

# Five-year view of TNUoS tariffs for 2020/21 to 2024/25

National Grid Electricity System Operator

March 2019

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## Contact us

If you have any comments or questions on the contents or format of this report, please don't hesitate to get in touch with us. This report and associated documents can also be found on our website at [www.nationalgrideso.com/tnuos](http://www.nationalgrideso.com/tnuos)

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# Executive summary

## **This document contains our five-year view of Transmission Network Use of System (TNUoS) tariffs for the years 2020/21 to 2024/25. TNUoS charges are paid by transmission connected generators and suppliers for use of the GB Transmission networks.**

The forecasts are designed to provide visibility of potential tariffs changes and trends to customers, in particular generators and suppliers, based on the current charging methodology defined in the CUSC. It also helps to signal risks and uncertainties in light of ongoing and potential future licence and CUSC modifications in relation to TNUoS tariff setting.

Under the National Grid Electricity Transmission (NGET) licence condition C5 and Connection and Use of System Code (CUSC) paragraph 14.29, we publish an annual report on the indicative Transmission Network Use of System (TNUoS) tariffs for the next five years.

From 1<sup>st</sup> April 2019, this licence and CUSC obligation will be transferred from National Grid Electricity Transmission to National Grid Electricity System Operator (NGESO). We will continue to publish TNUoS forecasts and tariffs.

This report provides a five-year view for charging years 2020/21 until 2024/25. Our previous five-year view was published in September 2018 covering 2019/20 to 2023/24. Our next five-year view is expected to be in spring 2020.

### **Methodology and approach**

The charging methodology used in this report is defined in Section 14 of the CUSC as approved for 1 April 2019.

There are some other methodology changes being considered as CUSC proposals, and through Ofgem's review of charging. These are listed in the Summary of in flight CUSC modification proposals on page 71.

The general approach taken in this forecast is to use the latest view of all the data that is available, and where needed assume that users act in an economically rational way. This includes taking a best view of

generation we expect to connect which drives both the locational and residual tariffs.

From 2021/22 onwards, the charging years will be in the new RIIO-T2 price control period for onshore transmission owners. There are various elements of the charging methodology that are due to be revised at the start of each price control, based on data from the new price control. We plan to review and revise these RIIO-T2 related elements from next month onward (April 2019). In this report, our assumptions are in line with RIIO-T1 parameters, and they are listed in the Methodology and approach section.

### **Total revenues to be recovered**

We forecast the total Transmission Owner (TO) allowed revenue to be recovered from TNUoS charges to be £2,950.8m in 2020/21, increasing to £3,459.2m by 2024/25. The 2020/21 revenue forecast is £64m lower than in the initial view provided last September, following revised forecast from TOs.

### **Generation tariffs**

The total revenue to be recovered from generation tariffs reduces from £415.1m in 2020/21 to £388.9m in 2024/25. Revenues are set to ensure that average annual generation tariffs remain below the €2.50/MWh set by European Commission Regulation (EU) 838/2010 using the methodology defined in the Connection and Use of System Code (CUSC).

The chargeable TEC for 2020/21 is 74.1GW, and increases to 88.4GW by 2024/25. These volumes have been compiled using our best view of both when new generators are likely to connect to the system, and also when older plants are likely to close in line with trends seen in our Future Energy Scenarios.

## The error margin

We have pre-emptively reduced the error margin. The parameter is used in determining the amount of revenue to be recovered through the generation charges and through demand charges.

We have not changed the way that we calculate the error margin, but have updated the calculation with latest input data.

The value used in this forecast is 16%. The previous figure was 21%. The effect is that more revenue is recovered through generation tariffs that would otherwise have been the case. The final value will be updated pending the final revenue and generation TWh output data from the 2018/19 year.

We are keeping this approach under review due to the changes going on elsewhere in the market, such as Ofgem's charging review, and proposals around the generation cap. For more information, see our proposal for a CUSC modification on the generation cap on page 38.

## Demand tariffs

Demand tariffs increase each year over the five-year period. This is due to a declining charging base and increasing proportion of total revenue being recovered through demand tariffs, due to the cap on generation tariffs. In 2020/21 the average gross HH demand tariff is £51.11/kW rising to £61.71/kW in 2024/25. The average NHH demand tariff increases from 6.52p/kWh to 8.00p/kWh.

We forecast that system gross peak will fall from 50.3GW to 50.0GW in 2021/22. System gross peak will then begin to increase over the next 3 years, increasing to 50.4GW in 2024/25. HH demand is broadly flat at 19.2GW in 2020/21, it does decrease then increases again to 19.2GW in 2024/25. We expect NHH demand to fall slightly from 24.1TWh to 23.9TWh in 2024/25.

We have assumed that there is no significant shift in volumes between those demand customers charged on a half-hourly basis and those charged on a non-half-hourly basis.

The Embedded Export Tariff increases over the five-year period from £2.50/kW to

£2.90/kW. It is expected the volumes of generation receiving the Embedded Export Tariff to peak in 2020/21 at 7.1GW, and then gently decline to 6.7GW by 2024/25 as the economic signal for triad benefit is no longer as strong. The total value paid out through the Embedded Export Tariff increases from £17.9m in 2019/20, to £19.5m in 2024/25.

## Key drivers of change in the tariffs

There are two main drivers to the changes to tariffs over the five years included in this view of TNUoS:

1. The error margin in the calculation of the cap on generation revenue has reduced from 21% to 16%, which increases the revenue to be collected from generators;
2. The increase in overall revenue to be recovered over the five year period.

## Sensitivities

The charging methodology can be changed through modifications to the CUSC and the licence, and several proposals are in-flight. We have included some sensitivities in this report to help you to assess the scale of possible change.

The intention is to inform parties of possible changes, and given them time to engage in the change processes that are ongoing.

## Methodology Change

The Ofgem-led Targeted Charging Review (TCR) and Review of Access and Forward Looking Charges (RAFLC) are making proposals to change the way in which TNUoS is charged; in particular, to residual tariffs for generators and demand. We have indicated the scale of the amounts of money that would be affected by these changes.

## New Price Control – RIIO-T2

Several key parameters that are used to calculate TNUoS will be reset from 1 April 2021 at the start of next transmission price-control known as RIIO-T2. This will affect the locational element of tariffs.

These parameters require a large amount of data inputs from the Transmission Owners regarding their RIIO-T2 business plans, and we plan to start this process from next month. We have included in the report a

paragraph to address RIIO-T2 parameters, and have highlighted CUSC issues that need to be addressed around generation zones.

For more information on the effect of changing the TNUoS parameters, see section 32 on page 42.

To see our assumptions on how we have treated these general RIIO-T2 parameters in this five-year view, see section 5 on page 10.

### Next forecast

The timetable of TNUoS tariffs forecasts for 2020/21 is available on our website<sup>1</sup>.

Our next TNUoS tariff publication will be the July forecast of 2020/21 tariffs in July 2019.

### Feedback

We welcome feedback on any aspect of this document and the tariff setting processes.

We are very aware that charging is undergoing transition and there will be substantial changes to charging over the next 2-4 years, either as a result of Ofgem's charging review or through CUSC modifications raised from time to time. We strongly encourage all parties affected by the changes to the charging regime to engage with the Charging Futures forum, or with the specific CUSC modification work groups to ensure that their voices are heard. Please contact us using the details on page 4 if you have any questions or need any support.

Do let us know if you have any further suggestions as to how we can better work with you to improve the tariff forecasting process.

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<sup>1</sup><https://www.nationalgrideso.com/sites/eso/files/documents/Timetable%20of%20TNUoS%20forecasts%20for%20202021.pdf>





**Disclaimer**

## 1. This report

This report contains a view of TNUoS for charging years 2020/21 until 2024/25. Tariffs for 2020/21 onwards have been updated using the latest view of all the data that is available, and we have assumed that users act in an economically rational way.

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 Electricity System Operator will publish at later dates.

We know that the TNUoS and other charging methodologies will change substantially over the next few years. However, at this stage we do not know exactly what changes will be made to the methodology.

Because of this, **we are unable to forecast TNUoS based on a future and unfinalised methodology.**

We do know which elements of the tariffs are likely to change and have provided a summary of them below.

## 2. Changes to the methodology due to the new price control period RIIO-T2

### What might change under RIIO-T2?

Several parameters which affect the locational and non-locational elements of the tariff must be recalculated and reset

### How will this affect tariffs?

The specifics behind each element are detailed in section 32 below on page 42.

### When will we found out more?

We will begin the process of requesting and analysing the TO data required to recalculate RIIO-T2 parameters in the next few months. We will report on our progress in future forecasts.

## 3. Changes to the methodology due to Ofgem's Targeted Charging Review (TCR) and Review of Access and Forward Looking Charges (RAFLC)

In November 2018, Ofgem published their minded-to position on the future arrangements for residual charging<sup>2</sup>.

In summary, Ofgem are currently considering setting the generator residual charge (subject to EC Regulation 838/2010) to £0. The demand residual charge would, under Ofgem's preferred approaches, become either a fixed charge, with consumers segmented based on their voltage and Line Loss Factor Class (that is, for distribution-connected demand, the category they fall into for DUoS charging purposes), or a charge based on the capacity of their connection.

Ofgem have consulted on different options for implementation timescales: April 2020 (for generator residual changes), April 2021, or phased implementation between April 2021 and April 2023.

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<sup>2</sup> <https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-minded-decision-and-draft-impact-assessment>

In December 2018, Ofgem launched their Significant Code Review (SCR) in Access and Forward-Looking Charging<sup>3</sup>. In scope is a review of the definition and choice of access rights for transmission and distribution users, a wide-ranging review of distribution network charges, a review of the distribution connection charging boundary and a focussed review of TNUoS charges.

Ofgem aims to publish working papers and other discussion materials in summer 2019, consult on a minded-to decision and draft impact assessment in spring 2020 and to publish a decision in autumn 2020.

The information in this document is based on the current charging methodology.

## 4. Charging methodology changes

There have been no approved changes to the charging methodology since the last five-year view, and the Final 2019/20 tariffs.

There are a number of 'in-flight' proposals to change the charging methodologies. These are summarised on page 71.

## 5. Assumptions about RIIO-T2

At the start of the next onshore price control in April 2021, the charging methodology requires various aspects of the TNUoS methodology to be revised and updated based on new data for the price-control. The key components which need to be addressed at the price control and how they are treated in this forecast are outlined in the following table.

### A. RIIO-T2 Assumptions

Component	Description	Assumptions for 2021/22 onwards
Maximum Allowed Revenue	The MAR for onshore TOs in the new price control period will be determined during the negotiations up to the start of the price control period.	<b>Our assumption in these tariffs is based on current onshore TOs' MAR forecast under relevant STC procedures.</b>
Generation zones	There are currently 27 generation zones. At the start of the next price control, there is a requirement to rezone to ensure the spread of nodal prices within a zone is +/- £1/kW. Preliminary analysis <sup>4</sup> in 2016 suggests that more than forty zones may be required to achieve this spread by the next price control.	<b>Our assumption in these tariffs is that the number of generation zones remains at 27.</b> We are also considering whether a CUSC change needs to be made to the charging methodology to provide greater stability in the number of charging zones.

<sup>3</sup> <https://www.ofgem.gov.uk/publications-and-updates/electricity-network-access-and-forward-looking-charging-review-significant-code-review-launch-and-wider-decision>

<sup>4</sup> TCMF meeting 66, May 2016; <https://www.nationalgrideso.com/charging/transmission-charging-methodology-forum-tcmf>

Component	Description	Assumptions for 2021/22 onwards
Expansion Factor and Constants	The expansion factor and expansion constants need to be recalculated by the start of RIIO-T2, based on TOs' business plans and costs of investments. The expansion constant represents the cost of moving 1MW, 1km using 400kV OHL line. The expansion factors represent how many times more expensive moving 1MW, 1km is using different voltages and types of circuit.	<b>Our assumption in these tariffs is that the expansion constant continues to increase by RPI as per the CUSC, and that the expansion factors are unchanged.</b> We are aware that the RIIO-T2 framework may use different inflation index, and we are keen to understand whether the industry thinks changes need to be made to the charging methodology accordingly
Security Factor	The security factor is currently 1.8. This will be recalculated by the start of RIIO-T2 period.	<b>Our assumption in these tariffs is the security factor remains as 1.8.</b>
Offshore tariffs	The elements for the offshore tariffs will be recalculated at start of the price control, based on updated forecasts of OFTO revenue, and adjusting for differences in actual OFTO revenue to forecast revenue in RIIO-T1.	<b>Our assumption in these tariffs is that offshore tariffs increase by RPI.</b>
Avoided GSP Infrastructure Credit (AGIC)	The AGIC is a component of the Embedded Export Tariff, paid to 'exporting demand' at the time of Triad. It will be recalculated based on up to 20 schemes from the RIIO-T2 price-control period.	<b>Our assumption in these tariffs is that the AGIC increases by RPI.</b>



## **Demand tariffs**

Half-Hourly (HH), Non-Half-Hourly (NHH) tariffs and the Embedded Export Tariff (EET)

The tables in this section show demand tariffs for Half-Hourly, Embedded Export and Non-Half-Hour metered demand.

The breakdown of the HH locational tariff into the peak and year round components can be found on page 58.

On 24 January 2019, Ofgem announced the result of a statutory consultation that the Small Generator Discount would be extended until 31 March 2021. Due to this the year 2020/21 includes the charges for the Small Generator Discount, but years 2021/22 onwards do not.

## 6. Demand tariffs summary

### B. Summary of average demand tariffs

HH Tariffs	2020/21	2021/22	2022/23	2023/24	2024/25
Average Tariff (£/kW)	51.11	54.13	56.09	59.14	61.71
Residual (£/kW)	52.18	56.09	57.61	60.97	63.53
EET	2020/21	2021/22	2022/23	2023/24	2024/25
Average Tariff (£/kW)	2.52	2.32	2.65	2.88	2.91
Phased residual (£/kW)	0.00	-	-	-	-
AGIC (£/kW)	3.43	3.53	3.64	3.74	3.86
Total Credit (£m)	17.90	15.83	17.86	19.35	19.46
NHH Tariffs	2020/21	2021/22	2022/23	2023/24	2024/25
Average (p/kWh)	6.52	6.93	7.21	7.62	8.00

## 7. Gross Half-Hourly demand tariffs

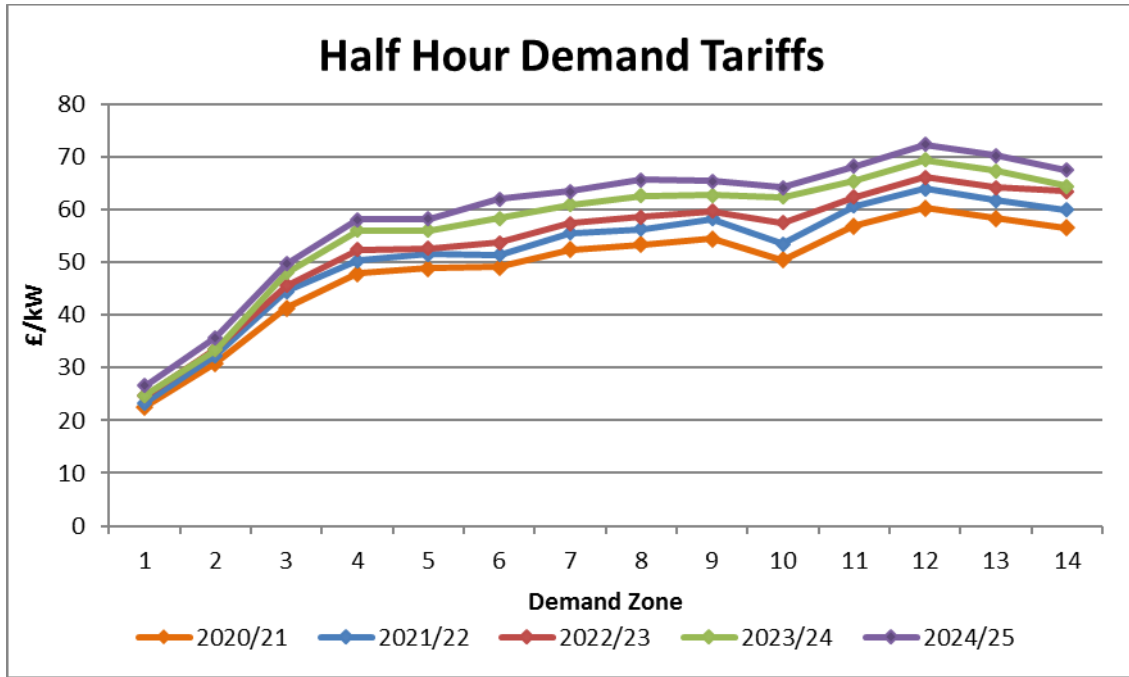
### C. Gross Half-Hourly demand tariffs by demand zone\*

Zone	Zone Name	2020/21 (£/kW)*	2021/22 (£/kW)	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)
1	Northern Scotland	23.033448	23.266925	24.665565	24.785070	26.587753
2	Southern Scotland	30.974803	32.310476	33.533278	33.424912	35.673977
3	Northern	43.081997	44.439333	45.552282	47.992720	49.706939
4	North West	50.320340	50.269473	52.373264	55.986032	58.027653
5	Yorkshire	50.022220	51.473265	52.648819	56.031250	58.171952
6	N Wales & Mersey	52.246053	51.377834	53.751089	58.276642	62.014207
7	East Midlands	53.573335	55.536942	57.387503	60.808959	63.398508
8	Midlands	55.089521	56.286107	58.522063	62.566268	65.541952
9	Eastern	55.349686	58.241172	59.700635	62.695505	65.332765
10	South Wales	50.891739	53.487642	57.510015	62.315813	64.166026
11	South East	57.737310	60.581607	62.305934	65.374677	68.161107
12	London	61.323957	63.899458	66.143539	69.320601	72.273763
13	Southern	59.010698	61.769844	64.105648	67.261358	70.177072
14	South Western	57.098964	59.897518	63.457503	64.432902	67.459237

The breakdown of the locational and residual components of these tariffs is shown on page 58.

\*Please note that this table has been updated since being published in March to include small generator discount levy in 2020/21.

#### D. Chart of Gross Half-Hourly demand tariffs by demand zone



Since the implementation of CMP264/265 into the TNUoS methodology from the 2018/19 tariffs, the way in which HH demand is charged has changed. HH tariffs are now charged on a gross basis rather than net. A separate EET payment is made to embedded generators which generate over Triad periods. Embedded exports, and small embedded generators do not pay generation TNUoS charges.

Over the 5-year period, all zones follow the same pattern. The yearly increase in the tariffs and the residual can be attributed to an increase in revenue and offset by the reduction in credit for the Embedded Export Tariff. There are two factors that has caused the increase in revenue recovered from demand – the increasing total revenue, and an increase percentage of this to be recovered from demand due to the €2.50/MWh limit on average generation tariffs.

### 8. Embedded Export Tariff

The EET is a specific tariff, implemented in 2018/19, which replaces the “Triad benefit” which is paid to embedded generators for their exports over the triad periods. It is paid to embedded generators who are not eligible to be charged generation TNUoS tariffs (e.g. embedded generators with TEC lower than 100MW).

Generators are paid either directly by National Grid Electricity System Operator or through their supplier when the initial demand reconciliation has been completed in accordance with CUSC (see 14.17.19 onwards).

This table and chart show the forecasted Embedded Export Tariffs in the years 2020/21 to 2024/25.

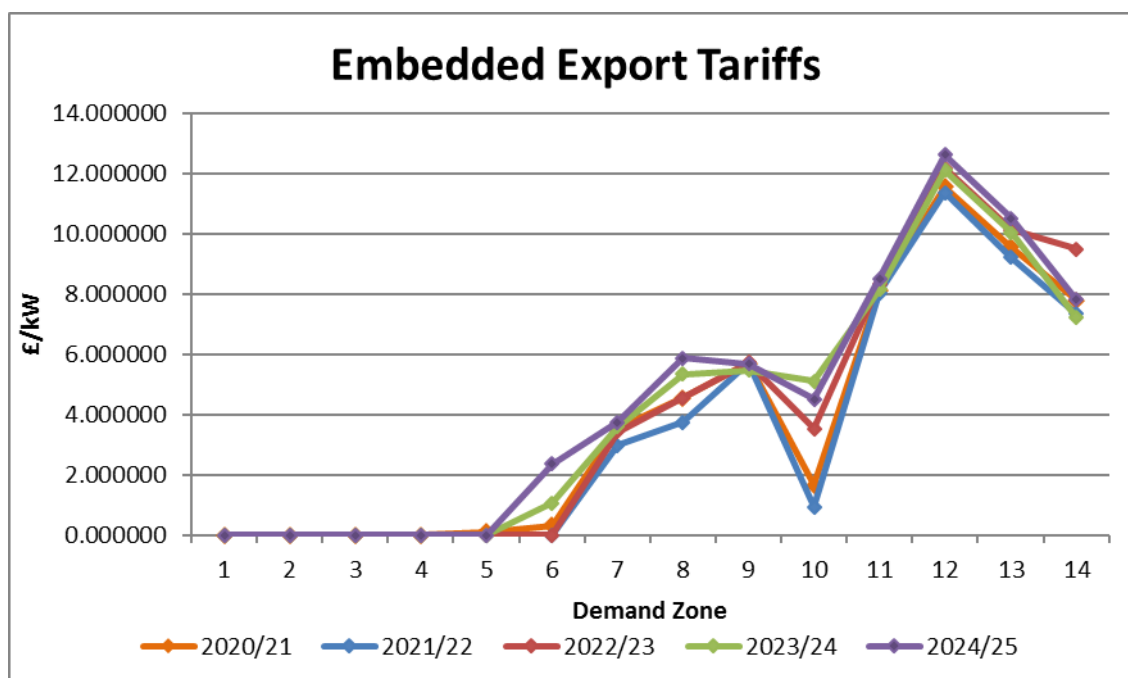
## E. Embedded Export Tariffs

Zone	Zone Name	2020/21 (£/kW)	2021/22 (£/kW)	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)
1	Northern Scotland	0.000000	0.000000	0.000000	0.000000	0.000000
2	Southern Scotland	0.000000	0.000000	0.000000	0.000000	0.000000
3	Northern	0.000000	0.000000	0.000000	0.000000	0.000000
4	North West	0.000000	0.000000	0.000000	0.000000	0.000000
5	Yorkshire	0.092346	0.000000	0.000000	0.000000	0.000000
6	N Wales & Mersey	0.314195	0.000000	0.000000	1.050082	2.345490
7	East Midlands	3.547431	2.980765	3.411041	3.582398	3.729791
8	Midlands	4.551480	3.729930	4.545601	5.339707	5.873236
9	Eastern	5.697355	5.684995	5.724173	5.468944	5.664048
10	South Wales	1.663999	0.931465	3.533553	5.089253	4.497310
11	South East	8.114609	8.025430	8.329472	8.148116	8.492390
12	London	11.545412	11.343281	12.167077	12.094040	12.605046
13	Southern	9.543773	9.213667	10.129186	10.034797	10.508355
14	South Western	7.780211	7.341341	9.481041	7.206341	7.790521

These tariffs include:

Phased residual (£/kW)	-	-	-	-	-
AGIC (£/kW)	3.426888	3.529842	3.635737	3.744809	3.857153

## F. Chart of Embedded Export Tariffs



In 2020/21 the EET will be floored at £0/kW in zones 1 to 4, due to the negative locational tariff which is not sufficiently offset by the AGIC. It is expected that zone 5 will be £0/kW from 2021/22 onwards. Zone 6 is expected to temporarily reduce to £0/kW in 2021/22 but will then increase to £1.10/kW in 2022/23 and continue increasing.

From 2020/21 the phased residual is set at £0/kW. The AGIC increases each year in line with RPI until the next price control in 2021. It has been modelled that the AGIC will continue to be increased by RPI after the price control, as it is unknown how the price control will affect the AGIC.

The total revenue credited for embedded exports is forecast to be £17.9m in 2020/21, falling to £15.8m in 2021/22 and then increasing to £19.5m in 2024/25.



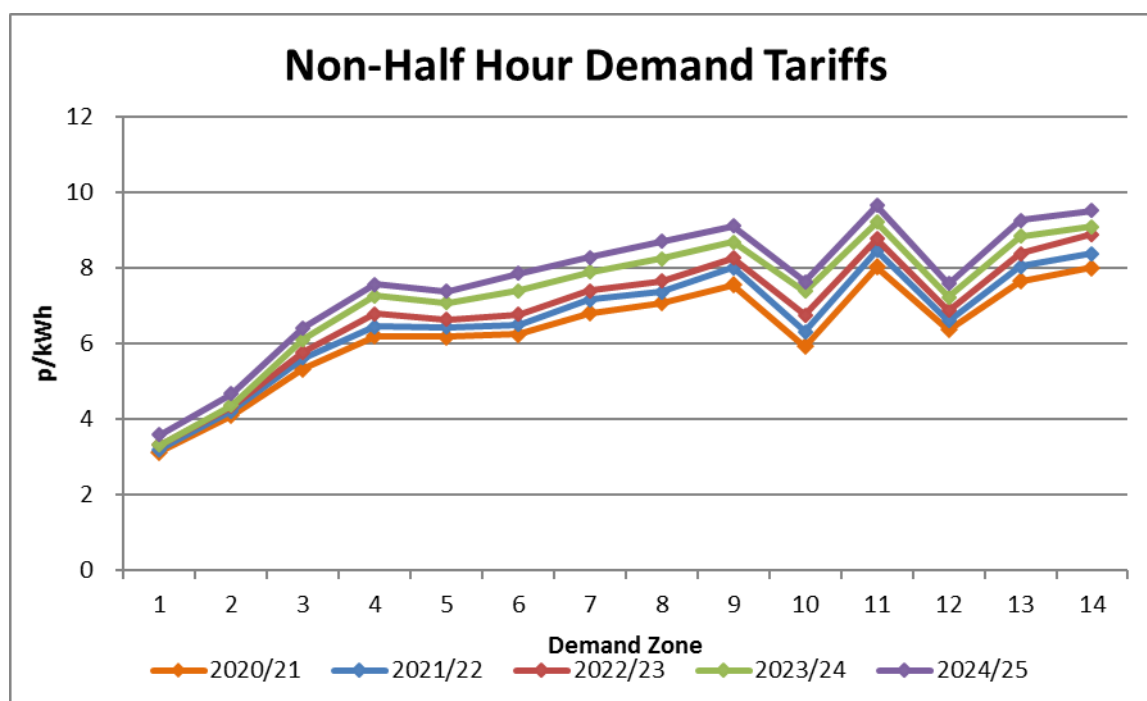
## 9. Non-Half-Hourly demand tariffs

The following table and chart show the forecast of NHH demand tariffs from 2020/21 to 2024/25.

### G. Non-Half-Hourly demand tariffs

Zone	Zone Name	2020/21 (p/kWh)	2021/22 (p/kWh)	2022/23 (p/kWh)	2023/24 (p/kWh)	2024/25 (p/kWh)
1	Northern Scotland	3.135707	3.196488	3.311748	3.320459	3.591269
2	Southern Scotland	4.102770	4.213553	4.332216	4.375051	4.666100
3	Northern	5.334874	5.619969	5.775604	6.117829	6.415903
4	North West	6.204346	6.451229	6.784847	7.260094	7.573785
5	Yorkshire	6.175672	6.428278	6.635574	7.074013	7.384818
6	N Wales & Mersey	6.245607	6.500632	6.768349	7.402389	7.866025
7	East Midlands	6.807672	7.164893	7.403947	7.896440	8.280347
8	Midlands	7.081417	7.366189	7.660807	8.248315	8.709694
9	Eastern	7.561043	8.007055	8.259110	8.694809	9.108206
10	South Wales	5.929393	6.308471	6.762420	7.390372	7.633387
11	South East	8.030463	8.462366	8.780692	9.220280	9.650550
12	London	6.365499	6.600507	6.877640	7.234772	7.594039
13	Southern	7.661438	8.046580	8.386545	8.837506	9.268258
14	South Western	8.008709	8.387963	8.885190	9.088439	9.523873

### H. Chart of Non-Half-Hourly demand tariffs



From 2018/19 the methodology for NHH demand tariffs remains the same following the demand TNUoS changes under CMP264/265, except the revenue to be recovered per zone is calculated after calculating the amounts to be recovered from gross HH tariffs and paid out through the EET.

