ASSESSMENT OF FUTURE BSC COSTS

An initial forecast of the range of additional BSC funding costs that could be incurred by non-Interconnector Parties in the event of the approval of P361 'Revised treatment of BSC Charges for Lead Parties of Interconnector BM Units'

SUMMARY

Modification Proposal P361, 'Revised treatment of BSC Charges for Lead Parties of Interconnector BM Units', asserts that a number of BSC funding charges are contrary to the EU Third Package legislation, and proposes exempting Interconnector BM Units from Main Funding Shares and SVA (Production) funding shares.

During the Work Group assessment process, ELEXON presented an analysis of the re-distribution of costs that would have occurred in 2016/17 had the proposed modification been in force. The Work Group requested that ELEXON undertake additional analysis to estimate the additional costs that may be incurred by non-Interconnector Parties in future years.

This paper presents a basic forecast of the possible range of future costs up to 2030, based on Interconnector capacities and volumes forecast in National Grid's Future Energy Scenarios 2017.

The analysis suggests that in the event that P361 were adopted, non-Interconnector BMUs could see their relevant BSC charges increase by between 2 and 5 times the 2016/17 level by 2023, falling back to closer to twice the 2016/17 levels by 2030. These values are based on 2017 prices and assume that BSC costs remain static through the period.

ANALYSIS

National Grid's Future Energy Scenarios (FES) considers a range of scenarios for different UK economic growth and commitment to reduction in Carbon emissions. In the 2017 report, the four scenarios considered are named Steady State, Slow Progression, Consumer Power and Two Degrees.

In this analysis the two scenarios considered are Steady State (less focus on green ambition and less money available) and Two Degrees (more focus on green ambition and more money available).

The FES describes the two scenarios as:

> Steady State represents a world where current levels of progress and innovation continue.
>
> Two Degrees is built to show a cost optimal pathway to meet the UK's 2050 carbon emissions reduction target. The name reflects the ambition of restricting global temperature rise to below two degrees Celsius, above pre-industrial levels, as set out in the Paris Agreement

There are a number of new Interconnector projects currently in flight in GB, likely to lead to an increase in total interconnector capacity. National Grid's view of the growth in interconnector capacity across the four scenarios is shown in the graph below, produced using data from the FES.

