
Variable compensation for restoration of supply (per £) - large companies	0.0000	n/a	0.0000
Offer and keep appointments within a 2 hour slot (base)	0.0000	n/a	0.0000
Offer and keep timed appointments	0.0000	n/a	0.0000
Notice for planned interruptions, 2 days (base)	0.0000	n/a	0.0000
Notice for planned interruptions, 5 days	0.0000	n/a	0.0000
Notice for planned interruptions, 10 days	0.0000	n/a	0.0000
Experiment 3			
Automated messages or telephone operators to respond to customer calls (base)	0.0000	n/a	0.0000
Base, plus call backs to provide information updates	0.4422	2.9374	0.3896
Base, plus text messages to provide information updates	0.4422	2.9374	0.3896
Around 1000 electricity sites across GB exposed to flooding (base)	0.0000	n/a	0.0000
Around 950 electricity sites across GB exposed to flooding	0.0000	n/a	0.0000
Around 900 electricity sites across GB exposed to flooding	0.0000	n/a	0.0000
Around 850 electricity sites across GB	0.0000	n/a	0.0000

exposed to flooding			
Continued usage of current equipment and vehicles (base)	0.0000	n/a	0.0000
Replace 5% per year with those using less polluting fuels	0.3174	2.1747	0.2967
Replace 10% per year with those using less polluting fuels	0.5313	2.9694	0.4809
No information provided	0.0000	n/a	0.0000
Leaflets of e-mails	0.0000	n/a	0.0000
Helplines	0.0000	n/a	0.0000
Proactively telephone customers	0.0000	n/a	0.0000
Site visits	0.0000	n/a	0.0000
Preference terms for "As Now" options			
Experiment 1 - main survey	0.4468	3.6902	0.4466
Experiment 2 - main survey	-0.0390	-0.4426	-0.0458
Experiment 3 - main survey	-0.1622	-1.0138	-0.1519
Package Experiment - main survey - no choice	-0.8363	-2.3032	-0.8373
Experiment 1 - pilot survey	0.5513	3.7617	0.4939
Experiment 2 - pilot survey	0.4540	3.4405	0.4243
Experiment 3 - pilot survey	0.4159	2.1821	0.3884
Package Experiment - pilot survey - no choice	0.4670	1.4335	0.5041
Packaging Valuations			
Group 1 - highest service levels relative to lowest levels	0.8669	3.2723	0.8205
Group 2 - highest service levels relative to lowest levels	0.8031	3.0949	0.7533
Group 3 - highest service levels relative to lowest levels	0.4431	2.0892	0.4238
Scaling Coefficients			
Experiment 1, base	1.0000	n/a	1.0000
Experiment 2	1.8148	4.4443	1.8333
Experiment 3	1.1331	3.8749	1.0685
Package experiment	0.6218	3.8892	0.6119
Pilot data, relative to main survey data	1.3834	7.5839	1.3897

APPENDIX N

Pilot Analysis And Findings

INTRODUCTION

This note discusses our analysis of the data collected in the pilot phase of the stated preference choice survey for the OfGEM study to measure customer's willingness to pay for improvements in electricity distribution services.

As part of this survey, business and domestic customers participated in four SP experiments: three lower-level experiments trading off specific service improvements with price changes and a higher-level (package) experiment trading off groups of attributes and price changes. Respondents were asked to provide eight choice responses in each of the lower-level experiment and six choice responses in the higher-level (package) experiment. Full details of the design are provided in note 07111 – MM 001 – OfGEM SP Survey Choices (circulated previously).

This note aims to address the question of whether the SP component of the pilot survey has been successful. Three criteria are used to make this judgement:

- trading behaviour between the choices offered to respondents;
- responses to background questions addressing respondent's understanding of the experiments;
- preliminary model analyses undertaken using the pilot survey data.

TRADING BEHAVIOUR

Trading Between Alternatives

One of the first tests undertaken in the pilot analysis was the investigation of trading behaviour between alternatives within the experiments: this provides some insight into whether respondents were engaged in the experiments and whether the attribute levels, particularly costs, were appropriate. Tables 1 through 4 show the number of respondents who consistently choose the same alternative through the different SP exercises. As shown in the Tables, there are a small number of respondents who consistently choose a particular option, and this is usually the current option.

Table 1:   Trading Behaviour for Domestic Customers: LPN

Trading	Exp 1	Exp 2	Exp 3	Exp 4
Always Current Option	3	2	2	n/a
Always Alternative 1	0	0	1	0
Always Alternative 2	0	0	0	0
Neither/No Choice	0	0	0	2
Trading among Alternatives	46	47	46	47
Total Observation	49	49	49	49

Table 2:   Trading Behaviour for Domestic Customers: Other DNOs

Trading	Exp 1	Exp 2	Exp 3	Exp 4
Always Current Option	4	3	3	n/a
Always Alternative 1	1	1	0	1
Always Alternative 2	0	0	0	0
Neither/No Choice	0	0	0	1
Trading among Alternatives	45	46	47	48
Total Observation	50	50	50	50

Table 3:   Trading Behaviour for Business Customers: LPN

Trading	Exp 1	Exp 2	Exp 3	Exp 4
Always Current Option	4	5	4	n/a
Always Alternative 1	0	0	1	2
Always Alternative 2	0	0	0	0
Neither/No Choice	0	0	0	2
Trading among Alternatives	16	15	15	16
Total Observation	20	20	20	20

Table 4:   Trading Behaviour for Business Customers: Other DNOs

Trading	Exp 1	Exp 2	Exp 3	Exp 4
Always Current Option	0	0	0	n/a
Always Alternative 1	0	0	0	0
Always Alternative 2	0	0	0	0
Neither/No Choice	0	0	0	1
Trading among Alternatives	21	21	21	20
Total Observation	21	21	21	21

Trading at Different Cost Levels

We have also examined the number of respondents who choose alternatives (1 and 2) at different cost levels. This analysis provides some idea about respondents' sensitivity to cost and whether the cost ranges investigated in the pilot survey have been realistic.

What we see from the graphs is that a substantial proportion of domestic users, e.g. 15 to 20% of observations, choose alternatives A or B even at the highest cost levels. This suggests that we should incorporate higher cost levels in the main survey.

Analysis of the business responses suggests that businesses are less sensitive to costs and that a substantial proportion of these also choose alternatives at the highest cost levels tested in the pilot survey.

