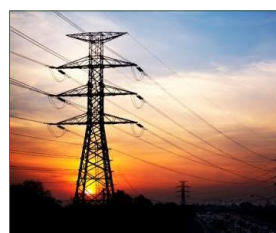


# Possible Cancellation of Generating Unit Agreements in Northern Ireland

Consultation Paper  
19 March 2014



## About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive leads a management team of directors representing each of the key functional areas in the organisation: Corporate Affairs; Markets; and Networks. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.

### Our Mission

Value and sustainability in energy and water.

### Our Vision

We will make a difference for consumers by listening, innovating and leading.

### Our Values

Be a best practice regulator: transparent, consistent, proportional, accountable, and targeted.

Be a united team.

Be collaborative and co-operative.

Be professional.

Listen and explain.

Make a difference.

Act with integrity.

## Abstract

When the electricity industry in Northern Ireland was privatised in 1992 a number of Generating Unit Agreements were entered into between NIE's Power Procurement Business (now part of PowerNI) and generator owners. The principal objective of the Utility Regulator is to protect the interests of consumers. To assist in achieving this objective, we have the power to direct the early cancellation of a Generating Unit Agreement.

This consultation sets out our economic and policy considerations on the matter, along with our draft decision, which is to instruct cancellation of the remaining GUAs for effect in December 2014.

Interested parties are invited to respond to any issues discussed or any aspect of the proposals put forward in this Consultation Paper.

## Audience

Energy industry stakeholders; electricity licence holders; electricity consumers; electricity consumer representatives and policy makers.

## Consumer impact

This paper sets out both economic and policy considerations in relation to the cancellation of remaining GUA contracts. Our economic assessment estimates that instructing cancellation of these contracts will save electricity consumers approximately £3.8 million on average per annum. We have also considered policy considerations in relation to promoting effective competition, security of supply, diversity of supply and environmental sustainability.

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# 1.Executive Summary

- 1.1. When the electricity industry in Northern Ireland was privatised in 1992 Generating Unit Agreements (“**GUAs**”) were entered into between the Power Procurement Business (“**PPB**”) and generator owners. The agreements contain provisions relating to the purchase of and payment for a number of services including the availability of capacity, the generation of electricity and the provision of ancillary services.
- 1.2. There are two categories of payments: energy payments represent the 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.
- 1.3. The principal objective of the Utility Regulator is to protect the interests of consumers. To assist in achieving this objective, we have the power to direct the early cancellation of a Generating Unit Agreement.
- 1.4. Over the last seven years, ten of the Generating Unit Agreements have terminated, either because they had reached the end of the agreement term or because following a consultation process, we instructed cancellation of the agreement.
- 1.5. Two Generating Unit Agreements remain in place. These relate to generator units located at Ballylumford Power Station which are owned by AES.
- 1.6. This consultation paper relates to our consideration of the continued value of retaining the two remaining Generating Unit Agreements. To inform our decision as to whether or not to cancel the two remaining Generating Unit Agreements we have undertaken a detailed economic analysis of their value alongside an assessment of the impact of cancellation on relevant policy considerations.

## ***Economic Considerations:***

- 1.7. The key economic consideration is the forecast effect on the Northern Ireland Public Service Obligation (“**PSO**”) tariff which is paid by all electricity consumers.

- 1.8. The Generating Unit Agreements contain provisions relating to the purchase and payment by the Power Procurement Business for a number of services including the availability of capacity, the generation of electricity and the provision of ancillary services. The cost the Power Procurement Business incurs in relation to the provision of these services is offset by the revenue the Power Procurement Business receives from selling such services in the wholesale electricity market.
- 1.9. If this revenue is not sufficient to cover the associated costs then the difference is made up by a charge to the PSO tariff. If the Power Procurement Business has surplus revenue then this is returned to consumers through a rebate to the PSO tariff.
- 1.10. In order to assess the impact on the PSO tariff we have forecast the costs we expect the Power Procurement Business to incur under the terms of the Generating Unit Agreements, along with the revenue we expect the Power Procurement Business to receive from the sale of electricity and other services. In addition we have considered the associated cost of operating the Power Procurement Business.
- 1.11. The net results of the most likely “base case” scenario are shown in the following table:

*Table 1.1 Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)*

	2014						2015
	Oct	Nov	Dec	Q1	Q2	Q3	Q4
Bford CCGT10	276	47	-9	-11	-304	-245	-96
Bford CCGT20	471	622	-86	-1,022	-1,727	-1,500	211
<b>Total</b>	<b>746</b>	<b>669</b>	<b>-94</b>	<b>-1,033</b>	<b>-2,031</b>	<b>-1,744</b>	<b>115</b>

	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	-226	-305	-384	-1,827	-1,653	-1,479	-1,305	-1,132
Bford CCGT20	-2,652	-2,585	-2,519	-5,291	-4,053	-2,816	-1,578	-341
<b>Total</b>	<b>-2,878</b>	<b>-2,890</b>	<b>-2,903</b>	<b>-7,118</b>	<b>-5,706</b>	<b>-4,295</b>	<b>-2,883</b>	<b>-1,473</b>

- 1.12. These results show the forecasted impact on the PSO, in thousands of pounds, in each of the forecasted years. Positive figures represent value to consumers whereas negative figures represent a cost to consumers. In

summary, our base case economic assessments estimates that instructing cancellation of the remaining Generating Unit Agreements will save electricity consumers approximately £3.8 million on average per annum until 2023.