The NHH tariffs follow the same pattern for the 5 year period, increasing each year. The weighted average NHH tariff increases by an average of 0.37p/kWh each year. This trend aligns with the steady decline in chargeable zonal non-half-hourly volumes where the smaller proportion of volume (overall reduction of 0.3TWh for the 5 year period) would result in higher tariffs.

## 10. Small Generator Discount

On 24 January 2019, Ofgem announced the result of a statutory consultation that the Small Generator Discount would be extended until 31 March 2021. Due to this the year 2020/21 includes the charges for the Small Generator Discount, but years 2021/22 onwards do not.

### I. Small Generator Discount impact on demand tariffs

		2020/21
Generation residual	£/kW	-3.957024
Demand residual	£/kW	52.178588
<b>Value of small generator discount</b>	<b>£/kW</b>	<b>12.055391</b>
Volume of small generators eligible	MW	3089.35
<b>Total cost of scheme</b>	<b>£m</b>	<b>37.2</b>
System gross Triad demand	GW	50.2
System gross HH demand	GW	19.2
NHH demand	TWh	24.1
<b>HH recovery charge</b>	<b>£/kW</b>	<b>0.741202</b>
<b>NHH recovery charge</b>	<b>p/kWh</b>	<b>0.095496</b>

In 2020/21 the Small Generator Discount is forecast to pay out £37.2m which will result in a charge to HH demand of £0.74/kW and a charge to NHH demand of 0.10p/kWh.

For more detail on the Small Generator Discount calculation, see page 40.



## **Generation tariffs**

Wider tariffs, onshore local circuit and substation tariffs, and offshore local circuit tariffs

## 11. Generation tariffs summary

This section summarises our view of generation tariffs from 2020/21 to 2024/25 and how these tariffs were calculated.

## 12. Generation wider tariffs

The following section summarises the five-year view of wider tariffs. The comparison uses example tariffs for Conventional Carbon generators with an Annual Load Factor (ALF) of 80%, Conventional Low Carbon generators with an ALF of 80%, and Intermittent generators with an ALF of 40%.

Under the current methodology, each generator has its own load factor as listed in page 62. These have been updated for the calculation of 2019/20 tariffs.

The classifications for different technology types are below:

### J. Classifications of generation technologies

Conventional Carbon	Conventional Low Carbon	Intermittent
Biomass	Nuclear	Offshore wind
CCGT/CHP	Hydro	Onshore wind
Coal		Solar PV
OCGT/Oil		Tidal
Pumped storage (including battery storage)		

The 80% and 40% load factors used in the tables below are for illustration only. Tariffs for individual generators are calculated using their own ALF; see page 62 for specific ALFs.

Please note that the Small Generator Discount has been extended until 31 March 2021, see page 29 for more information.

## K. Generation wider tariffs in 2020/21

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round	Residual Tariff	Conventional Carbon 80% Load Factor (£/kW)	Conventional Low Carbon 80% Load Factor (£/kW)	Intermittent 40% Load Factor (£/kW)
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	2.769204	19.343367	14.625061	-3.957024	25.986922	28.911935	18.405384
2	East Aberdeenshire	5.167207	11.461368	14.625061	-3.957024	22.079326	25.004338	15.252584
3	Western Highlands	2.197989	18.049997	14.477674	-3.957024	24.263102	27.158637	17.740649
4	Skye and Lochalsh	2.148128	18.049997	20.693372	-3.957024	29.185799	33.324474	23.956347
5	Eastern Grampian and Tayside	2.875323	15.971774	13.871332	-3.957024	22.792784	25.567050	16.303018
6	Central Grampian	3.803578	15.117330	13.462523	-3.957024	22.710436	25.402941	15.552431
7	Argyll	3.589985	12.024375	23.320214	-3.957024	27.908632	32.572675	24.172940
8	The Trossachs	3.837409	12.024375	11.916349	-3.957024	19.032964	21.416234	12.769075
9	Stirlingshire and Fife	2.580869	9.808981	11.174590	-3.957024	15.410702	17.645620	11.141158
10	South West Scotland	3.097320	9.938717	11.211657	-3.957024	16.060595	18.302927	11.230120
11	Lothian and Borders	4.035856	9.938717	6.527067	-3.957024	13.251459	14.556873	6.545530
12	Solway and Cheviot	1.979590	6.468804	6.272022	-3.957024	8.215227	9.469631	4.902520
13	North East England	3.776379	4.929072	4.005993	-3.957024	6.967407	7.768606	2.020598
14	North Lancashire and The Lakes	2.046847	4.929072	1.130803	-3.957024	2.937723	3.163884	-0.854592
15	South Lancashire, Yorkshire and Humber	4.233420	1.150888	0.089581	-3.957024	1.268771	1.286687	-3.407088
16	North Midlands and North Wales	3.640197	-0.327359		-3.957024	-0.578714	-0.578714	-4.087968
17	South Lincolnshire and North Norfolk	1.805850	-0.273693		-3.957024	-2.370128	-2.370128	-4.066501
18	Mid Wales and The Midlands	1.218588	-0.028482		-3.957024	-2.761222	-2.761222	-3.968417
19	Anglesey and Snowdon	5.147345	-0.029898		-3.957024	1.166403	1.166403	-3.968983
20	Pembrokeshire	9.544406	-4.657463		-3.957024	1.861412	1.861412	-5.820009
21	South Wales & Gloucester	6.409883	-4.612735		-3.957024	-1.237329	-1.237329	-5.802118
22	Cotswold	3.162295	2.788406	-7.362905	-3.957024	-4.454328	-5.926909	-10.204567
23	Central London	-6.303901	2.788406	-6.940109	-3.957024	-13.582287	-14.970309	-9.781771
24	Essex and Kent	-4.306659	2.788406		-3.957024	-6.032958	-6.032958	-2.841662
25	Oxfordshire, Surrey and Sussex	-1.658293	-2.632751		-3.957024	-7.721518	-7.721518	-5.010124
26	Somerset and Wessex	-1.568385	-3.075136		-3.957024	-7.985518	-7.985518	-5.187078
27	West Devon and Cornwall	0.132718	-5.503010		-3.957024	-8.226714	-8.226714	-6.158228

Small Generator Discount (£/kW) 12.055391

## L. Generation wider tariffs in 2021/22

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round	Residual Tariff	Conventional Carbon 80% Load Factor (£/kW)	Conventional Low Carbon 80% Load Factor (£/kW)	Intermittent 40% Load Factor (£/kW)
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	3.691874	19.885690	16.749703	-5.557579	27.442609	30.792550	19.146400
2	East Aberdeenshire	5.806887	11.574727	16.749703	-5.557579	22.908852	26.258793	15.822015
3	Western Highlands	3.033922	18.206835	16.490603	-5.557579	25.234293	28.532414	18.215758
4	Skye and Lochalsh	2.980041	18.206835	22.905422	-5.557579	30.312268	34.893352	24.630577
5	Eastern Grampian and Tayside	3.972465	16.411172	15.879034	-5.557579	24.247051	27.422858	16.885924
6	Central Grampian	4.778069	15.571995	15.436561	-5.557579	24.027335	27.114647	16.107780
7	Argyll	4.636285	12.409660	25.764093	-5.557579	29.617708	34.770527	25.170378
8	The Trossachs	4.729023	12.409660	13.701315	-5.557579	20.060224	22.800487	13.107600
9	Stirlingshire and Fife	3.095309	10.007997	12.806808	-5.557579	15.789574	18.350936	11.252428
10	South West Scotland	4.277071	10.496775	12.963771	-5.557579	17.487929	20.080683	11.604902
11	Lothian and Borders	3.127213	10.496775	6.907929	-5.557579	11.493397	12.874983	5.549060
12	Solway and Cheviot	2.671615	7.119398	7.388000	-5.557579	8.719954	10.197554	4.678180
13	North East England	3.885459	5.393155	4.460347	-5.557579	6.210682	7.102751	1.060030
14	North Lancashire and The Lakes	2.579684	5.393155	2.034549	-5.557579	2.964268	3.371178	-1.365768
15	South Lancashire, Yorkshire and Humber	4.348340	2.023000	0.147186	-5.557579	0.526910	0.556347	-4.601193
16	North Midlands and North Wales	3.574398	0.560855		-5.557579	-1.534497	-1.534497	-5.333237
17	South Lincolnshire and North Norfolk	1.524854	0.594400		-5.557579	-3.557205	-3.557205	-5.319819
18	Mid Wales and The Midlands	1.012832	1.037528		-5.557579	-3.714725	-3.714725	-5.142568
19	Anglesey and Snowdon	5.743217	0.927436		-5.557579	0.927587	0.927587	-5.186605
20	Pembrokeshire	10.035267	-4.278683		-5.557579	1.054742	1.054742	-7.269052
21	South Wales & Gloucester	6.803158	-4.239086		-5.557579	-2.145690	-2.145690	-7.253213
22	Cotswold	3.455253	3.264463	-7.469196	-5.557579	-5.466112	-6.959952	-11.720990
23	Central London	-6.333056	3.264463	-7.118009	-5.557579	-14.973472	-16.397074	-11.369803
24	Essex and Kent	-4.242131	3.264463		-5.557579	-7.188140	-7.188140	-4.251794
25	Oxfordshire, Surrey and Sussex	-1.557384	-2.299694		-5.557579	-8.954718	-8.954718	-6.477457
26	Somerset and Wessex	-1.415981	-2.724943		-5.557579	-9.153514	-9.153514	-6.647556
27	West Devon and Cornwall	0.327634	-5.189357		-5.557579	-9.381431	-9.381431	-7.633322

### M. Generation wider tariffs in 2022/23

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round	Residual Tariff	Conventional Carbon	Conventional Low Carbon	Intermittent
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	80% Load Factor (£/kW)	80% Load Factor (£/kW)	40% Load Factor (£/kW)
1	North Scotland	3.428984	19.038387	21.458984	-6.660854	29.166027	33.457824	22.413485
2	East Aberdeenshire	4.212308	8.992582	21.458984	-6.660854	21.912707	26.204504	18.395163
3	Western Highlands	3.052608	16.371759	19.867457	-6.660854	25.383127	29.356618	19.755307
4	Skye and Lochalsh	3.007921	16.371759	18.837181	-6.660854	24.514219	28.281655	18.725031
5	Eastern Grampian and Tayside	5.293682	14.402954	18.297787	-6.660854	24.793421	28.452978	17.398115
6	Central Grampian	5.387298	13.603030	17.465293	-6.660854	23.581102	27.074161	16.245651
7	Argyll	4.868080	11.240420	26.773658	-6.660854	28.618488	33.973220	24.608972
8	The Trossachs	5.058041	11.240420	14.955802	-6.660854	19.354165	22.345325	12.791116
9	Stirlingshire and Fife	3.318829	9.365243	13.515227	-6.660854	14.962351	17.665396	10.600470
10	South West Scotland	4.343017	9.710777	13.754902	-6.660854	16.454706	19.205687	10.978359
11	Lothian and Borders	3.381537	9.710777	7.708542	-6.660854	10.656138	12.197847	4.931999
12	Solway and Cheviot	2.690271	6.455516	7.855156	-6.660854	7.477955	9.048986	3.776508
13	North East England	4.337117	4.814662	4.822099	-6.660854	5.385672	6.350092	0.087110
14	North Lancashire and The Lakes	2.351295	4.814662	2.162439	-6.660854	1.272122	1.704610	-2.572550
15	South Lancashire, Yorkshire and Humber	4.882737	1.514334	0.212637	-6.660854	-0.396540	-0.354013	-5.842483
16	North Midlands and North Wales	3.749391	0.092167		-6.660854	-2.837729	-2.837729	-6.623987
17	South Lincolnshire and North Norfolk	2.118629	0.031584		-6.660854	-4.516958	-4.516958	-6.648220
18	Mid Wales and The Midlands	1.189288	0.216079		-6.660854	-5.298703	-5.298703	-6.574422
19	Anglesey and Snowdon	6.122192	-0.159672		-6.660854	-0.666400	-0.666400	-6.724723
20	Pembrokeshire	9.630277	-5.216998		-6.660854	-1.204175	-1.204175	-8.747653
21	South Wales & Gloucester	5.616289	-5.818327		-6.660854	-5.699227	-5.699227	-8.988185
22	Cotswold	2.565820	3.171283	-8.563057	-6.660854	-8.408453	-10.121065	-13.955398
23	Central London	-6.525939	3.171283	-7.372163	-6.660854	-16.547497	-18.021930	-12.764504
24	Essex and Kent	-4.455016	3.171283		-6.660854	-8.578844	-8.578844	-5.392341
25	Oxfordshire, Surrey and Sussex	-1.531186	-2.658596		-6.660854	-10.318917	-10.318917	-7.724292
26	Somerset and Wessex	-1.969538	-3.405427		-6.660854	-11.354734	-11.354734	-8.023025
27	West Devon and Cornwall	-0.299387	-6.147719		-6.660854	-11.878416	-11.878416	-9.119942

### N. Generation wider tariffs in 2023/24

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round	Residual Tariff	Conventional Carbon	Conventional Low Carbon	Intermittent
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	80% Load Factor (£/kW)	80% Load Factor (£/kW)	40% Load Factor (£/kW)
1	North Scotland	2.337832	19.032515	25.123138	-8.557951	29.104403	34.129031	24.178193
2	East Aberdeenshire	2.161186	9.060853	25.123138	-8.557951	20.950428	25.975055	20.189528
3	Western Highlands	2.450968	17.542651	23.572401	-8.557951	26.785059	31.499539	22.031510
4	Skye and Lochalsh	2.379993	17.542651	29.369651	-8.557951	31.351884	37.225814	27.828760
5	Eastern Grampian and Tayside	4.427709	15.900927	21.534533	-8.557951	25.818126	30.125033	19.336953
6	Central Grampian	4.460013	15.237387	20.549347	-8.557951	24.531449	28.641319	18.086351
7	Argyll	4.625231	13.541855	28.844089	-8.557951	29.976035	35.744853	25.702880
8	The Trossachs	3.473263	13.541855	17.995544	-8.557951	20.145231	23.744340	14.854335
9	Stirlingshire and Fife	2.258101	12.887453	17.261159	-8.557951	17.819040	21.271271	13.858189
10	South West Scotland	2.965673	11.551411	15.713298	-8.557951	16.219489	19.362149	11.775911
11	Lothian and Borders	2.362790	11.551411	9.115612	-8.557951	10.338457	12.161580	5.178225
12	Solway and Cheviot	1.783311	8.280590	8.895604	-8.557951	6.966315	8.745436	3.649889
13	North East England	3.556670	6.477225	4.898260	-8.557951	4.099107	5.078759	-1.068801
14	North Lancashire and The Lakes	1.249374	6.477225	1.145499	-8.557951	-1.210398	-0.981298	-4.821562
15	South Lancashire, Yorkshire and Humber	4.168171	2.540676	0.265538	-8.557951	-2.144809	-2.091701	-7.276143
16	North Midlands and North Wales	2.904531	0.708082		-8.557951	-5.086954	-5.086954	-8.274718
17	South Lincolnshire and North Norfolk	2.961721	-0.392752		-8.557951	-5.910432	-5.910432	-8.715052
18	Mid Wales and The Midlands	1.905131	-0.248743		-8.557951	-6.851814	-6.851814	-8.657448
19	Anglesey and Snowdon	4.249580	0.382811		-8.557951	-4.002122	-4.002122	-8.404827
20	Pembrokeshire	9.265096	-6.105446		-8.557951	-4.177212	-4.177212	-11.000129
21	South Wales & Gloucester	5.104455	-6.785125		-8.557951	-8.881596	-8.881596	-11.272001
22	Cotswold	3.252925	2.872275	-8.007996	-8.557951	-9.413603	-11.015202	-15.417037
23	Central London	-5.825879	2.872275	-7.782523	-8.557951	-18.312028	-19.868533	-15.191564
24	Essex and Kent	-3.545511	2.872275		-8.557951	-9.805642	-9.805642	-7.409041
25	Oxfordshire, Surrey and Sussex	-1.097711	-2.915398		-8.557951	-11.987980	-11.987980	-9.724110
26	Somerset and Wessex	-0.631540	-2.919860		-8.557951	-11.525379	-11.525379	-9.725895
27	West Devon and Cornwall	1.180538	-1.702466	0.155550	-8.557951	-8.614946	-8.583836	-9.083387

## O. Generation wider tariffs in 2024/25

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round	Residual Tariff	Conventional Carbon	Conventional Low Carbon	Intermittent
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	80% Load Factor (£/kW)	80% Load Factor (£/kW)	40% Load Factor (£/kW)
1	North Scotland	1.946827	19.748612	26.103416	-9.912084	28.716365	33.937049	24.090777
2	East Aberdeenshire	1.706932	9.318183	26.103416	-9.912084	20.132127	25.352810	19.918605
3	Western Highlands	2.090693	17.971325	24.184823	-9.912084	25.903527	30.740492	21.461269
4	Skye and Lochalsh	2.019564	17.971325	30.132114	-9.912084	30.590231	36.616654	27.408560
5	Eastern Grampian and Tayside	4.378141	16.077930	21.761379	-9.912084	24.737504	29.089780	18.280467
6	Central Grampian	4.095227	15.388164	20.710595	-9.912084	23.062150	27.204269	16.953777
7	Argyll	4.037096	13.835993	29.136150	-9.912084	28.502726	34.329956	24.758463
8	The Trossachs	3.024877	13.835993	18.312732	-9.912084	18.831773	22.494319	13.935045
9	Stirlingshire and Fife	1.931185	13.552104	17.985688	-9.912084	17.249335	20.846472	13.494446
10	South West Scotland	1.505974	12.191548	16.192042	-9.912084	14.300762	17.539170	11.156577
11	Lothian and Borders	2.966163	12.191548	9.635395	-9.912084	10.515633	12.442712	4.599930
12	Solway and Cheviot	1.603589	8.620419	8.875393	-9.912084	5.688155	7.463233	2.411477
13	North East England	3.783439	6.982301	5.243434	-9.912084	3.651943	4.700630	-1.875730
14	North Lancashire and The Lakes	1.165117	6.982301	0.830547	-9.912084	-2.496689	-2.330579	-6.288617
15	South Lancashire, Yorkshire and Humber	4.392294	2.763642	0.277575	-9.912084	-3.086816	-3.031301	-8.529052
16	North Midlands and North Wales	3.168106	0.271260		-9.912084	-6.526970	-6.526970	-9.803580
17	South Lincolnshire and North Norfolk	1.227456	1.538686		-9.912084	-7.453679	-7.453679	-9.296610
18	Mid Wales and The Midlands	1.096448	1.096150		-9.912084	-7.938716	-7.938716	-9.473624
19	Anglesey and Snowdon	3.338245	-0.747806		-9.912084	-7.172084	-7.172084	-10.211206
20	Pembrokeshire	10.157141	-6.211258		-9.912084	-4.723949	-4.723949	-12.396587
21	South Wales & Gloucester	5.820023	-6.789311		-9.912084	-9.523510	-9.523510	-12.627808
22	Cotswold	2.633095	2.490071	-8.910523	-9.912084	-12.415351	-14.197455	-17.826579
23	Central London	-5.163515	2.490071	-7.274642	-9.912084	-18.903256	-20.358184	-16.190698
24	Essex and Kent	-3.194232	2.490071		-9.912084	-11.114259	-11.114259	-8.916056
25	Oxfordshire, Surrey and Sussex	-0.931598	-3.282823		-9.912084	-13.469940	-13.469940	-11.225213
26	Somerset and Wessex	-0.392121	-3.445359		-9.912084	-13.060492	-13.060492	-11.290228
27	West Devon and Cornwall	1.349339	-2.100521	0.171834	-9.912084	-10.105695	-10.071328	-10.580458

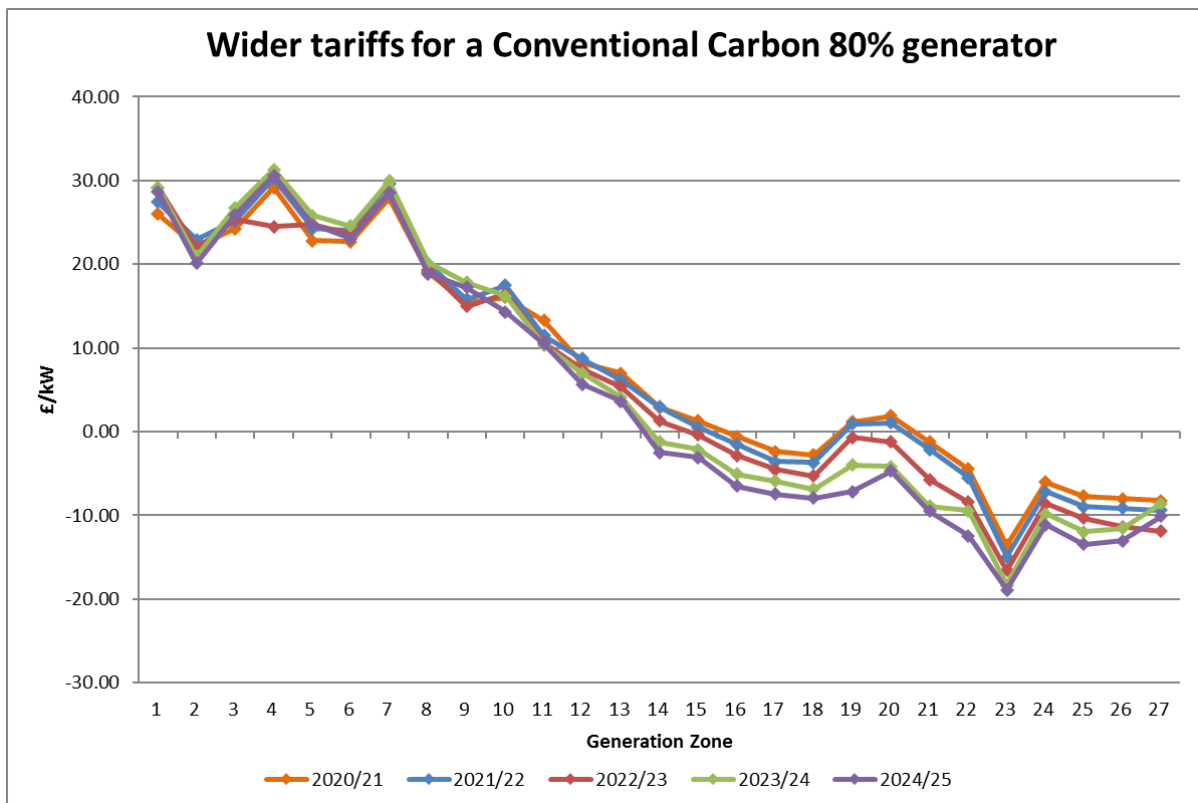
## 13. Changes to tariffs over the five-year period

The following section provides details of the wider and local generation tariffs for 2020/21 to 2024/25 and how these change over the period. We have compared the example tariffs for Conventional Carbon generators with an ALF of 80%, Conventional Low Carbon generators with an ALF of 80%, and Intermittent generators with an ALF of 40%.

