

**The proposed transmission charging methodologies of the
GB system operator:
An Ofgem consultation and Impact Assessment**

**National Grid response to the Authority's request for
supplementary information**

22 October 2004

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1.0 Introduction

In the Ofgem consultation and Impact Assessment on the proposed transmission charging methodologies of the GB system operator, issued on the 15 October 2004, there were requests for National Grid to provide additional information to be provided in the areas of spare capacity, the locational security factor and tariff stability. Our response to this request is contained in the next three sections with detailed output from our scenario modelling attached in the Appendices.

The information contained in this document should be read in conjunction with Ofgem's Impact Assessment and National Grid's previous GB Transmission Charging consultation documents, which can be found, on our industry information website:

http://www.nationalgridinfo.co.uk/betta/gb_charging.html

2.0 Spare Capacity

Ofgem have asked National Grid to publish a more detailed rationale on the justification underlying the decision to not model spare capacity on a GB basis. We were also asked to publish indicative tariffs modelling the application of spare capacity across GB using both the existing arrangements in England and Wales and the approach set out by NERA's response to NGC's April 2004 Initial Methodologies Consultation, under both NGC's preferred and alternative scenarios.

The existing spare capacity methodology in England and Wales relies on a combination of load flow study work plus engineering judgement to identify circuits with spare capacity on a thermal, voltage and stability basis for the purposes of the charging methodologies. Whilst the load flow work is deterministic, the voltage and stability criteria rely on operational and technical knowledge of the transmission system. Our concerns regarding our ability to apply the current England and Wales arrangements consistently and transparently on a GB basis led us to review the treatment of circuits with spare capacity.

Our review identified that in certain circumstances, the modelling of circuits with spare capacity resulted in a reduction in cost reflectivity, as users pay for what they use not what is installed. This was illustrated in the example of a generator spur connection.

From a methodology perspective it is questionable whether spare capacity should be charged for locationally or non-locationally. Spare capacity is created by changes in the network, and the generation and demand background, and by the lumpy nature of transmission investment. We also noted the limited affect of the current England and Wales approach on tariffs overall. Taking all these into account we concluded that the removal of the modelling of circuits with spare capacity would better meet the relevant licence objectives, as well as being transparent and non-discriminatory.

To develop an alternative methodology for circuits with spare capacity would require the identification of criteria to select certain circuits as well as cost reduction factors. All these would have to be transparent and objective, meet the relevant licence objectives and be non-discriminatory. Whether a circuit has spare capacity would depend on a number of factors including the likely level of incremental capacity required e.g. most circuits would be able to accommodate an incremental 1MW, many would be able to cope with 100MW, however very few would be able absorb an

additional 500MW. In terms of the cost reduction factor, which is set at 75% in England and Wales, it would be necessary to determine and justify what factor or factors should be applied. Again they could depend on a number of factors, but the final values would be relatively subjective. It would be extremely difficult to produce a robust argument to justify whether one approach would better achieve the relevant objectives than another.

Ofgem have also asked for additional tariff modelling to be undertaken to analyse the effect the reintroduction of spare capacity has on the preferred and alternative methodologies, and also to illustrate the effect of alternative deterministic techniques, such as those suggested by NERA.

As mentioned above, replicating the existing England and Wales procedure on Scottish circuits is not possible at this time due to the requirement for engineering judgement, and our lack of experience of the Scottish transmission system. However, a number of approaches have been identified to simulate the reintroduction of the England and Wales spare capacity methodology.

Looking at the existing England and Wales network approximately 22% of circuits are identified as having spare capacity. Using this value the following two scenarios have been modelled:

Scenario 1: Circuits selected as having spare capacity: existing England and Wales list from 2004/05 model and 22% of Scottish circuits that have the least secured flow (based on results from the SECULF programme). A total of 211 circuits are modelled as having spare capacity.

Scenario 2: Circuits selected as having spare capacity: 22% of England and Wales circuits that have the least secured flow and 22% of Scottish circuits that have the least secured flow. As above, a total of 211 circuits are modelled as having spare capacity.

Of the 22% of Scottish circuits selected above as having spare capacity, the threshold secured flow was approximately 14% of line capacity. For the 22% of circuits in England and Wales the threshold secured flow is approximately 29% of line capacity. Based on these two thresholds, two further GB methodologies scenarios were run.

Scenario 3: Circuits selected as having spare capacity: all GB circuits below a threshold of 15% of secured flow. (146 circuits)

Scenario 4: Circuits selected as having spare capacity: all GB circuits below a threshold of 30% of secured flow. (357 circuits)

For information, at 15% of secured flow capacity approx 7% of England and Wales circuits were selected and 26% of Scottish circuits. At 30% of secured flow capacity approx 26% of England and Wales circuits and 52% of Scottish circuits were selected as having spare capacity.

For all scenarios the existing England and Wales spare capacity factor of 75% has been used, however, for illustration purposes two further scenarios were carried out with a reduced factor of 50%.

Scenario 5: As scenario 3 but with spare capacity factor of 50%

Scenario 6: As scenario 4 but with spare capacity factor of 50%.

Note the results are shown relative to the illustrative tariffs released in the final conclusions report and these are shown in the tables below.

Spare Capacity Modelling – Preferred Methodology

Generation	Preferred option	Final Conclusions	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance	Variance	Variance	Variance	Variance	Variance
1	Peterhead	17.19	-0.10	-0.42	-0.05	-0.44	-0.10	-0.87
2	Northern Highland	19.67	-0.10	-0.42	-0.05	-0.44	-0.10	-0.87
3	Western Highland	17.41	-0.10	-0.41	-0.05	-0.43	-0.10	-0.87
4	Skye & Quoich	15.73	-0.10	-0.41	-0.05	-0.43	-0.10	-0.87
5	Central Highlands & Angus	13.26	-0.09	-0.41	-0.05	-0.43	-0.10	-0.86
6	Argyll & Bute	11.47	-0.09	-0.41	-0.05	-0.42	-0.10	-0.85
7	South West Scotland	8.92	-0.09	-0.40	-0.05	-0.42	-0.09	-0.83
8	South East Scotland	10.10	-0.10	-0.43	-0.05	-0.45	-0.10	-0.90
9	Northern England	5.84	-0.08	-0.66	-0.06	-0.69	-0.12	-1.39
10	Lancashire, Pennines & Humber	2.60	-0.03	0.05	-0.01	0.05	-0.01	0.10
11	North Wales & North Midlands	0.72	-0.03	0.08	0.00	0.09	0.01	0.19
12	Anglesey	3.78	-0.36	-0.10	0.00	-0.04	-0.01	-0.08
13	Dinorwig	6.36	-0.21	0.05	0.00	0.11	-0.01	0.23
14	Mid Wales, Midlands & South East	-1.64	0.04	0.17	0.04	0.17	0.08	0.35
15	North London	-2.71	0.23	0.13	0.00	0.13	-0.01	0.26
16	Central London	-8.64	0.15	0.17	0.03	0.21	0.06	0.41
17	Oxon & South Coast	-3.65	0.09	0.08	0.00	0.08	0.00	0.15
18	South Wales & Gloucester	-6.20	0.22	0.07	-0.03	0.05	-0.07	0.10
19	Wessex	-7.05	0.41	0.19	0.02	0.18	0.03	0.36
20	Peninsula	-10.54	1.00	0.04	0.01	0.03	0.01	0.06
21	South West Wales	-4.61	-0.02	0.01	-0.03	0.04	-0.07	0.08
	Absolute avg		0.17	0.24	0.03	0.25	0.06	0.51
	Max		1.00	0.66	0.06	0.69	0.12	1.39
	Min		0.02	0.01	0.00	0.03	0.00	0.06

