

**IN THE AUSTRALIAN COMPETITION TRIBUNAL  
AGL ENERGY LIMITED**

**of 2014**

**RE: PROPOSED ACQUISITION OF MACQUARIE GENERATION (A CORPORATION  
ESTABLISHED UNDER THE ENERGY SERVICES CORPORATIONS ACT 1995  
(NSW))**

**ANNEXURE CERTIFICATE**

This is the annexure marked "**BAR 16**" annexed to the statement of **BRETT ALAN REDMAN**  
dated 23 March 2014

**Annexure BAR16**

Filed on behalf of (name & role of party)	<u>AGL Energy Limited</u>		
Prepared by (name of person/lawyer)	<u>Liza Carver</u>		
Law firm (if applicable)	<u>Ashurst Australia</u>		
Tel	<u>+61 2 9258 5897</u>	Fax	<u>+61 2 9258 6999</u>
Email	<u>Liza.Carver@ashurst.com</u>		
Address for service (include state and postcode)	<u>Level 35, 225 George Street, Sydney, NSW, 2000</u> <u>DX 388 Sydney</u>		

[Form approved 01/08/2011]

**APPENDIX NO. 7.2**

**BOARD MEETING  
21 January 2014**

**AGL ENERGY LIMITED**

**ITEM FOR APPROVAL**

**PROPOSAL TO ACQUIRE MACQUARIE GENERATION**

**1. Executive Summary**

This paper requests approval for AGL to lodge a binding bid to acquire the assets of Macquarie Generation (**MacGen**) from the State of NSW (the **State**). Based on the assumptions for Case 2 detailed in this paper, MacGen is valued at between [REDACTED] at an IRR of [REDACTED] and [REDACTED] million at an IRR of [REDACTED]. Approval is sought to lodge a bid for up to a maximum of [REDACTED] million, with the final bid price to be determined by the Chairman and CEO. The only bid condition will be clearance being obtained from the ACCC.

Using AGL's WACC of [REDACTED], the enterprise value of MacGen is [REDACTED] million. Based on the maximum proposed purchase price, the transaction NPV is [REDACTED] million and the IRR on the investment is [REDACTED]. Forecast EPS accretion is [REDACTED] cps in FY15 and [REDACTED] cps in FY16. EBIT to funds employed is [REDACTED] in FY15 rising to [REDACTED] % in FY18. [REDACTED]

Based upon a purchase price of [REDACTED] million and transaction costs of [REDACTED] the anticipated acquisition funding will entail an equity raising of [REDACTED] million (approximately [REDACTED]) and bank debt of [REDACTED] (approximately [REDACTED]). The acquisition and associated equity raising is expected to improve credit key ratios reviewed by S&P and it is anticipated that S&P will reaffirm AGL's BBB credit rating once the equity raising is completed.

The acquisition is consistent with AGL's integrated strategy and will:

- provide ownership of the lowest cost large scale thermal generation in NSW, where AGL currently has its largest customer load but no generation capacity;
- [REDACTED]
- create further balance sheet scale and significantly boost cashflows to support future investments;
- provide front end biased earnings, providing balance to AGL's existing investment portfolio; and
- grow supply side (generation) and demand side (Tomago contract).

The most significant investment risks relate to:

- sustained low wholesale prices, most likely as the result of lower industrial activity and growth in renewables including domestic PV;
  - plant performance, given the age of the assets being acquired; and
  - significantly increasing AGL's carbon footprint.
- 

The investment case has adopted conservative assumptions with respect to all key value drivers and, in addition, delivers an IRR significantly above AGL's hurdle rate to provide a buffer against the potential realisation of risks beyond those already assumed in the valuation.

Financially, the proposed acquisition:

- delivers a modelled IRR comfortably in excess of AGL's investment hurdle rate;
- is immediately EPS accretive;
- has a cash payback period of eight years; and
- will result in maintenance of AGL's BBB credit rating.

Binding bids are due on 5 February. AGL has advised the NSW government (**State**) that any offer it lodges will be incapable of acceptance by the State before 4pm on 25 February so that an announcement of the transaction would be made at the same time as AGL's half yearly results are announced on 26 February.

## **2. Background**

As part of its ongoing privatisation program, in 2012 the State announced the planned sale of its generation assets. The State had previously contracted the output of the Eraring and Delta West generation assets to Origin and Energy Australia respectively in 2010 under the Gentrader arrangements. The sales of the underlying physical assets of the Eraring and Delta West businesses to Origin and Energy Australia were completed in the first half of 2013.

Following the sale of Eraring and Delta West, the State's remaining generation assets comprise MacGen, Delta Central Coast and a collection of minor renewable assets under Green State Power. Separate sale processes for Delta Central Coast and Green State Power will commence after the conclusion of the MacGen sales process. Should AGL be unsuccessful in acquiring MacGen, it may bid for the Delta Central Coast assets.

