nationalgrid

Tariff Information Paper

# Nov 2015 forecast of TNUoS tariffs for 2016/17

This information paper provides National Grid's forecast of Transmission Network Use of System (TNUoS) tariffs for 2016/17, which apply to Generators and Suppliers. It is the fourth of a series of updates that National Grid will publish throughout the year.

National Grid will be hosting a webinar on this report on Thursday 12 November 2015 at 1pm. Please contact us if you wish to participate using the details overleaf.

**25 November 2015**

**V1.1**

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**Any Questions?**

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# 1 Executive Summary

Welcome to our autumn forecast of TNUoS tariffs in 2016/17. This is our fourth forecast of 2016/17 charges this year and will be followed by draft tariffs in December with tariffs finalised at the end of January.

This forecast incorporates the significant change in contracted generation notified over the summer following the Judicial Review of CMP213 (Project Transmit.) Nearly 10GW of generation has reduced or terminated its capacity next year since our last forecast in July. However, many of these reductions were anticipated in our July forecast and therefore, whilst there have been movements in tariffs, they are not as large as those in the July forecast.

This forecast also includes our annual update of circuit information based upon data collated for the 2015 Electricity Ten Year Statement due to be published later this year. We have also updated the new 220kV subsea link between Crossaig and Hunterston using latest cost estimates from SHE Transmission and Scottish Power. This link is more expensive than generic cable which increases tariffs for West Scotland Generation with a corresponding reduction in Scottish demand tariffs.

After removing variations due to weather, energy consumption next year is expected to be broadly similar to this year. However, the proportion of energy supplied from the Transmission system is expected to be less due to growth in distributed generation. As a result, the generation output used to determine how much revenue can be recovered from generation within the €2.5/MWh cap is expected to be noticeably lower next year than this year. This was reflected in our July forecast which used an economic model of expected generation next year to determine the output of transmission and distributed chargeable generation. We continue to review this model as our forecast of generation changes although forecast output from transmission chargeable generation is largely unchanged in this forecast

Lower energy supplied from the transmission system means that our forecast of non-half-hour metered demand each evening has been reduced compared to our July forecast. Conversely our peak demand forecast has been increased. We continue to review peak and Half Hour demand as we receive further data on 2015/16.

Revenue forecasts for Transmission Owners have been updated in this forecast. Offshore revenues have increased slightly since our July forecast but following their annual regulatory submissions in July the onshore Transmission Owners are forecasting lower revenues. As a result forecast TNUoS revenue has reduced by £110m compared to the July forecast, reducing average demand tariffs.

Next year marks the start of the Transmit charging methodology. We have been publishing the four tariff format for generators for some time but in this forecast we also publish the Annual Load Factors that we intend to use to calculate generator charges next year.

If you need further support on forecasts tariffs or have any comments on how this report can be improved please do not hesitate to contact Stuart Boyle. These tariffs are established under the methodology set out in the CUSC, if you have any proposals for improvements we are happy to assist in the development of these or facilitate the development through the Transmission Charging Methodologies Forum.

# 2 Tariff Summary

This section summarises the forecast generation and demand tariff forecasts for 2016/17. Information can be found in later sections on how these tariffs were calculated and why they have changed from the July forecast.

## 2.1 Generation Tariffs 2016/17

### Table 1 - Wider Generation Tariffs

Under the Transmit methodology each generator has its own load factor as listed in Appendix D. The 70% and 30% loads factors used in this table are only for illustration.

| | | System Peak | Shared Year Round | Not Shared Year Round | Residual | Conventional 70% | Intermittent 30% |
|---|---|---|---|---|---|---|---|
| Zone | Zone Name | Tariff (£/kW) | Tariff (£/kW) | Tariff (£/kW) | Tariff (£/kW) | Tariff (£/kW) | Tariff (£/kW) |
| 1 | North Scotland | -1.27 | 10.65 | 6.75 | 0.32 | 13.26 | 10.27 |
| 2 | East Aberdeenshire | -0.25 | 4.59 | 6.75 | 0.32 | 10.04 | 8.45 |
| 3 | Western Highlands | -1.41 | 8.50 | 6.75 | 0.32 | 11.61 | 9.63 |
| 4 | Skye and Lochalsh | -5.37 | 8.50 | 8.18 | 0.32 | 9.08 | 11.05 |
| 5 | Eastern Grampian and Tayside | -1.46 | 7.59 | 6.56 | 0.32 | 10.73 | 9.16 |
| 6 | Central Grampian | 1.13 | 7.98 | 6.73 | 0.32 | 13.76 | 9.44 |
| 7 | Argyll | -0.09 | 5.42 | 15.63 | 0.32 | 19.66 | 17.58 |
| 8 | The Trossachs | 0.55 | 5.42 | 5.47 | 0.32 | 10.14 | 7.42 |
| 9 | Stirlingshire and Fife | -1.59 | 2.57 | 4.83 | 0.32 | 5.36 | 5.93 |
| 10 | South West Scotlands | -0.37 | 4.66 | 5.15 | 0.32 | 8.36 | 6.87 |
| 11 | Lothian and Borders | 0.74 | 4.66 | 2.86 | 0.32 | 7.18 | 4.58 |
| 12 | Solway and Cheviot | -0.49 | 3.12 | 2.72 | 0.32 | 4.74 | 3.97 |
| 13 | North East England | 1.02 | 2.31 | -0.21 | 0.32 | 2.75 | 0.81 |
| 14 | North Lancashire and The Lakes | 1.13 | 2.31 | 1.69 | 0.32 | 4.76 | 2.71 |
| 15 | South Lancashire, Yorkshire and Humber | 4.05 | 1.52 | 0.08 | 0.32 | 5.52 | 0.86 |
| 16 | North Midlands and North Wales | 3.76 | 0.39 | | 0.32 | 4.36 | 0.44 |
| 17 | South Lincolnshire and North Norfolk | 2.11 | 0.48 | | 0.32 | 2.76 | 0.47 |
| 18 | Mid Wales and The Midlands | 1.51 | 0.26 | | 0.32 | 2.01 | 0.40 |
| 19 | Anglesey and Snowdon | 5.14 | 1.13 | | 0.32 | 6.25 | 0.66 |
| 20 | Pembrokeshire | 9.22 | -2.54 | | 0.32 | 7.76 | -0.44 |
| 21 | South Wales & Gloucester | 6.34 | -2.51 | | 0.32 | 4.91 | -0.43 |
| 22 | Cotswold | 3.28 | 3.04 | -5.54 | 0.32 | 0.20 | -4.30 |
| 23 | Central London | -2.86 | 3.04 | -6.33 | 0.32 | -6.73 | -5.09 |
| 24 | Essex and Kent | -3.59 | 3.04 | | 0.32 | -1.13 | 1.24 |
| 25 | Oxfordshire, Surrey and Sussex | -0.85 | -1.39 | | 0.32 | -1.49 | -0.09 |
| 26 | Somerset and Wessex | -0.95 | -2.52 | | 0.32 | -2.39 | -0.43 |
| 27 | West Devon and Cornwall | 0.50 | -4.28 | | 0.32 | -2.17 | -0.96 |

### Table 2 - Local Substation Tariffs

| | | Local Substation Tariff (£/kW) | | |
|---|---|---|---|---|
| Substation Rating | Connection Type | 132kV | 275kV | 400kV |
| <1320 MW | No redundancy | 0.18 | 0.10 | 0.07 |
| <1320 MW | Redundancy | 0.40 | 0.25 | 0.18 |
| >=1320 MW | No redundancy | | 0.33 | 0.24 |
| >=1320 MW | Redundancy | | 0.53 | 0.39 |

**Table 3 - Local Circuit Tariffs**

| Substation Name | (£/kW) | Substation Name | (£/kW) | Substation Name | (£/kW) |
|---|---|---|---|---|---|
| Achruach | 3.88 | Didcot | 0.71 | Langage | 0.59 |
| Afton | 1.94 | Dinorwig | 2.17 | Lochay | 0.33 |
| Aigas | 0.59 | Dumnaglass | 3.14 | Luichart | 0.52 |
| An Suidhe | 0.86 | Dunlaw Extension | 5.37 | Marchwood | 0.35 |
| Arecleoch | 1.88 | Edinbane | 6.19 | Margee | 3.28 |
| Baglan Bay | 0.63 | Ewe Hill | 1.24 | Mark Hill | 0.79 |
| Beinneun Wind Farm | 1.53 | Fallago | 0.90 | Millennium | 1.29 |
| Black Craig | 3.53 | Farr Windfarm | 1.51 | Moffat | 0.17 |
| Black Law | 1.58 | Ffestiniogg | 0.23 | Mossford | 2.56 |
| BlackLaw Extension | 3.35 | Finlarig | 0.29 | Nant | -1.11 |
| Bodelwyddan | 0.10 | Foyers | 0.68 | Necton | -0.17 |
| Brochloch | 1.16 | Galawhistle | 0.77 | Rhigos | 0.07 |
| Carraig Gheal | 3.98 | Glendoe | 1.66 | Rocksavage | 0.02 |
| Carrington | -0.04 | Glenmoriston | 1.20 | Saltend | 0.31 |
| Clyde (North) | 0.10 | Gordonbush | 1.17 | South Humber Bank | 0.86 |
| Clyde (South) | 0.11 | Griffin Wind | -0.85 | Spalding | 0.25 |
| Corriegarth | 2.52 | Hadyard Hill | 2.50 | Strathy Wind | 4.65 |
| Corriemoillie | 1.46 | Harestanes | 2.29 | Stronelairg | 1.30 |
| Coryton | 0.31 | Hartlepool | 0.54 | Ulzieside | 9.32 |
| Cruachan | 1.60 | Hedon | 0.16 | Western Dod | 0.64 |
| Crystal Rig | 0.33 | Invergarry | 1.28 | Whitelee | 0.10 |
| Culligran | 1.57 | Kilbraur | 1.05 | Whitelee Extension | 0.27 |
| Deanie | 2.57 | Kilgallioch | 0.95 | | |
| Dersalloch | 2.18 | Kilmorack | 0.18 | | |

**Table 4 - Offshore Local Tariffs**

| Offshore Generator | Tariff Component (£/kW) | | |
|---|---|---|---|
| | Substation | Circuit | ETUoS |
| Barrow | 7.32 | 38.30 | 0.95 |
| Greater Gabbard | 13.72 | 31.54 | 0.00 |
| Gunfleet | 15.84 | 14.54 | 2.72 |
| Gwynt Y Mor | 16.71 | 16.46 | 0.00 |
| Lincs | 13.68 | 54.84 | 0.00 |
| London Array | 9.31 | 31.72 | 0.00 |
| Ormonde | 22.63 | 42.16 | 0.34 |
| Robin Rigg East | -0.42 | 27.73 | 8.59 |
| Robin Rigg West | -0.42 | 27.73 | 8.59 |
| Sheringham Shoal | 21.86 | 25.64 | 0.56 |
| Thanet | 16.65 | 31.02 | 0.75 |
| Walney 1 | 19.53 | 38.89 | 0.00 |
| Walney 2 | 19.39 | 39.24 | 0.00 |
| West of Duddon Sands | 7.54 | 37.19 | 0.00 |

## 2.2 Demand Tariffs 2016/17

**Table 5 - Demand Tariffs**

| Zone | Zone Name | HH Demand Tariff (£/kW) | NHH Demand Tariff (p/kWh) |
|---|---|---|---|
| 1 | Northern Scotland | 39.37 | 5.91 |
| 2 | Southern Scotland | 38.67 | 5.82 |
| 3 | Northern | 41.29 | 6.42 |
| 4 | North West | 41.26 | 5.91 |
| 5 | Yorkshire | 41.24 | 6.44 |
| 6 | N Wales & Mersey | 40.86 | 6.56 |
| 7 | East Midlands | 43.48 | 6.11 |
| 8 | Midlands | 44.26 | 6.32 |
| 9 | Eastern | 45.37 | 6.25 |
| 10 | South Wales | 40.64 | 6.09 |
| 11 | South East | 47.84 | 6.37 |
| 12 | London | 50.62 | 6.23 |
| 13 | Southern | 48.53 | 6.65 |
| 14 | South Western | 46.94 | 6.15 |

# 3 Introduction

## 3.1 Background

National Grid 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, National Grid 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 and are intended to be forward looking. This 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.

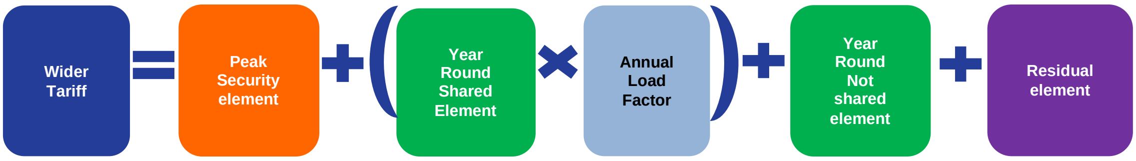
For generation customers, local tariffs are also calculated. These reflect the cost associated with the transmission substation they connect to and, where a generator is not connected to the main interconnected transmission system (MITS), the cost of local circuits that the generator uses to export onto 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 OFTO revenue allowances.