Demand								
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance	Variance	Variance	Variance	Variance	Variance
1	Northern Scotland	2.32	0.19	0.46	0.05	0.50	0.10	1.00
2	Southern Scotland	7.39	0.19	0.46	0.05	0.49	0.10	0.98
3	Northern	11.27	0.15	0.48	0.05	0.52	0.10	1.04
4	North West	14.79	0.12	0.03	0.03	0.01	0.05	0.01
5	Yorkshire	14.66	0.10	-0.07	-0.01	-0.05	-0.02	-0.10
6	N Wales & Mersey	14.81	0.09	0.03	0.04	-0.04	0.08	-0.07
7	East Midlands	17.12	0.02	-0.07	0.00	-0.06	0.00	-0.12
8	Midlands	18.66	-0.01	-0.03	-0.01	-0.04	-0.02	-0.07
9	Eastern	17.67	-0.03	-0.07	-0.02	-0.09	-0.05	-0.18
10	South Wales	22.01	-0.06	-0.02	-0.01	-0.03	-0.01	-0.07
11	South East	20.42	0.03	-0.17	-0.04	-0.17	-0.08	-0.35
12	London	22.63	-0.05	-0.13	-0.02	-0.14	-0.05	-0.28
13	Southern	21.73	-0.11	-0.17	-0.02	-0.16	-0.03	-0.31
14	South Western	24.29	-0.58	-0.07	0.01	-0.06	0.03	-0.12
	Absolute avg		0.12	0.16	0.03	0.17	0.05	0.34
	Max		0.58	0.48	0.05	0.52	0.10	1.04
	Min		0.01	0.02	0.00	0.01	0.00	0.01

Spare Capacity Modelling – Alternative Methodology

Generation	Alternative Option	Final Conclusions	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance	Variance	Variance	Variance	Variance	Variance
1	Peterhead & Northern Highland	16.64	-0.09	-0.40	-0.05	-0.42	-0.09	-0.83
2	Skye & Western Highland	15.89	-0.09	-0.40	-0.05	-0.42	-0.09	-0.83
3	Central Highlands	12.95	-0.09	-0.39	-0.05	-0.41	-0.09	-0.82
4	Central Belt	11.89	-0.09	-0.41	-0.05	-0.43	-0.09	-0.85
5	Borders & Northern England	8.66	-0.09	-0.66	-0.06	-0.69	-0.12	-1.39
6	Lancashire, Pennines & Humber	5.34	-0.03	0.04	-0.01	0.04	-0.01	0.08
7	North Wales & North Midlands	3.83	-0.02	0.08	0.00	0.10	0.00	0.19
8	Anglesey	6.63	-0.37	-0.11	0.00	-0.05	-0.01	-0.11
9	Dinorwig	9.21	-0.22	0.04	0.00	0.10	-0.01	0.20
10	Mid Wales & West Midlands	1.52	0.02	0.07	0.00	0.10	0.01	0.20
11	East Midlands & Anglia	2.41	-0.02	0.07	0.01	0.05	0.02	0.10
12	South East & Estuary	0.45	0.07	0.20	0.04	0.21	0.09	0.42
13	Central London	-5.73	0.15	0.18	0.03	0.21	0.06	0.43
14	South Wales & South Coast	-2.51	0.11	0.05	-0.02	0.05	-0.04	0.10
15	Wessex	-5.02	0.65	0.16	0.00	0.15	0.00	0.30
16	Peninsula	-7.69	1.00	0.04	0.01	0.03	0.01	0.06
		absolute avg	0.19	0.21	0.02	0.22	0.05	0.43
		Max	1.00	0.66	0.06	0.69	0.12	1.39
		Min	0.02	0.04	0.00	0.03	0.00	0.06

Demand								
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance	Variance	Variance	Variance	Variance	Variance
1	Northern Scotland	1.13	0.17	0.44	0.05	0.47	0.10	0.95
2	Southern Scotland	4.44	0.17	0.44	0.05	0.47	0.10	0.94
3	Northern	7.87	0.16	0.49	0.05	0.53	0.10	1.06
4	North West	11.46	0.11	0.04	0.03	0.01	0.05	0.02
5	Yorkshire	11.35	0.11	-0.06	-0.01	-0.04	-0.02	-0.07
6	N Wales & Mersey	11.43	0.11	0.04	0.04	-0.02	0.08	-0.04
7	East Midlands	13.72	0.03	-0.06	0.00	-0.05	0.00	-0.11
8	Midlands	15.24	-0.01	-0.03	-0.01	-0.03	-0.02	-0.07
9	Eastern	14.45	-0.03	-0.07	-0.02	-0.09	-0.05	-0.19
10	South Wales	18.78	-0.10	-0.02	-0.01	-0.02	-0.01	-0.05
11	South East	17.12	0.02	-0.18	-0.04	-0.18	-0.08	-0.36
12	London	19.29	-0.05	-0.14	-0.02	-0.15	-0.05	-0.30
13	Southern	18.40	-0.11	-0.18	-0.02	-0.16	-0.03	-0.32
14	South Western	20.89	-0.57	-0.07	0.01	-0.06	0.03	-0.11
		absolute avg	0.12	0.16	0.03	0.16	0.05	0.33
		Max	0.57	0.49	0.05	0.53	0.10	1.06
		Min	0.01	0.02	0.00	0.01	0.00	0.02

3.0 Security Factor

The following analysis is in response to Ofgem's request to publish further information on the calculation of the security factor, including the application of a more disaggregated approach.

The locational security factor was originally proposed by National Grid in England and Wales as it would be more cost reflective because the additional transmission capacity required to provide a secure network for incremental variations in generation and demand varies locationally. The proposal was approved by Ofgem as part of the England and Wales charging methodologies brought in for 1 April 2004.

The security factor is derived using a Secured DCLF programme which calculates the marginal cost for each node taking into account the requirement to be secure against circuit outages.

This Secured DCLF programme is a separate self-contained application that uses the same network and nodal data as the DCLF transport model. The network is based upon an unexpanded system i.e. the base network data is used with the physical circuit lengths unexpanded. In the same way as the DCLF transport model produces a marginal cost for each node for the intact system, the Secured DCLF programme additionally calculates the marginal cost for each node taking into account the requirement to be secure against a set of contingencies. The programme does this by identifying the worst contingencies in terms of flows for each circuit. The secure and intact marginal kilometres are compared and a "least squares fit" employed to derive the locational security factor.

The least squares fit method smoothes any nodal variations to generate an average figure that can be robustly applied to all GB nodes. The figure of 1.80 is an average of calculated security factors for the remaining years of the price control period.

The graph, in the final conclusion report and repeated here as Figure 1, compares the secured nodal costs and the intact cost expanded by the proposed security factor of 1.80 on a single year's study. We stated in the final conclusion report that the correlation was good, as the security factor used was an average of future years studies. The calculated figure for that particular year was 1.75 and the graph has been reproduced to show that the correlation at the higher marginal costs has improved slightly (Figure 2). In both Figure 1 and 2 the X-axis values have been sorted by secured cost order. Due to the nodal variances an exact match to the secured data is impossible to obtain given that a single average value is being used to expand all nodes. We further stated in the Final Conclusions Report that by using a smoothed average some nodes are overestimating their secured value and some underestimating. However, on balance we believed that this method is a pragmatic solution.

In some areas the plots do not seem to fit accurately, however we have used an alternative representation to put this into context. The same graph as Figure 1 has been repeated in Figure 3 with the exception that nodes have been sorted by the order of intact costs (DCLF unadjusted). The adjusted intact costs (yellow) curve is now smooth giving the impression that it is the secured data that does not fit the trend. In addition, every peak and trough of the graph cannot be replicated unless the security factor is calculated nodally. However, to replicate the secured curve precisely will give an artificial assurance, as the model will only be valid for one situation. The processes that input the variables into the model must be appropriate for its theoretical nature and broad enough to sustain the model for multiple situations

over future years. Our intention in releasing the graph was to give reassurance that the simple methodology produced a good approximation to the complex secured scenario. The proposal in the final conclusions report is to set the security factor at a single GB value which would be reviewed at the end of a price control period.

On a nodal basis the security factor can vary and the value depends upon a number of factors such as the topology of the system. We have found no evidence to suggest that there are defined regional variations that can be grouped within a certain criteria. Moreover, by applying a single security factor to the intact nodal marginal costs results in a trend that closely follows the secured marginal costs and therefore implies that there is a linear relationship between intact and secured across GB.

To further investigate the effects of disaggregation we have applied the least squares fit technique separately to the Scottish nodes, which, due to their location tend to include the higher cost nodes to the right hand side of the graph. This approach produces a value of 1.77 from the 2005 network, which compares favourably to the GB figure of 1.75 for the 2005 network. Disaggregating the Scottish network again into its constituent owners of Scottish Hydro and Scottish Power produces security factors of 1.75 and 1.80 respectively. These disaggregated figures are all within the GB range from the 2005 and future years studies of 1.75 – 1.86. If these disaggregated values were applied to the relevant nodes the right hand side of the graph would be a combination of those in Figure 1 and Figure 2.

We remain of the view that a single GB locational security factor of is appropriate and that we found no evidence to support a disaggregated approach with regional security factors.