- 1.13. This paper also presents the results of sensitivity analysis carried out, which includes results for different scenarios surrounding forecast fuel prices and demand.

***Policy Considerations:***

- 1.14. The decision to cancel or retain the Generating Unit Agreements is not based solely on economic analysis. A number of policy considerations have also been taken into account, including the impact of Generating Unit Agreement cancellation on:

- the promotion of effective competition;
- security of supply;
- diversity of supply;
- environmental sustainability

- 1.15. The effect of cancelling or retaining the Generating Unit Agreements could have an impact on competition in the all-island Single Electricity Market (“**SEM**”). In this respect, we have considered the impact in relation to:

- the re-design of the SEM to ensure its compliance with EU Directives by 2016;
- contract liquidity; and
- market power.

- 1.16. From 2016 the design of the wholesale electricity market is expected to change. This is largely driven by changes in European legislation. In our assessment, the removal of existing legacy arrangements such as the Generating Unit Agreements should help improve the overall efficiency of market signals and hence better promote competition within the wholesale market. We consider that the continued existence of the GUAs may also make implementation of any new market arrangements more complex. However, it could be argued that the existence and continuation of the Generating Unit Agreements may act to mitigate any uncertainty that could arise as a result of introducing a new market design.

- 1.17. In relation to contract liquidity, there are both risks and benefits associated with cancellation. Currently we have regulatory oversight over the provision of hedging contracts offered by the Power Procurement Business. This regulatory oversight would not exist if the contracts were cancelled. Cancellation will however enable AES to offer an overall greater volume of contracts to the market as they would benefit from having control over a larger and more diverse generation portfolio. This in turn should have a positive impact on liquidity in the market.
- 1.18. Market power is another important issue and this paper sets out an assessment of the impact of cancellation on market power using the Herfindahl-Hirschman Index (a commonly used metric). In summary, this assessment highlights that market concentration is expected to increase as a result of cancellation. However, this market power is currently a factor in the Single Electricity Market for which mitigation measures have been put in place. It will continue to be a factor in the re-design of the Single Electricity Market. This paper identifies a number of market power mitigation measures currently in place today. Overall it is not thought that the existence or cancellation of the GUAs has a material impact on AES's ability to exercise market power.
- 1.19. In relation to security of supply, diversity of supply and environmental sustainability we do not consider there to be any issues arising from either cancelling or not cancelling any of these contracts.

***Draft Decision and Next Steps:***

- 1.20. As a result of our current detailed economic assessment and consideration of policy matters we make the following draft decision:

**To instruct the cancellation of the two remaining Generating Unit Agreements for effect in December 2014.**

- 1.21. Interested parties are invited to respond to any issues discussed or any aspect of the proposals put forward in this Consultation Paper.
- 1.22. In particular, comments are welcomed on the results of the economic analysis, the policy considerations that have been taken into account and



whether there are any additional relevant considerations that should be taken into account.

- 1.23. Comments should be addressed (preferably via email) to Kenny Dane by 5pm on Wednesday 30 April 2014.

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

## 2. Background and Introduction

### **Background to GUAs**

2.1. 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.

2.2. 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 the Power Procurement Business (“**PPB**”), a business unit within PowerNI.

2.3. Over recent years the number of GUAs that PPB manage has reduced to two. These are for two Combined Cycle Gas Turbines (“**CCGTs**”) at Ballylumford Power Station, which have a combined contracted capacity of 616MW. This represents around 25% of total Northern Ireland generation capacity. Further details are set out in the table below.

*Table 2.1: Contract Expiry Dates of the remaining GUAs*

<b>Generating Unit</b>	<b>Contracted Capacity (MW)</b>	<b>Fuel Type</b>	<b>Contract Expiry Date</b>
CCGT 10	106	Gas	23 September 2018 (with a five-year extension option)
CCGT 20	510	Gas	23 September 2018 (with a five-year extension option)
<b>Total</b>	<b>616</b>		

2.4. To date, following a comprehensive consultation process (detailed below), we have instructed cancellation of the following GUAs:

- Kilroot 1 and 2 (each 260MW) with effect from 1 November 2010.
- Kilroot GT1 and 2 (each 29MW), and Ballylumford GT1 and 2 (each 58MW) with effect from 1 November 2012.
- Coolkeeragh GT8 (58MW) with effect from 1 February 2013.

2.5. Three other GUAs (relating to other Ballylumford units) have also expired over recent years.

### ***Operation of the GUAs***

2.6. 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.

