

# National Electricity Transmission System Seven Year Statement May 2011

## Executive Summary

### Introduction

This 2011 National Electricity Transmission System Seven Year Statement (NETS SYS) is the sixth Statement to be published by National Grid Electricity Transmission plc (NGET) acting in its role as National Electricity Transmission System Operator (NETSO). The two Scottish transmission licensees are required to assist National Grid in preparing the Statement pursuant to their licence obligations.

The aim of the statement is to assist existing and prospective new users of the NETS in assessing opportunities available to them for making new or further use of the NETS in the competitive electricity market in Great Britain. The statement contains information on demand, generation, plant margins, system performance / capabilities and other related information.

### Scope, Responsibility and Delivery Considerations

It should be noted that the generation background, on which this document is based, **is not National Grid's forecast** of the most likely developments over the next seven years (due to commercial confidentiality we are unable to show this level of detail on future generation project developments, however this detail is shown in the ODIS scenarios). The generation background is a factual list of existing and proposed generation projects that have a signed connection agreement. Consequently, care must be taken when interpreting the results as there is a degree of uncertainty associated with the number of generation projects opening or closing.

On the other hand, the main demand forecasts included in this document are National Grid's own forecasts. Demand forecasts received from customers are also included for comparison purposes.

The data and results presented in this summary are correct as at 31 December 2010 (the data freeze date) and do not include changes in the contracted position since that date. Any subsequent changes to the contracted background will be published in the NETS SYS updates.

The NETS SYS updates have now been included within the Transmission Networks Quarterly Connections Update (TNQCU), which is published at the following location:

[http://www.nationalgrid.com/uk/Electricity/GettingConnected/gb\\_agreements/](http://www.nationalgrid.com/uk/Electricity/GettingConnected/gb_agreements/)

The latest update was issued in April 2011, and includes contractual changes that have occurred since the data freeze date.

