Second Consultation in Relation to the Possible Cancellation of Generating Unit Agreements in Northern Ireland

9 September 2011

1 CONTENTS

2 EXECUTIVE SUMMARY

The Northern Ireland Authority for Utility Regulation ("**the Authority**") published a consultation paper on 10 March 2011 in order to:

- Set out its initial thoughts on the type of issues and factors the Authority believes should inform its decision making process in relation to the potential cancellation of Generating Unit Agreements ("**GUAs**") in place between PPB and certain generators; and

- Obtain the views of market participants and other interested parties.

Following consideration of the responses to this consultation, having undertaken detailed economic analysis and sensitivity analysis into the financial position of the GUAs, and after considering all relevant policy considerations, the Authority publishes the following minded-to decision:

Not to instruct the cancellation of any GUA from 1 April 2012, but to keep these contracts under review.

Interested parties are invited to respond to any issues discussed or any aspect of the proposals put forward in this Consultation Paper – which should be addressed to Kenny Dane at kenny.dane@uregni.gov.uk - by 1700hrs on Friday 7 October 2011.

3 INTRODUCTION

3.1 EXISTENCE OF GUAS

There are currently eight Generating Unit Agreements ("**GUAs**") in place between NIE Energy Limited (effectively its Power Procurement Business ("**PPB**")) and electricity generators in Northern Ireland.

3.2 CANCELLATION OF GUAS

The Northern Ireland Authority for Utility Regulation ("**the Authority**") has the power, as set out in a licence condition ("**the Cancellation Condition**") contained within electricity generation licences (Condition 15) and the electricity supply licence of NIE Energy Limited (Condition 60) to direct the early cancellation of a GUA. Any direction to cancel early a GUA must be given at least 180 days in advance of the relevant early cancellation date. Details of each remaining GUA are provided in the table in Section 4.

On 10 March 2011, the Authority published a Consultation Paper titled "Consultation on Relevant Considerations in Relation to the possible Cancellation of Generating Unit Agreements in Northern Ireland[1]". A summary of responses to this consultation is provided in Section 5.

The Authority has published this second consultation paper in order to:

- Outline its minded-to decisions in relation to cancellation;
- Explain its analysis and rationale for these decisions; and
- Obtain the further views of market participants and interested parties prior to making its final decisions.

In terms of structure:

[1] http://www.uregni.gov.uk/news/consultation_opens_on_possible_gua_cancellation/

- **Chapter 4** provides a background to the history and structure of the GUAs;

- **Chapter 5** describes the content of the consultation carried out in March 2011 and summarises the responses;

- **Chapter 6** describes the economic analysis carried out by the Authority in relation to the GUAs;

- **Chapter 7** provides a summary of the results to the economic analysis;

- **Chapter 8** describes the policy considerations to which the Authority has had regard;

- **Chapter 9** sets out the issues related to jurisdiction of the Authority and the SEM Committee in relation to cancellation;

- **Chapter 10** sets out the minded-to decision of the Authority in relation to cancellation of the GUA;

- **Chapter 11** describes how to respond and the next steps to be taken.

4 BACKGROUND

4.1 BACKGROUND TO GUAS

When the electricity industry in Northern Ireland was privatised in 1992, the generating stations were sold to private companies and Power Purchase Agreements ("**PPAs**") were entered into between these companies and Northern Ireland Electricity plc.

The PPAs with each power station comprise two forms of agreement: a Power Station Agreement ("**PSA**") relating to the station's operation and a number of individual Generating Unit Agreements ("**GUAs**") relating to each generating unit within the power station. These contracts are managed by PPB – a business unit within NIE Energy Limited. There are eight GUAs still in force: five for units at Ballylumford Power Station (one of which expires on 31 March 2012), one for a unit at Coolkeeragh Power Station and two for units at Kilroot Power Station. Further details are set out in the table below.

4.2 EXISTING GUAS

Table 4.1 Expiry and Earliest Cancellation Dates of the Remaining GUAs

Company	Generating Unit	GUA Contracted Capacity (MWs)	Fuel Type	Earliest Cancellation Date (ECD)	Contract Expiry Date (CED)
AES(Kilroot)	GT1	29	Distillate	1 Nov 2010	31 March 2024
AES (Kilroot)	GT2	29	Distillate	1 Nov 2010	31 March 2024
AES (Ballylumford)	CCGT 10	106	Gas	1 Apr 2012	23 September 2018 (with a five-year extension option exercisable by PPB with two years notice)
AES (Ballylumford)	CCGT 20	510	Gas	1 Apr 2012	23 September 2018 (with a five-year extension option exercisable by PPB with two years notice)
AES (Ballylumford)	G4	180	Gas	1 Nov 2010	31 March 2012
AES (Ballylumford)	GT1	58	Distillate	1 Nov 2010	31 March 2020
AES (Ballylumford)	GT2	58	Distillate	1 Nov 2010	31 March 2020
Coolkeeragh ESB	GT8	58	Distillate	1 Nov 2010	31 March 2020
Total		**1028**			

The GUAs contain provisions relating to the purchase and payment by PPB for a number of services including the availability of capacity, the generation of electricity and the provision of ancillary services from each individual generating unit. The GUAs make provision for two categories of payment, namely:

(i) energy payments, and

(ii) availability payments.

Energy payments represent reimbursement of fuel costs, while **availability payments** represent reimbursement for acquisition costs and operating costs. Availability payments are paid irrespective of whether electricity is actually generated, subject to the unit being available to generate.

4.3 EARLY CANCELLATION OF GUAS

As can be seen from the table above, each GUA is scheduled to come to an end at its Contract Expiry Date ("**CED**"). However provisions were included in the GUAs to allow for cancellation from an earlier date, the Earliest Cancellation Date ("**ECD**").