## P. Comparison of Conventional Carbon (80%) tariffs

Wider Tariffs for a Conventional Carbon 80% Generator		2020/21	2021/22	2022/23	2023/24	2024/25
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	25.99	27.44	29.17	29.10	28.72
2	East Aberdeenshire	22.08	22.91	21.91	20.95	20.13
3	Western Highlands	24.26	25.23	25.38	26.79	25.90
4	Skye and Lochalsh	29.19	30.31	24.51	31.35	30.59
5	Eastern Grampian and Tayside	22.79	24.25	24.79	25.82	24.74
6	Central Grampian	22.71	24.03	23.58	24.53	23.06
7	Argyll	27.91	29.62	28.62	29.98	28.50
8	The Trossachs	19.03	20.06	19.35	20.15	18.83
9	Stirlingshire and Fife	15.41	15.79	14.96	17.82	17.25
10	South West Scotland	16.06	17.49	16.45	16.22	14.30
11	Lothian and Borders	13.25	11.49	10.66	10.34	10.52
12	Solway and Cheviot	8.22	8.72	7.48	6.97	5.69
13	North East England	6.97	6.21	5.39	4.10	3.65
14	North Lancashire and The Lakes	2.94	2.96	1.27	-1.21	-2.50
15	South Lancashire, Yorkshire and Humber	1.27	0.53	-0.40	-2.14	-3.09
16	North Midlands and North Wales	-0.58	-1.53	-2.84	-5.09	-6.53
17	South Lincolnshire and North Norfolk	-2.37	-3.56	-4.52	-5.91	-7.45
18	Mid Wales and The Midlands	-2.76	-3.71	-5.30	-6.85	-7.94
19	Anglesey and Snowdon	1.17	0.93	-0.67	-4.00	-7.17
20	Pembrokeshire	1.86	1.05	-1.20	-4.18	-4.72
21	South Wales & Gloucester	-1.24	-2.15	-5.70	-8.88	-9.52
22	Cotswold	-4.45	-5.47	-8.41	-9.41	-12.42
23	Central London	-13.58	-14.97	-16.55	-18.31	-18.90
24	Essex and Kent	-6.03	-7.19	-8.58	-9.81	-11.11
25	Oxfordshire, Surrey and Sussex	-7.72	-8.95	-10.32	-11.99	-13.47
26	Somerset and Wessex	-7.99	-9.15	-11.35	-11.53	-13.06
27	West Devon and Cornwall	-8.23	-9.38	-11.88	-8.61	-10.11

## Q. Wider tariffs for a Conventional Carbon (80%) generator

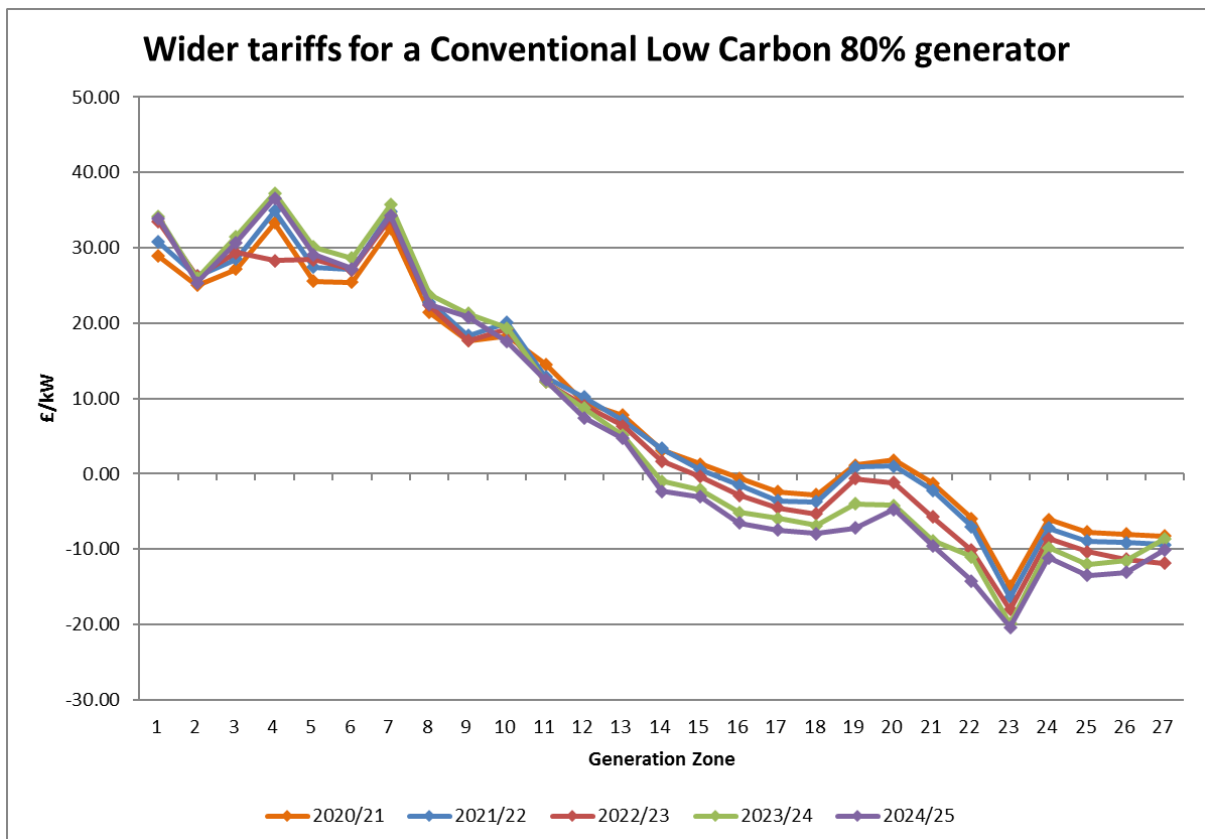




## R. Comparison of Conventional Low Carbon (80%) tariffs

Wider Tariffs for a Conventional Low Carbon 80% Generator		2020/21	2021/22	2022/23	2023/24	2024/25
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	28.91	30.79	33.46	34.13	33.94
2	East Aberdeenshire	25.00	26.26	26.20	25.98	25.35
3	Western Highlands	27.16	28.53	29.36	31.50	30.74
4	Skye and Lochalsh	33.32	34.89	28.28	37.23	36.62
5	Eastern Grampian and Tayside	25.57	27.42	28.45	30.13	29.09
6	Central Grampian	25.40	27.11	27.07	28.64	27.20
7	Argyll	32.57	34.77	33.97	35.74	34.33
8	The Trossachs	21.42	22.80	22.35	23.74	22.49
9	Stirlingshire and Fife	17.65	18.35	17.67	21.27	20.85
10	South West Scotland	18.30	20.08	19.21	19.36	17.54
11	Lothian and Borders	14.56	12.87	12.20	12.16	12.44
12	Solway and Cheviot	9.47	10.20	9.05	8.75	7.46
13	North East England	7.77	7.10	6.35	5.08	4.70
14	North Lancashire and The Lakes	3.16	3.37	1.70	-0.98	-2.33
15	South Lancashire, Yorkshire and Humber	1.29	0.56	-0.35	-2.09	-3.03
16	North Midlands and North Wales	-0.58	-1.53	-2.84	-5.09	-6.53
17	South Lincolnshire and North Norfolk	-2.37	-3.56	-4.52	-5.91	-7.45
18	Mid Wales and The Midlands	-2.76	-3.71	-5.30	-6.85	-7.94
19	Anglesey and Snowdon	1.17	0.93	-0.67	-4.00	-7.17
20	Pembrokeshire	1.86	1.05	-1.20	-4.18	-4.72
21	South Wales & Gloucester	-1.24	-2.15	-5.70	-8.88	-9.52
22	Cotswold	-5.93	-6.96	-10.12	-11.02	-14.20
23	Central London	-14.97	-16.40	-18.02	-19.87	-20.36
24	Essex and Kent	-6.03	-7.19	-8.58	-9.81	-11.11
25	Oxfordshire, Surrey and Sussex	-7.72	-8.95	-10.32	-11.99	-13.47
26	Somerset and Wessex	-7.99	-9.15	-11.35	-11.53	-13.06
27	West Devon and Cornwall	-8.23	-9.38	-11.88	-8.58	-10.07

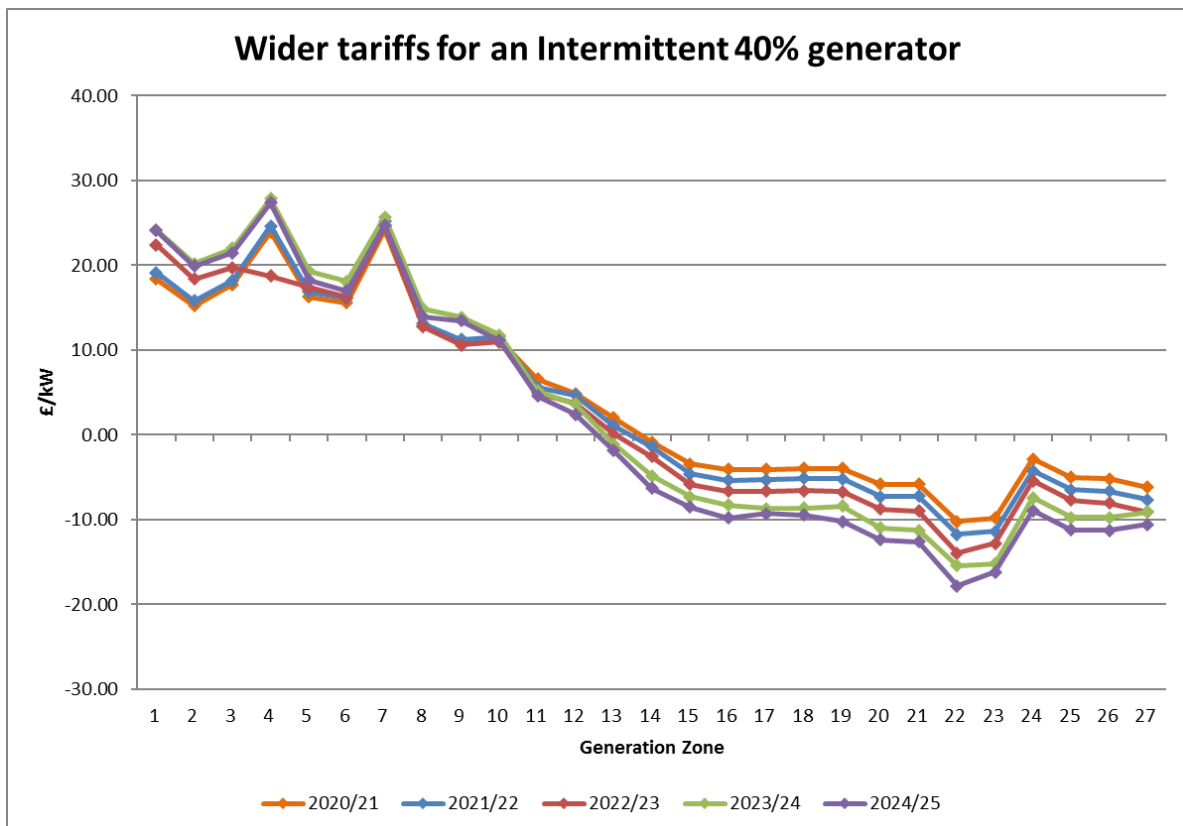
## S. Wider tariffs for a Conventional Low Carbon (80%) generator



## T. Comparison of Intermittent (40%) tariffs

Wider Tariffs for an Intermittent 40% Generator		2020/21	2021/22	2022/23	2023/24	2024/25
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	18.41	19.15	22.41	24.18	24.09
2	East Aberdeenshire	15.25	15.82	18.40	20.19	19.92
3	Western Highlands	17.74	18.22	19.76	22.03	21.46
4	Skye and Lochalsh	23.96	24.63	18.73	27.83	27.41
5	Eastern Grampian and Tayside	16.30	16.89	17.40	19.34	18.28
6	Central Grampian	15.55	16.11	16.25	18.09	16.95
7	Argyll	24.17	25.17	24.61	25.70	24.76
8	The Trossachs	12.77	13.11	12.79	14.85	13.94
9	Stirlingshire and Fife	11.14	11.25	10.60	13.86	13.49
10	South West Scotland	11.23	11.60	10.98	11.78	11.16
11	Lothian and Borders	6.55	5.55	4.93	5.18	4.60
12	Solway and Cheviot	4.90	4.68	3.78	3.65	2.41
13	North East England	2.02	1.06	0.09	-1.07	-1.88
14	North Lancashire and The Lakes	-0.85	-1.37	-2.57	-4.82	-6.29
15	South Lancashire, Yorkshire and Humber	-3.41	-4.60	-5.84	-7.28	-8.53
16	North Midlands and North Wales	-4.09	-5.33	-6.62	-8.27	-9.80
17	South Lincolnshire and North Norfolk	-4.07	-5.32	-6.65	-8.72	-9.30
18	Mid Wales and The Midlands	-3.97	-5.14	-6.57	-8.66	-9.47
19	Anglesey and Snowdon	-3.97	-5.19	-6.72	-8.40	-10.21
20	Pembrokeshire	-5.82	-7.27	-8.75	-11.00	-12.40
21	South Wales & Gloucester	-5.80	-7.25	-8.99	-11.27	-12.63
22	Cotswold	-10.20	-11.72	-13.96	-15.42	-17.83
23	Central London	-9.78	-11.37	-12.76	-15.19	-16.19
24	Essex and Kent	-2.84	-4.25	-5.39	-7.41	-8.92
25	Oxfordshire, Surrey and Sussex	-5.01	-6.48	-7.72	-9.72	-11.23
26	Somerset and Wessex	-5.19	-6.65	-8.02	-9.73	-11.29
27	West Devon and Cornwall	-6.16	-7.63	-9.12	-9.08	-10.58

## U. Wider tariffs for an Intermittent (40%) generator



## 14. Changes to generation tariffs from 2020/21 to 2024/25

### Locational changes

Locational tariffs generally increase in Scotland due to the increase in renewable generation. We have also anticipated a reduction in conventional generation in the later years of the forecast, which causes a plateau or slight reduction in tariffs in zones 1-12 from 2023/24 to 2024/25.

In England and Wales, the increasingly negative residual offsets increase in locational tariffs. Zone 20 (Pembrokeshire) is affected by large volumes of new generation connecting from 2022/23 onwards; and zone 27 (West Devon and Cornwall) fluctuates due to the connection of intermittent generation in the later years in that zone. This causes a Year Round Not Shared tariff to appear in zone 27 from 2023/24 (the trigger is when the volume of Low Carbon generation exceeds 50% of the total generation flowing through that area).

To view the changes in generation in each zone, please see table HHH on page 74, and table III on page 85.

### Residual changes

The residual tariff decreases steadily over the five-year period due to the increase each year in offshore local revenue, and in the later years the residual decreases further as the onshore circuit revenue rises as relatively expensive remote island links are built.

For a full breakdown of the generation revenues, please see table FF on page 37.

A key change in the calculation of the cap on generation revenue is the reduction in the error margin from 21% to 16%. This increases the residual because it increases the amount of revenue that can be recovered from generators. For more information, please see the Error margin section on page 36.

### Discontinuation of the Small Generator Discount

Following Ofgem's decision in January 2019 to extend the Small Generator Discount until 31 March 2021, we have calculated a Small Generator Discount tariff for 2020/21 only.

For more information, please see page 40.

## 15. Onshore local tariffs for generation

## 16. Onshore local substation tariffs

Local substation tariffs reflect the cost of the first transmission substation that each transmission connected generator connects to. They are increased each year by the average May to October RPI. These tariffs are calculated using forecast RPI for the period May 2019 to October 2019. You can recalculate these tariffs for future years by using your own forecast of RPI, or by using the inflation indices we have published in section 22 on page 34.

### V. Local substation tariffs

Substation Rating	Connection Type	Local Substation Tariff (£/kW)		
		132kV	275kV	400kV
<1320 MW	No redundancy	0.203891	0.116639	0.084041
<1320 MW	Redundancy	0.449155	0.277895	0.202107
>=1320 MW	No redundancy	0.000000	0.365714	0.264486
>=1320 MW	Redundancy	0.000000	0.600409	0.438249

## 17. Onshore local circuit tariffs

Where a transmission-connected generator is not directly connected to the Main Interconnected Transmission System (MITS), the onshore local circuit tariffs reflect the cost and flows on circuits between its connection and the MITS. Local circuit tariffs can change as a result of system flows and RPI. If you require further information about a particular local circuit tariff, please feel free to contact us using the contact details on page 4.

Some generator users have their local circuits tariffs revised through an additional one-off charge. These are listed in the CMP203: Circuits subject to one-off charges table below (table X).

### W. Onshore local circuit tariffs

The onshore local circuit tariffs have been updated from those published in the five-year view in September 2018. Particularly, local circuit tariffs for generators on Shetland and Western Isles have been updated, following revised cost forecasts provided by the TO.

Killingholme ceases to be a local circuit in 2020/21 as we anticipate that the asset transfer of the Hornsea 1 OFTO will take place during that year, changing the substation from non-MITS to MITS.

Connection Point	2020/21 (£/kW)	2021/22 (£/kW)	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)
Aberarder	2.034445	1.780597	1.834015	1.889035	1.945706
Aberdeen Bay	2.647817	2.727365	2.809186	2.893461	2.980265
Achruach	4.360774	4.491935	-2.755675	-2.745855	-2.827708
Aigas	0.664180	0.684134	0.704658	0.725798	0.747572
An Suidhe	3.091629	3.184227	-1.034341	-0.962644	-0.991013
Arcleoch	2.109185	2.172551	2.237728	1.333211	1.373207
Baglan Bay	0.772554	0.795902	-0.157119	-0.161799	0.869548
Beaw Field				97.918615	100.655149
Beinneun Wind Farm	1.525325	1.571127	1.618278	1.666826	1.716828
Bhlaraidh Wind Farm	0.655675	0.675373	0.695634	0.716503	0.737998
Black Hill	1.577101	1.624482	1.673216	1.723413	1.775115
Black Law	1.774502	1.827813	1.882647	1.939127	1.997300
BlackCraig Wind Farm	6.392785	6.584843	6.782389	6.985860	7.195436
BlackLaw Extension	3.763060	3.876114	3.992397	4.112169	4.235534

Connection Point	2020/21 (£/kW)	2021/22 (£/kW)	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)
Branxton				0.353701	0.362762
Cairford				0.245676	0.253047
Cashley				4.737875	4.880012
Clyde (North)	0.111369	0.114715	0.118157	0.121701	0.125353
Clyde (South)	0.128793	0.132663	0.136643	0.140742	0.144964
Corriegarath	2.942018	2.460461	2.534275	2.610303	2.688612
Corriemoillie	1.689576	1.740876	1.792546	1.846323	1.901713
Coryton	0.052002	0.055625	0.056115	0.051519	0.053169
Costa Head			74.000059	76.273125	78.501501
Cruachan	1.853205	1.909118	1.966322	2.078049	2.140338
Crystal Rig	0.139987	0.145539			
Culligran	1.760093	1.812971	1.867361	1.923381	1.981083
Deanie	2.891581	2.978453	3.067807	3.159841	3.254636
Dersalloch	2.446207	2.519698	2.595289	2.673147	2.753342
Didcot	0.529546	0.555985	0.566742	0.569914	0.587013
Dinorwig	2.436530	2.509730	2.585022	3.813279	3.927659
Dorenell	2.131218	2.195246	2.261103	4.945838	5.094213
Druim Leathann				78.791804	81.155558
Dumnaglass	1.625852	1.359729	1.400520	1.442536	1.485812
Dunhill	1.454556	1.498255	1.543203	1.589499	1.637184
Dunlaw Extension	1.532147	1.580085	1.628106	1.673124	1.722631
Edinbane	6.952009	7.164989	12.878109	7.596411	7.824197
Elchies				1.771373	1.824514
Enoch Hill				1.849087	1.904559
Ewe Hill	2.471647	2.545902	2.622279	1.524990	1.570740
Fallago	0.444536	0.460326	-0.065370	-0.216550	-0.223970
Farr	3.620763	3.729541	3.841427	3.956670	4.075370
Fernoch	4.466969	4.601224	4.739201	4.881374	5.027813
Ffestiniogg	0.256926	0.264645	0.272584	0.280762	0.289185
Finlarig	0.325170	0.334940	0.344988	0.355337	0.365997
Foyers	0.297464	0.306401	0.315593	0.325061	0.334813
Galawhistle	3.553422	3.660177	3.769983	3.883082	3.999575
Giles Bay		2.634295	2.713324	2.794723	2.878565
Glen Kyllachy		0.478485	0.492840	0.507625	0.522854
Glen Ullinish			2.464198	2.538124	2.614268
Glendoe	1.867974	1.924094	1.981816	2.041271	2.102509
Glenglass	4.886230	5.033026	5.184017	5.339537	5.499724
Glenmuckloch				3.722582	3.834259
Gordonbush	0.235839	0.259138	0.253480	0.253433	0.263580
Griffin Wind	9.863872	8.808973	9.072949	9.353215	9.633757
Hadyard Hill	2.810865	2.895311	2.982171	3.071636	3.163785
Harestanes	2.566730	2.646536	2.726234	2.789599	2.872236
Hartlepool	0.207159	0.215705	0.266557	0.273909	0.282097
Hesta Head			83.386372	85.941027	88.459440

Connection Point	2020/21 (£/kW)	2021/22 (£/kW)	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)
Invergarry	0.371623	0.382788	0.394272	0.406100	0.418283
Kendoon North				-5.082918	-5.236159
Kergord				90.916997	93.443482
Kilgallioch	1.068788	1.100897	1.133924	0.196293	0.202182
Kilmorack	0.200559	0.206584	0.212782	0.219165	0.225740
Kings Lynn			-0.243709	0.615812	0.634266
Kype Muir	1.506280	1.551533	1.598079	1.646021	1.695402
Langage	0.667952	0.688209	0.708730	0.730002	0.388589
Lochay	0.371623	0.382788	0.394272	0.406100	0.418283
Luichart	0.582405	0.600442	0.617899	0.636437	0.655530
Marchwood	0.387556	0.399167	0.411161	0.423548	0.436245
Mark Hill	0.889159	0.915872	1.698027		
Melgarve			0.213962	0.209468	0.215572
Middle Muir	2.012960	2.073435	2.135638	2.199707	2.265699
Middleton	0.115367	0.157854	0.160592	-0.007105	-0.007386
Millennium South		0.548138	0.564016	0.580822	0.598236
Millennium Wind	1.854739	1.910438	1.967768	2.026800	2.087602
Moffat	0.192985	0.201478	0.207824	0.195637	0.200454
Mossford	0.455153	3.012385	0.482892	0.497380	0.512301
Muaithebheal				80.991511	83.421256
Nant	-1.247584	2.625194	-1.323606	-1.363304	-1.404196
Necton	-0.373929	1.176134	-0.060119	-0.103451	
New Deer	0.764677	0.787650	0.811280	0.835618	0.860687
Rhigos	0.103353	0.106602	0.109681	0.112963	0.116339
Rocksavage	0.017979	0.018522	0.019074	-0.019647	-0.020236
Saltend	0.017619	0.018150	0.018693	0.019254	-0.002346
South Humber Bank	0.420023	0.432654	0.897739	-0.206329	-0.212516
Spalding	0.286196	0.295322	0.303945	0.331451	0.341775
Stornaway				75.576847	77.844152
Strathbrora	0.103845	0.122028	0.113229	0.108387	0.113950
Strathy Wind	1.900201	1.969805	2.018481	2.069413	2.133586
Stronelairg	1.086988	1.122221	1.154008	1.177715	1.212867
Wester Dod	0.485545	0.501479	0.366618	0.377617	0.388945
Whitelee	0.107777	0.111015	0.114345	0.117776	0.121309
Whitelee Extension	0.299620	0.308621	0.317880	0.327416	0.337239
Willow				1.692083	1.742845

### X. CMP203: Circuits subject to one-off charges

As part of their connection offer, generators can agree to undertake one-off payments for certain infrastructure cable assets, which affect the way they are modelled in the Transport and Tariff model. This table shows the lines which have been amended in the model to account for the one-off charges that have already been made to the generators. For more information please see CUSC sections 2.14.4, 14.4, and 14.15.15 onwards.

Node 1	Node 2	Actual Parameters	Amendment in Transport Model	Generator
Dyce 132kV	Aberdeen Bay 132kV	9.5km of Cable	9.5km of OHL	Aberdeen Bay
Crystal Rig 132kV	Wester Dod 132kV	3.9km of Cable	3.9km of OHL	Aikengall II
Wishaw 132kV	Blacklaw 132kV	11.46km of Cable	11.46km of OHL	Blacklaw
Farigaig 132kV	Corriegarth 132kV	4km Cable	4km OHL	Corriegarth
Elvanfoot 275kV	Clyde North 275kV	6.2km of Cable	6.2km of OHL	Clyde North
Elvanfoot 275kV	Clyde South 275kV	7.17km of Cable	7.17km of OHL	Clyde South
Farigaig 132kV	Dunmaglass 132kV	4km Cable	4km OHL	Dunmaglass
Coalburn 132kV	Galawhistle 132kV	9.7km cable	9.7km OHL	Galawhistle II
Moffat 132kV	Harestanes 132kV	15.33km cable	15.33km OHL	Harestanes
Coalburn 132kV	Kype Muir 132kV	17km cable	17km OHL	Kype Muir
Coalburn 132kV	Middle Muir 132kV	13km cable	13km OHL	Middle Muir
Melgarve 132kV	Stronelairg 132kV	10km cable	10km OHL	Stronelairg
East Kilbride South 275kV	Whitelee 275kV	6km of Cable	6km of OHL	Whitelee
East Kilbride South 275kV	Whitelee Extension 275kV	16.68km of Cable	16.68km of OHL	Whitelee Extension

## 18. Offshore local generation tariffs

The local offshore tariffs (substation, circuit and Embedded Transmission Use of System) reflect the cost of offshore networks connecting offshore generation. They are calculated at the beginning of price review or on transfer to the offshore transmission owner (OFTO). The tariffs are subsequently indexed by average May to October RPI each year. These tariffs have been indexed by a forecast of RPI for 2019.

Please note that offshore local tariffs may be recalculated as part of the recalculation of parameters for the RIIO-T2 price control period.

Offshore local generation tariffs associated with projects due to transfer in 2019/20 will be confirmed once asset transfer has taken place.

### Y. Offshore local tariffs for 2020/21

Offshore Generator	Tariff Component (£/kW)		
	Substation	Circuit	ETUoS
Barrow	8.216175	42.987017	1.067427
Burbo Bank	10.645155	20.381596	0.000000
Dudgeon	15.420477	24.044705	0.000000
Greater Gabbard	15.404361	35.397706	0.000000
Gunfleet	17.781578	16.324881	3.051215
Gwynt Y Mor	18.760047	18.480965	0.000000
Humber Gateway	14.928709	33.684142	0.000000
Lincs	15.354669	60.117037	0.000000
London Array	10.452326	35.600039	0.000000
Ormonde	25.399999	47.317820	0.377083
Robin Rigg	-0.469866	31.124583	9.646941
Robin Rigg West	-0.469866	31.124583	9.646941
Sheringham Shoal	24.540802	28.780611	0.625605
Thanet	18.688712	34.823751	0.838331
Walney 1	21.921404	43.656418	0.000000
Walney 2	21.761975	44.041034	0.000000
West of Duddon Sands	8.458871	41.739286	0.000000
Westernmost Rough	17.811540	30.129503	0.000000





**Updates to revenue and the charging model since the last forecast**

We have updated the generation and interconnector TEC quantities and the demand volumes circuits required to simulate system flows in the transport model.

We have updated allowed revenue for some Transmission Owners, the local circuits model, the generation background and demand charging bases.

The parameters that affect the transport model have also been updated, including RPI and the expansion constant.

There have been changes to the error margin and the exchange rates used to calculate the proportion of revenue to be recovered from generation and demand (G/D split).

## 19. Changes affecting the locational element of tariffs

The locational element of generation and demand tariffs is based upon:

- Contracted generation and demand;
- Local and MITS circuits; and
- RPI (which increases the expansion constant).
- Week 24 demand data and embedded generation

### Z. Generation contracted, modelled and chargeable TEC

Contracted TEC is the volume of TEC with connection agreements for the 2020/21 year onwards, which can be found on the TEC register.<sup>5</sup> Modelled TEC is the amount of TEC we have entered into the Transport model to calculate system flows, which includes interconnector TEC.

Chargeable TEC is our best view of the likely volume of generation that will be connected to the system from 2020/21 onwards and liable to pay generation TNUoS charges. Chargeable TEC volumes are always based on NGESO's best view of the likely volume of generation TEC connected to the system in the relevant charging year.

The contracted TEC volumes used in this forecast were based on the TEC register from 21 February 2019, in accordance with CUSC section 14.15.6.

Best View	2020/21	2021/22	2022/23	2023/24	2024/25
Contracted TEC (GW)	90.8	98.0	119.4	133.8	145.3
Modelled TEC (GW)	82.6	81.5	86.6	96.8	98.6
Chargeable TEC (GW)	74.1	73.1	77.9	88.1	88.4

## 20. Adjustments for interconnectors

When modelling flows on the transmission system, interconnector flows are not included in the peak model but are included in the year round model. Since interconnectors are not liable for generation or demand TNUoS charges, they are not included in the calculations of chargeable TEC for either the generation or demand charging bases.

<sup>5</sup> See the Registers, Reports and Updates section at <https://www.nationalgrideso.com/connections/registers-reports-and-guidance>

## AA.Interconnectors

The table below reflects the contracted position of interconnectors for 2020/21 onwards.

Interconnector	Node	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Aquind Interconnector	LOVE40	26	0	0	2000	2000	2000
Auchencrosh (interconnector CCT)	AUCH20	10	250	160	500	500	500
Britned	GRAI40	24	1200	1200	1200	1200	1200
East West Interconnector	CONQ40	16	505	505	505	505	505
ElecLink	SELL40	24	1000	1000	1000	1000	1000
EuroLink	LEIS40	18	0	0	0	0	1600
FAB Link Interconnector	EXET40	26	0	0	0	1400	1400
Greenlink	PEMB40	20	0	0	500	500	500
Gridlink Interconnector	KINO40	24	0	0	1500	1500	1500
IFA Interconnector	SELL40	24	2000	2000	2000	2000	2000
IFA2 Interconnector	CHIL40	26	1100	1100	1100	1100	1100
Nemo Link	RICH40	24	1020	1020	1020	1020	1020
NeuConnect Interconnector	GRAI40	24	0	0	1400	1400	1400
NorthConnect	PEHE40	2	0	0	1400	1400	1400
NS Link	BLYT4A	13	1400	1400	1400	1400	1400
Viking Link Denmark Interconnector	BICF4A	17	0	0	1500	1500	1500

## 21. RPI

The RPI index for the components detailed below is calculated based on our forecast of 2019 average May to October RPI.

## 22. Expansion constant

The expansion constant is 14.9879521554383. This reflects our latest view of RPI.

The expansion constant and expansion factors will be recalculated for RIIO T-2 starting in 2021/22. We have not yet recalculated these figures, but will provide more information on our progress in future forecasts.