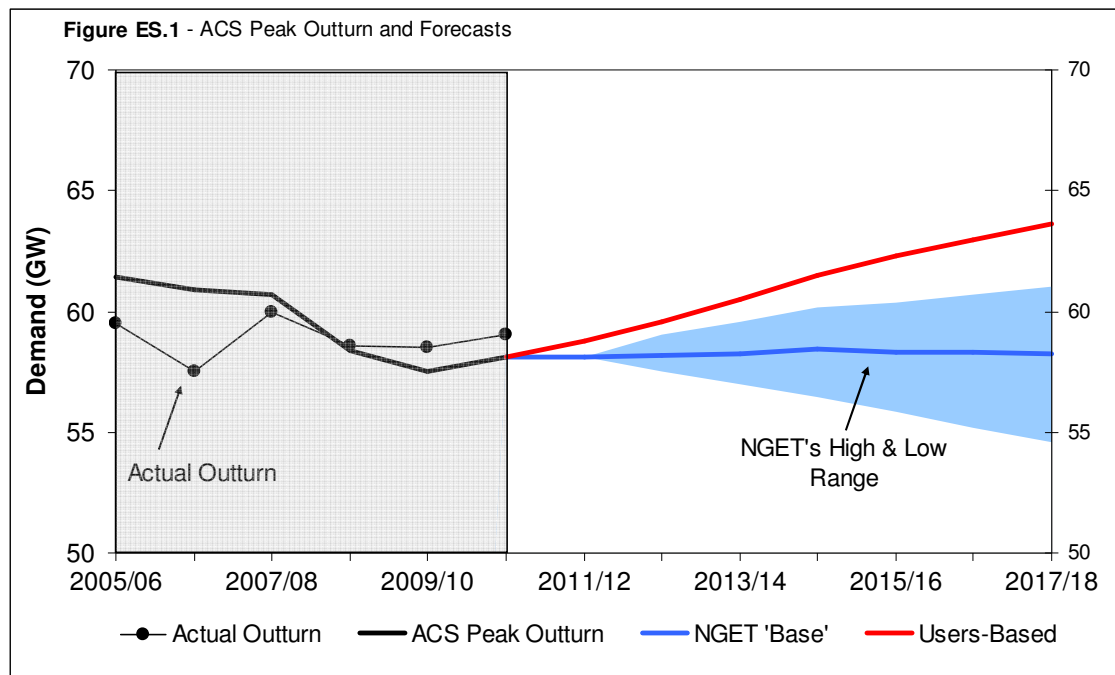
### Demand

The main forecasts of electricity demand to be met from the NETS presented in this Statement are National Grid's own forecasts. These NGET forecasts are national projections for Great Britain. For comparison purposes, forecasts based on information submitted by Customers who take (or propose to take) electricity from the system are also presented. These 'User' based forecasts are based on the demand levels at individual Grid Supply Points.

Unless otherwise stated, all demand forecasts presented are in respect of the Average Cold Spell (ACS) winter peak and include transmission and distribution losses, but excludes station demand and exports. The forecasts are in respect of the time of simultaneous peak on the national electricity transmission system and are unrestricted (i.e. take no account of demand response/management by customers).

Correcting historical actual demands to ACS conditions eliminates the weather effects and gives a better indication of the underlying pattern of annual peak demand. Correcting winter weekday peak demands in 2010/11 to ACS conditions yields a provisional 'unrestricted' peak of 58.1GW.

Figure ES.1 includes recent outturns together with the current NGET 'Base' forecasts of ACS peak demand on the GB transmission system. Also as well as our own 'Base' forecast of peak demand and annual electricity requirements, we have also prepared 'High' and 'Low' transmission system demand scenarios. For the 'High' and 'Low' demand scenarios, combinations of favourable and adverse developments are assumed which yield high and low transmission system demands. These demand scenarios are then compared against User based forecasts.



## Generation

This generation information reports on all sources of generation that are used to meet the ACS Peak Demand whether they are classified as Large, Medium or Small, all directly connected External Interconnections with External Systems and all Large Power Stations, which are embedded within a User System (e.g. distribution system).

In recognition of the uncertainties associated with the future, unless otherwise stated the information presented relates to existing generation projects and only those proposed new generation projects which are classified as "transmission contracted".

Consequently, care must be taken when interpreting the overall capacity figures as a number of stations will close due to the Large Combustion Plant Directive (LCPD) and many of the proposed projects will not progress to a connection. In addition there may be some non-contracted projects not included within the SYS that may proceed to a connection during the seven years.

