

Forecast TNUoS tariffs from 2018/19 to 2021/22

This information paper provides a forecast of Transmission Network Use of System (TNUoS) tariffs from 2018/19 to 2021/22. These tariffs apply to generators and suppliers.

Together with the final tariffs for 2017/18 this publication shows how tariffs may evolve over the next five years. Forecast tariffs for 2018/19 will be refined throughout the year.

National Grid will be hosting a webinar on this report on Thursday 9 March at 9:30am.

28 February 2017

Contents

1. Executive Summary	4
2. Tariff Forecast Tables	5
2.1 Generator Wider Tariffs	5
2.2 Summary of generator wider tariffs from 2017/18 to 2021/22	11
2.3 Onshore Local Circuit Tariffs	13
2.4 Onshore Local Substation Tariffs	15
2.5 Offshore Local Tariffs	15
2.6 Small Generator Discount	16
2.7 Demand Tariffs	16
2.8 Summary of Demand Tariffs	18
3. Key Drivers of Tariff Changes	19
3.1 Circuits	19
3.2 Contracted Generation	19
3.3 Contracted Demand at GSPs	21
3.4 Generation/Demand Revenue Proportions	22
3.5 Transmission Owners' Revenue	23
3.6 Demand Forecasts	24
3.7 Other factors affecting tariffs	25
4. Commentary on Forecast Generation Tariffs	27
4.1 Wider Zonal Generation Tariffs	27
4.2 Onshore Local Circuit Tariffs	29
4.3 Onshore Local Substation Tariffs	29
4.4 Small Generators Discount	29
5. Commentary on Forecast Demand Tariffs	30
5.2 Half-Hourly Demand Tariffs (£/kW)	30
5.3 Non Half-Hourly Demand Tariffs (p/kWh)	31
5.4 Commentary	31
6. Generation and Demand Residuals	33
7. Tools and Supporting Information	35
Discussing Tariff Changes	35
7.1 Future Updates to Tariff Forecasts	35
7.2 Charging Models	35
7.3 Tools and Other Data	35
7.4 Numerical Data	35
8. Comments & Feedback	36



Any Questions? Contact:

Katharine Clench, Kathy
Heard, Tom Selby, Jo Zhou



katharine.clench@nationalgrid.com

kathryn.heard@nationalgrid.com

thomas.selby@nationalgrid.com

jo.zhou@nationalgrid.com

charging.enquiries@nationalgrid.com



Kathy 01926 656281

Katharine 01926 656036

Tom 01926 656450

Jo 01926 654184

Team 01926 654633

Appendix A	: TNUoS Wider Generation & Demand Tariff Sensitivities – 2018/1938	
Appendix B	: TNUoS Wider Generation Tariff & Demand Sensitivities – 2019/2044	
Appendix C	: TNUoS Wider Generation & Demand Tariff Sensitivities – 2020/2150	
Appendix D	: TNUoS Wider Generation & Demand Tariff Sensitivities – 2021/2256	
Appendix E	: Revenue Analysis.....	62
Appendix F	: Contracted Generation at Peak.....	67
Appendix G	: Zonal Demand Summaries	78
Appendix H	: Generation Zone Map.....	80
Appendix I	: Demand Zone Map	81

Disclaimer

This report is published without prejudice and whilst every effort has been made to ensure the accuracy of the information, it is subject to several estimations and forecasts and may not bear relation to either the indicative or actual tariffs National Grid will publish at later dates.

1. Executive Summary

This document contains forecast Transmission Network Use of System (TNUoS) tariffs from 2018/19 to 2021/22. Together with the tariffs for 2017/18 published on 31 January 2017¹, this provides our view of how TNUoS tariffs may change over the next five years. This document is aimed at readers with an understanding of how TNUoS tariffs are applied to generators and suppliers for use of the GB electricity transmission networks. If you would like further explanation of how to apply these tariffs then please contact us using the using the contact details on page 2. We will publish updates to the Tariff forecast for 2018/19 over the course of the year with the next update scheduled for June 2017.

Our forecast takes into account changes in Generation and Demand connected to the transmission system; investments in the transmission network by transmission owners; and allowed revenues for onshore and offshore Transmission Owners (TOs). We set out the assumptions applied to each modelling input within this report and have looked at a number of scenarios to explore different possible impacts to tariffs.

TO Allowed Revenues are forecast to increase during the period from £2.6bn in 2017/18 to £3.5bn by 2021/22. Approximately £349m of this increase is due to offshore transmission networks and depends upon the associated offshore generation projects proceeding as forecast. The revenue forecasts for 2021/22 are outside of the current price review period and so for the purposes of this forecast we have assumed that the existing licence terms roll over to 2021/22, which includes the assumption that existing incentives will still be in place.

An EU regulation limits average annual use of system charges paid by generators to €2.50/MWh. Between 2017/18 and 2021/22 the annual energy supplied from the transmission system is forecast to reduce by over 45TWh. This reduces the transmission revenue that can be recovered from generation from £390.3m in 2017/18 to £370.3m in 2021/22, although it is worth noting that this reduction only occurs after an initial increase to £426.9m in 2018/19 due to a significant drop in the exchange rate. Offshore local charges are included in this revenue, yet are forecast to increase from £270.2m in 2017/18 to £619.2m in 2021/22, due to the forecast growth in offshore generation. Therefore revenue from wider generation tariffs will reduce and the generation residual is forecast to reduce by nearly £6/kW over the period.

In order to recover increasing allowed revenues whilst revenue from generation and system peak demands are declining, the demand residual is forecast to increase by nearly £23/kW over the period.

We welcome feedback on any aspect of this document and related processes. Do let us know if you have any further suggestions as to how we can refine the assumptions we have made for model inputs or if you have any questions on this document. We will be holding a webinar to explain our assumptions and the impacts to tariffs on Thursday 9th March.

¹<http://www2.nationalgrid.com/UK/Industry-information/System-charges/Electricity-transmission/Approval-conditions/Condition-5/>

2. Tariff Forecast Tables

This section contains forecast Generation and Demand Tariffs from 2017/18 to 2021/22. Tariffs for 2017/18 were also published on our website on 31 January 2017². Information can be found in later sections on the assumptions behind these forecasts.

2.1 Generator Wider Tariffs

Please refer to section 3.7.3 for a description of how generator wider tariffs are calculated. Generator wider tariffs are now specific to each generator based upon the System Peak, Year Round Shared, Year Round Not-Shared and Residual Tariffs for the zone in which the generator is situated as well as its technology and Annual Load Factor (ALF). ALFs for 2017/18 have been published on National Grid's website² and these have been used for all years in this forecast.

We have assumed that the small generation discount will apply up to and including the 2018/19 charging year and is discontinued after that.

²<http://www2.nationalgrid.com/UK/Industry-information/System-charges/Electricity-transmission/Approval-conditions/Condition-5/>

Table 1- 2017/18 Generator Wider Tariffs

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional 80% Load Factor	Intermittent 40% Load Factor
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	0.00	11.94	16.91	-1.85	24.61	19.83
2	East Aberdeenshire	0.79	5.58	16.91	-1.85	20.31	17.29
3	Western Highlands	-0.41	10.09	16.68	-1.85	22.48	18.86
4	Skye and Lochalsh	-6.22	10.09	16.42	-1.85	16.41	18.60
5	Eastern Grampian and Tayside	0.27	8.95	16.11	-1.85	21.69	17.83
6	Central Grampian	2.44	10.09	17.13	-1.85	25.79	19.31
7	Argyll	1.56	8.03	25.54	-1.85	31.67	26.90
8	The Trossachs	1.78	8.03	15.18	-1.85	21.54	16.54
9	Stirlingshire and Fife	-0.13	3.91	13.15	-1.85	14.30	12.87
10	South West Scotland	1.70	6.35	14.15	-1.85	19.07	14.83
11	Lothian and Borders	2.82	6.35	9.03	-1.85	15.08	9.72
12	Solway and Cheviot	0.57	3.50	7.67	-1.85	9.18	7.21
13	North East England	3.14	2.04	4.20	-1.85	7.12	3.16
14	North Lancashire and The Lakes	1.20	2.04	3.01	-1.85	3.99	1.97
15	South Lancashire, Yorkshire and Humber	4.00	0.57	0.16	-1.85	2.76	-1.46
16	North Midlands and North Wales	3.75	-0.95		-1.85	1.13	-2.23
17	South Lincolnshire and North Norfolk	2.19	-0.34		-1.85	0.07	-1.99
18	Mid Wales and The Midlands	1.23	-0.20		-1.85	-0.78	-1.93
19	Anglesey and Snowdon	4.42	-1.70		-1.85	1.20	-2.54
20	Pembrokeshire	9.05	-3.88		-1.85	4.09	-3.41
21	South Wales & Gloucester	6.15	-3.94		-1.85	1.14	-3.43
22	Cotswold	3.15	2.07	-6.06	-1.85	-3.11	-7.08
23	Central London	-4.27	2.07	-5.49	-1.85	-9.96	-6.51
24	Essex and Kent	-3.67	2.07		-1.85	-3.87	-1.03
25	Oxfordshire, Surrey and Sussex	-1.15	-2.67		-1.85	-5.14	-2.92
26	Somerset and Wessex	-1.24	-3.92		-1.85	-6.23	-3.42
27	West Devon and Cornwall	0.20	-5.30		-1.85	-5.90	-3.97

Table 2 - 2018/19 Generator Wider Tariffs

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional 80% Load Factor	Intermittent 40% Load Factor
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	2.17	12.08	20.51	-3.20	29.15	22.14
2	East Aberdeenshire	3.24	4.76	20.51	-3.20	24.36	19.22
3	Western Highlands	1.59	11.35	20.14	-3.20	27.61	21.47
4	Skye and Lochalsh	1.60	11.35	25.70	-3.20	33.17	27.03
5	Eastern Grampian and Tayside	3.30	9.85	18.79	-3.20	26.77	19.53
6	Central Grampian	3.45	9.86	18.80	-3.20	26.93	19.54
7	Argyll	2.79	8.34	27.15	-3.20	33.41	27.28
8	The Trossachs	3.09	8.34	16.77	-3.20	23.33	16.90
9	Stirlingshire and Fife	1.69	5.00	14.32	-3.20	16.81	13.12
10	South West Scotland	2.62	6.47	15.24	-3.20	19.83	14.62
11	Lothian and Borders	3.25	6.47	9.70	-3.20	14.93	9.09
12	Solway and Cheviot	1.79	3.74	8.55	-3.20	10.12	6.84
13	North East England	3.55	2.18	4.54	-3.20	6.63	2.21
14	North Lancashire and The Lakes	1.35	2.18	3.21	-3.20	3.10	0.88
15	South Lancashire, Yorkshire and Humber	4.22	0.64	0.15	-3.20	1.68	-2.79
16	North Midlands and North Wales	3.17	-0.67		-3.20	-0.57	-3.47
17	South Lincolnshire and North Norfolk	1.46	0.12		-3.20	-1.65	-3.16
18	Mid Wales and The Midlands	0.75	0.32		-3.20	-2.20	-3.07
19	Anglesey and Snowdon	4.68	-1.38		-3.20	0.37	-3.75
20	Pembrokeshire	9.10	-3.87		-3.20	2.80	-4.75
21	South Wales & Gloucester	6.11	-3.92		-3.20	-0.23	-4.77
22	Cotswold	3.00	2.73	-6.68	-3.20	-4.70	-8.79
23	Central London	-5.96	2.73	-6.49	-3.20	-13.47	-8.60
24	Essex and Kent	-4.11	2.73		-3.20	-5.14	-2.11
25	Oxfordshire, Surrey and Sussex	-1.51	-2.34		-3.20	-6.59	-4.14
26	Somerset and Wessex	-1.17	-3.47		-3.20	-7.15	-4.59
27	West Devon and Cornwall	0.20	-4.98		-3.20	-6.99	-5.20

Table 3 - 2019/20 Generator Wider Tariffs

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional 80% Load Factor	Intermittent 40% Load Factor
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	2.50	11.19	21.14	-4.75	27.84	20.87
2	East Aberdeenshire	3.73	4.37	21.14	-4.75	23.62	18.14
3	Western Highlands	2.55	10.81	20.87	-4.75	27.31	20.44
4	Skye and Lochalsh	2.55	10.81	26.60	-4.75	33.04	26.17
5	Eastern Grampian and Tayside	4.09	9.45	19.36	-4.75	26.26	18.39
6	Central Grampian	4.35	9.46	19.37	-4.75	26.53	18.39
7	Argyll	3.81	8.00	27.71	-4.75	33.16	26.16
8	The Trossachs	3.99	8.00	17.12	-4.75	22.75	15.56
9	Stirlingshire and Fife	2.29	4.88	14.42	-4.75	15.86	11.62
10	South West Scotland	3.64	6.14	15.36	-4.75	19.16	13.07
11	Lothian and Borders	3.74	6.14	10.12	-4.75	14.02	7.82
12	Solway and Cheviot	2.08	3.55	8.60	-4.75	8.76	5.26
13	North East England	4.00	2.00	4.38	-4.75	5.22	0.42
14	North Lancashire and The Lakes	1.89	2.00	2.93	-4.75	1.67	-1.02
15	South Lancashire, Yorkshire and Humber	4.52	0.36	0.21	-4.75	0.26	-4.40
16	North Midlands and North Wales	3.13	-1.04		-4.75	-2.45	-5.17
17	South Lincolnshire and North Norfolk	1.28	0.57		-4.75	-3.01	-4.52
18	Mid Wales and The Midlands	0.62	0.69		-4.75	-3.58	-4.48
19	Anglesey and Snowdon	5.58	-2.27		-4.75	-0.99	-5.66
20	Pembrokeshire	9.14	-3.72		-4.75	1.41	-6.24
21	South Wales & Gloucester	5.94	-3.67		-4.75	-1.75	-6.22
22	Cotswold	2.66	3.36	-6.99	-4.75	-6.40	-10.40
23	Central London	-6.12	3.36	-6.79	-4.75	-14.98	-10.20
24	Essex and Kent	-4.36	3.36		-4.75	-6.43	-3.41
25	Oxfordshire, Surrey and Sussex	-1.61	-1.80		-4.75	-7.80	-5.48
26	Somerset and Wessex	-1.80	-1.59		-4.75	-7.82	-5.39
27	West Devon and Cornwall	-1.00	-4.88		-4.75	-9.66	-6.71

Table 4 - 2020/21 Generator Wider Tariffs

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional 80% Load Factor	Intermittent 40% Load Factor
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	1.69	12.87	20.56	-5.95	26.60	19.76
2	East Aberdeenshire	2.58	6.29	20.56	-5.95	22.22	17.12
3	Western Highlands	1.53	12.14	19.95	-5.95	25.24	18.85
4	Skye and Lochalsh	1.53	12.14	25.86	-5.95	31.15	24.77
5	Eastern Grampian and Tayside	2.86	10.98	18.55	-5.95	24.25	17.00
6	Central Grampian	2.96	11.15	18.82	-5.95	24.75	17.33
7	Argyll	2.48	9.67	27.56	-5.95	31.82	25.48
8	The Trossachs	2.67	9.67	16.38	-5.95	20.84	14.30
9	Stirlingshire and Fife	1.09	6.35	13.31	-5.95	13.53	9.90
10	South West Scotland	2.08	7.88	14.54	-5.95	16.98	11.74
11	Lothian and Borders	3.77	7.88	9.24	-5.95	13.37	6.45
12	Solway and Cheviot	1.60	5.23	7.38	-5.95	7.22	3.52
13	North East England	3.94	4.32	4.82	-5.95	6.27	0.60
14	North Lancashire and The Lakes	1.48	4.32	0.96	-5.95	-0.06	-3.26
15	South Lancashire, Yorkshire and Humber	4.14	0.97	0.07	-5.95	-0.96	-5.49
16	North Midlands and North Wales	3.51	-0.95		-5.95	-3.20	-6.33
17	South Lincolnshire and North Norfolk	1.84	0.05	0.00	-5.95	-4.07	-5.93
18	Mid Wales and The Midlands	1.61	-0.13		-5.95	-4.44	-6.00
19	Anglesey and Snowdon	5.27	-1.83		-5.95	-2.14	-6.68
20	Pembrokeshire	9.08	-3.94		-5.95	-0.03	-7.53
21	South Wales & Gloucester	5.80	-3.95		-5.95	-3.30	-7.53
22	Cotswold	2.44	3.26	-7.21	-5.95	-8.11	-11.85
23	Central London	-5.90	3.26	-7.15	-5.95	-16.39	-11.79
24	Essex and Kent	-4.42	3.26		-5.95	-7.76	-4.64
25	Oxfordshire, Surrey and Sussex	-1.72	-2.22		-5.95	-9.44	-6.83
26	Somerset and Wessex	-0.84	-1.65		-5.95	-8.11	-6.61
27	West Devon and Cornwall	0.09	-4.12		-5.95	-9.15	-7.60

Table 5 - 2021/22 Generator Wider Tariffs

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional 80% Load Factor	Intermittent 40% Load Factor
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	3.02	10.92	26.26	-7.61	30.41	23.02
2	East Aberdeenshire	1.30	7.94	24.03	-7.61	24.08	19.60
3	Western Highlands	2.72	10.23	24.81	-7.61	28.10	21.29
4	Skye and Lochalsh	2.69	10.23	32.84	-7.61	36.11	29.32
5	Eastern Grampian and Tayside	3.38	9.33	22.52	-7.61	25.76	18.64
6	Central Grampian	3.43	9.45	22.88	-7.61	26.28	19.06
7	Argyll	3.31	8.41	30.53	-7.61	32.95	26.28
8	The Trossachs	3.03	8.41	19.75	-7.61	21.91	15.51
9	Stirlingshire and Fife	1.63	5.97	15.46	-7.61	14.26	10.24
10	South West Scotland	1.92	6.85	16.82	-7.61	16.62	11.96
11	Lothian and Borders	3.42	6.85	11.57	-7.61	12.86	6.70
12	Solway and Cheviot	1.46	4.81	8.87	-7.61	6.58	3.19
13	North East England	4.02	4.07	5.91	-7.61	5.58	-0.07
14	North Lancashire and The Lakes	1.29	4.07	2.02	-7.61	-1.03	-3.95
15	South Lancashire, Yorkshire and Humber	4.55	1.04	0.29	-7.61	-1.93	-6.90
16	North Midlands and North Wales	3.41	-0.33		-7.61	-4.47	-7.74
17	South Lincolnshire and North Norfolk	2.53	-0.38		-7.61	-5.38	-7.76
18	Mid Wales and The Midlands	1.46	0.38		-7.61	-5.84	-7.45
19	Anglesey and Snowdon	4.25	-0.50		-7.61	-3.76	-7.81
20	Pembrokeshire	8.26	-5.81		-7.61	-4.00	-9.93
21	South Wales & Gloucester	4.27	-6.39		-7.61	-8.45	-10.16
22	Cotswold	2.75	2.62	-7.33	-7.61	-10.10	-13.89
23	Central London	-5.58	2.62	-7.03	-7.61	-18.13	-13.59
24	Essex and Kent	-3.73	2.62		-7.61	-9.24	-6.56
25	Oxfordshire, Surrey and Sussex	-1.27	-2.71		-7.61	-11.05	-8.69
26	Somerset and Wessex	-0.83	-2.43		-7.61	-10.38	-8.58
27	West Devon and Cornwall	-0.26	-4.89		-7.61	-11.78	-9.56

2.2 Summary of generator wider tariffs from 2017/18 to 2021/22

Figure 1 – Wider tariffs for a conventional 80% generator

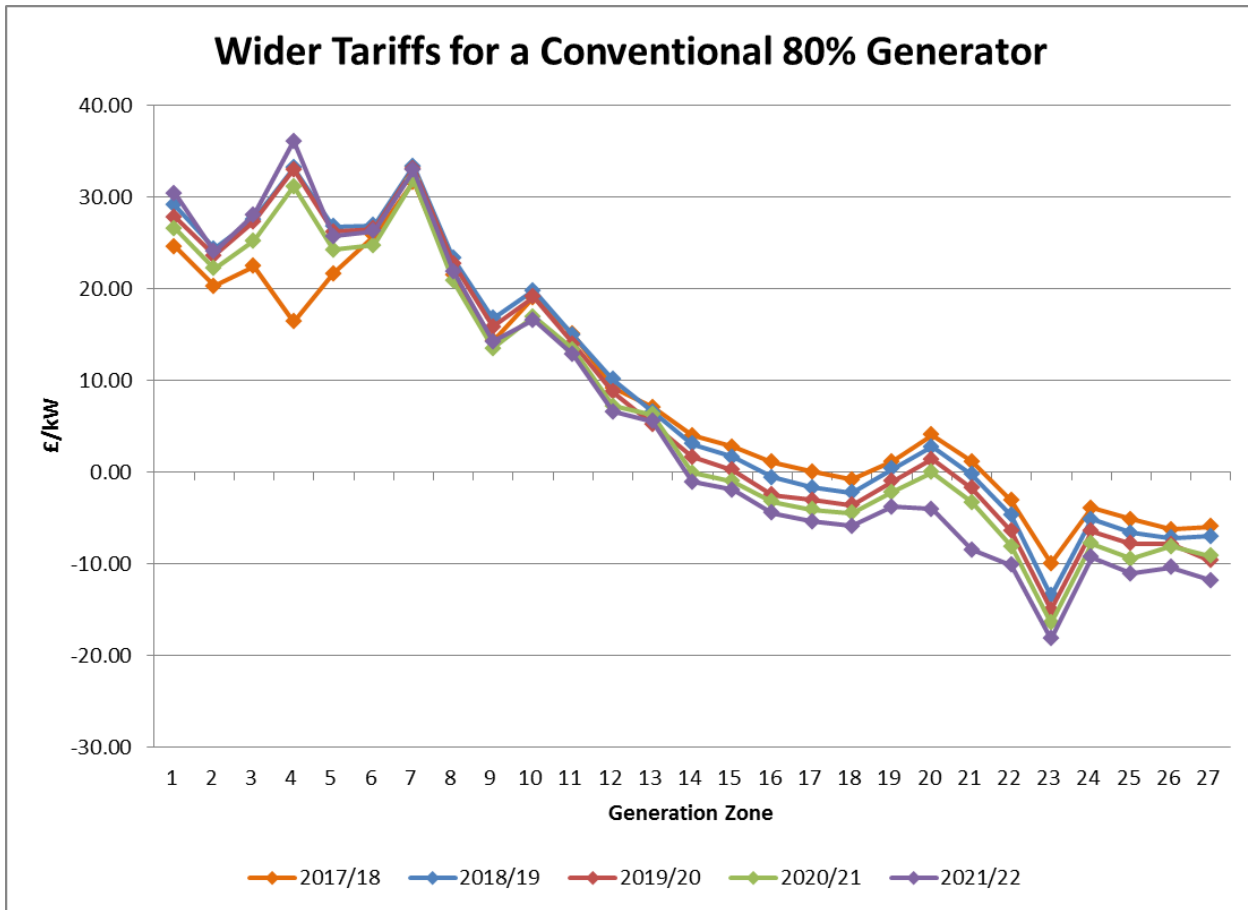
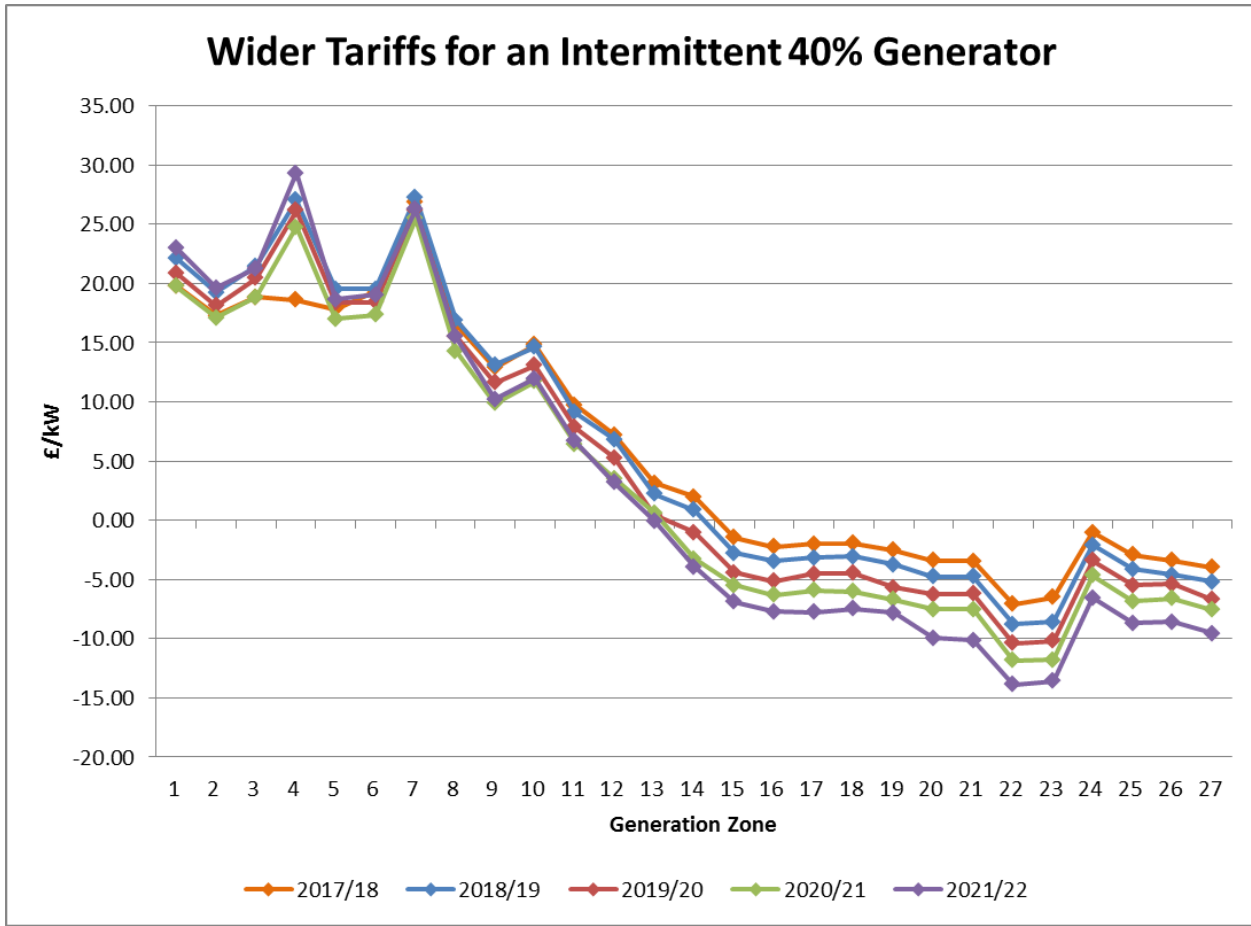


Figure 2 - Wider tariffs for an intermittent 40% load factor generator



2.3 Onshore Local Circuit Tariffs

Onshore Local Circuit tariffs are applicable to generators not directly connected to the Main Interconnected Transmission System (MITS). Each generator paying this charge has a tariff specific to its location. Forecast Onshore Local Circuit Tariffs are listed in Table 6 and can change from year to year due to local circuit reconfiguration or variations in the flow on local circuits, particularly where flow reverses direction. Such variations in flow are usually influenced by changes in generation patterns or network developments. For new generators connecting in later years, the connection may not yet have been designed and therefore an Onshore Local Circuit tariff may not be listed here. Please contact us to discuss the likely tariff for these generators.