Figure 1

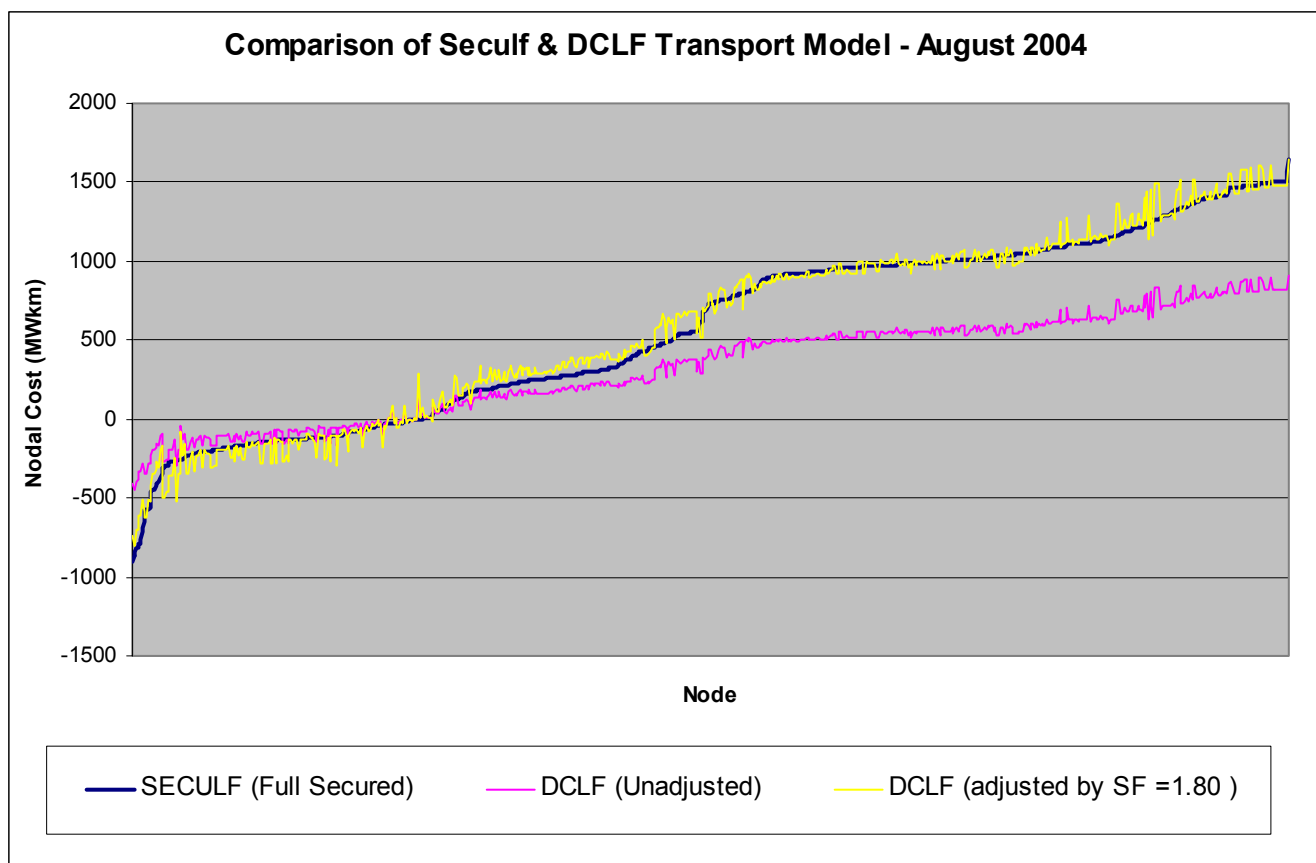


Figure 2

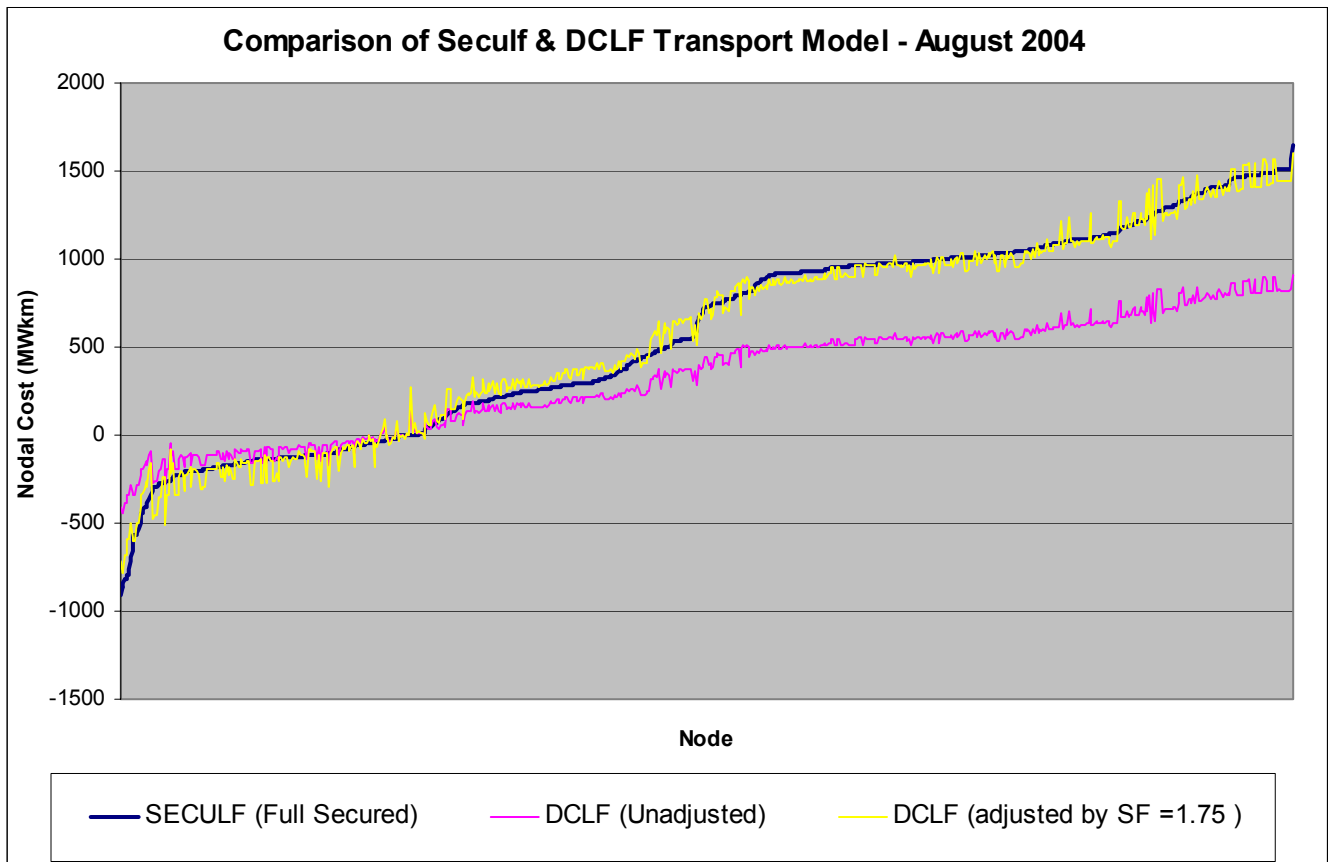
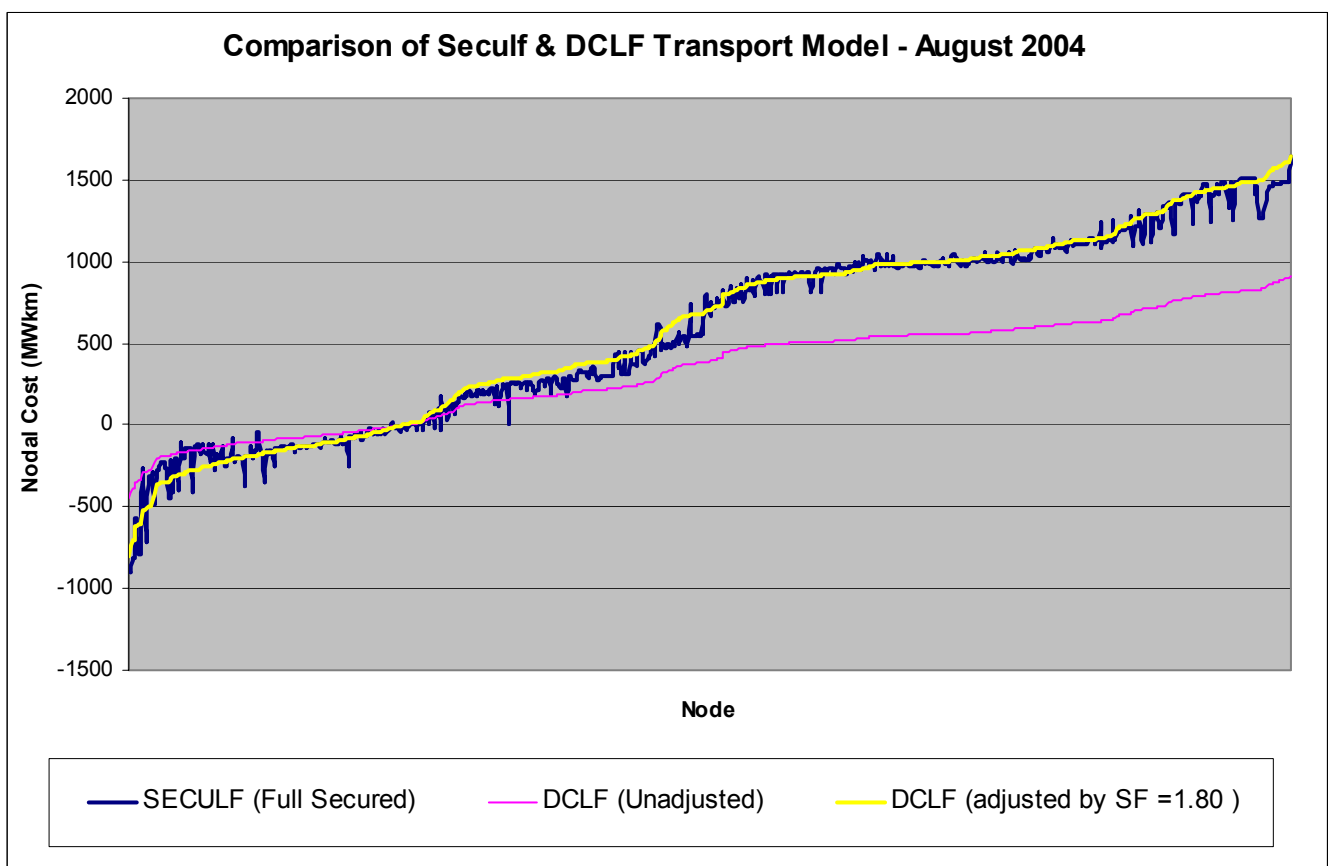