## BB.Expansion constant and inflation indices

£/MWkm		2020/21	2021/22	2022/23	2023/24	2024/25
Expansion Constant		14.987952	15.438234	15.901381	16.378422	16.869775
	2009/10	2020/21	2021/22	2022/23	2023/24	2024/25
Inflation indices	1	1.356000	1.397000	1.439000	1.481000	1.526000

## 23. Transport model demand (Week 24 data)

The contracted demand at Grid Supply Points (GSPs) is used in the transport model to provide locational signals. This data is based on demand forecasts from DNOs and directly connected users (it is called week 24 data, as the data exchange process finishes in calendar week 24 each year).

Demand levels at individual GSPs are forecast for the purposes of the “snapshot” of national peak demand.

## CC.Week 24 DNO zonal demand forecast

Demand Zone	2020/21	2021/22	2022/23	2023/24	2024/25
	MW	MW	MW	MW	MW
1	362.5	-224.8	137.2	43.8	86.6
2	2644.0	2649.0	2568.6	2537.8	2519.3
3	2648.9	2018.0	2715.2	2728.1	2739.6
4	3168.9	3103.0	2940.0	2852.4	2767.9
5	4387.7	3417.0	4421.0	4425.8	4423.2
6	2393.7	2217.0	2641.9	2690.5	2743.5
7	5295.8	5407.0	5428.3	5506.1	5593.0
8	4409.8	4777.0	4446.3	4487.4	4536.0
9	6097.3	5122.0	6407.5	6529.7	6648.1
10	1666.2	1371.0	1685.5	1702.3	1711.0
11	3813.1	3611.0	3861.5	3765.0	3800.7
12	5379.6	5444.0	5736.3	5823.6	5956.7
13	6219.7	7342.0	6833.2	6942.2	7023.0
14	2244.4	2030.0	2178.2	2156.1	2136.6

## 24. Allowed revenues

NGESO recovers revenue on behalf of all onshore and offshore Transmission Owners (TOs & OFTOs) in Great Britain. For this forecast, the three onshore TOs have assumed RPI index-linked base revenue figures. The total revenue figure will increase from £2.95bn in 2020/21, to £3.46bn in 2024/25, under this assumption.

### DD.Allowed revenues

£m Nominal	2020/21	2021/22	2022/23	2023/24	2024/25
<b>National Grid Electricity Transmission</b>					
<i>Price controlled revenue</i>	1,782.4	1,822.1	1,876.8	1,933.1	1,991.1
<i>Less income from connections</i>	31.0	30.8	30.8	30.8	30.8
<b>Income from TNUoS</b>	<b>1,751.4</b>	<b>1,791.3</b>	<b>1,846.0</b>	<b>1,902.3</b>	<b>1,960.3</b>
<b>Scottish Power Transmission</b>					
<i>Price controlled revenue</i>	381.6	397.1	376.7	391.5	391.5
<i>Less income from connections</i>	12.9	12.9	12.9	12.9	12.9
<b>Income from TNUoS</b>	<b>368.7</b>	<b>384.2</b>	<b>363.8</b>	<b>378.6</b>	<b>378.6</b>
<b>SHE Transmission</b>					
<i>Price controlled revenue</i>	361.6	375.4	386.3	396.6	396.6
<i>Less income from connections</i>	3.4	3.4	3.4	3.4	3.4
<b>Income from TNUoS</b>	<b>358.2</b>	<b>372.0</b>	<b>382.9</b>	<b>393.2</b>	<b>393.2</b>
<b>National Grid Electricity System Operator</b>					
<b>Pass-through from TNUoS</b>	<b>41.4</b>	<b>41.4</b>	<b>41.4</b>	<b>41.4</b>	<b>41.4</b>
<b>Offshore (+ Interconnector from y2019/20)</b>	<b>431.0</b>	<b>494.3</b>	<b>543.2</b>	<b>608.6</b>	<b>685.6</b>
<b>Total to Collect from TNUoS</b>	<b>2,950.8</b>	<b>3,083.2</b>	<b>3,177.4</b>	<b>3,324.2</b>	<b>3,459.2</b>

Please note these figures are rounded to one decimal place.

## 25. Generation/ Demand (G/D) split

Section 14.14.5 (v) in the Connection and Use of System Code (CUSC) currently limits average annual generation use of system charges in Great Britain to €2.5/MWh. The net revenue that can be recovered from generation is therefore determined by the €2.5/MWh limit, exchange rate and forecast output of chargeable generation. An error margin is also applied to reflect revenue and output forecasting accuracy.

### Exchange rate

As prescribed by the TNUoS charging methodology, the exchange rate for 2020/21 to 2023/24 is taken from the Economic and Fiscal Outlook published by the Office of Budgetary Responsibility in March 2019. There is no figure published for 2024/25, so we have reused the rate for 2023/24.<sup>6</sup>

### Generation output

The forecast output of generation is calculated using the average of the four scenarios in the latest Future Energy Scenarios publication (July 2018), using April to March data.

### Error margin

We have pre-emptively reduced the error margin, pending the final revenue and generation TWh output data from the 2018/19 year, to 16%. We have not changed the way that we calculate the error margin to cause the reduction, rather we anticipate that the error margin will reduce due to changes to the input data.

We use data from the past seven years of revenue collection to calculate the error margin. We then adjust the variance of the revenue collected compared to forecasted revenue for systemic error.

We take the maximum adjusted revenue error, and the maximum generation output error and then combine these to look at the maximum error that could arise if both errors happen concurrently.

The CUSC modification that NGENSO will raise to change the G/D split calculation will also review the error margin calculation.

### EE. Error margin calculation

Calculation for 2018/19				Calculation for 2019/20				Calculation for 2020/21			
Data from year:	Revenue inputs		Generation output variance	Data from year:	Revenue inputs		Generation output variance	Data from year:	Revenue inputs		Generation output variance
	Revenue variance	Adjusted variance			Revenue variance	Adjusted variance			Revenue variance	Adjusted variance	
2010/11	-3.2%	4.7%	-2.8%								
2011/12	-14.8%	-6.9%	-0.6%	2011/12	-14.8%	-6.6%	-0.6%				
2012/13	-8.1%	-0.2%	0.0%	2012/13	-8.1%	0.1%	0.0%	2012/13	-8.1%	-1.0%	0.0%
2013/14	-9.5%	-1.6%	-10.8%	2013/14	-9.5%	-1.3%	-10.8%	2013/14	-9.5%	-2.4%	-10.8%
2014/15	-6.0%	1.9%	-7.4%	2014/15	-6.0%	2.2%	-7.4%	2014/15	-6.0%	1.1%	-7.4%
2015/16	-8.7%	-0.8%	-12.2%	2015/16	-8.7%	-0.5%	-12.2%	2015/16	-8.7%	-1.6%	-12.2%
2016/17	-5.1%	2.8%	-7.9%	2016/17	-5.1%	3.1%	-7.9%	2016/17	-5.1%	2.0%	-7.9%
				2017/18	-5.2%	3.0%	-1.5%	2017/18	-5.2%	1.9%	-1.5%
								2018/19	?	?	?
Systemic error:	-7.9%			Systemic error:	-8.2%			Systemic error:	-7.1%		
Adjusted error:		6.9%	12.2%	Adjusted error:		6.6%	12.2%	Adjusted error:		2.4%	12.2%
<b>Error margin =</b>			<b>21%</b>	<b>Error margin =</b>			<b>21%</b>	<b>Error margin =</b>			<b>16%</b>
Adjusted variance = the revenue variance - systemic error											
Systemic error = the average of all the values in the series											
Adjusted error = the average of the values in the series											

<sup>6</sup> <https://obr.uk/efo/economic-fiscal-outlook-march-2019/>

## The G/D split calculation

The parameters used to calculate the proportions of revenue collected from generation and demand are shown in the table below.

### FF. Generation and demand revenue proportions

		2020/21	2021/22	2022/23	2023/24	2024/25
CAPEC	Limit on generation tariff (€/MWh)	2.50	2.50	2.50	2.50	2.50
y	Error Margin	16.0%	16.0%	16.0%	16.0%	16.0%
ER	Exchange Rate (€/£)	1.12	1.11	1.09	1.08	1.08
MAR	Total Revenue (£m)	2,950.8	3,083.2	3,177.4	3324.2	3,459.2
GO	Generation Output (TWh)	221.2	213.6	207.0	201.3	200.6
G	% of revenue from generation	14.1%	13.2%	12.5%	11.7%	11.2%
D	% of revenue from demand	85.9%	86.8%	87.5%	88.3%	88.8%
G.MAR	Revenue recovered from generation (£m)	415.1	405.7	397.4	390.1	388.9
D.MAR	Revenue recovered from demand (£m)	2535.7	2677.5	2780.0	2934.0	3070.3
<b>Breakdown of generation revenue</b>						
	Revenue from the Peak element	142.8	142.7	146.1	145.1	138.6
	Revenue from the Year Round Shared element	73.5	98.1	92.5	132.4	144.8
	Revenue from the Year Round Not Shared element	115.4	141.3	203.7	291.6	301.1
	Revenue from Onshore Local Circuit tariffs	18.1	20.0	23.6	64.0	111.6
	Revenue from Onshore Local Substation tariffs	19.4	19.7	20.9	25.1	25.0
	Revenue from Offshore Local tariffs	339.1	390.3	429.3	485.7	543.8
	Revenue from the Residual element	-293.3	-406.5	-518.8	-753.8	-876.1

### Compliance with the €2.50 cap on generation revenue

The G/D split methodology defined in the CUSC is designed to ensure that TNUoS tariffs are compliant with EU regulation 838/2010, which states that transmission companies are restricted to charging generator customers in the range of €0 - €2.50/MWh.

Under the CMA decision<sup>7</sup> about CUSC modification CMP261, to calculate ex-post compliance with the regulation, we do not include revenue recovered from “offshore local circuits” in the total revenue paid by generators in determining the average.

Using the current methodology to calculate generation TNUoS, (which includes revenue recovered from offshore local circuits), we calculate charges to an equivalent rate of €2.50 \* the error margin (currently 16%), which equals a rate of €2.10/MWh.

We are aware that the BREXIT process may have a significant effect on the exchange rate for 2020/21, as this is set using the published OBR rates from March 2019. The G/D split is not yet finalised as the final input, the FES forecast of transmission MWh output is not available until July 2019.

In the table below, we have calculated the effective €/MWh rate if revenue from offshore local circuits is not included in the calculation.

### GG.Equivalent €/MWh generation tariffs in each year

Equivalent €/MWh rate		20/21	21/22	22/23	23/24	24/25
Ex post forecast	€/MWh	0.384	0.080	- 0.169	- 0.515	- 0.837

The **ex post forecast** suggests that in 2020/21 the equivalent rate of revenue recovered from generators will be €0.38 €/MWh, falling below zero in 2022/23. This fall below zero is an issue as it is outside the range specified in regulation 838/2010.

We indicated in a letter<sup>8</sup> that following the CMA’s judgement on CMP261 (a modification concerned the cap in 2015/16), we are reviewing the options. NGENSO will soon raise a CUSC modification to address this issue.

<sup>7</sup> <https://www.gov.uk/cma-cases/edf-sse-code-modification-appeal>

<sup>8</sup> [https://www.nationalgrid.com/sites/default/files/documents/Open%20letter\\_Combpliance%20with%20838\\_2010.pdf](https://www.nationalgrid.com/sites/default/files/documents/Open%20letter_Combpliance%20with%20838_2010.pdf)

## NGESO CUSC modification on the generation revenue cap

As we have reported in Transmission Charging Methodology Forum (TCMF)<sup>9</sup> meetings in January and February 2019, NGENSO intends to raise a modification to change the way the generation revenue cap is set.

The scope of this includes determining which revenues should be included in calculating the cap, and also how the error margin is calculated.

We know that this is a key concern to many customers, so we encourage all affected parties to engage with us, or directly in the CUSC modification process, ensure you have your views taken into account as part of the changes.

## 26. Charging bases for 2019/20

### Generation

The generation charging base we use in our models is less than contracted TEC. It excludes interconnectors, which are not chargeable, and generation that we do not expect to be connected during the charging year due to closure, termination or delay. It also includes any generators that we believe may increase their TEC.

We are unable to break down our best view of generation as some of the information used to derive it could be commercially sensitive. The change in contracted TEC, as per the TEC register is shown in the appendices.

### Demand

Our forecasts of demand and embedded generation have been updated for 2020/21 to 2024/25.

To forecast chargeable HH and NHH demand and EET volumes we use a Monte Carlo modelling approach. This incorporates our latest data including:

- Historical gross metered demand and embedded export volumes (August 2014-December 2018)
- Weather patterns
- Future demand shifts
- Expected levels of renewable generation.

### HH.Demand charging base and system peak

	2020/21	2021/22	2022/23	2023/24	2024/25
Average System Demand at Triad (GW)	50.25	50.03	50.13	50.24	50.36
Average HH Metered Demand at Triad (GW)	19.16	19.05	19.09	19.13	19.15
NHH Annual Energy between 4pm and 7pm (TWh)	24.13	23.97	23.96	23.91	23.86

Overall, we assume that recent historical trends in steadily declining volumes will continue until 2023/24 due to several factors, including the growth in distributed generation and “behind the meter” microgeneration. It is then expected that demand will begin to increase due to the increase of electric vehicles and heat pumps.

HH metered demand at Triad is expected to decrease from 19.1GW to 19.0GW in 2021/22, it is then expected to increase gradually back up to 19.1GW over the next 3 years. NHH annual energy consumption is expected to decrease year on year, starting at 24.1 in 2020/21 and decreasing to 23.9 by 2024/25.

<sup>9</sup> <https://www.nationalgrideso.com/charging/transmission-charging-methodology-forum-tcmf>

## 27. Annual Load Factors

The Annual Load Factors (ALFs) of each power station are required to calculate tariffs. For the purposes of this forecast we have used the final version of the 2019/20 ALFs, based upon data from 2013/14 to 2017/18 available from the National Grid ESO website.<sup>10</sup>

## 28. Generation and demand residuals

The residual element of tariffs can be calculated using the formulae below. This can be used to assess the effect of changing the assumptions in our tariff forecasts without the need to run the transport and tariff model.

**Generation Residual** = (Total Money collected from generators as determined by G/D split less money recovered through location tariffs, onshore local substation & circuit tariffs and offshore local circuit & substation tariffs) divided by the total chargeable TEC

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

Where

- $R_G$  is the generation residual tariff (£/kW)
- $G$  is the proportion of TNUoS revenue recovered from generation
- $R$  is the total TNUoS revenue to be recovered (£m)
- $Z_G$  is the TNUoS revenue recovered from generation 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)

The **Demand Residual** = (Total demand revenue less revenue recovered from locational demand tariffs, plus revenue paid to embedded exports) divided by total system gross triad demand

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

Where:

- $R_D$  is the gross demand residual tariff (£/kW)
- $D$  is the proportion of TNUoS revenue recovered from demand
- $R$  is the total TNUoS revenue to be recovered (£m)
- $Z_D$  is the TNUoS revenue recovered from demand locational zonal tariffs (£m)

<sup>10</sup><https://www.nationalgrideso.com/sites/eso/files/documents/Final%20ALFs%20for%202019-20.pdf>



- EE is the amount to be paid to embedded export volumes through the embedded export tariff (£m)
- B<sub>D</sub> is the demand charging base (HH equivalent GW)

Z<sub>G</sub>, Z<sub>D</sub>, L<sub>C</sub>, and EE are determined by the locational elements of tariffs. The EE is also affected by the value of the AGIC<sup>11</sup> and phased residual.

## II. Residual components calculation

	Component	2020/21	2021/22	2022/23	2023/24	2024/25
<b>G</b>	Proportion of revenue recovered from generation (%)	14.1%	13.2%	12.5%	11.7%	11.2%
<b>D</b>	Proportion of revenue recovered from demand (%)	85.9%	86.8%	87.5%	88.3%	88.8%
<b>R</b>	Total TNUoS revenue (£m)	2950.8	3083.2	3177.4	3324.2	3459.2
<b>Generation Residual</b>						
<b>R<sub>G</sub></b>	Generator residual tariff (£/kW)	-3.96	-5.56	-6.66	-8.56	-9.91
<b>Z<sub>G</sub></b>	Revenue recovered from the locational element of generator tariffs (£m)	331.7	382.2	442.3	569.1	584.4
<b>O</b>	Revenue recovered from offshore local tariffs (£m)	339.1	390.3	429.3	485.7	543.8
<b>L<sub>G</sub></b>	Revenue recovered from onshore local substation tariffs (£m)	19.4	19.7	20.9	25.1	25.0
<b>S<sub>G</sub></b>	Revenue recovered from onshore local circuit tariffs (£m)	18.1	20.0	23.6	64.0	111.6
<b>B<sub>G</sub></b>	Generator charging base (GW)	74.1	73.1	77.9	88.1	88.4
<b>Gross Demand Residual</b>						
<b>R<sub>D</sub></b>	Demand residual tariff (£/kW)	52.18	56.09	57.61	60.97	63.53
<b>Z<sub>D</sub></b>	Revenue recovered from the locational element of demand tariffs (£m)	-68.2	-112.5	-90.0	-110.0	-109.2
<b>EE</b>	Amount to be paid to Embedded Export Tariffs (£m)	17.9	15.8	17.9	19.4	19.5
<b>B<sub>D</sub></b>	Demand Gross charging base (GW)	50.2	50.0	50.1	50.2	50.4

## 29. Small Generator Discount

The Small Generator Discount is defined in National Grid's Electricity Transmission licence condition C13. This licence condition was due to expire on 31 March 2019, but the deadline has now been extended to 31 March 2021<sup>12</sup> following an Ofgem statutory consultation<sup>13</sup> on the proposal.

A discount will continue to be applied to TNUoS tariffs for transmission connected generation <100MW, connected at 132kV until 31 March 2021.

**Only the tariffs for 2020/21 include the effect of the Small Generator Discount:**

- The discount to affected small generators for 2020/21 is £12.055391/kW
- The additional tariff to add to all demand tariffs:
  - HH: £0.741202/kW, and
  - NHH: 0.095496p/kWh.

<sup>11</sup> Avoided Grid Supply Point Infrastructure Credit

<sup>12</sup> [https://www.ofgem.gov.uk/system/files/docs/2019/01/sgd\\_decision\\_letter\\_final.pdf](https://www.ofgem.gov.uk/system/files/docs/2019/01/sgd_decision_letter_final.pdf)

<sup>13</sup> <https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-our-proposal-modify-standard-licence-condition-c13-adjustment-use-system-charges-small-generators-electricity-transmission-licence>

## JJ. Small Generator Discount calculation

Small Generator Discount Calculation		
Generator Residual (£/kW)	G	-3.96
Demand Residual (£/kW)	D	52.18
Small Generator Discount (£/kW)	$T = (G + D)/4$	£ 12.06
Forecast Small Generator Volume (kW)	V	3,089,350
2020/21 SGD cost (£)	$V \times T$	37,243,322
Prior year reconciliation (£)	R	-
Total SGD Cost (£)	$C = (V \times T) + R$	37,243,322
Total System Triad Demand (kW)	TD	50,247,162
Total HH Triad Demand (kW)	HHD	19,164,453
Total NHH Consumption (kWh)	NHHD	24,125,076,703
Increase in HH Demand tariff (£/kW)	$HHT = C/TD$	0.741202
Total Cost to HH Customers (£)	$HHC = HHT * HHD$	14,204,741
Increase in NHH Demand tariff (p/kWh)	$NHHT = (C - HHC)/NHHD$	0.095496
Total Cost to NHH Customers (£)	$NHHC = NHHT * NHHD$	23,038,581

The generator discount rate is subtracted from the applicable TNUoS tariff for affected generators. The HH and NHH rates are added to all demand tariffs.

**The Small Generator Discount will cease to apply from 1 April 2021.**

# Sensitivities to change

## 30. Purpose

We have received feedback requesting that we undertake further modelling around the potential methodology changes arising from the Ofgem Targeted Charging Review, Charging Futures Forum or other current and potential CUSC modifications. Given where they are in the development cycle, we felt it more appropriate that dedicated workgroups assess a wider range of options, and recommend changes to the existing methodology. This is driven for many reasons:

1. The changes are not yet well defined; there is no conclusive change to the methodology;
2. We have not developed the model to reflect any changes (it is not efficient to prepare multiple variations which are based on rules that are not yet defined), and
3. In the case of some proposals we do not have data to allow us to forecast in the manner proposed.

We are aware that Ofgem's TCR is dealing with how the demand residual and generation residual are recovered. We have included in this section a summary table of the total quantity of the demand and generation residual, for your information.

In this report, we have so far provided a best view of the tariffs for 2020/21 until 2024/25 under the current methodology and framework. The future is however uncertain, and changes in input parameters are certain between now and the publication of the final tariffs for each year.

## 31. Caveats

Our best view tariffs so far in this report represent our best view of how tariffs may evolve under the existing charging methodology and regulatory framework. This report is published without prejudice and whilst every effort is made to ensure the accuracy of the information, it is subject to several estimates and forecasts and may not bear relation to neither the indicative nor future tariffs National Grid Electricity System Operator will publish at a later date.

All tariffs in this section are to illustrate mathematically how tariffs may evolve. In presenting certain sensitivities nothing is inferred about our view of the future, likelihoods of certain scenarios or changes to policy.

**All changes to the model in terms of network, demand, generation, and revenue are indicative. They should not be interpreted as our view of how things may possibly change in future.**

## 32. Effect of RIIO-T2 parameters

Throughout this section, we have maintained our stated assumptions about RIIO-T2 and the current charging methodology (as detailed in the modelling approach for the five-year view section on page 10 at the start of the report). We have however highlighted potential methodology changes that may impact the parameters for RIIO-T2.

## KK.Effect of changing parameters on tariffs for RIIO-T2

Component	Assumption for this five-year view	Qualitative discussion of impact of changing this parameter
Expansion constant	The expansion constant continues to increase by RPI	The expansion constant has the effect of “stretching” the network. Increasing the expansion constants make positive tariffs more positive, and negative tariffs more negative. The effect is the same for all locations.
Expansion factors	The expansion factors are unchanged	The expansion factors are the relative cost of different types of circuits. If some are to increase by more than others this will affect tariffs dominated by those particular types of circuits.  Significant data is required from TOs to recalculate these.
Security factor	The security factor remains 1.8	As the security factor is applied to zonal tariffs, and local tariffs with redundancy; if it is increased, locational and local tariffs will increase. If it is decreased, locational and local tariffs will reduce.
Offshore tariffs	Offshore tariffs increase by RPI	Offshore tariffs will be recalculated based on latest OFTO revenue forecasts for RIIO-T2, and adjustments for any income adjusting events in RIIO-T1 (see <sup>1</sup> ).  The total revenue from generators will not change, but the proportion that is recovered from offshore generators may change. If offshore generators pay more, then the generator residual will become more negative, and vice-versa.
Avoid GSP Infrastructure Credit	The AGIC increases by RPI	It will be recalculated based on up to 20 schemes from the RIIO-T2 price-control period.  If it increases, this increases the payment to embedded generators, and therefore the total cost of the embedded export. This leads to an increase in the demand residual and the average HH and NHH tariff.

Component	Assumption for this five-year view	Qualitative discussion of impact of changing this parameter
Generation zones	The number of zones remains 27	<p>There is uncertainty around generation zones, as Ofgem's Significant Code Review will look at adapting the current methodology for embedded generators. The current methodology as written will likely create many more generation zones, with several zones containing only one generator, and arguably less certainty and stability for generators.</p> <p>This is a significant piece of work to undertake. It was last discussed in depth at TCMF in May 2016.<sup>14</sup> The analysis suggested at that time there might be over 40 generation zones in the future under the current methodology.</p> <p>Our view is that the methodology should ensure that there is a reasonable number of zones, and that they don't change regularly without justification. We await the outcome of the SCR before taking any further action.</p>

### 33. Factors affecting the residual tariffs

#### Total revenue

The total revenue to be collected from TNUoS affects the demand residual. Due to the upper limit on generation charges additional revenue has no effect on generation charges.

#### LL. The effect of additional revenue on TNUoS tariffs

		2020/21	2021/22	2022/23	2023/24	2024/25
Additional Revenue	£m	100.00	100.00	100.00	100.00	100.00
<b>Effect on Tariffs</b>						
Generation Residual	£/kW	No changes due to €2.50/MWh cap				
Demand Residual	£/kW	54.17	58.08	59.61	62.96	65.51
	<i>Change</i>	1.99	2.00	1.99	1.99	1.99
Change to NHH	<i>p/kWh</i>	0.27	0.27	0.27	0.27	0.27

In summary, consistently over the next 5 years an additional £100m of allowed revenue results in an increase of around £2/kW for HH demand, and 0.3 p/kWh for NHH demand. Average generation tariffs are unchanged.

#### The G/D split calculation

The total revenue recovered from generation is determined by the formula in 14.14.5(v) of the CUSC. All the remaining revenue is recovered from demand tariffs.

This section looks at the effect of changing the three parameters in the G/D split calculation: The error margin, the £/€ exchange rate and the volume of chargeable generation.

- Increasing the error margin from 16% to 21%** results in less revenue being recovered from generation. The result is between £23m and £25m less is recovered from generator tariffs, which increases demand tariffs. The decrease to generation is borne wholly through

<sup>14</sup><https://www.nationalgrideso.com/document/48481/download>

a decrease to the residual of between £0.26/kW and £0.33/kW. The demand residual increases by £0.46-£0.49/kW, and average NHH tariffs decrease by 0.07p/kWh.

### MM. The effect of increasing the G/D split error margin to 21%

		20/21	21/22	22/23	23/24	24/25
Change to Generator Revenue	£m	- 24.71	- 24.15	- 23.65	- 23.22	- 23.15
<b>Effect on Tariffs</b>						
Generation Residual	£/kW	- 4.29	- 5.89	- 6.96	- 8.82	- 10.17
	Change	- 0.33	- 0.33	- 0.30	- 0.26	- 0.26
Demand Residual	£/kW	52.67	56.57	58.08	61.43	63.99
	Change	0.49	0.48	0.47	0.46	0.46
Change to NHH	p/kWh	0.07	0.07	0.06	0.06	0.06

- b. **Increasing the exchange rate by + 0.2 €/£** results in less revenue being recovered from generation, due to the strength of the pound to the euro. The result is that between £60m and £63m less revenue can be collected from generators and is recovered from demand. This decreases generation tariffs by between £0.85/kW and £0.69/kW. The demand residual increases by around £1.23/kW, and the average NHH tariff increases by 0.17 p/kWh.

### NN. The effect of increasing the G/D split £:€ exchange rate

<b>b. Exchange Rate</b>		2020/21	2021/22	2022/23	2023/24	2024/25
Change to Generator Revenue	£m	- 62.93	- 62.13	- 61.43	- 60.79	- 60.60
<b>Effect on Tariffs</b>						
Generation Residual	£/kW	- 4.81	- 6.41	- 7.45	- 9.25	- 10.60
	Change	- 0.85	- 0.85	- 0.79	- 0.69	- 0.69
Demand Residual	£/kW	53.43	57.33	58.84	62.18	64.73
	Change	1.25	1.24	1.23	1.21	1.20
Change to NHH	p/kWh	0.17	0.17	0.17	0.17	0.16

- c. **Reducing the volume of chargeable generation by 10%**. This results in less revenue being recovered from generation. The result is between £39m and £42m less revenue can be collected from generators and is recovered from demand. This decreases generation residual tariffs by between £0.44/kW and £0.56/kW. The demand residual increases by around £0.80/kW, and the average NHH tariff increases by 11p/kWh

### OO. The effect on the G/D split of reducing the chargeable generation volume

<b>c. Charging volume</b>		2020/21	2021/22	2022/23	2023/24	2024/25
Change to Generator Revenue	£m	- 41.51	- 40.57	- 39.74	- 39.01	- 38.89
<b>Effect on Tariffs</b>						
Generation Residual	£/kW	- 4.52	- 6.11	- 7.17	- 9.00	- 10.35
	Change	- 0.56	- 0.55	- 0.51	- 0.44	- 0.44
Demand Residual	£/kW	53.00	56.90	58.40	61.75	64.30
	Change	0.83	0.81	0.79	0.78	0.77
Change to NHH	p/kWh	0.11	0.11	0.11	0.11	0.11

- d. **Removing offshore revenue from the calculation of the G/D split.** In Ofgem's rejection of CMP261 (ensuring TNUoS paid by generators complies with the €2.50/MWh cap), they stated that certain local revenues should not be included in the calculation of the cap on generation revenue.