## 3.2 Project TransmiT

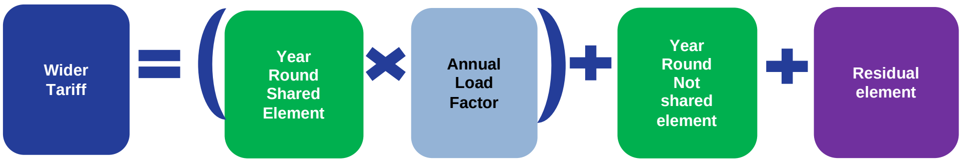
On conclusion of Ofgem’s Significant Code Review of gas and electricity transmission charging arrangements known as Project TransmiT, National Grid was directed to raise a CUSC modification proposal (CMP213) to consider potential improvements to the TNUoS charging methodology. On 11 July 2014 Ofgem approved Workgroup Alternative Code Modification 2 (WACM2) with an implementation date of 1 April 2016.

Under the TransmiT methodology there are still 27 generation zones but each zone now has four tariffs rather than just one.  A Generator's liability is dependent upon its type of generation. Coal, Nuclear, Gas, Pumped Storage, Peaking and Hydro are classed as conventional and wind is intermittent.  Liability for each tariff component is shown below:

***Conventional Generator***




***Intermittent Generator***




Each generator has a specific annual load factor based on its performance over the last five years.  Where new plant does not have at least three complete charging year's history then generic load factors specific to the technology are also used.  The annual load factors used in this forecast are listed in Appendix D.

## 3.3 P272

Balancing and Settlement Code amendment P272 makes it mandatory that Non-Half-Hour (NHH) profile classes 5-8 move to metering classes E, F and G Half-Hour (HH) settlement. The subsequent amendment P322 revised the completion date for P272 to 1 April 2017 so the affected NHH demand will still be in transition during 2016/17.

Connection and Use of System Code Modification Proposal 241 (CMP241) was approved by Ofgem on 30 March 2015 and CMP247 has also been raised by National Grid.  The combined effect of these is to treat meters that were profile classes 5 to 8 prior to 1 April 2015 as Non-half Hour metered until 31 March 2017. A small number of Metering Class E meters are also treated as Non-Half Hour metered under CMP241/247 but suppliers may opt for these to be treated as Half-Hour metered by providing additional data to National Grid.   In summary there will be negligible change to the proportion of chargeable HH demand compared to NHH demand in 2016/17.

# 4 Updates to the Charging Model for 2016/17

Since our forecast in July we have updated: allowed revenue, contracted generation, chargeable generation, locational demand, chargeable demand and circuit data. There have been no changes to the charging methodology.

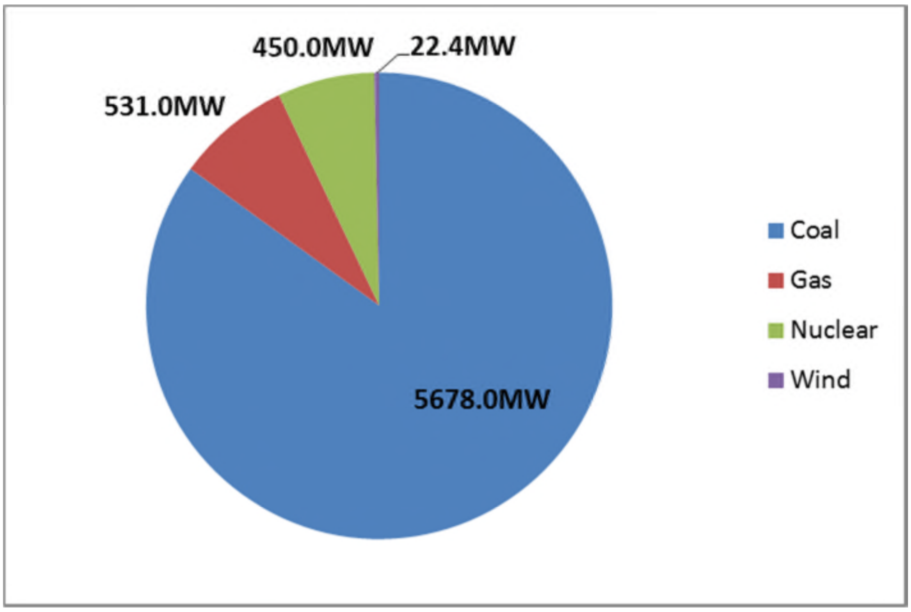
We will continue to review and update total revenue, contracted generation, chargeable generation, chargeable demand and forecast generator volumes.

## 4.1 Changes affecting the locational element of tariffs

### 4.1.1 Contracted Generation

We have updated generation for 2016/17 using the contracted generation background on 23 September 2015. The contracted background includes 6.7GW of TEC terminations and reductions received during the CMP213 Judicial Review Period between 21 August and 18 September 2015*. Many of the terminations, e.g. the closure of Longannet, were foreseen in July's forecast which has mitigated much of the change in tariffs in this forecast. Table 22 in Appendix B shows all changes in contracted Transmission Entry Capacity (TEC) since the July forecast.

**Figure 1 - CMP213 Judicial Review Period TEC Reductions & Terminations**




* CMP240 provided for a 20 business day 'CMP213 Judicial Review Period' in which less notice to disconnect/reduce TEC could be given than is generally required to avoid liability for cancellation charges.

The locational element of tariffs will be fixed using the contracted background on 31 October 2015[†]. Table 6 contrasts the contracted generation background and our current view which is used in this forecast. Previous years have seen late notice TEC reductions in March, however this year we believe that most of the TEC reductions affecting 2016/17 were submitted during the CMP213 Judicial Review Period. However, our current view of generation remains lower than the contracted background due to potential delay or deferral of new capacity. We are unable to breakdown our best view of generation as some of the information used to derive it could be commercially sensitive.

**Table 6 - Contracted and Modelled TEC**

| (GW) | 2015/16 | 2016/17 Initial forecast | 2016/17 May Forecast | 2016/17 July Forecast | 2016/17 Oct Forecast |
|---|---|---|---|---|---|
| Contracted TEC | 78.7 | 88.5 | 81.7 | 79.7 | 70.4 |
| Modelled TEC | 78.7 | 82.9 | 79.1 | 71.8 | 68.2 |

### 4.1.2 Locational Demand

The locational element of tariffs is based upon week 24 demand forecast data provided by the Distribution Network Operators (DNO) under the Grid Code, forecasts of demand at directly connected demand sites such as steelworks and railways and the effect of some embedded generation. DNO demand data was updated in the May forecast and will remain unchanged before tariffs are finalised in January 2016. Directly connected demand and embedded generation has been revised in this forecast.

### 4.1.3 Transmission network

Circuit data has been updated using information collated as part of the 2015 Electricity Ten Year Statement (ETYS) due to be published late this year. This has had minimal effect on wider tariffs apart from the specific Expansion Factor for the Crossaig to Hunterston subsea link discussed below. As the ETYS is published and circuit data finalised at a later date than the publication of this update it is possible that further changes to the circuit data will be made before tariffs are set but changes are more likely to affect local circuit charges than wider tariffs.

A specific Expansion Factor has been included in the transport model for the new Hunterston – Crossaig subsea 220kV cable based on updated cost estimates provided by SHE Transmission and Scottish Power. The specific Expansion Factor is higher than the generic Expansion Factor previously used which has increased tariffs for those generation zones which utilise the link with the inverse effect on demand zones. The actual cost information behind the calculation is commercially sensitive but is in line with data for offshore transmission networks.

[†] The 31 October freeze date for contracted generation is historically linked to the Seven Year Statement October update. This has been replaced by the Electricity Ten Year Statement (ETYS), normally published in November and updated in May. However the contracted generation position is now published more regularly under the TEC register.

## 4.2 Changes affecting the residual element of tariffs

### 4.2.1 Allowed Revenues

National Grid recovers revenue on behalf of all onshore and offshore Transmission Owners (TOs & OFTOs) in Great Britain. Table 7 shows the forecast 2016/17 revenues that have been used in calculating tariffs. Previous forecasts and the final revenue upon which 2015/16 tariffs were set are also included for comparison.

In July the onshore Transmission Owners submitted information on their performance and forecasts to Ofgem. As a result forecast revenues have reduced reflecting lower inflation and, in some cases, lower expenditure. More information on expenditure is available in each company's performance report[‡]. Further detail on revenue can be found in Appendix A.

The West of Duddon Sands Offshore Transmission Owner was appointed in August 2015 and the Humber Gateway and Westermost Rough OFTOs are forecast to be appointed in early 2016. OFTO revenues for the 2016/17 charging year have been calculated by indexation of existing OFTO revenues and forecasting when future transfers will occur and the revenues arising.

National Grid also collects Network Innovation Competition funding which from 2016/17 includes awards for electricity Distribution as well as Transmission. This forecast assumes 50% of available funding will be awarded. The awards will be announced by Ofgem in November 2015.

[‡] National Grid performance report:
http://www.talkingnetworkstx.com/Our-Performance.aspx
Scottish Power Transmission performance report:
http://www.spenergynetworks.co.uk/pages/2014_2015_transmission_annual_performance_report.asp
SHE Transmission performance report:
https://www.ssepd.co.uk/TransmissionPriceControlReview/

**Table 7 - Allowed revenue**

| £m Nominal | 2015/16 TNUoS Revenue | 2016/17 TNUoS Revenue | | | |
|---|---|---|---|---|---|
| | Jan 2015 Final | Jan 2015 Initial View | May 2015 Update | Jul 2015 Update | Oct 2015 Update |
| **National Grid** | | | | | |
| *Price controlled revenue* | *1,780.7* | *1,953.8* | *1,937.0* | *1,938.8* | *1,848.9* |
| *Less income from connections* | *45.0* | *48.3* | *45.0* | *45.0* | *45.6* |
| **Income from TNUoS** | **1,735.7** | **1,905.5** | **1,892.0** | **1,893.9** | **1,803.3** |
| **Scottish Power Transmission** | | | | | |
| *Price controlled revenue* | *306.4* | *321.0* | *303.1* | *302.3* | *300.7* |
| *Less income from connections* | *10.7* | *10.5* | *8.9* | *8.9* | *12.4* |
| **Income from TNUoS** | **295.7** | **310.5** | **294.2** | **293.4** | **288.3** |
| **SHE Transmission** | | | | | |
| *Price controlled revenue* | *341.7* | *343.0* | *333.6* | *329.0* | *309.0* |
| *Less income from connections* | *3.5* | *3.6* | *3.5* | *3.5* | *3.5* |
| **Income from TNUoS** | **338.2** | **339.5** | **330.1** | **325.5** | **305.5** |
| **Offshore** | **248.4** | **269.1** | **265.6** | **259.3** | **262.5** |
| **Network Innovation Competition** | **18.8** | **48.4** | **40.5** | **40.5** | **40.5** |
| **Total to Collect from TNUoS** | **2,636.7** | **2,873.0** | **2,822.4** | **2,812.6** | **2,700.1** |

### 4.2.2 Charging bases for 2016/17

*Generation*

Whilst the locational element of TNUoS tariffs will be fixed using the contracted background on 31 October 2015, the generation charging base may continue to change after this date. The generation charging base we are forecasting is less than contracted TEC as it excludes interconnectors, which are not chargeable, and generation that we do not expect to be contracted during the charging year either due to closure, termination or delay occurring after 31 October 2015.

*Demand*

We have increased our forecast of system demand at Triad in Winter 2016/17 from 49.3GW in our July forecast to 50.7GW in this forecast. Our forecast of Half-Hour metered demand at triad is unchanged at 14.2GW. We continue to review our forecasts of system and Half Hour demand at triad but expect that any further changes will be made to both such that the Half Hour and Non Half Hour proportions of revenue are unchanged. For example, system demand could vary by +/-1GW (2%) in which case Half Hour demand would vary by +/-300MW (2%).

We have reduced our forecast of Non Half Hour demand during 2016/17 from 26.6TWh in the July forecast to 25.7TWh in this forecast[§]. This reflects increased energy efficiency and faster growth in embedded generation, particularly solar.

The locational distribution of our system and Half Hour demand forecasts at peak have been updated and include some minor adjustments to reflect recent changes in heavy industry. Where forecast Half Hour demand in a zone is higher/lower than the July forecast, then this will tend to decrease/increase the revenue to be collected from Non Half Hour metered demand in the same zone, causing the Non Half Hour tariff to decrease/increase. Appendix C shows the locational changes in demand charging base.