Figure 3



4.0 Stability

Ofgem have requested National Grid to publish more detailed analysis on the assertion that the preferred and alternative options are equally stable, and to consider benchmarking against the stability of existing tariffs in England & Wales.

In this section we summarise our stated position from the final methodologies consultation, and respond to Ofgem's request for additional information.

National Grid previously published in the final methodologies consultation document the results of detailed sensitivity studies. These had been carried out to examine the stability of tariffs under both proposals over future years. In addition to the base year of 2005/6 we modelled 2006/7 and 2007/8 using data from the transmission licensee's Seven Year Statements and also information on expected additional generation in Scotland and the required network reinforcements. The analysis was carried out with the latest set of variables (expansion constant; G/D split etc.) available at that time (August 2004). The results of these studies are repeated below.

	<u>Alternative</u>	<u>Preferred</u>
2005/06 to 2006/07 Average Change	9%	8%
2005/06 to 2006/07 Maximum Change	65%	30%
2006/07 to 2007/08 Average Change	9%	8%
2006/07 to 2007/08 Maximum Change	72%	24%

These percentages are the absolute values i.e. whether the increase is positive or negative is ignored. From these values it would seem that on average the alternative and preferred option are comparable in terms of stability. The maximum values relate to a particular zone, which has a small tariff in the baseline 2005/6 study. If this outlier is excluded then the maximum changes for the alternative and preferred options are also comparable. This confirmed our view that the stability benefits of the alternative option are not significant compared with our preferred option.

Tariff stability has been a major issue throughout the consultation process, and we believe the stability assessment published in the final methodologies consultation is the most reasonable and robust comparison as it uses actual forecasts of changes to the generation and demand background, with corresponding network developments, and generation zoning. Whilst it is possible to model stability by simply changing generation or demand in the model, without including the corresponding network and zoning changes, great care must be taken in drawing any conclusions from the results, particularly if the increments or decrements modelled are significant.

Following Ofgem's request for additional information we have considered what further detail can be provided. We are unable to publish the backgrounds behind the future years studies used to derive the results above, as much of the data is commercially sensitive, as it relates to planned generation projects.

Whilst we are concerned that simply modelling increases or decreases in generation or demand may be misleading, the results, in particular for small perturbations could inform the debate. We have therefore run the model looking at a number of selected scenarios with changes to the generation background. From the models perspective, demand is equal and opposite to generation so we have concentrated on changes to the generation background, as the impact on differentials from changes to the demand background can be inferred from changes to the generation background. In addition, generation is generally more elastic than demand.

The scenarios we have modelled involve increasing and decreasing the amount of generation at four representative generation nodes across GB. In order to be able to model decreases in generation we chose nodes with sufficient levels of generation already connected. The nodes chosen are Peterhead, Longannet, Ratcliffe and Fawley. At each node the generation was increase and decreased by 100MW and 500MW to simulate the effect of a small or large station unit appearing or disappearing at that location. All studies were carried out individually, therefore there were 16 scenarios for each option. The full results may be found in the Appendix, however a summary is produced below.

The preferred and alternative options are variations from the illustrative tariffs produced for the final conclusions document.

In terms of benchmarking against England and Wales, we have used the current 2004/5 England and Wales tariff model, however as the England and Wales model does not include Peterhead or Longannet, we have substituted the two Scotland/England border nodes at Harker and Stella West.

The average and maximum changes in the table are the absolute values i.e. whether the increase is positive or negative is ignored. However, in this instance the values are reported in £/kW instead of percentages to avoid the issue of small baseline tariffs.

In addition to the comparison with England and Wales from the scenarios set out below and in the appendices, we have also carried out an assessment of the historical stability of England and Wales tariffs. Looking back to 1998/99, but excluding 2004/5 (due to the change in the connection boundary in England and Wales from 1 April 2004), the average changes in generation tariffs ranged between £0.13/kW and £0.32/kW, and the maximum change ranged between £0.29/kW and £0.81/kW.

	Alternative		Preferred		E & W	
	Max Change £/kW	Av Change £/kW	Max Change £/kW	Av Change £/kW	Max Change £/kW	Av Change £/kW
PEHE + 100 MW	-0.04	0.03	-0.05	0.03		
PEHE + 500 MW	0.68	0.23	1.28	0.43		
PEHE - 100 MW	-0.1	0.03	-0.12	0.04		
PEHE - 500 MW	-0.79	0.26	-1.16	0.34		
LOAN + 100 MW	-0.03	0.02	-0.04	0.02		
LOAN + 500 MW	0.15	0.12	0.33	0.20		
LOAN - 100 MW	-0.11	0.03	-0.13	0.04		
LOAN - 500 MW	-0.65	0.27	-0.7	0.33		
RATS + 100 MW	-0.02	0.01	-0.02	0.01	0.01	0.00
RATS + 500 MW	-0.13	0.04	-0.12	0.04	0.03	0.02
RATS - 100 MW	-0.03	0.01	-0.05	0.01	-0.01	0.00
RATS - 500 MW	0.03	0.01	-0.06	0.02	-0.05	0.02
FAWL + 100 MW	0	0.00	0.01	0.01	0.03	0.01
FAWL + 500 MW	-0.53	0.10	0.85	0.11	1.13	0.12
FAWL - 100 MW	-0.02	0.01	-0.04	0.01	-0.03	0.01
FAWL - 500 MW	-0.28	0.05	-0.63	0.09	-0.77	0.09
HARKER + 100 MW					-0.01	0.01
HARKER + 500 MW					-0.13	0.09
HARKER - 100 MW					0.03	0.01
HARKER - 500 MW					-0.47	0.14
STELLA + 100 MW					-0.08	0.01
STELLA + 500 MW					0.42	0.16
STELLA - 100 MW					0.03	0.01
STELLA - 500 MW					-0.14	0.09

The changes for the +/- 100MW scenarios above are broadly comparable across all three scenarios, however when the increments and decrements increase to +/- 500MW the results start to vary. This is to be expected because of the lack of any corresponding network reinforcements, which are likely to be required for larger step changes in capacity. The Alternative Scenario A with a single voltage expansion factor effectively includes an allowance for future incremental capacity by assuming all new capacity would be constructed at 400kV. The Preferred Scenario B, with multi voltage expansion factors does not benefit from this effect when modelled without any corresponding network changes and so the results show larger changes. In reality large changes in the generation background would occur alongside network developments, which would align the stability of Scenario B with Scenario A.