2.7. PPB sells the energy and capacity purchased from the generating stations through the PPAs in the Single Electricity Market (“**SEM**”). PPB also sells ancillary services to the System Operator for Northern Ireland (“**SONI**”). The revenue PPB receives from doing so goes towards offsetting the costs of the GUAs along with PPB’s own operational costs.

2.8. If this revenue is not sufficient to cover the associated costs then the difference is made up by a charge to the NI Public Service Obligation (“**PSO**”) tariff (as set out in PPB’s licence provisions). If PPB has surplus revenue then this is returned to consumers through a rebate to the PSO tariff.

### ***Early Cancellation of the GUAs***

2.9. As can be seen from Table 2.1, each GUA is scheduled to come to an end at its Contract Expiry Date.

2.10. The Northern Ireland Authority for Utility Regulation (“**the Utility Regulator**”) has the power, as set out in licence conditions (“**the Cancellation Condition**”) contained within electricity generation licences (Condition 15) and the electricity supply licence of Power NI Energy Limited (Condition 60) to direct the early cancellation of a GUA<sup>1</sup>.

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

- that the Utility Regulator is entitled to serve a notice on PPB and the relevant

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<sup>1</sup> The Earliest Cancellation Date for the remaining two GUAs was 1 April 2012.

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 Utility Regulator 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 Utility Regulator to direct the early cancellation of the GUA.

2.12. On 23 October 2007, we determined that the SEM constituted the requisite trading arrangements<sup>2</sup>. All procedural requirements as set out in the Cancellation Condition relating to the making of this determination have been met or are being addressed.

2.13. A remaining procedural requirement is for us to give at least 180 days notice of our intention to give a direction, to such persons as are specified in the Cancellation Condition. This condition will be met should the decision to cancel be made following our consideration of responses to this consultation.

### ***Previous Consultation***

2.14. In 2009 and 2010, we consulted upon the cancellation of those GUAs with an earliest cancellation date of 1 November 2010. The relevant consultation and decision papers are listed below:

*Table 2.2: Previous Consultation and Decision Papers in relation to GUAs*

<b>Publication Date</b>	<b>Title</b>
25 November 2009	<a href="#">Consultation on Relevant Considerations in relation to the possible Cancellation of GUAs in Northern Ireland</a>
29 March 2010	<a href="#">Second Consultation on Cancellation of GUAs in Northern Ireland</a>
10 June 2010	<a href="#">Decision Paper on Cancellation of GUAs in Northern Ireland</a>

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<sup>2</sup> [http://www.uregni.gov.uk/news/view/utility\\_regulator\\_issues\\_determination](http://www.uregni.gov.uk/news/view/utility_regulator_issues_determination)

2.15. The results of that consultation process were:

- The cancellation of the GUAs for the coal/oil fired Generating Units Kilroot 1 and 2 at the Earliest Cancellation Date of 1 November 2010;
- The retention of the GUAs for the remaining units, with these contracts to be kept under review.

2.16. In 2011 and 2012, we consulted upon the cancellation of those GUAs which were kept under review from 2010, as well as those GUAs with an earliest cancellation date of 1 April 2012. The relevant consultation and decision papers are listed below:

*Table 2.3: Previous Consultation and Decision Papers in relation to GUAs (2)*

<b>Publication Date</b>	<b>Title</b>
10 March 2011	<a href="#"><u>Consultation on Relevant Considerations in Relation to the possible Cancellation of Generating Unit Agreements in Northern Ireland</u></a>
9 September 2011	<a href="#"><u>Second Consultation in Relation to the Possible Cancellation of Generating Unit Agreements in Northern Ireland</u></a>
30 April 2012	<a href="#"><u>Decision Paper in Relation to the Possible Cancellation of Generating Unit Agreements in Northern Ireland</u></a>

2.17. The results of that process were:

- The cancellation of the GUAs for two distillate units at Ballylumford (GT1 and 2), one distillate unit at Coolkeeragh (GT8) and two distillate units at Kilroot (GT1 and 2);
- The retention of the GUAs for two CCGT units at Ballylumford, with these contracts to be kept under review.

### ***Purpose of this Consultation***

2.18. This consultation paper represents a continuation of the 2012 process, which gave a commitment to keep the remaining GUAs under review.

2.19. Having reviewed the value of the two remaining GUAs, we are publishing this consultation paper in order to:

- Provide a summary of the economic analysis and policy considerations that will be taken into account when determining whether or not these remaining GUAs should be cancelled;
- Outline our minded-to decisions in relation to cancellation; and
- Obtain the views of market participants and interested parties prior to making our final decisions on all aspects of this paper, included whether there are any additional relevant considerations which we should consider.

2.20. In terms of structure:

- **Chapter 3** describes the methodology of the economic analysis relating to the GUAs;
- **Chapter 4** provides a summary of the results to the economic analysis;
- **Chapter 5** describes the policy considerations to which we have had regard;
- **Chapter 6** sets out the issues related to jurisdiction of the Utility Regulator and the SEM Committee in relation to cancellation;
- **Chapter 7** sets out our minded-to decision in relation to cancellation of the GUA;
- **Chapter 8** describes how to respond and the next steps to be taken.
- **Chapter 9** sets out a Glossary of Terms used within this paper.