The GUAs can only be cancelled early where certain specified requirements – set out in the Cancellation Condition – are satisfied. In brief, the Cancellation Condition provides:

- that the Authority is entitled to serve a notice on PPB and the relevant generator party to a GUA directing them to terminate the GUA from a date, or the happening of an event, that is specified in the notice;
- that the Authority can only exercise this power if it has determined that requisite arrangements, which set out the requirements specified in the Cancellation Condition, have been developed; and
- the procedural requirements that need to be followed in order for the Authority to direct the early cancellation of the GUA.

On 23 October 2007, the Authority determined that the SEM constituted the requisite trading arrangements[2]. Many of the procedural requirements set out in the Cancellation Condition (including for example the requirement to consult) relate to the making of this determination and have therefore already been followed.

There is in effect only one procedural requirement which concerns the giving of the direction (i.e. the Authority exercising its early cancellation power). This is that the Authority needs to give at least 180 days' notice, of its intention to give a direction, to such persons as are specified in the Cancellation Condition.

[2] http://www.uregni.gov.uk/news/view/utility_regulator_issues_determination

4.4 THE SEM COMMITTEE

When a similar consultation process was carried out in 2009-2010 (a process which resulted in the cancellation of GUAs for two 238MW coal/oil-fired units at Kilroot), the SEM Committee was asked to consider whether the potential Cancellation of the GUAs in question was a SEM matter. (A SEM matter is one which the SEM Committee determines that the exercise of a relevant function of the Commission for Energy Regulation or of the Authority in relation to that matter materially affects, or is likely to materially affect, the SEM.)

The SEM Committee determined that the since the economic analysis carried out indicated that only two GUAs should be cancelled, the exercise of relevant functions in relation to cancellation of those GUAs was not a SEM matter as it would be unlikely to materially affect the SEM (in terms of competition, security and diversity of supply, environmental impacts and liquidity).

The SEM Committee requested to be updated on the ongoing review by the Authority of the other GUAs. It was agreed that where the Regulatory Authorities were in doubt as to the question of jurisdiction in the future, the matter should be referred to the SEM Committee for consideration.

Consequently, the SEM Committee is being kept informed of this consultation process and will be asked to decide prior to any decision on cancellation or otherwise whether that decision is an SEM matter.

5 PREVIOUS CONSULTATION AND RESPONSES

On 10 March 2011, the Authority published a Consultation Paper titled "Consultation on Relevant Considerations in Relation to the possible Cancellation of Generating Unit Agreements in Northern Ireland". This consultation stated that the Authority intended to follow the same process and consider the same factors during this consultation as it did in 2009-10.

Seven non-confidential were received to this consultation from:

- AES
- Bord Gais Energy
- The Consumer Council
- NIE Energy (PPB)
- NIE Energy (Supply)
- SONI (on behalf of, and in consultation with, other parts of the Eirgrid Group)
- SSE Renewables

Comments received are summarised below.

AES's Response

AES broadly agrees with the proposal by the Authority to follow the methodology and policy considerations used for the 2010 assessment of the GUAs. The costs incurred by PPB in managing the GUAs should also be included.

The Power Station Agreements between AES and NIE Energy contain a Change in Law provision which would permit the pass through of the proposed climate change levy and fuel duty on fossil fuels to PPB. The Authority should therefore include the impact of the proposed climate change levy and fuel duty in its sensitivity analysis.

AES would also draw the Authority's attention to the fact that the ongoing costs associated with the procurement of gas transportation capacity must also be included in the economic analysis.

NIE Energy Supply's Response

While NIEES concurs with the Authority's view that the economic analysis is the key consideration when reviewing cancellation options, it is important to recognise that the economic impact is not limited to a positive or negative PSO effect. NIEES urge the Authority to attach greater significance to their analysis of contract liquidity when considering GUA cancellation. Any reduction in available Contracts for Difference will compound product scarcity and inflate price premiums.

Bord Gais Energy's Response

Bord Gais Energy welcomes the Utility Regulator's latest review of the GUAs in Northern Ireland. BG Energy has no objection to the proposals put forward by the Utility Regulator and is generally supportive of the overall transparency provided.

SSE Renewables' Response

SSE state that the GUAs in Northern Ireland were relevant to the circumstances of the time, but in the market environment of the SEM they are an anachronism that distorts the market and inhibits development of a more liquid wholesale contract market. Their value going forward must be assessed against wider criteria than just cost vs. pool revenue. In light of the recent SEM consultation on market liquidity, it is pertinent in the SEM that generators are released from any arrangements that constrain their abilities to function as fully-fledged commercial units.

The Consumer Council's Response

The Consumer Council believe that the process should follow that of previous consultations on the cancellation of GUAs in Northern Ireland, ensuring that the benefits for consumers are at the forefront of the process. Previously the factors taken into account included security of supply, diversity of supply, competition and liquidity and

environmental sustainability. The Consumer Council believes consideration should also be given to affordability.

The Consumer Council would like to raise the following points for the Utility Regulator to consider when coming to its decision:

- *To keep in mind that its primary objective of any change is to protect the Northern Ireland consumer;*
- *To consider how the targets for renewable energy within DETI's Strategic Energy Framework are likely to impact on the long term future of fossil fuel generating plants in Northern Ireland;*
- *To consider how emission limitations within the Large Combustion Plant Directive will affect the contracts;*
- *To consider each contract individually;*
- *To consider how the planned north/south and east/west interconnectors, and any plans for further interconnection may impact on the economic analysis;*
- *To consider how the potential sale of power plants in Northern Ireland could impact on the future electricity market.*

SONI's Response (on behalf of, and in consultation with, other parts of the Eirgrid Group)

SONI broadly support the same process and the basis for the economic analysis as set out in the consultation paper. The dynamic nature of the market and the effect of how units would respond to being out of contract should also be taken into consideration in the modelling. The total cost of financing PPB (including the costs of dealing with an intermediary) also needs to be considered as a factor in the overall decision.