We remain of the view that when all relevant factors are taken into account, that there is no compelling evidence that the final tariffs produced by either the preferred or alternative methodologies would be any more or less stable over time.

Appendix 1 – Zonal Generation tariff behaviours for changes in generation at Peterhead – Preferred Option

Generation		Final Conclusions	Peterhead + 100MW	Peterhead + 500MW	Peterhead - 100 MW	Peterhead - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead	17.19	-0.02	1.22	-0.05	-0.94
2	Northern Highland	19.67	-0.02	1.23	-0.06	-1.16
3	Western Highland	17.41	-0.02	1.27	-0.06	0.43
4	Skye & Quoich	15.73	-0.02	1.28	-0.06	0.36
5	Central Highlands & Angus	13.26	-0.02	0.64	-0.08	-0.41
6	Argyll & Bute	11.47	-0.02	0.05	-0.12	-0.54
7	South West Scotland	8.92	-0.02	0.08	0.07	-0.23
8	South East Scotland	10.10	-0.02	0.25	-0.03	-0.42
9	Northern England	5.84	-0.02	-0.26	0.05	-0.02
10	Lancashire, Pennines & Humber	2.60	-0.02	-0.18	0.04	0.18
11	North Wales & North Midlands	0.72	-0.02	-0.20	0.02	0.23
12	Anglesey	3.78	-0.04	-0.16	-0.02	0.25
13	Dinorwig	6.36	-0.04	-0.16	-0.02	0.25
14	Mid Wales, Midlands & South East	-1.64	-0.02	-0.22	0.03	0.23
15	North London	-2.71	-0.02	-0.22	0.04	0.23
16	Central London	-8.64	-0.03	-0.23	0.03	0.23
17	Oxon & South Coast	-3.65	-0.04	-0.25	0.03	0.23
18	South Wales & Gloucester	-6.20	-0.05	-0.27	0.02	0.23
19	Wessex	-7.05	-0.04	-0.26	0.03	0.23
20	Peninsula	-10.54	-0.04	-0.26	0.03	0.23
21	South West Wales	-4.61	-0.05	-0.27	0.02	0.23

Note: The shaded zone in the table represents the zone where the generation is being increased or decreased

Appendix 2 – Zonal Generation tariff behaviours for changes in generation at Longannet – Preferred Option

Generation		Final Conclusions	Longannet + 100MW	Longannet + 500 MW	Longannet - 100MW	Longannet - 500MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead	17.19	-0.01	0.32	-0.06	-0.70
2	Northern Highland	19.67	-0.01	0.32	-0.07	-0.69
3	Western Highland	17.41	-0.01	0.32	-0.07	-0.67
4	Skye & Quoch	15.73	-0.01	0.32	-0.07	-0.67
5	Central Highlands & Angus	13.26	-0.01	0.32	-0.09	-0.64
6	Argyll & Bute	11.47	-0.01	0.33	-0.13	-0.63
7	South West Scotland	8.92	-0.01	0.21	0.06	-0.30
8	South East Scotland	10.10	-0.01	0.31	-0.04	-0.47
9	Northern England	5.84	-0.01	-0.18	0.04	-0.07
10	Lancashire, Pennines & Humber	2.60	-0.01	-0.10	0.03	0.12
11	North Wales & North Midlands	0.72	-0.01	-0.11	0.02	0.18
12	Anglesey	3.78	-0.03	-0.07	-0.03	0.20
13	Dinorwig	6.36	-0.03	-0.07	-0.03	0.20
14	Mid Wales, Midlands & South East	-1.64	-0.01	-0.13	0.02	0.17
15	North London	-2.71	-0.01	-0.14	0.03	0.17
16	Central London	-8.64	-0.02	-0.15	0.02	0.18
17	Oxon & South Coast	-3.65	-0.03	-0.17	0.02	0.18
18	South Wales & Gloucester	-6.20	-0.04	-0.19	0.01	0.18
19	Wessex	-7.05	-0.03	-0.17	0.02	0.18
20	Peninsula	-10.54	-0.03	-0.17	0.02	0.18
21	South West Wales	-4.61	-0.04	-0.19	0.01	0.18

Appendix 3 – Zonal Generation tariff behaviours for changes in generation at Ratcliffe on Soar – Preferred Option

Generation		Final Conclusions	Ratcliffe + 100 MW	Ratcliffe + 500 MW	Ratcliffe - 100 MW	Ratcliffe - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead	17.19	0.01	-0.05	-0.02	-0.02
2	Northern Highland	19.67	0.01	-0.06	-0.02	-0.02
3	Western Highland	17.41	0.01	-0.06	-0.02	-0.02
4	Skye & Quoch	15.73	0.01	-0.06	-0.02	-0.02
5	Central Highlands & Angus	13.26	0.01	-0.08	-0.02	-0.02
6	Argyll & Bute	11.47	0.01	-0.12	-0.02	-0.03
7	South West Scotland	8.92	0.01	0.08	-0.02	-0.03
8	South East Scotland	10.10	0.01	-0.03	-0.01	-0.02
9	Northern England	5.84	0.01	0.02	0.02	0.01
10	Lancashire, Pennines & Humber	2.60	0.01	0.02	0.01	0.00
11	North Wales & North Midlands	0.72	0.00	0.02	-0.01	-0.02
12	Anglesey	3.78	-0.01	-0.02	-0.05	-0.06
13	Dinorwig	6.36	-0.01	-0.02	-0.05	-0.06
14	Mid Wales, Midlands & South East	-1.64	0.00	0.02	0.00	-0.01
15	North London	-2.71	0.00	0.03	0.00	-0.01
16	Central London	-8.64	0.00	0.02	0.00	-0.01
17	Oxon & South Coast	-3.65	-0.01	0.01	0.00	-0.01
18	South Wales & Gloucester	-6.20	-0.02	0.00	-0.01	-0.02
19	Wessex	-7.05	-0.01	0.01	0.00	-0.01
20	Peninsula	-10.54	-0.02	0.00	0.00	-0.01
21	South West Wales	-4.61	-0.02	-0.01	-0.01	-0.02

Appendix 4 – Zonal Generation tariff behaviours for changes in generation at Fawley – Preferred Option

Generation		Final Conclusions	Fawley + 100 MW	Fawley + 500 MW	Fawley - 100 MW	Fawley - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead	17.19	0.01	-0.06	0.00	-0.02
2	Northern Highland	19.67	0.01	-0.06	0.00	-0.02
3	Western Highland	17.41	0.01	-0.07	0.00	-0.02
4	Skye & Quoch	15.73	0.01	-0.07	0.00	-0.02
5	Central Highlands & Angus	13.26	0.01	-0.08	0.00	-0.02
6	Argyll & Bute	11.47	0.01	-0.12	0.00	-0.02
7	South West Scotland	8.92	0.01	0.07	0.00	-0.02
8	South East Scotland	10.10	0.01	-0.03	0.00	-0.02
9	Northern England	5.84	0.01	0.01	0.00	-0.02
10	Lancashire, Pennines & Humber	2.60	0.01	0.01	0.00	-0.02
11	North Wales & North Midlands	0.72	0.01	0.01	-0.01	-0.03
12	Anglesey	3.78	0.01	0.00	-0.02	-0.03
13	Dinorwig	6.36	0.01	0.00	-0.02	-0.03
14	Mid Wales, Midlands & South East	-1.64	0.01	0.05	-0.01	-0.03
15	North London	-2.71	0.01	-0.02	-0.01	-0.04
16	Central London	-8.64	0.01	0.03	-0.01	-0.05
17	Oxon & South Coast	-3.65	0.01	0.07	-0.02	-0.09
18	South Wales & Gloucester	-6.20	0.01	0.12	-0.03	-0.15
19	Wessex	-7.05	0.01	0.85	-0.03	-0.63
20	Peninsula	-10.54	0.01	-0.50	-0.03	-0.33
21	South West Wales	-4.61	0.01	0.11	-0.04	-0.15

Appendix 5 – Zonal Demand tariff behaviours for changes in generation at Peterhead – Preferred Option