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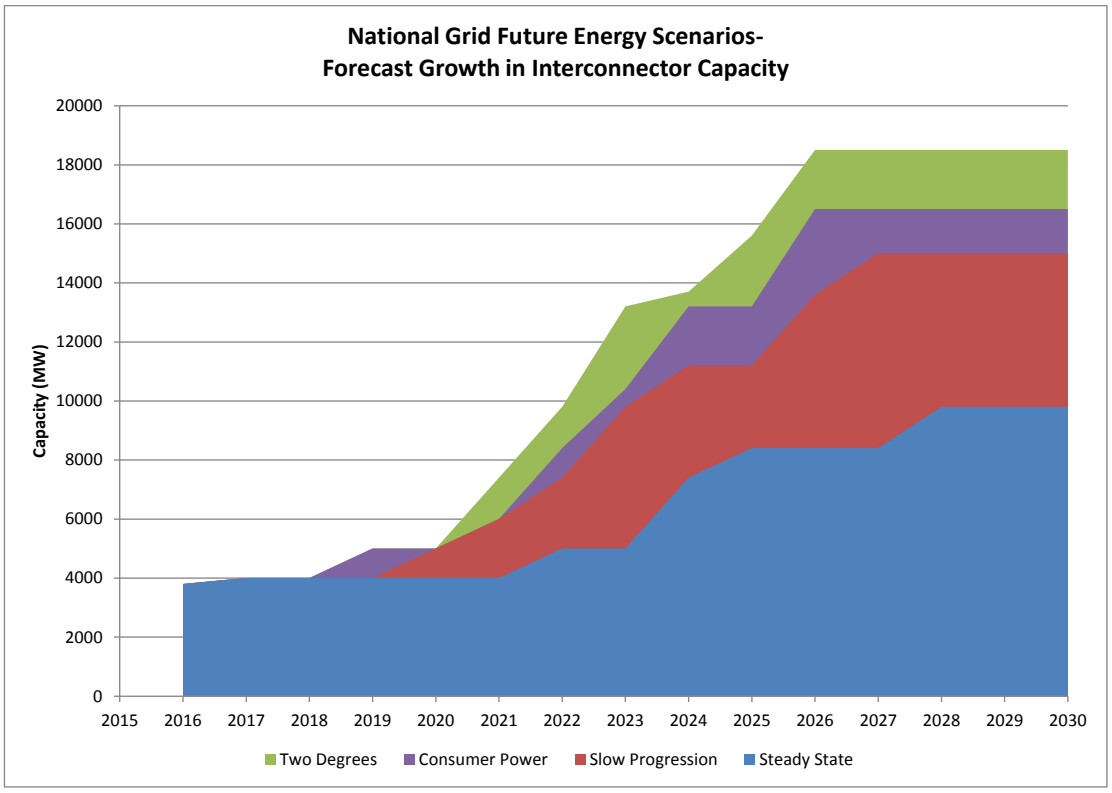