If the GUAs were cancelled, the liability for carbon costs would lie with the generating companies. As these costs are variable, it would seem prudent to consider these costs in the same manner as the carbon costs were in the previous appraisal on the early cancellation of GUAs. However, the variable cost of carbon should be considered separately to the issue of 'grandfathered' free carbon allowances.

The cancellation of the GUAs would lead to a more effective market as the physical generators must trade directly with the SEM. This increases transparency and moves the commercial risk associated with participation in the SEM to the owners of the physical generation.

As the generators party to the GUAs are now under ownership of a single company, cancelling some or all of the GUAs will increase market concentration in the SEM to the level that PPB originally had prior to the cancellation of GUAs for Kilroot 1 & 2. These new circumstances place a significant degree of local market power in the hands of AES and it may be appropriate to encourage them to offer sufficient CFDs to the SEM.

From a security of supply point of view, there are no identifiable transitional or longer term issues regarding early GUA cancellation. However, the plant covered by the GUAs is essential for the secure operation of all-island system and cancellation of the GUAs must not adversely affect plant availability.

It is currently unclear how the generation companies in Northern Ireland are reconciled for the provision of ancillary services from PPB through the GUAs. It is desirable to have the flexibility to enable such policy instruments to act without recourse to the GUAs.

Early cancellation of the GUAs would lead to further SEM transparency, which may in turn encourage more renewable generation and/or lower carbon emitting generation to enter the SEM with consequential environmental benefits. Furthermore, exposing the owners of the physical plant to the cost of carbon places the commercial risks with those who are best placed to mitigate it. This could manifest itself through investment in cleaner technology, co-firing and other innovative measures that would increase the competitiveness of the generator units through a reduction in its carbon intensity.

PPB's Response

PPB's comments on the proposals in the paper are shown below:

PPB agrees that consistency of approach is important and agrees that the same methodology should be applied as that followed for previous consultations.

For virtually the first time since the establishment of the GUAs in 1992, they are likely to provide a valuable economic benefit for NI customers once a number of upcoming changes take effect. For example there remains considerable value arising from the free CO_2 allocations provided under the UK National Allocation Plan.

Meeting the targets for renewable generation will require flexible generators to support intermittent wind generation. The contracted peaking units are flexible units, with fast start capability, and hence should capture value for such capability. This should enhance the value of the GUAs for NI customers. The generating units with fast start and dual fuel capability also provide PPB with the capability of offering a range of hedging products, such as one way hedges, to compliment the existing products offered by PPB to the market.

PPB's understanding is that DETI are still seeking a derogation for NI in relation to the proposed implementation of a carbon price support mechanism through fuel duty levies. If such an exemption is achieved, then the main impact is likely to be a reduction in imports / an increase in exports to GB since the SEM would inevitably have a lower input cost. This would effectively increase demand to be met through the SEM, resulting in higher load factors for generators and higher SMP (and hence infra-marginal rent).

If DETI are not successful in securing an exemption, then the COD for NI generators will need to be increased to reflect the additional fuel duty. The carbon price support mechanism will encourage short run and long run fuel switching therefore benefiting gas fired power stations. The effect will also be to increase SMP and it also further highlights the necessity for consideration of the constrained despatch.

PPB considers that the economic consideration is the key indicator in determining whether any contracts should be cancelled.

Retaining the contracts has additional benefits in relation to security of supply and also helps mitigate the local market power of AES who own both the Kilroot and Ballylumford power stations and, therefore, the contracts, providing they remain competitive, provide competitive advantages for customers.

From April 2012, the main benefit is that NI customers have a one way hedge against the costs of the GUAs. If any contract continues to have net value, then that value is captured and recycled to NI customers, resulting in lower electricity bills, yet if the contract, for whatever reason, becomes a burden, the contract can be terminated. Hence customers can capture ALL the upside from the contracts with no exposure to any downside. This is a very favourable position for customers.

6 ECONOMIC ANALYSIS

The March 2011 consultation described the economic analysis the Authority intended to carry out in relation to the cancellation decision. The key consideration was to be the likely effect on PSO charges to Northern Ireland consumers resulting from cancellation, or otherwise, for each GUA between the earliest cancellation date and the contract expiry date. Upon review of the responses to the March consultation, which were supportive of this concept, the Authority has decided to retain this principle in coming to the minded-to decisions stated later in this paper.

In order to determine the likely effects on the PSO, it is necessary to compare:

- forecast payments due to the generators under to the GUAs; with
- forecast revenues due to PPB in the form of SEM Revenues and ancillary service payments from SONI over the remaining lifetime of the contracts.

If forecast SEM revenues and ancillary services payments (and other net revenues) are greater than forecast GUA payments for any particular generating unit, it would be rational, on an economic basis, to retain that GUA. If forecast SEM and other revenues are less than forecast GUA payments for any particular generating unit, it would be rational, on an economic basis, to cancel that GUA. However, cancellation is not exclusively an economic concern. There are also a number of non-economic policy considerations (discussed in Chapter 8) which must also be taken into account.

After carrying out the economic analysis, the Authority performed a number of sensitivities around commodity prices and demand. One of these sensitivities was to take account of the HM Treasury's proposal to introduce a carbon price floor from 1 April 2013.