Demand		Final Conclusions	Peterhead + 100MW	Peterhead + 500MW	Peterhead - 100 MW	Peterhead - 500 MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	2.32	-0.01	-1.53	0.08	1.03
2	Southern Scotland	7.39	-0.01	-0.48	0.06	0.66
3	Northern	11.27	-0.01	-0.09	-0.02	0.19
4	North West	14.79	-0.01	0.01	-0.08	0.00
5	Yorkshire	14.66	-0.01	0.07	0.01	0.02
6	N Wales & Mersey	14.81	0.01	0.02	0.04	-0.20
7	East Midlands	17.12	-0.01	0.09	0.00	-0.16
8	Midlands	18.66	-0.01	-0.02	0.01	-0.02
9	Eastern	17.67	0.00	0.10	-0.01	-0.10
10	South Wales	22.01	0.03	0.15	0.00	-0.11
11	South East	20.42	0.01	0.11	-0.01	-0.11
12	London	22.63	0.00	0.10	-0.01	-0.11
13	Southern	21.73	0.01	0.12	0.00	-0.11
14	South Western	24.29	0.02	0.14	0.00	-0.11

Appendix 6 – Zonal Demand tariff behaviours for changes in generation at Longannet – Preferred Option

Demand		Final Conclusions	Longannet + 100MW	Longannet + 500 MW	Longannet - 100MW	Longannet - 500MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	2.32	-0.01	-0.39	0.08	0.77
2	Southern Scotland	7.39	-0.01	-0.39	0.06	0.67
3	Northern	11.27	-0.01	-0.11	-0.02	0.20
4	North West	14.79	-0.01	-0.02	-0.08	0.01
5	Yorkshire	14.66	-0.01	0.03	0.01	0.03
6	N Wales & Mersey	14.81	0.01	-0.01	0.04	-0.20
7	East Midlands	17.12	-0.01	0.06	0.00	-0.16
8	Midlands	18.66	-0.01	-0.05	0.01	-0.02
9	Eastern	17.67	0.00	0.07	-0.01	-0.10
10	South Wales	22.01	0.03	0.12	0.00	-0.10
11	South East	20.42	0.01	0.08	-0.01	-0.10
12	London	22.63	0.00	0.07	-0.01	-0.10
13	Southern	21.73	0.01	0.09	0.00	-0.10
14	South Western	24.29	0.02	0.11	0.00	-0.10

Appendix 7 – Zonal Demand tariff behaviours for changes in generation at Ratcliffe on Soar – Preferred Option

Demand		Final Conclusions	Ratcliffe + 100 MW	Ratcliffe + 500 MW	Ratcliffe - 100 MW	Ratcliffe - 500 MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	2.32	-0.01	0.06	0.01	0.01
2	Southern Scotland	7.39	-0.01	0.05	0.01	0.01
3	Northern	11.27	-0.01	-0.01	-0.01	-0.01
4	North West	14.79	-0.01	0.00	-0.07	-0.07
5	Yorkshire	14.66	-0.01	-0.01	0.02	0.02
6	N Wales & Mersey	14.81	0.01	0.02	0.05	0.05
7	East Midlands	17.12	-0.01	-0.08	0.00	0.00
8	Midlands	18.66	-0.01	0.07	0.02	0.02
9	Eastern	17.67	0.00	-0.01	-0.01	-0.01
10	South Wales	22.01	0.03	0.02	0.01	0.01
11	South East	20.42	0.01	-0.01	0.00	0.00
12	London	22.63	0.00	-0.01	0.00	0.00
13	Southern	21.73	0.01	0.00	0.00	0.00
14	South Western	24.29	0.02	0.01	0.00	0.00

Appendix 8 – Zonal Demand tariff behaviours for changes in generation at Fawley – Preferred Option

Demand		Final Conclusions	Fawley + 100 MW	Fawley + 500 MW	Fawley - 100 MW	Fawley - 500 MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	2.32	0.00	0.11	-0.01	-0.03
2	Southern Scotland	7.39	0.00	0.09	-0.01	-0.03
3	Northern	11.27	0.00	0.04	-0.01	-0.03
4	North West	14.79	0.00	0.04	-0.01	-0.03
5	Yorkshire	14.66	0.00	0.04	-0.01	-0.03
6	N Wales & Mersey	14.81	0.00	0.05	0.01	-0.03
7	East Midlands	17.12	0.00	-0.03	-0.01	-0.01
8	Midlands	18.66	0.00	0.10	-0.01	-0.09
9	Eastern	17.67	0.00	0.06	0.00	-0.01
10	South Wales	22.01	0.00	-0.05	0.03	0.10
11	South East	20.42	0.00	-0.03	0.01	-0.02
12	London	22.63	0.00	0.04	0.00	-0.01
13	Southern	21.73	0.00	-0.21	0.01	0.10
14	South Western	24.29	0.00	-0.20	0.02	0.22

Appendix 9 – Zonal Generation tariff behaviours for changes in generation at Peterhead – Alternative Option

Generation		Final Conclusions	Peterhead + 100MW	Peterhead + 500MW	Peterhead - 100 MW	Peterhead - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead & Northern Highland	16.64	-0.02	0.67	-0.05	-0.79
2	Skye & Western Highland	15.89	-0.02	0.68	-0.06	-0.16
3	Central Highlands	12.95	-0.02	0.12	-0.10	-0.52
4	Central Belt	11.89	-0.02	0.09	0.00	-0.35
5	Borders & Northern England	8.66	-0.02	-0.20	0.04	-0.04
6	Lancashire, Pennines & Humber	5.34	-0.02	-0.15	0.04	0.16
7	North Wales & North Midlands	3.83	-0.02	-0.15	0.02	0.22
8	Anglesey	6.63	-0.03	-0.14	0.00	0.24
9	Dinorwig	9.21	-0.03	-0.14	0.00	0.24
10	Mid Wales & West Midlands	1.52	-0.03	-0.14	0.01	0.21
11	East Midlands & Anglia	2.41	-0.02	-0.17	0.03	0.21
12	South East & Estuary	0.45	-0.03	-0.18	0.03	0.21
13	Central London	-5.73	-0.02	-0.18	0.03	0.21
14	South Wales & South Coast	-2.51	-0.04	-0.20	0.03	0.22
15	Wessex	-5.02	-0.04	-0.20	0.03	0.22
16	Peninsula	-7.69	-0.03	-0.20	0.03	0.22

Appendix 10 – Zonal Generation tariff behaviours for changes in generation at Longannet – Alternative Option

Generation		Final Conclusions	Longannet + 100MW	Longannet + 500 MW	Longannet - 100MW	Longannet - 500MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead & Northern Highland	16.64	-0.01	0.15	-0.06	-0.65
2	Skye & Western Highland	15.89	-0.01	0.15	-0.06	-0.63
3	Central Highlands	12.95	-0.01	0.15	-0.11	-0.59
4	Central Belt	11.89	-0.01	0.14	-0.01	-0.39
5	Borders & Northern England	8.66	-0.01	-0.15	0.03	-0.07
6	Lancashire, Pennines & Humber	5.34	-0.01	-0.10	0.03	0.13
7	North Wales & North Midlands	3.83	-0.02	-0.10	0.02	0.19
8	Anglesey	6.63	-0.02	-0.08	-0.01	0.20
9	Dinorwig	9.21	-0.02	-0.08	-0.01	0.20
10	Mid Wales & West Midlands	1.52	-0.02	-0.09	0.00	0.18
11	East Midlands & Anglia	2.41	-0.01	-0.11	0.03	0.18
12	South East & Estuary	0.45	-0.02	-0.13	0.02	0.18
13	Central London	-5.73	-0.02	-0.13	0.02	0.18
14	South Wales & South Coast	-2.51	-0.03	-0.15	0.02	0.18
15	Wessex	-5.02	-0.03	-0.15	0.02	0.18
16	Peninsula	-7.69	-0.03	-0.15	0.02	0.18

Appendix 11 – Zonal Generation tariff behaviours for changes in generation at Ratcliffe on Soar – Alternative Option