NGESO will soon be raising a CUSC modification (see page 38 above) to address this disparity between the current methodology for calculating the cap, and Ofgem's interpretation, but no decision on what should or should not be included in the calculation of the G/D split has been made so far.

As an example of how a change to how the G/D split is calculated might affect generation and demand tariffs, we have provided the example below, where we have removed revenue from offshore local tariffs from the calculation.

The effect of removing offshore local revenues from the G/D split calculation increases generation residual tariffs over the five-year period by £4.58/kW in 2020/21 and by £6.15/kW by 2024/25. HH demand tariffs reduce by £6.75/kW and £10.80/kW in 2024/25. NHH tariffs reduce by 1p/kWh in 2020/21 and by 1.62p/kWh in 2024/25.

### PP. The effect on tariffs of removing offshore revenue from the G/D split calculation

d. G/D split without offshore local revenue		2020/21	2021/22	2022/23	2023/24	2024/25
Cap on generation revenue (G.MAR)	(£m)	415.1	405.7	397.4	390.1	388.9
Charging base	(GW)	74.1	73.1	77.9	88.1	88.4
Revenue from the Peak element	(£m)	142.8	142.7	146.1	145.1	138.6
Revenue from the Year Round Shared element	(£m)	73.5	98.1	92.5	132.4	144.8
Revenue from the Year Round Not Shared element	(£m)	115.4	141.3	203.7	291.6	301.1
Revenue from Onshore Local Circuit tariffs	(£m)	18.1	20.0	23.6	64.0	111.6
Revenue from Onshore Local Substation tariffs	(£m)	19.4	19.7	20.9	25.1	25.0
Revenue from Offshore Local tariffs (Revenue NOT included in the cap calculation)	(£m)	339.1	390.3	429.3	485.7	543.8
Revenue from the Residual element	(£m)	45.9	-16.2	-89.4	-268.1	-332.2
Revenue recovered from generation	(£m)	369.2	421.9	486.8	658.2	721.1
New generation residual (£/kW)	(£/kW)	£ 0.62	-£ 0.22	-£ 1.15	-£ 3.04	-£ 3.76
<b>Increase in generation residual</b>	(£/kW)	<b>£ 4.58</b>	<b>£ 5.34</b>	<b>£ 5.51</b>	<b>£ 5.51</b>	<b>£ 6.15</b>
<b>Impact on demand tariffs</b>						
New HH demand residual	(£/kW)	45.43	48.28	49.05	51.30	52.73
<b>Reduction in HH residual</b>	(£/kW)	<b>-£ 6.75</b>	<b>-£ 7.80</b>	<b>-£ 8.56</b>	<b>-£ 9.67</b>	<b>-£ 10.80</b>
<b>Reduction in NHH tariff</b>	p/kWh	<b>-1.01</b>	<b>-1.21</b>	<b>-1.28</b>	<b>-1.46</b>	<b>-1.62</b>

## 34. Changes to chargeable demand volumes

Demand tariffs make up the largest part of the TNUoS cost recovery, responsible for £2.5bn in 2020/21 rising to £3bn by 2024/25. This section illustrates how things may evolve if the charging base changes:

- A decrease of 1GW system peak and HH at Triad.** A decrease of 1GW at Triad reduces the charging base used to set HH tariffs, and the revenue recovered from HH tariffs. The result is a £1.06/kW to £1.30/kW increase each year in the gross HH demand tariff for a 1GW decrease in charging base. NHH tariffs also increase from between 0.19p/kWh to 0.24p/kWh.

### QQ. The effect of reducing chargeable demand volumes by 1GW

		2020/21	2021/22	2022/23	2023/24	2024/25
System Gross Triad Demand (-1GW)	GW	49.25	49.03	49.13	49.24	49.36
HH Gross Triad Demand (-1GW)	GW	6.09	5.82	5.73	5.71	5.69
Embedded Export Volume	GW	7.09	6.82	6.73	6.71	6.69
NHH Demand	TWh	24.13	23.97	23.96	23.91	23.86
Demand Residual	£/kW	53.24	57.23	58.78	62.21	64.81
	Change	1.06	1.14	1.17	1.24	1.29
Change to NHH	p/kWh	0.19	0.21	0.21	0.23	0.24

- Reduction of NHH Demand by 10%.** This changes the charging base for the NHH, but does not change any other tariffs. The result of a 10% reduction in the NHH charging base is a reduction in the NHH demand charging base to 21.5TWh by 2024/25. The result is an increase in NHH tariffs of between 0.75p/kWh and 0.92p/kWh.

### RR. The effect of reducing NHH demand by 10%

		2020/21	2021/22	2022/23	2023/24	2024/25
System Gross Triad Demand	GW	50.25	50.03	50.13	50.24	50.36
HH Gross Triad Demand	GW	7.09	6.82	6.73	6.71	6.69
Embedded Export Volume	GW	17.66	17.55	17.59	17.63	17.65
NHH Demand	TWh	21.71	21.57	21.56	21.52	21.47
Demand Residual	£/kW	HH tariffs and demand residual are unchanged				
	Change					
Change to NHH	p/kWh	0.75	0.80	0.83	0.88	0.92

- c. **Increase of 2GW in EET volumes.** This has an impact on all demand tariffs. By increasing the amount paid out through the EET, which is an additional £5.1m to £5.8m a year, it will increase the demand residual by £0.1/kW each year. The NHH tariff also increases by 0.02p/kWh.

### SS. The effect of increasing EET volumes by 2GW

		2020/21	2021/22	2022/23	2023/24	2024/25
System Gross Triad Demand	GW	50.25	50.03	50.13	50.24	50.36
HH Gross Triad Demand (+2GW)	GW	9.09	8.82	8.73	8.71	8.69
Embedded Export Volume	GW	17.66	17.55	17.59	17.63	17.65
NHH Demand	TWh	24.13	23.97	23.96	23.91	23.86
Embedded Export Revenue	£m	22.95	20.47	23.17	25.12	25.28
	Change	5.05	4.64	5.31	5.77	5.82
Demand Residual	£/kW	52.28	56.18	57.72	61.09	63.64
	Change	0.10	0.09	0.11	0.11	0.12
Change to NHH	p/kWh	0.02	0.02	0.02	0.02	0.02

- d. **Increase value of AGIC by £2/kW.** By increasing the value of the AGIC this will increase the value of the embedded export tariff. An additional £12.4m will be paid out through the EET in 2020/21, which decreases to £8.2m in 2024/25. This increases the demand residual by £0.14/kW to £0.25/kW across the 5-year period. It also impacts the NHH tariff by increasing it between 0.03p/kWh and 0.04p/kWh. By increasing the AGIC, only zones 1 to 3 become £0/kW rather than zones 1 to 5.

### TT. The effect of increasing the value of the AGIC by £2/kW

		2020/21	2021/22	2022/23	2023/24	2024/25
System Gross Triad Demand	GW	50.25	50.03	50.13	50.24	50.36
HH Gross Triad Demand	GW	7.09	6.82	6.73	6.71	6.69
Embedded Export Volume	GW	17.66	17.55	17.59	17.63	17.65
NHH Demand	TWh	24.13	23.97	23.96	23.91	23.86
Embedded Export Revenue	£m	30.29	22.88	25.49	28.06	27.62
	Change	12.38	7.05	7.62	8.71	8.16
Demand Residual	£/kW	52.43	56.23	57.76	61.14	63.69
	Change	0.25	0.14	0.15	0.17	0.16
Change to NHH	p/kWh	0.04	0.03	0.03	0.03	0.03



**UU. The effect on the embedded export tariffs if the value of the AGIC is increased by £2/kW**

	2020/21	2021/22	2022/23	2023/24	2024/25
1 Northern Scotland	0.000	0.000	0.000	0.000	0.000
2 Southern Scotland	0.000	0.000	0.000	0.000	0.000
3 Northern	0.000	0.000	0.000	0.000	0.000
4 North West	1.810	0.000	0.519	0.945	0.610
5 Yorkshire	2.834	0.977	0.794	0.990	0.754
6 N Wales & Mersey	3.055	0.882	1.896	3.236	4.597
7 East Midlands	6.289	5.041	5.533	5.768	5.981
8 Midlands	7.293	5.790	6.667	7.525	8.124
9 Eastern	8.439	7.745	7.846	7.654	7.915
10 South Wales	4.405	2.991	5.655	7.275	6.748
11 South East	10.856	10.085	10.451	10.334	10.743
12 London	14.287	13.403	14.289	14.279	14.856
13 Southern	12.285	11.274	12.251	12.220	12.759
14 South Western	10.521	9.401	11.603	9.392	10.042

### 35. Residual quantities

- a. For the purposes of modelling for the Ofgem Targeted Charging Review, the total demand residual – and how much is recovered from HH and NHH customers is shown below.

**VV. The split of revenue recovered through the demand residual from the HH and NHH charging bases**

	2020/21	2021/22	2022/23	2023/24	2024/25
Total Generation Residual	£m - 293.26	- 406.47	- 518.77	- 753.80	- 876.07
Total Demand Residual	£m 2,621.83	2,805.87	2,887.89	3,063.35	3,198.96
Demand Residual from HH Tariffs	% 35.2%	35.1%	35.1%	35.1%	35.0%
Demand Residual from NHH Tariffs	% 64.8%	64.9%	64.9%	64.9%	65.0%

### 36. Remote islands links scenarios

Some large onshore transmission investments will incur high local circuit tariffs for the generators connected there, for example Scottish island links (e.g. the Western Isles, Orkney and Shetland).

There is a possibility that new grid supply points (GSPs) may be created on the islands, at the remote ends of the island links. Under the CUSC definition, if this happens, these Scottish island links will become part of the wider MITS network, and the revenues for the offshore transmission assets that would have been collected via local circuit tariffs will be included in the wider zonal tariff calculation. We have undertaken a sensitivity analysis to illustrate the indicative zonal tariffs under these circumstances.

This table shows tariffs under the scenario of remote island links becoming part of the wider network. Zone 1 will see significant tariff increases, and re-zoning will be required, to separate the three remote islands from the existing generation zone 1.

## WW. Generation zone 1 tariffs with remote island links in the wider network (2024/25 model)

Example tariffs for a generator of each technology type:								
Zone	Zone Name	System Peak	Shared Year Round	Not Shared Year Round	Residual	Conventional Carbon 80%	Conventional Low Carbon 80%	Intermittent 40%
		Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)
1	North Scotland	1.946827	36.524773	44.213395	-10.130585	56.406776	65.249455	48.692719
2	East Aberdeenshire	1.706932	-8.791795	44.213395	-10.130585	19.913627	28.756306	30.566092
3	Western Highlands	2.090693	17.971325	24.184823	-10.130585	25.685026	30.521991	21.242768
4	Skye and Lochalsh	2.019564	17.971325	30.132114	-10.130585	30.371730	36.398153	27.190059
5	Eastern Grampian and Tayside	4.378141	16.077930	21.761379	-10.130585	24.519003	28.871279	18.061966
6	Central Grampian	4.095227	15.388164	20.710595	-10.130585	22.843649	26.985768	16.735276
7	Argyll	4.037096	13.835993	29.136150	-10.130585	28.284225	34.111455	24.539962
8	The Trossachs	3.024877	13.835993	18.312732	-10.130585	18.613272	22.275818	13.716544
9	Stirlingshire and Fife	1.931185	13.552104	17.985688	-10.130585	17.030834	20.627971	13.275945
10	South West Scotlands	1.505974	12.191548	16.192042	-10.130585	14.082261	17.320669	10.938076
11	Lothian and Borders	2.966163	12.191548	9.635395	-10.130585	10.297132	12.224211	4.381429
12	Solway and Cheviot	1.603589	8.620419	8.875393	-10.130585	5.469654	7.244732	2.192976
13	North East England	3.783439	6.982301	5.243434	-10.130585	3.433442	4.482129	-2.094231
14	North Lancashire and The Lakes	1.165117	6.982301	0.830547	-10.130585	-2.715190	-2.549800	-6.507118
15	South Lancashire, Yorkshire and Humber	4.392294	2.763642	0.277575	-10.130585	-3.305317	-3.249802	-8.747553
16	North Midlands and North Wales	3.168106	0.271260		-10.130585	-6.745471	-6.745471	-10.022081
17	South Lincolnshire and North Norfolk	1.227456	1.538686		-10.130585	-7.672180	-7.672180	-9.515111
18	Mid Wales and The Midlands	1.096448	1.096150		-10.130585	-8.157217	-8.157217	-9.692125
19	Anglesey and Snowdon	3.338245	-0.747806		-10.130585	-7.390585	-7.390585	-10.429707
20	Pembrokeshire	10.157141	-6.211258		-10.130585	-4.942450	-4.942450	-12.615088
21	South Wales & Gloucester	5.820023	-6.789311		-10.130585	-9.742011	-9.742011	-12.846309
22	Cotswold	2.633095	2.490071	-8.910523	-10.130585	-12.633852	-14.415956	-18.045080
23	Central London	-5.163515	2.490071	-7.274642	-10.130585	-19.121757	-20.576685	-16.409199
24	Essex and Kent	-3.194232	2.490071		-10.130585	-11.332760	-11.332760	-9.134557
25	Oxfordshire, Surrey and Sussex	-0.931598	-3.282823		-10.130585	-13.688441	-13.688441	-11.443714
26	Somerset and Wessex	-0.392121	-3.445359		-10.130585	-13.278993	-13.278993	-11.508729
27	West Devon and Cornwall	1.349339	-2.100521	0.171834	-10.130585	-10.324196	-10.289829	-10.798959

### What happens if the remote island links become new generation wider zones?

The following tables gives indicative tariffs if the three remote islands become individual zones in their own right. This may happen if the substations on the islands become Main Interconnected Transmission System (MITS) nodes.

The table below shows the tariffs for the new zones, as well as the possible impact on the neighbouring zones. The tariffs are significantly higher in the new island zones than the original combined value of the local circuit tariff plus the wider zonal tariff. This is because under the existing CUSC methodology, a wider security factor of 1.8 is applied to the cost of the remote island link circuits, pushing the tariffs up by around 80%.

## XX. Indicative wider tariffs for three new remote islands generation zones (2024/25 model)

Example tariffs for a generator of each technology type:								
Zone	Zone Name	System Peak	Shared Year Round	Not Shared Year Round	Residual	Conventional Carbon 80%	Conventional Low Carbon 80%	Intermittent 40%
		Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)	Tariff (£/kW)
0_1	Shetland	1.830834		202.682794	-10.989881	152.987188	193.523747	191.692913
0_2	Orkney	1.795550		189.782365	-10.989881	142.631560	180.588033	178.792484
0_3	Western Isles	1.946847		178.711042	-10.989881	133.925800	169.668008	167.721161
1	North Scotland	1.946827	19.748612	26.103416	-10.989881	28.716365	33.937049	24.090777
2	East Aberdeenshire	1.706932	9.318183	26.103416	-10.989881	20.132127	25.352810	19.918605
3	Western Highlands	2.090693	17.971325	24.184823	-10.989881	25.903527	30.740492	21.461269
4	Skye and Lochalsh	2.019564	17.971325	30.132114	-10.989881	30.590231	36.616654	27.408560
5	Eastern Grampian and Tayside	4.378141	16.077930	21.761379	-10.989881	24.737504	29.089780	18.280467
6	Central Grampian	4.095227	15.388164	20.710595	-10.989881	23.062150	27.204269	16.953777
7	Argyll	4.037096	13.835993	29.136150	-10.989881	28.502726	34.329956	24.758463
8	The Trossachs	3.024877	13.835993	18.312732	-10.989881	18.831773	22.494319	13.935045
9	Stirlingshire and Fife	1.931185	13.552104	17.985688	-10.989881	17.249335	20.846472	13.494446
10	South West Scotlands	1.505974	12.191548	16.192042	-10.989881	14.300762	17.539170	11.156577
11	Lothian and Borders	2.966163	12.191548	9.635395	-10.989881	10.515633	12.442712	4.599930
12	Solway and Cheviot	1.603589	8.620419	8.875393	-10.989881	5.688155	7.463233	2.411477
13	North East England	3.783439	6.982301	5.243434	-10.989881	3.651943	4.700630	-1.875730
14	North Lancashire and The Lakes	1.165117	6.982301	0.830547	-10.989881	-2.496689	-2.330579	-6.288617
15	South Lancashire, Yorkshire and Humber	4.392294	2.763642	0.277575	-10.989881	-3.086816	-3.031301	-8.529052
16	North Midlands and North Wales	3.168106	0.271260		-10.989881	-6.526970	-6.526970	-9.803580
17	South Lincolnshire and North Norfolk	1.227456	1.538686		-10.989881	-7.453679	-7.453679	-9.296610
18	Mid Wales and The Midlands	1.096448	1.096150		-10.989881	-7.938716	-7.938716	-9.473624
19	Anglesey and Snowdon	3.338245	-0.747806		-10.989881	-7.172084	-7.172084	-10.211206
20	Pembrokeshire	10.157141	-6.211258		-10.989881	-4.723949	-4.723949	-12.396587
21	South Wales & Gloucester	5.820023	-6.789311		-10.989881	-9.523510	-9.523510	-12.627808
22	Cotswold	2.633095	2.490071	-8.910523	-10.989881	-12.415351	-14.197455	-17.826579
23	Central London	-5.163515	2.490071	-7.274642	-10.989881	-18.903256	-20.358184	-16.190698
24	Essex and Kent	-3.194232	2.490071		-10.989881	-11.114259	-11.114259	-8.916056
25	Oxfordshire, Surrey and Sussex	-0.931598	-3.282823		-10.989881	-13.469940	-13.469940	-11.225213
26	Somerset and Wessex	-0.392121	-3.445359		-10.989881	-13.060492	-13.060492	-11.290228
27	West Devon and Cornwall	1.349339	-2.100521	0.171834	-10.989881	-10.105695	-10.071328	-10.580458

We are aware that the Significant Code Review has in scope, among other things, review of the TNUoS treatment for embedded generators. If embedded generators are also required to pay TNUoS local circuit tariffs, the definition of MITS nodes will need to change, and so the methodology by which wider and local network charges will need to change.



## **Tools and supporting information**

# Further information

We are keen to ensure that customers understand the current charging arrangements and the reasons why tariffs change. If you have specific queries on this forecast, please contact us using the details below. Feedback on the content and format of this forecast is also welcome. We are particularly interested to hear how accessible you find the report and if it provides the right level of detail.

## Changes to the charging methodology

We are very aware that charging is undergoing transition and there will be substantial changes to charging over the next 2-4 years, either as a result of Ofgem's charging review or other CUSC modification. We strongly encourage all parties affected by the changes to the charging regime to engage with the Charging Futures forum, or with the specific CUSC modification work groups to ensure that their voices are heard. Please contact us using the details below if you have any questions or need any support.

## Charging Webinars

We will hold a webinar for the five-year view of tariffs on Thursday 4 April 2019 from 13:30 to 14:30. If you wish to join the webinar, please use this registration link ([register](#)).

We always welcome questions and are happy to discuss specific aspects of the material contained in this tariffs report.

## Charging model copies available

If you would like a copy of the model to be emailed to you, together with a user guide, please contact us using the details below. 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.

## Numerical data

All tables in this document can be downloaded as an Excel spreadsheet from our website under the Five-year views section:

<https://www.nationalgrideso.com/tnuos>

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# A

## Appendix A: Background to TNUoS charging

## Background to TNUoS charging

National Grid ESO sets Transmission Network Use of System (TNUoS) tariffs for generators and suppliers. These tariffs serve two purposes: to reflect the transmission cost of connecting at different locations and to recover the total allowed revenues of the onshore and offshore transmission owners.

To reflect the cost of connecting in different parts of the network, NGEN determines a locational component of TNUoS tariffs using two models of power flows on the transmission system: peak demand and year round. Where a change in demand or generation increases power flows, tariffs increase to reflect the need to invest. Similarly, if a change reduces flows on the network, tariffs are reduced. To calculate flows on the network, information about the generation and demand connected to the network is required in conjunction with the electrical characteristics of the circuits that link these.

The charging model includes information about the cost of investing in transmission circuits based on different types of generic construction, e.g. voltage and cable / overhead line, and the costs incurred in different TO regions. Onshore, these costs are based on 'standard' conditions, which means that they reflect the cost of replacing assets at current rather than historical cost, so they do not necessarily reflect the actual cost of investment to connect a specific generator or demand site.

The locational component of TNUoS tariffs does not recover the full revenue that onshore and offshore transmission owners have been allowed in their price controls. Therefore, to ensure the correct revenue recovery, separate non-locational "residual" tariff elements are included in the generation and demand tariffs. The residual is also used to ensure the correct proportion of revenue is collected from generation and demand. The locational and residual tariff elements are combined into a zonal tariff, referred to as the wider zonal generation tariff or demand tariff, as appropriate.

For generation customers, local tariffs are also calculated. These reflect the cost associated with the transmission substation they connect to and, where a generator is not connected to the main interconnected transmission system (MITS), the cost of local circuits that the generator uses to export onto the MITS. This allows the charges to reflect the cost and design of local connections and vary from project to project. For offshore generators, these local charges reflect revenue allowances.

### Where can I find out more?

We have published a range of guidance documents on our website, for suppliers, onshore and offshore generators.

Please visit our policy and guidance page for more information:

<https://www.nationalgrideso.com/charging/charging-policy-and-guidance>



# B

Appendix B: TNUoS settlement for measurement classes F and G



## TNUoS settlement for measurements classes F and G for 2019/20 and 2020/21

All demand meters in GB are divided into classifications of capacity and HH/NHH functionality. Due to the rollout of smart meters which can record data on a HH basis, several of these classes are changing from being settled as NHH to being settled HH. This will change the TNUoS demand tariff they are liable to pay.

HH treated demand is charged average triad consumption in £/kW

NHH treated demand is charged on annual 4pm-7pm consumption in p/kWh

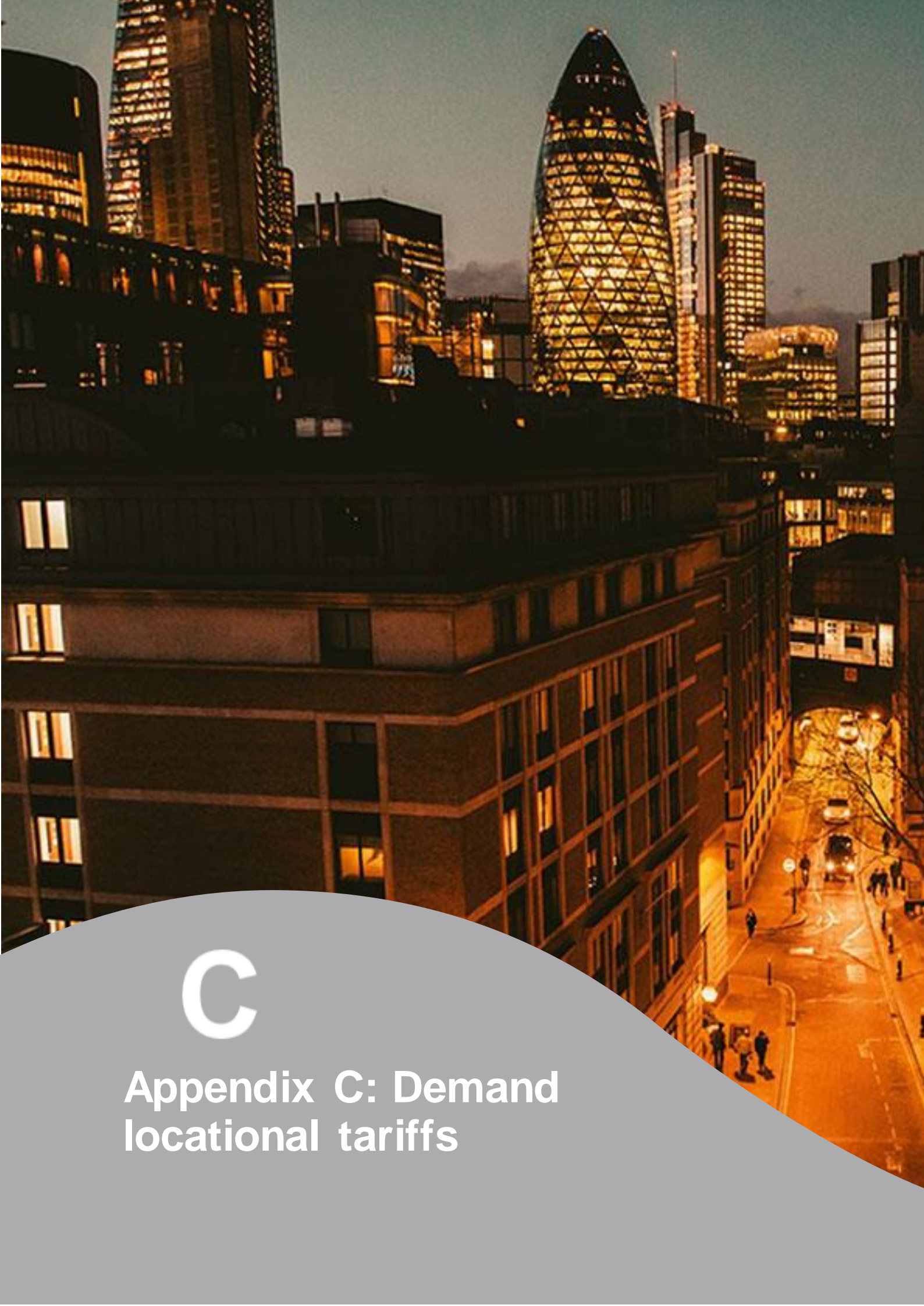
The two classes principally affected by this change are classes F and G, which typically cover large properties. The detailed CUSC text can be found at 14.17.29.8 – 11.<sup>15</sup>

The table below shows the classes, their specifications, and how they will be settled in 2019/20, and in future years.

### YY. Treatment of metering classes for demand charging from 2019/20 onwards

Measurement class	Description	Settlement in 2019/20	2020/21 onwards
A	Non Half Hourly metered	NHH	NHH
B	Non Half Hourly unmetered	NHH	NHH
C	Half Hourly metered in 100kW premises	HH	HH
D	Half Hourly unmetered	HH	HH
E	Half Hourly metering equipment below 100kW with current transformer	HH	HH
F	Half Hourly metering equipment below 100kW with current transformer or whole current, at domestic premises	NHH	HH
G	Half Hourly metering equipment below 100kW with current transformer or whole current, NOT at domestic premises	NHH	HH

<sup>15</sup> <https://www.nationalgrideso.com/codes/connection-and-use-system-code-cusc?code-documents>



# C

## Appendix C: Demand locational tariffs

## Locational components of demand tariffs

The following tables show the components of the gross HH demand charge. The locational elements (peak security and year round) and residual.

For the Embedded Export Tariffs, the demand locational elements (peak security and year round) are added together, and the resulting tariff floored at zero to avoid negative tariffs.