Table 6 - Onshore Local Circuit Tariffs

Connection Point	2017/18 (£/kW)	2018/19 (£/kW)	2019/20 (£/kW)	2020/21 (£/kW)	2021/22 (£/kW)
Aberdeen Bay	-	2.47	2.55	2.62	2.70
Achruch	3.94	4.06	4.18	4.31	-2.59
Aigas	0.60	0.62	0.64	0.66	0.68
An Suidhe	2.82	-0.86	-0.88	-0.91	-0.93
Arecleoch	1.91	1.97	2.03	2.09	2.15
Aultmore	-	-	-	1.69	1.74
Baglan Bay	0.70	0.72	0.74	0.76	0.79
Beinneun Wind Farm	1.38	1.42	1.47	1.51	1.56
Benbrack & Quantans Hill	-	-	-4.46	-4.59	-4.73
Bhlaraidh Wind Farm	0.59	0.61	0.63	0.65	0.67
Black Hill	0.79	0.82	0.84	0.87	0.89
Black Law	1.61	1.66	1.71	1.76	1.81
BlackCraig Wind Farm	5.79	5.97	6.15	6.33	6.52
BlackLaw Extension	3.41	3.51	3.62	3.73	3.84
Bodelwyddan	0.11	0.11	0.11	0.12	0.12
Brochlock	1.32	1.36	1.40	1.44	1.48
Carraig Gheal	4.05	4.17	4.29	4.42	4.56
Carrington	-0.03	-0.03	-0.03	-0.03	-0.18
Clyde (North)	0.10	0.10	0.11	0.11	0.11
Clyde (South)	0.12	0.12	0.12	0.13	0.13
Corriegarh	3.47	3.57	3.68	3.79	3.90
Corriemoillie	1.53	1.58	1.63	1.67	1.72
Coryton	0.05	0.05	0.05	0.05	0.36
Crossburns	-	-	-	-	0.31
Cruachan	1.68	1.74	1.79	1.84	1.90
Crystal Rig	0.33	0.03	0.04	0.38	0.06
Culligran	1.59	1.64	1.69	1.74	1.80
Dalquhandy	-	-	-	-	1.10
Deanie	2.62	2.70	2.78	2.86	2.95
Dersalloch	2.22	2.28	2.35	2.42	2.49
Didcot	0.48	0.49	0.78	0.80	0.54
Dinorwig	2.21	2.27	2.34	2.41	2.48
Dorenell	-	1.99	2.05	2.11	2.17
Dumnaglass	1.71	1.76	1.81	1.87	1.92

Dunlaw Extension	1.38	1.42	1.47	1.51	1.56
Earlshaugh Wind Farm	3.46	3.57	3.68	3.79	3.91
Edinbane	-6.29	6.49	6.68	6.88	7.09
EnochHill	-	-	-	1.68	1.73
Ewe Hill	1.26	1.30	1.34	1.38	1.42
FAAR	-	3.38	3.48	3.59	3.69
Fallago	0.91	0.19	0.21	1.01	0.25
Ffestiniogg	0.23	0.24	0.25	0.25	0.26
Finlarig	0.29	0.30	0.31	0.32	0.33
Foyers	0.69	0.71	0.74	0.76	0.78
Galawhistle	0.78	1.40	1.44	1.49	1.53
Gills Bay	-	2.39	2.46	2.53	2.61
Glen Kyllachy	-	-	0.45	0.46	0.47
Glendoe	1.69	1.74	1.80	1.85	1.91
Glenmorrie	-	-	-	1.99	2.05
GlenUllinish	-	-	-	-	2.37
Gordonbush	0.38	1.11	1.15	0.24	0.23
Griffin Wind	-0.85	-0.87	4.19	4.34	10.07
Hadyard Hill	2.55	2.62	2.70	2.78	2.87
Harestanes	2.30	2.38	2.45	2.52	2.60
Hartlepool	0.55	0.57	0.59	0.60	0.15
Hedon	0.17	0.17	0.18	0.18	0.19
Hornsea 1	-	0.69	0.71	0.77	0.80
Invergarry	1.31	1.35	1.39	1.43	1.47
Kergord	-	-	-	-	123.71
Kilbraur	0.24	0.74	0.77	0.10	0.09
Kilgallioch	0.97	1.00	1.03	1.06	1.09
Kilmorack	0.18	0.19	0.19	0.20	0.20
Kings Lynn	-	-	-	0.42	0.44
Knottingley	-	-	-0.10	-0.11	-0.11
Kype Muir	-	1.41	1.45	1.49	1.54
Langage	0.60	0.62	0.64	-0.34	-0.35
Lochay	0.34	0.35	0.36	0.37	0.38
Luichart	0.53	0.54	0.56	0.58	0.60
Marchwood	0.35	0.36	0.37	0.38	0.40
Margree	5.54	5.71	5.88	6.05	6.24
Mark Hill	0.81	0.83	0.85	0.88	0.91
Middle Muir	-	1.88	1.94	1.99	2.05
Millennium South	-	0.89	0.92	0.95	0.98
Millennium Wind	1.68	1.73	1.78	1.84	1.89
Moffat	0.16	0.16	0.17	0.17	0.18
Mossford	2.65	2.73	2.81	2.90	2.98
Nant	2.31	2.38	2.45	2.52	2.60
Necton	1.03	1.07	1.10	1.13	1.16
New Deer	-	-	0.61	0.63	0.65
Rhigos	0.09	0.10	0.10	0.10	0.11
Rocksavage	0.02	0.02	0.02	-0.02	-0.02

Saltend	0.31	0.32	0.33	0.34	0.35
South Humber Bank	0.87	0.90	0.92	0.98	0.39
Spalding	0.26	0.26	0.67	0.69	0.29
Stornoway	-	-	-	-	96.12
Strathy Wind	2.02	1.95	2.00	1.86	1.90
Stronelairg	1.33	1.36	1.40	1.45	1.49
Tom Na Clach	-	1.88	1.94	1.99	2.05
Ulzside	8.93	9.20	9.48	9.76	10.06
Wester Dodds	0.65	0.35	0.37	0.72	0.41
Whitelee	0.10	0.10	0.10	0.11	0.11
Whitelee Extension	0.27	0.28	0.29	0.30	0.31
Willow	-	-	-	1.53	1.58

2.4 Onshore Local Substation Tariffs

Onshore Local substation tariffs for 2018/19 are shown in Table 7. These tariffs are inflated annually so for later years please increase by RPI (assume 3% p.a.).

Table 7 - 2018/19 Local Substation Tariffs

Substation Rating	Connection Type	Local Substation Tariff (£/kW)		
		132kV	275kV	400kV
<1320 MW	No redundancy	0.190298	0.108863	0.078438
<1320 MW	Redundancy	0.419211	0.259368	0.188634
>=1320 MW	No redundancy	0	0.341333	0.246853
>=1320 MW	Redundancy	0	0.560381	0.409031

2.5 Offshore Local Tariffs

Offshore Local tariffs for 2018/19 are shown in Table 8. These tariffs are inflated annually so for later years please increase by RPI (assume 3% p.a.) We will discuss tariffs for new offshore networks with the affected generation prior to the Offshore Transmission Owner being appointed.

Table 8 - 2017/18 Offshore Local Tariffs

Offshore Generator	Tariff Component (£/kW)		
	Substation	Circuit	ETUoS
Robin Rigg East	-0.44	29.05	9.00
Robin Rigg West	-0.44	29.05	9.00
Gunfleet Sands 1 & 2	16.60	15.24	2.85
Barrow	7.67	40.12	1.00
Ormonde	23.71	44.16	0.35
Walney 1	20.46	40.75	0.00
Walney 2	20.31	41.10	0.00
Thanet	17.44	32.50	0.78
Sheringham Shoal	22.90	26.86	0.58
Greater Gabbard	14.38	33.04	0.00
London Array	9.76	33.23	0.00
Lincs	14.33	56.11	0.00
Humber Gateway	13.93	31.44	0.00
West of Duddon Sands	7.89	38.96	0.00
Westermost Rough	16.62	28.12	0.00
Gwynt Y Mor	17.51	17.25	0.00

2.6 Small Generator Discount

National Grid's licence condition to apply a discount to generators less than 100MW connected at 132kV has been extended to March 2019. The resulting tariff changes are shown in Table 9.

Table 9 - Small Generator Discount

	2017/18	2018/19	2019/20	2020/21	2021/22
Small Generator Discount (£/kW)	- 11.35	- 12.24	Discontinued		
Included in HH Tariffs below (£/kW)	0.55	0.70			
Included in NHH Tariffs below (p/kWh)	0.08	0.10			

2.7 Demand Tariffs

Table 10 and Table 11 show demand tariffs for Half-Hour metered and Non-Half-Hour metered demand. These include the effect of the small generator discount up to and including 2018/19 and BSC modification P272.

Table 10 - Half Hour Demand Tariffs

Zone	Zone Name	17/18 (£/kW)	18/19 (£/kW)	19/20 (£/kW)	20/21 (£/kW)	21/22 (£/kW)
1	Northern Scotland	29.58	47.20	53.96	59.83	64.78
2	Southern Scotland	30.48	32.07	37.20	43.50	47.00
3	Northern	39.22	43.06	48.70	53.61	58.60
4	North West	45.25	49.96	55.84	61.64	66.94
5	Yorkshire	44.97	49.84	55.70	61.17	66.43
6	N Wales & Mersey	46.79	51.29	57.18	63.24	69.08
7	East Midlands	47.89	53.18	59.20	64.97	70.50
8	Midlands	49.46	54.49	60.49	66.43	72.41
9	Eastern	49.62	54.95	60.66	66.49	72.33
10	South Wales	45.55	50.61	56.36	62.58	71.97
11	South East	52.54	57.31	63.15	69.14	75.21
12	London	54.97	60.16	66.02	72.09	78.11
13	Southern	53.41	58.44	63.85	70.00	76.38
14	South Western	51.96	56.89	63.51	67.44	74.78

Table 11 - Non Half Hour Demand Tariffs

Zone	Zone Name	17/18 (p/kWh)	18/19 (p/kWh)	19/20 (p/kWh)	20/21 (p/kWh)	21/22 (p/kWh)
1	Northern Scotland	6.22	10.78	13.49	16.48	19.52
2	Southern Scotland	4.26	4.53	5.33	6.41	7.13
3	Northern	5.94	6.67	7.73	8.86	10.08
4	North West	5.88	6.44	7.12	7.91	8.65
5	Yorkshire	5.98	6.56	7.25	8.00	8.73
6	N Wales & Mersey	6.61	7.30	8.22	9.33	10.46
7	East Midlands	6.25	6.83	7.47	8.17	8.85
8	Midlands	6.43	6.96	7.57	8.28	9.00
9	Eastern	7.10	7.89	8.75	9.80	10.89
10	South Wales	5.78	6.32	6.90	7.64	8.78
11	South East	7.48	8.20	9.10	10.20	11.36
12	London	5.49	5.50	5.37	5.23	4.97
13	Southern	7.05	7.62	8.21	9.02	9.88
14	South Western	7.46	8.24	9.29	10.12	11.52

2.8 Summary of Demand Tariffs

Figure 3 – Half Hour Demand Tariffs

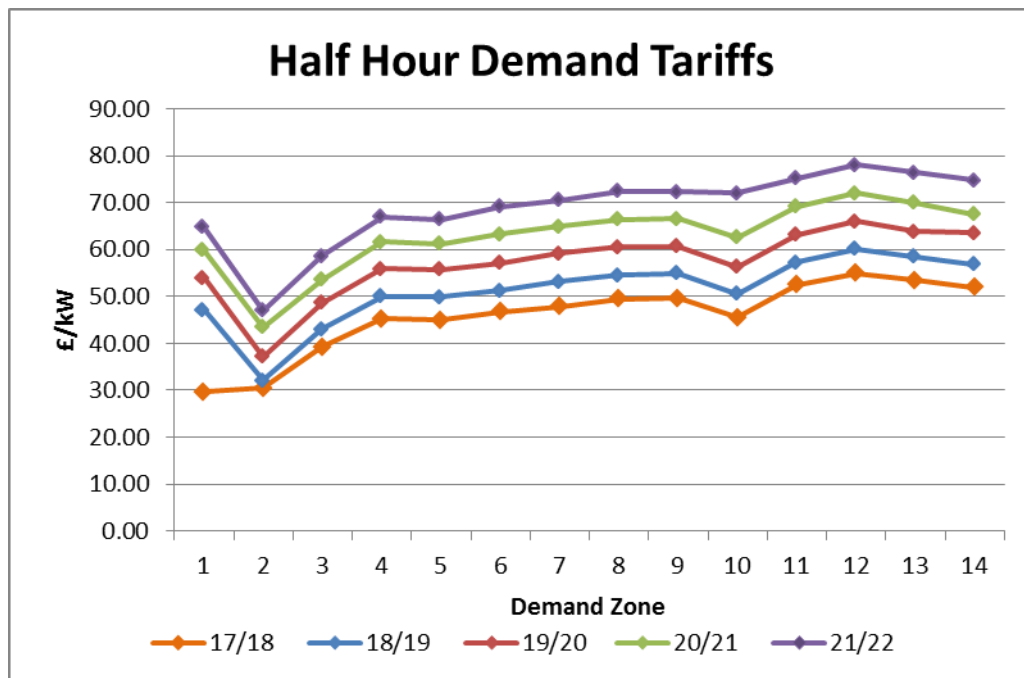
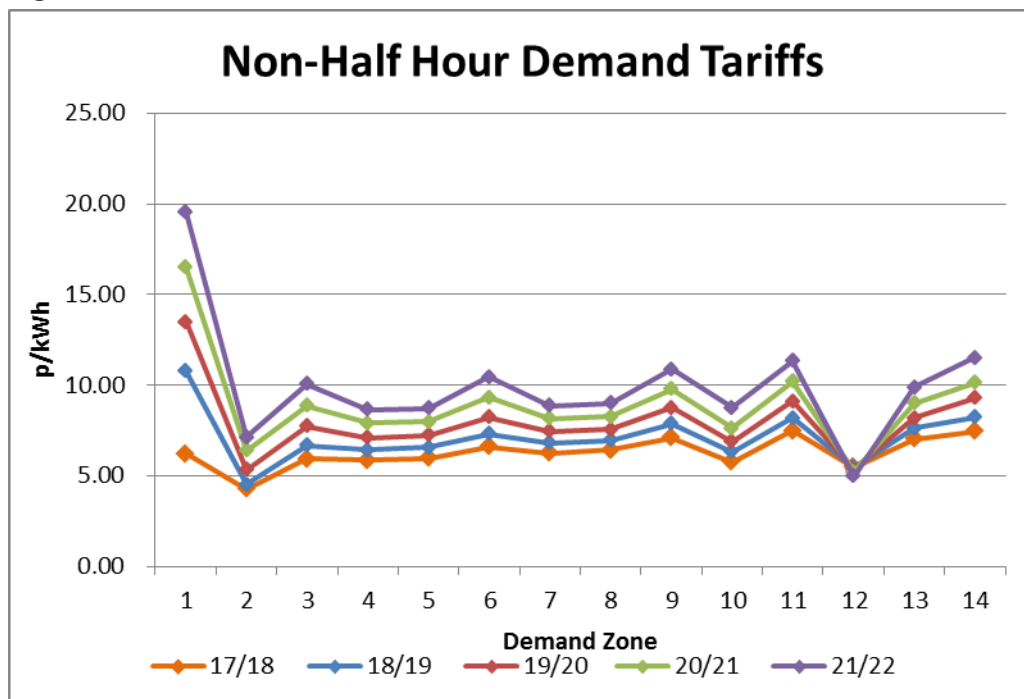


Figure 4 – Non-Half Hour Demand Tariffs



3. Key Drivers of Tariff Changes

Factors which affect tariffs include methodology, changes to the Transport model used to calculate the locational element and changes to the Tariff model used to calculate the residual element of tariffs. The main drivers behind tariff changes over the next five years are:

- Circuits
- Contracted Generation
- Contracted Demand at GSPs
- Generation/Demand revenue proportions
- Transmission Owner revenues
- Net demand supplied from the transmission network

3.1 Circuits

The wider network changes in future years reflect the latest Electricity Ten Year Statement (ETYS) circuit data. The latest Network Options Assessment (NOA) was published at the end of January 2017, and as a result was not included in this five-year TNUoS forecast. Generators' local circuit information was obtained from the Construction Agreements between generators and National Grid.

3.1.1 Western HVDC Link

The Western HVDC link is expected to commission during 2017/18 and its effect is included from that year.

3.1.2 Western HVDC Link Costs

The locational model used to calculate tariffs includes a specific expansion factor for the Western HVDC link. The expansion factor represents the relative cost of the cable and converters (but not the associated substations) of transporting 1MW over 1km compared to a new 400kV overhead line. The Western HVDC link has a voltage rating of 600kV DC, a power rating of 2200MVA and an expansion factor of 6.754400. The expansion factor means that it is approximately 6.75 times more expensive to transport power using the HVDC link than 400kV Overhead line. By comparison 400kV Cable has an expansion factor of ten.

3.1.3 Caithness – Moray Link

The Caithness - Moray HVDC link is expected to commission in 2018/19 and its effect is included from that year. An expansion factor of 15.06 has been used in line with latest cost forecasts from the Transmission Operator. The expansion factor means that it is approximately 15 times more expensive to transport power using the HVDC link than 400kV Overhead line. By comparison 400kV Cable has an expansion factor of ten.

3.2 Contracted Generation

Table 12 shows that contracted generation increases from 72.2GW in 2017/18 to 121.4GW by 2021/22. For 2017/18 modelled TEC matches contracted TEC at the end of October 2016 as required by the charging methodology. In later years the contracted TEC far exceeds the expected peak demand so we have removed generation from our models that is less likely to progress to the contracted timescale.

We have also modelled three additional scenarios for 2018/19 through to 2021/22 to take into account some of the sensitivities around the Peak and Year Round scenarios in the locational model, to provide a likely range of tariffs.

For each scenario, decisions on which generation projects to include or to remove from the calculation are based on the assumptions set out below.

Table 12 – Contracted and Modelled TEC

Best View	2017/18	2018/19	2019/20	2020/21	2021/22
Contracted TEC (GW)	72.2	79.6	91.1	108.7	121.4
Modelled TEC (GW)	72.2	72.6	73.8	82.9	90.9
Chargeable TEC (GW)	67.6	66.8	66.9	73.2	77.8
All TEC		2018/19	2019/20	2020/21	2021/22
Contracted TEC (GW)		79.6	91.1	108.7	121.4
Modelled TEC (GW)		79.6	91.1	108.7	121.4
Chargeable TEC (GW)		73.8	84.2	99.0	108.3
Sustained Coal		2018/19	2019/20	2020/21	2021/22
Contracted TEC (GW)		79.6	91.1	108.7	121.4
Modelled TEC (GW)		76.4	79.6	89.2	98.7
Chargeable TEC (GW)		70.6	72.8	79.6	85.6
Accelerated Offshore		2018/19	2019/20	2020/21	2021/22
Contracted TEC (GW)		79.6	91.1	108.7	121.4
Modelled TEC (GW)		72.7	74.3	83.9	95.2
Chargeable TEC (GW)		67.0	67.4	74.2	82.1

Base Case

In assessing which generation projects to remove we take account of a number of factors including whether according to the TEC Register projects are under construction, whether they have secured consent and success in bidding to provide capacity.

These assumptions have been made in line with the Future Energy Scenarios (“FES”) methodology, which assumes that no offshore wind may be built without CfD or subsidy support, and projects without consents in place are either delayed or removed.

We have also phased out coal plants over the five year period which have opted out of the Industrial Emissions Directive, and some older CCGT plants. We have also delayed the construction of new plants in our model which have not been awarded Capacity Market Payments for 2020/21.

The generation forecast in this report remains higher than any of the FES forecasts, primarily because this forecast is concerned with chargeable TEC rather than likely generation output.

Modelled TEC still exceeds the generation needed to meet demand, so the locational model scales modelled TEC back to the demand in the locational model as forecast by distribution networks and directly connected customers. The scaling factors used vary by technology as described in the charging methodology.

To assess the residual element of tariffs we have removed interconnectors which are not chargeable and scaled modelled TEC back to the level of generation anticipated by National Grid. This is higher than forecast demand because generators generally do not achieve full output all year round.

Please note that we are unable to breakdown the modelled TEC or chargeable TEC as some of the information used to derive it is commercially sensitive.

“Sustained Coal”

This scenario includes all the assumptions in the base case above, except for those relating to coal generation. Instead of phasing out coal generation over the next 5 years, coal generation has been modelled on the contracted position.

“Accelerated Offshore Wind”

This scenario also includes all the assumptions in the base case, except for those relating to offshore wind generation. Instead, all projects awaiting consents are included, and the requirement for CfDs or subsidy support for a project to go ahead has been removed.

“All Contracted TEC”

This scenario assumes all TEC contracted at the time of this forecast goes ahead, with no adjustments/scaling back.

The effect of the different scenarios on demand and generation tariffs is shown in Tables 24-39 and Figures 5-19 in Appendix A (2018/19), Appendix B (2019/20), Appendix C (2020/21) and Appendix D (2021/22).

3.3 Contracted Demand at GSPs

3.3.1 Week 24 Demand Forecast from DNOs and Directly Connected Users

The contracted demand at Grid Supply Points (GSPs) is used in the transport model to provide locational signals for future energy consumption. This data is based on demand forecasts from DNOs and directly connected users (the week 24 data). Demand levels at individual GSPs are made specifically for the purposes of the week 24 “snapshot” of national peak demand.

3.3.2 Week 24 Demand Forecast Volatility

Several DNOs have indicated that they expect that there will be increased volatility on the week 24 demand forecast in the future, due mainly to the increasing levels of embedded and micro generation at GSP level, and the unpredictability of when system peak demand occurs. Participation in demand side response services by embedded parties will add to the uncertainty.

3.4 Generation/Demand Revenue Proportions

EU Regulation ECR 838/2010 limits average annual Generation charges to €2.5/MWh. We assume that this regulation remains in force and the cap remains unchanged³. Table 13 shows how revenue recovered from generation is expected to reduce over time due to declining transmission connected generation output, albeit it partly offset by a forecast strengthening of the Euro.

Declining revenues from generation are compensated by increases in revenue from demand. In addition, changes in allowed revenue also impact the revenue recovered from demand.

Table 13 – Generation and Demand Revenue Proportions

		2017/18	2018/19	2019/20	2020/21	2021/22
CAPEC	Limit on generation tariff (€/MWh)	2.50	2.50	2.50	2.50	2.50
y	Error Margin	21.0%	21.0%	21.0%	21.0%	21.0%
ER	Exchange Rate (€/£)	1.27	1.11	1.10	1.09	1.09
MAR	Total Revenue (£m)	2,631.5	2,833.5	3,062.6	3,288.7	3,475.9
GO	Generation Output (TWh)	251.0	239.9	229.3	216.8	204.4
G	% of revenue from generation	14.8%	15.1%	13.4%	11.9%	10.7%
D	% of revenue from demand	85.2%	84.9%	86.6%	88.1%	89.3%
G.MAR	Revenue recovered from generation (£m)	390.3	426.9	411.7	392.8	370.3
D.MAR	Revenue recovered from demand (£m)	2241.2	2406.6	2650.9	2895.9	3105.6

³ If the cap were to be removed entirely, the proportion of revenue recovered from generation would default to the proportions used for the last charging year where a cap was in place (CUSC 14.14.5v.)² <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/The-CUSC/>.

3.5 Transmission Owners' Revenue

National Grid recovers revenue on behalf of all onshore and offshore Transmission Owners (TOs & OFTOs) in Great Britain. Table 14 shows the forecast revenues that have been used in calculating tariffs.

Table 14 – Transmission Owner Revenues

£m Nominal	2017/18	2018/19	2019/20	2020/21	2021/22
National Grid					
<i>Price controlled revenue</i>	1,748.8	1,727.8	1,794.5	1,942.0	2,008.8
<i>Less income from connections</i>	41.9	41.9	41.9	41.9	41.9
Income from TNUoS	1,706.9	1,685.9	1,752.6	1,900.1	1,966.9
Scottish Power Transmission					
<i>Price controlled revenue</i>	333.7	390.5	449.6	430.6	465.8
<i>Less income from connections</i>	12.8	26.8	27.8	29.0	29.0
Income from TNUoS	321.0	363.8	421.8	401.6	436.8
SHE Transmission					
<i>Price controlled revenue</i>	304.7	366.5	378.0	375.2	415.3
<i>Less income from connections</i>	3.4	3.2	2.7	2.8	2.9
Income from TNUoS	301.4	363.2	375.3	372.4	412.5
Offshore	270.2	380.2	472.5	574.0	619.2
Network Innovation Competition	32.1	40.5	40.5	40.5	40.5
Total to Collect from TNUoS	2,631.5	2,833.6	3,062.8	3,288.7	3,475.9

All figures are in millions of pounds and nominal 'money of the day'. Assumptions have been made on future inflation, consistent with H M Treasury forecasts. Inflation forecasts are shown in Table 15 and are relative to 2009/10. Further information on revenues can be found in Appendix E.