The Authority has chosen to carry out analysis to determine the net economic position of the GUAs for the first two full years after the Earliest Cancellation Date covering the period

1 April 2012 to 31 March 2014, rather than the full term of the contracts up to the Contract Expiry Date.

6.1 GUA COSTS

All the payments under this subheading represent a cost to PPB and therefore consumers via the PSO.

6.1.1 AVAILABILITY PAYMENTS

The Availability Payments of the GUAs remunerate the owner of the unit for the provision of generation capacity. For every MWh of availability, a 'base' payment is made, called the Base Availability Credit ("**BAC**").

There are a number of elements which act to change the base value, but the most important is the seasonal and time-of-day weighting table. When the contracts were written it was recognised that there would be an increased need for the units to provide available capacity at times of peak demand (which occurs in Northern Ireland on weekday evenings during the winter months, excluding Christmas and other holidays). As such, the payments are weighted so that they are increased during more intense demand periods, and reduced during low demand periods. The weightings therefore signal to the plant owner that the provision of capacity is more valuable at peak times than at off-peak times.

In the Authority's model the Availability Payments for the GUA units were all forecast using the availability profiles that were produced by the forecast *Plexos* model (described later). These profiles were a function of the forced and planned outage rates for the units, which were taken from historical performance. The weighting algebra was applied to each year and a weight calculated for every trading period in the forecast horizon.

Availability rebates payable by the generator to PPB for plant inflexibility were rolled forward from historic performance.

6.1.2 RELIABLE GT START PAYMENTS

Start failure is a significant operational risk associated with peaking plant operation. To address this, there is an additional availability payment made to the Gas Turbine ("**GT**") units for each time they successfully start. Essentially, if the units always succeed at starting when called in a given year the Availability Payments made to the owner of the GT that year are inflated by 100%. If the units successfully start 50% of the time, the Availability Payments are inflated by 50%. If the units always fail to start, then no inflation to the Availability Payments is applicable in that year.

This incentivises owners of peaking plant which are rarely called on to operate to ensure that their unit is capable of providing generation when it is required.

The assumed start reliability of each GT was taken from the historical performance and rolled forward.

6.1.3 ENERGY PAYMENTS

The Energy Payments of the GUAs recompense the owner of the unit for the fuel-related costs of generating electricity. These payments are calculated by reference to generally accessible liquid market data and reflect the Opportunity Cost of the fuel. For example, the payments made to AES for coal that is burned will be referenced to the prevailing coal and coal transport prices.

This arrangement has an important and elegant match to the Commercial Offer Data ("**COD**") that must be submitted by PPB to the SEM for the units; essentially they are based upon the same principle, since COD in the SEM must be submitted to reflect Opportunity Cost.

Because these two variables (COD and Energy Payments under GUA) are notionally equal they generally cancel each other out and as such were not modelled explicitly in this project. Instead, residual effects that can arise between the bids submitted and the costs paid under the GUAs were captured heuristically. The most significant of these are costs related to Variable Operation and Maintenance ("**VOM**"), which is captured implicitly under Availability Payments in the GUAs rather than Energy Payments. As such, this item appears as a mismatch between the Energy Payment revenue and the SEM Energy Revenue taken by PPB.

Note that carbon emissions must be bid in to the SEM so the carbon emission costs faced by PPB are also cancelled out by the bids submitted to the SEM.

6.1.4 OTHER GUA COSTS

PPB pay a suite of other costs, such as Transmission Use of System ("**TUoS**"), Market Operator charges, gas transportation capacity (applicable only at the Ballylumford CCGTs), electricity import charges, fuel stocking and testing charges. These contribute only a small amount to the overall cost of the GUAs compared with the three items above.

In the Authority's model these parameters were forecast by rolling forward historic performance and historic values; TUoS charges were calculated using published rates.

6.2 SEM REVENUES

There are two main revenue streams that PPB collects from the SEM: Capacity Payments and Energy Payments.

6.2.1 CAPACITY PAYMENTS

All generators in the SEM are eligible for Capacity Payments which compensate the participant for the provision of available generation capacity to the market.

In the Authority's model, forecast Capacity Payments for each GUA Unit were calculated by inflating the capacity pot determined for the Annual Capacity Payment Sum for the Calendar Year 2012 by the forecast growth in demand. Each station's share of capacity payments was then calculated based on plant size, historic availability, assumed outage rates and taking account of the assumptions of new entry and exit.

6.2.2 ENERGY PAYMENTS

Because the modelling method assumes that the COD submitted by PPB matches the cost paid for any fuel, carbon and VOM under the GUAs, there is a residual component of the Energy Revenue from the SEM which must be captured called the "Infra-Marginal Rent". This rent represents the difference between the costs submitted to the SEM, and the System Marginal Price ("**SMP**") paid to the generator when it is scheduled to generate.

For example, if Ballylumford faced a £40/MWh cost to generate from gas, PPB would bid a value of £40/MWh in to the SEM. If the unit is scheduled in the SEM, and the SMP is, for example, £50/MWh, then PPB would enjoy a payment of £50/MWh while concurrently incurring a £40/MWh cost under the Energy Payment component of the GUA. As such there is a £10/MWh infra-marginal rent that is retained by PPB.

In the Authority's model, forecast energy payments for each generating unit, used to calculate the infra-marginal rent, are a product of the forecast unconstrained dispatch volume, or the Market Scheduled Quantity ("**MSQ**") and the forecast SMP. A model was constructed based upon the 2011-12 SEM Plexos Model for forecasting Directed Contracts.

6.2.3 CONSTRAINT PAYMENTS

As highlighted in PPB's response, there is an increasing variance between the COD and the payments under the contracts that exceed the Variable Operation and Maintenance ("**VOM**") additions that are included the COD bids.

To account for this, the Authority compared historic dispatch with historic MSQ and derived an estimate of the constraints at each unit. These constraints were applied to forecast MSQ to determine forecast dispatch.