### ZZ. Elements of the demand location tariff for 2020/21

Zone	Zone Name	Gross Half-Hourly Demand Tariff		
		Peak Security Transport (£/kW)	Year Round Transport (£/kW)	Residual (£/kW)
1	Northern Scotland	-2.481733	-27.168018	52.178588
2	Southern Scotland	-2.296205	-18.997821	52.178588
3	Northern	-3.486690	-7.369902	52.178588
4	North West	-1.557224	-2.800693	52.178588
5	Yorkshire	-2.400153	-0.934389	52.178588
6	N Wales & Mersey	-2.719694	-0.392999	52.178588
7	East Midlands	-2.219788	2.340331	52.178588
8	Midlands	-2.085716	3.210308	52.178588
9	Eastern	1.582745	0.687722	52.178588
10	South Wales	-6.391328	4.628439	52.178588
11	South East	4.322971	0.364750	52.178588
12	London	6.194452	1.924072	52.178588
13	Southern	1.944826	4.172059	52.178588
14	South Western	-0.997360	5.350683	52.178588

### AAA. Elements of the demand location tariff for 2021/22

Zone	Zone Name	Gross Half-Hourly Demand Tariff		
		Peak Security Transport (£/kW)	Year Round Transport (£/kW)	Residual (£/kW)
1	Northern Scotland	-3.244375	-29.574718	56.086019
2	Southern Scotland	-3.063705	-20.711837	56.086019
3	Northern	-3.479816	-8.166870	56.086019
4	North West	-1.969669	-3.846877	56.086019
5	Yorkshire	-2.717769	-1.894985	56.086019
6	N Wales & Mersey	-3.134699	-1.573485	56.086019
7	East Midlands	-2.324357	1.775280	56.086019
8	Midlands	-2.516972	2.717060	56.086019
9	Eastern	1.921238	0.233915	56.086019
10	South Wales	-6.849947	4.251570	56.086019
11	South East	4.188384	0.307204	56.086019
12	London	6.252706	1.560732	56.086019
13	Southern	1.826993	3.856832	56.086019
14	South Western	-1.197243	5.008742	56.086019

**BBB. Elements of the demand location tariff for 2022/23**

Zone	Zone Name	Gross Half-Hourly Demand Tariff		
		Peak Security Transport (£/kW)	Year Round Transport (£/kW)	Residual (£/kW)
1	Northern Scotland	-3.089812	-29.856821	57.612199
2	Southern Scotland	-3.198521	-20.880399	57.612199
3	Northern	-3.958760	-8.101157	57.612199
4	North West	-1.790805	-3.448129	57.612199
5	Yorkshire	-3.385677	-1.577703	57.612199
6	N Wales & Mersey	-2.866654	-0.994455	57.612199
7	East Midlands	-2.503720	2.279024	57.612199
8	Midlands	-2.103183	3.013047	57.612199
9	Eastern	1.570958	0.517478	57.612199
10	South Wales	-5.779460	5.677275	57.612199
11	South East	4.517471	0.176265	57.612199
12	London	6.642990	1.888350	57.612199
13	Southern	2.119717	4.373732	57.612199
14	South Western	-0.343869	6.189173	57.612199

**CCC. Elements of the demand location tariff for 2023/24**

Zone	Zone Name	Gross Half-Hourly Demand Tariff		
		Peak Security Transport (£/kW)	Year Round Transport (£/kW)	Residual (£/kW)
1	Northern Scotland	-1.881896	-34.304403	60.971370
2	Southern Scotland	-2.126992	-25.419466	60.971370
3	Northern	-3.115240	-9.863410	60.971370
4	North West	-0.938504	-4.046835	60.971370
5	Yorkshire	-2.721129	-2.218991	60.971370
6	N Wales & Mersey	-1.348915	-1.345812	60.971370
7	East Midlands	-2.314642	2.152231	60.971370
8	Midlands	-1.275688	2.870586	60.971370
9	Eastern	0.581904	1.142231	60.971370
10	South Wales	-5.288137	6.632581	60.971370
11	South East	3.741160	0.662147	60.971370
12	London	5.655827	2.693404	60.971370
13	Southern	1.581334	4.708654	60.971370
14	South Western	-1.295754	4.757286	60.971370

**DDD. Elements of the demand location tariff for 2024/25**

Zone	Zone Name	Gross Half-Hourly Demand Tariff		
		Peak Security Transport (£/kW)	Year Round Transport (£/kW)	Residual (£/kW)
1	Northern Scotland	-1.529777	-35.408341	63.525870
2	Southern Scotland	-1.738227	-26.113666	63.525870
3	Northern	-3.281247	-10.537684	63.525870
4	North West	-1.117157	-4.381060	63.525870
5	Yorkshire	-2.923124	-2.430793	63.525870
6	N Wales & Mersey	-0.782029	-0.729634	63.525870
7	East Midlands	-2.092416	1.965054	63.525870
8	Midlands	-1.176530	3.192612	63.525870
9	Eastern	0.780863	1.026032	63.525870
10	South Wales	-5.953834	6.593990	63.525870
11	South East	3.495939	1.139299	63.525870
12	London	5.460860	3.287033	63.525870
13	Southern	1.435088	5.216113	63.525870
14	South Western	-1.405748	5.339115	63.525870



# D

## Appendix D: Annual Load Factors

## 37. Specific ALFs

### EEE. Specific Annual Load Factors

The table below lists the Annual Load Factors (ALFs) of generators expected to be liable for generator charges during 2019/20. ALFs are used to scale the shared year round element of tariffs for each generator, and the year round not shared for Conventional Carbon generators, so that each has a tariff appropriate to its historical load factor.

ALFs have been calculated using Transmission Entry Capacity, metered output and Final Physical Notifications from charging years 2013/14 to 2017/18. Generators which commissioned after 1 April 2015 will have fewer than three complete years of data so the appropriate Generic ALF listed below is added to create three complete years from which the ALF can be calculated. Generators expected to commission during 2019/20 also use the Generic ALF for their first year of operation.

These ALFs were finalised in November 2018.

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
ABERTHAW	Coal	Actual	Actual	Actual	Actual	Actual	65.5413%	59.0043%	54.2611%	50.8335%	5.0742%	54.6997%
ACHRUACH	Onshore_Wind	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	33.6464%	36.7140%	44.3464%	38.2356%
AFTON	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	34.8738%	37.2641%
AIKENGALL II	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	33.5082%	36.8089%
AN SUIDHE	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	41.5843%	36.9422%	35.4900%	34.0938%	41.2323%	37.8882%
ARECLEOCH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	33.8296%	29.7298%	36.8612%	19.7246%	35.1728%	32.9108%
BAGLAN BAY	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	16.4106%	37.9194%	29.1228%	55.2030%	24.2891%	30.4438%
BARROW	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	54.1080%	47.0231%	47.1791%	44.2584%	47.0417%	47.0813%
BARRY	CCGT_CHP	Actual	Actual	Actual	Partial	Actual	1.2989%	0.4003%	2.1727%	24.3468%	0.5407%	1.3374%
BEAULY CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	35.6683%	37.1167%	35.0094%	30.4872%	21.9937%	33.7216%
BEINNEUN	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	30.9623%	25.8214%	31.7476%
BHLARAI DH	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	33.4339%	46.3209%	39.4047%
BLACK LAW	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	31.9648%	26.7881%	26.9035%	23.4623%	21.2137%	25.7180%
BLACKCRAIG WINDFARM	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	36.0208%	37.6465%
BLACKLAW EXTENSION	Onshore_Wind	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	33.4635%	13.1095%	30.4870%	25.6867%
BRIMSDOWN	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	18.7645%	11.1229%	16.4463%	45.0615%	27.6168%	20.9426%
BURBO BANK EXT	Offshore_Wind	Generic	Generic	Actual	Actual	Actual	0.0000%	0.0000%	16.7781%	25.0233%	49.3850%	30.3955%
CARRAIG GHEAL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	45.2760%	48.9277%	45.6254%	40.4211%	45.5371%	45.4795%
CARRINGTON	CCGT_CHP	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	38.7318%	58.0115%	58.8066%	51.8500%
CLUNIE	Hydro	Actual	Actual	Actual	Actual	Actual	45.3256%	43.2488%	47.9711%	32.8297%	32.1699%	40.4681%
CLYDE (NORTH)	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	42.6598%	36.8882%	41.4120%	26.8858%	39.2619%	39.1873%
CLYDE (SOUTH)	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	39.8941%	29.4115%	39.9615%	34.8751%	39.1634%	37.9775%
CONNAHS QUAY	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	12.8233%	18.3739%	28.2713%	37.4588%	20.0846%	22.2433%
CONON CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	54.2820%	55.5287%	58.9860%	48.6782%	50.8547%	53.5551%
CORBY	CCGT_CHP	Actual	Actual	Actual	Generic	Partial	8.0834%	9.6755%	4.5411%	0.0000%	44.6503%	7.4333%
CORRIEGARTH	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	22.5645%	41.2013%	34.0750%
CORRIEMOILLIE	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	32.2316%	30.4210%	33.7040%
CORYTON	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	9.7852%	17.5123%	26.4000%	63.0383%	16.4022%	20.1048%
COTTAM	Coal	Actual	Actual	Actual	Actual	Actual	67.3951%	51.4426%	34.4157%	14.9387%	21.6580%	35.8388%



Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
COTTAM DEVELOPMENTCENTRE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	16.0249%	31.3132%	28.2382%	67.2482%	56.3007%	38.6174%
COUR	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	38.3247%	55.4273%	44.0704%
COWES	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.0956%	0.3135%	0.4912%	0.5319%	0.6942%	0.4456%
CRUACHAN	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	9.6969%	9.0516%	8.8673%	7.1914%	9.6225%	9.1805%
CRYSTAL RIG II	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	50.2549%	47.5958%	48.3836%	40.2679%	52.5802%	48.7447%
CRYSTAL RIG III	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	39.9503%	51.9020%	43.4372%
DAMHEAD CREEK	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	77.1783%	67.4641%	64.8983%	68.1119%	63.5108%	66.8248%
DEESIDE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	17.3035%	13.9018%	17.4579%	27.1090%	20.8164%	18.5259%
DERSALLOCH	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	33.7728%	39.8576%	37.3632%
DIDCOT B	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	18.6624%	25.5345%	41.1389%	50.1358%	44.1234%	36.9322%
DIDCOT GTS	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.0902%	0.2843%	0.4861%	0.0452%	0.6337%	0.2869%
DINORWIG	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	15.0898%	15.0650%	14.6353%	15.9596%	14.9467%	15.0338%
DRAX	Coal	Actual	Actual	Actual	Actual	Actual	80.5151%	82.2149%	76.2030%	62.2705%	55.8896%	72.9962%
DUDGEON	Offshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	42.4791%	46.9782%	46.3364%
DUNGENESS B	Nuclear	Actual	Actual	Actual	Actual	Actual	61.0068%	54.6917%	70.7617%	79.3403%	68.2086%	66.6590%
DUNLAW EXTENSION	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	34.8226%	30.0797%	29.1203%	26.5549%	31.0840%	30.0947%
DUNMAGLASS	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	38.9713%	75.6936%	51.0414%
EDINBANE WIND	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	39.4785%	31.2458%	35.5937%	32.5009%	34.5929%	34.2292%
EGGBOROUGH	Coal	Actual	Actual	Actual	Partial	Actual	72.1843%	45.7421%	27.0157%	40.0283%	7.1715%	48.3140%
ERROCHTY	Hydro	Actual	Actual	Actual	Actual	Actual	28.2628%	25.3585%	28.1507%	16.1775%	13.6081%	23.2289%
EWE HILL	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	33.3314%	33.1849%	34.9919%
FALLAGO	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	54.8683%	44.7267%	55.7992%	43.2176%	49.4158%	49.6703%
FARR WINDFARM	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	44.7212%	38.5712%	40.9963%	34.1766%	38.3046%	39.2907%
FASNAKYLE G1 & G3	Hydro	Actual	Actual	Actual	Actual	Actual	35.3695%	57.4834%	53.1573%	30.9768%	38.1673%	42.2314%
FAWLEY CHP	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	63.3619%	72.8484%	57.6978%	63.2006%	76.0793%	66.4703%
FFESTINIOG	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	5.4631%	4.3251%	3.4113%	5.6749%	4.2118%	4.6667%
FIDDLERS FERRY	Coal	Actual	Actual	Actual	Actual	Actual	49.0374%	45.2435%	27.4591%	8.2478%	13.9908%	28.8978%
FINLARIG	Hydro	Actual	Actual	Actual	Actual	Actual	59.9142%	59.4092%	65.1349%	49.6402%	52.6415%	57.3216%
FOYERS	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	14.7097%	12.3048%	15.4323%	11.3046%	14.5333%	13.8493%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
FREASDAIL	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	32.5600%	38.9709%	36.6634%
GALAWHISTLE	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	34.9765%	42.4455%	38.6271%
GALLOPER	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	54.7593%	51.2877%
GARRY CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	55.9308%	64.3828%	60.2772%	61.0498%	60.0010%	60.4426%
GLANDFORD BRIGG	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	1.5673%	0.5401%	1.8191%	2.7682%	1.8418%	1.7427%
GLEN APP	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	25.1373%	24.8393%	29.4787%
GLENDOE	Hydro	Actual	Actual	Actual	Actual	Actual	36.3802%	32.3494%	34.8532%	23.8605%	24.0105%	30.4044%
GLENMORISTON	Hydro	Actual	Actual	Actual	Actual	Actual	44.4594%	48.7487%	50.6921%	34.6709%	44.3960%	45.8680%
GORDONBUSH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	46.5594%	47.7981%	47.7161%	50.4126%	34.1762%	47.3579%
GRAIN	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	41.3833%	44.0031%	39.7895%	53.8227%	39.7755%	41.7253%
GRANGEMOUTH	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	55.9047%	62.6168%	59.8274%	51.4558%	58.9786%	58.2369%
GREAT YARMOUTH	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	20.7409%	18.6633%	59.8957%	63.5120%	50.1521%	43.5962%
GREATER GABBARD	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	48.3038%	42.1327%	50.2468%	43.1132%	46.4939%	45.9703%
GRIFFIN WIND	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	31.9566%	31.3152%	31.0284%	25.8228%	28.8970%	30.4135%
GUNFLEET SANDS I	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	56.6472%	47.0132%	50.4650%	45.7940%	47.3019%	48.2600%
GUNFLEET SANDS II	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	52.2361%	44.7211%	49.0521%	43.9893%	46.9928%	46.9220%
GWYNT Y MOR	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	8.0036%	61.6185%	63.1276%	44.8323%	50.4031%	52.2846%
HADYARD HILL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	31.9488%	27.7635%	36.6527%	31.4364%	34.0375%	32.4742%
HARESTANES	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	24.1419%	28.6355%	27.8093%	22.5464%	29.0125%	28.4858%
HARTLEPOOL	Nuclear	Actual	Actual	Actual	Actual	Actual	73.7557%	56.2803%	53.8666%	78.0390%	80.6218%	69.3583%
HEYSHAM	Nuclear	Actual	Actual	Actual	Actual	Actual	73.3628%	68.8252%	72.7344%	79.6169%	85.1617%	75.2380%
HINKLEY POINT B	Nuclear	Actual	Actual	Actual	Actual	Actual	68.8664%	70.1411%	67.6412%	71.2265%	83.4643%	70.0780%
HUMBER GATEWAY	Offshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	43.9343%	62.9631%	59.7195%	54.9913%	59.2246%
HUNTERSTON	Nuclear	Actual	Actual	Actual	Actual	Actual	84.7953%	79.1368%	82.1786%	83.2939%	79.8644%	81.7790%
IMMINGHAM	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	37.8219%	56.8316%	69.4686%	71.9550%	64.3175%	63.5392%
INDIAN QUEENS	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.2321%	0.0876%	0.0723%	0.0847%	0.0740%	0.0821%
KEADBY	CCGT_CHP	Actual	Generic	Partial	Actual	Actual	0.0001%	0.0000%	35.1858%	28.6076%	38.6957%	22.4345%
KEITH HILL	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	36.9858%	37.9681%
KILBRAUR	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	51.3777%	54.3550%	50.3807%	46.5342%	56.7501%	52.0378%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
KILGALLIOCH	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	25.2739%	25.3254%	29.6862%
KILLIN CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	45.5356%	44.8205%	53.2348%	27.4962%	34.9231%	41.7597%
KILLINGHOLME (POWERGEN)	Gas_Oil	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	0.5443%	0.3624%
LANGAGE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	40.8749%	34.8629%	16.5310%	44.5413%	42.3368%	39.3582%
LINCS WIND FARM	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	46.5987%	43.8178%	49.1306%	44.5192%	51.0911%	46.7495%
LITTLE BARFORD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	33.6286%	49.6644%	39.9829%	64.8597%	66.3067%	51.5023%
LOCHLUICHART	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	27.6728%	20.2103%	29.2663%	31.6897%	34.3322%	31.7627%
LONDON ARRAY	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	51.2703%	64.0880%	66.8682%	53.6245%	50.5515%	56.3276%
LYNEMOUTH	Coal	Generic	Generic	Partial	Generic	Actual	0.0000%	0.0000%	68.0196%	0.0000%	1.0783%	35.5714%
MARCHWOOD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	48.6845%	66.4021%	55.0879%	75.4248%	67.3692%	62.9531%
MARK HILL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	30.2863%	26.7942%	34.0227%	21.9653%	31.0915%	29.3907%
MEDWAY	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	14.5545%	28.0962%	34.1799%	35.1505%	36.7261%	32.4756%
MILLENNIUM	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	52.6618%	53.2636%	48.4038%	44.9764%	53.6488%	51.4431%
MINNYGAP	Onshore_Wind	Generic	Generic	Generic	Generic	Actual	0.0000%	0.0000%	0.0000%	0.0000%	30.9962%	35.9716%
NANT	Hydro	Actual	Actual	Actual	Actual	Actual	35.5883%	36.4040%	37.3788%	30.6350%	34.9026%	35.6317%
ORMONDE	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	49.6561%	42.8711%	47.1986%	41.2188%	37.7162%	43.7628%
PEMBROKE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	60.3928%	67.5346%	64.5596%	77.6478%	70.2866%	67.4603%
PEN Y CYMOEDD	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	26.9446%	36.0948%	33.8329%
PETERBOROUGH	CCGT_CHP	Actual	Actual	Partial	Actual	Actual	1.8311%	1.0929%	4.1032%	1.7914%	0.4349%	1.5718%
PETERHEAD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	41.8811%	0.4858%	23.3813%	42.2292%	65.7808%	35.8305%
RACE BANK	Offshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	45.3062%	38.1978%	44.3520%
RAMPION	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	40.9885%	46.6974%
RATCLIFFE-ON-SOAR	Coal	Actual	Actual	Actual	Actual	Actual	71.7403%	56.1767%	19.6814%	15.4657%	19.3780%	31.7454%
ROBIN RIGG EAST	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	46.7562%	55.3209%	51.9700%	50.5096%	42.5599%	49.7453%
ROBIN RIGG WEST	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	48.0629%	53.4150%	56.0881%	51.5383%	47.3991%	51.0054%
ROCKSAVAGE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	2.6155%	4.4252%	19.8061%	58.6806%	29.8122%	18.0145%
RYE HOUSE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	7.4695%	5.3701%	7.7906%	15.6538%	13.4736%	9.5779%
SALTEND	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	69.0062%	67.9518%	55.6228%	77.4019%	70.1596%	69.0392%
SANQUHAR	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	35.2098%	37.3761%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
SEABANK	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	18.2781%	25.6956%	27.2136%	41.6815%	55.4606%	31.5303%
SELLAFIELD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	25.0221%	18.9719%	28.6790%	19.8588%	13.6007%	21.2842%
SEVERN POWER	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	32.4163%	24.6354%	18.3226%	64.4246%	55.6920%	37.5812%
SHERINGHAM SHOAL	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	49.3517%	46.2286%	53.6184%	46.9715%	54.3071%	49.9805%
SHOREHAM	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	20.7501%	10.2239%	48.9514%	68.9863%	64.2994%	44.6670%
SIZEWELL B	Nuclear	Actual	Actual	Actual	Actual	Actual	82.5051%	84.7924%	98.7826%	81.6359%	73.3708%	82.9778%
SLOY G2 & G3	Hydro	Actual	Actual	Actual	Actual	Actual	14.3471%	15.5941%	13.9439%	8.1782%	12.0303%	13.4404%
SOUTH HUMBER BANK	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	24.3373%	34.4673%	48.6753%	55.3419%	34.6174%	39.2533%
SPALDING	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	33.4800%	39.3092%	47.9407%	60.9748%	52.9683%	46.7394%
STAYTHORPE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	37.6216%	56.6148%	69.4422%	65.7791%	52.0701%	58.1547%
STRATHY NORTH & SOUTH	Onshore_Wind	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	49.6340%	36.1987%	40.2313%	42.0213%
STRONELAIRG	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	37.5366%	38.1517%
SUTTON BRIDGE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	9.4124%	17.2025%	13.1999%	38.0184%	29.1878%	19.8634%
TAYLORS LANE	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.0483%	0.0640%	0.1708%	0.8047%	1.1712%	0.3465%
THANET	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	39.7489%	35.5935%	41.3434%	33.7132%	38.5069%	37.9498%
TODDLBURN	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	39.5374%	33.7211%	35.0823%	31.3435%	38.0158%	35.6064%
TORNESS	Nuclear	Actual	Actual	Actual	Actual	Actual	86.4669%	91.4945%	85.7725%	97.9942%	86.4413%	88.1343%
USKMOUTH	Coal	Actual	Partial	Actual	Actual	Actual	38.9899%	46.9428%	25.5184%	24.3304%	0.1000%	29.6129%
WALNEY 4	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	45.2033%	48.1024%
WALNEY I	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	57.7046%	52.0555%	50.7535%	47.4617%	55.9472%	52.9187%
WALNEY II	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	61.9219%	58.2355%	35.7988%	54.9727%	62.8290%	58.3767%
WALNEY III	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	50.1762%	49.7600%
WEST BURTON	Coal	Actual	Actual	Actual	Actual	Actual	68.9176%	61.5364%	32.7325%	10.1071%	11.8199%	35.3629%
WEST BURTON B	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	30.3021%	46.8421%	59.3477%	54.2878%	63.2420%	53.4925%
WEST OF DUDDON SANDS	Offshore_Wind	Partial	Actual	Actual	Actual	Actual	40.4810%	40.0506%	48.7540%	48.7691%	55.4034%	50.9755%
WESTERMOST ROUGH	Offshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	26.2900%	54.8014%	58.1061%	63.4740%	58.7938%
WHITELEE	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	35.1074%	29.8105%	31.8773%	27.2893%	29.6336%	30.4405%
WHITELEE EXTENSION	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	27.0102%	27.7787%	26.7655%	23.5253%	25.1664%	26.3140%
WHITESIDE HILL	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	38.3704%	38.4297%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
WILTON	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	4.4941%	21.5867%	16.1379%	14.4130%	15.5750%	15.3753%
WINDY STANDARD II	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	43.2981%	40.0722%

### 38. Generic ALFs

Technology	Generic ALF
Gas_Oil #	0.2715%
Pumped_Storage	10.6826%
Tidal *	18.9000%
Biomass	26.8847%
Wave *	31.0000%
Onshore_Wind	38.4593%
CCGT_CHP	48.6379%
Hydro	42.4165%
Offshore_Wind	49.5519%
Coal	37.6162%
Nuclear	76.3178%

# Includes OCGTs (Open Cycle Gas Turbine generating plant).

\*Note: ALF figures for Wave and Tidal technology are generic figures provided by BEIS due to no metered data being available.

These Generic ALFs are calculated in accordance with CUSC 14.15.109. The Biomass ALF for 2017/18 has been copied from the 2015/16 year due to there not being any single majority biomass-fired stations operating since that period.



# E

## Appendix E: In flight CUSC modification proposals to change the charging methodology

## CUSC modifications affecting the charging methodology

This section focuses on specific CUSC modifications and other changes which may impact on the TNUoS tariff calculation methodology in the future. All these modifications are subject to approval by Ofgem and which Work Group Alternative CUSC Modification (WACM) is approved.

More information about current modifications can be found at the following location:  
<https://www.nationalgrideso.com/codes/connection-and-use-system-code-cusc?mods>

### GGG. Summary of in flight CUSC modification proposals

Name	Title	Effect of proposed change	Possible implementation
<a href="#">CMP280</a>	'Creation of a New Generator TNUoS Demand Tariff which Removes Liability for TNUoS Demand Residual Charges from Generation and Storage Users'	Change the structure of demand TNUoS charges applied to storage and, potentially other generators.	April 2020
<a href="#">CMP286</a>	Improving TNUoS Predictability through Increased Notice of the Target Revenue used in the TNUoS Tariff Setting Process v1	Fixes target revenue to be recovered from the TNUoS setting process earlier, to provide more stability to future tariffs.	April 2020
<a href="#">CMP287</a>	Improving TNUoS Predictability Through Increased Notice of Inputs Used in the TNUoS Tariff Setting Process.	Fixes parameters associated with the TNUoS setting process earlier, to provide more stability to future tariffs.	April 2020
<a href="#">CMP292</a>	Introducing a Section 8 cut-off date for changes to the Charging Methodologies	Introduces a cut off for changes to the charging methodologies to bring more stability and predictability to following years' charges	April 2020
<a href="#">CMP301</a>	Clarification on the treatment of project costs associated with HVDC and subsea circuits	Clarification of the legal text to ensure that it is clear that AC substation costs are not included in the circuit expansion factor calculation for HVDC and subsea circuits. We already calculate in this manner.	April 2019(?), but has no immediate impact on charges
<a href="#">CMP302</a>	Extend the small generator discount until an enduring solution acknowledging the discrepancy between England & Wales and Scotland is implemented.	Maintain a discount for 132kV connected generation, paid for by a charge on HH and NHH Demand	Ofgem has approved an extension of the SGD in NGENSO's licence, so this modification is unlikely to be progressed further



Name	Title	Effect of proposed change	Possible implementation
<a href="#">CMP303</a>	Improving local circuit charge cost-reflectivity	Remove some of the cost of the HVDC and subsea circuits from the calculation of the local circuit, reducing the local circuit tariffs for these circuits.	April 2019
<a href="#">CMP310</a>	CUSC section 14 changes in the event the UK leaves the EU without an agreement	Modify existing references to EU regulations to reflect the changes as foreseen in the relevant Statutory Instruments.	As soon as practicable following UK's exit from the EU, in the event no agreement is in place
<a href="#">CMP312</a>	Correcting erroneous legal text in Section 14 following implementation of CMPs 264/5 (consequential)	Address the issue caused to Generator Users liable for demand TNUoS charges which has been created through a clear error in the approved legal text for CMPs 264/5.	Implemented



# F

## Appendix F: Contracted generation

The data in this table is taken from the TEC register from February 2019.

Please note that these are not the values that are used for generation volumes in the best view models that we have used to derive the tariffs in this report.