Table 15 – Inflation Indices

2009/10	2017/18	2018/19	2019/20	2020/21	2021/22
1.0000	1.2710	1.3090	1.3430	1.3840	1.4260

3.5.1 Onshore Transmission Owners

The revenues of the Onshore Transmission Owners (TOs) are subject to RIIO price controls set by Ofgem in 2012. RIIO stands for Revenue = Incentives + Innovation + Outputs. This means that TO revenues are set at price review, but then adjusted during the price control period depending on performance against incentives, innovation and delivered output. Revenue adjustments are generally lagged by two years, e.g. revenues in 2017/18 will be adjusted in November 2016 to reflect 2015/16 performance. The revenue forecasts in this document are provided by the TOs on a best endeavours basis and it should be noted that TO business plans and customer requirements which drive the need for investment, can alter over time.

Subject to consultation on need case and cost, Ofgem may award additional funding for Strategic Wider Works projects. Where determinations have been made by Ofgem then the effect of these have been included in the revenue forecasts. Where determinations have yet to be made, the TOs may take a view on whether to include additional funding in their forecasts.

No estimate has been included in 2018/19 revenues for retrospective recovery of 2016/17 revenue, as the size of any over- or under-recovery will not be known until after the end of the financial year. There are no adjustments for revenue recovery or variations in inflation in later years.

Each onshore TO has provided its own forecast of revenue. SPT and SHET submissions have been adjusted very slightly to keep a consistent forecast of RPI within all three forecasts.

Within each of the TOs licences there is a pass through term for rates. The amount each TO is allowed to recover for rates was fixed at the beginning of the price review period for each of the eight years and differences to the actual spend on rates can be recovered two years after the event. Hence, the expected increases in commercial rates made by government for April 2017 are expected to be reflected in allowed revenue in future years. NGET await confirmation before including this in their forecast; this could have a significant impact on revenue recovered in 2018/19 onwards.

The revenue forecasts for 2021/22 are outside of the current price review period. The licence terms for calculating allowed revenue, in each onshore TO's licence, are only relevant until March 2021. These licence terms will be renegotiated with Ofgem. With the future so uncertain, for the purposes of this forecast NGET assumed that the existing licence terms would roll over to 2021/22, this includes the assumption that existing incentives will still be in place. SHET have assumed similar however, Scottish Power have assumed no income for incentives.

3.5.2 Offshore Transmission Owners

The revenues of offshore transmission owners (OFTOs) are determined by Ofgem in a competitive tender process. The revenue is confirmed when the network is transferred from the developer to the appointed OFTO. Prior to this there is uncertainty as to the value of the revenue stream and when it will start. Therefore, whilst the revenues for existing OFTOs are relatively predictable, the revenue for future OFTOs is a forecast. Future OFTO asset transfers are expected to occur within eighteen months of the offshore wind farm commissioning. Future OFTO commissioning has been forecast using the same assumptions as for Contracted Generation and in line with FES methodology. Revenues have been extrapolated from previous offshore transmission network revenues and capacities.

Offshore revenue increases significantly over the period. However, this increase is dependent upon the progress of associated offshore generation. Where offshore revenues increase then income from Local Offshore Tariffs will also increase, so only around 22% of the additional revenue will affect other TNUoS charges.

3.5.3 Pan-Company Funding

National Grid also collects revenue to fund pan-company incentives awarded by Ofgem in the November prior to the charging year. The Network Innovation Competition Fund provides up to £27m each year for electricity transmission owners and £60m for electricity distribution Network owners. In addition, Ofgem may make Environmental Discretionary awards of up to £4m each year with 50% of un-awarded funding carried over to later years. We have assumed 50% of pan-company funding will be awarded each year.

3.5.4 Connection Revenues

Some onshore transmission owner revenues are recovered from pre-vesting connection assets in the case of National Grid, and pre-BETTA connection assets in the case of the Scottish TOs. These revenues are deducted from allowed revenue to calculate the revenue to be recovered from TNUoS charges. Whilst this revenue is diminishing due to depreciation and replacement, it may remain broadly flat in nominal terms due to inflation and the operating cost element.

3.6 Demand Forecasts

Two types of Demand forecast are used to determine the locational and residual elements of the tariffs.

3.6.1 Locational Element

The locational model uses week 24 peak demand forecasts provided by Distribution Network Operators (DNOs), demand forecasts provided by directly connected demand sites such as steelworks and other heavy industry, and the effect of some embedded generation. Appendix G summarises zonal demand in Table .

3.6.2 Residual Element

The residual element is calculated using National Grid’s forecast of:

- Average system demand during the three ‘Triad’ half hours. System demand determines the tariffs paid by suppliers with Half-Hourly metered (HH) demand and generators who import over triads;
- Average HH demand during the three ‘Triad’ half hours. This is net of embedded generation in receipt of embedded benefits. HH demand is used to determine the income from HH demand and therefore the income to be recovered from Non-Half-Hour metered demand (NHH);
- NHH annual energy consumption between 4 and 7pm. This determines the tariffs paid by suppliers with NHH demand.

Forecast demands are shown in participate in triad avoidance. The migration also contributes to the decrease in NHH demand over the forecast period although there is no direct correlation with HH.

Table 16. The 2017/18 analysis has been derived using the Monte Carlo informed modelling approach described in the recently published ‘Final 2017/18 TNUoS Tariff Report’, while future years are based on the average of the four 2016 National Grid ‘Future Energy Scenarios’ (FES) analysis. It is our intention to use the Monte Carlo informed modelling approach in our future forecast updates for 2018/19 tariffs.

Demand supplied from the transmission system is forecast to decline due to a number of factors including; the growth in distributed generation, ‘behind the meter’ microgeneration, and a perceived weakening of the UK economy as the result of the Brexit referendum⁴. Further out, population growth and technology (likely switching from gas to electric heating and increasing use of electric vehicles) should increase consumption, but the effects are unlikely to have any influence until late in our forecast period.

HH demand at peak is expected to increase, largely as a result of the switch from NHH to HH metering for profile classes 5-8⁵. These sites represent up to 7% of total GB demand and it is expected that a substantial proportion of consumers in this profile class may not be in a position to actively participate in triad avoidance. The migration also contributes to the decrease in NHH demand over the forecast period although there is no direct correlation with HH.

Table 16 – Demand Forecasts

	2017/18	2018/19	2019/20	2020/21	2021/22
Average System Demand at Triad (GW)	47.7	46.4	45.4	45.2	45.0
Average HH Metered Demand at Triad (GW)	13.2	14.3	15.3	16.5	17.7
NHH Annual Energy between 4pm and 7pm (TWh)	25.3	23.7	22.3	20.9	19.6

The demand bases used to forecast tariffs are shown in more detail in Table 46 to 49 in Appendix GG.

3.7 Other factors affecting tariffs

3.7.1 Expansion Constant

The charging methodology requires the expansion constant to be updated each year in line with RPI inflation. Table 17 shows the expansion constants used in the forecasts.

⁴ OECD, Economic outlook, analysis and forecasts: ‘United Kingdom - Economic forecast summary (November 2016)’ and Office for Budget Responsibility (OBR) report ‘Economic and fiscal outlook – November 2016’

⁵ BSC modification P272 makes it mandatory that Non-Half-Hour (NHH) profile classes 5 to 8 move to metering classes E, F and G. The subsequent amendment P322 revised the completion date to 1 April 2017. Connection and Use of System Code Modification Proposals 241 and 247 amend the treatment of these profile classes so they are charged based on profiled consumption between 4 and 7pm prior to migration and metered consumption between 4 and 7pm after migration until 31 March 2017.

Table 17 – Expansion Constant

£/MWkm	17/18	18/19	19/20	20/21	21/22
Expansion Constant	13.574496	13.988733	14.408395	14.840646	15.285866

3.7.2 Interconnectors

When modelling flows on the transmission system, interconnectors are not included in the peak model but are included in the year round model. Interconnectors are not liable for Generation or Demand TNUoS charges so are not included in the generation or demand charging bases, see Table 18.

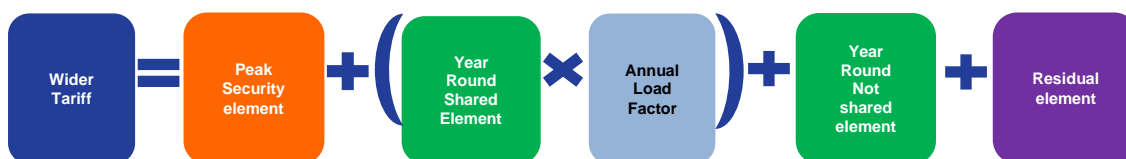
Table 18 – Interconnector Adjustments

Interconnector	Zone	Adjustment (MW)
Aquind Interconnector	26	2000 from 2021/22
Auchencrosh (interconnector CCT)	10	80
Belgium Interconnector (Nemo)	24	1000 from 2018/19
Britned	24	1200
East West Interconnector	16	505
ElecLink	24	1000
FAB Link Interconnector	26	1400 from 2020/21
IFA Interconnector	24	2000
IFA2 Interconnector	26	1100 from 2019/20
Norway Interconnector	2	1400 from 2021/22
NS Link	13	1400 from 2020/21

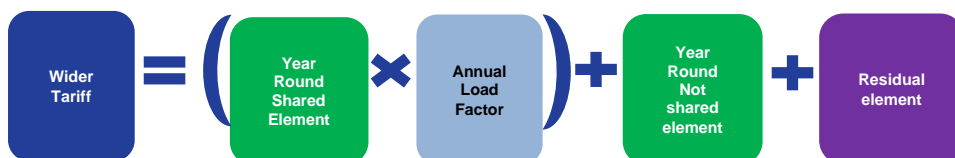
3.7.3 Annual Load Factors (ALFs)

A Generator’s liability is dependent upon its type of generation. Coal, Nuclear, Gas, Pumped Storage, Oil, Hydro, Biomass and CHP are classed as conventional whereas wind, tidal and wave are intermittent. Liability for each tariff component is shown below:

Conventional Generator



Intermittent Generator



Each generator has a specific annual load factor based on its performance over the last five years. Where new plant does not have at least three complete charging year’s history then generic load factors specific to the technology are also used. We have used the Final 2017/18 ALFs for this forecast.

4. Commentary on Forecast Generation Tariffs

4.1 Wider Zonal Generation Tariffs

4.1.1 Key Assumptions

- Western HVDC link completed in 2017/18
- Caithness Moray completed in 2018/19
- EU Regulation ECR 838/2010 limits generation to €2.5/MWh

4.1.2 Conventional Generator Tariffs

Table 19 illustrates changes in forecast Generation TNUoS tariffs from 2017/18 onwards for a conventional generator with an 80% load factor. Note that each generator has its own load factor and 80% has only been used here for illustration.

Table 19 – Wider tariffs for a conventional 80% generator

Wider Tariffs for a Conventional 80% Generator		2017/18	2018/19	2019/20	2020/21	2021/22
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	24.61	29.15	27.84	26.60	30.41
2	East Aberdeenshire	20.31	24.36	23.62	22.22	24.08
3	Western Highlands	22.48	27.61	27.31	25.24	28.10
4	Skye and Lochalsh	16.41	33.17	33.04	31.15	36.11
5	Eastern Grampian and Tayside	21.69	26.77	26.26	24.25	25.76
6	Central Grampian	25.79	26.93	26.53	24.75	26.28
7	Argyll	31.67	33.41	33.16	31.82	32.95
8	The Trossachs	21.54	23.33	22.75	20.84	21.91
9	Stirlingshire and Fife	14.30	16.81	15.86	13.53	14.26
10	South West Scotland	19.07	19.83	19.16	16.98	16.62
11	Lothian and Borders	15.08	14.93	14.02	13.37	12.86
12	Solway and Cheviot	9.18	10.12	8.76	7.22	6.58
13	North East England	7.12	6.63	5.22	6.27	5.58
14	North Lancashire and The Lakes	3.99	3.10	1.67	-0.06	-1.03
15	South Lancashire, Yorkshire and Humber	2.76	1.68	0.26	-0.96	-1.93
16	North Midlands and North Wales	1.13	-0.57	-2.45	-3.20	-4.47
17	South Lincolnshire and North Norfolk	0.07	-1.65	-3.01	-4.07	-5.38
18	Mid Wales and The Midlands	-0.78	-2.20	-3.58	-4.44	-5.84
19	Anglesey and Snowdon	1.20	0.37	-0.99	-2.14	-3.76
20	Pembrokeshire	4.09	2.80	1.41	-0.03	-4.00
21	South Wales & Gloucester	1.14	-0.23	-1.75	-3.30	-8.45
22	Cotswold	-3.11	-4.70	-6.40	-8.11	-10.10
23	Central London	-9.96	-13.47	-14.98	-16.39	-18.13
24	Essex and Kent	-3.87	-5.14	-6.43	-7.76	-9.24
25	Oxfordshire, Surrey and Sussex	-5.14	-6.59	-7.80	-9.44	-11.05
26	Somerset and Wessex	-6.23	-7.15	-7.82	-8.11	-10.38
27	West Devon and Cornwall	-5.90	-6.99	-9.66	-9.15	-11.78

4.1.3 Intermittent Generator Tariffs

Table 20 illustrates changes in forecast Generation TNUoS tariffs from 2017/18 onwards for an intermittent generator with a 40% load factor. Note that each generator has its own load factor and 40% has only been used here for illustration.

Table 20 - Wider tariffs for an intermittent 40% load factor generator

Wider Tariffs for an Intermittent 40% Generator		2017/18	2018/19	2019/20	2020/21	2021/22
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	19.83	22.14	20.87	19.76	23.02
2	East Aberdeenshire	17.29	19.22	18.14	17.12	19.60
3	Western Highlands	18.86	21.47	20.44	18.85	21.29
4	Skye and Lochalsh	18.60	27.03	26.17	24.77	29.32
5	Eastern Grampian and Tayside	17.83	19.53	18.39	17.00	18.64
6	Central Grampian	19.31	19.54	18.39	17.33	19.06
7	Argyll	26.90	27.28	26.16	25.48	26.28
8	The Trossachs	16.54	16.90	15.56	14.30	15.51
9	Stirlingshire and Fife	12.87	13.12	11.62	9.90	10.24
10	South West Scotland	14.83	14.62	13.07	11.74	11.96
11	Lothian and Borders	9.72	9.09	7.82	6.45	6.70
12	Solway and Cheviot	7.21	6.84	5.26	3.52	3.19
13	North East England	3.16	2.21	0.42	0.60	-0.07
14	North Lancashire and The Lakes	1.97	0.88	-1.02	-3.26	-3.95
15	South Lancashire, Yorkshire and Humber	-1.46	-2.79	-4.40	-5.49	-6.90
16	North Midlands and North Wales	-2.23	-3.47	-5.17	-6.33	-7.74
17	South Lincolnshire and North Norfolk	-1.99	-3.16	-4.52	-5.93	-7.76
18	Mid Wales and The Midlands	-1.93	-3.07	-4.48	-6.00	-7.45
19	Anglesey and Snowdon	-2.54	-3.75	-5.66	-6.68	-7.81
20	Pembrokeshire	-3.41	-4.75	-6.24	-7.53	-9.93
21	South Wales & Gloucester	-3.43	-4.77	-6.22	-7.53	-10.16
22	Cotswold	-7.08	-8.79	-10.40	-11.85	-13.89
23	Central London	-6.51	-8.60	-10.20	-11.79	-13.59
24	Essex and Kent	-1.03	-2.11	-3.41	-4.64	-6.56
25	Oxfordshire, Surrey and Sussex	-2.92	-4.14	-5.48	-6.83	-8.69
26	Somerset and Wessex	-3.42	-4.59	-5.39	-6.61	-8.58
27	West Devon and Cornwall	-3.97	-5.20	-6.71	-7.60	-9.56

4.1.4 2017/18

These tariffs were published on 31 January 2017 and are discussed in the accompanying tariff information report.

4.1.5 2018/19

Tariffs increase by around £5/kW for most conventional generators in zones 1-5 in northern Scotland and around £2/kW in southern Scotland, largely due to the Caithness-Moray HVDC link commissioning in 2018/19, as flows south are diverted down the subsea HVDC link which has a higher cost than onshore routes. Zone 4 sees the most significant increase (£16/kW) but this zone is particularly sensitive to changes in flows as there is only one generator in the zone. Tariffs increase by around £2/kW in other Scottish zones partly due to the new HVDC link and partly due to the commissioning of additional generation in Scotland. Although income from generation increases this year due to a stronger Euro, the net effect is a decrease in the residual and therefore a reduction in England and Wales tariffs to offset the additional income from Scottish generation. A similar change can be seen in intermittent generator tariffs but slightly muted as these generators are not exposed to the peak tariff element.

4.1.6 2019/20

Generally generator tariffs reduce between £0.13/kW and £2.67/kW. This is largely because of the cap on average annual generator charges and a reduction in the total income from generation.

4.1.7 2020/21

Generally generation tariffs continue to reduce due to the cap on average annual generator charges. However, tariffs in the north of Scotland are forecast to increase due to new generation commissioning in those zones.

4.1.8 2021/22

Generally generator tariffs continue to reduce due to the cap on average annual generator charges. The reduction is particularly marked this year due the forecast increase in offshore revenue. A more marked drop in tariffs in zones 20 and 21 (Pembrokeshire and South Wales & Gloucester) compared to other zones is due to additional generation in this area.

4.2 Onshore Local Circuit Tariffs

A forecast of onshore local circuit tariffs from 2017/18 to 2021/22 is shown in Table 6 in Section 0. These have been calculated using contracted generation from 2017/18 onwards. The Onshore Local Circuit charge for a Generation is dependent on the length and type of circuit (s) connecting to it to the nearest MITS substation and on the flows on those circuits. For new generators connecting in later years there may be limited information on the connection design so Local Circuit Tariffs may not be provided or are subject to change. If you are unsure about your local circuit tariff or whether one will be applied please contact your Connection Account Manager or alternatively use the contact details in Section 8.

4.3 Onshore Local Substation Tariffs

Table 7 in Section 0 shows the onshore local substation tariffs that are forecasted to apply during 2017/18. These tariffs only apply to transmission connected generators. The tariffs will be indexed by RPI for each year of the price control. For future year we assume tariffs inflate by 3% each year.

If no significant work is planned at a substation that changes whether or not there is redundancy, the tariff will only alter by RPI. If the sum of the TEC of the generators at a substation changes such that the 1320MW threshold is crossed, this will change the tariff applied to all generators at that location. If you are unsure about what tariff may apply please contact National Grid for further information.

4.4 Small Generators Discount

Under Condition C13 of National Grid's electricity transmission licence a discount is applied to small generators connected to 132kV transmission systems who, but for the fact they are connected to a transmission system, would not otherwise be liable for TNUoS charges. The discount shown in Table 9 in Section 0 reduces the tariff paid by eligible generation and is paid for by suppliers through an increase in HH and NHH tariffs. The discount lapses on 31 March 2019 so is not included in tariffs from 2019/20 onwards.

5. Commentary on Forecast Demand Tariffs

5.1.1 Key Assumptions

- Western HVDC link completed in 2017/18
- Caithness Moray completed in 2018/19
- EU Regulation ECR 838/2010 limits generation to €2.5/MWh
- P272 Implemented 1 April 2017

5.1.2 Negative Demand Nodes and Their Effect on Demand Tariffs

The demand tariffs in certain areas are highly volatile. This was driven by the increased number of exporting GSPs (modelled as negative demand) forecasted by DNOs in their week 24 data.

In order to work out zonal tariffs, the nodal cost (MWkm) of all demand nodes in the same demand zone, are aggregated using the “weighted average” method. Effectively, the nodal cost of a larger GSP carries more weight than the nodal cost of a smaller GSP. Thus for an exporting GSP, according to the current CUSC methodology, it carries a “negative” weight.

5.2 Half-Hourly Demand Tariffs (£/kW)

Table 21 illustrates the change in forecast TNUoS tariffs set out in Section 2.7 for Half-Hour (HH) metered demand from 2017/18 to 2021/22.

Table 21 – Changes in Half-Hourly Metered Tariffs

Zone	Zone Name	Difference 17/18 to 18/19 (£/kW)	Difference 18/19 to 19/20 (£/kW)	Difference 19/20 to 20/21 (£/kW)	Difference 20/21 to 21/22 (£/kW)
1	Northern Scotland	17.62	6.76	5.87	4.94
2	Southern Scotland	1.59	5.13	6.31	3.50
3	Northern	3.84	5.64	4.91	4.99
4	North West	4.72	5.88	5.79	5.30
5	Yorkshire	4.88	5.86	5.47	5.25
6	N Wales & Mersey	4.50	5.88	6.06	5.85
7	East Midlands	5.29	6.02	5.77	5.53
8	Midlands	5.03	5.99	5.95	5.97
9	Eastern	5.33	5.72	5.83	5.83
10	South Wales	5.06	5.75	6.21	9.39
11	South East	4.77	5.85	5.99	6.07
12	London	5.19	5.86	6.07	6.02
13	Southern	5.04	5.41	6.14	6.38
14	South Western	4.93	6.62	3.94	7.33

5.3 Non Half-Hourly Demand Tariffs (p/kWh)

Table 22 illustrates the change in forecast TNUoS tariffs set out in Section 3 for Non Half-Hour (NHH) metered demand between 2017/18 and 2021/22.

Table 22 – Changes in Non-Half-Hour Metered Tariffs

Zone	Zone Name	Difference 17/18 to 18/19	Difference 18/19 to 19/20	Difference 19/20 to 20/21	Difference 20/21 to 21/22
		(p/kWh)	(p/kWh)	(p/kWh)	(p/kWh)
1	Northern Scotland	4.57	2.71	2.99	3.03
2	Southern Scotland	0.27	0.79	1.08	0.72
3	Northern	0.72	1.07	1.13	1.21
4	North West	0.56	0.68	0.79	0.74
5	Yorkshire	0.58	0.69	0.75	0.73
6	N Wales & Mersey	0.70	0.92	1.11	1.13
7	East Midlands	0.58	0.63	0.71	0.68
8	Midlands	0.54	0.61	0.71	0.71
9	Eastern	0.79	0.87	1.05	1.09
10	South Wales	0.54	0.58	0.74	1.13
11	South East	0.73	0.90	1.10	1.16
12	London	0.01	-0.13	-0.14	-0.25
13	Southern	0.58	0.59	0.81	0.85
14	South Western	0.78	1.05	0.83	1.40

5.4 Commentary

Most zones follow similar patterns in how their prices change over the five year period. The NHH tariffs in zone 12 follow a different pattern to that of other zones. This is for a couple of reasons.

Zone 12 encompasses London and has a far higher proportion of HH demand in it than any other zone. In year-on-year forecasts it sees increases in HH demand and locational HH tariffs. This results in a greater volume of revenue for Zone 12 being recovered from HH customers and less from NHH compared to other zones.

The national reduction in volumes of NHH demand causes an increase in tariffs in most zones. As NHH is a smaller proportion of the volume in Zone 12 compared to other zones, and so this small volume does not offset the impact of the reduction in NHH revenue causing a fall in tariffs. Hence the overall trend for Zone 12 NHH tariffs in zone 12 is down.

Zone 1 is a volatile zone due to the large amount of embedded generation, which offsets demand and makes tariffs unstable.

5.4.1 2017/18

These tariffs were published on 31 January 2017 and are discussed in the accompanying tariff information report.

5.4.2 2018/19

HH demand tariffs in Northern Scotland increase by almost £18/kW due to a reduction in week 24 demand in this zone of around 0.3GW. Elsewhere the HH demand tariffs increase by around £5/kW, largely due to the cap on income that can be recovered from generation. This means a greater proportion of revenue must be collected from demand tariffs.

NHH tariffs increase most notably in Zone 1 by £4.50, and elsewhere by less than £1 due to the reducing NHH demand base, caused partly by the anticipated movement of demand meters from NHH to HH. Zone 12 reduces by £0.13.

5.4.3 2019/20

Generally HH tariffs increase between £5-£7 in every zone due to increased HH revenues and a decline in the allowed revenue from generation. Increases in the north are smaller due to increases in northern generation.

NHH tariffs increase in Zone 1 by £2.71, and decrease in Zone 12 by £0.13. NHH tariffs increase elsewhere by £0.58 to £1.07 as the proportion of NHH to HH demand reduces.

5.4.4 2020/21

HH tariffs increase more slowly than previous years in each zone by £3.94 to £6.31.

NHH tariffs increase by £2.99 in Zone 1, and decrease in Zone 12 by £0.14. All other NHH zone tariffs increase by £0.74 to £1.13.

5.4.5 2021/22

There is a marked slowdown in HH tariff increases in zones 1-3, which grow by £3.50 to £5. Tariffs increase in zones 4-9 by £5.25 - £6.00, and there is acceleration in the growth of tariffs in zones 10 – 14 by £6.20 - £9.50.

The Zone 1 NHH tariff increases by £3.03, and Zone 12 sees a decrease of £0.25. Increases to NHH demand tariffs also begin to slow in other zones by £0.68 to £1.21/kWh. The slowdown in tariff rises is driven by a reduction in the rate by which allowed demand revenue increases compared to 2020/21 (see table 13).

6. Generation and Demand Residuals

The residual elements of the Generator and Demand TNUoS tariffs are given by the formulas below. These can be used to assess the impact of changing assumptions in our tariff forecasts without the need to run the transport and tariff model.

$$R_G = \frac{G.R - Z_G - O - L_c - L_S}{B_G}$$

$$R_D = \frac{D.R - Z_D}{B_D}$$

Where:

- R_G is the Generation residual tariff (£/kW)
- R_D is the Demand residual tariff (£/kW)
- G is the proportion of TNUoS revenue recovered from Generation
- D is the proportion of TNUoS revenue recovered from Demand
- R is the total TNUoS revenue to be recovered (£m)
- Z_G is the TNUoS revenue recovered from Generation locational zonal tariffs (£m)
- Z_D is the TNUoS revenue recovered from Demand locational zonal tariffs (£m)
- O is the TNUoS revenue recovered from offshore local tariffs (£m)
- L_c is the TNUoS revenue recovered from onshore local circuit tariffs (£m)
- L_S is the TNUoS revenue recovered from onshore local substation tariffs (£m)
- B_G is the generator charging base (GW)
- B_D is the Demand charging base (Half-hour equivalent GW)

Z_G , Z_D and L_c are determined by the locational tariffs/elements of tariffs.