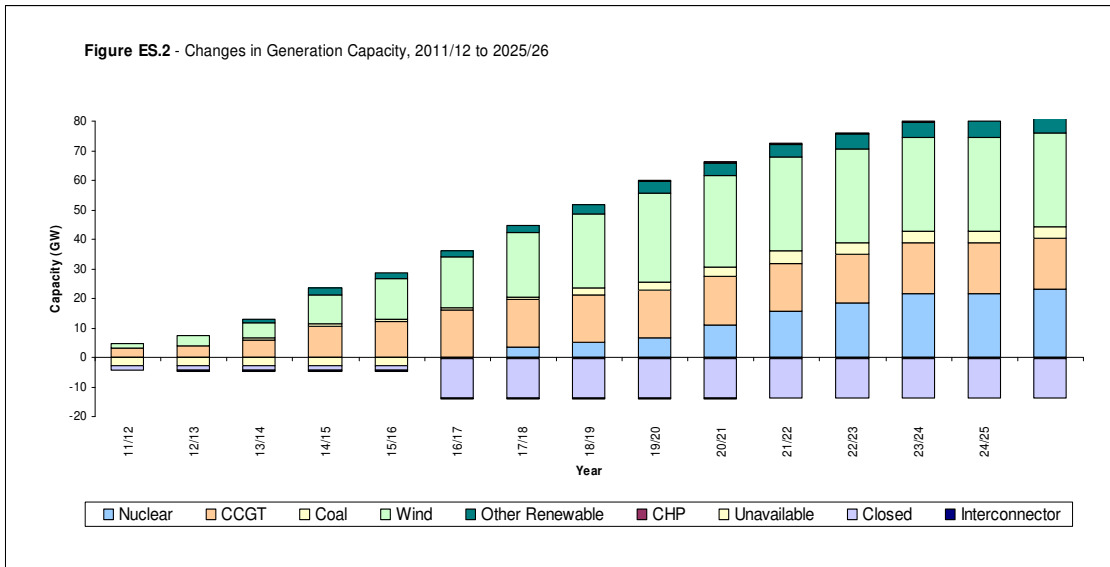


Figure ES.2 illustrates the reported increase in generation capacity from 2010/11 onwards. The capacity of stations that will close on or before 31<sup>st</sup> December 2015 due to opting out of the LCPD amounts to 12GW of coal and oil capacity. These stations have been retained in the generation background up to and including 2015/16 because of the uncertainty over closure date and the potential for them to be available at peak in 2015/16 if the peak is prior to Christmas. The affected stations have however, been shown as closed from 2016/17 onwards, and this accounts for the step change in closed capacity in 2016 shown in Figure ES.2.

Figure ES.3 shows that over the seven years of this statement, from 2010/11 to 2017/18, there is a reported rise in new capacity of 31.2GW.

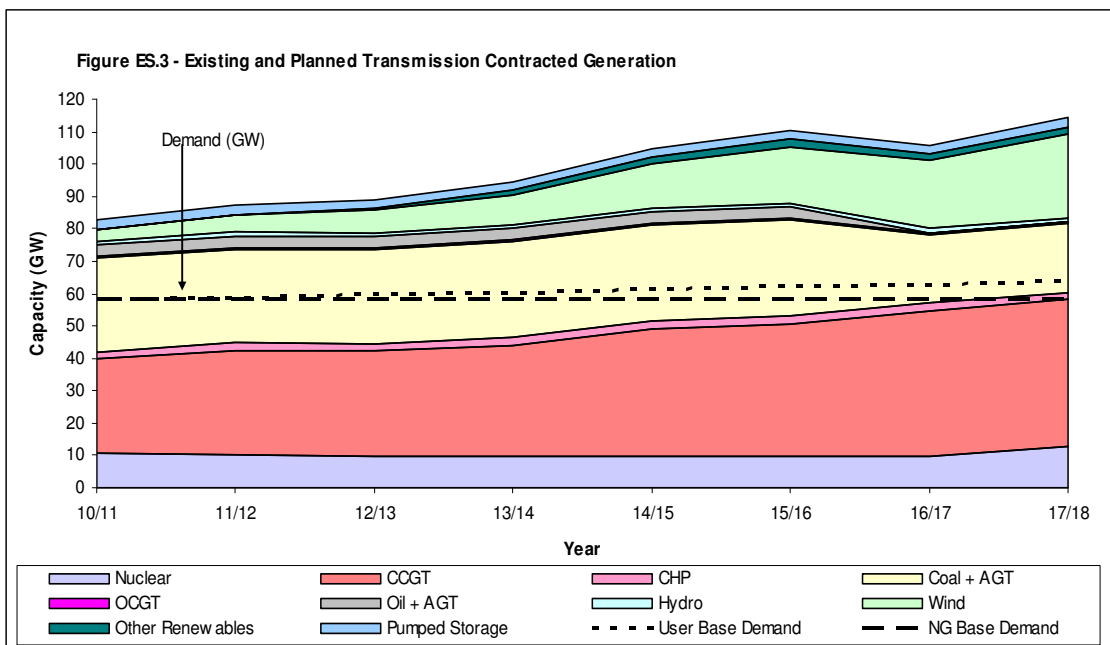


Figure ES.3 also illustrates the main plant types of the contracted generation background over the period from 2010/11 to 2017/18 and includes both existing and proposed new transmission contracted generation. The aggregate power station capacity (TEC and/or 'Size of Power Station') is reported to rise from 82.1GW in 2010/11 to 113.3GW by 2017/18, note that these figures do not include TEC for interconnectors as these are now shown in the ranking order as exporting and are therefore counted as negative generation. An overall increase in contracted generation of 31.2GW is reported, over the period from the 2010/11 winter peak to the 2017/18 winter peak.