Domestic

Experiment 1:
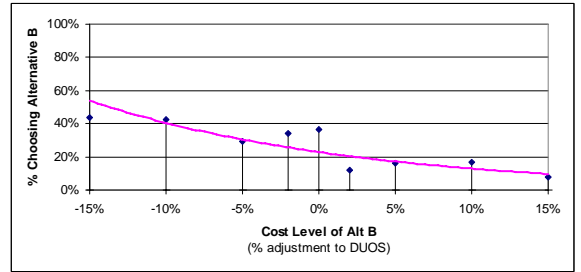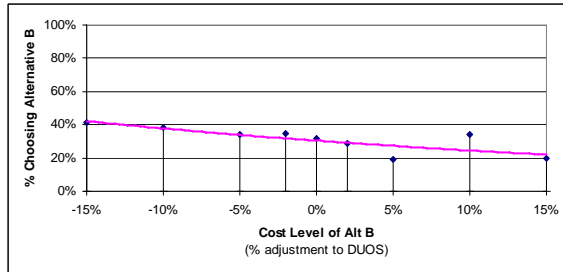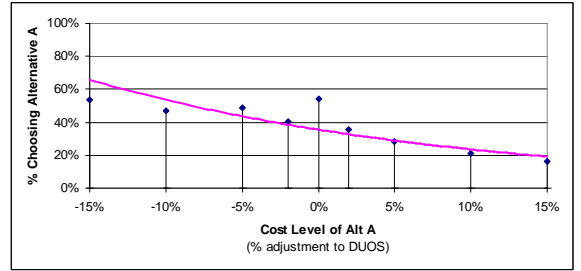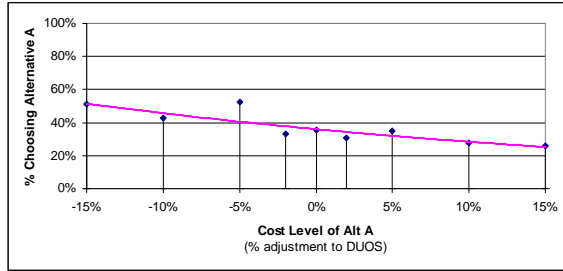
a LPN   b. Other DNOs
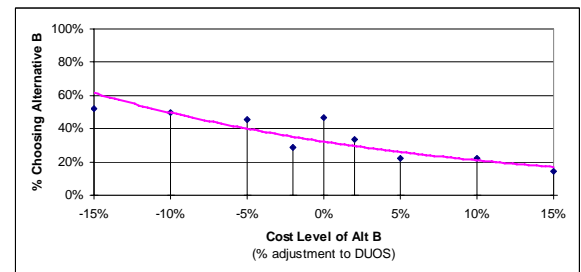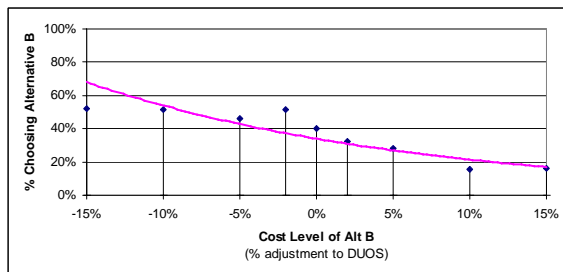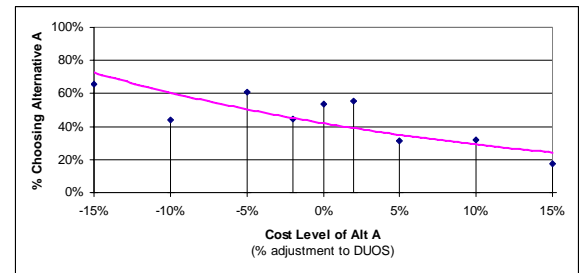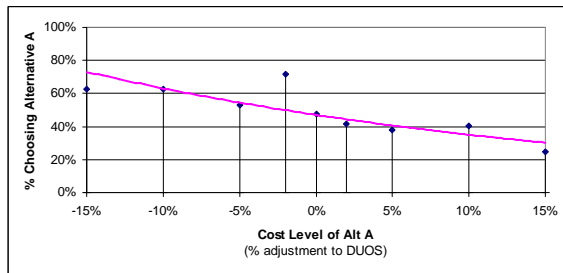
Experiment 2:

a LPN   b. Other DNOs
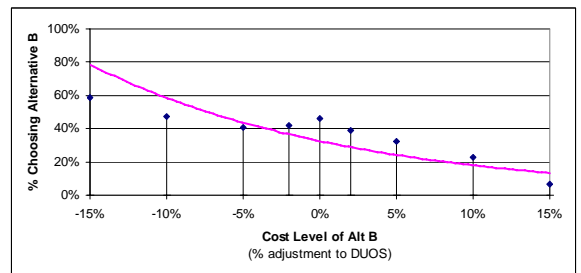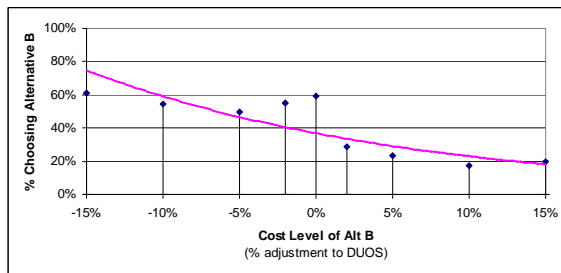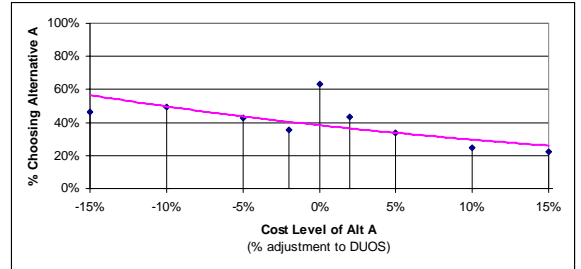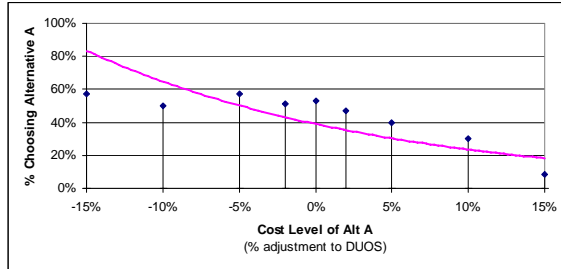
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a. LPN   b. Other DNOs
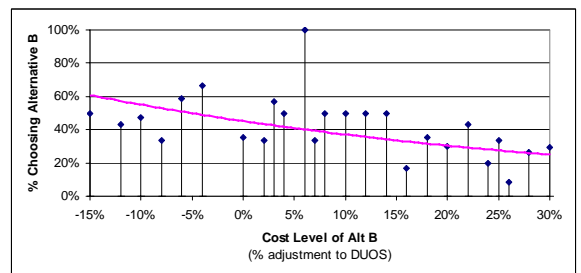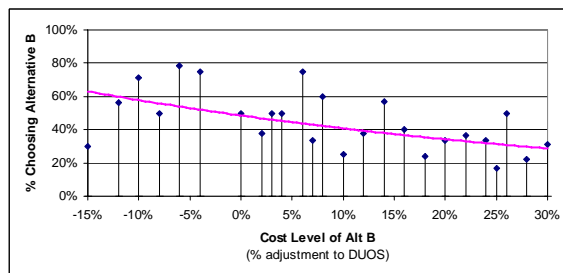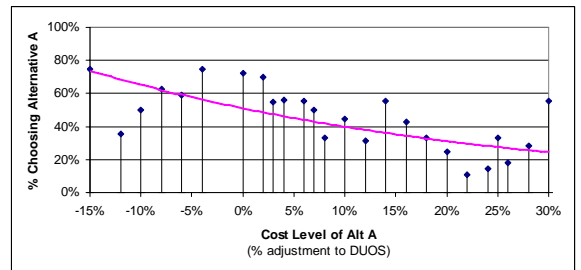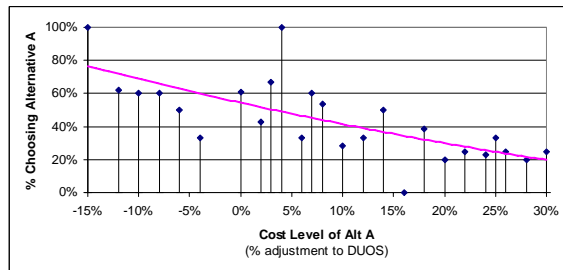
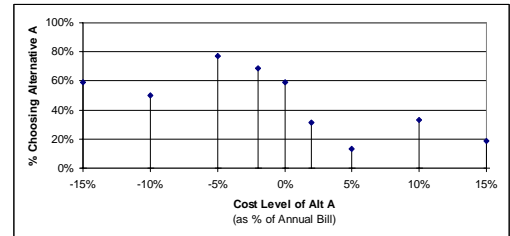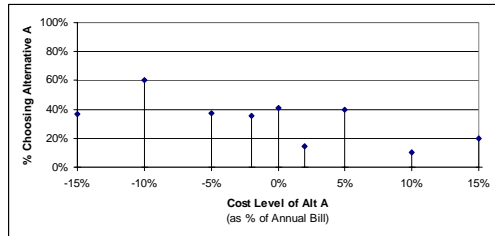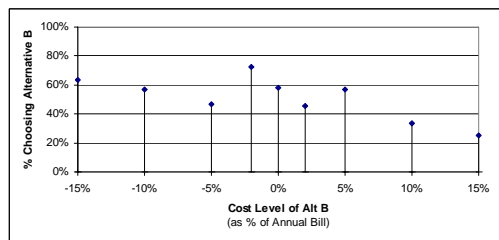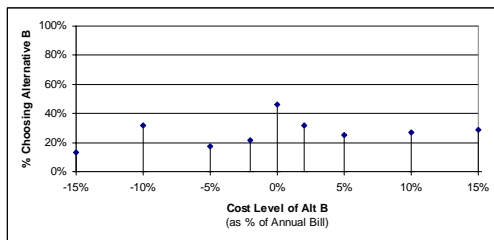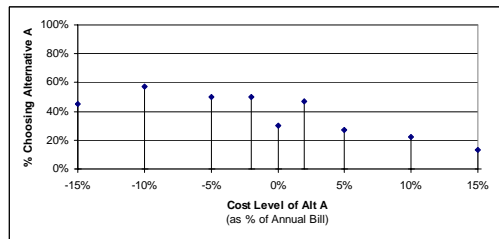
Experiment 4:

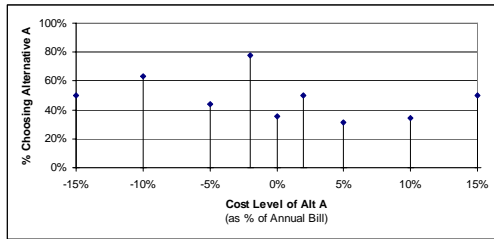a. LPN   b. Other DNOs

Business
Experiment 1:
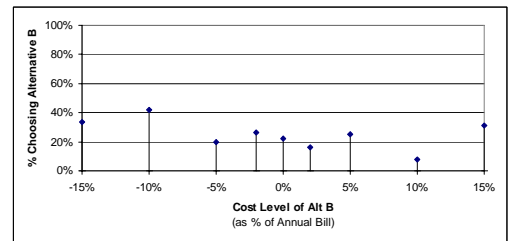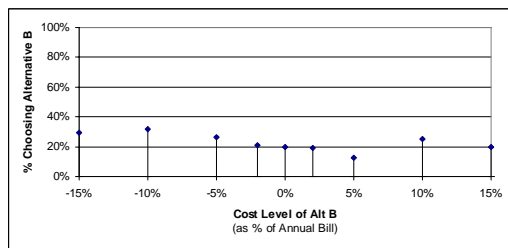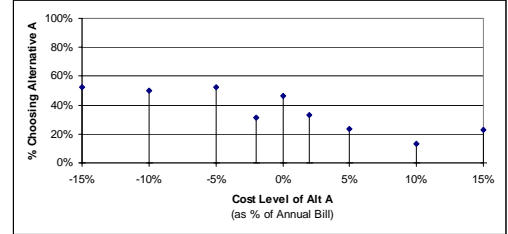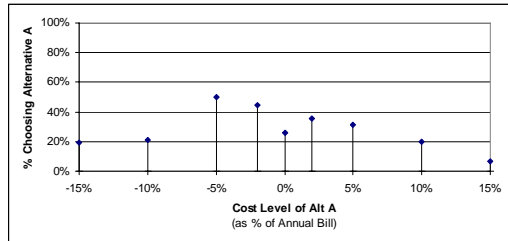
a. LPN

b. Other DNOs
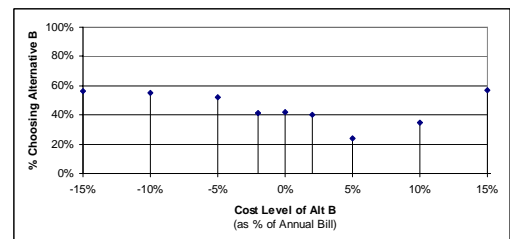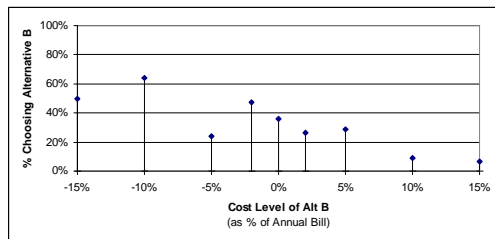
Experiment 2:

a. LPN

b. Other DNOs
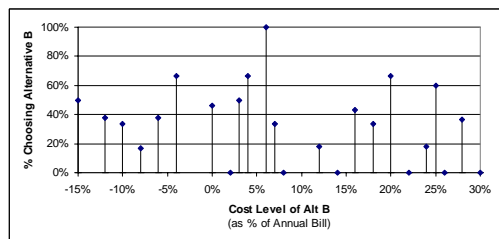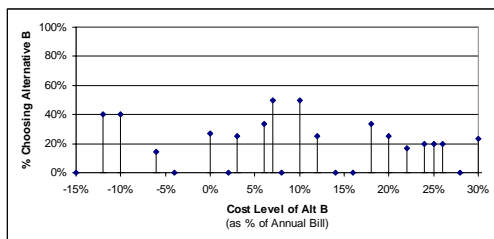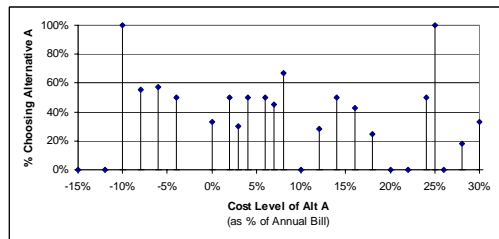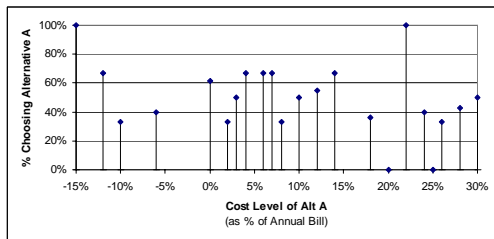
Experiment 3:

a. LPN   b. Other DNOs

Experiment 4:

a. LPN   b. Other DNOs

RESPONSES TO DIAGNOSTIC QUESTIONS

In the survey, we asked respondents a number of diagnostic questions to investigate the extent to which they felt they were able to undertake the exercises.

Ability to Undertake the Exercises

When asked "Were you able to make the comparisons in the choices we presented you?" almost all domestic and business respondents answered yes, indicating that the vast majority of respondents were able to undertake the exercises, specifically:

Business
- 19 of 20 respondents in London reported they were able to make the comparisons
- 20 of 21 respondents in other DNOs reported they were able to make the comparisons

Domestic
- 48 of 49 respondent in London reported they were able to make the comparisons
- 47 out of 50 respondents in other DNOs reported they were able to make the comparisons.

Realism of Choices

Respondents were also asked whether they felt the level of service in the choices were realistic. A reasonable number of domestic customers reported that they felt that some of the choices were not realistic, mostly because of propose cost changes, or that the exercises were too complicated. Fewer business respondents felt that the choices were unrealistic or too difficult.

Domestic Customers

For domestic customers in LPN, 11 of the 49 respondents answered that they felt that the choices were unrealistic. Out of the 11 respondents the majority thought that the proposed improvements were not attainable or they indicated that they found the exercises to be too complicated. The specific comments were as follows:

- *Because it is comparison table show 1 in 10 year electricity cut is not realistic because we are have electricity cut 6 time in a year that is how*

our electricity system is and we are not happy as well as the electricity company is not helping at all
- *Because there were not too many option and every thing was too similar*
- *I don't believe in the whole concept, it's not clear enough*
- *I don't think all the changes will be possible within the costs stated*
- *It is easy to say than do*
- *Its seriously insane to raise the bills like anything again and again*
- *no electricity companies would cut the emissions , as they are not efficient enough to replace the current system , as now i.e. not at the moment*
- *there are so many different things that need to be read and taken in consideration. it wont just be done in 30 mins for so many things*
- *there is no sense*
- *they are all the same*
- *too much complicated*

42 of the 50 domestic customers in the two other DNOs investigated in the pilot survey indicated that they found the choices realistic. The majority of those who felt that the choices were unrealistic had problems in interpreting the percent increases in flooding expenditure. The specific comments from these 8 respondents are shown below:

- *because there not achievable i.e. the cost of putting all these cables underground isn't going to be economically viable because the overall cost would come down on the customer*
- *the comparisons are not obvious, got to really read in order to give an answer*
- *the different choices or packages didn't always seem logical*
- *the last thing i want is for my bill to go up, and the answers, eg. £1 or £2, for the packages is stupid i feel*
- *there was too much to comprehend, and it seemed repetitive............and too much to get your head round..............obviously this was collated by men.............in one question we were asked re' expenditure on flood defences, as a percentage up 5 or 10 percent, but we had no knowledge of the kind of expenditure that is currently being spent, so 5 per cent up of what*
- *they are talking about increasing expenditure by certain percentages, but the original expenditure is not listed.........so 15% increase of what?.*
- *they should separate the green energy so you could make separate choices*

- *too much to absorb all at once for the average consumer who is having enough problems paying their bills.*

Business Customers

In general, fewer business customers felt that the choices were unrealistic and fewer reported difficulties in undertaking the experiments.

For LPN customers, 17 of the 20 business customers interviewed in the pilot thought that the choices were realistic. Of the 3 who disagreed, 2 thought that the number of power cuts presented were not realistic. The specific comments were as follows:

- *7 power cuts in 10 years is outrageous*
- *Because we have had 3 power cuts in the last 2 years of long duration*
-

The other respondent who disagreed thought that the implementation of the improvements will not be feasible:

- *They do not employ enough people, so realistically it is not going to happen.*

17 out of the 21 business respondents from other DNOs answered that they felt that the choices were realistic. Those who felt that the choices were not realistic made the following comments:

- *Because some reductions are not able to be guaranteed. There are elements outside your control ie. the power cut we experienced was due to accidental cutting through power cables.*
- *Some options offered more for less... doesn't make sense*
- *Typical of today's climate, people want all these things but are not prepared to pay for them. Realistically these improvements would probably cost too much money.*
- *Some of the improvements would be very difficult to achieve.*

MODEL RESULTS

The data collected from the discrete choice experiments have been used to estimate separate models for each DNO tested in the pilot survey. In each model, we have included a cost term, reflecting the influence of cost differences between alternatives on respondent's choices and categorical terms for each of the service levels investigated, measured relative to the base level. In the main analysis, we will investigate continuous

formulations for some of these attributes, e.g. average number of power cuts, etc., but for the pilot analysis we have restricted ourselves to categorical specifications of these variables to allow us to investigate how each level is valued. All of the (categorical) service variables are valued relative to the base service level.

It is emphasised that these results should be viewed with caution as we only have a small number of observations available, particularly for the business segments.

In reporting the models we present a number of model fit statistics and use several econometric terms, which are described in Appendix A.