Typically 78% of offshore revenues are recovered from offshore local tariffs. Therefore if revenue (R) is reduced / increased due to offshore revenue changes then O must also be adjusted by 78%. E.g., if offshore revenues reduce by £10m, reduce R by £10m and O by £7.8m.

Table 23 shows the residual calculation for each charging year.

Table 23 – Calculation of Residuals

	2017/18	2018/19	2019/20	2020/21	2021/22
R_G (£/kW)	-1.85	-3.20	-4.54	-5.95	-7.61
R_D (£/kW)	47.30	52.24	58.24	64.60	69.59
G	0.148	0.151	0.134	0.119	0.107
D	0.852	0.849	0.866	0.881	0.893
R (£m)	2,631.5	2,833.5	3,062.6	3,288.7	3,475.9
Z_G (£m)	275.0	313.2	317.7	343.2	445.0
Z_D (£m)	-14.3	-19.0	5.2	-21.0	-23.9
O (£m)	208.5	293.9	365.8	445.0	480.4
L_c (£m)	14.6	16.9	16.0	21.2	17.1
L_s (£m)	17.5	17.0	15.9	19.0	20.0
B_G (£m)	67.6	66.8	66.9	73.2	77.8
B_D (£m)	47.7	46.4	45.4	45.2	45.0

7. Tools and Supporting Information

Discussing Tariff Changes

National Grid is keen to ensure that customers understand the current charging arrangements and the reasons why charges are forecast to change from year to year. Therefore, we expect to hold a webinar on these forecasts on Thursday 9th March.

7.1 Future Updates to Tariff Forecasts

National Grid will update the forecast of 2018/19 tariffs throughout 2017 and the timetable for these has been published on our website. These forecasts are intended to allow customers to gauge the impact of key changes to the inputs to the charging model such as TEC reductions and allowed revenue ahead of the publication of draft and final TNUoS tariffs.

7.2 Charging Models

We will make copies of National Grid's charging models available to customers to conduct their own analysis of generation and demand tariffs. These models will be based on the contracted generation background rather than the generation background used to calculate the tariffs in this forecast. We are unable to provide a breakdown of National Grid's view of generation as it may be based on commercially sensitive information.

If you would like a copy of any of the models please contact us. Please note that, while the model is available free of charge, it is provided under licence to restrict, among other things, its distribution and commercial use.

7.3 Tools and Other Data

Also available on our website are:

- Final Annual Load Factors for 2017/18 on the TNUoS forecast page
- Generation tariff calculator on the Tools and Data page

7.4 Numerical Data

All tables in this document can be downloaded as an Excel spreadsheet from our website:

<http://www2.nationalgrid.com/UK/Industry-information/System-charges/Electricity-transmission/Approval-conditions/Condition-5/>

8. Comments & Feedback

As part of our commitment to customers, National Grid welcomes comments and feedback on the information contained in this document. In particular, to ensure that information is provided and presented in a way that is of most use to customers, we would welcome specific feedback on:

- the level of numeric detail provided to explain tariff changes;
- the quality of the explanation given to describe and explain tariff changes;
- information that is not useful and could be omitted; and
- information that is missing that could be added.

Please send comments to any of the team:

Team Email & Phone	charging.enquiries@nationalgrid.com	01926 654633
Katharine Clench	katharine.clench@nationalgrid.com	01926 656036
Kathy Heard	kathryn.heard@nationalgrid.com	01926 656281
Jo Zhou	jo.zhou@nationalgrid.com	01926 654184
Tom Selby	thomas.selby@nationalgrid.com	01926 656450

National Grid
Warwick Technology Park
Warwick
CV34 6DA

Error! Reference source not found.**Error! Reference source not found.**– 2018/19

Error! Reference source not found.**Error! Reference source not found.**– 2019/20

Error! Reference source not found.**Error! Reference source not found.**– 2020/21

Error! Reference source not found.**Error! Reference source not found.**– 2021/22

Appendix EE: Revenue Analysis

Appendix FF : Contracted Generation at Peak

Appendix GG : Zonal Demand Summaries

Appendix HH : Generation Zone Map

Appendix II : Demand Zone Map

Appendix A: TNUoS Wider Generation & Demand Tariff Sensitivities – 2018/19

Tables 24-27 and Figures 5-8 show TNUoS Generation tariffs under four different modelled generation scenarios (Base Case, Sustained Coal, Accelerated Offshore Wind and All Contracted) in 2018/19, as described in Section 3.2.

Table 24 – 2018/19 Generation Scenarios – Wider Generation Peak 80% Tariffs

Wider Tariffs for a Conventional 80% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	29.15	29.93	28.27	29.14
2	East Aberdeenshire	24.36	25.11	23.50	24.36
3	Western Highlands	27.61	28.28	26.75	27.60
4	Skye and Lochalsh	33.17	33.87	32.32	33.17
5	Eastern Grampian and Tayside	26.77	27.49	25.94	26.76
6	Central Grampian	26.93	27.68	26.19	26.93
7	Argyll	33.41	34.23	32.80	33.40
8	The Trossachs	23.33	24.02	22.58	23.32
9	Stirlingshire and Fife	16.81	17.32	15.80	16.80
10	South West Scotland	19.83	20.62	19.36	19.82
11	Lothian and Borders	14.93	15.52	14.88	14.93
12	Solway and Cheviot	10.12	10.79	9.78	10.12
13	North East England	6.63	6.65	6.94	6.63
14	North Lancashire and The Lakes	3.10	4.02	3.01	3.11
15	South Lancashire, Yorkshire and Humber	1.68	1.68	1.86	1.69
16	North Midlands and North Wales	-0.57	-0.34	-0.10	-0.56
17	South Lincolnshire and North Norfolk	-1.65	-1.61	-1.29	-1.64
18	Mid Wales and The Midlands	-2.20	-2.09	-1.88	-2.18
19	Anglesey and Snowdon	0.37	1.04	0.23	0.38
20	Pembrokeshire	2.80	1.37	2.45	2.81
21	South Wales & Gloucester	-0.23	-1.72	-0.70	-0.22
22	Cotswold	-4.70	-6.30	-5.31	-4.69
23	Central London	-13.47	-13.52	-13.09	-13.47
24	Essex and Kent	-5.14	-5.41	-5.00	-5.13
25	Oxfordshire, Surrey and Sussex	-6.59	-6.73	-6.24	-6.58
26	Somerset and Wessex	-7.15	-9.08	-8.36	-7.14
27	West Devon and Cornwall	-6.99	-10.30	-9.54	-6.98

Figure 5 – 2018/19 Generation Scenarios – Wider Generation Peak 80% Tariffs

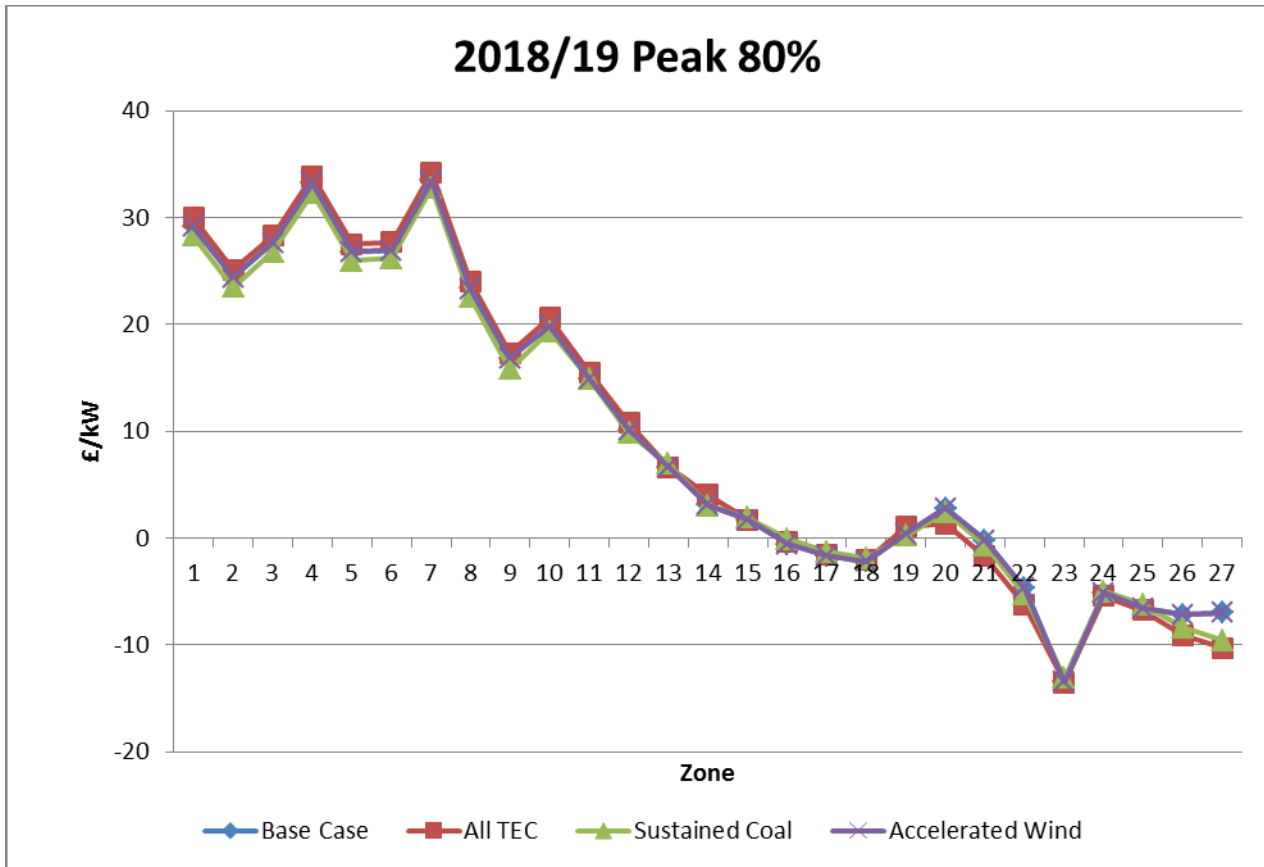


Table 25 - 2018/19 Generation Scenarios - Wider Generation Intermittent 40% Tariffs

Wider Tariffs for an Intermittent 40% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	22.14	22.78	21.67	22.14
2	East Aberdeenshire	19.22	19.83	18.76	19.21
3	Western Highlands	21.47	22.03	21.02	21.47
4	Skye and Lochalsh	27.03	27.61	26.58	27.03
5	Eastern Grampian and Tayside	19.53	20.10	19.08	19.52
6	Central Grampian	19.54	20.12	19.14	19.53
7	Argyll	27.28	27.91	26.98	27.28
8	The Trossachs	16.90	17.42	16.49	16.90
9	Stirlingshire and Fife	13.12	13.53	12.60	13.11
10	South West Scotland	14.62	15.17	14.31	14.62
11	Lothian and Borders	9.09	9.59	8.90	9.09
12	Solway and Cheviot	6.84	7.12	6.56	6.84
13	North East England	2.21	2.18	2.13	2.21
14	North Lancashire and The Lakes	0.88	1.09	0.69	0.88
15	South Lancashire, Yorkshire and Humber	-2.79	-2.74	-2.90	-2.79
16	North Midlands and North Wales	-3.47	-3.51	-3.46	-3.47
17	South Lincolnshire and North Norfolk	-3.16	-3.36	-3.17	-3.15
18	Mid Wales and The Midlands	-3.07	-3.20	-3.03	-3.06
19	Anglesey and Snowdon	-3.75	-3.58	-3.55	-3.75
20	Pembrokeshire	-4.75	-5.12	-4.80	-4.74
21	South Wales & Gloucester	-4.77	-5.12	-4.85	-4.76
22	Cotswold	-8.79	-9.34	-9.02	-8.79
23	Central London	-8.60	-8.66	-8.48	-8.60
24	Essex and Kent	-2.11	-2.31	-2.13	-2.11
25	Oxfordshire, Surrey and Sussex	-4.14	-4.26	-4.10	-4.13
26	Somerset and Wessex	-4.59	-5.05	-4.86	-4.59
27	West Devon and Cornwall	-5.20	-5.95	-5.77	-5.19

Figure 6 – 2018/19 Generation Scenarios – Wider Generation Intermittent 40% Tariffs

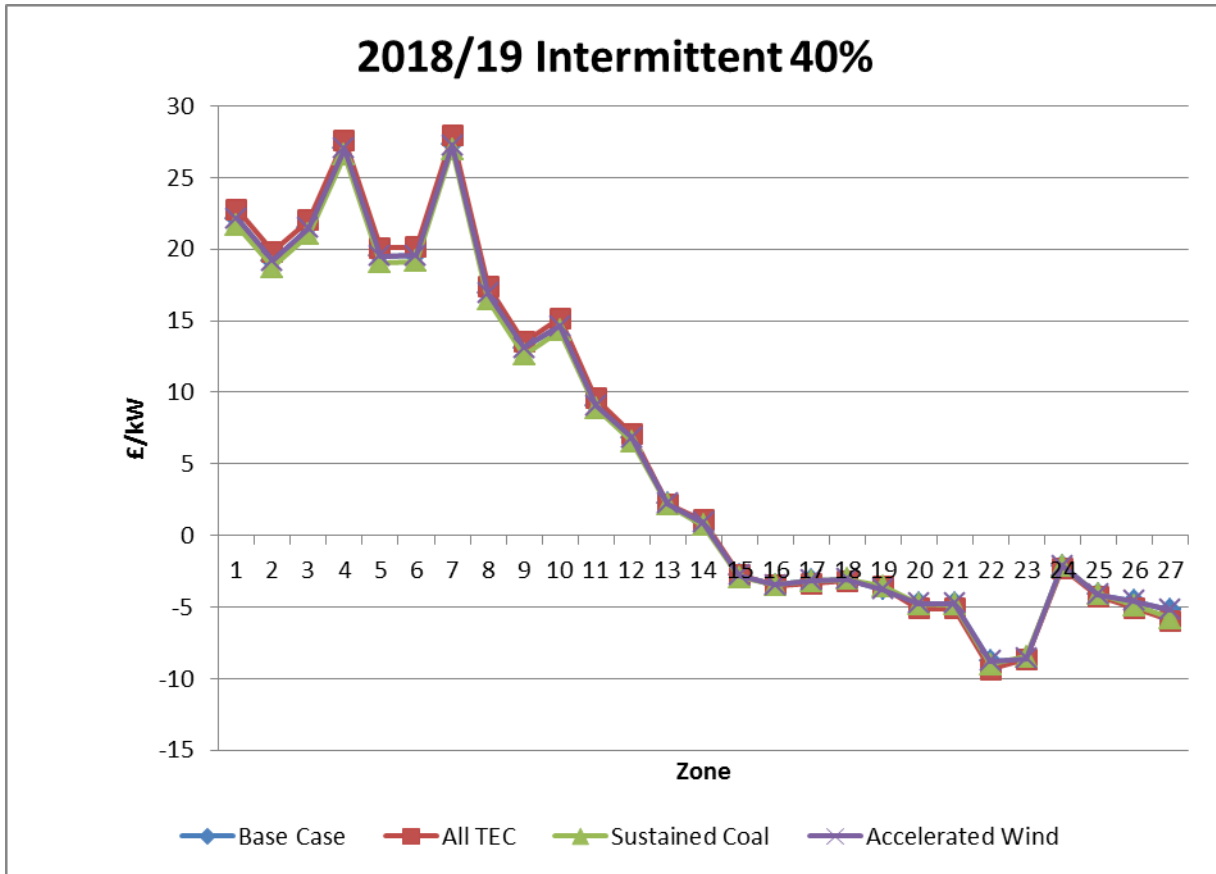


Table 26 - 2018/19 Generation Scenarios - HH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)
1	Northern Scotland	47.20	46.31	48.15	47.21
2	Southern Scotland	32.07	31.20	32.81	32.08
3	Northern	43.06	42.74	42.95	43.06
4	North West	49.96	49.10	49.84	49.96
5	Yorkshire	49.84	49.70	49.52	49.84
6	N Wales & Mersey	51.29	50.35	51.25	51.29
7	East Midlands	53.18	52.89	52.85	53.18
8	Midlands	54.49	54.05	54.43	54.49
9	Eastern	54.95	54.90	54.50	54.95
10	South Wales	50.61	52.11	50.99	50.61
11	South East	57.31	57.78	57.28	57.30
12	London	60.16	60.19	59.76	60.16
13	Southern	58.44	59.15	58.60	58.44
14	South Western	56.89	59.16	58.30	56.89

Figure 7 – 2018/19 Generation Scenarios – NHH Demand Tariffs

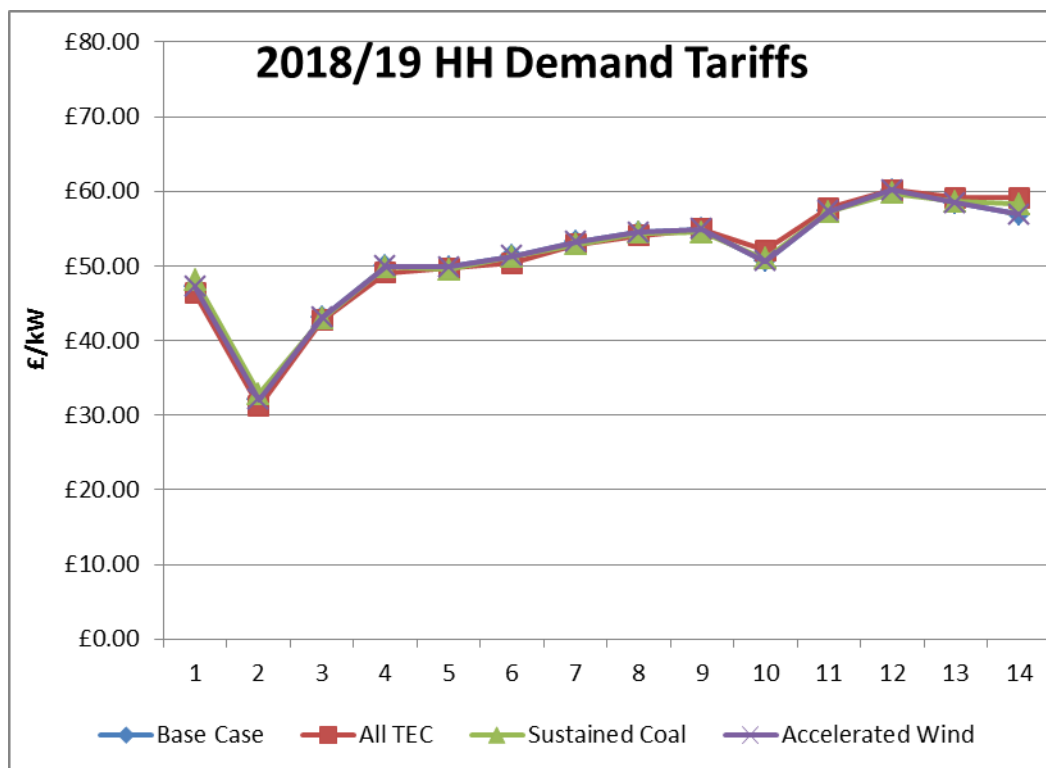
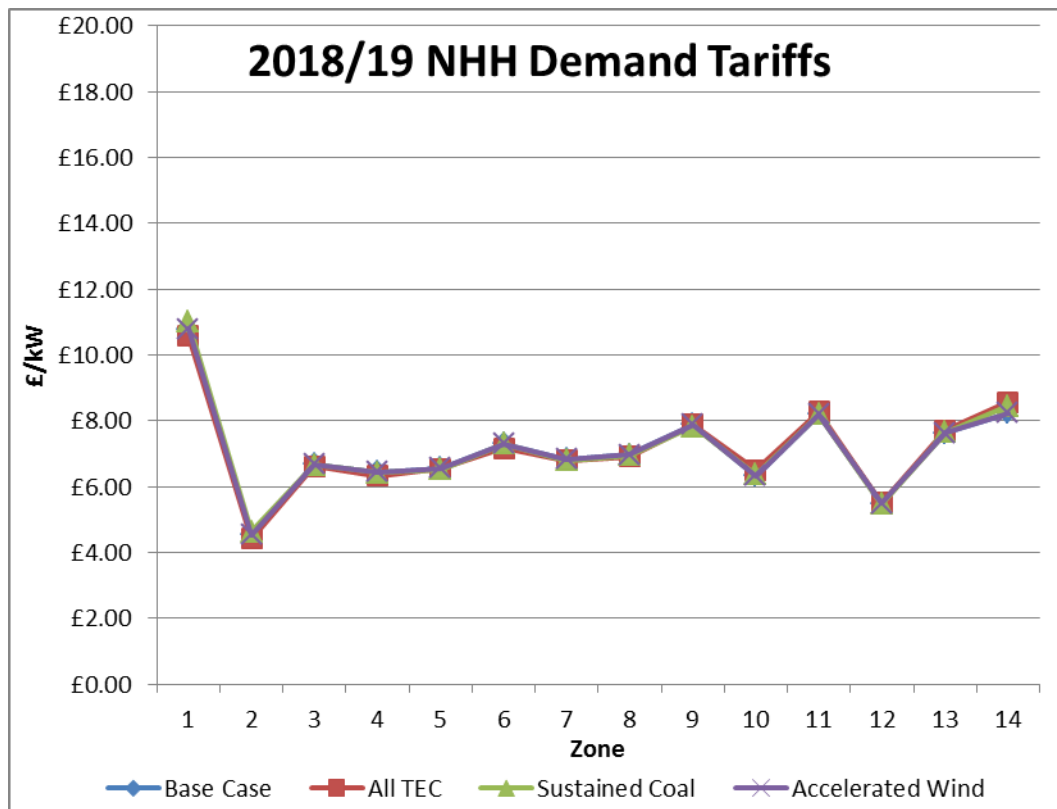


Table 27 - 2018/19 Generation Scenarios - NHH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)
1	Northern Scotland	10.78	10.58	11.00	10.78
2	Southern Scotland	4.53	4.41	4.64	4.53
3	Northern	6.67	6.62	6.65	6.67
4	North West	6.44	6.32	6.42	6.44
5	Yorkshire	6.56	6.54	6.52	6.56
6	N Wales & Mersey	7.30	7.17	7.30	7.30
7	East Midlands	6.83	6.80	6.79	6.83
8	Midlands	6.96	6.91	6.95	6.96
9	Eastern	7.89	7.88	7.83	7.89
10	South Wales	6.32	6.50	6.37	6.32
11	South East	8.20	8.27	8.20	8.20
12	London	5.50	5.50	5.46	5.50
13	Southern	7.62	7.72	7.64	7.62
14	South Western	8.24	8.57	8.45	8.24

Figure 8 – 2018/19 Generation Scenarios – NHH Demand Tariffs



Appendix B: TNUoS Wider Generation Tariff & Demand Sensitivities – 2019/20

Tables 28-31 and Figures 9-12 show TNUoS Generation tariffs under four different modelled generation scenarios (Base Case, Sustained Coal, Accelerated Offshore Wind and All Contracted) in 2019/20, as described in Section 3.2.