## **3. Summary of the MacGen assets**

MacGen's assets comprise the Bayswater and Liddell coal fired power stations, the Bayswater and Tomago development sites, coal delivery infrastructure, a suite of coal contracts, coal stockpile, Tomago smelter

supply contracts and hedge book. Fuller details of the assets are provided in Attachment 1.

In summary:

#### *Bayswater power station*

Bayswater is a 2640MW (4 x 660MW) black coal fired, water cooled power station. Commissioned between 1985 and 1986, it has historically operated as base load. Bayswater's technical life extends to 2035.

#### *Liddell power station*

Liddell is a 2000MW (4 x 500MW) black coal fired, direct water cooled power station. Commissioned between 1971 and 1973, it originally operated as base load but was converted to a support role following the commissioning of Bayswater. The Liddell asset also include a solar plant and the Hunter Valley gas turbines (2 x 25MW) which provide system restart ancillary services to AEMO. Liddell's technical life extends to 2022.

#### *Development sites*

MacGen has two development sites, neither of which are as yet consented for development. The first is adjacent to Bayswater and is for a 2,000MW CCGT. The second is for an OCGT plant and is located immediately adjacent to AGL's Newcastle LNG development. No value has been ascribed to the development sites in the bid price.

#### *Coal delivery infrastructure*

[REDACTED]

#### *Coal contracts*

[REDACTED]



#### *Water rights and infrastructure*

[REDACTED]

#### *Tomago smelter supply contracts*

[REDACTED]

#### *Hedge book*

[REDACTED]

#### **4. Sale process and timetable**

[REDACTED]

[REDACTED]

## 5. Strategic rationale

The principal strategic reason to acquire MacGen is to enable AGL to self supply its NSW load from the lowest cost thermal generation of scale in the state. In addition, the current sale process presents an excellent opportunity to achieve this due to the very limited competition for the assets. An IRR in excess of AGL's investment hurdle rate of [REDACTED] has been targeted for the acquisition which, in combination with the material scale of the acquisition, would create in excess of [REDACTED] of NPV. Opportunities to create shareholder value on this scale are scarce.

Specifically, the strategic rationale for acquiring MacGen includes the following elements:

### *Supplying existing NSW load*

The NSW region represents AGL's biggest load at 9.1TWh per annum. AGL currently spends approximately \$650-700 million per annum acquiring electricity from the market to supply its NSW customers. With no existing NSW generation capacity, AGL currently hedges its NSW position via a blend of its surplus generating capacity in Victoria (underpinned by Loy Yang) and market contracts. AGL's surplus capacity in Victoria will begin to disappear in 2016 when the Alcoa Portland smelter contract commences. Using Victorian capacity to manage NSW load also carries basis risk that needs to be separately managed.

### *Cost of fuel advantage*

[REDACTED] Due to its proximity to cost competitive existing mines, potential mine expansions and new mine developments, MacGen has more diverse and prospective coal re-contracting opportunities than either Eraring or Delta Central Coast and enjoys a significant transportation cost advantage.

### *Lowest SRMC generators in NSW*

Driven by MacGen's low cost coal contracts, Bayswater and Liddell are the lowest short run marginal cost thermal generators of scale in NSW and should always be dispatched ahead of any other coal fired plant in NSW (excluding the 150MW Redbank facility). Given their average carbon intensities of circa 0.9, Bayswater and Liddell have a carbon intensity essentially on market and future changes to carbon pricing are unlikely to change their position in the NSW thermal bid stack.

### *Portfolio management*

AGL has made supply side electricity investments into wind (which is in the nature of intermittent base load), hydro (which acts as peak generation), gas fired (peak or intermediate generation) and coal fired base load generation via Loy Yang.

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The acquisition of an additional eight units of thermal generation totalling 4600MW will significantly improve AGL's ability to manage its load across all states in the NEM, including its obligation to supply ActewAGL in the ACT (which is part of the NSW region in the NEM). Factors such as temperature, planned and unplanned outages and variations in wind and solar generation output influence supply and demand and control of Bayswater and Liddell will enhance AGL's risk management capability.

### *Lowering AGL's cost of funding*

Increasing the level of self supplied generation will reduce the risk of earnings volatility. Over time, S&P is expected to recognise this reduction in risk by easing the hurdles required to maintain AGL's BBB credit rating. This will reduce funding costs and improve returns to shareholders. This potential benefit has not been included in the modelled return.