Model Results for Domestic customers in LPN

	EDF Energy Networks EPN

Summary statistics

Observations	600
Final Log Likelihood	-575.4
D.O.F	47
Rho²(0)	0.127
Rho²(c)	0.096

Variable Name	Estimate	t-ratio
Cost Coefficients	-0.0923	-5.6
Service Attributes		
Frequency of Power Cuts (+3 Level)	1.1706	3.5
Frequency of Power Cuts (+2 Level)	1.0048	3.0
Frequency of Power Cuts (+1 Level)	0.7943	2.3
Frequency of Power Cuts (Base Level)	0.0000	n/a
Frequency of Power Cuts (-1 Level)	-0.6169	-1.7
Frequency of Power Cuts (-2 Level)	-0.6442	-1.9
Frequency of Power Cuts (-3 Level)	-0.9524	-2.7
Duration of Loss of Power (+4 Level)	0.2054	0.6
Duration of Loss of Power (+3 Level)	0.2836	0.8
Duration of Loss of Power (+2 Level)	-0.2726	-0.7
Duration of Loss of Power (+1 Level)	0.3126	0.9
Duration of Loss of Power (Base Level)	0.0000	n/a
Duration of Loss of Power (-1 Level)	-0.3894	-1.1
Duration of Loss of Power (-2 Level)	-0.1275	-0.4
Duration of Loss of Power (-3 Level)	-0.2473	-0.7
Duration of Loss of Power (-4 Level)	0.0359	0.1
Frequency of Short Interruptions (+2 Level)	0.3149	1.2
Frequency of Short Interruptions (+1 Level)	0.0250	0.1
Frequency of Short Interruptions (Base Level)	0.0000	n/a
Frequency of Short Interruptions (-1 Level)	-0.3775	-1.5
Frequency of Short Interruptions (-2 Level)	-0.0963	-0.4
Provision of Information (+3 Level)	-0.0808	-0.4
Provision of Information (+2 Level)	0.0253	0.1
Provision of Information (+1 Level)	0.0075	0.0
Provision of Information (Base Level)	0.0000	n/a
Restoration of Supply (+2 Level)	0.5253	2.6
Restoration of Supply (+1 Level)	0.0777	0.5
Restoration of Supply (Base Level)	0.0000	n/a

Fix Compensation (continuous variable)	0.0071	2.1
Variable compensation (continuous variable)	-0.0035	-0.6
Compensation for Multiple Interruptions (+1 Level)	0.4262	2.3
Compensation for Multiple Interruptions (Base Level)	-0.0080	0.0
Compensation for Multiple Interruptions (-1 Level)	0.0000	n/a
Planned Interruption (10 days Notice)	0.1490	0.9
Planned Interruption (5 days Notice)	0.4317	2.3
Planned Interruption (2 days Notice)	0.0000	n/a
Network Resilience to Flooding (+3 Level)	0.0034	0.0
Network Resilience to Flooding (+2 Level)	-0.0345	-0.2
Network Resilience to Flooding (+1 Level)	0.2185	1.2
Network Resilience to Flooding (Base Level)	0.0000	n/a
Reduction of Carbon Emission (+2 Level)	0.3994	2.3
Reduction of Carbon Emission (+1 Level)	0.5558	3.0
Reduction of Carbon Emission (Base Level)	0.0000	n/a
As Now Constants		
Experiment 1	0.0154	0.0
Experiment 2	-0.4376	-1.5
Experiment 3	-0.3891	-1.6
Package valuations (Experiment 4)		
Group 3, High	0.3480	1.9
Group 3, Low	0.0000	n/a
Group 2, High	0.3934	2.1
Group 2, Low	0.0000	n/a
Group 1, High	0.9714	3.8
Group 1, Low	0.0000	n/a
No Choice Constant		
Neither	-1.1702	-3.1
Scales (relative to Exp 1)		
Scale SP4	0.9589	4.3
Scale SP3	1.2472	4.5
Scale SP2	1.1344	4.3
Scale SP1	1.0000	n/a

Model Results for Domestic customers in DNO3 and DNO5

	EDF Energy Networks EPN		Energy Networks SPN	

Summary statistics

Observations	750		750	
Final Log Likelihood	-617.5		-697.3	
D.O.F	52		52	
Rho²(0)	0.251		0.154	
Rho²(c)	0.159		0.140	

Variable Name	Estimate	t-ratio	Estimate	t-ratio
Cost Coefficients	-0.1176	-5.9	-0.1359	-4.1
Service Attributes				
Frequency of Power Cuts (+3 Level)	1.1190	2.3	0.2167	0.5
Frequency of Power Cuts (+2 Level)	0.4254	1.0	-0.1146	-0.2
Frequency of Power Cuts (+1 Level)	0.4947	1.1	0.0704	0.1
Frequency of Power Cuts (Base Level)	0.0000	n/a	0.0000	n/a
Frequency of Power Cuts (-1 Level)	-0.0192	0.0	-0.0470	-0.1
Frequency of Power Cuts (-2 Level)	-1.0415	-2.0	-1.1804	-2.3
Frequency of Power Cuts (-3 Level)	-1.0041	-1.9	-1.7384	-2.8
Duration of Loss of Power (+4 Level)	0.0249	0.1	1.3144	2.4
Duration of Loss of Power (+3 Level)	-0.0247	-0.1	0.8636	1.6
Duration of Loss of Power (+2 Level)	-0.4109	-0.8	1.0835	1.7
Duration of Loss of Power (+1 Level)	-0.4030	-0.7	0.8106	1.3
Duration of Loss of Power (Base Level)	0.0000	n/a	0.0000	n/a
Duration of Loss of Power (-1 Level)	-1.5426	-2.7	-0.3184	-0.5
Duration of Loss of Power (-2 Level)	-1.2621	-2.5	0.2599	0.4
Duration of Loss of Power (-3 Level)	-0.9453	-1.7	-0.5099	-0.8
Duration of Loss of Power (-4 Level)	-1.2004	-2.4	-0.7961	-1.1
Frequency of Short Interruptions (+2 Level)	0.6507	1.8	0.5137	1.3
Frequency of Short Interruptions (+1 Level)	0.1305	0.4	-0.0709	-0.2
Frequency of Short Interruptions (Base Level)	0.0000	n/a	0.0000	n/a
Frequency of Short Interruptions (-1 Level)	-0.8256	-2.1	-0.1713	-0.4
Frequency of Short Interruptions (-2 Level)	-1.4717	-3.2	-0.6456	-1.5
Provision of Information (+3 Level)	1.0345	2.7	0.4995	1.3