The VOM provisions were then applied to this forecast dispatch. Added to this were the estimated Start VOM payments, calculated by multiplying the forecast number of starts by the Start VOM provisions.

6.3 CARBON

Under the EU Emissions Trading Scheme, generators in Northern Ireland were allocated a share of the free CO_2 allowances until the end of Phase II which concludes on 31 December 2012.

Most of these allowances transferred to PPB because of the Change in Law provisions within the GUAs. Because of this allocation, PPB essentially enjoys a net asset in the form of these allowances because they can be sold or used to offset the cost PPB otherwise have to pay for the emission of carbon by the contracted units. The allowances therefore represent a significant amount of net wealth for consumers in Northern Ireland.

In the Authority's model the value of the free carbon allowances for each unit was calculated by multiplying the number of free allowances by the forward carbon price.

6.4 ANCILLARY SERVICE REVENUES

Ancillary Services include the provision of spinning and replacement reserve, as well as reactive power. Under the GUAs, the units are required to provide this service to a very specific technical standard, but no payment is explicitly made. Instead, the value of the services is accounted for under the Availability Payment. These services are purchased by the System Operator for Northern Ireland ("**SONI**") and the revenues retained by PPB.

These payments were rolled forward from historic rates.

6.5 EVALUATING THE VALUE OF THE GUAS

In order to evaluate the value of each of the GUAs, the Authority has subtracted the costs faced by PPB in relation to each contract from the revenue PPB receives in relation to each unit for each quarter. This subtraction is a direct way of evaluating the net economic benefit of the contracts for consumers.

6.6 MODELLING INPUTS AND ASSUMPTIONS

A Base Case was run in which the Authority configured its *Plexos* market forecasting software with the most up-to-date input assumptions.

Undertaking an economic and sensitivity analysis involves obtaining, assessing, ascertaining and working with a significant amount of data and using that data in various ways to help inform the assumptions required for the purposes of considering the different scenarios.

Given the range of data used, the manner in which it needs to be used and the complexities involved in undertaking any modelling exercise, the Authority has not attempted to explain in detail in this paper the intricacies of all the data, inputs and assumptions that were used in the economic analysis. Rather, a description is given of the process undertaken, the sources of data and the key inputs and assumptions which informed the process.

Where possible, the Authority will make available on request detailed data assumptions to anyone who wishes to review the inputs which informed the modelling process. It should be noted however that the provision or disclosure of any such information may in some cases be subject to the propriety rights of any third party from whom the data or information was obtained.

Fuel and Carbon Prices

Forward fuel and carbon prices were taken from the Intercontinental Exchange ("**ICE**") and the data was 'frozen' for modelling by taking an average of the prices over the period 23 to 31 August 2011. Exchange Rate data was also 'frozen' and averaged over the same period.

Generation and Demand

Assumptions around demand growth and new generation build were taken from the All-Island Generation Capacity Statement 2011-2020[3] and the Validated Plexos Model for Forecasting Directed Contracts in 2011-12.

6.7 SCENARIOS

The Authority ran several scenarios on a number of key variables in order to test the sensitivity of the results to changes in these variables. These are summarised below:

Base Case

This case represented what the Authority sees as the "most likely" scenario, based on the inputs and assumptions described above.

High/Low Gas Prices

Relative fuel prices will have an effect on the amount of infra-marginal rent earned by generation units, as they affect the 'merit order' in which units of different fuel types are dispatched.

[3] http://www.eirgrid.com/media/GCS%202011-2020%20as%20published%2022%20Dec.pdf

To test the effect of changes in the price of gas, relative to all other fuels, scenarios were run where the "most likely" future gas price was inflated and deflated by 25%. The prices of all other inputs were held constant.

Carbon Price

The value of the free carbon allowances will be affected by the price of carbon. To test this effect, scenarios were run where the most likely future carbon prices were inflated and deflated by 50%. (50% was chosen to reflect the recent volatility in carbon prices). The prices of all other inputs were held constant.

In acknowledgment to the current consultation by HM Treasury to introduce a carbon price floor from 1 April 2013[4], a scenario was run which included a minimum price for carbon from 1 April 2013. This minimum price was reflected in the bids of Northern Ireland generators only. It should be noted that the SEM Committee has yet to consider whether the carbon price floor should be reflected in generator bids. Nevertheless, it was thought that it was appropriate to model this scenario given the responses to the previous consultation.

Demand

To take account of potential changes in demand, scenarios were run to reflect an increase or decrease in demand by 10%. All other factors were held constant.

[4] http://www.hm-treasury.gov.uk/consult_carbon_price_support.htm

7 MODELLING RESULTS

The modelling was carried out by extracting the SEM Revenues and running schedules from the *Plexos* model, and then applying the algebra in the GUAs to calculate the GUA related costs. This was carried out for two years and broken down into quarters.

7.1 BASE CASE

All monetary values shown in the tables that follow are in thousand of pounds and in real terms. They represent the net contract value or impact on the PSO i.e. positive figures mean the contract is to the benefit of consumers, while negative figures mean the contract is a cost to consumers. Each figure represents the net contract value during that quarter. For example: in Quarter 2 2012 (April – June), the contract between PPB and Ballylumford for CCGT20 is a benefit of £6.4m to consumers. Over the year (April 2012 to March 2013), the total benefit of the contract to consumers is £15.6m.