The combined effect of Balancing & Settlement Code (BSC) and Connection and Use of System Code (CUSC) modifications[**] associated with the migration of demand profile classes 5 to 8 from Non-Half-Hour (NHH) metered to half-Hour (HH) metered means we are not forecasting any effect on these demand charging bases during 2016/17.

**Table 8 - Charging Base**

| Charging Base | 2015/16 | 2016/17 |
|---|---|---|
| Generation (GW) | 71.5 | 64.0 |
| Total Average Triad (GW) | 52.4 | 50.7 |
| HH Demand Average Triad (GW) | 15.0 | 14.2 |
| NHH Demand (4pm-7pm TWh) | 27.4 | 25.7 |

### 4.2.3 Adjustments for Interconnectors

When modelling flows on the transmission system, interconnectors 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 generation or demand charging bases, see Table 9.

[§] For comparison our latest forecast for NHH demand during 2015/16 is 26.5TWh.

[**] The Balancing & Settlement Code amendments are P272 and P322. The Connection & Use of System Code amendments are CMP241 and CMP247.

**Table 9 - Interconnectors**

| Interconnector | Site | Interconnected System | Generation Zone | Transport Model (Generation MW) Peak | Transport Model (Generation MW) Year Round | Charging Base (Generation MW) |
|---|---|---|---|---|---|---|
| IFA Interconnector | Sellindge 400kV | France | 24 | 0 | 2000 | 0 |
| ElecLink | Sellindge 400kV | France | 24 | 0 | 1000 | 0 |
| Britned | Grain 400kV | Netherlands | 24 | 0 | 1200 | 0 |
| East - West | Deesside 400kV | Republic of Ireland | 16 | 0 | 505 | 0 |
| Moyle | Auchencrosh 275kV | Northern Ireland | 10 | 0 | 295 | 0 |

### 4.2.4 Demand: Generation Split

EU Regulation ECR 838/2010 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.

As prescribed by the Use of System charging methodology, the exchange rate for 2016/17 is taken from the Economic and Fiscal Outlook published by the Office of Budgetary Responsibility in March 2015. The value of €1.36/£ is unchanged from our previous forecast.

The forecast output of generation subject to use of system charges is marginally higher than our July forecast. This value reflects our view of what generation will be chargeable during 2016/17 and the load factor of that generation. The latter is determined by an assessment of the relative cost of generation and forecast demand under average weather conditions.

We have reviewed generator revenue and generator output forecasting accuracy in recent years. These forecasts have been less accurate than previously thought so we are increasing the error margin from 7% to 8.2%. Recent year's forecasts also exhibit a bias to over-estimation. National Grid has implemented improvements to its forecasting processes this year to remove this over-estimation bias and therefore the error margin only includes stochastic error and not systemic bias.

These adjustments reduce the revenue recovered from generation by £5m compared to our July forecast. However, overall the revenue recovered from demand is forecast to be £104m lower than our July forecast due to the reduction in revenue collected from TNUoS charges.

The parameters used to calculate the proportions of revenue collected from generation and demand are shown in Table 10.

**Table 10 - Generation and Demand revenue proportions**

| | | 2015/16 | 2016/17 |
|---|---|---|---|
| $CAP_{EC}$ | Limit on generation tariff (€/MWh) | 2.5 | 2.5 |
| y | Error Margin | 6.4% | 8.2% |
| ER | Exchange Rate (€/£) | 1.22 | 1.36 |
| MAR | Total Revenue (£m) | 2,637 | 2,700 |
| GO | Gerneration Output (TWh) | 319.6 | 268.7 |
| G | % of revenue from generation | 23.2% | 16.8% |
| D | % of revenue from demand | 76.8% | 83.2% |
| G.R | Revenue recovered from generation (£m) | 612 | 453 |
| D.R | Revenue recovered from demand (£m) | 2,025 | 2,247 |

### 4.2.5 Generation and Demand Residuals

The residual element of tariffs can be calculated using the formulas 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.

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

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

Where:

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

$\mathbf{Z_G}$, $\mathbf{Z_D}$ and $\mathbf{L_C}$ are determined by the locational elements of tariffs.

Typically 75% of offshore revenues are recovered from offshore local tariffs. In 2016/17 offshore local tariffs are forecast to be £201.7m which is included in the revenue recovered from generation.

**Table 11 - Residual Calculation**

| | | 2015/16 | 2016/17 |
|---|---|---|---|
| $R_G$ | Generator residual tariff (£/kW) | 4.77 | 0.32 |
| $R_D$ | Demand residual tariff (£/kW) | 35.69 | 44.43 |
| G | Proportion of revenue recovered from generation (%) | 23.1% | 16.8% |
| D | Proportion of revenue recovered from demand (%) | 76.9% | 83.2% |
| R | Total TNUoS revenue (£m) | 2,637 | 2,700 |
| $Z_G$ | Revenue recovered from the locational element of generator tariffs (£m) | 47.6 | 199.2 |
| $Z_D$ | Revenue recovered from the locational element of demand tariffs (£m) | 157.7 | -4.6 |
| O | Revenue recovered from offshore local tariffs (£m) | 186.6 | 201.7 |
| $L_G$ | Revenue recovered from onshore local substation tariffs (£m) | 20.1 | 16.5 |
| $S_G$ | Revenue recovered from onshore local circuit tariffs (£m) | 13.8 | 15.3 |
| $B_G$ | Generator charging base (GW) | 71.5 | 64.0 |
| $B_D$ | Demand charging base (GW) | 52.4 | 50.7 |

## 4.3 Other changes

### 4.3.1 Expansion Constant

The expansion constant has decreased to £13.345378/MWkm from the July forecast to reflect lower actual and forecast RPI.

# 5 Forecast generation tariffs for 2016/17

The following section provides details of the forecast wider and local generation tariffs for 2016/17.

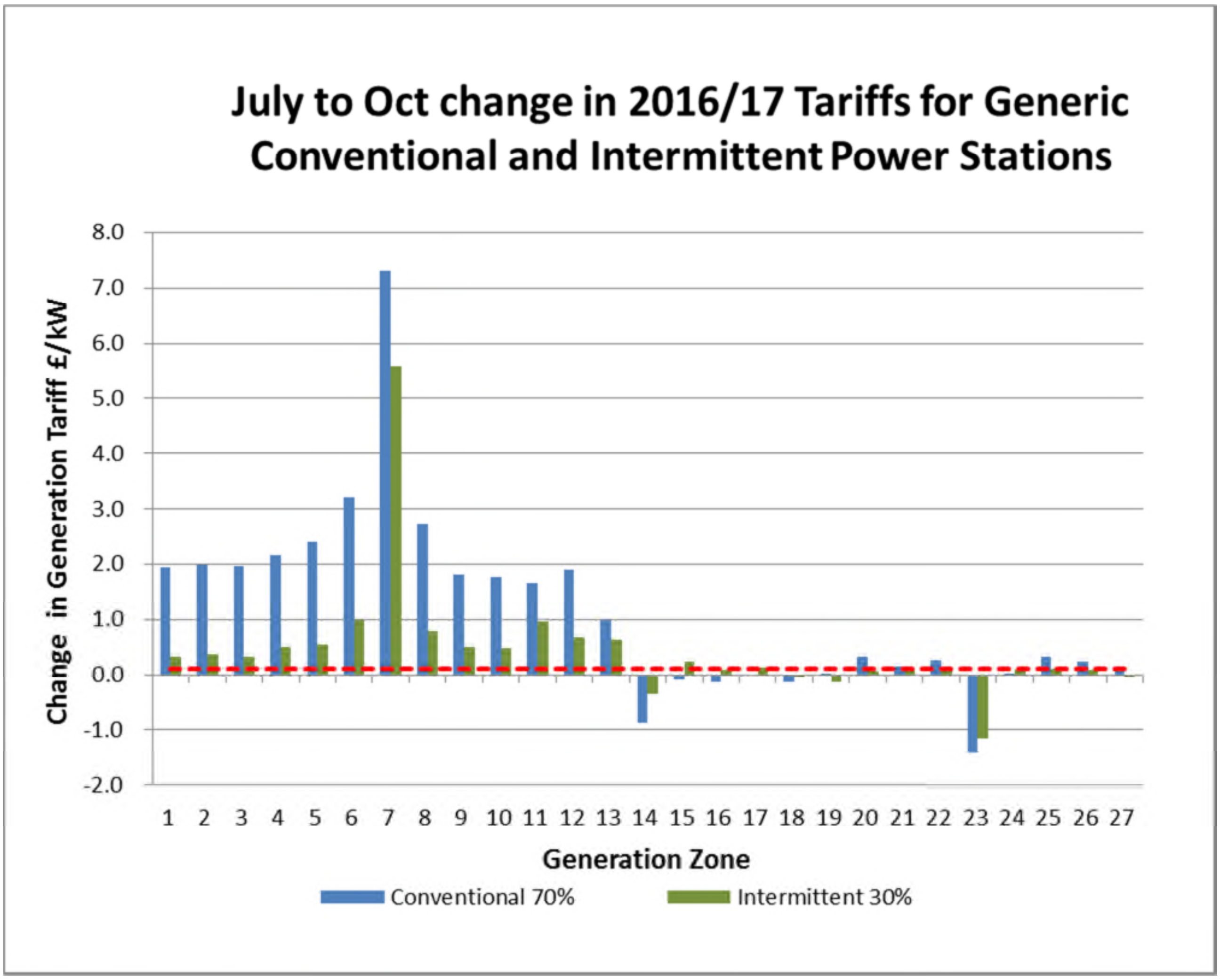
## 5.1 Wider zonal generation tariffs

Table 12 and Figure 2 show the changes in generation wider TNUoS tariffs between the July forecast and this forecast for a conventional generator with 70% load factor and an intermittent generator with 30% load factor. Under the Transmit methodology each generator has its own load factor and the 70% and 30% load factors used here are only for illustration.

**Table 12 – Generation tariff changes**

| Wider Generation Tariffs (£/kW) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Conventional 70% | | | Intermittent 30% | | | Change in Residual (£/kW) |
| Zone | Zone Name | 2016/17 July Forecast (£/kW) | 2016/17 Oct Forecast (£/kW) | Change (£/kW) | 2016/17 July Forecast (£/kW) | 2016/17 Oct Forecast (£/kW) | Change (£/kW) | |
| 1 | North Scotland | 11.33 | 13.26 | 1.93 | 9.95 | 10.27 | 0.32 | 0.11 |
| 2 | East Aberdeenshire | 8.06 | 10.04 | 1.98 | 8.08 | 8.45 | 0.37 | 0.11 |
| 3 | Western Highlands | 9.66 | 11.61 | 1.96 | 9.30 | 9.63 | 0.32 | 0.11 |
| 4 | Skye and Lochalsh | 6.92 | 9.08 | 2.16 | 10.54 | 11.05 | 0.51 | 0.11 |
| 5 | Eastern Grampian and Tayside | 8.33 | 10.73 | 2.40 | 8.61 | 9.16 | 0.55 | 0.11 |
| 6 | Central Grampian | 10.56 | 13.76 | 3.21 | 8.45 | 9.44 | 0.99 | 0.11 |
| 7 | Argyll | 12.36 | 19.66 | 7.31 | 12.00 | 17.58 | 5.58 | 0.11 |
| 8 | The Trossachs | 7.40 | 10.14 | 2.74 | 6.62 | 7.42 | 0.79 | 0.11 |
| 9 | Stirlingshire and Fife | 3.54 | 5.36 | 1.82 | 5.41 | 5.93 | 0.52 | 0.11 |
| 10 | South West Scotland | 6.59 | 8.36 | 1.77 | 6.39 | 6.87 | 0.48 | 0.11 |
| 11 | Lothian and Borders | 5.52 | 7.18 | 1.67 | 3.63 | 4.58 | 0.95 | 0.11 |
| 12 | Solway and Cheviot | 2.84 | 4.74 | 1.90 | 3.29 | 3.97 | 0.69 | 0.11 |
| 13 | North East England | 1.77 | 2.75 | 0.97 | 0.17 | 0.81 | 0.64 | 0.11 |
| 14 | North Lancs and The Lakes | 5.63 | 4.76 | -0.88 | 3.06 | 2.71 | -0.35 | 0.11 |
| 15 | South Lancs, Yorks and Humber | 5.61 | 5.52 | -0.09 | 0.62 | 0.86 | 0.23 | 0.11 |
| 16 | North Midlands and North Wales | 4.48 | 4.36 | -0.12 | 0.36 | 0.44 | 0.08 | 0.11 |
| 17 | South Lincs and North Norfolk | 2.77 | 2.76 | -0.01 | 0.33 | 0.47 | 0.13 | 0.11 |
| 18 | Mid Wales and The Midlands | 2.14 | 2.01 | -0.13 | 0.43 | 0.40 | -0.03 | 0.11 |
| 19 | Anglesey and Snowdon | 6.23 | 6.25 | 0.02 | 0.79 | 0.66 | -0.13 | 0.11 |
| 20 | Pembrokeshire | 7.43 | 7.76 | 0.33 | -0.51 | -0.44 | 0.07 | 0.11 |
| 21 | South Wales | 4.75 | 4.91 | 0.16 | -0.53 | -0.43 | 0.10 | 0.11 |
| 22 | Cotswold | -0.07 | 0.20 | 0.26 | -4.40 | -4.30 | 0.09 | 0.11 |
| 23 | Central London | -5.32 | -6.73 | -1.41 | -3.94 | -5.09 | -1.16 | 0.11 |
| 24 | Essex and Kent | -1.14 | -1.13 | 0.01 | 1.15 | 1.24 | 0.08 | 0.11 |
| 25 | Oxfordshire, Surrey and Sussex | -1.83 | -1.49 | 0.34 | -0.20 | -0.09 | 0.11 | 0.11 |
| 26 | Somerset and Wessex | -2.64 | -2.39 | 0.25 | -0.53 | -0.43 | 0.09 | 0.11 |
| 27 | West Devon and Cornwall | -2.28 | -2.17 | 0.12 | -0.92 | -0.96 | -0.04 | 0.11 |

**Figure 2 - Variation in Generation Zonal Tariffs**




*Locational Tariff*

Zones in the north and west of Scotland see increases to the locational element of their tariff as updated cost information for the subsea 220kV connection between Crossaig and Hunterston replaces generic data. The specific expansion factor for this circuit is higher than the generic 275kV cable used previously. The zones that are close to this circuit, e.g. Zone 7, see a greater increase in tariffs as a higher proportion of generation flows through this cable.