## 3. Economic Analysis - Methodology

3.1. As in previous cancellation decisions, the key economic consideration is the forecast effect on PSO charges to Northern Ireland consumers resulting from cancellation, or otherwise, for each GUA between now and the contract expiry date.

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

- forecast payments due to the generators under 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 GUAs; and
- the associated cost of operating the PPB business

3.3. If forecast SEM revenues and ancillary services payments (and other net revenues) are greater than forecast GUA payments (and associated PPB costs) 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 (and associated PPB costs) 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 5) which must also be taken into account.

3.4. In forecasting future GUA revenues and costs, the same general methodology that was used in previous cancellation decisions has been used for the purpose of this analysis. This is described below in greater detail.

3.5. While we recognise that the current SEM arrangements are under review<sup>3</sup>, for the purpose of this assessment the forecast SEM modelling is based on the current arrangements.

3.6. In addition to the 'base case' economic analysis, a number of sensitivities around commodity prices and demand were also carried out.

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<sup>3</sup> [http://www.allislandproject.org/en/wholesale\\_overview.aspx?article=d3cf03a9-b4ab-44af-8cc0-ee1b4e251d0f](http://www.allislandproject.org/en/wholesale_overview.aspx?article=d3cf03a9-b4ab-44af-8cc0-ee1b4e251d0f)

## **GUA Costs**

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

### *Availability Payments*

3.8. 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.

3.9. 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: 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.

3.10. A forecast availability profile for each of the contracted units is created using the Regulatory Authorities' validated Plexos forecast model 2013-14<sup>4</sup>. A forced outage rate was assumed based on historical data, and AES provided details of the scheduled outages for each unit (for all other units a maintenance rate was assumed and maintenance was scheduled within Plexos). The weighting algebra within the GUAs was applied to these availability profiles in order to derive the forecast availability payments. Availability rebates payable by the generator to PPB for plant inflexibility were rolled forward from historic performance.

### *Energy Payments*

3.11. 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 gas that is burned will be referenced to the prevailing gas prices.

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<sup>4</sup> [http://www.allislandproject.org/en/market\\_decision\\_documents.aspx?article=862948e4-e60f-40e6-b876-d1a34d1c496c](http://www.allislandproject.org/en/market_decision_documents.aspx?article=862948e4-e60f-40e6-b876-d1a34d1c496c) - Plexos is a software package used to model forecast outcomes from the SEM given a set of assumptions. The Utility Regulator has used Plexos modelling forecasts in all previous cancellation decisions



3.12. This arrangement has an important and equivalent 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.

3.13. Because these two variables (COD and Energy Payments under GUA) are broadly 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 considered separately. Related to this are the costs of Variable Operation and Maintenance (“**VOM**”), which are 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 received by PPB.

3.14. 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.

#### *Other GUA Costs*

3.15. PPB pay several other costs, such as Transmission Use of System (“**TUoS**”), Market Operator charges, gas transportation capacity, electricity import charges, fuel stocking and testing charges. These contribute only a small amount to the overall cost of the GUAs compared with the items outlined above. These parameters were forecast by rolling forward historic performance and historic values; TUoS charges were calculated using published rates.

#### **SEM Revenues**

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

#### *Capacity Payments*

3.17. All generators in the SEM are eligible for Capacity Payments. These compensate the participant for the provision of available generation capacity

to the market.

3.18. Forecast Capacity Payments for each GUA Unit were calculated by inflating the Annual Capacity Payment Sum for Calendar Year 2014<sup>5</sup> by the forecast growth in demand. Each GUA unit's share of the capacity pot was forecast by reviewing historic capacity payments and availability profiles, and applying the ratios between them to the forecast availability profiles produced by Plexos.

### *Energy Payments*

3.19. 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.

3.20. For example, if Ballylumford faced a £50/MWh cost to generate from gas, PPB would bid a value of £50/MWh in to the SEM. If the unit is scheduled in the SEM, and the SMP is, for example, £60/MWh, then PPB would receive a payment of £60/MWh while concurrently incurring a £50/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.

3.21. 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. Forecast MSQ and SMP were produced using the validated Plexos forecast model 2013-14.

### *Constraint Payments*

3.22. To account for variance between the Commercial Offer Data and the payments under the contracts that exceed the VOM additions that are included in the COD bids, we have 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

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<sup>5</sup> [http://www.allislandproject.org/en/cp\\_decision\\_documents.aspx?article=2cc2f123-d525-422f-909c-b0b941e6864a](http://www.allislandproject.org/en/cp_decision_documents.aspx?article=2cc2f123-d525-422f-909c-b0b941e6864a)

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.

### *Ancillary Service Revenues*

3.23. 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. However, these services are purchased by SONI and the revenues retained by PPB. These payments were rolled forward from historic revenues.