Table 28 - 2019/20 Generation Scenarios - Wider Generation Peak 80% Tariffs

Wider Tariffs for a Conventional 80% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	27.84	28.11	27.72	27.90
2	East Aberdeenshire	23.62	23.19	23.56	23.68
3	Western Highlands	27.31	26.92	27.22	27.37
4	Skye and Lochalsh	33.04	32.68	32.95	33.10
5	Eastern Grampian and Tayside	26.26	25.72	26.13	26.32
6	Central Grampian	26.53	25.65	26.34	26.59
7	Argyll	33.16	32.26	33.12	33.23
8	The Trossachs	22.75	21.83	22.54	22.81
9	Stirlingshire and Fife	15.86	14.99	15.63	15.91
10	South West Scotland	19.16	18.08	18.59	19.22
11	Lothian and Borders	14.02	13.85	13.96	14.08
12	Solway and Cheviot	8.76	8.97	8.76	8.83
13	North East England	5.22	5.46	5.57	5.29
14	North Lancashire and The Lakes	1.67	2.29	1.77	1.74
15	South Lancashire, Yorkshire and Humber	0.26	0.87	0.53	0.33
16	North Midlands and North Wales	-2.45	-1.13	-1.47	-2.33
17	South Lincolnshire and North Norfolk	-3.01	-2.28	-2.60	-2.95
18	Mid Wales and The Midlands	-3.58	-2.27	-3.10	-3.48
19	Anglesey and Snowdon	-0.99	-0.19	-1.12	-0.91
20	Pembrokeshire	1.41	-0.76	0.77	1.49
21	South Wales & Gloucester	-1.75	-3.58	-2.52	-1.67
22	Cotswold	-6.40	-7.97	-7.31	-6.32
23	Central London	-14.98	-14.10	-14.60	-14.90
24	Essex and Kent	-6.43	-5.58	-6.13	-6.35
25	Oxfordshire, Surrey and Sussex	-7.80	-7.32	-7.73	-7.72
26	Somerset and Wessex	-7.82	-8.52	-8.36	-7.74
27	West Devon and Cornwall	-9.66	-12.73	-11.94	-9.58

Figure 9 – 2019/20 Generation Scenarios – Wider Generation Peak 80% Tariffs

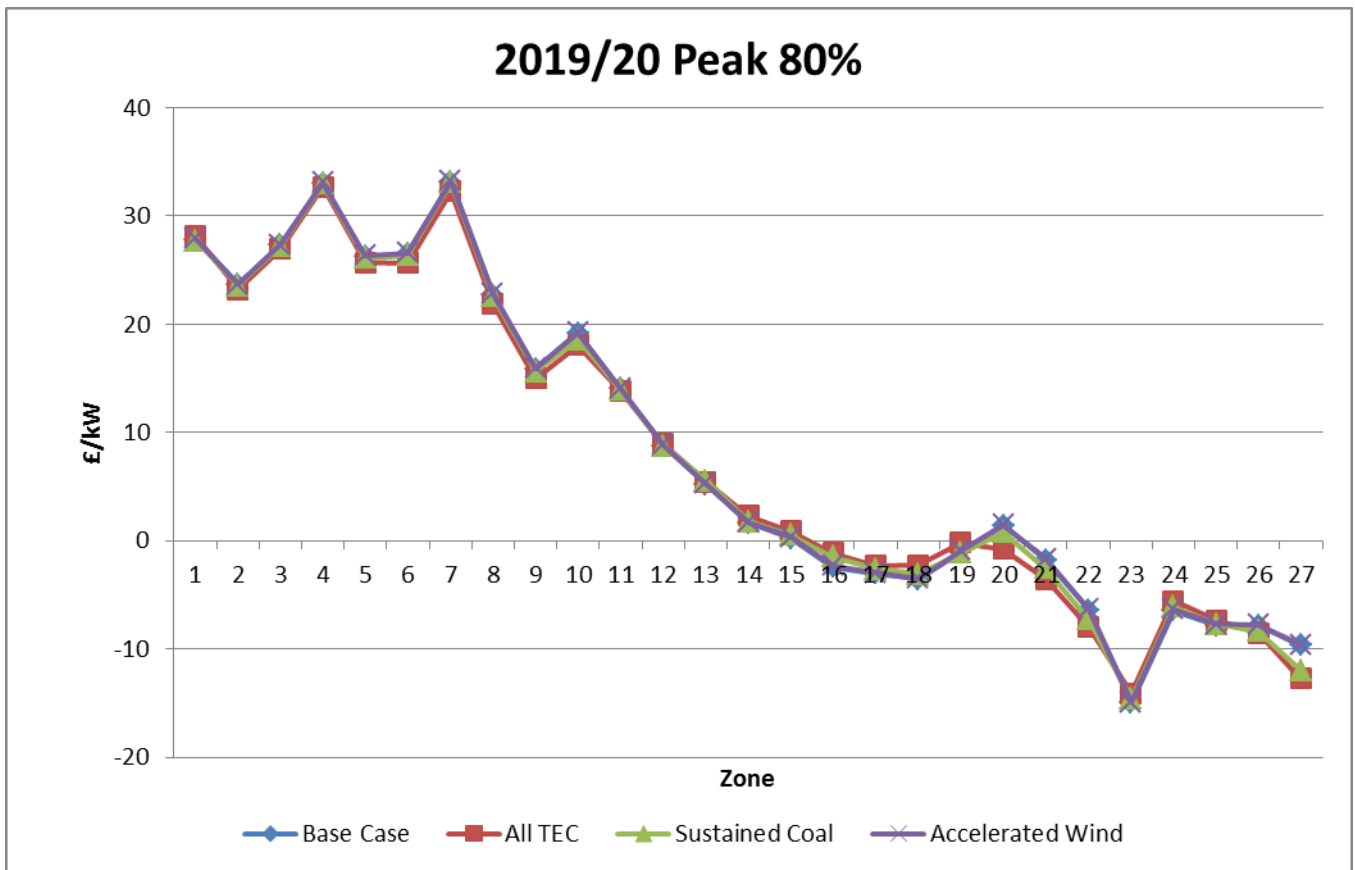


Table 29 - 2019/20 Generation Scenarios - Wider Generation Intermittent 40% Tariffs

Wider Tariffs for an Intermittent 40% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	20.87	22.93	21.15	20.93
2	East Aberdeenshire	18.14	20.29	18.44	18.20
3	Western Highlands	20.44	21.98	20.75	20.50
4	Skye and Lochalsh	26.17	27.74	26.48	26.23
5	Eastern Grampian and Tayside	18.39	19.88	18.72	18.45
6	Central Grampian	18.39	19.94	18.86	18.46
7	Argyll	26.16	27.76	26.73	26.23
8	The Trossachs	15.56	16.91	15.95	15.62
9	Stirlingshire and Fife	11.62	12.44	11.74	11.68
10	South West Scotland	13.07	14.47	13.46	13.13
11	Lothian and Borders	7.82	8.66	7.72	7.89
12	Solway and Cheviot	5.26	6.04	5.28	5.33
13	North East England	0.42	1.09	0.50	0.51
14	North Lancashire and The Lakes	-1.02	-0.25	-0.77	-0.96
15	South Lancashire, Yorkshire and Humber	-4.40	-3.87	-4.43	-4.32
16	North Midlands and North Wales	-5.17	-4.51	-4.99	-5.07
17	South Lincolnshire and North Norfolk	-4.52	-4.32	-4.64	-4.44
18	Mid Wales and The Midlands	-4.48	-3.64	-4.45	-4.39
19	Anglesey and Snowdon	-5.66	-4.42	-5.10	-5.59
20	Pembrokeshire	-6.24	-6.42	-6.26	-6.17
21	South Wales & Gloucester	-6.22	-6.34	-6.28	-6.15
22	Cotswold	-10.40	-10.85	-10.61	-10.33
23	Central London	-10.20	-9.96	-10.17	-10.13
24	Essex and Kent	-3.41	-3.20	-3.43	-3.34
25	Oxfordshire, Surrey and Sussex	-5.48	-5.19	-5.46	-5.40
26	Somerset and Wessex	-5.39	-5.37	-5.48	-5.32
27	West Devon and Cornwall	-6.71	-7.20	-7.17	-6.64

Figure 10 – 2019/20 Generation Scenarios – Wider Generation Intermittent 40% Tariffs

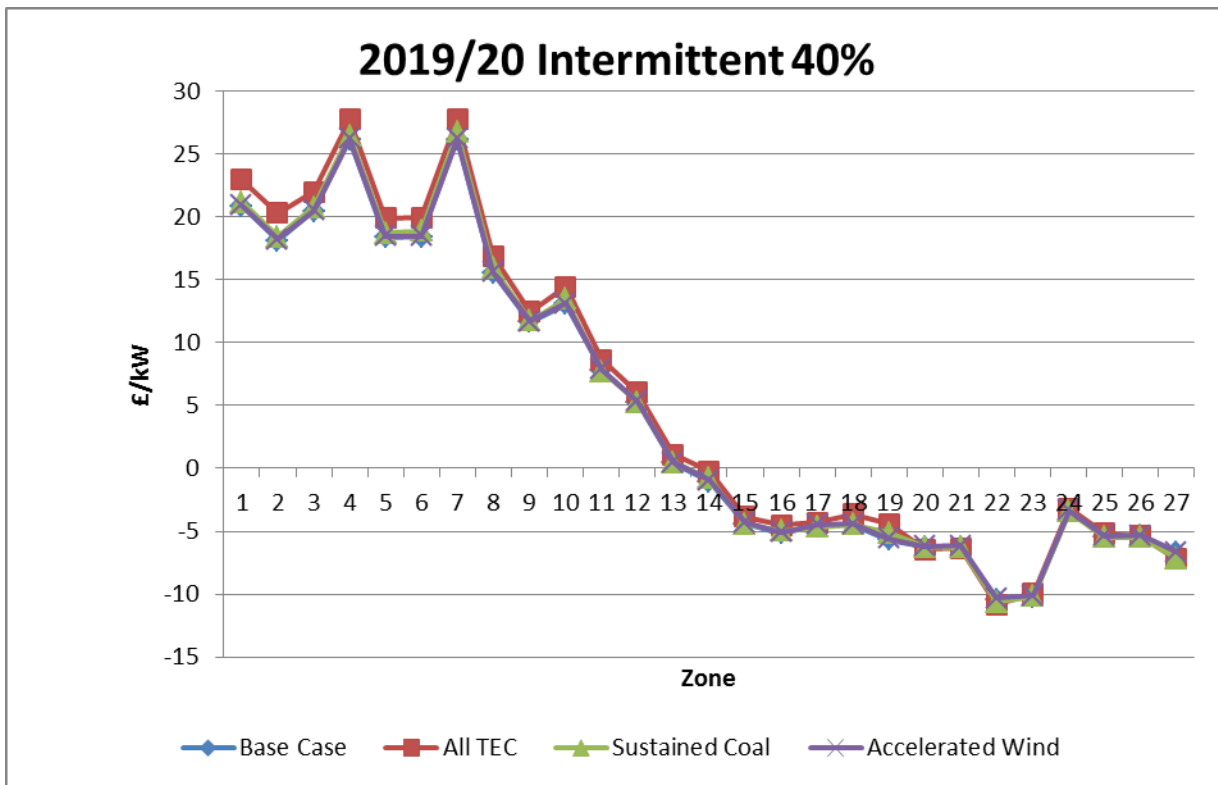


Table 30 - 2019/20 Generation Scenarios - HH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)
1	Northern Scotland	54.74	55.52	54.82	54.75
2	Southern Scotland	37.98	38.74	38.14	37.99
3	Northern	49.48	49.64	49.47	49.48
4	North West	56.63	56.13	56.47	56.63
5	Yorkshire	56.48	55.90	56.13	56.48
6	N Wales & Mersey	57.96	57.25	57.88	57.96
7	East Midlands	59.99	59.37	59.59	59.99
8	Midlands	61.27	60.98	61.28	61.27
9	Eastern	61.45	60.78	61.11	61.45
10	South Wales	57.14	59.97	57.98	57.14
11	South East	63.93	63.71	63.88	63.93
12	London	66.80	66.33	66.55	66.80
13	Southern	64.64	64.95	64.92	64.64
14	South Western	64.29	67.09	65.74	64.29

Figure 11 – 2019/20 Generation Scenarios – HH Demand Tariffs

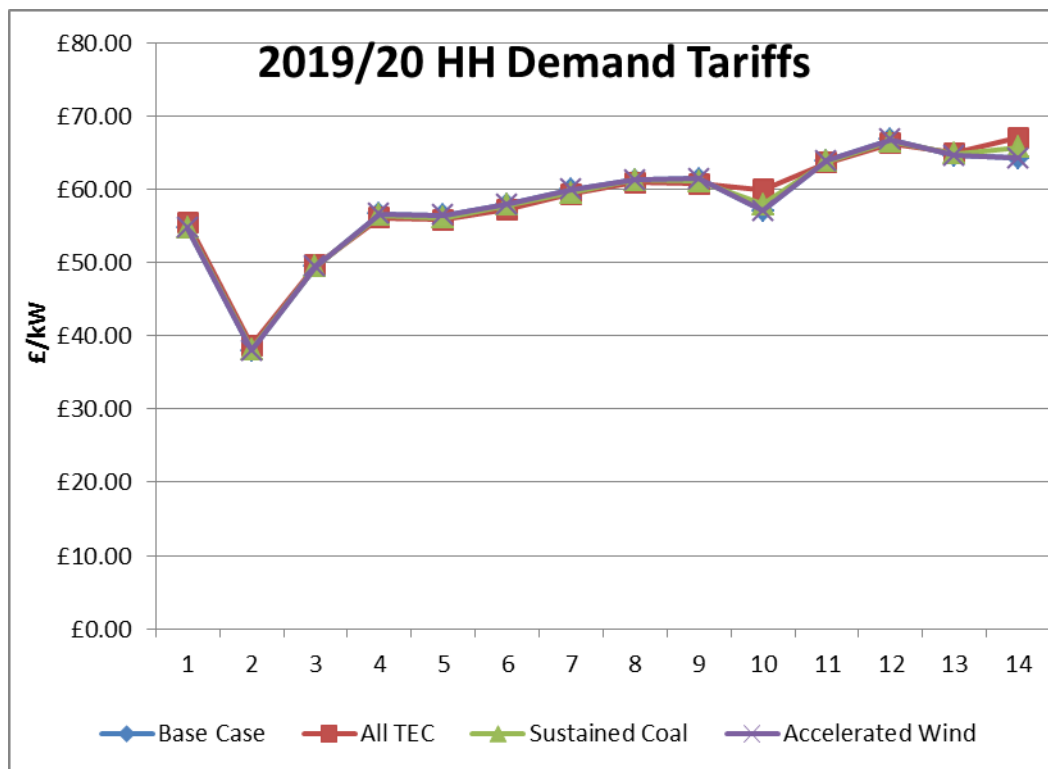
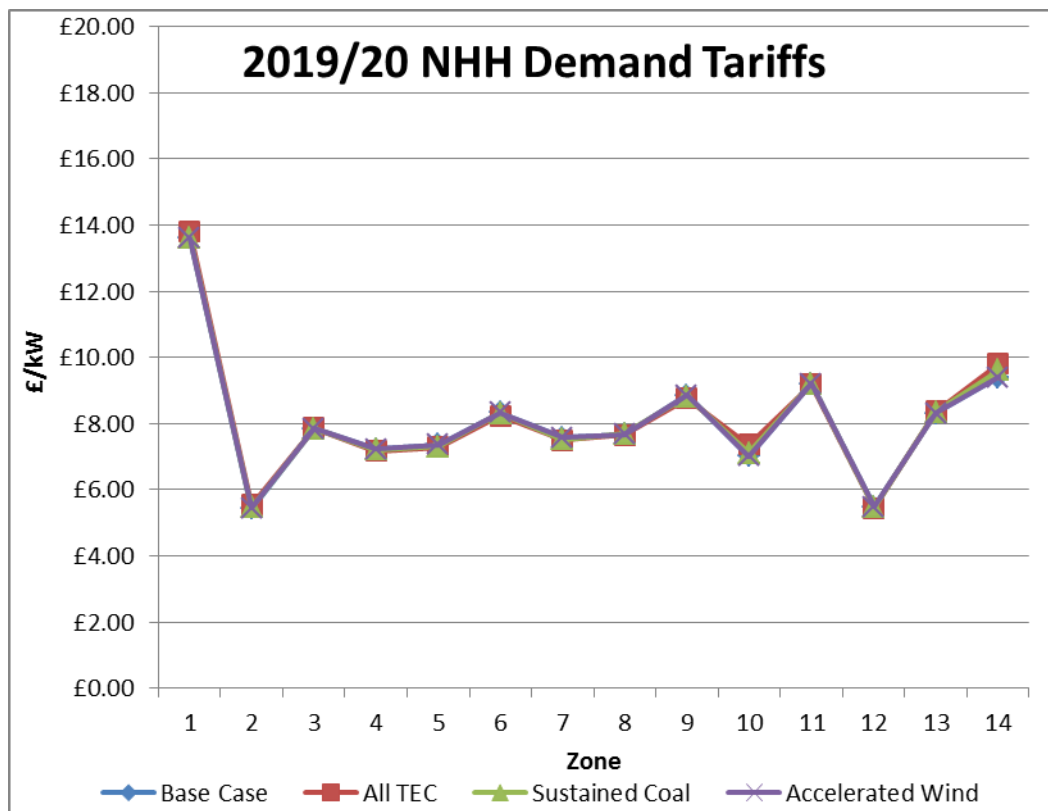


Table 31 - 2019/20 Generation Scenarios - NHH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)
1	Northern Scotland	13.59	13.79	13.61	13.60
2	Southern Scotland	5.43	5.54	5.45	5.43
3	Northern	7.84	7.86	7.84	7.84
4	North West	7.22	7.16	7.20	7.22
5	Yorkshire	7.35	7.28	7.31	7.35
6	N Wales & Mersey	8.33	8.22	8.32	8.33
7	East Midlands	7.57	7.49	7.52	7.57
8	Midlands	7.68	7.64	7.68	7.68
9	Eastern	8.86	8.76	8.81	8.86
10	South Wales	7.01	7.35	7.11	7.01
11	South East	9.21	9.18	9.20	9.21
12	London	5.47	5.43	5.45	5.47
13	Southern	8.32	8.36	8.36	8.32
14	South Western	9.40	9.81	9.61	9.40

Figure 12 – 2019/20 Generation Scenarios – NHH Demand Tariffs



Appendix C: TNUoS Wider Generation & Demand Tariff Sensitivities – 2020/21

Tables 32-35 and Figures 13-16 show TNUoS Generation tariffs under four different modelled generation scenarios (Base Case, Sustained Coal, Accelerated Offshore Wind and All Contracted) in 2020/21, as described in Section 3.2.

Table 32 - 2020/21 Generation Scenarios - Wider Generation Peak 80% Tariffs

Wider Tariffs for a Conventional 80% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	26.60	30.55	26.49	26.67
2	East Aberdeenshire	22.22	25.99	22.54	22.30
3	Western Highlands	25.24	27.30	25.58	25.31
4	Skye and Lochalsh	31.15	33.26	31.49	31.22
5	Eastern Grampian and Tayside	24.25	26.28	24.78	24.33
6	Central Grampian	24.75	26.79	25.18	24.83
7	Argyll	31.82	36.51	32.19	31.91
8	The Trossachs	20.84	22.72	21.21	20.90
9	Stirlingshire and Fife	13.53	15.12	13.81	13.57
10	South West Scotland	16.98	18.16	17.34	17.05
11	Lothian and Borders	13.37	14.26	13.87	13.45
12	Solway and Cheviot	7.22	8.78	7.70	7.30
13	North East England	6.27	6.71	6.84	6.36
14	North Lancashire and The Lakes	-0.06	1.21	0.42	0.03
15	South Lancashire, Yorkshire and Humber	-0.96	-0.44	-0.41	-0.86
16	North Midlands and North Wales	-3.20	-2.21	-2.05	-3.04
17	South Lincolnshire and North Norfolk	-4.07	-3.60	-3.70	-4.03
18	Mid Wales and The Midlands	-4.44	-3.73	-4.05	-4.20
19	Anglesey and Snowdon	-2.14	-1.88	-2.04	-2.05
20	Pembrokeshire	-0.03	-2.95	-2.19	0.06
21	South Wales & Gloucester	-3.30	-5.86	-4.76	-3.21
22	Cotswold	-8.11	-10.12	-9.54	-8.01
23	Central London	-16.39	-16.24	-16.27	-16.28
24	Essex and Kent	-7.76	-7.56	-7.76	-7.63
25	Oxfordshire, Surrey and Sussex	-9.44	-9.18	-9.32	-9.35
26	Somerset and Wessex	-8.11	-10.72	-8.93	-8.02
27	West Devon and Cornwall	-9.15	-12.80	-10.23	-9.06

Figure 13 - 2020/21 Generation Scenarios - Wider Generation Peak 80% Tariffs

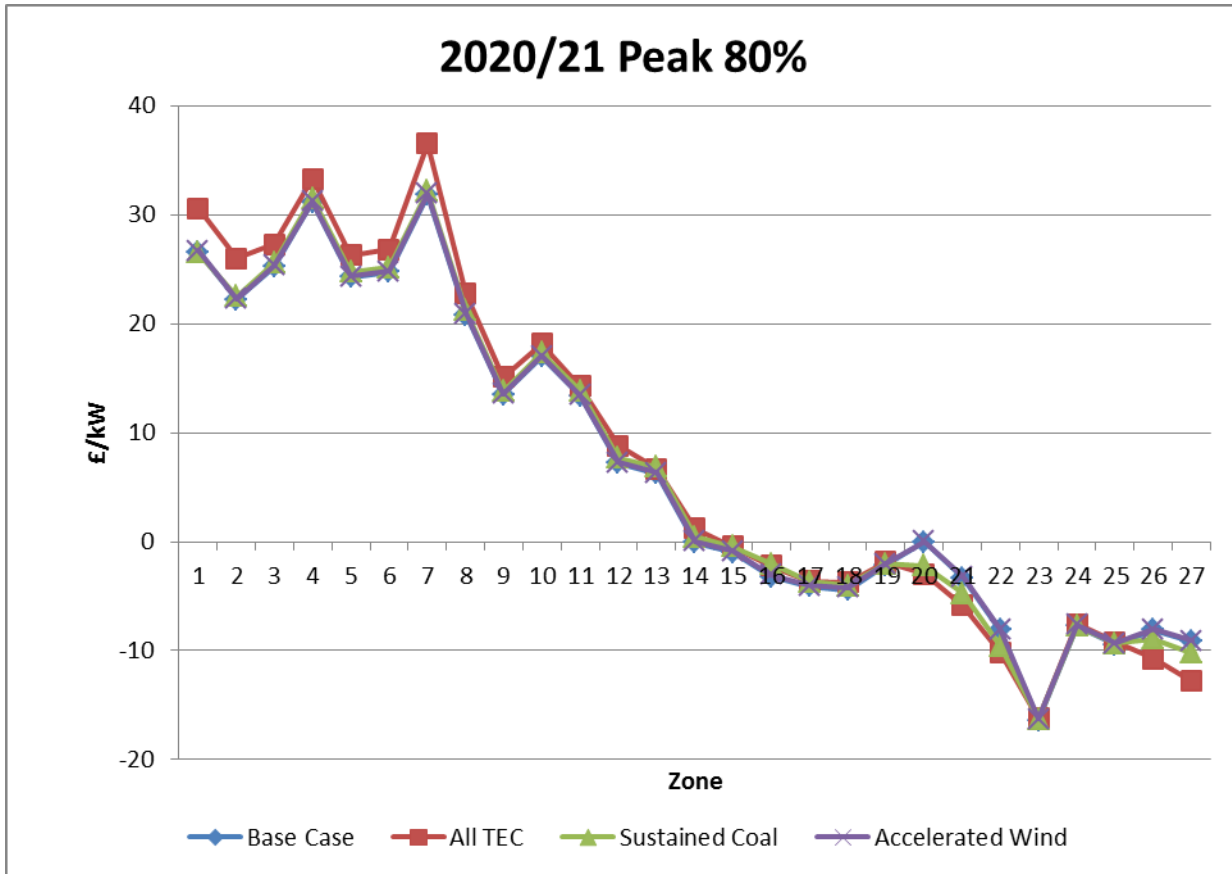


Table 33 - 2020/21 Generation Scenarios - Wider Generation Intermittent 40% Tariffs

Wider Tariffs for an Intermittent 40% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	19.76	21.60	19.89	19.76
2	East Aberdeenshire	17.12	18.79	17.22	17.13
3	Western Highlands	18.85	19.65	19.13	18.86
4	Skye and Lochalsh	24.77	25.60	25.04	24.77
5	Eastern Grampian and Tayside	17.00	17.82	17.21	17.00
6	Central Grampian	17.33	18.39	17.51	17.34
7	Argyll	25.48	29.35	25.66	25.49
8	The Trossachs	14.30	15.58	14.44	14.30
9	Stirlingshire and Fife	9.90	10.38	9.88	9.88
10	South West Scotland	11.74	12.56	11.89	11.75
11	Lothian and Borders	6.45	7.08	6.52	6.45
12	Solway and Cheviot	3.52	4.36	3.56	3.52
13	North East England	0.60	0.97	0.69	0.61
14	North Lancashire and The Lakes	-3.26	-2.61	-3.10	-3.26
15	South Lancashire, Yorkshire and Humber	-5.49	-5.21	-5.53	-5.55
16	North Midlands and North Wales	-6.33	-5.80	-6.17	-6.19
17	South Lincolnshire and North Norfolk	-5.93	-5.69	-5.94	-5.64
18	Mid Wales and The Midlands	-6.00	-5.16	-5.86	-5.67
19	Anglesey and Snowdon	-6.68	-4.81	-6.07	-6.66
20	Pembrokeshire	-7.53	-7.98	-7.67	-7.41
21	South Wales & Gloucester	-7.53	-7.94	-7.50	-7.41
22	Cotswold	-11.85	-12.42	-11.80	-11.69
23	Central London	-11.79	-11.61	-11.69	-11.63
24	Essex and Kent	-4.64	-4.72	-4.61	-4.56
25	Oxfordshire, Surrey and Sussex	-6.83	-6.67	-6.63	-6.71
26	Somerset and Wessex	-6.61	-7.05	-6.41	-6.49
27	West Devon and Cornwall	-7.60	-8.12	-7.36	-7.48

Figure 14 – Generation Scenarios – Wider Generation Intermittent 40% Tariffs

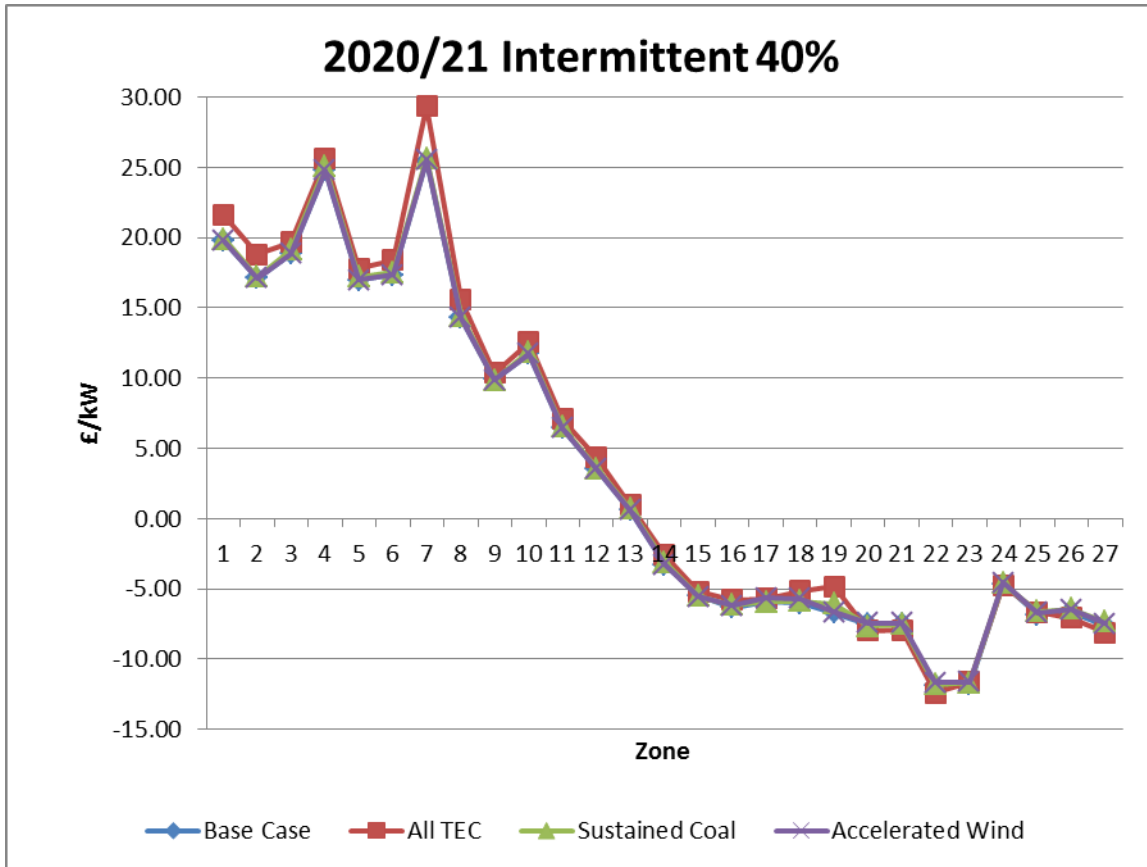


Table 34 - 2020/21 Generation Scenarios - HH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)
1	Northern Scotland	59.83	56.78	60.57	60.36
2	Southern Scotland	44.27	41.97	43.69	44.04
3	Northern	54.38	53.78	53.64	54.14
4	North West	62.41	61.64	61.70	62.16
5	Yorkshire	61.94	61.54	61.13	61.76
6	N Wales & Mersey	64.01	62.98	63.43	63.74
7	East Midlands	65.74	65.37	64.99	65.42
8	Midlands	67.20	66.74	66.71	66.90
9	Eastern	67.26	67.33	66.83	66.93
10	South Wales	63.34	67.15	65.22	63.03
11	South East	69.91	70.59	69.83	69.58
12	London	72.86	73.19	72.63	72.53
13	Southern	70.77	71.82	70.85	70.45
14	South Western	68.21	72.43	69.19	67.90