Generally tariffs increase in the north due to increased north to south flows. Following a reduction in conventional generation in England, the cost of northern England circuits has switched from the peak to the year round scenario. As peak circuits, they flowed south to north reducing the peak tariff paid by conventional Scottish generation. As year round circuits, they flow north to south, increasing year round tariffs paid by all Scottish generation. The impact therefore is an increase in both Peak and Year Round tariffs in zones that export through northern England circuits. The change of circuits from peak to year round is due to relatively small changes in generation and demand which are acting in combination.

The reduction in conventional generation also causes remaining generators elsewhere to be scaled up to meet peak demand. This leads to slight increases in tariffs for zones on the edges of the system which have peak Generation contracted for 2016/17.

Zone 23 sees a decrease in tariff due to the combined effect of cabling work being scheduled to complete sooner than previously forecasted and a change in flows due to generation changes.

*Residual Tariff*

The forecast residual element of the tariff has increased by £0.11/kW since our July forecast whilst average generation charges have increased by £0.30/kW. This increase in tariffs is mainly caused by the 3.5GW reduction in forecast chargeable generation since the July update.

## 5.2 Onshore local circuit tariffs

Onshore local circuit tariffs have been updated from the July forecast. Variations from the July forecast are generally caused by changes in flows on surrounding circuits and circuit changes arising from updated information as part of the ETYS 2015 process. If you require further information around a particular local circuit tariff please feel free to contact us.

Charging modification CMP203 requires circuits in the transport model to be modelled differently from the actual circuit parameters if they have been subject to a one off charge[††]. Table 13 lists those circuits which we will amend for 2016/17 to reflect the fact that the customer has already paid/or will pay for the non-standard incremental cost.

**Table 13 - Circuits subject to one off charges**

| Node 1 | Node 2 | Actual Parameters | Amendment in Transport Model | Generator |
|---|---|---|---|---|
| Wishaw 132kV | Blacklaw 132kV | 11.46km of Cable | 11.46km of OHL | Blacklaw |
| 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 |
| 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 |
| Crystal Rig 132kV | Western Dod 132kV | 3.9km of Cable | 3.9km of OHL | Aikengall II |
| Farigaig 132kV | Dunmaglass 132kV | 4km Cable | 4km OHL | Dunmaglass |
| Coalburn 132kV | Galawhistle 132kV | 9.7km cable | 9.7km OHL | Galawhistle II |
| Melgarve 132kV | Stronelairg 132kV | 10km cable | 10km OHL | Stronelairg |
| Moffat 132kV | Harestanes 132kV | 15.33km cable | 15.33km OHL | Harestanes |

## 5.3 Onshore local substation tariffs

Local substation tariffs have been updated from the July forecast to reflect lower actual and forecast RPI.

## 5.4 Offshore local generation tariffs

The local offshore tariffs (substation, circuit and ETUoS) have been updated from the July forecast to reflect lower actual and forecast RPI. Offshore local generation tariffs associated with Offshore Transmission Owners yet to be appointed will be calculated following their appointment.

[††] CUSC section 14.15.12 to 14.15.20

# 6 Forecast demand tariffs for 2016/17

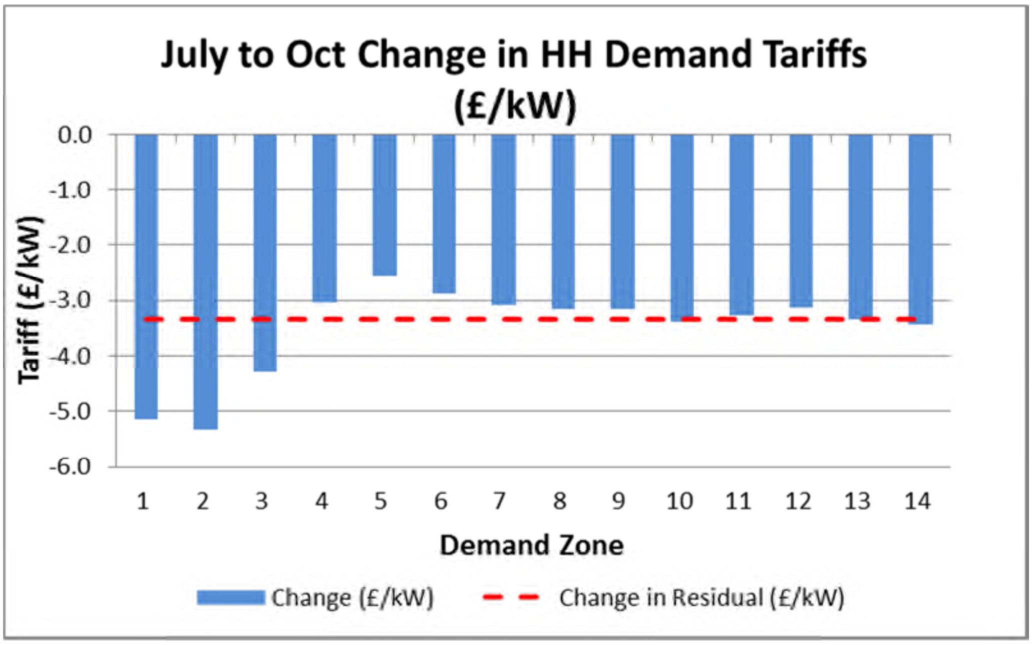
## 6.1 Half Hour Demand Tariffs

Table 14 and Figure 3 show the difference between the Half-Hourly (HH) demand tariffs forecast in July and this forecast.

**Table 14 - Change in HH Demand Tariffs**

| Zone | Zone Name | 2016/17 July Forecast (£/kW) | 2016/17 Oct Forecast (£/kW) | Change (£/kW) | Change in Residual (£/kW) |
|---|---|---|---|---|---|
| 1 | Northern Scotland | 44.51 | 39.37 | -5.14 | -3.34 |
| 2 | Southern Scotland | 43.99 | 38.67 | -5.32 | -3.34 |
| 3 | Northern | 45.58 | 41.29 | -4.30 | -3.34 |
| 4 | North West | 44.31 | 41.26 | -3.05 | -3.34 |
| 5 | Yorkshire | 43.80 | 41.24 | -2.56 | -3.34 |
| 6 | N Wales & Mersey | 43.73 | 40.86 | -2.87 | -3.34 |
| 7 | East Midlands | 46.57 | 43.48 | -3.08 | -3.34 |
| 8 | Midlands | 47.41 | 44.26 | -3.15 | -3.34 |
| 9 | Eastern | 48.54 | 45.37 | -3.16 | -3.34 |
| 10 | South Wales | 44.03 | 40.64 | -3.40 | -3.34 |
| 11 | South East | 51.12 | 47.84 | -3.28 | -3.34 |
| 12 | London | 53.75 | 50.62 | -3.13 | -3.34 |
| 13 | Southern | 51.87 | 48.53 | -3.34 | -3.34 |
| 14 | South Western | 50.38 | 46.94 | -3.43 | -3.34 |

**Figure 3 - Change in HH Demand Tariffs**



*Locational Tariff*

Zone 5 (Yorkshire) exhibits an increase in demand tariffs relative to other zones due to generation reductions in that zone. Zones 1 to 3 (Scotland and Northern) exhibit decreases in demand tariffs relative to other zones as generation in these zones replaces the reduction in English generation.

*Residual Tariff*

The residual tariff element of HH demand tariffs has decreased by £3.34/kW since the July forecast. £1.25/kW of this decrease is due to higher forecast system demand and the remainder is due to the £110m reduction in forecast revenue to be recovered from use of system charges. The weighted average HH tariff decreases by £3.31/kW.

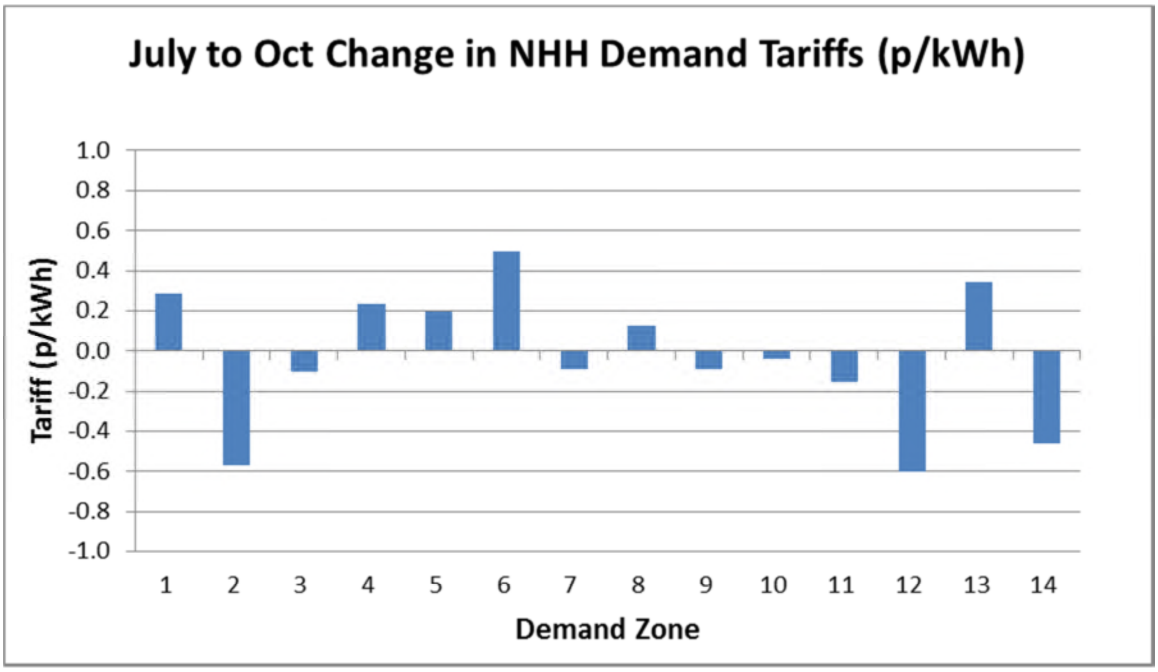
## 6.2 Non Half-hourly demand tariffs

Table 15 and Figure 4 show the difference between the Non-Half-Hourly (NHH) demand tariffs forecast in July and this forecast.