Provision of Information (+2 Level)	-0.1115	-0.3	0.7302	2.0
Provision of Information (+1 Level)	0.4581	1.3	0.7925	2.2
Provision of Information (Base Level)	0.0000	n/a	0.0000	n/a
Restoration of Supply (+2 Level)	1.3143	2.9	1.5522	2.8
Restoration of Supply (+1 Level)	0.3456	1.0	1.0849	2.3
Restoration of Supply (Base Level)	0.0000	n/a	0.0000	n/a
Fix Compensation (continuous variable)	0.0041	0.6	0.0058	0.9
Variable compensation (continuous variable)	0.0091	0.7	0.0034	0.3
Compensation for Multiple Interruptions (+1 Level)	0.3036	0.8	0.8482	2.1
Compensation for Multiple Interruptions (Base Level)	0.0000	n/a	0.0000	n/a
Compensation for Multiple Interruptions (-1 Level)	-0.8576	-2.1	0.5234	1.5
Planned Interruption (10 days Notice)	0.3532	1.0	0.0691	0.2
Planned Interruption (5 days Notice)	-0.3405	-0.9	0.4274	1.3
Planned Interruption (2 days Notice)	0.0000	n/a	0.0000	n/a
Undergrounding (+2 Level)	0.8973	1.9	1.4813	2.1
Undergrounding (+1 Level)	0.7544	1.7	1.3860	2.0
Undergrounding (Base Level)	0.5114	1.2	0.5512	1.1
Undergrounding (+1 Level)	0.0000	n/a	0.0000	n/a
Network Resilience to Flooding (+3 Level)	0.3963	1.0	0.3682	0.8
Network Resilience to Flooding (+2 Level)	0.1597	0.4	0.4823	1.1
Network Resilience to Flooding (+1 Level)	0.5974	1.5	0.6595	1.3
Network Resilience to Flooding (Base Level)	0.0000	n/a	0.0000	n/a
Network Resilience to Storms (+2 Level)	0.5633	1.3	-0.2250	-0.5
Network Resilience to Storms (+1 Level)	0.0862	0.2	0.4482	0.9
Network Resilience to Storms (Base Level)	0.0000	n/a	0.0000	n/a
Network Resilience to Storms (-1 Level)	-0.1164	-0.3	-0.3779	-0.8
Network Resilience to Storms (-2 Level)	-0.3283	-0.7	-0.5312	-1.1
Reduction of Carbon Emission (+2 Level)	1.2349	2.7	1.5653	2.3
Reduction of Carbon Emission (+1 Level)	0.9630	2.3	0.7611	1.6
Reduction of Carbon Emission (Base Level)	0.0000	n/a	0.0000	n/a
AsNow Constants				
Experiment 1	-0.6386	-1.1	1.0268	1.5
Experiment 2	-1.5717	-2.2	1.7222	2.6

Experiment 3	0.3341	0.6	0.7966	1.2
Package valuations (Experiment 4)				
Group 3, High	1.3876	3.0	1.2648	3.2
Group 3, Low	0.0000	n/a	0.0000	n/a
Group 2, High	1.4699	3.1	0.3297	1.3
Group 2, Low	0.0000	n/a	0.0000	n/a
Group 1, High	1.2167	2.6	0.9554	2.8
Group 1, Low	0.0000	n/a	0.0000	n/a
No Choice Constant				
Neither	-3.6092	-2.8	0.4997	1.5
Scales (relative to Exp 1)				
Scale SP4	0.6477	3.6	1.1055	3.3
Scale SP3	0.8256	3.9	0.7055	2.7
Scale SP2	0.7576	3.8	0.9623	3.0
Scale SP1	1.0000	n/a	1.0000	n/a

Model Results for businesses in LPN

EDF Energy Networks LPN

Summary statistics

Observations	600
Final Log Likelihood	-575.4
D.O.F	47
Rho²(0)	0.127
Rho²(c)	0.096

Variable Name	Estimate	t-ratio
Cost Coefficients	-7.72E-05	-1.8
Service Attributes		
Frequency of Power Cuts (+3 Level)	1.0640	2.1
Frequency of Power Cuts (+2 Level)	0.7567	1.5
Frequency of Power Cuts (+1 Level)	0.7810	1.4
Frequency of Power Cuts (Base Level)	0.0000	n/a
Frequency of Power Cuts (-1 Level)	-0.7337	-1.2
Frequency of Power Cuts (-2 Level)	-1.1253	-1.8
Frequency of Power Cuts (-3 Level)	-2.3809	-2.8
Duration of Loss of Power (+4 Level)	0.7240	1.2
Duration of Loss of Power (+3 Level)	-0.8996	-1.1
Duration of Loss of Power (+2 Level)	0.3911	0.6
Duration of Loss of Power (+1 Level)	0.0034	0.0
Duration of Loss of Power (Base Level)	0.0000	n/a
Duration of Loss of Power (-1 Level)	0.6500	1.0
Duration of Loss of Power (-2 Level)	0.3628	0.6
Duration of Loss of Power (-3 Level)	-0.4523	-0.7
Duration of Loss of Power (-4 Level)	0.4493	0.7
Frequency of Short Interruptions (+2 Level)	-0.3273	-0.7
Frequency of Short Interruptions (+1 Level)	-0.1769	-0.4
Frequency of Short Interruptions (Base Level)	0.0000	n/a
Frequency of Short Interruptions (-1 Level)	-0.1777	-0.4
Frequency of Short Interruptions (-2 Level)	-0.7127	-1.5
Provision of Information (+2 Level)	1.5481	1.1
Provision of Information (+1 Level)	1.4292	1.1
Provision of Information (Base Level)	0.0000	n/a
Restoration of Supply (+2 Level)	0.2573	1.4
Restoration of Supply (+1 Level)	0.2079	1.2
Restoration of Supply (Base Level)	0.0000	n/a
Fix Compensation (continuous variable)	-0.0002	-1.4
Variable compensation (continuous variable)	0.0003	1.4

Offer and keep timed appointments	-0.0368	-0.4
Offer and keep appointments within a 2 hour slot	0.0000	n/a
Planned Interruption (10 days Notice)	0.0487	0.4
Planned Interruption (5 days Notice)	0.0373	0.3
Planned Interruption (2 days Notice)	0.0000	n/a
Network Resilience to Flooding (+3 Level)	-0.0639	-0.1
Network Resilience to Flooding (+2 Level)	0.8223	1.0
Network Resilience to Flooding (+1 Level)	-0.0479	-0.1
Network Resilience to Flooding (Base Level)	0.0000	n/a
Reduction of Carbon Emission (+2 Level)	0.9910	1.1
Reduction of Carbon Emission (+1 Level)	0.4283	0.7
Reduction of Carbon Emission (Base Level)	0.0000	n/a
Energy efficiency advice (+4 Level)	-0.8816	-0.9
Energy efficiency advice (+3 Level)	-0.9956	-1.0
Energy efficiency advice (+2 Level)	-0.4110	-0.6
Energy efficiency advice (+1 Level)	-0.5925	-0.8
Energy efficiency advice (Base Level)	0.0000	n/a
AsNow Constants		
Experiment 1	0.6163	0.9
Experiment 2	0.2767	1.3
Experiment 3	0.7284	0.8
Package valuations (Experiment 4)		
Group 3, High	-0.1135	-0.2
Group 3, Low	0.0000	n/a
Group 2, High	0.5731	1.0
Group 2, Low	0.0000	n/a
Group 1, High	0.6906	1.1
Group 1, Low	0.0000	n/a
No Choice Constant		
Neither	0.0560	0.1
Scales (relative to Exp 1)		
Scale SP4	0.6863	1.4
Scale SP3	0.7244	1.2
Scale SP2	2.9335	1.6
Scale SP1	1.0000	n/a