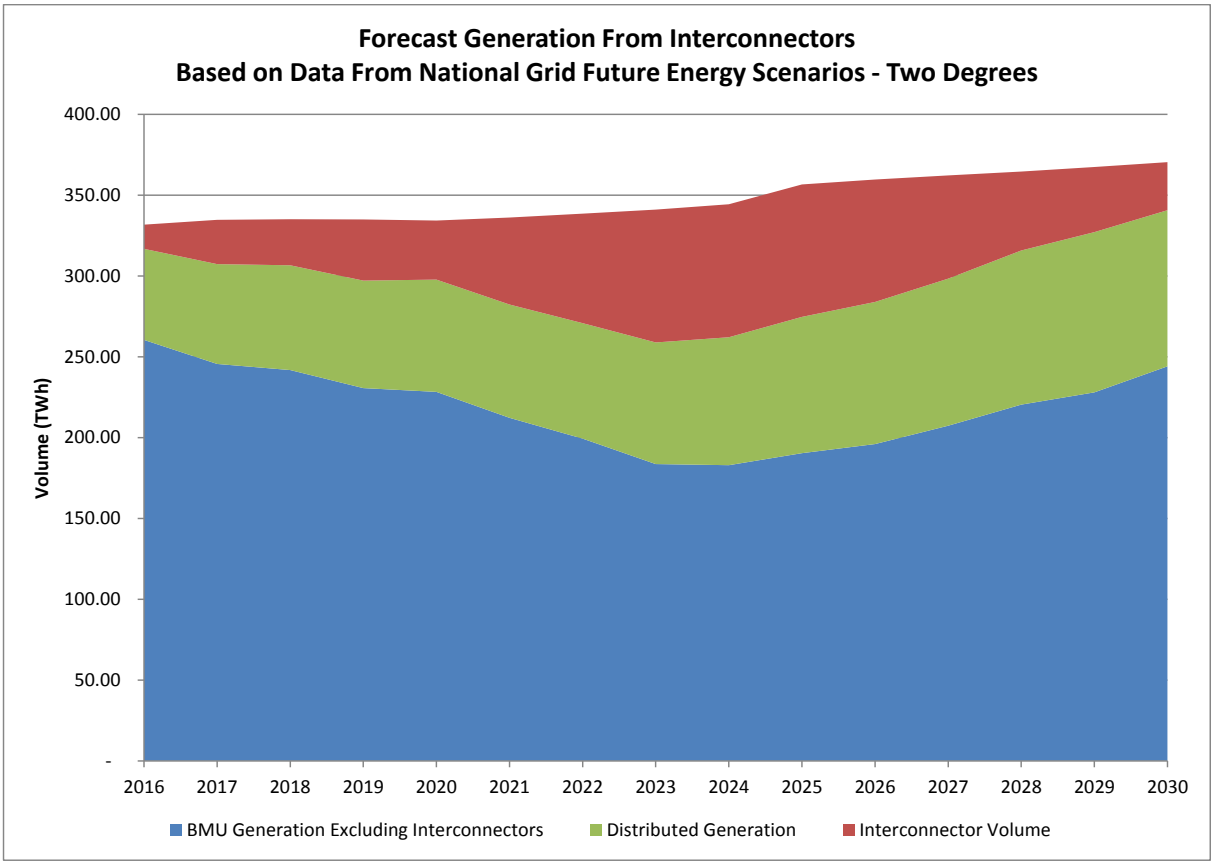
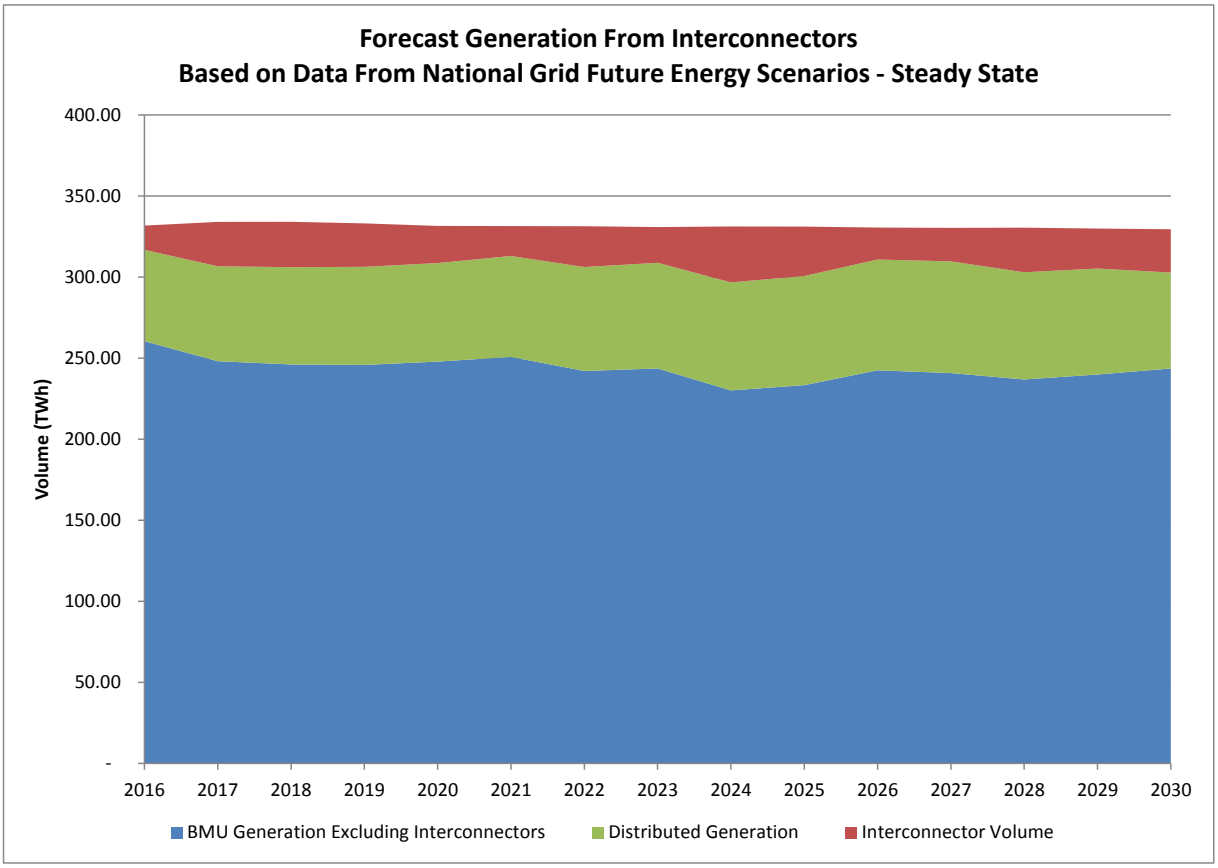