**Table 15 - NHH Demand Tariff Changes**

| Zone | Zone Name | 2016/17 July Forecast (p/kWh) | 2016/17 Oct Forecast (p/kWh) | Change (p/kWh) |
|---|---|---|---|---|
| 1 | Northern Scotland | 5.63 | 5.91 | 0.28 |
| 2 | Southern Scotland | 6.39 | 5.82 | -0.57 |
| 3 | Northern | 6.52 | 6.42 | -0.11 |
| 4 | North West | 5.67 | 5.91 | 0.24 |
| 5 | Yorkshire | 6.24 | 6.44 | 0.19 |
| 6 | N Wales & Mersey | 6.07 | 6.56 | 0.50 |
| 7 | East Midlands | 6.20 | 6.11 | -0.09 |
| 8 | Midlands | 6.20 | 6.32 | 0.12 |
| 9 | Eastern | 6.35 | 6.25 | -0.09 |
| 10 | South Wales | 6.13 | 6.09 | -0.04 |
| 11 | South East | 6.52 | 6.37 | -0.16 |
| 12 | London | 6.83 | 6.23 | -0.60 |
| 13 | Southern | 6.31 | 6.65 | 0.34 |
| 14 | South Western | 6.61 | 6.15 | -0.46 |

**Figure 4 - NHH Tariff Demand Changes**




The forecast weighted average Non Half Hour tariff is 0.04p/kWh lower than in the July forecast. Non-Half hour tariffs have only reduced marginally compared to Half Hour tariffs because the reduction in allowed revenue, which reduces both HH and NHH demand tariffs, is offset by a forecast reduction in NHH demand, which increases NHH only.

Individual NHH tariffs have varied in the range -0.6 to +0.5p/kWh. Both HH and NHH demands have been re-forecast but the changes in HH demand have altered the proportion of revenue to be recovered from NHH demand in each zone and therefore the NHH tariffs. Modelled demands can be found in Appendix C.

# 7 Sensitivities & Uncertainties for 2016/17

## 7.1 Transmission revenue requirements

Table 16 illustrates the sensitivity of the forecast tariffs to a £50m change in the revenue collected from TNUoS tariffs. This scenario does not represent a minimum or maximum tariff range.

**Table 16 – Impact of change in TNUoS Revenue**

| £50m increase in revenue recovered from TNUoS | |
|---|---|
| Change in Generation Tariffs (£/kW) | 0.0 |
| Change in HH Demand Tariffs (£/kW) | 0.99 |
| Change in NHH Demand Tariffs (p/kWh) | 0.14 |

## 7.2 Demand charging base

An increase in the demand charging base decreases tariffs. Table 17 shows the impacts of a 2% increase in system and HH chargeable demand.

**Table 17 - Impact of 2% increase in system and HH in demand**

| Change in Demand | | Change in Tariff | |
|---|---|---|---|
| Peak Demand (MW) | 1013 | | |
| HH Demand (MW) | 283 | HH Tariff (£/kW) | -0.87 |
| NHH Demand (TWh) | 0.00 | NHH Tariff (£/kWh) | 0.00 |

## 7.3 Generation charging base

The tariffs presented in this document are based upon the contracted generation background for 2016/17 as of 23 September 2015 adjusted to our current view. The locational element of tariffs will be fixed using the contracted background as at 31 October 2015. However the residual element of generation tariffs may continue to be adjusted up to when tariffs are finalised in January 2016, to reflect changes in the charging base.

# 8 Tools and Supporting Information

## 8.1 Further information

We are keen to ensure that customers understand the current charging arrangements and the reason 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.

## 8.2 Charging forums

We will be hosting a webinar on Thursday 12 November 2015 at 1pm to present the material in this forecast and answer questions in an open forum. Please contact us if you wish to participate.

## 8.3 Charging models

We can provide a copy of our charging model. 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.

We also provide a tariff calculator on the tools and data section of our website to calculate generator tariffs under the CMP213 ('Transmit') methodology.

## 8.4 Numerical data

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

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

| | | |
|---|---|---|
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# Appendices

**Appendix A**: Revenue Tables

**Appendix B**: Generation changes for 2016/17

**Appendix C**: Locational Demand changes

**Appendix D**: Annual Load Factors

**Appendix E**: Generation Zones

**Appendix F**: Demand Zones

## Appendix A : Revenue Tables

These pages provide more detail on the price control forecasts for National Grid, Scottish Power Transmission and SHE Transmission. Revenue for offshore networks is also included with forecasts by National Grid 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.

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 formula are constructed.

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

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

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

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

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

## Table 18 - National Grid Revenue Forecast

| National Grid Revenue Forecast | | | 28/10/2015 | | | |
|---|---|---|---|---|---|---|
| Description | | Licence | Yr t-1 | Yr t | Yr t+1 | |
| Regulatory Year | | | 2014/15 | 2015/16 | 2016/17 | Notes |
| Actual RPI | | | 256.667 | | | April to March average |
| RPI Actual | | RPIAt | 1.190 | | | Office of National Statistics |
| Assumed Interest Rate | | It | 0.50% | 0.70% | 1.05% | Bank of England Base Rate |
| Opening Base Revenue Allowance (2009/10 prices) | A1 | PUt | 1,443.8 | 1,475.6 | 1,571.4 | From Licence |
| Price Control Financial Model Iteration Adjustment | A2 | MODt | -5.5 | -114.4 | -170.0 | Determined by Ofgem/Licensee forecast |
| RPI True Up | A3 | TRUt | -0.5 | 4.7 | -19.9 | Licensee Actual/Forecast |
| Prior Calendar Year RPI Forecast | | GRPIFc-1 | 3.1% | 2.5% | 1.0% | HM Treasury Forecast then 2.8% |
| Current Calendar Year RPI Forecast | | GRPIFc | 3.1% | 2.4% | 2.2% | HM Treasury Forecast then 2.8% |
| Next Calendar Year RPI forecast | | GRPIFc+1 | 3.0% | 3.2% | 3.1% | HM Treasury Forecast then 2.8% |
| RPI Forecast | A4 | RPIFt | 1.2051 | 1.2267 | 1.2350 | Using HM Treasury Forecast |
| **Base Revenue [A=(A1+A2+A3)*A4]** | **A** | **BRt** | **1732.7** | **1675.5** | **1706.1** | |
| Pass-Through Business Rates | B1 | RBt | | 1.2 | 1.5 | Licensee Actual/Forecast |
| Temporary Physical Disconnection | B2 | TPDt | 0.1 | 0.0 | 0.1 | Licensee Actual/Forecast |
| Licence Fee | B3 | LFt | | 2.0 | 2.7 | Licensee Actual/Forecast |
| Inter TSO Compensation | B4 | ITCt | | 3.8 | 2.7 | Licensee Actual/Forecast |
| Termination of Bilateral Connection Agreements | B5 | TERMt | 0.0 | 0.0 | 0.0 | Does not affect TNUoS |
| SP Transmission Pass-Through | B6 | TSPt | 312.2 | 295.7 | 288.3 | 14/15 & 15/16 Charge setting. Later from TSP Calculation. |
| SHE Transmission Pass-Through | B7 | TSHt | 214.0 | 338.2 | 305.5 | 14/15 & 15/16 Charge setting. Later from TSH Calculation. |
| Offshore Transmission Pass-Through | B8 | TOFTOt | 218.4 | 248.4 | 262.5 | 14/15 & 15/16 Charge setting. Later from OFTO Calculation. |
| Embedded Offshore Pass-Through | B9 | OFETt | 0.4 | 0.6 | 0.7 | Licensee Actual/Forecast |
| **Pass-Through Items [B=B1+B2+B3+B4+B5+B6+B7+B8+B9]** | **B** | **PTt** | **745.1** | **890.0** | **864.0** | |
| Reliability Incentive Adjustment | C1 | RIt | | 2.4 | 3.9 | Licensee Actual/Forecast/Budget |
| Stakeholder Satisfaction Adjustment | C2 | SSOt | | 8.7 | 10.1 | Licensee Actual/Forecast/Budget |
| Sulphur Hexafluoride (SF6) Gas Emissions Adjustment | C3 | SFIt | | 2.8 | 2.7 | Licensee Actual/Forecast/Budget |
| Awarded Environmental Discretionary Rewards | C4 | EDRt | | 0.0 | 2.0 | Only includes EDR awarded to licensee to date |
| **Outputs Incentive Revenue [C=C1+C2+C3+C4]** | **C** | **OIPt** | **0.0** | **13.9** | **18.7** | |
| Network Innovation Allowance | D | NIAt | 10.9 | 10.6 | 10.7 | Licensee Actual/Forecast/Budget |
| Network Innovation Competition | E | NICFt | 17.8 | 18.8 | 40.5 | Sum of NICF awards determined by Ofgem/Forecast by National Grid |
| Future Environmental Discretionary Rewards | F | EDRt | | | 0.0 | Sum of future EDR awards forecast by National Grid |
| Transmission Investment for Renewable Generation | G | TIRGt | 16.0 | 15.7 | -0.6 | Licensee Actual/Forecast |
| Scottish Site Specific Adjustment | H | DISt | 2.0 | 0.8 | 2.2 | Licensee Actual/Forecast |
| Scottish Terminations Adjustment | I | TSt | -0.3 | 0.1 | 0.0 | Licensee Actual/Forecast |
| Correction Factor | K | -Kt | | 56.4 | 104.0 | Calculated by Licensee |
| **Maximum Revenue [M= A+B+C+D+E+F+G+H+I+K]** | **M** | **TOt** | **2524.3** | **2681.6** | **2745.8** | |
| Termination Charges | B5 | | 0.0 | 0.0 | 0.0 | |
| Pre-vesting connection charges | P | | 47.0 | 45.0 | 45.6 | Licensee Actual/Forecast |
| **TNUoS Collected Revenue [T=M-B5-P]** | **T** | | **2477.3** | **2636.7** | **2700.1** | |
| Final Collected Revenue | U | TNRt | 2375.9 | | | Licensee Actual/Forecast |
| **Forecast percentage change to Maximum Revenue M** | | | **0.0%** | **6.2%** | **2.4%** | |
| **Forecast percentage change to TNUoS Collected Revenue T** | | | **0.0%** | **6.4%** | **2.4%** | |

**Table 19 - Scottish Power Revenue Forecast**

| Scottish Power Transmission Revenue Forecast | | | Updated: | 07/10/15 | | |
|---|---|---|---|---|---|---|
| Description | | Licence Term | Yr t-1<br>2014/15 | Yr t<br>2015/16 | Yr t+1<br>2016/17 | Notes |
| Actual RPI | | | 256.67 | | | April to March average |
| RPI Actual | | RPIAt | 1.1900 | | | Office of National Statistics |
| Assumed Interest Rate | | It | 0.50% | 0.63% | 1.13% | National Grid forecast |
| Opening Base Revenue Allowance (2009/10 prices) | A1 | PUt | 237.0 | 258.6 | 244.7 | |
| Price Control Financial Model Iteration Adjustment | A2 | MODt | 6.2 | -20.3 | -23.7 | |
| RPI True Up | A3 | TRUt | -0.1 | 0.9 | -3.8 | |
| RPI Forecast | A4 | RPIFt | 1.2051 | 1.2267 | 1.2350 | National Grid forecast |
| **Base Revenue [A=(A1+A2+A3)*A4]** | **A** | **BRt** | **292.9** | **293.4** | **268.2** | |
| Pass-Through Business Rates | B1 | RBt | 0.0 | -20.2 | -4.5 | |
| Temporary Physical Disconnection | B2 | TPDt | 0.0 | 0.0 | 0.0 | |
| **Pass-Through Items [B=B1+B2]** | **B** | **PTt** | **0.0** | **-20.2** | **-4.5** | |
| Reliability Incentive Adjustment | C1 | RIt | 0.0 | 2.6 | 3.0 | |
| Stakeholder Satisfaction Adjustment | C2 | SSOt | 0.0 | 1.7 | 2.1 | |
| Sulphur Hexafluoride (SF6) Gas Emissions Adjustment | C3 | SFIt | 0.0 | -0.2 | 0.1 | |
| Awarded Environmental Discretionary Rewards | C4 | EDRt | 0.0 | 0.0 | 0.0 | |
| Financial Incentive for Timely Connections Output | C5 | -CONADJt | 0.0 | 0.0 | 0.0 | |
| **Outputs Incentive Revenue [C=C1+C2+C3+C4+C5]** | **C** | **OIPt** | **0.0** | **4.1** | **5.2** | |
| Network Innovation Allowance | D | NIAt | 0.7 | 1.3 | 1.0 | |
| Transmission Investment for Renewable Generation | G | TIRGt | 29.3 | 29.6 | 30.9 | |
| Correction Factor | K | -Kt | 0.0 | 8.7 | -0.1 | |
| **Maximum Revenue (M= A+B+C+D+G+J+K]** | **M** | **TOt** | **322.9** | **316.8** | **300.7** | |
| Excluded Services | P | EXCt | 7.7 | 8.0 | 9.4 | Post BETTA Connection Charges |
| Site Specifc Charges | S | EXSt | 18.5 | 18.8 | 21.8 | Pre & Post BETTA Connection Charges |
| **TNUoS Collected Revenue (T=M+P-S)** | **T** | **TSPt** | **312.1** | **306.0** | **288.3** | General System Charge |
| Final Collected Revenue | U | TNRt | 312.2 | 295.7 | 288.3 | |
| **Forecast percentage change to TNUoS Collected Revenue T** | | | **0.0%** | **-1.9%** | **-5.8%** | |