Figure 15 – 2020/21 Generation Scenarios – HH Demand Tariffs

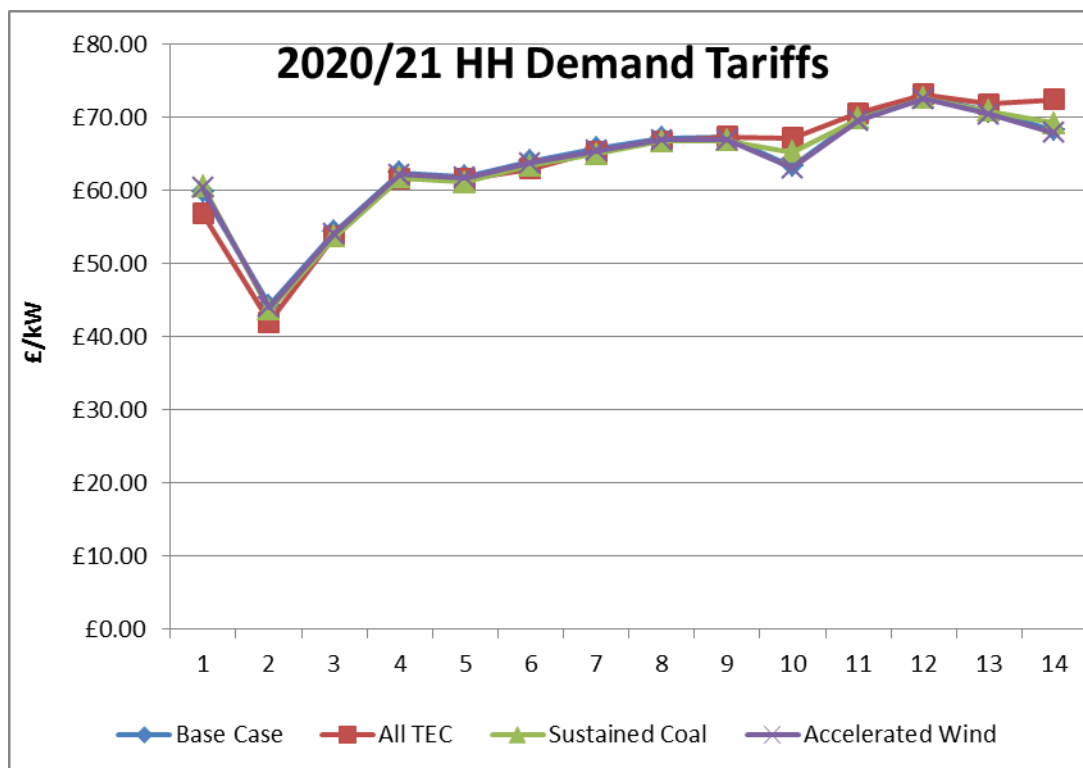
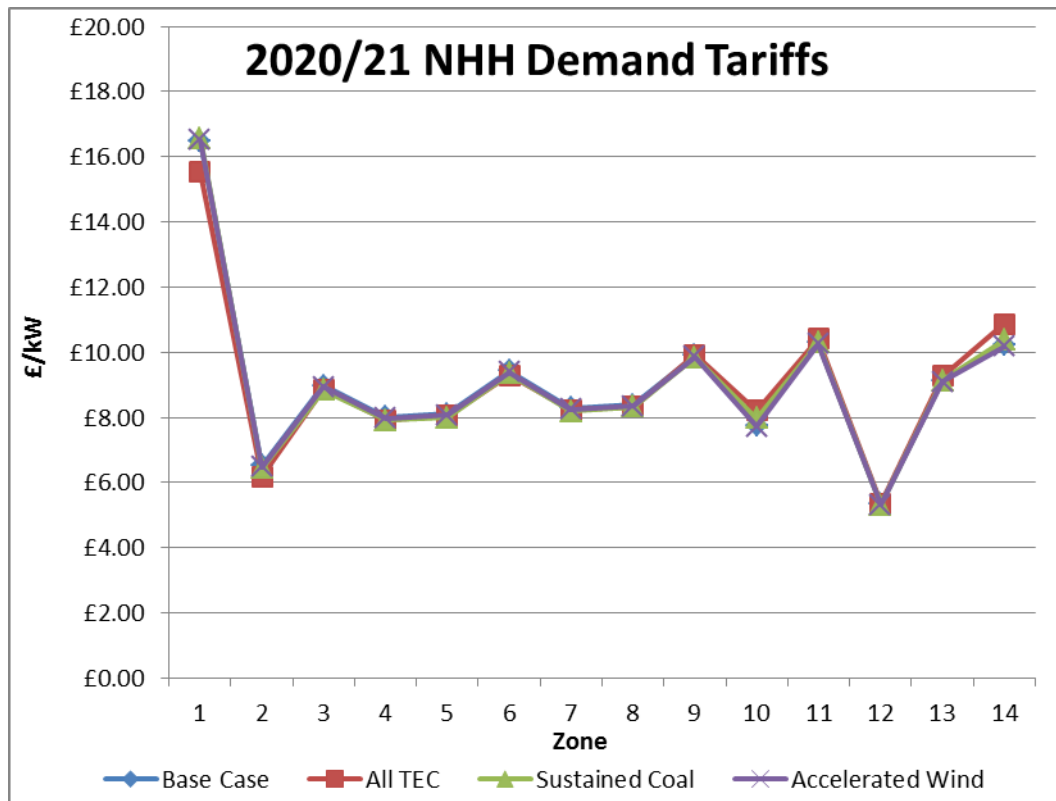


Table 35 - 2020/21 Generation Scenarios - NHH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)
1	Northern Scotland	16.48	15.53	16.57	16.51
2	Southern Scotland	6.52	6.18	6.43	6.48
3	Northern	8.97	8.87	8.84	8.93
4	North West	8.01	7.91	7.92	7.98
5	Yorkshire	8.10	8.05	8.00	8.08
6	N Wales & Mersey	9.44	9.28	9.35	9.40
7	East Midlands	8.28	8.23	8.19	8.24
8	Midlands	8.39	8.33	8.33	8.35
9	Eastern	9.91	9.91	9.84	9.86
10	South Wales	7.75	8.22	7.98	7.71
11	South East	10.30	10.40	10.29	10.25
12	London	5.33	5.36	5.32	5.31
13	Southern	9.13	9.27	9.14	9.09
14	South Western	10.23	10.86	10.37	10.18

Figure 16 – 2020/21 Generation Scenarios – NHH Demand Tariffs



Appendix D: TNUoS Wider Generation & Demand Tariff Sensitivities – 2021/22

Tables 36-39 and Figures 17-20 show TNUoS Generation tariffs under four different modelled generation scenarios (Base Case, Sustained Coal, Accelerated Offshore Wind and All Contracted) in 2021/22, as described in Section 3.2.

Table 36 - 2021/22 Generation Scenarios - Wider Generation Peak 80% Tariffs

Wider Tariffs for a Conventional 80% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	29.42	30.65	30.79	29.79
2	East Aberdeenshire	24.42	26.32	24.37	24.40
3	Western Highlands	26.95	27.24	28.21	27.03
4	Skye and Lochalsh	34.97	35.33	36.22	35.04
5	Eastern Grampian and Tayside	25.14	25.52	26.13	25.42
6	Central Grampian	25.97	25.93	26.99	25.06
7	Argyll	32.68	36.30	33.91	32.09
8	The Trossachs	21.65	21.44	22.59	20.55
9	Stirlingshire and Fife	14.11	20.36	14.80	19.43
10	South West Scotland	16.41	17.41	17.42	16.03
11	Lothian and Borders	12.55	11.73	13.61	12.39
12	Solway and Cheviot	6.28	7.88	7.35	6.21
13	North East England	5.23	4.47	6.19	4.68
14	North Lancashire and The Lakes	-1.37	0.29	-0.18	-1.41
15	South Lancashire, Yorkshire and Humber	-2.29	-2.31	-1.72	-2.04
16	North Midlands and North Wales	-4.83	-3.63	-3.45	-4.60
17	South Lincolnshire and North Norfolk	-5.74	-4.54	-5.29	-5.47
18	Mid Wales and The Midlands	-6.24	-2.52	-5.40	-5.65
19	Anglesey and Snowdon	-4.15	-3.14	-3.15	-3.96
20	Pembrokeshire	-4.37	-7.56	-3.40	-2.61
21	South Wales & Gloucester	-8.62	-10.66	-6.31	-5.34
22	Cotswold	-10.46	-13.26	-10.78	-10.42
23	Central London	-18.49	-12.68	-18.05	-17.98
24	Essex and Kent	-9.61	-6.02	-9.35	-9.04
25	Oxfordshire, Surrey and Sussex	-11.43	-8.42	-10.90	-10.64
26	Somerset and Wessex	-10.74	-10.54	-12.06	-9.99
27	West Devon and Cornwall	-12.14	-14.47	-14.11	-11.19

Figure 16 – 2021/22 Generation Scenarios – Wider Generation Peak 80% Tariffs

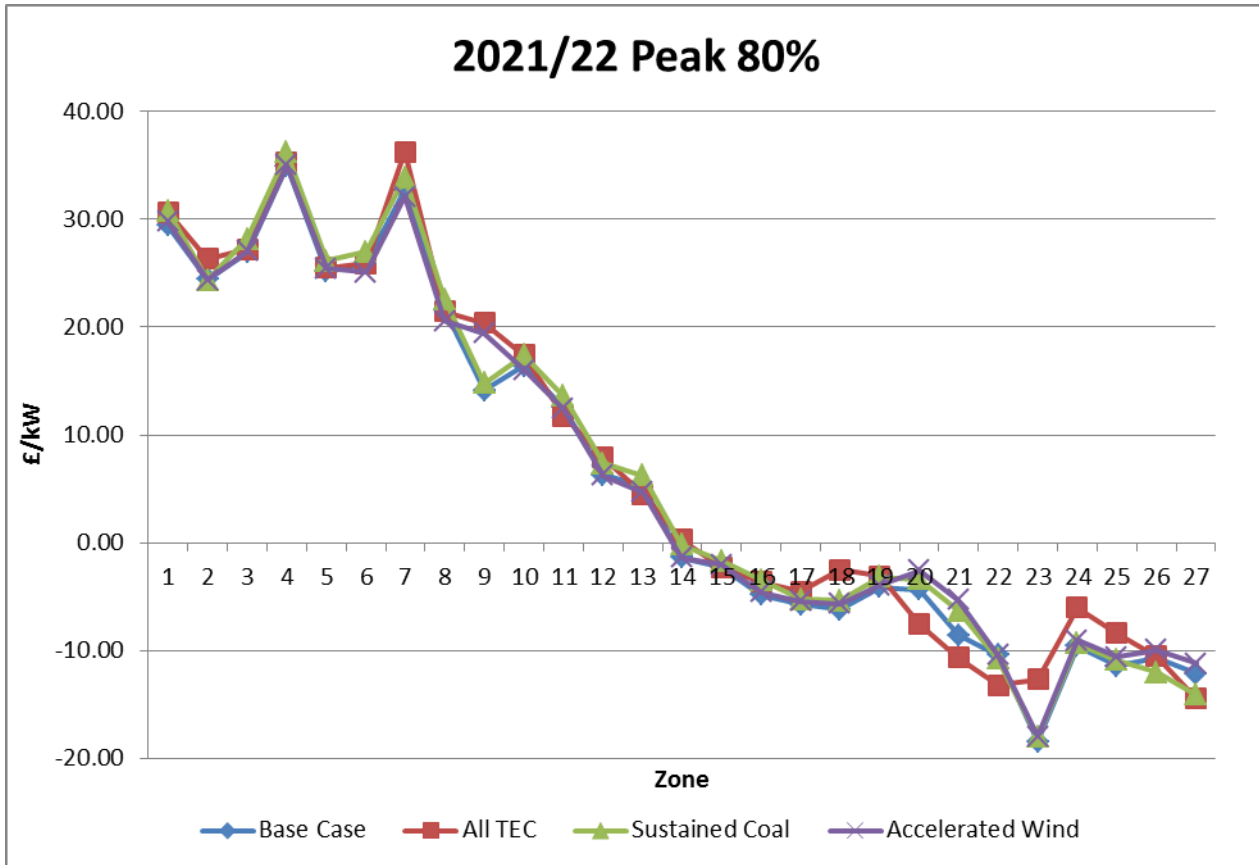


Table 37 - 2021/22 Generation Scenarios - Wider Generation Intermittent 40% Tariffs

Wider Tariffs for an Intermittent 40% Generator		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	21.96	23.70	22.64	22.57
2	East Aberdeenshire	19.58	21.19	19.77	20.20
3	Western Highlands	20.10	20.82	20.73	20.41
4	Skye and Lochalsh	28.14	28.90	28.77	28.45
5	Eastern Grampian and Tayside	17.94	18.09	18.56	17.32
6	Central Grampian	18.64	18.95	19.25	17.86
7	Argyll	25.89	29.32	25.84	25.12
8	The Trossachs	15.13	15.91	15.66	14.88
9	Stirlingshire and Fife	9.96	15.13	10.21	14.81
10	South West Scotland	11.61	12.66	12.11	11.75
11	Lothian and Borders	6.34	6.63	6.84	6.69
12	Solway and Cheviot	2.84	4.15	3.32	3.12
13	North East England	-0.43	-0.19	0.08	-0.29
14	North Lancashire and The Lakes	-4.30	-2.89	-3.85	-4.01
15	South Lancashire, Yorkshire and Humber	-7.25	-6.44	-6.77	-6.77
16	North Midlands and North Wales	-8.09	-6.87	-7.51	-7.67
17	South Lincolnshire and North Norfolk	-8.11	-6.72	-7.30	-7.55
18	Mid Wales and The Midlands	-7.82	-5.19	-7.05	-7.26
19	Anglesey and Snowdon	-8.16	-5.74	-7.33	-7.85
20	Pembrokeshire	-10.28	-9.69	-9.33	-9.65
21	South Wales & Gloucester	-10.40	-9.66	-9.23	-9.54
22	Cotswold	-14.24	-15.13	-13.53	-14.32
23	Central London	-13.94	-11.44	-13.18	-13.56
24	Essex and Kent	-6.92	-4.99	-6.21	-6.43
25	Oxfordshire, Surrey and Sussex	-9.05	-6.82	-8.25	-8.55
26	Somerset and Wessex	-8.93	-7.63	-8.49	-8.56
27	West Devon and Cornwall	-9.91	-9.29	-9.59	-9.61

Figure 17 – 2021/22 Generation Scenarios – Wider Generation Intermittent 40% Tariffs

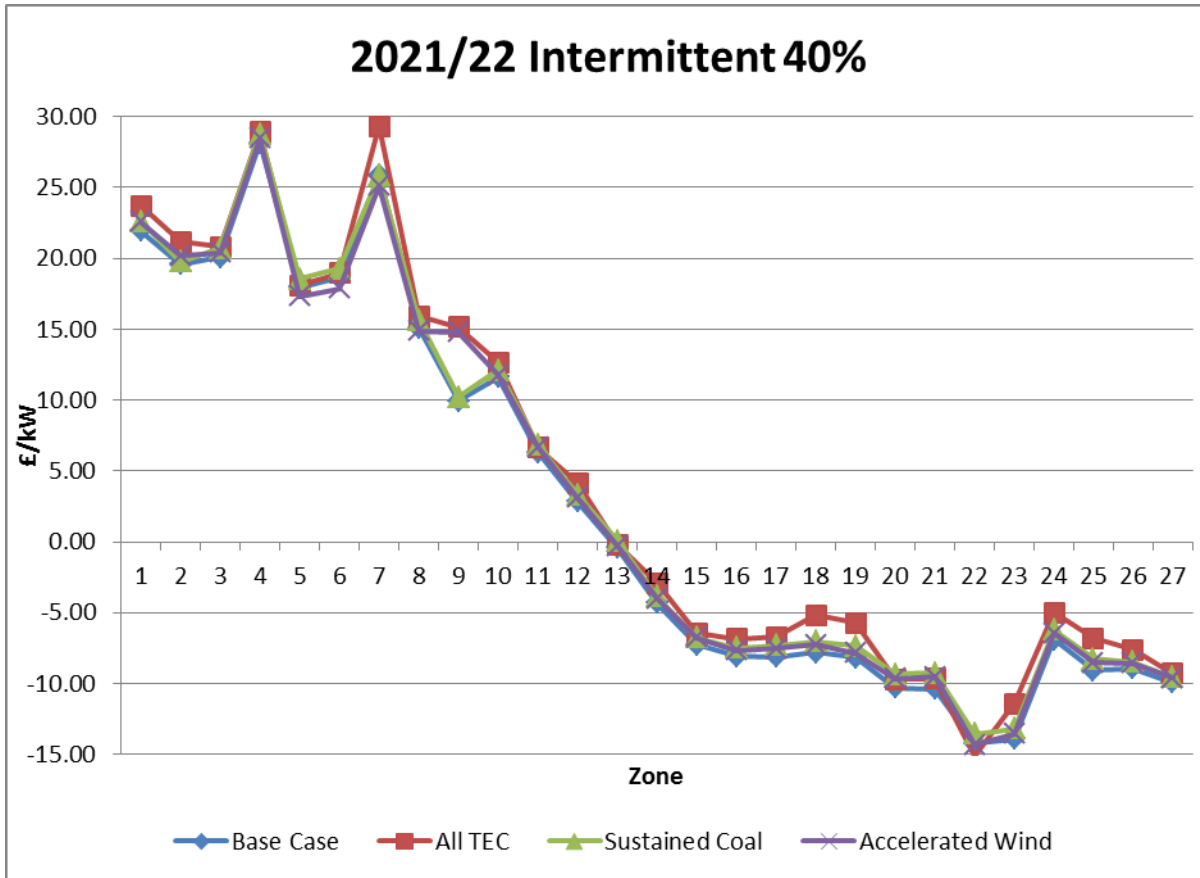


Table 38 - 2021/22 Generation Scenarios - HH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)	HH Zonal Tariff (£/kW)
1	Northern Scotland	63.88	61.88	63.29	63.89
2	Southern Scotland	46.11	47.16	47.10	48.14
3	Northern	57.70	60.06	58.83	59.98
4	North West	66.04	67.24	67.13	67.98
5	Yorkshire	65.53	67.58	66.77	67.33
6	N Wales & Mersey	68.19	68.65	68.61	69.94
7	East Midlands	69.61	71.07	70.96	71.32
8	Midlands	71.51	73.37	72.61	73.11
9	Eastern	71.43	70.96	73.01	72.75
10	South Wales	71.07	76.41	71.31	70.12
11	South East	74.31	73.43	76.19	75.51
12	London	77.21	75.49	78.94	78.48
13	Southern	75.48	75.83	77.32	76.61
14	South Western	73.88	78.81	77.37	74.52

Figure 18 – 2021/22 Generation Scenarios – HH Demand Tariffs

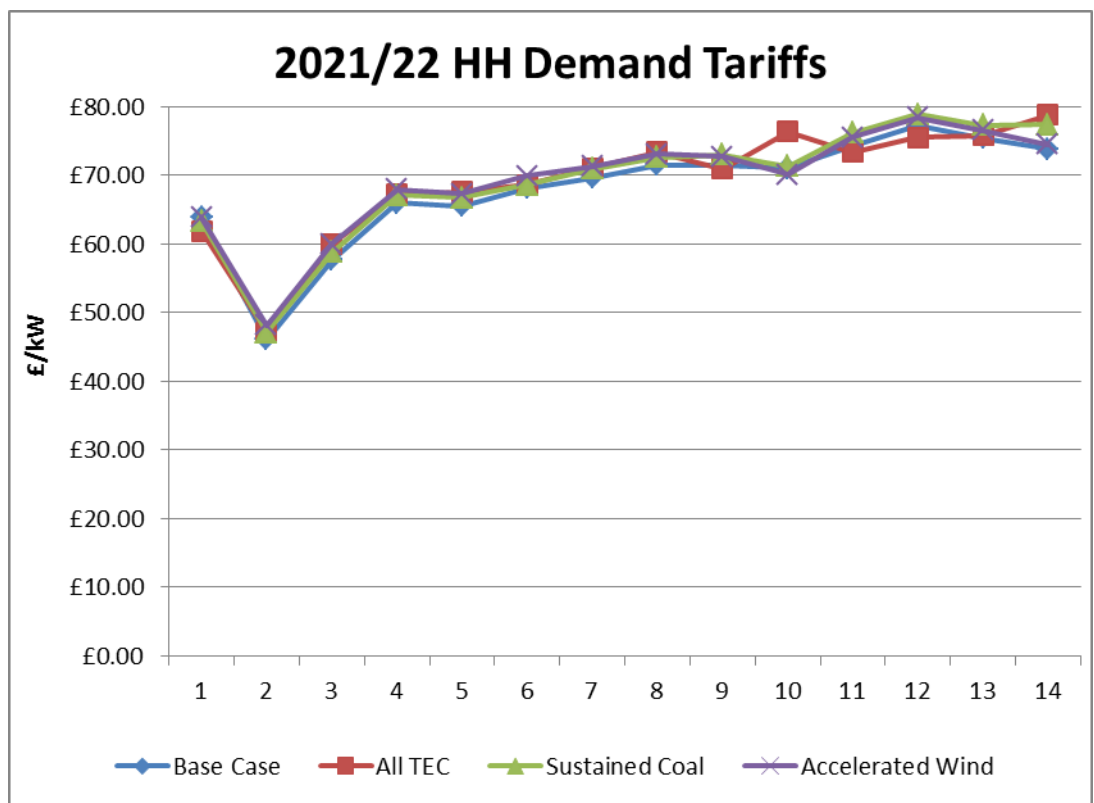
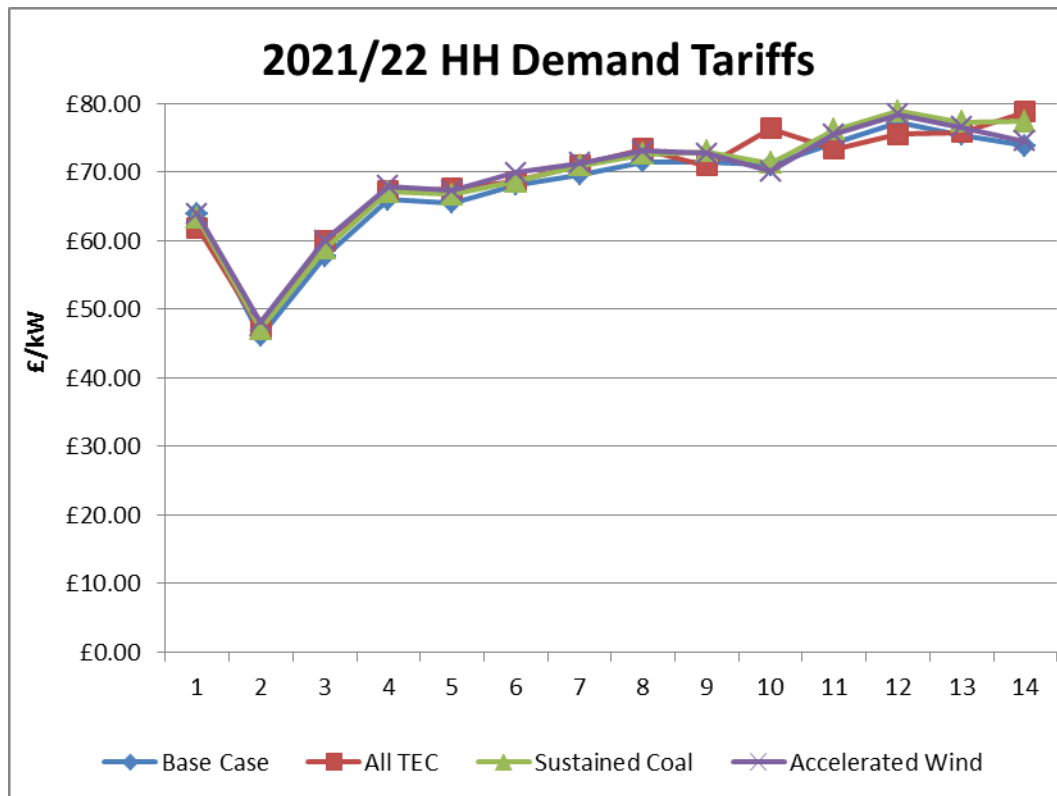


Table 39 - 2021/22 Generation Scenarios - NHH Demand Tariffs

		Base Case	All TEC	Sustained Coal	Accelerated Wind
Zone No.	Zone Name	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)	NHH Zonal Tariff (£/kW)
1	Northern Scotland	19.39	18.64	19.06	19.24
2	Southern Scotland	7.00	7.15	7.14	7.30
3	Northern	9.95	10.33	10.12	10.32
4	North West	8.52	8.69	8.67	8.78
5	Yorkshire	8.61	8.88	8.78	8.85
6	N Wales & Mersey	10.34	10.40	10.39	10.59
7	East Midlands	8.73	8.93	8.91	8.96
8	Midlands	8.87	9.12	9.02	9.08
9	Eastern	10.77	10.68	10.99	10.95
10	South Wales	8.65	9.32	8.70	8.55
11	South East	11.23	11.09	11.50	11.40
12	London	4.85	4.81	5.03	5.00
13	Southern	9.75	9.80	10.00	9.91
14	South Western	11.39	12.14	11.92	11.48

Figure 19 – 2021/22 Generation Scenarios – NHH Demand Tariffs



Appendix E: Revenue Analysis

These pages provide more detail on the price control forecasts for National Grid, Scottish Power Transmission and SHE Transmission. Forecasts are also provided for offshore networks with forecasts by National Grid where these have yet to be transferred to the Offshore Transmission Owner or are still to be constructed.