The FES is based on total electricity consumption in GB, rather than just that from BSC Parties, and so a number of assumptions have been made to convert the FES forecasts for generation volume by fuel type into a breakdown of Interconnector BM Units, Non-Interconnector BM Units and other generation.

CHP, Hydro, Marine, Other Thermal and Other Renewable have been assumed to be produced 100% by non BM Units all the way to 2030. Biomass has been assumed to be 30% non BM Units, Onshore Wind has been assumed to be 20% non BM Unit and PV has been assumed to be 100% non BM Unit in 2018, falling to 90% non BM Unit by 2030. Gas, Coal, Nuclear and Offshore Wind has been assumed to be generated 100% by BM Units.

Based on these assumptions, the FES forecasts for Two Degrees and for Steady State have been aggregated into BM Unit Generation Excluding Interconnectors, Non BM Unit Distributed Generation, and Interconnector volume. These aggregations are shown in the two graphs overleaf.


Forecast Generation From Interconnectors
Based on Data From National Grid Future Energy Scenarios - Two Degrees
Volume (TWh)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
-
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
BMU Generation Excluding Interconnectors
Distributed Generation
Interconnector Volume


Forecast Generation From Interconnectors
Based on Data From National Grid Future Energy Scenarios - Steady State
Volume (TWh)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
-
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
BMU Generation Excluding Interconnectors
Distributed Generation
Interconnector Volume

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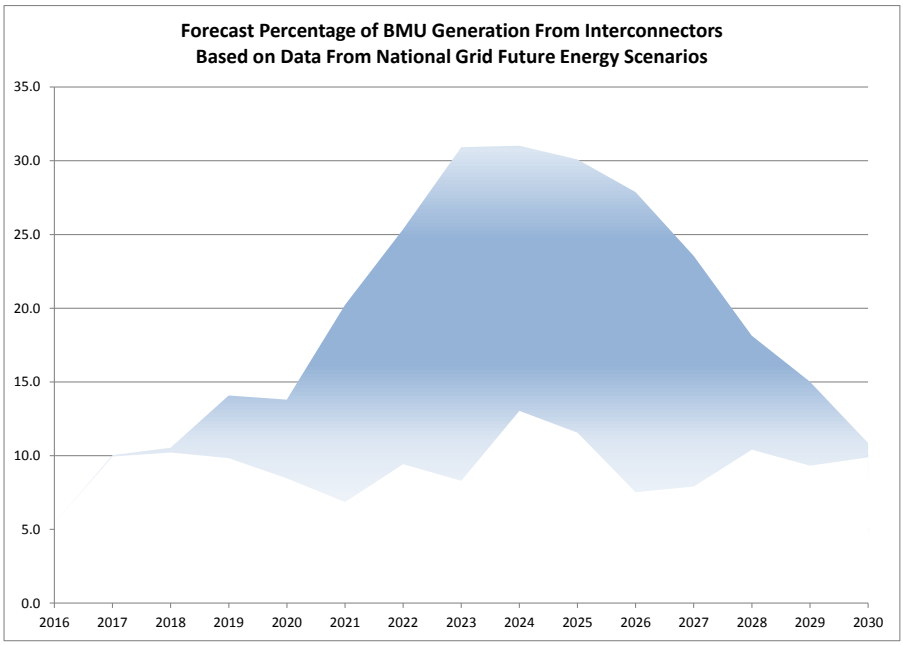
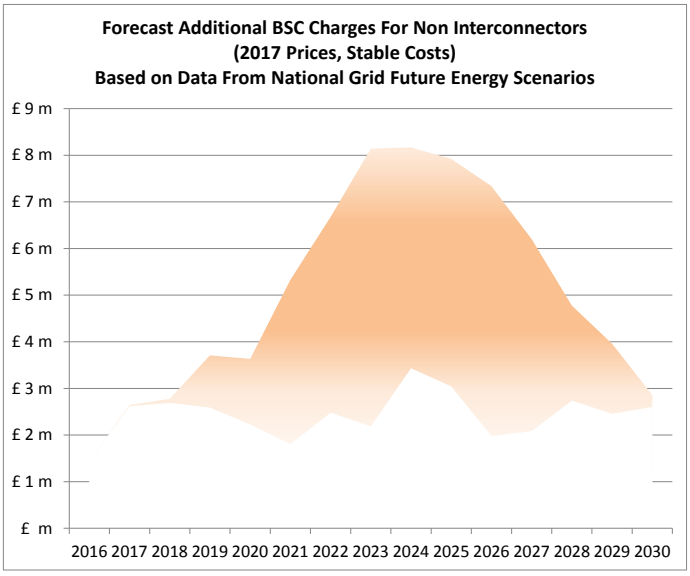
The forecasts above for Interconnector volume and non-Interconnector BM Unit generation volume can be combined to produce a percentage of generation from Interconnectors for the two scenarios. These give a range of values that might reasonably be expected for the percentage of BM Unit generation from Interconnectors.