### Table 20 - SHE Transmission Revenue Forecast

| SHE Transmission Revenue Forecast | | | Updated: | 07/10/2015 | | |
|---|---|---|---|---|---|---|
| | | | Yr t-1 | Yr t | Yr t+1 | |
| Description | | Licence Term | 2014/15 | 2015/16 | 2016/17 | Notes |
| Actual RPI | | | 256.67 | | | April to March average |
| RPI Actual | | RPIAt | 1.1900 | | | Office of National Statistics |
| Assumed Interest Rate | | It | 0.50% | 0.63% | 1.13% | National Grid forecast |
| Opening Base Revenue Allowance (2009/10 prices) | A1 | PUt | 111.5 | 124.1 | 123.6 | From Licence |
| Price Control Financial Model Iteration Adjustment | A2 | MODt | 8.7 | 85.2 | 73.5 | 16/17 onwards based on Ofgem's initial view |
| RPI True Up | A3 | TRUt | -0.0 | 0.5 | -2.6 | Based on NG forecast RPIA. RPIF based on assumed Treasury Forecast of 3% |
| RPI Forecast | A4 | RPIFt | 1.2051 | 1.2267 | 1.2350 | National Grid forecast |
| **Base Revenue [A=(A1+A2+A3)*A4]** | **A** | **BRt** | **144.9** | **257.4** | **240.3** | |
| Pass-Through Business Rates | B1 | RBt | 0.0 | -0.7 | -16.1 | RBt rebate received in 2014/15, pass through in 2016/17 |
| Temporary Physical Disconnection | B2 | TPDt | 0.0 | 0.6 | 0.1 | |
| **Pass-Through Items [B=B1+B2]** | **B** | **PTt** | **0.0** | **-0.1** | **-15.9** | |
| Reliability Incentive Adjustment | C1 | RIt | | 1.2 | 0.2 | Forecast values based on average of previous energy not supplied actuals |
| Stakeholder Satisfaction Adjustment | C2 | SSOt | | 1.6 | 2.3 | Forecast values based on average of previous actuals; also reflects step-change to Base Revenue |
| Sulphur Hexafluoride (SF6) Gas Emissions Adjustment | C3 | SFIt | | -0.1 | -0.0 | Forecast based on latest actual SF6 emissions and baseline targets |
| Awarded Environmental Discretionary Rewards | C4 | EDRt | | 0.0 | 0.0 | |
| Financial Incentive for Timely Connections Output | C5 | -CONADJt | | 0.0 | 0.0 | |
| **Outputs Incentive Revenue [C=C1+C2+C3+C4+C5]** | **C** | **OIPt** | **0.0** | **2.7** | **2.5** | |
| Network Innovation Allowance | D | NIAt | 1.3 | 1.3 | 1.3 | Forecast assumes same level of allowance in nominal values |
| Transmission Investment for Renewable Generation | G | TIRGt | 72.2 | 81.2 | 80.0 | Based on adjusted licence condition values |
| Compensatory Payments Adjustment | J | SHCPt | 0.0 | 0.4 | 0.0 | |
| Correction Factor | K | -Kt | | -1.7 | 0.9 | |
| **Maximum Revenue (M= A+B+C+D+G+J+K]** | **M** | **TOt** | **218.3** | **341.1** | **309.0** | |
| Excluded Services | P | EXCt | 0.0 | 0.0 | 0.0 | Post BETTA Connection Charges |
| Site Specifc Charges | S | EXSt | 3.5 | 3.5 | 3.5 | Post-Vesting, Pre-BETTA Connection Charges |
| **TNUoS Collected Revenue (T=M+P-S)** | **T** | **TSHt** | **214.8** | **337.6** | **305.5** | General System Charge |
| Final Collected Revenue | U | TNRt | | | | |
| **Forecast percentage change to TNUoS Collected Revenue T** | | | **0.0%** | **57.2%** | **-9.5%** | |

**Table 21 - Offshore Transmission Owner Revenues**

<table>
<tr><th colspan="1">Offshore Transmission Revenue Forecast</th><th colspan="3">28/10/2015</th><th></th></tr>
<tr><th>Description</th><th>Yr t-1</th><th>Yr t</th><th>Yr t+1</th><th rowspan="2">Notes</th></tr>
<tr><th>Regulatory Year</th><th>2014/15</th><th>2015/16</th><th>2016/17</th></tr>
<tr><td>Barrow</td><td>5.5</td><td>5.6</td><td>5.7</td><td>Current revenues plus indexation</td></tr>
<tr><td>Gunfleet</td><td>6.9</td><td>7.0</td><td>7.1</td><td>Current revenues plus indexation</td></tr>
<tr><td>Walney 1</td><td>12.5</td><td>12.8</td><td>12.9</td><td>Current revenues plus indexation</td></tr>
<tr><td>Robin Rigg</td><td>7.7</td><td>7.9</td><td>8.0</td><td>Current revenues plus indexation</td></tr>
<tr><td>Walney 2</td><td>12.9</td><td>13.2</td><td>13.4</td><td>Current revenues plus indexation</td></tr>
<tr><td>Sheringham Shoal</td><td>18.9</td><td>19.5</td><td>19.7</td><td>Current revenues plus indexation</td></tr>
<tr><td>Ormonde</td><td>11.6</td><td>11.8</td><td>12.0</td><td>Current revenues plus indexation</td></tr>
<tr><td>Greater Gabbard</td><td>26.0</td><td>26.6</td><td>26.9</td><td>Current revenues plus indexation</td></tr>
<tr><td>London Array</td><td>37.6</td><td>39.2</td><td>37.8</td><td>Current revenues plus indexation</td></tr>
<tr><td>Thanet</td><td rowspan="4">78.9</td><td>17.5</td><td>17.7</td><td>Current revenues plus indexation</td></tr>
<tr><td>Lincs</td><td>25.6</td><td>25.3</td><td>Current revenues plus indexation</td></tr>
<tr><td>Gwynt y mor</td><td>26.3</td><td>25.5</td><td>Current revenues plus indexation</td></tr>
<tr><td>West of Duddon Sands</td><td rowspan="3">35.3</td><td>20.4</td><td>National Grid Forecast</td></tr>
<tr><td>Humber Gateway</td><td>0.0</td><td rowspan="2">30.1</td><td rowspan="2">National Grid Forecast</td></tr>
<tr><td>Westermost Rough</td><td>0.0</td></tr>
<tr><td>Offshore Transmission Pass-Through (B7)</td><td>218.4</td><td>248.4</td><td>262.5</td><td></td></tr>
</table>

## Appendix B : Generation changes for 2016/17

Table 22 shows TEC changes notified between 4 June 2015 (used for the July forecast) and 23 September 2015 (used for this forecast.) Stations with Bilateral Embedded Generator Agreements for less than 100MW TEC are not chargeable and are not included in this table. The tariffs in this forecast are based on National Grid's best view and therefore may include different generation to that shown below.

**Table 22 - Generation TEC Changes**

| Station | Agreement Type | Node | Zone | 04/06/2015 | 23/09/2015 | MW Change |
|---|---|---|---|---|---|---|
| An Suidhe Wind Farm, Argyll (SRO) | BCA | ANSU10 | 7 | 20.7 | 19.3 | -1.4 |
| Barry Power Station | BEGA | ABTH20 | 21 | 99 | 0 | -99 |
| Brockloch Rig Wind Farm | BCA | DUNH1Q | 10 | 75 | 0 | -75 |
| Brownieleys | BEGA | FIDD1B | 5 | 0 | 7.5 | 7.5 |
| Damhead Creek II | BCA | KINO40 | 24 | 1200 | 0 | -1200 |
| Deeside | BCA | CONQ40 | 16 | 260 | 1 | -259 |
| Eggborough | BCA | EGGB40 | 15 | 1940 | 0 | -1940 |
| Ferrybridge C | BCA | FERR20 | 15 | 980 | 0 | -980 |
| Fiddlers Ferry | BCA | FIDF20_ENW | 15 | 1953 | 1455 | -498 |
| Freasdail | BCA | CRSS10 | 7 | 27.5 | 22.2 | -5.3 |
| Galloper Wind Farm | BCA | LEIS10 | 18 | 340 | 70 | -270 |
| Green frog @ The Drove | BEGA | BRWA20 | 26 | 2 | 6 | 6 |
| Harburnhead Wind Farm | BEGA | LING1Q | 11 | 3 | 51.7 | 51.7 |
| Harestanes | BCA | HARE10 | 12 | 146 | 142.3 | -3.7 |
| Harestanes Extension | BCA | HARE10 | 12 | 17.3 | 0 | -17.3 |
| Hinkley Point B | BCA | HINP40 | 26 | 1061 | 1261 | 200 |
| Hornsea Power Station 1A | BCA | HORN40 | 15 | 500 | 0 | -500 |
| Hornsea Power Station 1B | BCA | HORN40 | 15 | 500 | 0 | -500 |
| Keith Hill Wind Farm | BCA | DUNE10 | 11 | 7 | 4 | 4 |
| Keiths Hill Wind Farm | BCA | DUNE10 | 11 | 4 | 0 | -4 |
| Leadhills Wind Farm | BCA | ELVA20 | 11 | 50 | 0 | -50 |
| Lincs Offshore Wind Farm | BCA | WALP40_EME | 17 | 250 | 256 | 6 |
| Longannet | BCA | LOAN20 | 9 | 2260 | 0 | -2260 |
| Millennium South | BCA | FAUG10 | 3 | 25 | 0 | -25 |

| Station | Agreement Type | Node | Zone | 04/06/2015 | 23/09/2015 | MW Change |
|---|---|---|---|---|---|---|
| Neart Na Goaithe Offshore Wind Farm | BCA | CRYR40 | 11 | 450 | 0 | -450 |
| Pen Y Cymoedd Wind Farm | BCA | RHIG40 | 21 | 9 | 228 | 228 |
| Rampion Offshore Wind Farm | BCA | BOLN40 | 25 | 332 | 400 | 68 |
| Rhigos | BCA | RHIG40 | 21 | 228 | 0 | -228 |
| South Hook CHP Plant | BCA | PEMB40 | 20 | 490 | 0 | -490 |
| West Burton B | BCA | WBUR40 | 16 | 1332 | 1295 | -37 |
| Windy Standard II (Brockloch Rig 1) Wind Farm | BCA | DUNH1R | 10 | 13 | 75 | 75 |
| Wylfa | BCA | WYLF40 | 19 | 450 | 0 | -450 |
| Total | | | | 15024.5 | 5294 | -9696.5 |

## Appendix C : Locational Demand changes

**Table 23 - Demand Profiles**

| | | July Forecast | | | | Oct Forecast | | | |
|---|---|---|---|---|---|---|---|---|---|
| Zone | Zone Name | Locational Model Demand (MW) | Tariff model Peak Demand (MW) | Tariff Model HH Demand (MW) | Tariff model NHH Demand (TWh) | Locational Model Demand (MW) | Tariff model Peak Demand (MW) | Tariff Model HH Demand (MW) | Tariff model NHH Demand (TWh) |
| 1 | Northern Scotland | 642 | 976 | 25 | 0.75 | 629 | 1,061 | - 162 | 0.81 |
| 2 | Southern Scotland | 3,286 | 3,420 | 839 | 1.78 | 3,237 | 3,538 | 962 | 1.71 |
| 3 | Northern | 2,636 | 2,158 | 220 | 1.35 | 2,609 | 2,295 | 296 | 1.29 |
| 4 | North West | 4,009 | 4,027 | 1,344 | 2.10 | 4,005 | 4,096 | 1,261 | 1.98 |
| 5 | Yorkshire | 4,582 | 3,781 | 997 | 1.95 | 4,559 | 3,908 | 1,104 | 1.80 |
| 6 | N Wales & Mersey | 2,092 | 2,574 | 722 | 1.34 | 2,092 | 2,707 | 696 | 1.25 |
| 7 | East Midlands | 4,966 | 4,586 | 1,472 | 2.34 | 4,967 | 4,713 | 1,535 | 2.26 |
| 8 | Midlands | 4,414 | 4,235 | 1,345 | 2.21 | 4,414 | 4,321 | 1,279 | 2.13 |
| 9 | Eastern | 5,583 | 6,011 | 1,545 | 3.42 | 5,581 | 6,103 | 1,617 | 3.25 |
| 10 | South Wales | 1,920 | 1,758 | 489 | 0.91 | 1,920 | 1,808 | 503 | 0.87 |
| 11 | South East | 3,609 | 3,482 | 790 | 2.11 | 3,609 | 3,590 | 854 | 2.05 |
| 12 | London | 4,661 | 4,690 | 2,093 | 2.04 | 4,730 | 4,737 | 2,137 | 2.11 |
| 13 | Southern | 5,995 | 5,293 | 1,812 | 2.86 | 5,814 | 5,404 | 1,576 | 2.79 |
| 14 | South Western | 2,518 | 2,332 | 498 | 1.40 | 2,699 | 2,391 | 514 | 1.43 |
| Total | | 50,913 | 49,323 | 14,188 | 26.56 | 50,865 | 50,672 | 14,172 | 25.75 |

## Appendix D : Annual Load Factors

Table 24 lists the Annual Load Factors (ALF) of generators expected to be liable for generator charges during 2016/17. ALF are used to scale the Shared Year Round element of tariffs so each generator has a tariff appropriate to its historical load factor. ALF have been calculated using Transmission Entry Capacity, Metered Output and Final Physical Notifications from charging years 2010/11 to 2014/15. Generators which commissioned after 1 April 2012 will have less than three complete years of data so the Generic ALF listed in Table 25 are added to create three complete years from which the ALF can be calculated. Generators expected to commission during 2016/17 also use the Generic ALF.