Notes:

All monies are quoted in millions of pounds, accurate to one decimal place and are in nominal 'money of the day' prices unless stated otherwise.

Licensee forecasts and budgets are subject to change especially where they are influenced by external stakeholders.

Greyed out cells are either calculated, not applicable in the year concerned due to the way the licence formula are constructed or not yet available.

Network Innovation Competition Funding is included in the National Grid price control but is additional to the price controls of other Transmission Owners who receive funding. NIC funding is therefore only shown in the National Grid table.

All reasonable care has been taken in the preparation of these illustrative tables and the data therein. National Grid and other TOs offer this data without prejudice and cannot be held responsible for any loss that might be attributed to the use of this data. Neither National Grid nor other TOs accept or assume responsibility for the use of this information by any person or any person to whom this information is shown or any person to whom this information otherwise becomes available.

The base revenue forecasts reflect the figures authorised by Ofgem in the RIIO-T1 or offshore price controls.

Within the bounds of commercial confidentiality these forecasts provide as much information as possible. Generally allowances determined by Ofgem are shown, whilst those still to be determined are not. This respects commercial confidentiality and disclosure considerations and actual revenues may vary for these forecasts.

It is assumed that there is only one set of price changes each year on 1 April.

Table 40 – National Grid Revenue Forecast

National Grid Revenue Forecast			Feb-17								Notes
Regulatory Year			2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
Actual RPI			256.67								April to March average
RPI Actual		RPIAt	1.190								Office of National Statistics
Assumed Interest Rate		It	0.01	-	0.95	0.00	0.00	0.01	0.01	0.01	Bank of England Base Rate
Opening Base Revenue Allowance (2009/10 prices)	A1	PUt	1,443.8	1,475.6	1,571.4	1,554.9	1,587.6	1,585.2	1,571.6	1,571.6	From Licence
Price Control Financial Model Iteration Adjustment	A2	MODt	-5.5	-114.4	-185.4	-253.3	-290.0	-270.0	-190.0	-190.0	Determined by Ofgem/Licensee forecast
RPI True Up	A3	TRUt	-0.5	4.7	-19.9	-31.4	-6.1	-6.6	-6.5	-1.1	Licensee Actual/Forecast
Prior Calendar Year RPI Forecast		GRPIFc-1	3.1%	2.5%	1.0%	1.8%	3.5%	3.1%	3.0%	3.1%	HM Treasury Forecast
Current Calendar Year RPI Forecast		GRPIFc	3.1%	2.4%	2.1%	3.5%	3.1%	3.0%	3.1%	3.1%	HM Treasury Forecast
Next Calendar Year RPI forecast		GRPIFc+1	3.0%	3.2%	3.0%	3.1%	3.0%	3.1%	3.1%	3.1%	HM Treasury Forecast
RPI Forecast	A4	RPIFt	1.2051	1.2267	1.2330	1.2710	1.3090	1.3430	1.3840	1.4260	Using HM Treasury Forecast
Base Revenue [A=(A1+A2+A3)*A4]	A	BRt	1732.7	1675.5	1684.4	1614.5	1690.6	1757.5	1903.1	1968.6	
Pass-Through Business Rates	B1	RBT		1.2	1.5	2.7	4.4	4.1	4.2	4.4	Licensee Actual/Forecast
Temporary Physical Disconnection	B2	TPDt	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	Licensee Actual/Forecast
Licence Fee	B3	LFt		2.0	2.7	3.2	3.5	3.4	3.6	3.7	Licensee Actual/Forecast
Inter TSO Compensation	B4	ITCt		3.8	2.7	0.5	0.7	0.7	0.7	0.8	Licensee Actual/Forecast
Termination of Bilateral Connection Agreements	B5	TERMt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Does not affect TNUoS
SP Transmission Pass-Through	B6	TSPt	312.2	295.7	294.6	321.0	363.8	421.8	401.6	436.8	14/15 - 17/18 Charge setting. Later from TSP Calculation.
SHE Transmission Pass-Through	B7	TSHt	214.0	338.2	322.8	301.4	363.1	375.3	372.3	412.4	14/15 - 17/18 Charge setting. Later from TSH Calculation.
Offshore Transmission Pass-Through	B8	TOFTOt	218.4	248.4	260.8	270.2	380.2	472.3	574.0	619.2	14/15 - 17/18 Charge setting. Later from OFTO Calculation.
Embedded Offshore Pass-Through	B9	OFETt	0.4	0.6	0.7	0.5	0.5	0.5	0.6	0.6	Licensee Actual/Forecast
Pass-Through Items [B=B1+B2+B3+B4+B5+B6+B7+B8+B9]	B	PTt	745.1	890.0	885.9	899.4	1116.2	1278.2	1357.1	1477.8	
Reliability Incentive Adjustment	C1	RIt		2.4	3.9	4.0	4.2	4.2	4.3	4.4	Licensee Actual/Forecast/Budget
Stakeholder Satisfaction Adjustment	C2	SSOt		8.7	10.1	8.6	8.5	8.2	8.6	8.9	Licensee Actual/Forecast/Budget
Sulphur Hexafluoride (SF6) Gas Emissions Adjustment	C3	SFIt		2.8	2.7	2.6	2.7	2.8	2.9	3.0	Licensee Actual/Forecast/Budget
Awarded Environmental Discretionary Rewards	C4	EDRt		0.0	2.0	0.0	0.0	0.0	0.0	0.0	Only includes EDR awarded to licensee to date
Outputs Incentive Revenue [C=C1+C2+C3+C4]	C	OIPt	0.0	13.9	18.7	15.3	15.4	15.2	15.8	16.4	
Network Innovation Allowance	D	NIAt	10.9	10.6	10.6	10.2	10.7	11.1	12.0	12.4	Licensee Actual/Forecast/Budget
Network Innovation Competition	E	NICFt	17.8	18.8	44.9	32.1	40.5	40.5	40.5	40.5	Sum of NICF awards determined by Ofgem/Forecast by National Grid
Future Environmental Discretionary Rewards	F	EDRt			0.0	0.0	2.0	2.0	2.0	2.0	Sum of future EDR awards forecast by National Grid
Transmission Investment for Renewable Generation	G	TIRGt	16.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0	Licensee Actual/Forecast
Scottish Site Specific Adjustment	H	DISt	2.0	0.8	2.9	6.1	0.0	0.0	0.0	0.0	Licensee Actual/Forecast
Scottish Terminations Adjustment	I	TSt	-0.3	0.1	0.1	-1.1	0.0	0.0	0.0	0.0	Licensee Actual/Forecast
Correction Factor	K	-Kt		56.4	104.0	97.0	0.0	0.0	0.0	0.0	Calculated by Licensee
Maximum Revenue [M= A+B+C+D+E+F+G+H+I+K]	M	TOt	2524.3	2681.6	2751.3	2673.4	2875.3	3104.5	3330.5	3517.7	
Termination Charges	B5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Pre-vesting connection charges	P		47.0	45.0	42.7	41.9	41.9	41.9	41.9	41.9	Licensee Actual/Forecast
TNUoS Collected Revenue [T=M-B5-P]	T		2477.3	2636.7	2708.7	2631.5	2833.5	3062.6	3288.6	3475.8	
Final Collected Revenue	U	TNRt	2376.2	2592.7							Licensee Actual/Forecast
Forecast percentage change to Maximum Revenue M				6.2%	2.6%	-2.8%	7.6%	8.0%	7.3%	5.6%	
Forecast percentage change to TNUoS Collected Revenue T				6.4%	2.7%	-2.8%	7.7%	8.1%	7.4%	5.7%	

Table 41 – Scottish Power Transmission Revenue Forecast

Scottish Power Transmission Revenue Forecast (adjusted for NGET RPI forecast)			Feb-17					Notes
			Description	Licence Term	2017/18	2018/19	2019/20	
Actual RPI								
RPI Actual		RPIAt						
Assumed Interest Rate		It	0.20%	0.30%	0.60%	1.00%	1.00%	National Grid forecast
Opening Base Revenue Allowance (2009/10 prices)	A1	PUt	249.4	253.1	256.4	254.2	273.0	
Price Control Financial Model Iteration Adjustment	A2	MODt	-13.5	12.5	21.4	5.3	5.8	
RPI True Up	A3	TRUt	-5.8	-0.9	0.0	0.0	0.0	
RPI Forecast	A4	RPIFt	1.2710	1.3090	1.3430	1.3840	1.4260	
Base Revenue [A=(A1+A2+A3)*A4]	A	BRt	292.4	346.5	373.2	359.2	397.5	
Pass-Through Business Rates	B1	RBt	-4.7	-3.7	26.8	27.6	28.4	
Temporary Physical Disconnection	B2	TPDt	0.0	0.0	0.0	0.0	0.0	
Pass-Through Items [B=B1+B2]	B	PTt	-4.7	-3.7	26.8	27.6	28.4	
Reliability Incentive Adjustment	C1	RIt	2.9	1.2	1.2	1.3	0.0	
Stakeholder Satisfaction Adjustment	C2	SSOt	0.9	0.6	0.6	0.6	0.0	
Sulphur Hexafluoride (SF6) Gas Emissions Adjustment	C3	SFIt	0.2	0.0	0.0	0.0	0.0	
Awarded Environmental Discretionary Rewards	C4	EDRt	4.0	0.7	0.7	0.7	0.0	
Financial Incentive for Timely Connections Output	C5	-CONADJt	0.0	0.0	0.0	0.0	0.0	
Outputs Incentive Revenue [C=C1+C2+C3+C4+C5]	C	OIPt	8.1	2.5	2.6	2.7	0.0	
Network Innovation Allowance	D	NIAt	1.1	1.0	1.0	1.0	0.0	
Transmission Investment for Renewable Generation	G	TIRGt	33.0	32.9	32.6	25.9	25.8	
Correction Factor	K	-Kt	3.8	-1.3	0.0	0.0	0.0	
Maximum Revenue (M= A+B+C+D+G+J+K)	M	TOt	333.7	378.0	436.3	416.5	451.7	
Excluded Services	P	EXCt	11.3	12.6	13.3	14.1	14.1	Post BETTA Connection Charges
Site Specific Charges	S	EXSt	22.7	26.8	27.8	29.0	29.0	Pre & Post BETTA Connection Charges
TNUoS Collected Revenue (T=M+P-S)	T	TSPt	322.3	363.8	421.8	401.6	436.8	General System Charge
Final Collected Revenue	U	TNRt	322.3	363.8	421.8	401.6	436.8	
Forecast percentage change to TNUoS Collected Revenue T			9.8%	12.9%	16.0%	-4.8%	8.8%	

Table 42 – SHE Transmisison Revenue Forecast

SHE Transmission Revenue Forecast (adjusted for NGET RPI forecast)			13/02/2017					Notes
			Description	Licence Term	2017/18	2018/19	2019/20	
Actual RPI								
RPI Actual		RPIAt						
Assumed Interest Rate		It	1.79%	0.20%	0.30%	0.60%	0.00%	National Grid forecast
Opening Base Revenue Allowance (2009/10 prices)	A1	PUt	119.6	120.0	122.1	122.5	217.9	As per licence
Price Control Financial Model Iteration Adjustment	A2	MODt	52.7	63.0	91.5	80.4	0.0	MOD value published on 30 November 2016.
RPI True Up	A3	TRUt	-6.1	-2.3	-4.0	-2.7	0.0	RPI true up reflective of RPIF being higher than RPI outturn
RPI Forecast	A4	RPIFt	1.2709	1.3090	1.3430	1.3840	1.4260	NGET RPI forecast
Base Revenue [A=(A1+A2+A3)*A4]	A	BRt	211.2	236.5	281.5	277.1	310.8	
Pass-Through Business Rates	B1	RBt	19.2	19.7	20.2	20.7	0.0	Reflective of substantial increase in business rates expected due to the change
Temporary Physical Disconnection	B2	TPDt	0.1	0.0	0.0	0.0	0.0	Expected to remain at similar levels across remaining years of the price
Pass-Through Items [B=B1+B2]	B	PTt	19.3	19.7	20.2	20.7	0.0	
Reliability Incentive Adjustment	C1	RIt	1.7	1.7	1.7	1.8	1.8	Expected to remain at similar levels across remaining years of the price
Stakeholder Satisfaction Adjustment	C2	SSOt	0.9	0.8	0.7	0.7	0.7	Expected to remain at similar levels across remaining years of the price control following Ofgem's determination
Sulphur Hexafluoride (SF6) Gas Emissions Adjustment	C3	SFIt	-0.1	-0.1	-0.1	-0.1	-0.1	Expected to remain at similar levels across remaining years of the price
Awarded Environmental Discretionary Rewards	C4	EDRt	0.0	0.0	0.0	0.0	0.0	
Financial Incentive for Timely Connections Output	C5	-CONADJt	0.0	0.0	0.0	0.0	0.0	N/A
Outputs Incentive Revenue [C=C1+C2+C3+C4+C5]	C	OIPt	2.5	2.4	2.4	2.4	2.5	
Network Innovation Allowance	D	NIAt	1.3	1.4	1.5	1.5	1.5	Expected to remain at similar levels across remaining years of the price
Transmission Investment for Renewable Generation	G	TIRGt	84.3	83.5	82.5	81.6	80.4	Based on forecast of TIRG related revenue.
Compensatory Payments Adjustment	J	SHCPt	0.0	0.0	0.0	0.0	0.0	N/A
Correction Factor	K	-Kt	-13.8	4.5	-28.9	-27.8	0.0	Reflective of tariffs set.
Maximum Revenue (M= A+B+C+D+G+J+K)	M	TOt	304.7	348.1	359.0	355.5	395.0	
Excluded Services	P	EXCt	17.5	18.4	19.0	19.7	20.3	Post BETTA Connection Charges - reflecting projects forecasted to complete
Site Specific Charges	S	EXSt	3.4	3.3	2.8	2.9	3.0	Post-Vesting, Pre-BETTA Connection Charges - reflecting projects terminating
TNUoS Collected Revenue (T=M+P-S)	T	TSHt	318.9	363.1	375.3	372.3	412.4	
Final Collected Revenue	U	TNRt	0.0	0.0	0.0	0.0	0.0	
Forecast percentage change to TNUoS Collected Revenue T								

Table 43 – Offshore Transmission Revenue Forecast

Offshore Transmission Revenue Forecast	20/02/2017								Notes
	Regulatory Year	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	
Barrow	5.5	5.6	5.7	5.9	5.9	6.1	6.3	6.5	Current revenues plus indexation
Gunfleet	6.9	7.0	7.1	7.4	7.4	7.6	7.9	7.9	Current revenues plus indexation
Walney 1	12.5	12.8	12.9	13.1	13.5	13.9	14.4	14.0	Current revenues plus indexation
Robin Rigg	7.7	7.9	8.0	8.4	8.4	8.6	8.9	8.9	Current revenues plus indexation
Walney 2	12.9	13.2	12.5	12.3	14.0	14.4	14.9	15.0	Current revenues plus indexation
Sheringham Shoal	18.9	19.5	19.7	20.0	20.6	21.2	21.9	21.9	Current revenues plus indexation
Ormonde	11.6	11.8	12.0	12.2	12.5	12.9	13.3	13.5	Current revenues plus indexation
Greater Gabbard	26.0	26.6	26.9	27.3	28.2	29.0	29.9	31.1	Current revenues plus indexation
London Array	37.6	39.2	39.5	39.5	39.7	40.9	42.1	42.1	Current revenues plus indexation
Thanet	78.9	17.5	15.7	19.5	18.4	19.0	19.6	20.6	Current revenues plus indexation
Lincs		25.6	26.7	27.2	26.6	27.4	28.2	28.5	Current revenues plus indexation
Gwynt y mor		26.3	23.6	29.3	27.9	28.7	29.6	29.4	Current revenues plus indexation
West of Duddon Sands		21.3	22.0	22.4	23.0	23.7	23.0	Current revenues plus indexation	
Humber Gateway		35.3	29.3	9.7	11.6	11.9	12.3	12.3	Current revenues plus indexation
Westermost Rough				11.6	12.9	13.3	13.7	13.7	Current revenues plus indexation
Forecast to commission in 2017/18				4.7	18.5	19.1	19.7	20.3	National Grid Forecast
Forecast to commission in 2018/19					91.6	132.7	136.7	140.8	National Grid Forecast
Forecast to commission in 2019/20						42.4	60.8	62.6	National Grid Forecast
Forecast to commission in 2020/21							70.3	107.1	National Grid Forecast
Forecast to commission in 2021/22								0.0	National Grid Forecast
Offshore Transmission Pass-Through (B7)	218.4	248.4	260.8	270.2	380.2	472.5	574.0	619.2	

Appendix F : Contracted Generation at Peak

The tables below lists contracted Generation at peak. This includes directly connected (BCA) and distributed licensable generation (BEGA > 100MW) but not distributed licence exemptible generation (BEGA < 100MW or BELLA). Generators with commissioning dates after 1 February are not included until the following year.

Table 44 - Contracted TEC at Peak

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Aquind Interconnector	Interconnectors	LOVE40	26	0	0	0	0	2000
Auchencrosh (interconnector CCT)	Interconnectors	AUCH20	10	80	80	80	80	80
Belgium Interconnector (Nemo)	Interconnectors	CANT40	24	0	1000	1000	1000	1000
Britned	Interconnectors	GRAI40	24	1200	1200	1200	1200	1200
East West Interconnector	Interconnectors	CONQ40	16	505	505	505	505	505
ElecLink	Interconnectors	SELL40	24	1000	1000	1000	1000	1000
FAB Link Interconnector	Interconnectors	EXET40	26	0	0	0	1400	1400
IFA Interconnector	Interconnectors	SELL40	24	2000	2000	2000	2000	2000
IFA2 Interconnector	Interconnectors	FAWL40	26	0	0	1100	1100	1100
Norway Interconnector	Interconnectors	PEHE40	2	0	0	0	0	1400
NS Link	Interconnectors	BLYT4A	13	0	0	0	1400	1400
Aberarder Wind Farm	Wind Onshore	ABED10	1	0	0	35.8	35.8	35.8
Aberdeen Offshore Wind Farm	Wind offshore	ABBA10	10	0	99	99	99	99
Aberthaw	Coal	ABTH20	21	1610	1610	1610	1610	1610
A'Chruach Wind Farm	Wind Onshore	ACHR1R	7	43	43	43	43	43
Afton	Wind Onshore	BLAC10	10	50	50	50	50	50
Aigas	Hydro	AIGA1Q	1	20	20	20	20	20
Aikengall II Windfarm	Wind Onshore	WDOD10	11	140	140	140	140	140
An Suidhe Wind Farm, Argyll (SRO)	Wind Onshore	ANSU10	7	19.3	19.3	19.3	19.3	19.3
Arecleoch	Wind Onshore	AREC10	10	114	114	114	114	114
Aultmore Wind Farm	Wind Onshore	AULW10	1	0	0	0	29.5	29.5

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Bad a Cheo Wind Farm	Wind Onshore	MYBS11	1	0	29.9	29.9	29.9	29.9
Baglan Bay	CCGT	BAGB20	21	552	552	552	552	552
Barrow Offshore Wind Farm	Wind Offshore	HEYS40	14	90	90	90	90	90
Barry Power Station	CCGT	ABTH20	21	142	142	142	142	142
Beatrice Wind Farm	Wind Offshore	BLHI40	1	0	294	588	588	588
Beaw Field Wind Farm	Wind Onshore	KERG20	1	0	0	0	72	72
Beinn an Tuirc 3	Wind Onshore	CAAD1Q	7	0	0	0	50	50
Beinneun Wind Farm	Wind Onshore	BEIN10	3	109	109	109	109	109
Benbrack & Quantans Hill	Wind Onshore	KEON10	1	0	0	72	72	72
Bhlaraidh Wind Farm	Wind Onshore	BHLA10	3	108	108	108	108	108
Blackcraig Wind Farm	Wind Onshore	BLCW10	10	57.5	57.5	57.5	57.5	57.5
Blacklaw	Wind Onshore	BLKL10	11	118	118	118	118	118
Blacklaw Extension	Wind Onshore	BLKX10	11	60	60	60	60	60
BP Grangemouth	CHP	GRMO20	9	120	120	120	120	120
Bradwell B	Nuclear	GRAI40	24	0	0	0	0	1670
Burbo Bank Extension Offshore Wind Farm	Wind Offshore	BODE40	16	254	254	254	254	254
C.Gen Killingholme North Power Station	CCGT	KILL40	15	0	0	490	490	490
Cantick Head	Tidal	BASK20	1	0	0	0	0	30
Carnedd Wen Wind Farm	Wind Onshore	TRAW40	18	0	0	150	150	150
Carraig Gheal Wind Farm	Wind Onshore	FERO10	7	46	46	46	46	46
Carrington Power Station	CCGT	CARR40	16	910	910	910	910	910
CDCL	CCGT	COTT40	16	395	395	395	395	395
Clunie	Hydro	CLUN1S	5	61.2	61.2	61.2	61.2	61.2
Clyde North	Wind Onshore	CLYN2Q	11	374.5	374.5	374.5	374.5	374.5
Clyde South	Wind Onshore	CLYS2R	11	128.8	128.8	128.8	128.8	128.8
Codling Park Wind Farm	Wind Offshore	PENT40	19	0	0	0	0	1000
Connahs Quay	CCGT	CONQ40	16	1380	1380	1380	1380	1380
Corby	CCGT	GREN40_EME	18	401	401	401	401	401
Corriegarth	Wind Onshore	COGA10	1	69	69	69	69	69

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Corriemoillie Wind Farm	Wind Onshore	CORI10	1	47.5	47.5	47.5	47.5	47.5
Coryton	CCGT	COSO40	24	800	704	704	704	704
Cottam	Coal	COTT40	16	2000	2000	2000	2000	2000
Cour Wind Farm	Wind Onshore	CRSS10	7	20.5	20.5	20.5	20.5	20.5
Creag Riabhach Wind Farm	Wind Onshore	CASS1Q	1	0	0	0	72.6	72.6
Crookedstane Windfarm	Wind Onshore	CLYS2R	11	18.4	18.4	18.4	18.4	18.4
Crossburns Wind Farm	Wind Onshore	CROB20	5	0	0	0	0	99
Crossdykes	Wind Onshore	EWEH1Q	12	0	46	46	46	46
Cruachan	Pump Storage	CRUA20	8	440	440	440	440	440
Crystal Rig 2 Wind Farm	Wind Onshore	CRYR40	11	138	138	138	138	138
Crystal Rig 3 Wind Farm	Wind Onshore	CRYR40	11	62	13.8	13.8	62	62
Culligran	Hydro	CULL1Q	1	19.1	19.1	19.1	19.1	19.1
Cumberhead	Wind Onshore	GAWH10	11	0	0	50	50	50
Dalquhandy Wind Farm	Wind Onshore	DALQ10	0	0	0	0	0	45
Damhead Creek	CCGT	KINO40	24	805	805	805	805	805
Damhead Creek II	CCGT	KINO40	24	0	0	1800	1800	1800
Deanie	Hydro	DEAN1Q	1	38	38	38	38	38
Deeside	CCGT	CONQ40	16	1	1	1	1	1
Dersalloch Wind Farm	Wind Onshore	DERS1Q	10	69	69	69	69	69
Didcot B	CCGT	DIDC40	25	1550	1550	1550	1550	1550
Dinorwig	Pump Storage	DINO40	19	1644	1644	1644	1644	1644
Dogger Bank Platform 1	Wind Offshore	CREB40	15	0	0	0	0	500
Dogger Bank Platform 3	Wind Offshore	LACK40	15	0	0	0	500	1000
Dogger Bank Platform 4	Wind Offshore	CREB40	15	0	0	0	0	500
Dorenell Wind Farm	Wind Onshore	DORE11	1	0	220	220	220	220
Douglas West	Wind Onshore	COAL10	11	0	0	0	0	45
Drax (Biomass)	Biomass	DRAX40	15	1905	1905	1905	1905	1905
Drax (Coal)	Coal	DRAX40	15	2001	2001	2001	2001	2001
Druim Leathann	Wind Onshore	COUA1Q	5	0	0	0	46.2	46.2