### ***Evaluating the Value of the GUAs***

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

3.25. As the two GUAs under consideration are the only remaining GUAs in place, PPB's internal costs is also taken into account. For the purpose of this analysis this cost has been applied to each GUA pro-rata, based on contract capacity.

3.26. Even if a cancellation is made, there may continue to be a need for PPB to operate beyond the effective cancellation date in some capacity so as to ensure issues such as any financial resettlement are dealt with appropriately. These costs have not been included in this analysis as they will be incurred at some stage regardless, i.e. either as a result of a future cancellation decision or as a result of contract expiry.

### ***Modelling Inputs and Assumptions***

3.27. A Base Case was run in which we configured the validated Plexos forecast model with the most up-to-date input assumptions.

3.28. 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 28 October to 1 November 2013. Exchange Rate data was also ‘frozen’ and averaged over the same period.

3.29. Assumptions around demand growth and new generation build were taken from the All-Island Generation Capacity Statement 2013-2022<sup>6</sup>.

### **Scenarios**

3.30. We 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*

3.31. This case represented what we see as the “most likely” scenario, based on the inputs and assumptions described above.

#### *Fuel Prices*

3.32. 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. 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 50%. The prices of all other inputs were held constant.

3.33. Current fuel prices mean that coal plants are currently ahead of gas plants in the merit order (i.e. coal plants will get scheduled ahead of gas plants). A scenario was also run where the merit order between coal and gas was ‘flipped’, by increasing the price of coal by 35% and decreasing the price of gas by 35%.

#### *Demand*

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

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<sup>6</sup> <http://www.soni.ltd.uk/AboutUs/News/SONIGenerationCapacityStatement2013-22.html>

## 4. Economic Analysis - Results

4.1. This section provides details of the expected impact on customers from retaining each GUA. All monetary values shown in the tables that follow are in thousands of pounds and in real terms. They represent the net impact on the PSO during that period:

- positive (black) figures mean the contract is to the benefit of consumers;
- negative (red) figures mean the contract is a cost to consumers.

4.2. If the contract with forecasted positive value was cancelled, consumers would not receive the benefit of this value. Conversely, if a contract had negative value, cancellation would mean that consumers did not face this cost.

4.3. Plexos forecast models were run for calendar years 2014, 2015, 2016, 2019 and 2022. Results presented for other years were extrapolated from these model runs.

### Base Case

Table 4.1: Base Case – Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)

	2014			2015			
	Oct	Nov	Dec	Q1	Q2	Q3	Q4
Bford CCGT10	276	47	-9	-11	-304	-245	-96
Bford CCGT20	471	622	-86	-1,022	-1,727	-1,500	211
<b>Total</b>	<b>746</b>	<b>669</b>	<b>-94</b>	<b>-1,033</b>	<b>-2,031</b>	<b>-1,744</b>	<b>115</b>

	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	-226	-305	-384	-1,827	-1,653	-1,479	-1,305	-1,132
Bford CCGT20	-2,652	-2,585	-2,519	-5,291	-4,053	-2,816	-1,578	-341
<b>Total</b>	<b>-2,878</b>	<b>-2,890</b>	<b>-2,903</b>	<b>-7,118</b>	<b>-5,706</b>	<b>-4,295</b>	<b>-2,883</b>	<b>-1,473</b>

4.4. The results of the most likely scenario predict that retention of the GUAs for the two CCGTs at Ballylumford will not be beneficial for consumers from December 2014. This change is driven in part by low forecast levels of market running and infra-marginal rent, in particular for CCGT20.

4.5. Based on this most likely scenario, it would make sense, on an economic basis, to cancel these contracts with effect from December 2014.

### **Fuel Prices**

4.6. Given that wholesale electricity prices, and hence generator revenue are largely influenced by wholesale gas prices, sensitivities were carried out by inflating and deflating gas price by 50%.

### *High Gas Price*

*Table 4.2: High Gas Price – Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)*

	2014			2015				
	Oct	Nov	Dec	Q1	Q2	Q3	Q4	
Bford CCGT10	192	-168	-118	-518	-304	-245	-179	
Bford CCGT20	-283	-964	-1,104	-3,801	-1,778	-1,609	-2,171	
<b>Total</b>	<b>-91</b>	<b>-1,131</b>	<b>-1,221</b>	<b>-4,319</b>	<b>-2,081</b>	<b>-1,853</b>	<b>-2,349</b>	
	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	-1,004	-1,008	-1,012	-2,379	-2,181	-1,983	-1,785	-1,586
Bford CCGT20	-7,921	-7,480	-7,039	-9,436	-8,952	-8,469	-7,986	-7,502
<b>Total</b>	<b>-8,925</b>	<b>-8,488</b>	<b>-8,051</b>	<b>-11,815</b>	<b>-11,133</b>	<b>-10,452</b>	<b>-9,771</b>	<b>-9,088</b>

4.7. In this scenario, the increase in gas prices leads to these gas fired units becoming less competitive compared to other units. These units are forecast to be scheduled less often and therefore earn less infra-marginal rent from the market. They therefore represent a greater burden on consumers.