**Table 24 : Specific Annual Load Factors**

| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberthaw | Actual | Actual | Actual | Actual | Actual | 42.1681% | 44.5767% | 74.0137% | 65.5413% | 59.0043% | 56.3741% |
| A'chruach Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Beauly Cascade | Actual | Actual | Actual | Actual | Actual | 23.7270% | 44.8523% | 25.4532% | 35.6683% | 37.1167% | 32.7461% |
| Aikengall II Windfarm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| An Suidhe Wind Farm | Partial | Actual | Actual | Actual | Actual | 27.7229% | 34.8406% | 31.6380% | 41.5843% | 36.9422% | 37.7890% |
| Arecleoch | Partial | Actual | Actual | Actual | Actual | 28.4997% | 35.1282% | 32.4826% | 33.8296% | 29.7298% | 33.8135% |
| Baglan Bay | Actual | Actual | Actual | Actual | Actual | 75.0152% | 61.0787% | 27.5756% | 16.4106% | 37.9194% | 42.1913% |
| Barrow Offshore Wind Ltd | Generic | Partial | Actual | Actual | Actual | - | 51.4133% | 42.8840% | 54.1080% | 47.0231% | 48.0051% |
| Black Law | Actual | Actual | Actual | Actual | Actual | 21.8248% | 32.5465% | 22.0683% | 31.9648% | 26.7881% | 26.9404% |
| Blacklaw Extension | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Grangemouth | Actual | Actual | Actual | Actual | Actual | 66.2697% | 67.5783% | 52.8594% | 55.9047% | 62.6168% | 61.5971% |
| Burbo Bank Extension Offshore Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 47.8149% |
| Carraig Gheal | Generic | Generic | Partial | Actual | Actual | - | - | 31.8214% | 45.2760% | 48.9277% | 42.0083% |
| Carrington Power Station | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 41.9008% |
| Cottam Development Centre | Actual | Actual | Actual | Actual | Actual | 63.9771% | 46.0664% | 13.7361% | 16.0249% | 31.3132% | 31.1348% |

| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Clunie Scheme | Actual | Actual | Actual | Actual | Actual | 33.6597% | 50.3272% | 33.4563% | 45.3256% | 43.2488% | 40.7447% |
| Clyde (North) | Generic | Partial | Actual | Actual | Actual | - | 22.5934% | 28.5345% | 42.6598% | 36.8882% | 36.0275% |
| Clyde (South) | Partial | Actual | Actual | Actual | Actual | 23.0513% | 21.1154% | 31.6084% | 39.8941% | 29.4115% | 33.6380% |
| Connahs Quay | Actual | Actual | Actual | Actual | Actual | 51.0194% | 33.6741% | 18.5104% | 12.8233% | 18.3739% | 23.5195% |
| Corby | Actual | Actual | Actual | Actual | Actual | 18.2387% | 8.1854% | 3.4375% | 8.0834% | 9.6755% | 8.6481% |
| Corriegarth | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Corriemoillie Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Coryton | Actual | Actual | Actual | Actual | Actual | 84.0339% | 40.7480% | 15.6869% | 9.7852% | 17.5123% | 24.6490% |
| Cottam | Actual | Actual | Actual | Actual | Actual | 59.3181% | 61.2151% | 65.0700% | 67.3951% | 51.4426% | 61.8678% |
| Cour Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Cruachan | Actual | Actual | Actual | Actual | Actual | 11.2970% | 8.9462% | 8.4281% | 9.6969% | 9.0516% | 9.2315% |
| Crystal Rig II | Actual | Actual | Actual | Actual | Actual | 27.9128% | 49.3600% | 40.6845% | 50.2549% | 47.5958% | 45.8801% |
| Beauly Cascade | Actual | Actual | Actual | Actual | Actual | 23.7270% | 44.8523% | 25.4532% | 35.6683% | 37.1167% | 32.7461% |
| Damhead Creek | Actual | Actual | Actual | Actual | Actual | 86.5589% | 77.3504% | 45.0617% | 77.1783% | 67.4641% | 73.9976% |
| Beauly Cascade | Actual | Actual | Actual | Actual | Actual | 23.7270% | 44.8523% | 25.4532% | 35.6683% | 37.1167% | 32.7461% |
| Deeside | Actual | Actual | Actual | Actual | Actual | 55.6058% | 35.4538% | 19.7551% | 17.3035% | 13.9018% | 24.1708% |
| Dersalloch Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Didcot B | Actual | Actual | Actual | Actual | Actual | 73.4424% | 56.8079% | 49.0134% | 18.6624% | 25.5345% | 43.7853% |
| Dinorwig | Actual | Actual | Actual | Actual | Actual | 15.3082% | 15.0985% | 15.0990% | 15.0898% | 15.0650% | 15.0958% |
| Drax | Actual | Actual | Actual | Actual | Actual | 82.0455% | 81.1523% | 82.4774% | 80.5151% | 82.2149% | 81.8042% |
| Dudgeon Offshore Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 47.8149% |
| Dungeness B | Actual | Actual | Actual | Actual | Actual | 39.6373% | 11.6712% | 59.8295% | 61.0068% | 54.6917% | 51.3862% |
| Dunlaw Extension | Actual | Actual | Actual | Actual | Actual | 34.6421% | 37.7664% | 32.3771% | 34.8226% | 30.0797% | 33.9472% |
| Dunmaglass Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |

| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Edinbane Wind | Actual | Actual | Actual | Actual | Actual | 29.0483% | 52.8496% | 29.3933% | 39.4785% | 31.2458% | 33.3725% |
| Brimsdown | Actual | Actual | Actual | Actual | Actual | 57.0990% | 39.5562% | 21.8759% | 18.7645% | 11.1229% | 26.7322% |
| Errochty | Actual | Actual | Actual | Actual | Actual | 17.0180% | 25.1643% | 14.5869% | 28.2628% | 25.3585% | 22.5136% |
| Ewe Hill | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Fallago | Generic | Generic | Partial | Actual | Actual | - | - | 34.8914% | 54.8683% | 44.7267% | 44.8288% |
| Farr Windfarm Tomatin | Actual | Actual | Actual | Actual | Actual | 30.4445% | 43.3953% | 34.0149% | 44.7212% | 38.5712% | 38.6604% |
| Fasnakyle G1 & G3 | Actual | Actual | Actual | Actual | Actual | 19.7278% | 39.9896% | 22.1176% | 35.3695% | 57.4834% | 32.4922% |
| Fawley CHP | Actual | Actual | Actual | Actual | Actual | 69.0226% | 71.5686% | 61.1362% | 63.3619% | 72.8484% | 67.9844% |
| Ffestiniogg | Actual | Actual | Actual | Actual | Actual | 3.0731% | 3.3676% | 2.9286% | 5.4631% | 4.3251% | 3.5886% |
| Fiddlers Ferry | Actual | Actual | Actual | Actual | Actual | 46.7146% | 52.0973% | 61.6386% | 49.0374% | 45.2435% | 49.2831% |
| Finlarig | Actual | Actual | Actual | Actual | Actual | 50.0484% | 67.9805% | 40.2952% | 59.9142% | 59.4092% | 56.4573% |
| Foyers | Actual | Actual | Actual | Actual | Actual | 17.9834% | 18.9885% | 13.4800% | 14.7097% | 12.3048% | 15.3910% |
| Freasdail | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Galawhistle Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Galloper Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 47.8149% |
| Glen App Windfarm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Glendoe | Generic | Generic | Actual | Actual | Actual | - | - | 17.3350% | 36.3802% | 32.3494% | 28.6882% |
| Glenmoriston | Actual | Actual | Actual | Actual | Actual | 28.3321% | 58.0412% | 36.3045% | 44.4594% | 48.7487% | 43.1709% |
| Gordonbush | Generic | Partial | Actual | Actual | Actual | - | 32.9384% | 37.8930% | 46.5594% | 47.7981% | 44.0835% |
| Grain | Actual | Actual | Actual | Actual | Actual | 18.2091% | 29.4910% | 25.4580% | 41.3833% | 44.0031% | 32.1108% |
| Great Yarmouth | Actual | Actual | Actual | Actual | Actual | 76.2183% | 45.0785% | 19.0270% | 20.7409% | 18.6633% | 28.2821% |
| Greater Gabbard Offshore Wind Farm | Partial | Actual | Actual | Actual | Actual | 35.8271% | 17.8601% | 40.1778% | 48.3038% | 42.1327% | 43.5381% |
| Griffin Wind | Generic | Partial | Actual | Actual | Actual | - | 13.9399% | 17.9885% | 31.9566% | 31.3152% | 27.0867% |
| Gunfleet Sands II | Actual | Actual | Actual | Actual | Actual | 41.0784% | 41.4244% | 45.0132% | 52.2361% | 44.7211% | 43.7196% |

| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gunfleet Sands I | Actual | Actual | Actual | Actual | Actual | 38.1775% | 43.7552% | 50.1496% | 56.6472% | 47.0132% | 46.9727% |
| Gwynt y Mor | Generic | Generic | Partial | Actual | Actual | - | - | 13.9901% | 8.0036% | 61.6185% | 27.8707% |
| Hadyard Hill | Actual | Actual | Actual | Actual | Actual | 23.8131% | 38.9802% | 27.6927% | 31.9488% | 27.7635% | 29.1350% |
| Harestanes | Generic | Generic | Generic | Partial | Actual | - | - | - | 23.3480% | 28.6355% | 29.5726% |
| Hartlepool | Actual | Actual | Actual | Actual | Actual | 79.3759% | 71.1712% | 80.2632% | 73.7557% | 56.2803% | 74.7676% |
| Heysham | Actual | Actual | Actual | Actual | Actual | 58.1497% | 83.7012% | 83.3828% | 73.3628% | 68.8252% | 75.1903% |
| Hinkley Point B | Actual | Actual | Actual | Actual | Actual | 65.3580% | 56.9291% | 61.7582% | 68.8664% | 70.1411% | 65.3275% |
| Humber Gateway Offshore Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 47.8149% |
| Hunterston | Actual | Actual | Actual | Actual | Actual | 73.4059% | 75.3474% | 73.5984% | 84.7953% | 79.1368% | 76.0275% |
| Immingham | Actual | Actual | Actual | Actual | Actual | 55.5560% | 73.3041% | 50.1793% | 37.8219% | 56.8316% | 54.1890% |
| Indian Queens | Actual | Actual | Actual | Actual | Actual | 0.7122% | 1.3382% | 0.3423% | 0.2321% | 0.0876% | 0.4289% |
| Garry Cascade | Actual | Actual | Actual | Actual | Actual | 32.5155% | 70.4039% | 48.5993% | 55.9308% | 64.3828% | 56.3043% |
| Keadby II | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 41.9008% |
| Keith Hill wind farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Kilbraur | Actual | Actual | Actual | Actual | Actual | 35.3544% | 45.1817% | 45.2306% | 51.3777% | 54.3550% | 47.2633% |
| Kilgallioch | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Beauly Cascade | Actual | Actual | Actual | Actual | Actual | 23.7270% | 44.8523% | 25.4532% | 35.6683% | 37.1167% | 32.7461% |
| Kings Lynn A | Generic | Generic | Generic | Actual | Actual | - | - | - | 0.0000% | 0.0000% | 13.9669% |
| Langage | Actual | Actual | Actual | Actual | Actual | 74.0119% | 60.7905% | 41.9115% | 40.8749% | 34.8629% | 47.8589% |
| Lincs Wind Farm | Generic | Generic | Partial | Actual | Actual | - | - | 19.7548% | 46.5987% | 43.8178% | 36.7238% |
| Little Barford | Actual | Actual | Actual | Actual | Actual | 84.4222% | 11.8210% | 16.3807% | 33.6286% | 49.6644% | 33.2246% |
| Killin Cascade | Actual | Actual | Actual | Actual | Actual | 25.4645% | 53.0410% | 32.3429% | 45.5356% | 44.8205% | 40.8997% |
| Lochluichart | Generic | Generic | Generic | Partial | Actual | - | - | - | 26.5290% | 20.2103% | 27.8246% |
| London Array | Generic | Generic | Partial | Actual | Actual | - | - | 37.9981% | 51.2703% | 64.0880% | 51.1188% |

| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conon Cascade | Actual | Actual | Actual | Actual | Actual | 42.9004% | 62.1102% | 47.5286% | 54.2820% | 55.5287% | 52.4464% |
| Marchwood | Actual | Actual | Actual | Actual | Actual | 84.3291% | 66.1953% | 43.3537% | 48.6845% | 66.4021% | 60.4273% |
| Mark Hill | Partial | Actual | Actual | Actual | Actual | 35.0347% | 26.3795% | 30.1675% | 30.2863% | 26.7942% | 29.0827% |
| Medway | Actual | Actual | Actual | Actual | Actual | 67.0026% | 42.4273% | 1.0718% | 14.5545% | 28.0962% | 28.3594% |
| Millennium | Actual | Actual | Actual | Actual | Actual | 32.8403% | 47.2065% | 42.1318% | 52.6618% | 53.2636% | 47.3334% |
| Conon Cascade | Actual | Actual | Actual | Actual | Actual | 42.9004% | 62.1102% | 47.5286% | 54.2820% | 55.5287% | 52.4464% |
| Nant | Actual | Actual | Actual | Actual | Actual | 22.6503% | 42.4480% | 20.8965% | 35.5883% | 36.4040% | 31.5476% |
| Ormonde | Generic | Generic | Partial | Actual | Actual | - | - | 48.3775% | 49.6561% | 42.8711% | 46.9682% |
| Conon Cascade | Actual | Actual | Actual | Actual | Actual | 42.9004% | 62.1102% | 47.5286% | 54.2820% | 55.5287% | 52.4464% |
| Pembroke | Generic | Partial | Actual | Actual | Actual | - | 32.9605% | 61.5434% | 60.3928% | 67.5346% | 63.1569% |
| Pen Y Cymoedd Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Peterhead | Actual | Actual | Actual | Actual | Actual | 52.3771% | 66.1917% | 31.3766% | 41.8811% | 0.4858% | 41.8783% |
| Pogbie Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Garry Cascade | Actual | Actual | Actual | Actual | Actual | 32.5155% | 70.4039% | 48.5993% | 55.9308% | 64.3828% | 56.3043% |
| Race Bank Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 47.8149% |
| Rampion Offshore Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 47.8149% |
| Ratcliffe-on-Soar | Actual | Actual | Actual | Actual | Actual | 53.1708% | 53.5677% | 66.7461% | 71.7403% | 56.1767% | 58.8302% |
| Robin Rigg East | Partial | Actual | Actual | Actual | Actual | 46.3985% | 41.4118% | 37.4157% | 46.7562% | 55.3209% | 47.8296% |
| Robin Rigg West | Partial | Actual | Actual | Actual | Actual | 46.5006% | 44.4918% | 38.2254% | 48.0629% | 53.4150% | 48.6565% |
| Rocksavage | Actual | Actual | Actual | Actual | Actual | 55.9818% | 47.7376% | 41.4820% | 2.6155% | 4.4252% | 31.2149% |
| Rugeley B | Actual | Actual | Actual | Actual | Actual | 50.2059% | 53.2455% | 68.6109% | 82.6505% | 59.4472% | 60.4345% |
| Rye House | Actual | Actual | Actual | Actual | Actual | 40.3688% | 20.4253% | 10.7188% | 7.4695% | 5.3701% | 12.8712% |
| Saltend | Actual | Actual | Actual | Actual | Actual | 89.0335% | 90.6801% | 81.5834% | 69.0062% | 67.9518% | 79.8744% |
| Seabank | Actual | Actual | Actual | Actual | Actual | 72.4476% | 34.5669% | 15.2311% | 18.2781% | 25.6956% | 26.1802% |

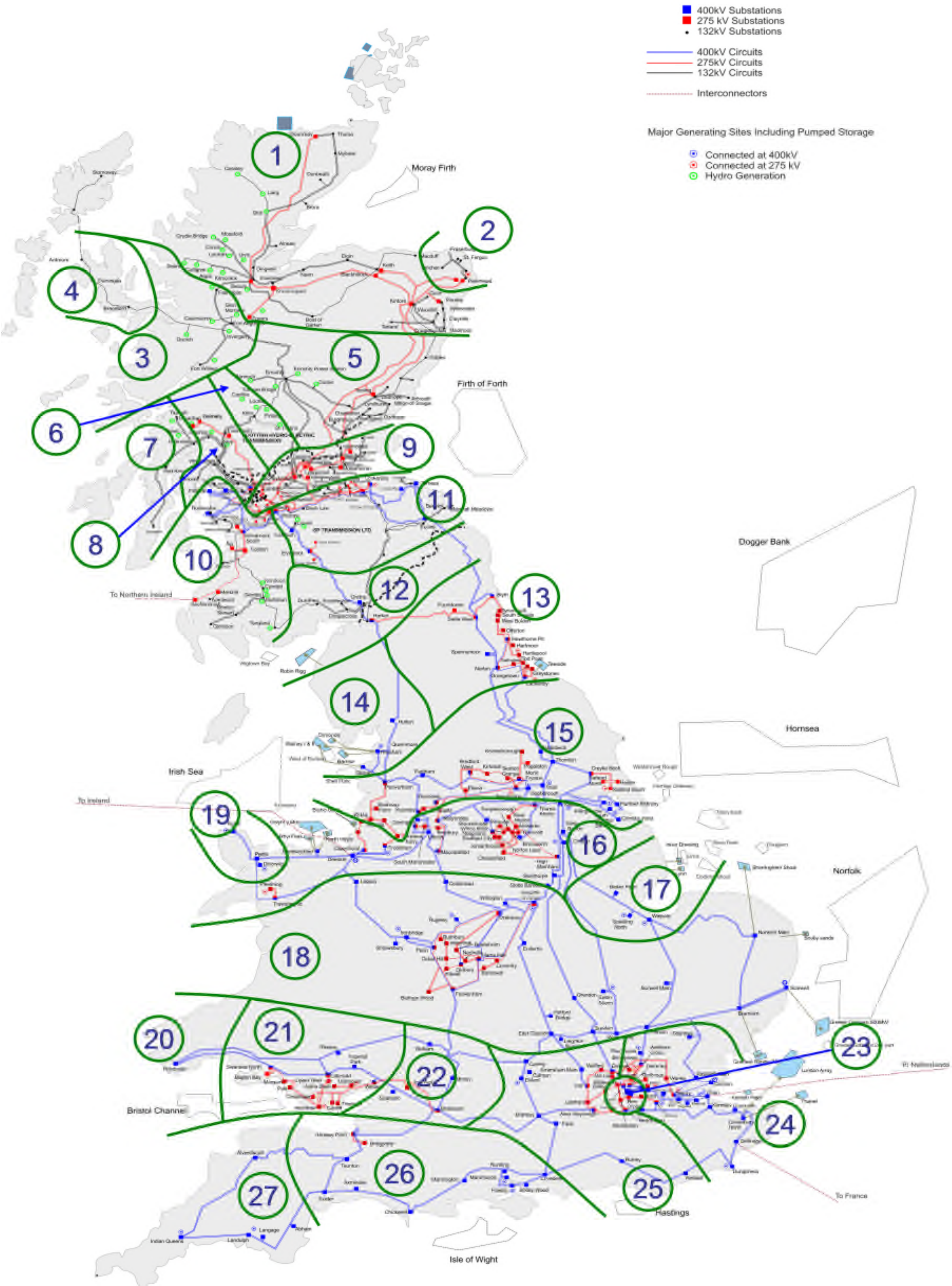
| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sellafield | Actual | Actual | Actual | Actual | Actual | 18.9905% | 4.1046% | 14.0549% | 25.0221% | 18.9719% | 17.3391% |
| Severn Power | Partial | Actual | Actual | Actual | Actual | 53.7190% | 32.2421% | 27.7976% | 32.4163% | 24.6354% | 30.8187% |
| Sheringham Shoal | Generic | Partial | Actual | Actual | Actual | - | 19.2221% | 36.6431% | 49.3517% | 46.2286% | 44.0744% |
| Shoreham | Actual | Actual | Generic | Actual | Actual | 70.9592% | 65.7100% | - | 20.7501% | 10.2239% | 52.4731% |
| Sizewell B | Actual | Actual | Actual | Actual | Actual | 49.0352% | 77.3818% | 96.7260% | 82.5051% | 84.7924% | 81.5598% |
| Sloy G2 & G3 | Actual | Actual | Actual | Actual | Actual | 9.0965% | 15.0995% | 9.1252% | 14.3471% | 15.5941% | 12.8573% |
| South Humber bank | Actual | Actual | Actual | Actual | Actual | 70.2595% | 33.8760% | 27.9763% | 24.3373% | 34.4673% | 32.1065% |
| Spalding | Actual | Actual | Actual | Actual | Actual | 63.5046% | 65.1849% | 34.6976% | 33.4800% | 39.3092% | 45.8371% |
| Staythorpe | Actual | Actual | Actual | Actual | Actual | 51.3069% | 58.4594% | 54.4117% | 37.6216% | 56.6148% | 54.1112% |
| Strathy North and South Wind | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |
| Sutton Bridge | Actual | Actual | Actual | Actual | Actual | 34.5042% | 64.8794% | 20.1652% | 9.4124% | 17.2025% | 23.9573% |
| Taylors Lane | Actual | Actual | Actual | Actual | Actual | 0.3131% | 0.1048% | 0.2037% | 0.0483% | 0.0640% | 0.1242% |
| Tees Renewable Energy Plant | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 28.3185% |
| Thanet Offshore Wind farm | Partial | Actual | Actual | Actual | Partial | 32.8506% | 32.4868% | 41.1093% | 39.7489% | 34.8883% | 37.7817% |
| Toddleburn | Actual | Actual | Actual | Actual | Actual | 28.9787% | 38.1923% | 32.7175% | 39.5374% | 33.7211% | 34.8770% |
| Torness | Actual | Actual | Actual | Actual | Actual | 76.6401% | 90.0662% | 84.8669% | 86.4669% | 91.4945% | 87.1333% |
| Uskmouth | Actual | Actual | Actual | Actual | Partial | 12.6458% | 19.2655% | 45.1938% | 38.9899% | 44.4061% | 34.4831% |
| Walney I | Partial | Actual | Actual | Actual | Actual | 38.5646% | 45.6003% | 44.2799% | 57.7046% | 52.0555% | 51.7868% |
| Walney II | Generic | Generic | Partial | Actual | Actual | - | - | 53.9294% | 61.9219% | 58.2355% | 58.0289% |
| West Burton | Actual | Actual | Actual | Actual | Actual | 38.2764% | 44.5447% | 70.5868% | 68.9176% | 61.5364% | 58.3329% |
| West Burton B | Generic | Generic | Partial | Actual | Actual | - | - | 21.1178% | 30.3021% | 46.8421% | 32.7540% |
| West of Duddon Sands Offshore Wind Farm | Generic | Generic | Generic | Partial | Actual | - | - | - | 39.1340% | 40.0506% | 42.3332% |
| Westermost Rough | Generic | Generic | Generic | Generic | Partial | - | - | - | - | 26.6225% | 40.7508% |
| Whitelee | Actual | Actual | Actual | Actual | Actual | 24.7528% | 31.7670% | 28.2265% | 35.1074% | 29.8105% | 29.9346% |

| Power Station | 2010/11 Data | 2011/12 Data | 2012/13 Data | 2013/14 Data | 2014/15 Data | 2010/11 Load Factor | 2011/12 Load Factor | 2012/13 Load Factor | 2013/14 Load Factor | 2014/15 Load Factor | ALF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Whitelee Extension | Generic | Partial | Actual | Actual | Actual | - | 26.0889% | 12.4146% | 27.0102% | 27.7787% | 22.4011% |
| Wilton | Actual | Actual | Actual | Actual | Actual | 11.7767% | 12.6949% | 3.4258% | 4.4941% | 21.5867% | 9.6552% |
| Windy Standard II (Brockloch Rig 1) Wind Farm | Generic | Generic | Generic | Generic | Generic | - | - | - | - | - | 36.7344% |

**Table 25 : Generic Annual Load Factors**

| Technology | Generic ALF |
|---|---|
| Oil_and_OCGT | 1.3319% |
| Pumped_Storage | 10.8267% |
| Hydro | 38.5139% |
| Onshore_Wind | 36.7344% |
| Offshore_Wind | 47.8149% |
| Coal | 54.7988% |
| CCGT_and_CHP | 41.9008% |
| Nuclear | 74.2383% |
| Biomass | 28.3185% |

## Appendix E : Generation Zones



# Appendix F : Demand Zones