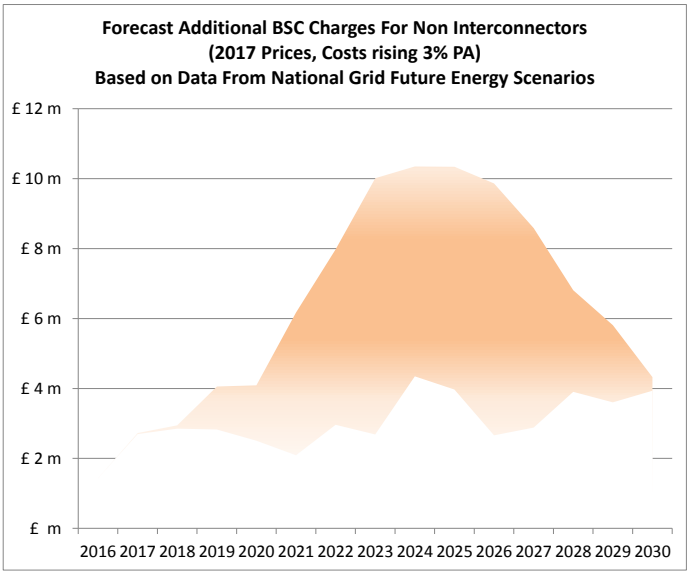


As can be seen from the graph, the analysis, based on National Grid's Future Energy Scenarios 2017, suggests that between around 2023 and 2026, BM Unit generation is likely to be made up of between 10 and 30% from Interconnectors, falling back towards 10% by 2030.

In monetary terms, these percentages of volumes can be directly converted into percentages of costs that would move from Interconnector BMUs to non-Interconnector BMUs. As can be seen below, in 2017 prices, if BSC costs remain static year on year, then under National Grid's Two Degrees scenario then the **additional** BSC costs paid by non-Interconnector BM Units could rise by around £8m in 2023-2025, falling back to around £3m by 2030. Similarly, under National Grid's Steady State scenario, the **additional** costs could remain in the £2-3m range throughout the period. Other scenarios lie within the range defined by these two scenarios.

If BSC costs were to rise by 3% pa over the period, then the peak costs could be around £10m, with the lower range around £4m.