Model Results for Businesses in DNO 3 and 5

	EDF Energy Networks EPN		Energy Networks SPN	

Summary statistics

	EDF Energy Networks EPN	Energy Networks SPN
Observations	330	300
Final Log Likelihood	-272.7	-235.7
D.O.F	51	51
Rho²(0)	0.248	0.285
Rho²(c)	0.183	0.208

Variable Name	Estimate	t-ratio	Estimate	t-ratio
Cost Coefficients	-9.85E-06	-0.8	-2.97E-04	-2.0
Service Attributes				
Frequency of Power Cuts (+3 Level)	0.8559	1.1	1.9799	2.2
Frequency of Power Cuts (+2 Level)	0.2885	0.4	1.9055	2.2
Frequency of Power Cuts (+1 Level)	0.6667	1.0	0.6284	0.7
Frequency of Power Cuts (Base Level)	0.0000	n/a	0.0000	n/a
Frequency of Power Cuts (-1 Level)	-1.0065	-1.6	-1.0878	-1.1
Frequency of Power Cuts (-2 Level)	-1.6437	-2.2	-1.5499	-1.5
Frequency of Power Cuts (-3 Level)	-1.3870	-1.8	-1.4104	-1.3
Duration of Loss of Power (+4 Level)	1.3556	1.6	1.7544	1.8
Duration of Loss of Power (+3 Level)	1.4676	1.8	1.0639	1.0
Duration of Loss of Power (+2 Level)	0.0112	0.0	1.1680	1.2
Duration of Loss of Power (+1 Level)	1.0860	1.3	1.3576	1.3
Duration of Loss of Power (Base Level)	0.0000	n/a	0.0000	n/a
Duration of Loss of Power (-1 Level)	-0.0456	-0.1	-0.2282	-0.2
Duration of Loss of Power (-2 Level)	1.3481	1.6	0.5597	0.6
Duration of Loss of Power (-3 Level)	0.8799	1.1	0.3464	0.3
Duration of Loss of Power (-4 Level)	0.4408	0.5	0.9633	1.0

Frequency of Short Interruptions (+2 Level)	1.1056	1.9	0.5614	0.8
Frequency of Short Interruptions (+1 Level)	0.7033	1.1	0.9217	1.2
Frequency of Short Interruptions (Base Level)	0.0000	n/a	0.0000	n/a
Frequency of Short Interruptions (-1 Level)	0.4699	0.8	-1.4413	-1.7
Frequency of Short Interruptions (-2 Level)	-1.0594	-1.5	-0.9502	-1.4
Provision of Information (+2 Level)	0.2723	0.6	-0.0584	-0.1
Provision of Information (+1 Level)	0.5258	1.0	0.2471	0.5
Provision of Information (Base Level)	0.0000	n/a	0.0000	n/a
Restoration of Supply (+2 Level)	0.5483	0.8	4.3538	1.2
Restoration of Supply (+1 Level)	0.3336	0.7	2.2960	1.1
Restoration of Supply (Base Level)	0.0000	n/a	0.0000	n/a
Fix Compensation (continuous variable)	0.0000	0.6	-0.0049	-0.8
Variable compensation (continuous variable)	0.0001	0.7	0.0037	0.8
Offer and keep timed appointments	-0.0516	-0.6	0.2519	0.4
Offer and keep appointments within a 2 hour slot	0.0000	n/a	0.0000	n/a
Planned Interruption (10 days Notice)	0.0317	0.4	1.4375	1.0
Planned Interruption (5 days Notice)	0.0583	0.6	0.3559	0.4
Planned Interruption (2 days Notice)	0.0000	n/a	0.0000	n/a
Network Resilience to Flooding (+3 Level)	-0.0837	-0.4	0.3302	0.9
Network Resilience to Flooding (+2 Level)	0.1255	0.6	0.6593	1.4
Network Resilience to Flooding (+1 Level)	-0.0046	0.0	0.6356	1.3
Network Resilience to Flooding (Base Level)	0.0000	n/a	0.0000	n/a
Network Resilience to Storms (+2 Level)	-0.1127	-0.5	0.5085	1.2
Network Resilience to Storms (+1 Level)	0.0359	0.2	0.3946	1.0
Network Resilience to Storms (Base Level)	0.0000	n/a	0.0000	n/a
Network Resilience to	-0.2078	-0.6	0.1612	0.4

Storms (-1 Level)				
Network Resilience to Storms (-2 Level)	-0.2124	-0.6	0.0271	0.1
Reduction of Carbon Emission (+2 Level)	0.2724	0.7	0.4712	1.3
Reduction of Carbon Emission (+1 Level)	0.2055	0.7	0.4470	1.2
Reduction of Carbon Emission (Base Level)	0.0000	n/a	0.0000	n/a
Energy efficiency advice (+4 Level)	-0.0701	-0.4	-0.1593	-0.4
Energy efficiency advice (+3 Level)	0.0010	0.0	-0.0735	-0.2
Energy efficiency advice (+2 Level)	-0.1420	-0.5	0.2359	0.6
Energy efficiency advice (+1 Level)	-0.0811	-0.4	0.0523	0.1
Energy efficiency advice (Base Level)	0.0000	n/a	0.0000	n/a
AsNow Constants				
Experiment 1	0.9331	1.0	1.4985	1.4
Experiment 2	0.1152	0.6	1.1244	0.8
Experiment 3	-0.3397	-0.7	-0.1628	-0.3
Package valuations (Experiment 4)				
Group 3, High	0.2667	0.5	0.3138	0.4
Group 3, Low	0.0000	n/a	0.0000	n/a
Group 2, High	0.0361	0.1	1.8162	1.2
Group 2, Low	0.0000	n/a	0.0000	n/a
Group 1, High	0.2145	0.4	2.4799	1.3
Group 1, Low	0.0000	n/a	0.0000	n/a
No Choice Constant				
Neither	-0.0418	-0.1	1.8044	1.1
Scales (relative to Exp 1)				
Scale SP4	1.2301	0.5	0.5359	1.3
Scale SP3	3.4448	0.7	1.6586	1.8
Scale SP2	7.3677	0.8	0.5793	1.2
Scale SP1	1.0000	n/a	1.0000	n/a

CONCLUSIONS

In general we believe that although the subject of this study is quite abstract and that the choices presented to respondents are complex, respondents seem to have been able to undertake the SP experiments.

There is substantial trading between the current service and other hypothetical services at different cost levels, which allows estimation of the value of different service attributes. Examination of the trading at different cost levels tested in the pilot survey, suggests that higher cost levels should be tested in the main survey.

Respondents themselves reported that they were able to undertake the choice exercises, although some respondents have noted that the choices are difficult to make.