The net increase is made up of the following:

- an increase of 16.2GW in CCGT capacity
- an increase of 22.4GW in wind capacity
- an increase of 2.0GW in nuclear capacity
- an increase of 2.1GW in other renewables capacity (mainly biomass, biopower and woodchip generation), this is shown collectively as Other Renewables in Figure ES.3
- an increase in exports of 0.4GW being classed as negative generation (not visible on ES.3)
- a decrease of 3.6GW in oil capacity;
- a decrease of 7.5GW in coal capacity.

The largest increase is wind capacity with an increase of 22.4GW. However at 2017/18 the predominant plant type in capacity terms is CCGT where the total capacity is reported to be 45.3GW and exceeds coal by a level of 21.7GW and account for 40.1% of the total transmission contracted installed generation capacity.

It should be remembered that the above figures reflect the current contracted position and take no account of future uncertainty.

Further details of individual projects can be found in Chapter 3 and Appendix F of this document.

## Plant Margin

**It is emphasised that none of the plant margins presented in this document is intended to represent our forecast or prediction of the future position.** The primary purpose is rather to provide sufficient information to enable the readers to make their own more informed judgements on the subject. The plant margins presented have been evaluated on the basis of a range of different backgrounds; Existing, Under Construction, Consents Granted and Without Consents as shown graphically in Figure ES.4.