### HHH. Contracted generation TEC

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Aquind Interconnector	Interconnectors	LOVE40	26	0	0	2000	2000	2000
Auchencrosh (interconnector CCT)	Interconnectors	AUCH20	10	250	160	500	500	500
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
EuroLink	Interconnectors	LEIS40	18	0	0	0	0	1600
FAB Link Interconnector	Interconnectors	EXET40	26	0	0	0	1400	1400
Greenlink	Interconnectors	PEMB40	20	0	0	500	500	500
Gridlink Interconnector	Interconnectors	KINO40	24	0	0	1500	1500	1500
IFA Interconnector	Interconnectors	SELL40	24	2000	2000	2000	2000	2000
IFA2 Interconnector	Interconnectors	CHIL40	26	1100	1100	1100	1100	1100
Nemo Link	Interconnectors	RICH40	24	1020	1020	1020	1020	1020
NeuConnect Interconnector	Interconnectors	GRAI40	24	0	0	1400	1400	1400
NorthConnect	Interconnectors	PEHE40	2	0	0	1400	1400	1400
NS Link	Interconnectors	BLYT4A	13	1400	1400	1400	1400	1400
Viking Link Denmark Interconnector	Interconnectors	BICF4A	17	0	0	1500	1500	1500
Aberarder Wind Farm	Wind Onshore	ABED10	1	49.99	49.99	49.99	49.99	49.99
Aberdeen Offshore Wind Farm	Wind Offshore	ABBA10	10	95.5	95.5	95.5	95.5	95.5
Abergelli Power Limited	OCGT	SWAN20_SPM	21	0	0	299	299	299
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 (part of the Beaulieu Cascade)	Hydro	AIGA1Q	1	20	20	20	20	20
Aikengall II Windfarm	Wind Onshore	WDOD10	11	140	140	140	140	140
Alverdiscott	Pump Storage	ALVE4A	27	0	0	0	49.9	49.9
An Suidhe Wind Farm, Argyll (SRO)	Wind Onshore	ANSU10	7	19.3	19.3	19.3	19.3	19.3

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Arecleoch	Wind Onshore	AREC10	10	114	114	114	114	114
Axminster	Pump Storage	AXMI40_SEP	26	0	0	49.9	49.9	49.9
Bad a Cheo Wind Farm	Wind Onshore	MYBS11	1	29.9	29.9	29.9	29.9	29.9
Baglan Bay	CCGT	BAGB20	21	552	552	593	593	593
Barrow Offshore Wind Farm	Wind Offshore	HEYS40	14	90	90	90	90	90
Barry Power Station	CCGT	ABTH20	21	235	235	235	235	235
Beatrice Wind Farm	Wind Offshore	BLHI40	1	588	588	588	588	588
Beaw Field Wind Farm	Wind Onshore	BEWF10	1	0	0	0	72	72
Beinneun Wind Farm	Wind Onshore	BEIN10	3	109	109	109	109	109
Benbrack Wind Farm	Wind Onshore	KEON10	1	0	0	0	72	72
Bhlaraidh Wind Farm	Wind Onshore	BHLA10	3	108	108	108	108	108
Blackraig Wind Farm	Wind Onshore	BLCW10	10	52.9	52.9	52.9	52.9	52.9
Blacklaw	Wind Onshore	BLKL10	11	118	118	118	118	118
Blacklaw Extension	Wind Onshore	BLKX10	11	60	60	60	60	60
Bolney	Pump Storage	BOLN40	26	49.9	49.9	49.9	49.9	49.9
Braintree	Pump Storage	BRAI4A	24	49.9	49.9	49.9	49.9	49.9
Bramford	Pump Storage	BRFO40	18	49.9	49.9	49.9	49.9	49.9
Bredbury	Pump Storage	BRED20	16	0	0	49.9	49.9	49.9
Burbo Bank Extension Offshore Wind Farm	Wind Offshore	BODE40	16	254	254	254	254	254
Burwell	Pump Storage	BURW40	18	0	49.9	49.9	49.9	49.9
C.Gen Killingholme North Power Station	CCGT	KILL40	15	0	540	540	540	540
Cairn Duhie Wind Farm	Wind Onshore	KNOC20	1	0	0	0	84	84
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	445	445	445	445	445
Chirmorie Wind Farm	Wind Onshore	MAHI10	10	0	0	80	80	80
Clashindarroch Extension	Wind Onshore	CAIN20	1	0	0	0	37.5	37.5
Cleve Hill Solar Park	Wind Onshore	CLEH40	24	0	0	0	0	350
Clunie (part of the Clunie Cascade)	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	BASK20	11	128.8	128.8	128.8	128.8	128.8
Codling Park Wind Farm	Wind Offshore	PENT40	19	0	0	0	0	1000

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
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
Corriemoillie Wind Farm	Wind Onshore	CORI10	1	47.5	47.5	47.5	47.5	47.5
Coryton	CCGT	COSO40	24	800	800	800	800	800
Costa Head Wind Farm	Wind Onshore	COST10	1	0	0	20.4	20.4	20.4
Cour Wind Farm	Wind Onshore	CRSS10	7	20.5	20.5	20.5	20.5	20.5
Coventry	Pump Storage	COVE20	18	0	49.9	49.9	49.9	49.9
Cowes	CCGT	FAWL40	26	140	140	140	140	140
Cowley	Pump Storage	COWL40	25	49.9	49.9	49.9	49.9	49.9
CPG Power	CCGT	CARR40	16	0	49.9	49.9	49.9	49.9
Creag Riabhach Wind Farm	Wind Onshore	CASS1Q	1	0	72.6	72.6	72.6	72.6
Crookedstane Windfarm	Wind Onshore	CLYS2R	11	0	25.4	25.4	25.4	25.4
Crossdykes	Wind Onshore	EWEH1Q	12	46	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	62	62	62	62
Culligran (part of the Beaulay Cascade)	Hydro	CULL1Q	1	19.1	19.1	19.1	19.1	19.1
Cumberhead	Wind Onshore	GAWH10	11	50	50	50	50	50
Dalquhandy Wind Farm	Wind Onshore	COAL10	11	0	0	45	45	45
Damhead Creek	CCGT	KINO40	24	805	805	805	805	805
Damhead Creek II	CCGT	KINO40	24	0	1800	1800	1800	1800
Deanie (part of the Beaulay Cascade)	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
Derwent	CHP	WILE40	18	162	162	162	162	162
Didcot B	CCGT	DIDC40	25	1450	1450	1450	1450	1450
Dinorwig	Pump Storage	DINO40	19	1644	1644	1644	1644	1644
Dogger Bank Project 1	Wind Offshore	CREB40	15	0	0	1200	1200	1200
Dogger Bank Project 2	Wind Offshore	CREB40	15	0	0	0	1000	1000
Dogger Bank Project 4	Wind Offshore	CREB40	15	0	0	1200	1200	1200
Dorenell Windfarm	Wind Onshore	DORE11	1	220	220	220	220	220

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Douglas West	Wind Onshore	COAL10	11	0	45	45	45	45
Drax (Biomass)	Biomass	DRAX40	15	1905	1905	1905	1905	1905
Drax (Coal)	Coal	DRAX40	15	2001	2001	2001	3126	3126
Druim Leathann	Wind Onshore	DRUL10	1	0	0	0	49.7	49.7
Dudgeon Offshore Wind Farm	Wind Offshore	NECT40	17	400	400	400	400	400
Dungeness B	Nuclear	DUNG40	24	1120	1120	1120	1120	1120
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	1200	1200
East Anglia 6	Wind Offshore	NECT40	17	0	0	0	0	1800
East Anglia One	Wind Offshore	BRFO40	18	551	551	551	551	551
Edinbane Wind, Skye	Wind Onshore	EDIN10	4	41.4	41.4	41.4	41.4	41.4
Eggborough	CCGT	EGGB40	15	0	0	2450	2450	2450
Elchies Wind Farm	Wind Onshore	ELCH10	1	0	0	0	99	99
Elstree	CCGT	ELST20	25	0	0	49.5	49.5	49.5
Energy Isles	Wind Offshore	KERG20	1	0	0	0	120.3	120.3
Enfield	CCGT	BRIM2A_LPN	24	415	415	415	415	415
Enoch Hill	Wind Onshore	ENHI10	10	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
Exeter	Pump Storage	EXET40	26	0	49.9	49.9	49.9	49.9
Fallago Rig 2	Wind Onshore	FALL40	11	0	41.4	41.4	41.4	41.4
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
Faw Side Community Wind Farm	Wind Onshore	GRNA10	12	0	0	0	0	200
Fawley CHP	CHP	FAWL40	26	158	158	158	158	158
Ferrybridge D	CCGT	FERR20	15	0	0	0	1820	1820
Ffestiniog	Pump Storage	FFES20	16	360	360	360	360	360
Fiddlers Ferry	Coal	FIDF20_ENW	15	1987	1987	1987	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	537.5	537.5	537.5

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Firth of Forth Offshore Wind Farm 1B	Wind Offshore	TEAL20	9	0	0	537.5	537.5	537.5
Firth of Forth Offshore Wind Farm 2A East & 2A West	Wind Offshore	BRNX40	11	0	0	0	700	700
Firth of Forth Offshore Wind Farm 2B East & 2B West	Wind Offshore	BRNX40	11	0	0	0	0	700
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	348	348	348	348	348
Gateway Energy Centre Power Station	CCGT	COSO40	24	0	1096	1096	1096	1096
Gilston Hill Wind Farm	Wind Onshore	DUNE10	11	0	21	21	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	GLKO10	1	0	48.5	48.5	48.5	48.5
Glen Ullinish Wind Farm	Wind Onshore	GLNU10	4	0	0	42	42	42
Glendoe	Hydro	GLDO1G	3	99.9	99.9	99.9	99.9	99.9
Glenmoriston (part of the Moriston Cascade)	Hydro	GLEN1Q	3	37	37	37	37	37
Glenmuckloch Pumped Storage	Pump Storage	BASK20	10	0	0	0	210	210
Glenmuckloch Wind Farm	Wind Onshore	GLGL1Q	10	0	0	33.6	33.6	33.6
Glenshero	Wind Onshore	MELG10	3	0	0	168	168	168
Gordonbush Wind Farm	Wind Onshore	GORW20	1	70	70	70	108	108
Grain	CCGT	GRAI40	24	1517	1517	1517	1517	1517
Grangemouth	CHP	GRMO20	9	120	120	120	120	120
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 - Alverdiscott	Wind Onshore	ALVE4A	27	0	0	0	1500	1500
Greenwire Wind Farm - Pentir	Wind Offshore	PENT40	19	0	0	0	0	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	SPIT10	1	0	0	0	28.5	28.5

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Harestanes	Wind Onshore	HARE10	12	125	125	125	125	125
Harker	Pump Storage	HARK40	12	49.9	49.9	49.9	49.9	49.9
Harryburn Wind Farm	Wind Onshore	ELVA2Q	11	0	0	68	68	68
Harting Rig Wind Farm	Wind Onshore	KYPE10	11	0	0	61.2	61.2	61.2
Hartlepool	Nuclear	HATL20	13	1207	1207	1207	1207	1207
Hatfield Power Station	CCGT	THOM41	16	0	0	800	800	800
Hesta Head Wind Farm	Wind Onshore	HEST10	1	0	0	20.4	20.4	20.4
Heysham Power Station	Nuclear	HEYS40	14	2400	2400	2400	2400	2400
Hinkley Point B	Nuclear	HINP40	26	1061	1061	1061	1061	1061
Hinkley Point C	Nuclear	HINP40	26	0	0	0	0	1670
Hirwaun Power Station	OCGT	RHIG40	21	299	299	299	299	299
Holyhead	Biomass	WYLF40	19	0	150	150	150	150
Hopsrig Wind Farm	Wind Onshore	EWEH1Q	12	0	0	48	48	48
Hornsea Power Station 1A	Wind Offshore	KILL40	15	400	400	400	400	400
Hornsea Power Station 1B	Wind Offshore	KILL40	15	400	400	400	400	400
Hornsea Power Station 1C	Wind Offshore	KILL40	15	400	400	400	400	400
Hornsea Power Station 2A	Wind Offshore	KILL40	15	440	440	440	440	440
Hornsea Power Station 2B	Wind Offshore	KILL40	15	0	440	440	440	440
Hornsea Power Station 2C	Wind Offshore	KILL40	15	0	440	440	440	440
Hornsea Power Station 3A-1 (formerly 3A)	Wind Offshore	NORM40	15	0	0	0	500	500
Hornsea Power Station 3A-2 (formerly 3B)	Wind Offshore	NORM40	15	0	0	0	500	500
Hornsea Power Station Project 3B-1 (formerly 3C)	Wind Offshore	NORM40	15	0	0	0	0	500
Hornsea Power Station Project 3B-2 (formerly 3D)	Wind Offshore	NORM40	15	0	0	0	0	500
Humber Gateway Offshore Wind Farm	Wind Offshore	HEDO20	15	220	220	220	220	220
Hunterston	Nuclear	HUER40	10	1000	1000	1000	1000	1000
Hutton	Pump Storage	HUTT40	14	0	0	0	49.9	49.9
Immingham	CHP	HUMR40	15	1268	1268	1268	1268	1268
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	370	370
Indian Queens	OCGT	INDQ40	27	140	140	140	189.9	189.9
Invergarry (part of the Garry Cascade)	Hydro	INGA1Q	3	20	20	20	20	20
Iver	Pump Storage	IVER4A	25	0	0	0	49.9	49.9



Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
J G Pears	CHP	HIGM20	16	30	30	30	30	30
Keadby	CCGT	KEAD40	16	755	755	755	755	755
Keadby II	CCGT	KEAD40	16	852	852	852	852	852
Kearsley	Pump Storage	KEAR40	15	0	0	49.9	49.9	49.9
Keith Hill Wind Farm	Wind Onshore	DUNE10	11	4.5	4.5	4.5	4.5	4.5
Kemsley Battery	Pump Storage	KEMS40	24	49.9	49.9	49.9	49.9	49.9
Kennoxhead Wind Farm	Wind Onshore	COAL10	11	0	0	0	59.8	59.8
Kennoxhead Wind Farm Extension	Wind Onshore	MIDM10	11	0	60	60	60	60
Kilbraur Wind Farm	Wind Onshore	STRB20	1	67	67	67	67	67
Kilgallioch	Wind Onshore	KILG20	10	228	228	502	502	502
Killingholme	CCGT	KILL40	15	600	600	600	600	600
Kilmorack (part of the Beaully Cascade)	Hydro	KIOR1Q	1	20	20	20	20	20
Kings Lynn A	CCGT	WALP40_EME	17	380	380	380	380	380
Kings Lynn B	CCGT	KINL40	17	0	0	1700	1700	1700
Kirkby	Pump Storage	KIBY20	15	0	49.9	49.9	49.9	49.9
Kype Muir	Wind Onshore	KYPE10	11	88.4	88.4	88.4	88.4	88.4
Laleham	Pump Storage	LALE20_SEP	25	0	0	49.9	49.9	49.9
Landulph	Pump Storage	LAND4A	27	0	0	49.9	49.9	49.9
Langage	CCGT	LAGA40	27	905	905	905	905	905
Liberty Steel Dalzell	CCGT	WISH10	11	18	18	18	18	18
Limekilns	Wind Onshore	DOUN10	1	90	90	90	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
Llanwern Phase 1	Wind Onshore	WHSO20	21	49.9	49.9	49.9	49.9	49.9
Loch Luichart Extension II	Wind Onshore	COR110	1	0	0	0	36	36
Lochay (Part of Killin Cascade Hydro Scheme)	Hydro	LOCH10	6	47	47	47	47	47
Lochluichart	Wind Onshore	COR110	1	69	69	69	69	69
Loganhead Windfarm	Wind Onshore	EWEH1Q	12	0	0	0	36	36
London Array Offshore Wind Farm	Wind Offshore	CLEH40	24	630	630	630	630	630
Longburn Wind Farm	Wind Onshore	NECU10	10	0	0	60	60	60
Lorg Wind Farm	Wind Onshore	KEON10	10	0	0	0	49.5	49.5
Luichart (part of the Conon Cascade)	Hydro	LUIC1Q	1	34	34	34	34	34

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Lynemouth Power Station	Coal	BLYT20	13	396	396	396	396	396
Mannington	Pump Storage	MANN40	26	0	0	0	0	49.9
Marchwood	CCGT	MAWO40	26	920	920	920	920	920
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	71	154	237	237
Middle Muir Wind Farm	Wind Onshore	MIDM10	11	51	51	51	51	51
Milford Haven	Biomass	PEMB40	20	0	0	350	350	350
Millbrook Power	OCGT	SUND40	18	0	0	299	299	299
Millennium South	Wind Onshore	MILS1Q	3	0	25	25	25	25
Millennium Wind	Wind Onshore	MILW1Q	3	65	65	65	65	65
Minnygap	Wind Onshore	MOFF10	12	25	25	25	25	25
Monquhill Wind Farm	Wind Onshore	ENHI10	10	0	0	0	10	10
Moray Firth Offshore Wind Farm	Wind Offshore	NEDE20	2	80	900	900	900	900
Moray Offshore West Windfarm	Wind Offshore	BLHI40	1	0	0	0	400	800
Mossford (part of the Conon Cascade)	Hydro	MOSS1S	1	18.66	18.66	18.66	18.66	18.66
Muaithiabhal Wind Farm	Wind Onshore	MUA110	4	0	0	0	150	150
Nant	Hydro	NANT1Q	7	15	15	15	15	15
Neart Na Gaoithe Offshore Wind Farm	Wind Offshore	CRYR40	11	450	450	450	450	450
North Hyde	CCGT	NHYD20	25	0	49.5	49.5	49.5	49.5
North Lowther Energy Initiative	Wind Onshore	ELVA2Q	11	0	0	0	0	151.2
Norwich Battery	Pump Storage	NORM40	18	49.9	49.9	49.9	49.9	49.9
Norwich	CCGT	NORM40	18	0	49.5	49.5	49.5	49.5
Nursling	Pump Storage	NURS40	26	49.9	49.9	49.9	49.9	49.9
Ormonde Offshore Wind Farm	Wind Offshore	HEYS40	14	150	150	150	150	150
Orrin (part of the Conon Cascade)	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	96	96	96
Peterborough	CCGT	WALP40_EME	17	245	245	245	245	245
Peterhead	CCGT	PEHE20	2	1180	1180	1180	1180	1180
Pogbie Wind Farm	Wind Onshore	DUNE10	11	9.6	9.6	9.6	9.6	9.6

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Powersite @ Drakelow	CCGT	DRAK40	18	760	760	760	760	760
Progress Power Station	OCGT	BRFO40	18	0	299	299	299	299
Race Bank Wind Farm	Wind Offshore	WALP40_EME	17	565	565	565	565	565
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	50	50
Saltend	CCGT	SAES20	15	1100	1100	1100	1100	1100
Sandy Knowe Wind Farm	Wind Onshore	GLGL1Q	10	0	51	90	90	90
Sanquhar II Wind Farm	Wind Onshore	GLGL1Q	10	0	0	0	200	200
Sanquhar Wind Farm	Wind Onshore	GLGL1Q	10	30	30	30	30	30
Scoop Hill Wind Farm	Wind Onshore	MOFF10	12	0	0	0	500	500
Seabank	CCGT	SEAB40	22	1234	1234	1234	1234	1234
Seabank Battery	Pump Storage	SEAB40	22	0	49.9	49.9	49.9	49.9
Sellafield	CHP	HUTT40	14	155	155	155	155	155
Sellindge	Pump Storage	SELL40	24	0	49.9	49.9	49.9	49.9
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	1230	1230	1230	1230	1230
Sloy G2 and G3	Hydro	SLOY10	8	80	80	80	80	80
Sofia Offshore Wind Farm	Wind Offshore	LACK40	15	0	0	0	600	1200
South Humber Bank	CCGT	SHBA40	15	1365	1365	1365	1365	1365
South Kyle	Wind Onshore	NECU10	10	0	235	235	235	235
Spalding	CCGT	SPLN40	17	950	950	950	950	950
Spalding Energy Expansion	OCGT	SPLN40	17	299.99	850	850	850	850
Spennymoor	Pump Storage	SPEN4A	13	0	0	0	49.9	49.9
Staythorpe C	CCGT	STAY40	16	1752	1752	1752	1752	1752
Stella North EFR Submission	Pump Storage	STEW40	13	0	25	25	25	25

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
Stornoway Wind Farm	Wind Onshore	STWN10	1	0	0	0	129.6	129.6
Stranoch Wind Farm	Wind Onshore	MAHI10	10	0	0	102	102	102
Strathy North and South Wind	Wind Onshore	STRW10	1	67.65	67.65	225.25	225.25	225.25
Strathy Wood	Wind Onshore	GORW20	1	0	0	0	0	54.4
Stronelairg	Wind Onshore	STRL10	3	227.8	227.8	227.8	227.8	227.8
Sundon	CCGT	SUND40	18	0	0	49.5	49.5	49.5
Sundon Battery	Pump Storage	SUND40	18	49.9	49.9	49.9	49.9	49.9
Sutton Bridge	CCGT	WALP40_EME	17	850	850	850	850	850
Swansea Bay	Tidal	BAGB20	21	320	320	320	320	320
Taunton	Pump Storage	TAUN4A	26	0	0	0	49.9	49.9
Taylors Lane	CCGT	WISD20_LPN	23	144	144	144	144	144
Tees CCGP	CCGT	GRSA20	13	0	0	850	850	1700
Tees Renewable Energy Plant	Biomass	LACK20	13	285	285	285	285	285
Templeborough	CCGT	TEMP2A	16	49.5	49.5	49.5	49.5	49.5
Thanet Extension Offshore Wind Farm	Wind Offshore	RICH40	24	0	0	340	340	340
Thanet Offshore Wind Farm	Wind Offshore	CANT40	24	300	300	300	300	300
Thorpe Marsh	CCGT	THOM41	16	1600	1600	1600	1600	1600
Thurrock	OCGT	TILB20	24	600	600	600	600	600
Toddleburn Wind Farm	Wind Onshore	DUNE10	11	27.6	27.6	27.6	27.6	27.6
Torness	Nuclear	TORN40	11	1250	1250	1250	1250	1250
Trafford Power	CCGT	CARR40	16	2050	2050	2050	2050	2050
Tralorg Wind Farm	Wind Onshore	MAHI20	10	20	20	20	20	20
Triton Knoll Offshore Wind Farm	Wind Offshore	BICF4A	17	900	900	900	900	900
Twentyshilling Wind Farm	Wind Onshore	GLGL1Q	10	37.8	37.8	37.8	37.8	37.8
Uskmouth	Coal	USKM20	21	230	230	230	230	230
Viking Wind Farm	Wind Onshore	KERG20	1	0	0	0	457	457
Walney 3 Offshore Wind Farm	Wind Offshore	MIDL40	14	330	330	330	330	330
Walney 4 Offshore Wind Farm	Wind Offshore	MIDL40	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
Walpole	Pump Storage	WALP40_EME	17	0	0	49.9	49.9	49.9
Warley	CCGT	WARL20	24	0	0	49.5	49.5	49.5

Generator	Technology	Nodes	Zone	2020/21 (MW)	2021/22 (MW)	2022/23 (MW)	2023/24 (MW)	2024/25 (MW)
West Burton A	Coal	WBUR40	16	1987	1987	1987	1987	1987
West Burton B	CCGT	WBUR40	16	1333	1333	1333	1333	1333
West of Duddon Sands Offshore Wind Farm	Wind Offshore	HEYS40	14	382	382	382	382	382
Westernmost Rough Offshore Wind Farm	Wind Offshore	HEDO20	15	206.5	206.5	206.5	206.5	206.5
Westray South	Tidal	DOUN20	1	0	0	90	90	150
Whitelaw Brae Windfarm	Wind Onshore	CLYS2R	11	0	0	57	57	57
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	1530	1530	1530	1530	1530
Willington Battery	Pump Storage	WILE40	18	0	0	49.9	49.9	49.9
Willow Wind Farm	Wind Onshore	WILW10	10	0	0	0	45	45
Wilton	CCGT	GRSA20	13	141	141	141	141	141
Windy Rig Wind Farm	Wind Onshore	BLAC10	10	42.8	42.8	42.8	42.8	42.8
Windy Standard II (Brockloch Rig 1) Wind Farm	Wind Onshore	DUNH1R	10	61.5	61.5	75	75	75
Windy Standard III Wind Farm	Wind Onshore	DUNH1Q	10	0	0	43.5	43.5	43.5
Wymondley	Pump Storage	WYMO40	18	0	0	49.9	49.9	49.9

### III. Contracted generation TEC by zone

Zone	Zone Name	2020/21	2021/22	2022/23	2023/24	2024/25
		(MW)	(MW)	(MW)	(MW)	(MW)
1	North Scotland	2,021.8	2,213.9	2,585.3	4,341.9	4,856.3
2	East Aberdeenshire	1,260.0	2,080.0	3,480.0	3,480.0	3,480.0
3	Western Highlands	712.7	737.7	905.7	905.7	905.7
4	Skye and Lochalsh	41.4	41.4	83.4	233.4	233.4
5	Eastern Grampian and Tayside	324.8	324.8	324.8	324.8	324.8
6	Central Grampian	63.5	63.5	63.5	63.5	63.5
7	Argyll	166.0	166.0	166.0	166.0	166.0
8	The Trossachs	520.0	520.0	520.0	520.0	520.0
9	Stirlingshire and Fife	120.0	120.0	1,195.0	1,195.0	1,195.0
10	South West Scotland	2,837.6	3,033.6	4,052.2	4,635.7	4,635.7
11	Lothian and Borders	3,199.4	3,392.2	3,623.4	5,083.2	5,934.4
12	Solway and Cheviot	468.9	468.9	516.9	1,052.9	1,252.9
13	North East England	3,429.0	3,454.0	4,304.0	4,353.9	5,203.9
14	North Lancashire and The Lakes	4,201.0	4,201.0	4,201.0	4,250.9	4,250.9
15	South Lancashire, Yorkshire and Humber	12,292.5	13,762.4	18,662.3	24,207.3	25,807.3
16	North Midlands and North Wales	15,647.5	15,697.4	16,547.3	16,547.3	16,547.3
17	South Lincolnshire and North Norfolk	4,846.0	5,396.0	8,645.9	8,645.9	10,445.9
18	Mid Wales and The Midlands	9,276.6	9,724.9	10,173.2	11,373.2	12,973.2
19	Anglesey and Snowdon	1,644.0	1,794.0	1,794.0	1,794.0	3,794.0
20	Pembrokeshire	2,199.0	2,199.0	3,049.0	3,049.0	3,049.0
21	South Wales & Gloucester	4,373.9	4,373.9	4,713.9	4,713.9	4,713.9
22	Cotswold	1,234.0	1,283.9	1,283.9	1,283.9	1,283.9
23	Central London	144.0	144.0	144.0	144.0	144.0
24	Essex and Kent	12,956.8	15,902.7	19,192.2	19,192.2	19,542.2
25	Oxfordshire, Surrey and Sussex	2,319.9	2,369.4	2,468.8	2,518.7	2,518.7
26	Somerset and Wessex	3,478.8	3,528.7	5,578.6	7,028.5	8,748.4
27	West Devon and Cornwall	1,045.0	1,045.0	1,094.9	2,694.7	2,694.7



# G

## Appendix G: Transmission company revenues

## Transmission Owner revenue forecasts

All onshore TOs (NGET, Scottish Power Transmission and SHE Transmission) and offshore TOs have updated us with their latest revenue forecast.

Revenue for offshore networks is included with forecasts by NGENSO where the Offshore Transmission Owner has yet to be appointed.

*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.

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

All reasonable care has been taken in the preparation of these illustrative tables and the data therein. NGENSO and 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 NGENSO 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 RII0-T1 or offshore price controls.

### NGET & NGENSO revenue forecasts

From April 2019, a new, legally separate electricity system operator (NGENSO) will be established within National Grid Group, separate from National Grid Electricity Transmission (NGET). As a result, the allowed TNUoS revenue under NGET's licence, will be collected by NGENSO and passed through to NGET, in the same way to the arrangement with Scottish TOs and OFTOs.

In addition, NGENSO will collect Network Innovation Competition (NIC) Funding, and pass through the money to network licensees (including TOs, OFTOs and DNOs). There are also a few miscellaneous pass-through items that have been collected by NGET under its licence condition, and this function will also be transferred to NGENSO. The revenue breakdown table below shows details of the pass-through items under NGENSO's licence conditions.