## Low Gas Price

Table 4.3: Low Gas Price – Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)

	2014			2015			
	Oct	Nov	Dec	Q1	Q2	Q3	Q4
Bford CCGT10	202	-73	27	-39	-304	-245	-54
Bford CCGT20	1,715	955	948	1,548	892	2,571	4,509
<b>Total</b>	<b>1,917</b>	<b>882</b>	<b>975</b>	<b>1,508</b>	<b>589</b>	<b>2,327</b>	<b>4,455</b>

	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	-361	-15	331	-686	-387	-87	212	512
Bford CCGT20	8,044	10,083	12,122	11,323	11,024	10,725	10,426	10,128
<b>Total</b>	<b>7,683</b>	<b>10,068</b>	<b>12,453</b>	<b>10,637</b>	<b>10,637</b>	<b>10,638</b>	<b>10,638</b>	<b>10,640</b>

4.8. In this scenario, with low gas prices, the units are more competitive in the wholesale market and are therefore scheduled more and earn more infra-marginal rent. Based on this scenario, retention of the remaining GUAs would represent an economic benefit to consumers.

## Gas/Coal Merit Order Flip

Table 4.4: Merit Order Flip – Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)

	2014			2015			
	Oct	Nov	Dec	Q1	Q2	Q3	Q4
Bford CCGT10	203	-50	24	-93	-171	-34	153
Bford CCGT20	1,331	1,268	711	204	-74	1,243	4,461
<b>Total</b>	<b>1,534</b>	<b>1,217</b>	<b>735</b>	<b>111</b>	<b>-245</b>	<b>1,209</b>	<b>4,614</b>

	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	204	366	528	-674	-346	-17	311	640
Bford CCGT20	6,826	8,122	9,419	7,877	8,647	9,416	10,186	10,956
<b>Total</b>	<b>7,030</b>	<b>8,488</b>	<b>9,947</b>	<b>7,203</b>	<b>8,301</b>	<b>9,399</b>	<b>10,497</b>	<b>11,596</b>

4.9. Similar to the low gas scenario, in this scenario the gas units become more competitive compared to coal generation and hence the retention of remaining GUAs would represent an economic benefit to consumers.



## Demand

4.10. The tables below show the effects on the contract value by increasing or decreasing forecast demand by 10%.

### High Demand

Table 4.5: High Demand – Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)

	2014			2015				
	Oct	Nov	Dec	Q1	Q2	Q3	Q4	
Bford CCGT10	245	105	62	15	-292	-194	144	
Bford CCGT20	23	1,134	243	-994	-1,437	-1,527	1,281	
<b>Total</b>	<b>269</b>	<b>1,239</b>	<b>305</b>	<b>-979</b>	<b>-1,729</b>	<b>-1,721</b>	<b>1,425</b>	
	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	-197	-164	-130	-1,461	-1,316	-1,171	-1,026	-881
Bford CCGT20	-1,809	-594	621	-1,001	-96	810	1,715	2,621
<b>Total</b>	<b>-2,006</b>	<b>-758</b>	<b>491<sup>7</sup></b>	<b>-2,462</b>	<b>-1,412</b>	<b>-361</b>	<b>689</b>	<b>1,740</b>

4.11. Increasing demand by 10% leads to the forecast value of the contracts becoming more marginal, although from 2015 the contracts are generally forecast to be an economic cost to consumers.

<sup>7</sup> The forecast valuation becomes positive and then turns negative again due to assumptions around constrained running after the introduction of a second North-South Interconnector.

## Low Demand

Table 4.6: Low Demand – Benefit/Cost to Consumers (through the PSO) of retaining the GUAs (£k)

	2014			2015			
	Oct	Nov	Dec	Q1	Q2	Q3	Q4
Bford CCGT10	221	-83	-82	-121	-302	-245	-112
Bford CCGT20	-80	98	-593	-2,018	-1,536	-1,642	-328
<b>Total</b>	<b>141</b>	<b>15</b>	<b>-675</b>	<b>-2,138</b>	<b>-1,839</b>	<b>-1,887</b>	<b>-440</b>

	2016	2017	2018	2019	2020	2021	2022	2023
Bford CCGT10	-853	-756	-659	-1,926	-1,773	-1,619	-1,466	-1,313
Bford CCGT20	-4,345	-3,786	-3,228	-5,507	-4,737	-3,968	-3,198	-2,428
<b>Total</b>	<b>-5,198</b>	<b>-4,542</b>	<b>-3,887</b>	<b>-7,433</b>	<b>-6,510</b>	<b>-5,587</b>	<b>-4,664</b>	<b>-3,741</b>

4.12. Reducing demand leads to the units running at a lower capacity factor and hence the forecast results based on this scenario suggest it would be in consumers' economic interest to cancel the remaining GUAs for effect in December 2014.

## Summary

4.13. The results of the modelling carried out for the base case (the most likely scenario) indicate that the contracts will be an economic cost to consumers from December 2014 onwards.