The model results, particularly for the domestic customer market, were very encouraging, as we were able to identify significant model terms, mostly with the correct signs, even for the large number of categorical terms (one for each attribute level). The business models are less good, which is likely because of the smaller pilot sample sizes and more heterogeneous nature of business respondents. We expect to obtain much better results with the much larger sample sizes in the main survey.

RECOMMENDATIONS

We recommend a number of, mostly minor, changes for the main survey.

1. Review Cost levels

The cost levels tested in the pilot survey are summarised below.

Levels	1	2	3	4	5	6	7	8	9
Exp 1 - 3	-15%	-10%	-5%	-2%	0%	2%	5%	10%	15%
Higher Level	-10%	-4%	0%	2%	6%	10%	16%	22%	26%
	-12%	-6%	0%	3%	7%	12%	18%	24%	28%
	-15%	-8%	0%	4%	8%	14%	20%	25%	30%

We would recommend that we test fewer price reductions in Experiments 2 and 3 in the main survey (because there are fewer service reductions in these experiments). We would also recommend that we test higher cost levels, particularly in the lower-level experiments, in the main survey.

2. Review wording of attributes and levels

We recommend that we review the wording of attributes and levels to simplify these as much as is possible for the main survey, although we recognise that there may not be much scope to simplify.

We also recommend that we include 'better than now' and 'worse than now' descriptions, for all attribute levels where these are appropriate.

3. Review definition of 'Network resilience to major storms'

A number of respondents commented that it was difficult to make comparisons for this attribute, because no base level was defined.

4. Reduce number of choices in the lower-level experiments from 8 to 6 to reduce survey time and respondent fatigue.

5. Minor text amendments

Compensation for Multiple Interruption – minor error in wording 'which will entitles you…' plus (£x) in text to be removed

Network Resilience to Major Storms – include a ',' separator in the numbers, e.g. 180,000 rather than 180000

1. Pilot Appendix A: Interpretation of the SP Experiment Results

In reporting the models a number of model fit statistics has been presented. These are described in Table A1.

Table A1: Model fit statistics

Statistic	Definition
Observations	The number of observations included in the model estimation.
Final log (L)	This indicates the value of the log-likelihood at convergence. The log-likelihood is defined as the sum of the log of the probabilities of the chosen alternatives, and is the function that is maximised in model estimation. The value of log-likelihood for a single model has no obvious meaning; however, comparing the log-likelihood of two models estimated on the same data allows the statistical significance of new model coefficients to be assessed properly through the Likelihood Ratio test.
D.O.F.	Degrees of freedom, i.e. the number of coefficients estimated in this model. Note that if a coefficient is fixed to zero then it is not a degree of freedom.
$Rho^2(0)$	The rho-squared measure compares the log-likelihood (LL(final)) to the log-likelihood of a model with all coefficients restricted to zero (LL(0)): $Rho^2(0) = 1 - LL(final)/LL(0)$ A higher value indicates a better fitting model.
$Rho^2(c)$	If we compare the log-likelihood (LL(final)) value obtained with the log-likelihood of a model with only constants (LL(c)) we get: $Rho^2(c): 1 - LL(final)/LL(c)$ Again a higher value indicates a better fitting model.

In interpreting the coefficient values the following points should be considered.
- **A positive coefficient** means that the variable level or constant has a positive impact of utility and so reflects a higher probability of choosing the alternatives to which it is applied.
- **A negative coefficient** means that the variable level or constant has a negative impact on utility and so reflects a lower probability of choosing the alternative to which it is applied.
- **Some coefficients are multiplied by continuous variables** and therefore reflect the disutility per unit of the variable, e.g. and cost, which reflect the relative disutility per pound.
- **Categorical variables may be applied to continuous variables**; these therefore reflect the total utility increase or decrease for that variable, relative to a base situation, e.g. we may find that high income domestic customers have a different value of cost relative to other customers.
- **The constants in each model** reflect preferences for the alternatives to which they are applied. For example, some groups of people may have a stronger preference for the current alternative, all things being equal.
- **A *positive* value for a constant** indicates that the respondent is *more likely* to choose that alternative, and a *negative* **value** indicates that the respondent is *less likely* to choose that alternative.

The value shown after each coefficient estimate is the t-ratio. This defines the (statistical) significance of the coefficient estimate; regardless of the sign, the larger the t-ratio, the more significant the estimate. A coefficient with a t-ratio greater than +/-1.960 is estimated to be significantly different from zero at the 95% confidence level. A t-ratio of +/-1.645 is significantly different from zero at the 90% confidence interval. We generally seek to estimate coefficients that exceed the 95% confidence interval, although this is not possible with the amount of data available at this stage.

APPENDIX O

The Jack-Knife Procedure

The jack-knife is a parametric approach to estimate the "true" standard errors of estimates in cases where the theory does not provide an exact estimate of the error. It is possible to explicitly model this correlation between observations using panel analysis techniques, and in the case of logit choice models a mixed logit formulation; however, this would necessitate the transfer of the model to a different modelling package where we may find disadvantages in other aspects of the modelling, e.g. having the flexibility in the tree specification to set up a model that allows us to pool the data from across the experiments, etc. For the purposes of this project, we have therefore employed the jack-knife technique to provide an improved estimate of the standard errors over those provided by the naive estimation that assumes independence between observations.

The jack-knife works by dividing the sample into R non-overlapping random sub-samples of roughly the same size, where R should be at least 10, and in the case of these runs a value of 30 has been used. The procedure is set up such that all observations from a given individual fall in the same sub-sample. One model is then estimated on the full sample and then R additional models are estimated each excluding one of the sub-samples in turn. Each estimation is therefore performed on approximately (R-1)/R of the observations.

For a given variable, suppose that we get estimate β_0 from the full sample, and an estimate β_r for each of the sub-samples r = 1 to R.

The jack-knife estimate of β is then:

$$\beta = R * \beta_0 - (R-1)/R * \Sigma_{r=1,R}\ \beta_r$$

The variance of that estimate is:

$$\sigma^2(\beta) = (R-1)/R * \{\ (\Sigma_{r=1,R}\ \beta_r^2) - (\Sigma_{r=1,R}\ \beta_r)^2\ /\ R\ \}$$

In general, the application of the jack-knife procedure to SP data has confirmed that the coefficient estimates themselves are not greatly affected by the specification error of assuming independent observations. However, the significance of the coefficient estimates is often substantially overstated by the naïve estimation. Thus, when there is an important issue about the significance of a specific variable, it is necessary to test that variable in a jack-knife procedure rather than in a naïve estimation. Generally it is found that when variables are significant at very high levels in a naïve estimation, they remain significant in the jack-knife estimation; but when the significance of a variable in the naïve estimation is marginal, a jack-knife estimation may show that it is not truly significant.

APPENDIX P

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