Generation		Final Conclusions	Ratcliffe + 100 MW	Ratcliffe + 500 MW	Ratcliffe - 100 MW	Ratcliffe - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead & Northern Highland	16.64	0.00	-0.08	-0.01	0.01
2	Skye & Western Highland	15.89	0.00	-0.09	-0.01	0.01
3	Central Highlands	12.95	0.00	-0.13	-0.01	0.01
4	Central Belt	11.89	0.00	-0.04	0.00	0.01
5	Borders & Northern England	8.66	0.00	-0.01	0.02	0.03
6	Lancashire, Pennines & Humber	5.34	0.00	-0.01	0.01	0.03
7	North Wales & North Midlands	3.83	0.00	-0.01	0.00	0.01
8	Anglesey	6.63	-0.01	-0.04	-0.03	-0.02
9	Dinorwig	9.21	-0.01	-0.04	-0.03	-0.02
10	Mid Wales & West Midlands	1.52	-0.01	-0.04	-0.01	0.00
11	East Midlands & Anglia	2.41	0.00	0.00	0.01	0.02
12	South East & Estuary	0.45	-0.01	-0.01	0.01	0.02
13	Central London	-5.73	-0.01	-0.01	0.01	0.02
14	South Wales & South Coast	-2.51	-0.02	-0.02	0.00	0.01
15	Wessex	-5.02	-0.02	-0.02	0.00	0.01
16	Peninsula	-7.69	-0.01	-0.02	0.00	0.02

Appendix 12 – Zonal Generation tariff behaviours for changes in generation at Fawley – Alternative Option

Generation		Final Conclusions	Fawley + 100 MW	Fawley + 500 MW	Fawley - 100 MW	Fawley - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Peterhead & Northern Highland	16.64	0.00	-0.09	0.00	0.01
2	Skye & Western Highland	15.89	0.00	-0.09	0.00	0.01
3	Central Highlands	12.95	0.00	-0.14	0.00	0.01
4	Central Belt	11.89	0.00	-0.04	0.00	0.01
5	Borders & Northern England	8.66	0.00	-0.02	0.00	0.01
6	Lancashire, Pennines & Humber	5.34	0.00	-0.02	0.00	0.00
7	North Wales & North Midlands	3.83	0.00	-0.02	0.00	0.00
8	Anglesey	6.63	0.00	-0.02	-0.01	0.00
9	Dinorwig	9.21	0.00	-0.02	-0.01	0.00
10	Mid Wales & West Midlands	1.52	0.00	-0.02	-0.01	0.00
11	East Midlands & Anglia	2.41	0.00	-0.02	0.00	0.00
12	South East & Estuary	0.45	0.00	0.02	-0.01	0.00
13	Central London	-5.73	0.00	0.00	-0.01	0.00
14	South Wales & South Coast	-2.51	0.00	0.35	-0.02	-0.26
15	Wessex	-5.02	0.00	0.24	-0.02	-0.21
16	Peninsula	-7.69	0.00	-0.53	-0.01	-0.28

Appendix 13 – Zonal Demand tariff behaviours for changes in generation at Peterhead – Alternative Option

Demand		Final Conclusions	Peterhead + 100MW	Peterhead + 500MW	Peterhead - 100 MW	Peterhead - 500 MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	1.13	0.00	-0.87	0.08	0.87
2	Southern Scotland	4.44	0.00	-0.29	0.06	0.62
3	Northern	7.87	0.00	-0.06	-0.01	0.19
4	North West	11.46	0.00	0.00	-0.06	0.00
5	Yorkshire	11.35	-0.01	0.04	0.01	0.02
6	N Wales & Mersey	11.43	0.00	0.01	0.03	-0.16
7	East Midlands	13.72	-0.01	0.05	0.00	-0.14
8	Midlands	15.24	-0.01	-0.01	0.01	-0.05
9	Eastern	14.45	0.00	0.06	-0.01	-0.09
10	South Wales	18.78	0.02	0.09	0.00	-0.10
11	South East	17.12	0.00	0.07	-0.01	-0.10
12	London	19.29	0.00	0.06	-0.01	-0.10
13	Southern	18.40	0.01	0.07	0.00	-0.10
14	South Western	20.89	0.01	0.08	0.00	-0.10

Appendix 14 – Zonal Demand tariff behaviours for changes in generation at Longannet – Alternative Option

Demand		Final Conclusions	Longannet + 100MW	Longannet + 500 MW	Longannet - 100MW	Longannet - 500MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	1.13	0.00	-0.23	0.08	0.73
2	Southern Scotland	4.44	0.00	-0.23	0.06	0.63
3	Northern	7.87	0.00	-0.07	-0.01	0.19
4	North West	11.46	0.00	-0.02	-0.06	0.01
5	Yorkshire	11.35	-0.01	0.02	0.01	0.02
6	N Wales & Mersey	11.43	0.00	-0.01	0.03	-0.15
7	East Midlands	13.72	-0.01	0.03	0.00	-0.13
8	Midlands	15.24	-0.01	-0.03	0.01	-0.05
9	Eastern	14.45	0.00	0.04	-0.01	-0.09
10	South Wales	18.78	0.02	0.07	0.00	-0.10
11	South East	17.12	0.00	0.05	-0.01	-0.09
12	London	19.29	0.00	0.04	-0.01	-0.09
13	Southern	18.40	0.01	0.05	0.00	-0.10
14	South Western	20.89	0.01	0.06	0.00	-0.10

Appendix 15 – Zonal Demand tariff behaviours for changes in generation at Ratcliffe on Soar – Alternative Option

Demand		Final Conclusions	Ratcliffe + 100 MW	Ratcliffe + 500 MW	Ratcliffe - 100 MW	Ratcliffe - 500 MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	1.13	0.00	0.07	0.01	0.01
2	Southern Scotland	4.44	0.00	0.05	0.01	0.01
3	Northern	7.87	0.00	-0.01	-0.01	-0.01
4	North West	11.46	0.00	0.00	-0.05	-0.05
5	Yorkshire	11.35	-0.01	-0.01	0.01	0.01
6	N Wales & Mersey	11.43	0.00	0.01	0.03	0.03
7	East Midlands	13.72	-0.01	-0.06	0.00	0.00
8	Midlands	15.24	-0.01	0.04	0.01	0.01
9	Eastern	14.45	0.00	-0.01	0.00	0.00
10	South Wales	18.78	0.02	0.01	0.00	0.00
11	South East	17.12	0.00	-0.01	0.00	0.00
12	London	19.29	0.00	-0.01	0.00	0.00
13	Southern	18.40	0.01	0.00	0.00	0.00
14	South Western	20.89	0.01	0.00	0.00	0.00

Appendix 16 – Zonal Demand tariff behaviours for changes in generation at Fawley – Alternative Option

Demand		Final Conclusions	Fawley + 100 MW	Fawley + 500 MW	Fawley - 100 MW	Fawley - 500 MW
Zone No.	Zone Name.	HH Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern Scotland	1.13	0.00	0.11	0.00	-0.02
2	Southern Scotland	4.44	0.00	0.09	0.00	-0.02
3	Northern	7.87	0.00	0.04	0.00	-0.02
4	North West	11.46	0.00	0.04	0.00	-0.03
5	Yorkshire	11.35	0.00	0.04	-0.01	-0.03
6	N Wales & Mersey	11.43	0.00	0.04	0.00	-0.02
7	East Midlands	13.72	0.00	-0.01	-0.01	-0.01
8	Midlands	15.24	0.00	0.07	-0.01	-0.06
9	Eastern	14.45	0.00	0.06	0.00	-0.02
10	South Wales	18.78	0.00	-0.05	0.02	0.07
11	South East	17.12	0.00	-0.03	0.00	-0.03
12	London	19.29	0.00	0.05	0.00	-0.02
13	Southern	18.40	0.00	-0.20	0.01	0.08
14	South Western	20.89	0.00	-0.20	0.01	0.20

Appendix 17 – Zonal Generation tariff behaviours for changes in generation at Harker – Current E & W methodology

Generation			Harker + 100 MW	Harker + 500 MW	Harker - 100 MW	Harker - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	9.009	-0.01	0.08	0.03	0.41
2	Humberside	5.767	-0.01	-0.07	0.01	0.19
3	North West	6.222	-0.01	-0.08	0.01	-0.47
4	Pennines & North Wales	4.122	-0.01	-0.10	0.01	0.02
5	Dinorwig	10.715	-0.01	-0.13	0.01	-0.15
6	Anglesey	7.011	-0.01	-0.13	0.01	-0.15
7	East Anglia	2.890	-0.01	-0.08	0.01	0.12
8	West Midlands	2.032	-0.01	-0.09	0.01	0.01
9	South Wales & Gloucs	-2.151	-0.01	-0.08	0.01	0.06
10	Oxon & Bucks	0.004	-0.01	-0.08	0.01	0.08
11	Estuary	1.734	-0.01	-0.08	0.01	0.10
12	Central & SW London	-6.605	-0.01	-0.08	0.01	0.09
13	South Coast	-1.507	-0.01	-0.08	0.01	0.08
14	Wessex	-3.829	-0.01	-0.08	0.01	0.07
15	Peninsula	-6.836	-0.01	-0.08	0.01	0.07