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

## 5. Policy Considerations

5.1. The previous section considered the likely economic effect, in terms of price impact on customers, of retaining the existing contracts. However, the decision to cancel or retain the GUAs cannot be based solely on economic analysis. There are also a number of policy considerations which must be taken into account.

5.2. In the exercise of our functions we are guided by our statutory principal objective and duties.

5.3. The principal objective of the Utility Regulator (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”*

5.4. In furthering this principal objective, we 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”.*

5.5. We shall also have regard to a number of additional matters including securing a diverse, viable and environmentally sustainable long-term energy industry. Finally, we shall not discriminate between electricity companies in the exercise of its functions.

5.6. We have considered the likely effects of GUA cancellation on:

- the promotion of effective competition;
- security of supply;
- diversity of supply;
- environmental sustainability

## ***The Promotion of Effective Competition***

5.7. The effect of cancelling or retaining the GUAs could impact competition in the SEM. In this respect, the impact in relation to the new SEM design, contract liquidity and market power are of particular concern.

### *New Single Electricity Market Design (I-SEM<sup>8</sup>)*

5.8. From 2016 the design of the wholesale electricity market is expected to change. This is largely driven by changes in European legislation. While we expect that any market changes will facilitate intermediary arrangements such as those currently used by PPB to sell electricity into the SEM pool, the absence of the GUA arrangements may simplify the implementation of certain aspects of the new arrangements. For example, revised industry documents would not need to account for specifics of such legacy contract arrangements.

5.9. In addition to this, and perhaps more importantly, the removal of existing legacy arrangements should help improve the overall efficiency of market signals and hence greater promote competition within the wholesale market. For example, the existence of the GUA contracts may protect the power station owner from potential market signals to upgrade or operate each unit more flexibly.

5.10. Converse to the above arguments, any change to market design may create some uncertainty. The existence and continuation of the GUA contracts may act to mitigate any such uncertainty or potential adverse effect of introducing a new market.

### *Contract Liquidity*

5.11. The impact of cancellation on contract liquidity (or the provision of Contracts for Difference (“**CfDs**”)) is difficult to gauge. 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 us through Price Control conditions in their licence. Should the GUAs be cancelled, AES would have no such requirement or incentive.

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<sup>8</sup> [http://www.allislandproject.org/en/wholesale\\_overview.aspx?article=d3cf03a9-b4ab-44af-8cc0-ee1b4e251d0f](http://www.allislandproject.org/en/wholesale_overview.aspx?article=d3cf03a9-b4ab-44af-8cc0-ee1b4e251d0f)

5.12. On the other hand, should the 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 GUAs were not to be cancelled). Over recent years the volume of contracts offered by PPB has decreased and the volume offered by AES has increased.

5.13. There are both risks and benefits associated with cancellation in relation to contract liquidity. On balance, we believe that any cancellation decision should not have any significant negative impact on contract liquidity but that cancellation may improve liquidity in the market. The new market design may also help facilitate greater liquidity.

#### *Market Power*

5.14. The sent-out capacity of the two GUA contracted units is 595MW (this is slightly different to the contracted capacity). If these GUAs were to be cancelled the new combined AES installed capacity would increase to 1,839MW. The installed dispatchable capacity in the SEM is around 10,000MW. Therefore if all contracted units were cancelled AES would have commercial control over approximately 18% of installed capacity in the market.

5.15. The following table shows the impact of cancellation, under various scenarios, on the Herfindahl-Hirschman Index ("**HHI**"). The HHI is an international standard measure of market concentration. A market with a HHI below 1,000 is generally considered unconcentrated, and a market with a HHI over 1,800 is considered highly concentrated. Between 1,000 and 1,800 is considered moderately concentrated. The HHI in the following table is considered in terms of both capacity and forecast energy volumes. It is noted that with or without the GUAs the market is classified as being highly concentrated.

Table 5.1 All-Island HHI

All-Island HHI		
	GUAs Retained	GUAs Cancelled
Capacity	1,972	2,106
Energy (2014)	2,354	2,404

5.16. This table illustrates that cancellation of the remaining GUAs would increase the HHI on an all-island basis by 6.8% in capacity terms and by 2.1% in energy terms (the energy forecasts were taken for 2014 from the Plexos forecast model).

Table 5.2 Northern Ireland HHI

Northern Ireland HHI		
	GUAs Retained	GUAs Cancelled
Capacity	2,682	4,562
Energy (2014)	2,473	3,587

5.17. 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 cancellation is also considered on a Northern Ireland only basis. Because generation in Northern Ireland is dominated by two companies (AES and Coolkeeragh ESB), the existing Northern Ireland HHI is higher than the all-island HHI. Cancellation also has a higher impact than on an all-island basis; upon cancellation, HHI would increase by 70% on capacity terms and 45% on energy terms.