Table 7.1: Base Case – Quarterly Benefit/Cost to Consumers (through the PSO) of retaining the GUAS (£k)

Year 1: April 2012 to March 2013

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	729	668	962	-258	2,101
Bford CCGT20	6,423	5,041	4,727	-627	15,563
Bford GT1	25	20	-375	-992	-1,322
Bford GT2	21	19	-382	-994	-1,336
Ckeeragh GT8	28	26	-223	-599	-768
Kilroot GT1	122	120	-56	-447	-261
Kilroot GT2	116	114	-62	-452	-283

Year 2: April 2013 to March 2014

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	87	97	285	-30	439
Bford CCGT20	1,807	1,784	2,801	851	7,242
Bford GT1	-281	-267	-650	-921	-2,119
Bford GT2	-285	-274	-657	-929	-2,145
Ckeeragh GT8	-102	-84	-319	-534	-1,039
Kilroot GT1	-120	-113	-287	-413	-932
Kilroot GT2	-126	-117	-288	-417	-947

7.1.1 BALLYLUMFORD CCGTS

The results of this most likely scenario predict that the GUAS for two CCGTs at Ballylumford (for which the contracts can be cancelled from April 2012) will be beneficial for consumers for at least the first two years.

Because of the way availability payments are weighted, the contracts are predicted to be a cost to consumers during the winter months. However, this is a short term effect and they come back “into the money” in the spring of 2013.

It is important to note that because the granting of free carbon allowances ends on 31 December 2012, the benefit to consumers in the second year is lower than the first year. However, they remain an overall benefit to consumers over the twelve months of year two.

Based on this most likely scenario, it would make sense, on an economic basis, **not to cancel these contracts** from their earliest cancellation date of 1 April 2012. They should be retained and the benefit to customers captured. The value of the contracts can be regularly monitored, and should fuel prices move in such a way where they would become a burden to customers in the short run, a long run analysis of the contracts can be performed to forecast their net value over their remaining lifetime.

7.1.2 PEAKING PLANT

The GUAs for the other units, all of which are peaking plant appear to be a benefit to customers in the short run at least.

Based on the figures above, it would make sense, on an economic basis, **not to cancel these contracts** from their earliest cancellation date of 1 April 2012. They should be retained and the benefit to customers captured. However, as can be seen from the table, the contracts are forecast to be a cost to consumers from Q4 2012 onwards. It would not be not be economic to retain the contracts after this point. A long term analysis should be carried out to determine the contracts for the peakers after the end of 2012, when free carbon allowances are no longer allocated.

7.2 CARBON PRICES

Given the sensitivity to carbon prices described above, scenarios were run where the carbon price was inflated and deflated by 50%.

High Carbon Prices

Table 7.2A: Quarterly Benefit/Cost to Consumers (through the PSO) of the GUAs when Carbon Prices are increased by 50% (£k)

Year 1

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	739	1,125	1,545	199	3,608
Bford CCGT20	5,799	6,470	7,399	841	20,509
Bford GT1	178	175	-219	-992	-858
Bford GT2	174	174	-226	-994	-871
Ckeeragh GT8	93	92	-157	-599	-571
Kilroot GT1	242	242	67	-447	104
Kilroot GT2	236	236	61	-452	82

Year 2

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	32	267	746	147	1,192
Bford CCGT20	1,619	2,703	4,444	1,651	10,416
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

The tables above indicate that when future carbon prices are inflated by 50% (all other fuel prices being held equal), the value of the contracts to customers increase in all cases. Because the free carbon allowances end on 31 December 2012, this change in carbon prices only affects the value of the peakers in Year 1. In Year 2, their value is the same as the base case.

For the CCGTs, the increase in value of the GUAs in Year 1 is due to a combination of the increased value of the carbon allowances and increased running (when carbon prices are high, gas units will get dispatched ahead of coal units). In Year 2, there are no carbon allowances, but the value from increased running remains.

Low Carbon Price

Table 7.2B: Quarterly Benefit/Cost to Consumers (through the PSO) of the GUAs when Carbon Prices are reduced by 50% (£k)

Year 1

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	278	327	701	-317	988
Bford CCGT20	2,638	3,232	3,974	-922	8,922
Bford GT1	-128	-135	-532	-992	-1,788
Bford GT2	-132	-136	-539	-994	-1,801
Ckeeragh GT8	-37	-40	-290	-599	-965
Kilroot GT1	1	-1	-179	-447	-626
Kilroot GT2	-4	-7	-185	-452	-648

Year 2

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	-38	163	90	-96	118
Bford CCGT20	1,728	2,639	2,201	662	7,231
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

The tables above indicate that were future carbon prices to fall by 50% (all other fuel prices being held equal), the contract value for all peaking plants would disappear. However, the value of the contracts for the CCGTs would remain. As stated above, the value decreases due to a combination of a fall in value of carbon allowances (Year 1 only) and reduced running (Year 1 and Year 2).

7.3 GAS PRICES

Sensitivities were carried out by inflating and deflating gas price by 25%.

High Gas Price

Table 7.3A: Quarterly Benefit/Cost to Consumers (through the PSO) of the GUAs when Gas Prices are increased by 25% (£k)

Year 1

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	578	521	1,280	77	2,455
Bford CCGT20	4,778	4,447	6,017	377	15,619
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

Year 2

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	212	435	533	240	1,420
Bford CCGT20	1,871	2,475	3,722	1,940	10,007
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

When future gas price is increased by 25%, there is a marginal increase in the annual value of the GUAs for the CCGTs. There is no impact on the value of the GUAS for the peakers (which are forecast not to run).

Low Gas Price

Table 7.3B: Quarterly Benefit/Cost to Consumers (through the PSO) when Gas Prices are reduced by 25% (£k)

Year 1

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	727	1,142	976	-77	2,767
Bford CCGT20	6,387	7,285	5,840	409	19,921
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

Year 2

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	310	538	596	-99	1,345
Bford CCGT20	2,716	3,534	4,903	1,456	12,609
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

The annual value of the GUAs for the CCGTs increases when forecast gas prices are reduced. There is no impact on the value of the GUAS for the peakers.