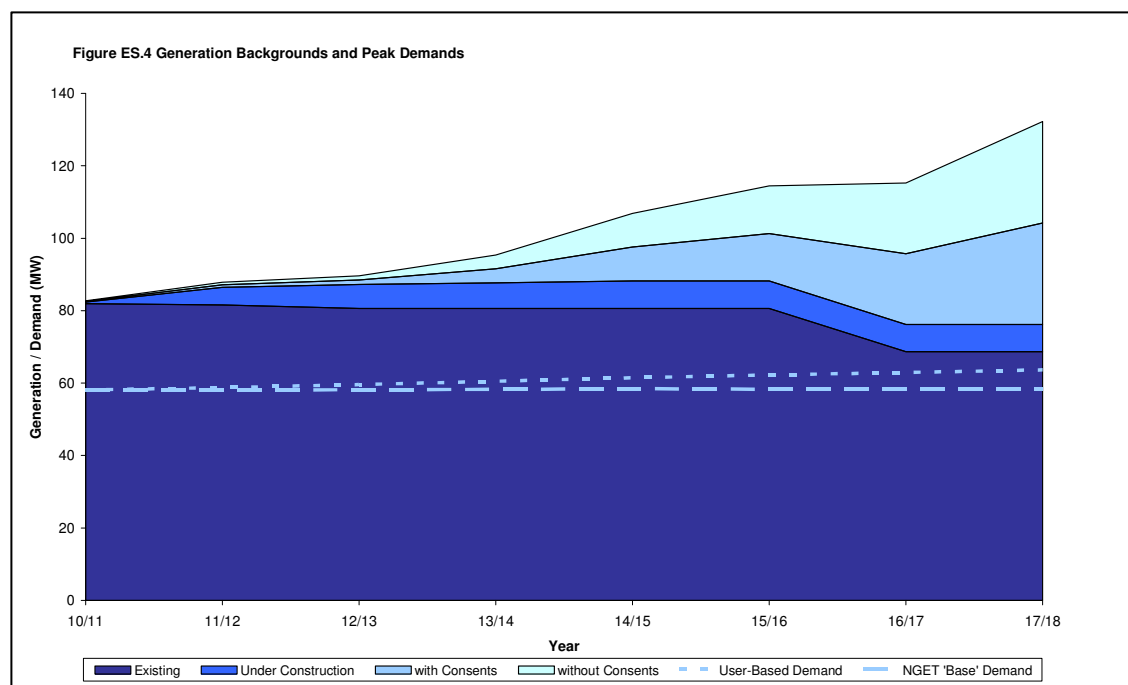
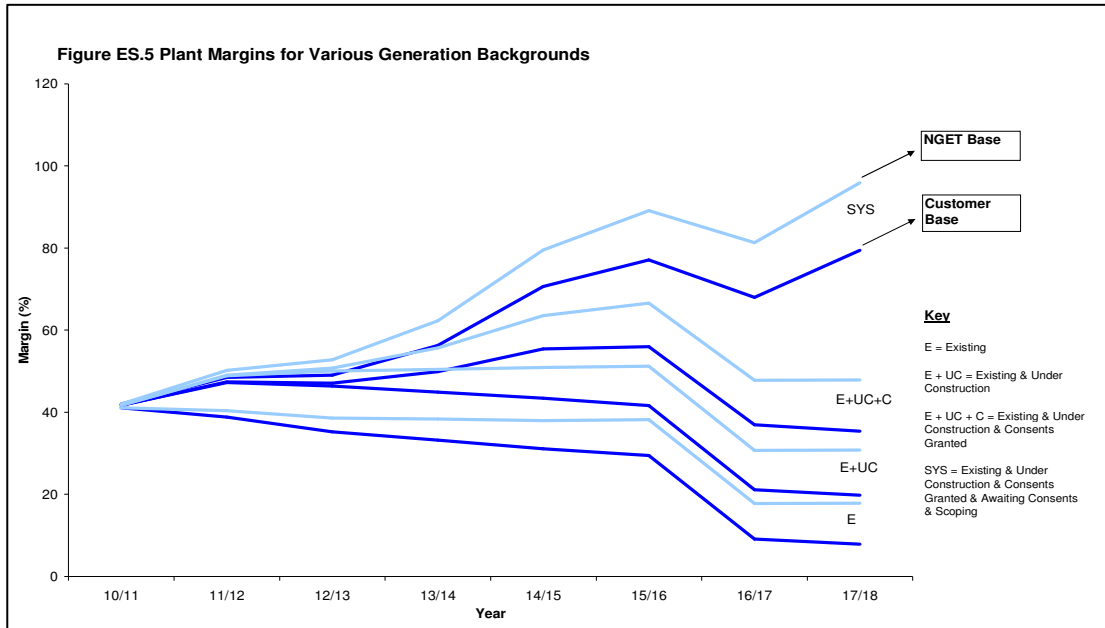
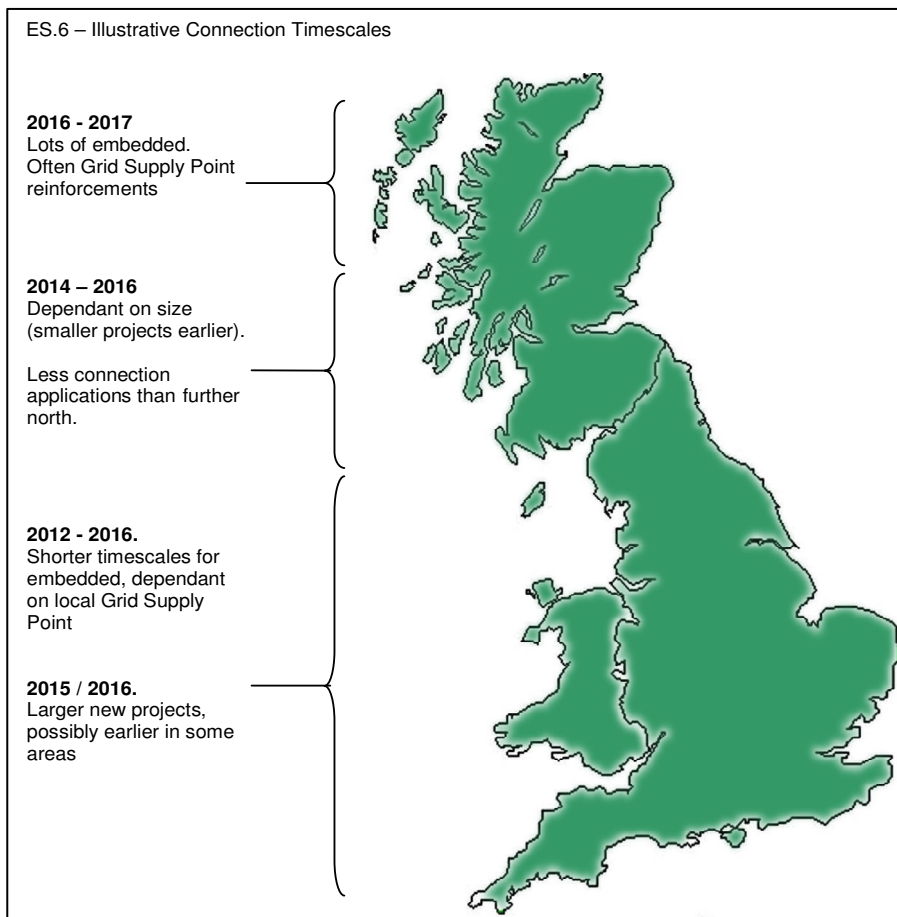