5.18. While the tables above indicate that there is a high degree of market concentration, especially when calculated on a Northern Ireland only basis, there are a number of market power mitigation measures in place within the SEM. These include directed contracts<sup>9</sup>, a cost-reflective bidding licence

<sup>9</sup> Directed Contracts are contracts that the Regulatory Authorities direct generators with market power to make available on an equal basis to all suppliers. These mitigate market power by reducing the incentive for market participants to submit bids above competitive levels.

requirement<sup>10</sup>, the Bidding Code of Practice<sup>11</sup> and the Market Monitoring Unit (“MMU”)<sup>12</sup>. The local market power should be reduced if and when a second north-south interconnector is completed. It is expected that market power mitigation will continue to be a necessary measure in the newly designed Integrated SEM.

5.19. There is currently no condition within AES’s generation licences that would allow us to direct AES to offer to enter into Directed Contracts with supply companies. This is something which we will consider before any cancellation takes effect.

5.20. It is also worth noting that regardless of cancellation, AES still retain operational control over the GUA contracted units, hence any cancellation decision will have no impact on their ability to exercise market power in this respect by, for example, withholding capacity.

### ***Security of Supply***

5.21. We do 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.

### ***Diversity of Supply***

5.22. We do not see any impact on diversity of supply from the cancellation or otherwise of these units.

### ***Environmental Sustainability***

5.23. We do not see any impact on environmental sustainability from the cancellation or otherwise of these units.

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<sup>10</sup> Condition 15 of the Republic of Ireland Generation Licence/Condition 17 of the Northern Ireland Generation Licence

<sup>11</sup> [Bidding Code of Practice - Response and Decision Paper \(SEM-07-430\)](#)

<sup>12</sup> The MMU monitors generator bids to ensure they adhere to the cost-reflective bidding principles

## 6. Jurisdiction for Decision

- 6.1. Article 6(2) of the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 (“the SEM Order”) provides that any decision as to the exercise of a relevant function of the Utility Regulator in relation to a SEM matter must be taken on behalf of the Utility Regulator by the SEM Committee.
- 6.2. Article 6(3) confirms that a matter is a SEM matter if the SEM Committee determines that the exercise of a relevant function of the Utility Regulator in relation to that matter materially affects, or is likely materially to affect, the SEM.
- 6.3. Prior to the cancellation of the GUAs for the two coal-fired/oil-fired units at Kilroot and prior to the cancellation of the GUAs for the five distillate units in 2012, the SEM Committee determined that the cancellation decision was not a SEM matter. The decision to cancel was therefore made by the board of the Utility Regulator.
- 6.4. The SEM Committee will be kept informed of this consultation process; they will be asked to determine prior to any decision on cancellation or otherwise of the two remaining GUAs at Ballylumford whether that decision is a SEM matter.



## 7.Minded-To Decision

7.1. Having undertaken detailed economic analysis and sensitivity analysis into the financial position of the two remaining GUAs, and after considering all relevant policy considerations, at this time we make the following draft decision:

**To instruct the cancellation of the two remaining Generating Unit Agreements for effect in December 2014.**

7.2. We will review the value of these contracts again after the receipt of responses to this consultation. This will follow the same methodology as described in this consultation.

7.3. Before any final decision is made, the SEM Committee will be asked to consider whether cancellation is a SEM matter.

7.4. If a final decision is made to instruct cancellation of the remaining GUAs, the future need of PPB will be considered through separate regulatory processes in advance of any decision taking effect.

## 8. Responding to Consultation and Next Steps

- 8.1. Interested parties are invited to respond to any issues discussed or any aspect of the proposals put forward in this Consultation Paper.
- 8.2. In particular comments are welcomed on the results of the economic analysis, the policy considerations that have been taken into account and whether there are any additional relevant considerations that should be taken into account.
- 8.3. Comments should be addressed (preferably via email) to Kenny Dane by 5pm on Tuesday 30 April 2014.

Kenny Dane  
Utility Regulator  
Queens House  
14 Queen Street  
Belfast  
BT1 6ED  
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- 8.4. Confidential responses must be clearly marked and where possible, included in an Appendix.
- 8.5. Upon the close of the consultation, we 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. Before any final decision is made, the SEM Committee will be asked to consider whether cancellation is a SEM matter.

## 9. Glossary of Terms

CCGT	Combined Cycle Gas Turbine
CfD	Contract for Difference
COD	Commercial Offer Data
GUA	Generating Unit Agreement
HHI	Herfindahl-Hirschman Index
ICE	Intercontinental Exchange
I-SEM	Integrated Single Electricity Market
MMU	Market Monitoring Unit
MSQ	Market Schedule Quantity
MW	Megawatt
MWh	Megawatt-hour
NDC	Non-Directed Contract
NIAUR	Northern Ireland Authority for Utility Regulation
PPA	Power Purchase Agreement
PPB	Power Procurement Business
PSA	Power Station Agreement
PSO	Public Service Obligation
SEM	Single Electricity Market
SMP	System Marginal Price
SONI	System Operator for Northern Ireland
TUoS	Transmission Use of System
VOM	Variable Operation and Maintenance