7.4 DEMAND

The tables below show the effects on the contract value by increasing or decreasing forecast demand.

High Demand

Table 7.4A Quarterly Benefit/Cost to Consumers (through the PSO) when Demand is increased by 10% (£k)

Year 1

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	909	553	1,441	25	2,928
Bford CCGT20	6,575	5,238	6,334	141	18,288
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

Year 2

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	252	542	792	226	1,812
Bford CCGT20	2,073	3,977	4,489	1,795	12,334
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

In both years, the value of the GUAs for the CCGTs increases due to the increase in forecast demand. They are receiving a higher SMP and their forecast generation has increased. There is no impact on the value of the GUAs for the peakers.

Low Demand

Table 7.4B: Quarterly Benefit/Cost to Consumers (through the PSO) when Demand is reduced by 10% (£k)

Year 1

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	421	465	798	-275	1,409
Bford CCGT20	3,993	3,569	4,401	-715	11,248
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

Year 2

	£000s				
	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Year
Bford CCGT10	-52	20	160	-270	-141
Bford CCGT20	1,396	1,962	2,156	4	5,518
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

In both years, the value of the GUAs for the CCGTs decreases due to the decrease in forecast demand. They are receiving a lower SMP and their forecast generation has decreased. There is no impact on the value of the GUAs for the peakers.

7.5 CARBON PRICE FLOOR

A scenario was run where the effects of the carbon price support mechanism, proposed by HM Treasury, were accounted for in the bids of Northern Ireland generators. This will have an impact in the second year only.

Table 7.5: Quarterly Cost/Benefit when the Effects of Introducing the Carbon Price Floor are accounted for (£k)

Year 2

	£000s				
	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Year
Bford CCGT10	-38	24	359	-77	268
Bford CCGT20	1,372	1,721	2,576	775	6,444
Bford GT1	SAME AS BASE CASE				
Bford GT2					
Ckeeragh GT8					
Kilroot GT1					
Kilroot GT2					

The value of the CCGTs decreases in the second year as a result of the Carbon Floor Price. This is because the units will be dispatched less often in favour of units in RoI where the Carbon Floor Price does not take effect. There is no impact on the value of GUAs for the peakers.

7.6 SUMMARY

The results of the modelling carried out for the base case (the most likely scenario), indicate that the contracts, especially those for the CCGTs, will be of benefit to consumers in the short term at least.

The sensitivity analysis carried out show the effects of changes in certain variables can have on contract value. Consideration will need to be taken on the likelihood of such sensitivities before a decision to cancel is made.

8 POLICY CONSIDERATIONS

The last section considered the likely economic effect, in terms of price impact on customers, of retaining the existing contracts. This analysis showed that the contracts for the large CCGTs are likely to be in the money for at least two years, while the contracts for the smaller peaking units are likely to be in the money until the start of Q4 2012.

However, the decision to cancel or not cannot be based solely on economic analysis. There are also a number of policy considerations which must be taken into account by the Authority.

In the exercise of it functions, the Authority is guided by its statutory principal objective and duties.

The principal objective of the Authority (in relation to electricity) is to:

> "protect the interests of consumers of electricity supplied by authorised suppliers, wherever appropriate by promoting effective competition between persons engaged in or in commercial activities connected with the generation, transmission or supply of electricity"

In furthering this principal objective, the Authority must have regard to:

> "The need to secure that all reasonable demands for electricity are met", and

> "The need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under Part 11 of the Electricity (Northern Ireland) Order 1992 or the Energy Order (Northern Ireland) Order 2003".

The Authority may or must also have regard to a number of additional matters including securing a diverse, viable and environmentally sustainable long-term energy industry.

Finally, the Authority shall not discriminate between electricity companies in the exercise of its functions.

As it did when making the decision to cancel the GUAs for the two coal units at Kilroot, the Authority has considered the likely effects of GUA cancellation on:

- The promotion of effective competition;
- Security of supply;
- Diversity of Supply;
- Environmental Sustainability

8.1 THE PROMOTION OF EFFECTIVE COMPETITION

As highlighted by a number of respondents to the first consultation, the effect of cancelling or retaining the GUAs will impact competition in the SEM. In this respect, the impact on contract liquidity and market power was of particular concern to a number of respondents. These key issues are explored below in more detail:

Contract Liquidity:

The impact of cancellation on contract liquidity (or the provision of Contracts for Difference (CfDs)) is difficult to gauge. It is likely to only affect any decision to cancel GUAs relating to the CCGTs due to the low load factors and unpredictable running associated with the peaker units under consideration.

PPB currently provides liquidity to the market through the provision of Non-Directed CfDs (NDCs). They are incentivised to provide liquidity products to align with customer needs and agree a Risk Management Strategy with the Authority, through Price Control conditions in their licence. Should the GUAs be cancelled, AES will have no such requirement or incentive, hence there will potentially be less certainty that contract liquidity would be provided.

On the other hand, should the CCGT GUAs be cancelled, AES would become a portfolio player with both coal and gas fuelled generation. This should make it easier for AES to offer more contract liquidity than would be the case if commercial operation of the CCGTs were

to remain separate from that of the other units under AES's ownership (i.e. if the CCGT GUAs were not to be cancelled).

During the 2011/12 tariff year it is expected that PPB's CfD offering will represent between 5 and 10% of the total CfDs offered. The PPB CfD offering in previous years has been much greater. This reduction has been influenced by the cancellation of the Kilroot units, although perhaps more significantly, the diminishing capacity factors of contracted generation (e.g. in previous years the Ballylumford CCGTs ran as baseload units, whereas they currently run as mid-merit units).