## Scottish Power Transmission revenue forecast

The Scottish Power Transmission revenue forecast was received in February under the relevant STC procedure. The breakdown of revenue is below.

### JJJ. SPT revenue breakdown

Description	Regulatory Year	Scottish Power Transmission				
		2020/21	2021/22	2022/23	2023/24	2024/25
<b>Base Revenue [A=(A1+A2+A3)*A4]</b>	<b>A</b>	<b>347.0</b>	<b>363.7</b>	<b>369.9</b>	<b>391.5</b>	<b>391.5</b>
<b>Pass-Through Items [B=B1+B2+B3+B4+B5+B6+B7+B8+B9+B10]</b>	<b>B</b>	<b>4.2</b>	<b>4.0</b>	<b>3.7</b>	<b>0.0</b>	<b>0.0</b>
<b>Outputs Incentive Revenue [C=C1+C2+C3+C4]</b>	<b>C</b>	<b>3.1</b>	<b>3.1</b>	<b>3.2</b>	<b>0.0</b>	<b>0.0</b>
Network Innovation Allowance	D	1.1	0.0	0.0	0.0	
Network Innovation Competition	E					
Transmission Investment for Renewable Generation	G	26.3	26.2	0.0	0.0	
TO Adjustments and Correction	H+I +K					
Financial Facilities	J					
<b>Maximum Revenue [M= A+B+C+D+E+F+G+H+I+K+J]</b>	<b>M</b>	<b>381.6</b>	<b>397.1</b>	<b>376.7</b>	<b>391.5</b>	<b>391.5</b>
Pre-vesting connection charges	S1					
Rental Site	S2					
Post Vesting, Pre-BETTA connection charges	S	12.9	12.9	12.9	12.9	12.9
<b>TNUoS Collected Revenue onshore TO [T=M-B5-S]</b>	<b>T</b>	<b>368.7</b>	<b>384.2</b>	<b>363.8</b>	<b>378.6</b>	<b>378.6</b>

## SHE Transmission revenue forecast

The Scottish Hydro Electric Transmission (SHE Transmission) revenue forecast was received in February under the relevant STC procedure. The breakdown of revenue is below.

### KKK. SHE revenue breakdown

Description	Regulatory Year	SHE Transmission				
		2020/21	2021/22	2022/23	2023/24	2024/25
<b>Base Revenue [A=(A1+A2+A3)*A4]</b>	<b>A</b>	<b>280.5</b>	<b>372.6</b>	<b>383.5</b>	<b>393.8</b>	<b>393.8</b>
<b>Pass-Through Items [B=B1+B2+B3+B4+B5+B6+B7+B8+B9+B10]</b>	<b>B</b>	<b>26.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Outputs Incentive Revenue [C=C1+C2+C3+C4]</b>	<b>C</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>
Network Innovation Allowance	D	0.9	0.9	0.9	0.9	0.9
Network Innovation Competition	E					
Transmission Investment for Renewable Generation	G	82.3	0.0	0.0	0.0	0.0
TO Adjustments and Correction	H+I +K	-30.0				
Financial Facilities	J					
<b>Maximum Revenue [M= A+B+C+D+E+F+G+H+I+K+J]</b>	<b>M</b>	<b>361.6</b>	<b>375.4</b>	<b>386.3</b>	<b>396.6</b>	<b>396.6</b>
Pre-vesting connection charges	S1					
Rental Site	S2					
Post Vesting, Pre-BETTA connection charges	S	3.4	3.4	3.4	3.4	3.4
<b>TNUoS Collected Revenue onshore TO [T=M-B5-S]</b>	<b>T</b>	<b>358.2</b>	<b>372.0</b>	<b>382.9</b>	<b>393.2</b>	<b>393.2</b>

## National Grid Electricity Transmission revenue forecast

National Grid Electricity Transmission has made forecast of revenue from 2020/21 to 2024/25, and provided the figures to National Grid ESO in February. The breakdown of revenue is below.

### LLL NGET revenue breakdown

Description			National Grid Electricity Transmission				
	Regulatory Year	Licence Term	2020/21	2021/22	2022/23	2023/24	2024/25
<b>Base Revenue [A=(A1+A2+A3)*A4]</b>	<b>A</b>	<b>BRt</b>	<b>1726.8</b>	<b>1778.6</b>	<b>1832.0</b>	<b>1887.0</b>	<b>1943.6</b>
<b>Pass-Through Items [B=B1+B2+B3+B4+B5+B6+B7+B8+B9+B10]</b>	<b>B</b>	<b>PTt</b>	<b>26.3</b>	<b>27.1</b>	<b>27.9</b>	<b>28.8</b>	<b>29.6</b>
<b>Outputs Incentive Revenue [C=C1+C2+C3+C4]</b>	<b>C</b>	<b>OIPt</b>	<b>15.9</b>	<b>16.4</b>	<b>16.9</b>	<b>17.4</b>	<b>17.9</b>
Network Innovation Allowance	D	NIAt					
Network Innovation Competition	E	NICFt					
Transmission Investment for Renewable Generation	G	TIRGt					
TO Adjustments and Correction	H+I +K	DISt+TSt+Kt	13.4				
Financial Facilities	J	FINt	-6.3				
<b>Maximum Revenue [M= A+B+C+D+E+F+G+H+I+K+J]</b>	<b>M</b>	<b>TOt</b>	<b>1782.4</b>	<b>1822.1</b>	<b>1876.8</b>	<b>1933.1</b>	<b>1991.1</b>
Pre-vesting connection charges	S1		30.3	30.2	30.2	30.2	30.2
Rental Site	S2		0.7	0.6	0.6	0.6	0.6
Post Vesting, Pre-BETTA connection charges	S						
<b>TNUoS Collected Revenue onshore TO [T=M-B5-S]</b>	<b>T</b>		<b>1751.4</b>	<b>1791.3</b>	<b>1846.0</b>	<b>1902.3</b>	<b>1960.3</b>

## Offshore Transmission Owner & Interconnector revenues

The Offshore Transmission Owner revenue to be collected via TNUoS for 2020/21 is £441.8m. Revenues have been adjusted to take into account the final determinations by Ofgem on the revenues allowed to the OFTOs in 2019/20 plus our forecast of RPI.

Under CMP283, TNUoS charges can be adjusted by an amount determined by Ofgem to enable recovery and/or redistribution of interconnector revenue in accordance with the Cap and Floor regime. The interconnector revenue forecast has been updated in this five-year view. Interconnector revenue in 2019/20 reduced TNUoS revenues by around £8.4m.

### MMM. Offshore revenues

Offshore Transmission Revenue Forecast	25/03/2019					Notes
	2020/21	2021/22	2022/23	2023/24	2024/25	
Regulatory Year						
Barrow	6.3	6.5	6.7	6.9	6.6	Current revenues plus indexation
Gunfleet	7.9	8.2	8.4	8.7	8.5	Current revenues plus indexation
Walney 1	14.5	14.9	15.4	15.8	15.1	Current revenues plus indexation
Robin Rigg	8.9	9.2	9.5	9.8	9.2	Current revenues plus indexation
Walney 2	15.0	15.4	15.9	16.4	15.9	Current revenues plus indexation
Sheringham Shoal	22.1	22.7	23.4	24.1	23.7	Current revenues plus indexation
Ormonde	13.4	13.8	14.2	14.7	14.6	Current revenues plus indexation
Greater Gabbard	30.2	31.1	32.0	33.0	32.3	Current revenues plus indexation
London Array	42.6	43.8	45.2	46.5	47.9	Current revenues plus indexation
Thanet	19.7	19.9	20.5	21.2	21.8	Current revenues plus indexation
Lincs	28.5	29.4	30.3	31.2	32.1	Current revenues plus indexation
Gwynt y mor	29.0	29.9	30.8	31.7	32.6	Current revenues plus indexation
West of Duddon Sands	23.2	23.9	24.6	25.4	26.1	Current revenues plus indexation
Humber Gateway	12.3	12.7	13.1	13.5	13.9	Current revenues plus indexation
Westernmost Rough	13.4	13.8	14.2	14.6	15.1	Current revenues plus indexation
Burbo Bank	13.4	13.8	14.2	14.6	15.1	Current revenues plus indexation
Dudgeon	18.9	19.5	20.1	20.7	21.3	Current revenues plus indexation
Forecast to asset transfer to OFTO in 2019/20	74.3	76.5	78.8	81.1	83.6	National Grid Forecast
Forecast to asset transfer to OFTO in 2020/21	48.1	87.6	90.3	93.0	95.8	National Grid Forecast
Forecast to asset transfer to OFTO in 2021/22		14.5	36.7	37.8	39.0	National Grid Forecast
Forecast to asset transfer to OFTO in 2022/23			13.2	18.8	19.4	National Grid Forecast
Forecast to asset transfer to OFTO in 2023/24				50.6	92.5	National Grid Forecast
Forecast to asset transfer to OFTO in 2024/25					25.0	National Grid Forecast
<b>Offshore Transmission Pass-Through (B7)</b>	<b>441.8</b>	<b>507.3</b>	<b>557.5</b>	<b>630.0</b>	<b>707.0</b>	

#### Notes:

Figures for historic years represent National Grid ESO's forecast of OFTO revenues at the time final tariffs were calculated for each charging year rather than our current best view.

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

Greyed out cells are either calculated or not applicable in the year concerned due to the way the licence formulae are constructed

NIC payments are not included as they do not form part of OFTO Maximum Revenue



# H

## Appendix H: Chargeable Demand Base

The following tables show the forecasted demand used in this 5 year view to forecast the tariffs. The data in these tables are output from the Monte Carlo simulation used to forecast chargeable demand.

### NNN. Gross System Peak Demand (GW)

		Actual Demand				Forecast Demand*	Final Tariffs	March Forecast	Five Year Forecast			
Zone	Zone Name	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
1	Northern Scotland	1.594	1.675	1.423	1.418	1.477	1.507	1.459	1.457	1.455	1.446	1.462
2	Southern Scotland	4.042	4.078	3.749	3.456	3.500	3.447	3.355	3.343	3.359	3.361	3.379
3	Northern	3.401	2.751	2.475	2.650	2.664	2.578	2.523	2.509	2.515	2.521	2.528
4	North West	4.682	4.503	3.997	4.104	4.117	4.034	3.941	3.927	3.931	3.947	3.958
5	Yorkshire	4.707	4.689	4.539	3.962	3.920	3.830	3.745	3.736	3.727	3.746	3.763
6	N Wales & Mersey	3.001	3.328	3.413	2.748	2.678	2.628	2.576	2.568	2.562	2.574	2.577
7	East Midlands	5.547	5.213	5.210	4.837	4.763	4.662	4.561	4.553	4.552	4.568	4.588
8	Midlands	4.867	4.661	4.536	4.439	4.371	4.253	4.155	4.140	4.152	4.162	4.172
9	Eastern	7.266	6.818	6.605	6.653	6.605	6.443	6.305	6.268	6.304	6.308	6.311
10	South Wales	2.169	2.223	2.633	1.821	1.843	1.820	1.784	1.775	1.771	1.779	1.788
11	South East	4.323	4.054	3.919	4.008	3.999	3.895	3.818	3.795	3.820	3.821	3.818
12	London	5.332	5.009	4.692	4.891	4.323	4.162	4.113	4.080	4.074	4.095	4.092
13	Southern	6.479	6.193	6.232	5.828	5.584	5.473	5.360	5.340	5.365	5.370	5.374
14	South Western	2.919	2.711	2.629	2.596	2.621	2.594	2.553	2.537	2.539	2.546	2.548
	<b>TOTAL</b>	<b>60.330</b>	<b>57.906</b>	<b>56.053</b>	<b>53.414</b>	<b>52.463</b>	<b>51.326</b>	<b>50.247</b>	<b>50.028</b>	<b>50.126</b>	<b>50.242</b>	<b>50.357</b>

\*Demand for 2018 not yet confirmed

### OOO. Gross HH Demand (GW)

		Actual Demand				Forecast Demand*	Final Tariffs	March Forecast	Five Year Forecast			
Zone	Zone Name	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
1	Northern Scotland	0.443	0.437	0.483	0.483	0.489	0.428	0.439	0.436	0.446	0.442	0.445
2	Southern Scotland	1.217	1.215	1.297	1.329	1.259	1.126	1.210	1.205	1.234	1.211	1.228
3	Northern	1.052	1.029	1.120	1.134	1.078	0.902	1.036	1.035	1.041	1.043	1.037
4	North West	1.486	1.431	1.558	1.549	1.523	1.413	1.478	1.471	1.451	1.476	1.471
5	Yorkshire	1.512	1.496	1.588	1.616	1.610	1.495	1.564	1.563	1.535	1.557	1.566
6	N Wales & Mersey	1.045	1.027	1.095	1.089	1.085	0.991	1.041	1.032	1.037	1.040	1.045
7	East Midlands	1.872	1.806	1.902	1.874	1.878	1.717	1.765	1.764	1.762	1.766	1.772
8	Midlands	1.579	1.555	1.714	1.711	1.617	1.389	1.562	1.566	1.581	1.579	1.575
9	Eastern	2.051	2.030	2.267	2.312	2.133	1.931	2.078	2.051	2.069	2.066	2.061
10	South Wales	0.743	0.797	0.765	0.754	0.839	0.779	0.818	0.799	0.796	0.798	0.804
11	South East	1.136	1.128	1.250	1.297	1.169	1.060	1.160	1.146	1.154	1.153	1.151
12	London	2.269	2.236	2.332	2.398	2.286	2.203	2.242	2.216	2.208	2.218	2.215
13	Southern	2.012	2.013	2.189	2.197	2.072	1.933	2.026	2.014	2.031	2.026	2.022
14	South Western	0.738	0.705	0.793	0.807	0.764	0.641	0.746	0.747	0.748	0.750	0.756
	<b>TOTAL</b>	<b>19.156</b>	<b>18.904</b>	<b>20.354</b>	<b>20.550</b>	<b>19.801</b>	<b>18.007</b>	<b>19.164</b>	<b>19.046</b>	<b>19.090</b>	<b>19.126</b>	<b>19.149</b>

\*Demand for 2018 not yet confirmed

### PPP. Embedded export volumes (GW)

		Actual Demand				Forecast Demand*	Final Tariffs	March Forecast	Five Year Forecast			
Zone	Zone Name	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
1	Northern Scotland	0.541	0.550	0.849	0.931	1.001	1.359	1.229	1.233	1.108	0.949	1.038
2	Southern Scotland	0.300	0.395	0.563	0.496	0.670	0.958	0.698	0.634	0.805	0.680	0.839
3	Northern	0.716	0.396	0.259	0.396	0.581	0.572	0.515	0.484	0.477	0.503	0.477
4	North West	0.202	0.281	0.315	0.424	0.343	0.407	0.388	0.368	0.356	0.377	0.363
5	Yorkshire	0.452	0.627	0.642	0.860	0.635	0.750	0.703	0.684	0.673	0.696	0.673
6	N Wales & Mersey	0.343	0.473	0.432	0.536	0.538	0.622	0.577	0.562	0.542	0.572	0.543
7	East Midlands	0.335	0.373	0.413	0.663	0.477	0.578	0.552	0.534	0.507	0.546	0.513
8	Midlands	0.213	0.237	0.311	0.408	0.211	0.234	0.239	0.228	0.231	0.228	0.219
9	Eastern	0.562	0.553	0.560	0.845	0.624	0.695	0.656	0.640	0.592	0.699	0.644
10	South Wales	0.243	0.352	0.381	0.559	0.331	0.416	0.390	0.368	0.364	0.375	0.364
11	South East	0.299	0.304	0.287	0.482	0.318	0.346	0.336	0.322	0.322	0.326	0.314
12	London	0.121	0.138	0.257	0.251	0.149	0.141	0.133	0.124	0.126	0.126	0.117
13	Southern	0.463	0.584	0.637	0.737	0.437	0.410	0.402	0.386	0.390	0.388	0.363
14	South Western	0.239	0.244	0.347	0.387	0.200	0.258	0.275	0.252	0.237	0.247	0.224
	<b>TOTAL</b>	<b>5.030</b>	<b>5.506</b>	<b>6.253</b>	<b>7.975</b>	<b>6.516</b>	<b>7.748</b>	<b>7.091</b>	<b>6.820</b>	<b>6.730</b>	<b>6.711</b>	<b>6.691</b>

\*Demand for 2018 not yet confirmed.

### QQQ. NHH Demand (TWh)

		Actual Demand				Forecast Demand*	Final Tariffs	March Forecast	Five Year Forecast			
Zone	Zone Name	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
1	Northern Scotland	0.876	0.834	0.735	0.749	0.741	0.784	0.756	0.743	0.751	0.749	0.753
2	Southern Scotland	1.988	1.878	1.757	1.616	1.663	1.771	1.653	1.640	1.645	1.642	1.644
3	Northern	1.468	1.400	1.318	1.156	1.200	1.318	1.173	1.166	1.163	1.160	1.155
4	North West	2.243	2.178	2.089	1.923	1.932	2.024	1.928	1.914	1.914	1.905	1.906
5	Yorkshire	2.094	1.999	1.898	1.753	1.761	1.825	1.752	1.740	1.739	1.734	1.731
6	N Wales & Mersey	1.475	1.403	1.310	1.226	1.223	1.298	1.225	1.214	1.211	1.208	1.208
7	East Midlands	2.508	2.404	2.287	2.205	2.160	2.239	2.178	2.161	2.163	2.157	2.156
8	Midlands	2.374	2.272	2.159	1.983	1.995	2.171	1.979	1.967	1.964	1.959	1.954
9	Eastern	3.617	3.482	3.364	3.117	3.086	3.238	3.083	3.067	3.061	3.059	3.048
10	South Wales	0.983	0.932	0.876	0.822	0.829	0.884	0.835	0.827	0.829	0.826	0.828
11	South East	2.250	2.161	2.081	1.913	1.910	2.008	1.905	1.897	1.892	1.891	1.884
12	London	2.180	2.086	2.133	1.814	1.836	1.871	1.799	1.804	1.795	1.799	1.786
13	Southern	3.014	2.907	2.796	2.591	2.563	2.678	2.569	2.553	2.549	2.545	2.538
14	South Western	1.530	1.454	1.345	1.297	1.273	1.402	1.291	1.278	1.279	1.273	1.269
	<b>TOTAL</b>	<b>28.600</b>	<b>27.390</b>	<b>26.147</b>	<b>24.166</b>	<b>24.172</b>	<b>25.512</b>	<b>24.125</b>	<b>23.971</b>	<b>23.957</b>	<b>23.908</b>	<b>23.859</b>

\*Demand for 2018 not yet confirmed

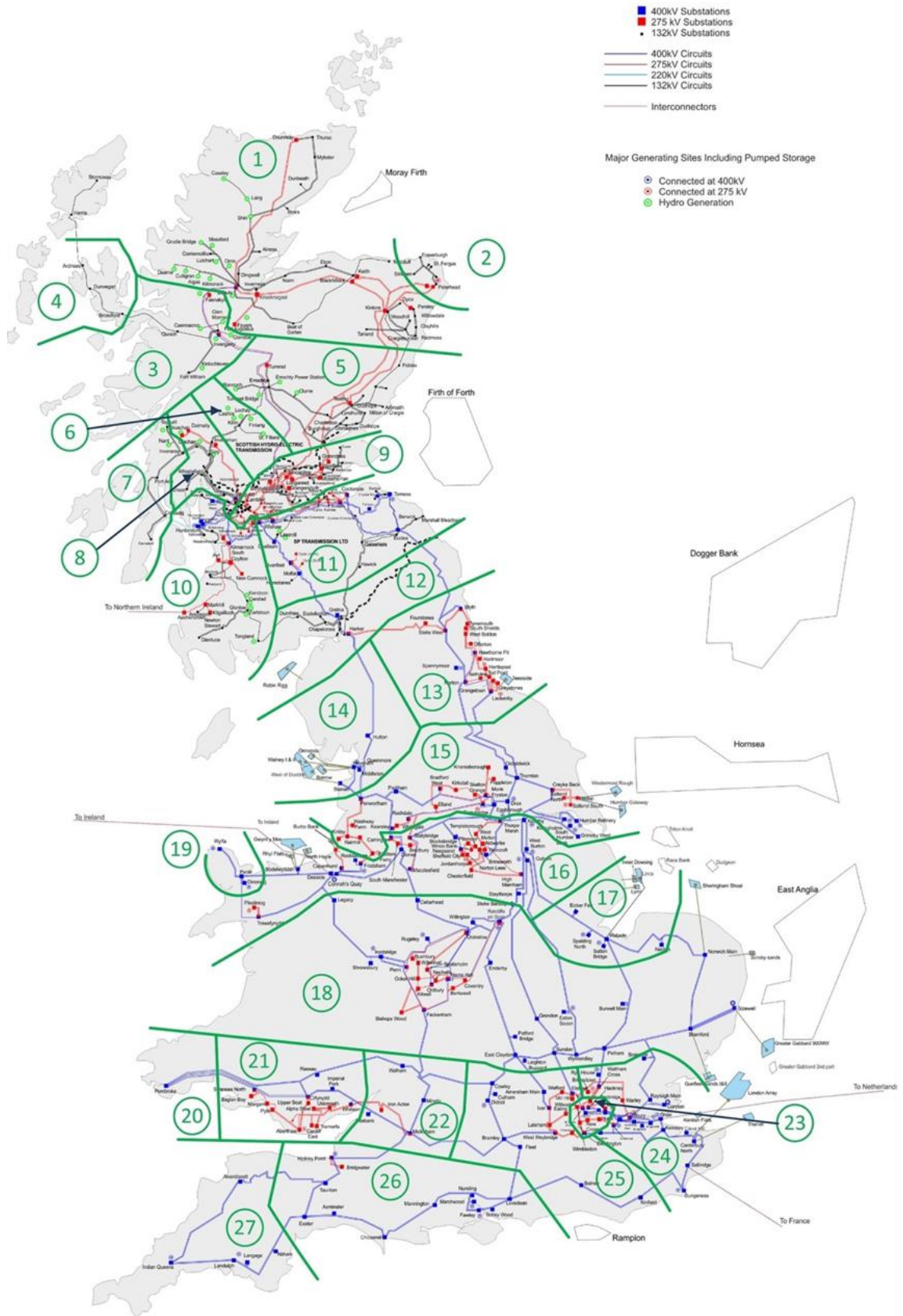




# I

## Appendix I: Generation zones map

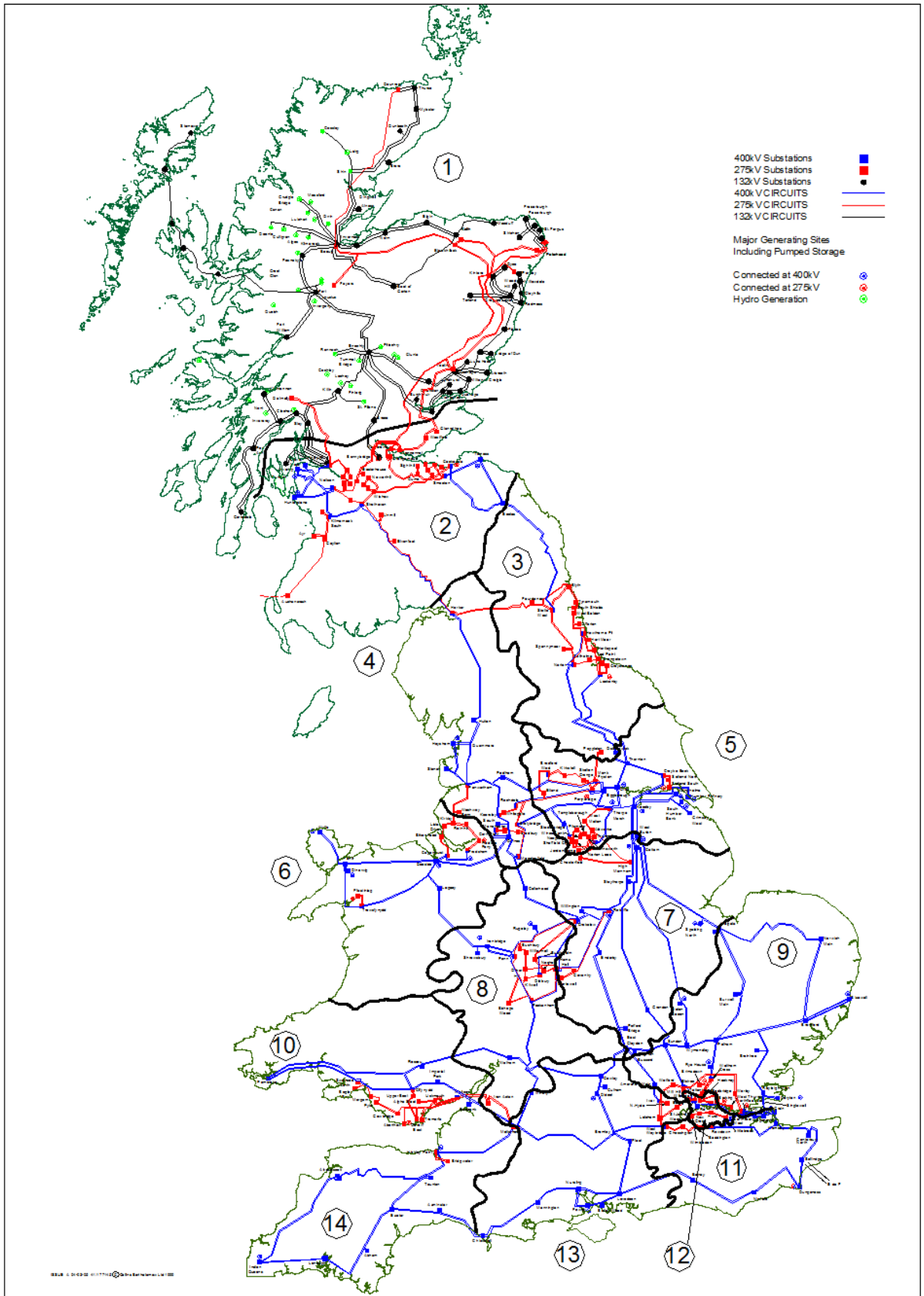
Figure A2: GB Existing Transmission System





# J

## Appendix J: Demand zones map





# K

## Appendix K: Changes to TNUoS parameters

## Parameters affecting TNUoS tariffs

The following table summarises the various inputs to the tariff calculations, indicating which updates are provided in each forecast during the year. Purple highlighting indicates that parameter will be fixed from that forecast onwards.

2020/21 TNUoS Tariff Forecast					
		March 2019	July 2019	Draft tariffs November 2019	January 2020 Final tariffs
<b>Methodology</b>					
<b>LOCATIONAL</b>	<b>DNO/DCC Demand Data</b>	Data from previous year		Week 24 updated	
	<b>Contracted TEC</b>	Latest TEC Register	Latest TEC Register	TEC Register Frozen at 31 October	
	<b>Network Model</b>	Data from previous year		Latest version based on ETYS	
<b>RESIDUAL</b>	<b>OFTO Revenue</b> ( <i>part of allowed revenue</i> )	Forecast	Forecast	Forecast	NG Best View
	<b>Allowed Revenue</b> ( <i>non OFTO changes</i> )	Update financial parameters	Latest onshore TO Forecasts	Latest TO Forecasts	From TOs
	<b>Demand Charging Bases</b>	Revised Forecast	Final Forecast	<i>By exception</i>	<i>By exception</i>
	<b>Generation Charging Base</b>	NG Best View	NG Best View	NG Best View	NG Final Best View
	<b>Generation ALFs</b>	Data from previous year		New ALFs published	
	<b>Generation Revenue</b> (G/D split)	Forecast	Generation revenue fixed		



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