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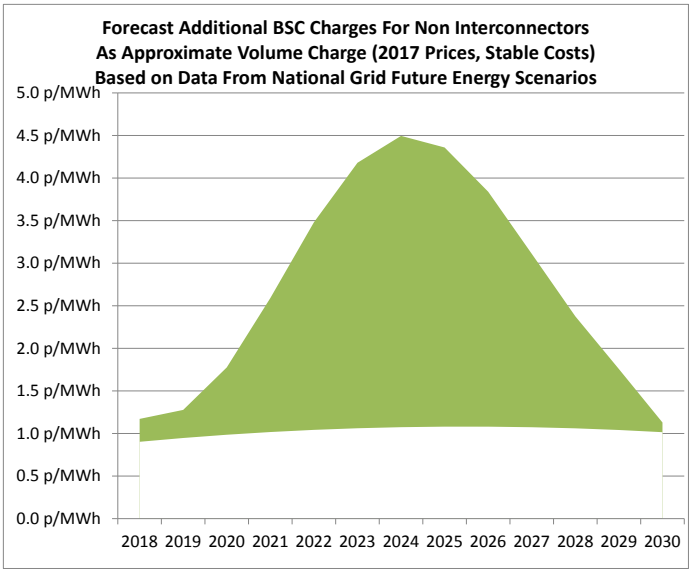
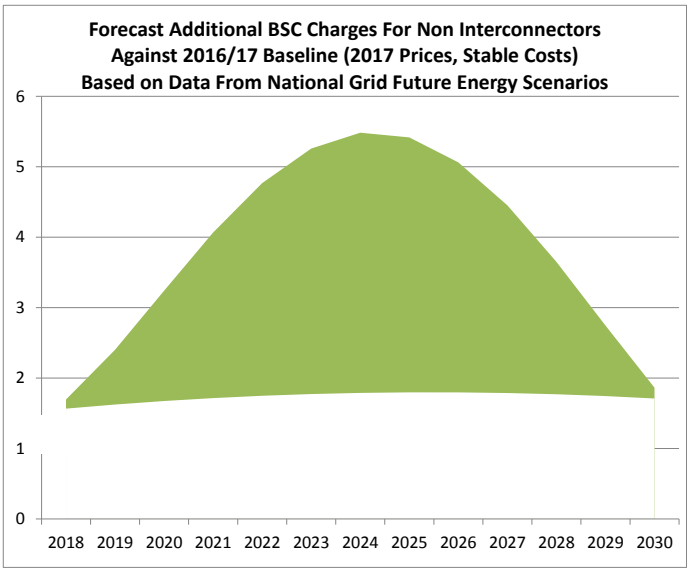
In terms of impact on individual BMUs, taking the above analysis and smoothing the curves suggests that the relevant BSC costs could rise from around 0.5 – 1.0 p/MWh in 2016/17 to nearer 4.5 p/MWh in 2024 under the Two Degrees scenario, (in 2017 prices, based on the assumption that BSC costs remain static at 2016/17 levels).

A final way of viewing the data would be using the 2016/17 costs as a baseline. Costs to non-Interconnector BM Units could rise by a factor of between two and five times 2016/17 costs by 2023, falling back to twice the 2016/17 costs by 2030.





MODELLING LIMITATIONS

It should be stressed that the volume based charges in particular are purely highly indicative numbers, as BSC charges are calculated monthly as a share of each monthly costs and so costs on individual BM Units would depend on their generation pattern within the year. BSC costs are not charged on a volume (p/MWh) basis. Potential changes in costs are only expressed in this format to give an indication of the order of magnitude of the increase in costs that could be seen by non-Interconnector BM Units under different scenarios.

Forecasting generation types and volumes many years into the future is an inherently inexact science. To take these numbers and then apply a further range of estimations to them further exacerbates the uncertainty of the forecasts. All the values should be treated as an estimation of what could happen were P361 adopted, and if the GB electricity market develops in line with the scenarios in National Grid's Future Energy Scenarios.

It should also be noted that this analysis was completed in early July 2018. The 2018 FES should be published soon, and 2017/18 BSC costs will also be available soon, both of which could change the assumptions within this analysis.