Appendix 18 – Zonal Generation tariff behaviours for changes in generation at Stella – Current E & W methodology

Generation			Stella + 100 MW	Stella + 500 MW	Stella - 100 MW	Stella - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	9.009	-0.08	0.42	0.03	-0.14
2	Humber side	5.767	-0.01	-0.03	0.01	0.14
3	North West	6.222	-0.01	-0.36	0.01	-0.11
4	Pennines & North Wales	4.122	-0.01	-0.14	0.01	0.08
5	Dinorwig	10.715	-0.01	-0.26	0.01	0.01
6	Anglesey	7.011	-0.01	-0.26	0.01	0.01
7	East Anglia	2.890	-0.01	-0.07	0.01	0.12
8	West Midlands	2.032	-0.01	-0.13	0.01	0.07
9	South Wales & Gloucs	-2.151	-0.01	-0.11	0.01	0.09
10	Oxon & Bucks	0.004	-0.01	-0.10	0.01	0.10
11	Estuary	1.734	-0.01	-0.08	0.01	0.11
12	Central & SW London	-6.605	-0.01	-0.09	0.01	0.10
13	South Coast	-1.507	-0.01	-0.09	0.01	0.10
14	Wessex	-3.829	-0.01	-0.10	0.01	0.10
15	Peninsula	-6.836	-0.01	-0.10	0.01	0.09

Appendix 19 – Zonal Generation tariff behaviours for changes in generation at Ratcliffe – Current E & W methodology

Generation			Ratcliffe + 100 MW	Ratcliffe + 500 MW	Ratcliffe - 100 MW	Ratcliffe - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	9.009	0.00	-0.02	0.00	0.02
2	Humberside	5.767	0.00	-0.02	0.00	0.02
3	North West	6.222	0.00	-0.02	0.00	0.02
4	Pennines & North Wales	4.122	0.00	-0.02	0.00	0.02
5	Dinorwig	10.715	0.00	-0.02	0.00	0.02
6	Anglesey	7.011	0.00	-0.02	0.00	0.02
7	East Anglia	2.890	0.00	-0.02	0.00	0.02
8	West Midlands	2.032	0.01	0.03	-0.01	-0.05
9	South Wales & Gloucs	-2.151	0.00	-0.02	0.00	0.02
10	Oxon & Bucks	0.004	0.00	-0.02	0.00	0.02
11	Estuary	1.734	0.00	-0.02	0.00	0.02
12	Central & SW London	-6.605	0.00	-0.02	0.00	0.02
13	South Coast	-1.507	0.00	-0.02	0.00	0.02
14	Wessex	-3.829	0.00	-0.02	0.00	0.02
15	Peninsula	-6.836	0.00	-0.02	0.00	0.02

Appendix 20 – Zonal Generation tariff behaviours for changes in generation at Fawley– Current E & W methodology

Generation			Fawley + 100 MW	Fawley + 500 MW	Fawley - 100 MW	Fawley - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	9.009	0.00	-0.09	0.00	0.01
2	Humber side	5.767	0.00	-0.09	0.00	0.01
3	North West	6.222	0.00	-0.14	0.00	0.01
4	Pennines & North Wales	4.122	0.00	-0.04	0.00	0.01
5	Dinorwig	10.715	0.00	-0.02	0.00	0.01
6	Anglesey	7.011	0.00	-0.02	0.00	0.00
7	East Anglia	2.890	0.00	-0.02	0.00	0.00
8	West Midlands	2.032	0.00	-0.02	-0.01	0.00
9	South Wales & Gloucs	-2.151	0.00	-0.02	-0.01	0.00
10	Oxon & Bucks	0.004	0.00	-0.02	-0.01	0.00
11	Estuary	1.734	0.00	-0.02	0.00	0.00
12	Central & SW London	-6.605	0.00	0.02	-0.01	0.00
13	South Coast	-1.507	0.00	0.00	-0.01	0.00
14	Wessex	-3.829	0.00	0.35	-0.02	-0.26
15	Peninsula	-6.836	0.00	0.24	-0.02	-0.21

Appendix 21 – Zonal Demand tariff behaviours for changes in generation at Harker – Current E & W methodology

Demand			Harker + 100 MW	Harker + 500 MW	Harker - 100 MW	Harker - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	4.941	0.00	-0.12	0.00	-0.59
2	North West	8.325	0.00	-0.06	0.00	0.41
3	Yorkshire	8.456	0.00	-0.01	0.00	-0.04
4	N Wales & Mersey	8.710	0.00	0.14	0.00	0.27
5	East Midlands	10.772	0.00	0.01	0.00	-0.02
6	Midlands	12.601	0.00	0.01	0.00	0.06
7	Eastern	11.007	0.00	0.01	0.00	-0.06
8	South Wales	16.130	0.00	0.01	0.00	0.00
9	South East	14.321	0.00	0.01	0.00	-0.04
10	London	16.762	0.00	0.01	0.00	-0.04
11	Southern	15.680	0.00	0.01	0.00	-0.02
12	South Western	17.798	0.00	0.01	0.00	-0.01

Appendix 22 – Zonal Demand tariff behaviours for changes in generation at Stella – Current E & W methodology

Demand			Stella + 100 MW	Stella + 500 MW	Stella - 100 MW	Stella - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	4.941	0.00	-0.85	0.00	0.34
2	North West	8.325	0.00	0.16	0.00	0.12
3	Yorkshire	8.456	0.00	0.00	0.00	-0.05
4	N Wales & Mersey	8.710	0.00	0.29	0.00	0.07
5	East Midlands	10.772	0.00	0.02	0.00	-0.04
6	Midlands	12.601	0.00	0.07	0.00	-0.01
7	Eastern	11.007	0.00	0.01	0.00	-0.05
8	South Wales	16.130	0.00	0.04	0.00	-0.03
9	South East	14.321	0.00	0.02	0.00	-0.05
10	London	16.762	0.00	0.01	0.00	-0.05
11	Southern	15.680	0.00	0.02	0.00	-0.04
12	South Western	17.798	0.00	0.03	0.00	-0.04

Appendix 23 – Zonal Demand tariff behaviours for changes in generation at Ratcliffe – Current E & W methodology

Demand		Ratcliffe + 100 MW	Ratcliffe + 500 MW	Ratcliffe - 100 MW	Ratcliffe - 500 MW	
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	4.941	0.00	0.00	0.00	0.00
2	North West	8.325	0.00	0.00	0.00	0.00
3	Yorkshire	8.456	0.00	0.00	0.00	0.00
4	N Wales & Mersey	8.710	0.00	0.00	0.00	0.00
5	East Midlands	10.772	0.00	0.00	0.00	0.00
6	Midlands	12.601	0.00	0.00	0.00	0.00
7	Eastern	11.007	0.00	0.00	0.00	0.00
8	South Wales	16.130	0.00	0.00	0.00	0.00
9	South East	14.321	0.00	0.00	0.00	0.00
10	London	16.762	0.00	0.00	0.00	0.00
11	Southern	15.680	0.00	0.00	0.00	0.00
12	South Western	17.798	0.00	0.00	0.00	0.00

Appendix 24 – Zonal Demand tariff behaviours for changes in generation at Fawley – Current E & W methodology

Demand			Fawley + 100 MW	Fawley + 500 MW	Fawley - 100 MW	Fawley - 500 MW
Zone No.	Zone Name	Zonal Tariff (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)	Variance (£/kW)
1	Northern	4.941	0.00	0.03	0.00	-0.03
2	North West	8.325	0.00	0.03	0.00	-0.02
3	Yorkshire	8.456	0.00	0.03	0.00	-0.03
4	N Wales & Mersey	8.710	0.00	0.03	0.00	-0.02
5	East Midlands	10.772	0.00	0.03	0.00	-0.02
6	Midlands	12.601	0.00	0.02	0.00	-0.01
7	Eastern	11.007	0.00	0.05	0.00	-0.05
8	South Wales	16.130	0.00	-0.03	0.00	0.04
9	South East	14.321	0.00	0.09	0.00	-0.05
10	London	16.762	0.00	0.06	0.00	-0.03
11	Southern	15.680	0.00	-0.16	0.00	0.08
12	South Western	17.798	0.00	-0.26	0.00	0.21