As described above, in respect of contract liquidity, there are both risks and potential benefits associated with cancellation. On balance the Authority believes that the cancellation decision will not have a significant impact on liquidity in the SEM contracting market.

Market Power:

The sent out installed capacity of the seven GUA contracted units under consideration (i.e. excluding B4) is approximately 814MW (this is slightly different to the contracted capacity). If these GUAs were to be cancelled the new combined AES installed capacity would increase to 1,884MW. The installed dispatchable capacity in the SEM by the end of 2012 is expected to be 10,215MW, meaning that if all contracted units were cancelled AES would control approximately 18% of installed capacity in the SEM.

The following tables show the impact of cancellation, under various scenarios, on the Herfindahl-Hirschman Index (HHI), an international standard measure of market concentration. As a rule of thumb, a market with an HHI below 1000 is considered unconcentrated, and a market with an HHI over 1800 is considered highly concentrated. Between 1000 and 1800 is considered moderately concentrated. The HHI in the following table is considered in terms of both capacity and forecast energy volumes.

	Impact on SEM HHI				
	No GUAs Cancelled	Peaker GUAs Cancelled		All GUAs Cancelled	
By Capacity	1390	1405	*1.1%*	1529	*10.0%*
By Energy (2012-14)	1676	1676	*0.0%*	1703	*1.6%*

The table above illustrates that using the HHI metric, cancellation of GUAs associated with contacted peaker units will have a minimal effect on market concentration. Cancellation of all remaining GUA contracts would increase HHI by 10% in capacity terms but only 1.6% in forecast energy terms. This difference is because the remaining GUAs are expected to run with a relatively low capacity factor.

Local market power:

There is currently a significant constraint between the transmission network in Northern Ireland and the Republic of Ireland. Because of this constraint the impact of the proposed purchase is also considered in a local context. The following table illustrates the expected impact cancellation of GUAs would have on HHI in Northern Ireland.

	Impact on NI HHI				
	No GUAs Cancelled	Peaker GUAs Cancelled		All GUAs Cancelled	
By Capacity	1644	2132	*29.7%*	4098	*149.3%*
By Energy (2012-14)	1775	1775	*0.0%*	2576	*45.1%*

The above table illustrates that the impact of GUA cancellation on market concentration will be much greater in Northern Ireland than in the SEM as a whole. However, it should be noted, there already exists a number of market power mitigation measures in place. These include a Market Monitoring Unit, the Bidding Code of Practice and Directed Contracts[5]. In addition the issue of local market power will be reduced if and when a second north-south interconnector is built.

[5] It should be noted that there is currently no condition in AES's Generation Licences that would allow the Authority to direct AES to offer CfDs, but it is something which may be considered before any cancellation takes place.

8.2 SECURITY OF SUPPLY

The Authority does not consider there to be any security of supply issues arising from either cancelling or not cancelling any of these contracts. We have considered the likely revenues which each unit will earn in the SEM and concluded that market exit is unlikely in the medium term.

8.3 DIVERSITY OF SUPPLY

The Authority does not seem any impact on diversity of supply from the cancellation or otherwise of any of these units.

8.4 ENVIRONMENTAL SUSTAINABILITY

The Authority does not seem any impact on environmental sustainability from the cancellation or otherwise of any of these units.

9 JURISDICTION FOR DECISION

Before any direction to cancel a GUA can be issued, the Authority must ensure that the direction is being issued by the relevant authority. It is important that there is clarity in relation to whether the early cancellation decision is one that should be made by the SEM Committee or by the board of the Utility Regulator.

Article 6(2) of the SEM Order provides that "any decision as to the exercise of a relevant function of the Authority in relation to a SEM matter must be taken on behalf of the Authority by the SEM Committee".

Article 6(3) of the SEM Order confirms that "a matter is an SEM matter if the SEM Committee determines that the exercise of a relevant function of the Authority in relation to that matter materially affects, or is likely materially to affect, the SEM".

During the process which resulted in the cancellation of the GUAs for the two coal units at Kilroot, the SEM Committee determined that the since the economic analysis carried out indicated that only two GUAs should be cancelled, the exercise of relevant functions in relation to cancellation was not a SEM matter as it would be unlikely to materially affect the SEM (in terms of competition, security and diversity of supply, environmental impacts and liquidity).

The SEM Committee requested to be updated on the ongoing review by the Authority of the other GUAs. It was agreed that where the Regulatory Authorities were in doubt as to the question of jurisdiction in the future, the matter should be referred to the SEM Committee for consideration.

Therefore, prior to any final decision on cancellation, the SEM Committee will be asked to consider whether or not this is a SEM matter.

10 DRAFT DECISIONS

Having undertaken detailed economic analysis and sensitivity analysis into the financial position of the GUAs, and after considering all relevant policy considerations, at this time the Authority makes the following draft decision:

Not to instruct the cancellation of any GUA from 1 April 2012, but to keep these contracts under review.

The Authority will keep a constant review of the value of these contracts and where necessary, carry out longer term forecasting before a final decision is made, following the same proposed methodology as set out in the initial consultation (dated 11 March 2011).

11 RESPONDING TO CONSULTATION AND NEXT STEPS

Interested parties are therefore invited to respond to any issues discussed or any aspect of the proposals put forward in this Consultation Paper – which should be addressed to Kenny Dane at kenny.dane@uregni.gov.uk - by 1700hrs on Friday 7 October 2011.

Confidential responses must be clearly marked and where possible, included in an Appendix.

Upon the close of the consultation, the Authority will review the responses and repeat its economic analysis. Updated fuel and carbon prices will be used to ensure that any decision is based on the most up to date information. Where necessary, longer term forecasting will be conducted.