Figure ES.5 compares plant margins derived from the customer based demand forecast with those derived from our own base view of future demand growth for the above four backgrounds; giving eight sensitivities in all.



## Generation Opportunities

ES.6 provides an indication of the likely connection dates that we would currently expect to offer to connection applications in various geographical locations around the country. These dates have been based around those that have been offered to projects that have recently been transitioned to the new Connect and Manage arrangements.



Please note that these are indicative only and are subject to confirmation on an individual case by case basis. We welcome the opportunity to discuss your aspirations for grid connections ahead of any formal application. To discuss an individual project please contact your Customer Agreement Manager or our Customer Services team. The contact details for the Electricity Customer Connections manager are [julian.leslie@uk.ngrid.com](mailto:julian.leslie@uk.ngrid.com) or 01926 653350.

For more detailed information on connection opportunities and the likely lead times relating to certain geographical areas please refer to Chapter 9 of this document.

## **Strategic Investment**

The information contained in this year's SYS reflects the report delivered by the Energy Networks Strategy Group (ENSG) – Our Electricity Network – A Vision for 2020. The work carried out for ENSG identifies a set of transmission reinforcements that would facilitate the connection of renewable generation to help meet the Government's 2020 climate change targets. The majority of these works are now progressing and as the date for construction becomes closer clarity over developer projects is increasing and hence these works identified are anticipated to be completed (subject to achieving consents) in time to facilitate the connection of new contracted generation.

## **The Offshore Development Information Statement**

The Offshore Development Information Statement (ODIS) is produced in accordance with Special Condition C4, and is available at the following location.

<https://www.nationalgrid.com/uk/Electricity/ODIS/>

The main purpose of the Statement is to facilitate the achievement of the coordinated development of the offshore and onshore electricity grid in Great Britain. The network solutions identified in the Statement represent a vision of how the offshore and onshore reinforcements could be developed; it is the responsibility of individual onshore/offshore network owners to develop detailed designs. In developing these detailed designs it is envisaged that this Statement will provide guidance in determining the optimum solutions. However it should be borne in mind that the network analysis for the ODIS is based on a number of different scenario backgrounds whereas the NETS SYS is based on a contracted background, therefore it is possible that some network reinforcements may differ.