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Dudgeon Offshore Wind Farm	Wind Offshore	NECT40	17	400	400	400	400	400
Dungeness B	Nuclear	DUNG40	24	1091	1091	1091	1091	1091
Dunlaw Extension	Wind Onshore	DUNE10	11	29.75	29.75	29.75	29.75	29.75
Dunmaglass Wind Farm	Wind Onshore	DUNM10	1	94	94	94	94	94
East Anglia 3	Wind Offshore	BRFO40	18	0	0	0	0	1200
East Anglia One	Wind Offshore	BRFO40	18	0	129	680	680	680
East Anglia One North	Wind Offshore	BRFO40	18	0	0	0	520	520
Edinbane Wind, Skye	Wind Onshore	EDIN10	4	41.4	41.4	41.4	41.4	41.4
Enfield	CCGT	BRIM2A_LPN	24	408	408	408	408	408
Enoch Hill	Wind Onshore	ENHI10	0	0	0	0	69	69
Errochty	Hydro	ERRO10	5	75	75	75	75	75
Ewe Hill	Wind Onshore	EWEH1Q	12	39	39	39	39	39
Fallago Rig Wind Farm	Wind Onshore	FALL40	11	144	144	144	144	144
Farr Wind Farm, Tomatin	Wind Onshore	FAAR1Q	1	92	92	92	92	92
Fasnakyle G1 & G2	Hydro	FASN20	3	46	46	46	46	46
Fawley CHP	CHP	FAWL40	26	158	158	158	158	158
Ffestiniog	Pump Storage	FFES20	16	360	360	360	360	360
Fiddlers Ferry	Coal	FIDF20_ENW	15	1455	1455	1455	1987	1987
Finlarig	Hydro	FINL1Q	6	16.5	16.5	16.5	16.5	16.5
Firth of Forth Offshore Wind Farm 1A	Wind Offshore	TEAL20	9	0	0	0	0	545
Firth of Forth Offshore Wind Farm 1B	Wind Offshore	TEAL20	9	0	0	0	0	530
Foyers	Pump Storage	FOYE20	1	300	300	300	300	300
Freasdail	Wind Onshore	CRSS10	7	22.2	22.2	22.2	22.2	22.2
Galawhistle Wind Farm	Wind Onshore	GAWH10	11	55.2	55.2	55.2	55.2	55.2
Galloper Wind Farm	Wind Offshore	LEIS10	18	340	340	340	340	340
Gateway Energy Centre Power Station	CCGT	COSO40	24	0	0	0	1096	1096
Gilston Hill Wind Farm	Wind Onshore	DUNE10	11	0	0	0	21	21
Glen App Windfarm	Wind Onshore	AREC10	10	32.2	32.2	32.2	32.2	32.2
Glen Kyllachy Wind Farm	Wind Onshore	GLKY10	1	0	0	48.5	48.5	48.5

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Glen Ullinish Wind Farm	Wind Onshore	GLNU10	0	0	0	0	0	42
Glendoe	Hydro	GLDO1G	3	99.9	99.9	99.9	99.9	99.9
Glenmorrie Windfarm	Wind Onshore	GLEM10	3	0	0	0	114	114
Glenmoriston	Hydro	GLEN1Q	3	37	37	37	37	37
Glenmuckloch Wind Farm	Wind Onshore	GLGL1Q	10	0	0	0	25.6	25.6
Glenouther Wind Farm (Harelaw)	Wind Onshore	NEIL10	11	0	0	0	24	24
Gordonbush Wind	Wind Onshore	GORW20	1	70	70	70	108	108
Grain	CCGT	GRAI40	24	1517	1517	1517	1517	1517
Great Yarmouth	CCGT	NORM40	18	405	405	405	405	405
Greater Gabbard Offshore Wind Farm	Wind Offshore	LEIS10	18	500	500	500	500	500
Greenwire Wind Farm - Pentir	Wind Offshore	PENT40	19	0	0	0	1000	1000
Griffin Wind Farm	Wind Onshore	GRIF1S	5	188.6	188.6	188.6	188.6	188.6
Gunfleet Sands II Offshore Wind Farm	Wind Offshore	BRFO40	18	64	64	64	64	64
Gunfleet Sands Offshore Wind Farm	Wind Offshore	BRFO40	18	99.9	99.9	99.9	99.9	99.9
Gwynt Y Mor Offshore Wind Farm	Wind Offshore	BODE40	16	574	574	574	574	574
Hadyard Hill	Wind Onshore	HADH10	10	99.9	99.9	99.9	99.9	99.9
Halsary Wind Farm	Wind Onshore	MYBS11	1	0	0	0	28.5	28.5
Harestanes	Wind Onshore	HARE10	12	125	125	125	125	125
Harry Burn Wind Farm	Wind Onshore	ELVA2Q	11	0	0	0	110	110
Harting Rig Wind Farm	Wind Onshore	KYPE10	11	0	0	0	61.2	61.2
Hartlepool	Nuclear	HATL20	13	1207	1207	1207	1207	1207
Hatfield Power Station	CCGT	THOM41	16	0	0	800	800	800
Heysham Power Station	Nuclear	HEYS40	14	2433	2433	2433	2433	2433
Hinkley Point B	Nuclear	HINP40	26	1061	1061	1061	1061	1061
Hirwaun Power Station	CCGT	RHIG40	21	0	0	0	299	299
Holyhead	Biomass	WYLF40	19	0	0	210	210	210
Hopsrig Wind Farm	Wind Onshore	EWEH1Q	12	0	0	0	0	73.6
Hornsea Power Station 1A	Wind Offshore	KILL40	15	0	0	400	400	400
Hornsea Power Station 1B	Wind Offshore	KILL40	15	0	400	400	400	400

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Hornsea Power Station 1C	Wind Offshore	KILL40	15	0	0	400	400	400
Hornsea Power Station 2A	Wind Offshore	KILL40	15	0	0	500	500	500
Hornsea Power Station 2B	Wind Offshore	KILL40	15	0	0	0	500	500
Humber Gateway Offshore Wind Farm	Wind Offshore	HEDO20	15	220	220	220	220	220
Hunterston	Nuclear	HUER40	10	1074	1074	1074	1074	1074
Immingham	CHP	HUMR40	15	1218	1218	1218	1218	1218
Inch Cape Offshore Wind Farm Platform 1	Wind Offshore	COCK20	11	0	0	0	330	330
Inch Cape Offshore Wind Farm Platform 2	Wind Offshore	COCK20	11	0	0	0	270	270
Indian Queens	OCGT	INDQ40	27	140	140	140	140	140
Invergarry	Hydro	INGA1Q	3	20	20	20	20	20
J G Pears	CHP	HIGM20	16	0	13	30	30	30
Keadby	CCGT	KEAD40	16	755	755	755	755	755
Keadby II	CCGT	KEAD40	16	0	0	820	820	820
Keith Hill Wind Farm	Wind Onshore	DUNE10	11	4.5	4.5	4.5	4.5	4.5
Kilbraur Wind Farm	Wind Onshore	STRB20	1	67	67	67	67	67
Kilgallioch	Wind Onshore	KILG20	10	274	228	228	228	228
Killingholme	CCGT	KILL40	15	0	600	600	600	600
Kilmorack	Hydro	KIOR1Q	1	20	20	20	20	20
Kings Lynn A	CCGT	WALP40_EME	17	0	281	281	281	281
Kings Lynn B	CCGT	KLYN40	17	0	0	0	981	981
Knottingley Power Station	CCGT	KNOT40	15	0	0	1652	1652	1652
Kype Muir	Wind Onshore	KYPE10	11	0	88.4	88.4	88.4	88.4
Langage	CCGT	LAGA40	27	905	905	905	905	905
Lethans Wind Farm	Wind Onshore	GLGL1Q	10	0	0	0	88.4	88.4
Limekilns	Wind Onshore	DOUN10	1	0	0	0	90	90
Lincs Offshore Wind Farm	Wind Offshore	WALP40_EME	17	256	256	256	256	256
Little Barford	CCGT	EASO40	18	740	740	740	740	740
Loch Hill Wind Farm	Wind Onshore	GLLE10	10	0	0	0	27.5	27.5
Lochay	Hydro	LOCH10	6	47	47	47	47	47

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Lochluichart	Wind Onshore	CORI10	1	69	69	69	69	69
London Array Offshore Wind Farm	Wind Offshore	CLEH40	24	630	630	630	630	630
Luichart	Hydro	LUIC1Q	1	34	34	34	34	34
Lynemouth Power Station	Coal	BLYT20	13	376	376	376	376	376
Marchwood	CCGT	MAWO40	26	920	920	920	920	920
Marex	Pump Storage	CONQ40	16	0	1500	1500	1500	1500
Margree	Wind Onshore	MARG10	10	42.5	42.5	42.5	42.5	42.5
Mark Hill Wind Farm	Wind Onshore	MAHI20	10	53	53	53	53	53
Medway Power Station	CCGT	GRAI40	24	735	735	735	735	735
MeyGen Tidal	Tidal	GILB10	1	0	15	71	154	237
Middle Muir Wind Farm	Wind Onshore	MIDM10	11	0	51	51	51	51
Millennium South	Wind Onshore	MILS1Q	3	0	25	25	25	25
Millennium Wind (Stage 3), Ceannacroc	Wind Onshore	MILW1Q	3	65	65	65	65	65
Minnycap	Wind Onshore	MOFF10	11	25	25	25	25	25
Moray Firth Offshore Wind Farm	Wind Offshore	NEDE20	2	0	0	20	504	1000
Mossford	Hydro	MOSS1S	1	18.66	18.66	18.66	18.66	18.66
Muaitheabhal Wind Farm	Wind Onshore	STWN20	4	0	0	0	150	150
Nant	Hydro	NANT1Q	7	15	15	15	15	15
Nearr Na Gaoithe Offshore Wind Farm	Wind Offshore	CRYR40	11	0	450	450	450	450
Ormonde Offshore Wind Farm	Wind Offshore	HEYS40	14	150	150	150	150	150
Orrin	Hydro	ORRI10	1	18	18	18	18	18
Pembroke Power Station	CCGT	PEMB40	20	2199	2199	2199	2199	2199
Pen Y Cymoedd Wind Farm	Wind Onshore	RHIG40	21	228	228	228	228	228
Pencloe Windfarm	Wind Onshore	BLAC10	10	63	63	63	63	63
Peterborough	CCGT	WALP40_EME	17	245	245	245	245	245
Peterhead	CCGT	PEHE20	2	400	400	400	1180	1180
Pogbie Wind Farm	Wind Onshore	DUNE10	11	11.8	11.8	11.8	11.8	11.8
Progress Power Station	CCGT	BRFO40	18	0	0	0	299	299
Race Bank Wind Farm	Wind Offshore	WALP40_EME	17	565	565	565	565	565

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Rampion Offshore Wind Farm	Wind Offshore	BOLN40	25	400	400	400	400	400
Ratcliffe on Soar	Coal	RATS40	18	2021	2021	2021	2021	2021
Robin Rigg East Offshore Wind Farm	Wind Offshore	HARK40	12	92	92	92	92	92
Robin Rigg West Offshore Wind Farm	Wind Offshore	HARK40	12	92	92	92	92	92
Rocksavage	CCGT	ROCK40	16	810	810	810	810	810
Rye House	CCGT	RYEH40	24	715	715	715	715	715
Sallachy Wind Farm	Wind Onshore	CASS1Q	1	0	0	0	66	66
Saltend	CCGT	SAES20	15	1100	1100	1100	1100	1100
Sandy Knowe Wind Farm	Wind Onshore	GLGL1Q	10	0	0	0	90	90
Sanquhar Wind Farm	Wind Onshore	GLGL1Q	10	30	30	30	30	30
Seabank	CCGT	SEAB40	22	1234	1234	1234	1234	1234
Sellafield	CHP	HUTT40	14	155	155	155	155	155
Severn Power	CCGT	USKM20	21	850	850	850	850	850
Sheringham Shoal Offshore Wind Farm	Wind Offshore	NORM40	18	315	315	315	315	315
Shoreham	CCGT	BOLN40	25	420	420	420	420	420
Sizewell B	Nuclear	SIZE40	18	1216	1216	1216	1216	1216
Sizewell C	Nuclear	SIZE40	18	0	0	1670	1670	3340
Sloy G2 and G3	Hydro	SLOY10	8	80	80	80	80	80
South Humber Bank	CCGT	SHBA40	15	1365	1365	1365	1365	1365
South Kyle	Wind Onshore	NECU10	10	0	0	0	165	165
Spalding	CCGT	SPLN40	17	880	880	880	880	880
Spalding Energy Expansion	CCGT	SPLN40	17	0	0	0	920	920
Staythorpe C	CCGT	STAY40	16	1752	1752	1752	1752	1752
Stella North EFR Submission	Battery	STEW40	0	0	25	25	25	25
Stornoway Wind Farm	Wind Onshore	STWN20	1	0	0	0	129.6	129.6
Strathy North and South Wind	Wind Onshore	STRW10	1	200.25	67.65	67.65	67.65	225.25
Strathy Wood	Wind Onshore	GORW20	1	0	0	0	84	84
Stronelaig	Wind Onshore	STRL10	3	227.8	227.8	227.8	227.8	227.8
Sutton Bridge	CCGT	WALP40_EME	17	819	819	819	819	819

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Taylor's Lane	CCGT	WISD20_LPN	23	0	144	144	144	144
Tees Renewable Energy Plant	Biomass	GRSA20	13	0	285	285	285	285
Thanet Offshore Wind Farm	Wind Offshore	CANT40	24	300	300	300	300	300
Thorpe Marsh	CCGT	THOM41	16	0	0	0	1600	1600
Tidal Lagoon	Tidal	BAGB20	21	0	0	0	320	320
Toddleburn Wind Farm	Wind Onshore	DUNE10	11	27.6	27.6	27.6	27.6	27.6
Tom Na Clach	Wind Onshore	TOMN1J	1	0	39.1	39.1	39.1	39.1
Torness	Nuclear	TORN40	11	1215	1215	1215	1215	1215
Trafford Power - Stage 1	CCGT	CARR40	16	0	1944	1944	1944	1944
Tralorg Wind Farm	Wind Onshore	MAHI20	10	0	20	20	20	20
Triton Knoll Offshore Wind Farm	Wind Offshore	BICF4A	17	0	0	360	900	900
Upper Sonachan	Wind Onshore	MYBS11	1	0	0	0	0	58
Uskmouth	Coal	USKM20	21	230	230	230	230	230
Viking Wind Farm	Wind Onshore	KERG20	1	0	0	0	412	412
Walney 3 Offshore Wind Farm	Wind Offshore	HEYS40	14	330	330	330	330	330
Walney 4 Offshore Wind Farm	Wind Offshore	HEYS40	14	330	330	330	330	330
Walney I Offshore Wind Farm	Wind Offshore	HEYS40	14	182	182	182	182	182
Walney II Offshore Wind Farm	Wind Offshore	STAH4A	14	182	182	182	182	182
West Burton A	Coal	WBUR40	16	1987	1987	1987	1987	1987
West Burton B	CCGT	WBUR40	16	1295	1295	1295	1295	1295
West of Duddon Sands Offshore Wind Farm	Wind Offshore	HEYS40	14	382	382	382	382	382
Westermost Rough Offshore Wind Farm	Wind Offshore	HEDO20	15	205	205	205	205	205
Westray South	Tidal	DOUN20	1	0	0	0	0	60
Whitelaw Brae Windfarm	Wind Onshore	CLYS2R	11	0	0	50.4	50.4	50.4
Whitelee	Wind Onshore	WLEE20	10	305	305	305	305	305
Whitelee Extension	Wind Onshore	WLEX20	10	206	206	206	206	206
Whiteside Hill Wind Farm	Wind Onshore	GLGL1Q	10	27	27	27	27	27
Willington	CCGT	WILE40	18	0	0	0	1530	1530
Willow Wind Farm	Wind Onshore	WILW10	10	0	0	0	45	45

Generator	Technology	Nodes	Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
Wilton	CCGT	GRSA20	13	141	141	141	141	141
Windy Standard II (Brockloch Rig 1) Wind Farm	Wind Onshore	DUNH1R	10	75	75	75	75	75

Table 45 - Contracted TEC at Peak by Zone

Zone	2017/18 (MW)	2018/19 (MW)	2019/20 (MW)	2020/21 (MW)	2021/22 (MW)
1	1,176.5	1,641.9	2,148.2	3,253.4	3,642.0
2	400.0	400.0	420.0	1,684.0	3,580.0
3	712.7	737.7	737.7	851.7	851.7
4	41.4	41.4	41.4	191.4	191.4
5	324.8	324.8	324.8	371.0	470.0
6	63.5	63.5	63.5	63.5	63.5
7	166.0	166.0	166.0	216.0	216.0
8	520.0	520.0	520.0	520.0	520.0
9	120.0	120.0	120.0	120.0	1,195.0
10	2,652.1	2,725.1	2,725.1	3,166.6	3,166.6
11	2,552.6	3,093.8	3,194.2	4,058.6	4,103.6
12	348.0	394.0	394.0	394.0	467.6
13	1,724.0	2,009.0	2,009.0	3,409.0	3,409.0
14	4,234.0	4,234.0	4,234.0	4,234.0	4,234.0
15	9,469.0	10,469.0	13,911.0	15,443.0	16,943.0
16	12,978.0	16,435.0	18,072.0	19,672.0	19,672.0
17	3,165.0	3,446.0	3,806.0	6,247.0	6,247.0
18	6,101.9	6,230.9	8,601.9	10,950.9	13,820.9
19	1,644.0	1,644.0	1,854.0	2,854.0	3,854.0
20	2,199.0	2,199.0	2,199.0	2,199.0	2,199.0
21	3,612.0	3,612.0	3,612.0	4,231.0	4,231.0
22	1,234.0	1,234.0	1,234.0	1,234.0	1,234.0
23	-	144.0	144.0	144.0	144.0
24	11,201.0	12,105.0	13,905.0	15,001.0	16,671.0
25	2,370.0	2,370.0	2,370.0	2,370.0	2,370.0
26	2,139.0	2,139.0	3,239.0	4,639.0	6,639.0
27	1,045.0	1,045.0	1,045.0	1,045.0	1,045.0
Total	72,193.5	79,544.1	91,090.8	108,563.1	121,180.3

Appendix G : Zonal Demand Summaries⁶

Table 46 - Zonal Summary of Modelled Demand (MW)

Demand Zone	2017/18	2018/19	2019/20	2020/21	2021/22
	MW	MW	MW	MW	MW
1	683.4	227.0	226.0	228.0	231.0
2	3,069.9	2,820.4	2,820.4	2,820.4	2,815.4
3	2,608.6	2,508.0	2,519.0	2,531.0	2,542.0
4	3,504.4	3,234.0	3,232.0	3,240.0	3,261.0
5	4,650.8	4,347.0	4,364.0	4,375.0	4,392.0
6	2,687.6	2,831.0	2,894.0	2,946.0	3,007.0
7	5,137.1	5,333.0	5,400.0	5,474.0	5,557.0
8	4,497.6	4,594.0	4,609.0	4,628.0	4,675.0
9	5,849.6	5,843.0	5,914.0	5,982.0	6,066.0
10	1,968.4	1,969.0	1,976.0	1,990.0	1,997.0
11	3,626.2	3,355.0	3,367.0	3,383.0	3,417.0
12	5,317.1	5,271.0	5,441.0	5,565.0	5,638.0
13	5,936.0	5,668.0	5,719.0	5,820.0	5,868.0
14	2,604.2	2,609.0	2,629.0	2,658.0	2,699.0
Total	52,141.0	50,609.4	51,110.4	51,640.4	52,165.4

Table 47 - Zonal Summary of Chargeable System Demand

Demand Zone	2017/18	2018/19	2019/20	2020/21	2021/22
	MW	MW	MW	MW	MW
1	923.4	899.1	879.7	874.3	870.8
2	3,109.2	3,027.4	2,962.2	2,943.9	2,932.2
3	2,267.0	2,207.4	2,159.8	2,146.5	2,137.9
4	3,854.0	3,752.6	3,671.8	3,649.1	3,634.6
5	3,565.8	3,472.0	3,397.2	3,376.3	3,362.8
6	2,349.9	2,288.1	2,238.8	2,225.0	2,216.1
7	4,360.1	4,245.4	4,154.0	4,128.4	4,111.9
8	4,124.6	4,016.1	3,929.6	3,905.4	3,889.8
9	6,035.9	5,877.1	5,750.5	5,715.1	5,692.3
10	1,656.5	1,613.0	1,578.2	1,568.5	1,562.2
11	3,711.2	3,613.6	3,535.7	3,514.0	3,499.9
12	4,111.7	4,003.5	3,917.3	3,893.2	3,877.6
13	5,179.5	5,043.2	4,934.6	4,904.2	4,884.6
14	2,435.7	2,371.6	2,320.5	2,306.2	2,297.0
Total	47,684.4	46,430.0	45,430.0	45,150.0	44,970.0

⁶ The zonal splits used in the 2017/18 Final tariffs have been applied to the demand forecasts for all subsequent years.

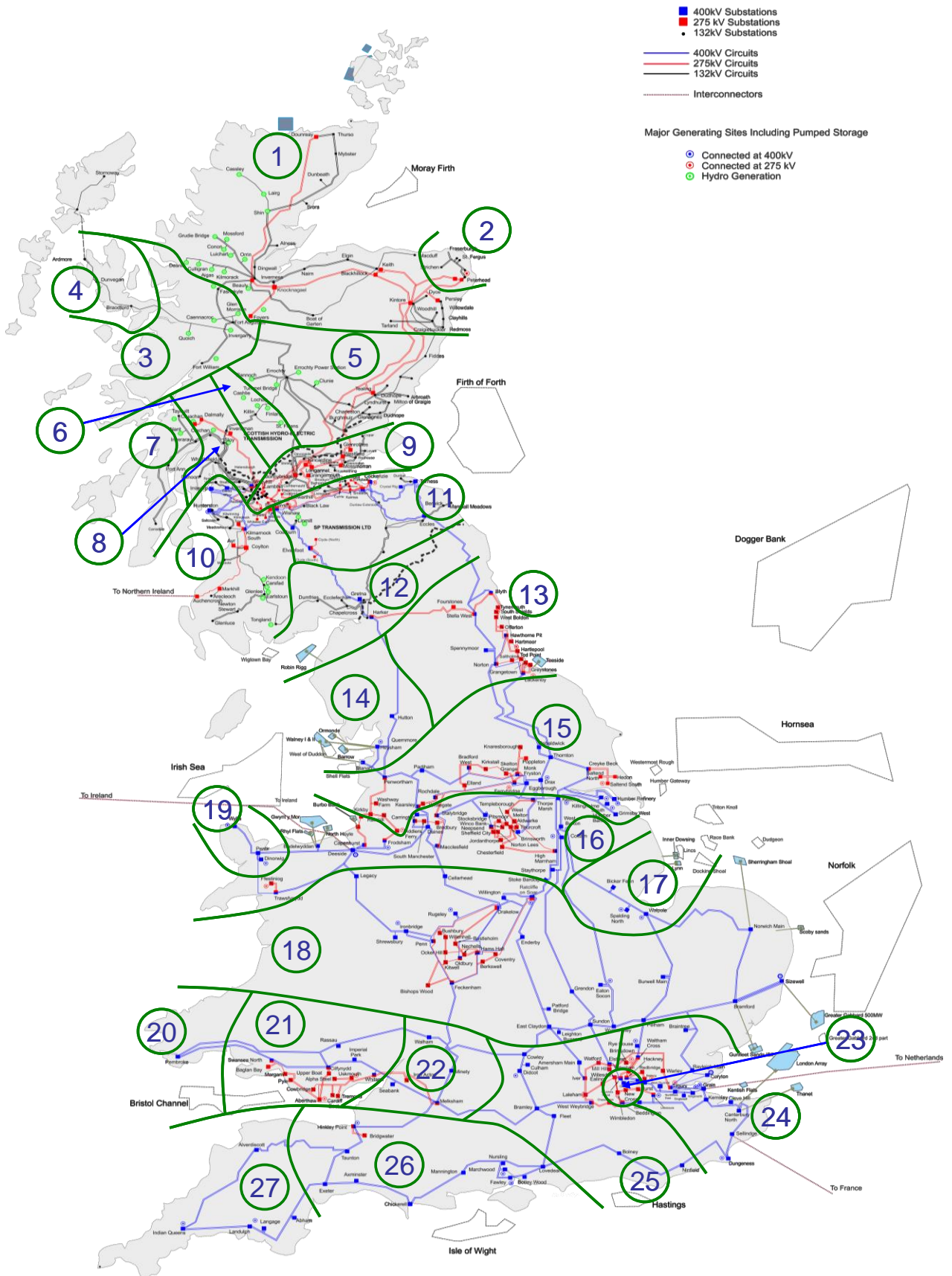
Table 48 - Zonal Summary of Chargeable HH Demand

	2017/18	2018/19	2019/20	2020/21	2021/22
	MW	MW	MW	MW	MW
1	- 668.0	- 719.7	- 773.2	- 834.3	- 895.4
2	641.7	691.4	742.8	801.5	860.2
3	314.3	338.6	363.8	392.5	421.3
4	1,174.6	1,265.5	1,359.6	1,467.1	1,574.5
5	1,106.6	1,192.2	1,280.9	1,382.1	1,483.4
6	519.7	559.9	601.6	649.1	696.7
7	1,456.3	1,568.9	1,685.6	1,818.9	1,952.1
8	1,400.3	1,508.6	1,620.8	1,748.9	1,877.0
9	1,472.9	1,586.8	1,704.8	1,839.5	1,974.3
10	554.2	597.1	641.5	692.2	742.9
11	870.4	937.7	1,007.5	1,087.1	1,166.7
12	2,194.3	2,364.0	2,539.8	2,740.5	2,941.3
13	1,649.6	1,777.2	1,909.4	2,060.3	2,211.2
14	540.2	582.0	625.2	674.7	724.1
Total	13,227.1	14,250.0	15,310.0	16,520.0	17,730.0

Table 49 - Zonal Summary of Chargeable NHH Demand

	2017/18	2018/19	2019/20	2020/21	2021/22
	TWh	TWh	TWh	TWh	TWh
1	0.752	0.704	0.661	0.620	0.582
2	1.763	1.651	1.550	1.454	1.364
3	1.287	1.205	1.131	1.061	0.995
4	2.064	1.932	1.814	1.701	1.596
5	1.850	1.732	1.626	1.525	1.431
6	1.296	1.213	1.139	1.068	1.002
7	2.227	2.085	1.957	1.836	1.722
8	2.098	1.964	1.844	1.730	1.623
9	3.189	2.986	2.803	2.629	2.467
10	0.870	0.815	0.765	0.717	0.673
11	1.996	1.868	1.754	1.645	1.544
12	1.928	1.805	1.695	1.589	1.491
13	2.676	2.505	2.352	2.206	2.070
14	1.319	1.234	1.159	1.087	1.020
Total	25.313	23.700	22.250	20.870	19.580

Appendix H : Generation Zone Map



Appendix I : Demand Zone Map