### *Create balance sheet bulk and generate cashflow to support future investments*



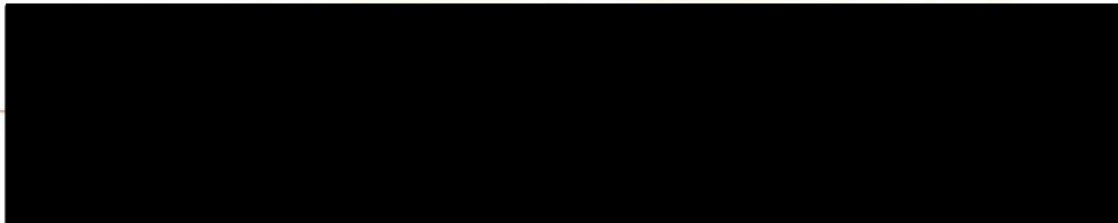
Acquiring MacGen will allow AGL to make a substantial equity raising now, further bulking up the balance sheet and operating cashflows of the business. This will materially contribute to the funding needed for future capex and will reduce, in relative terms, the incremental size of future capital raisings that might be required.

### *Provide earnings balance to the investment portfolio of AGL*

MacGen's earnings will be weighted towards the first decade of the investment

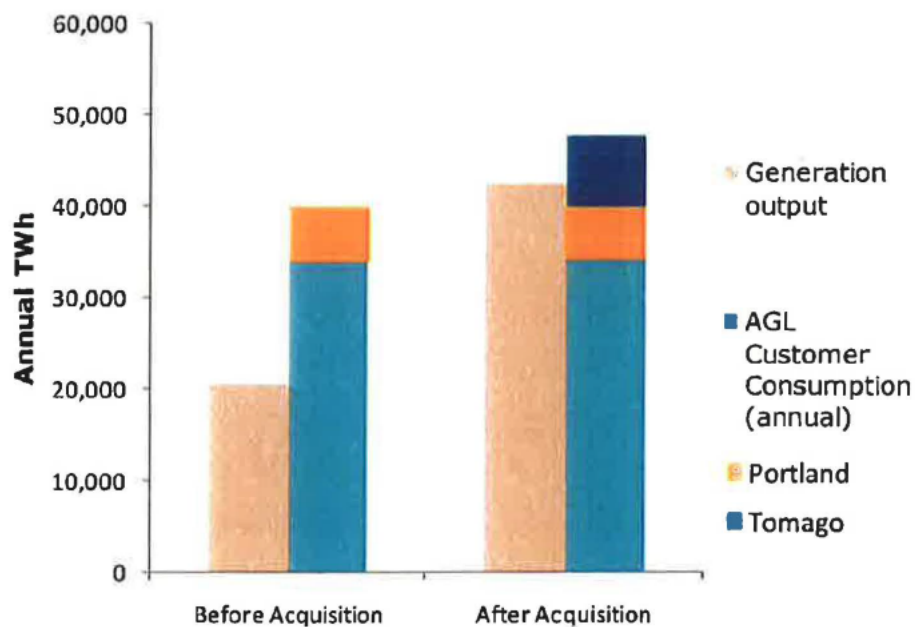
This will have the effect of improving AGL's near term earnings, balancing other investments made in recent years, particularly in upstream gas and renewables, that generate much of their earnings later in the decade.

## 6. Competitor summary



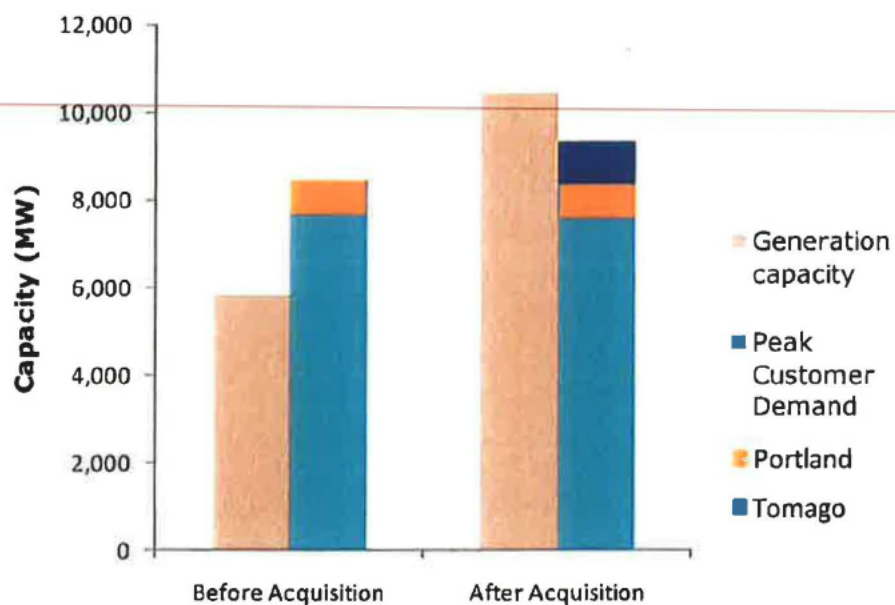
## 7. Fit with AGL portfolio

Following the acquisition of MacGen, AGL would cover approximately 85% of its customers' requirement from its own generation, as shown below.

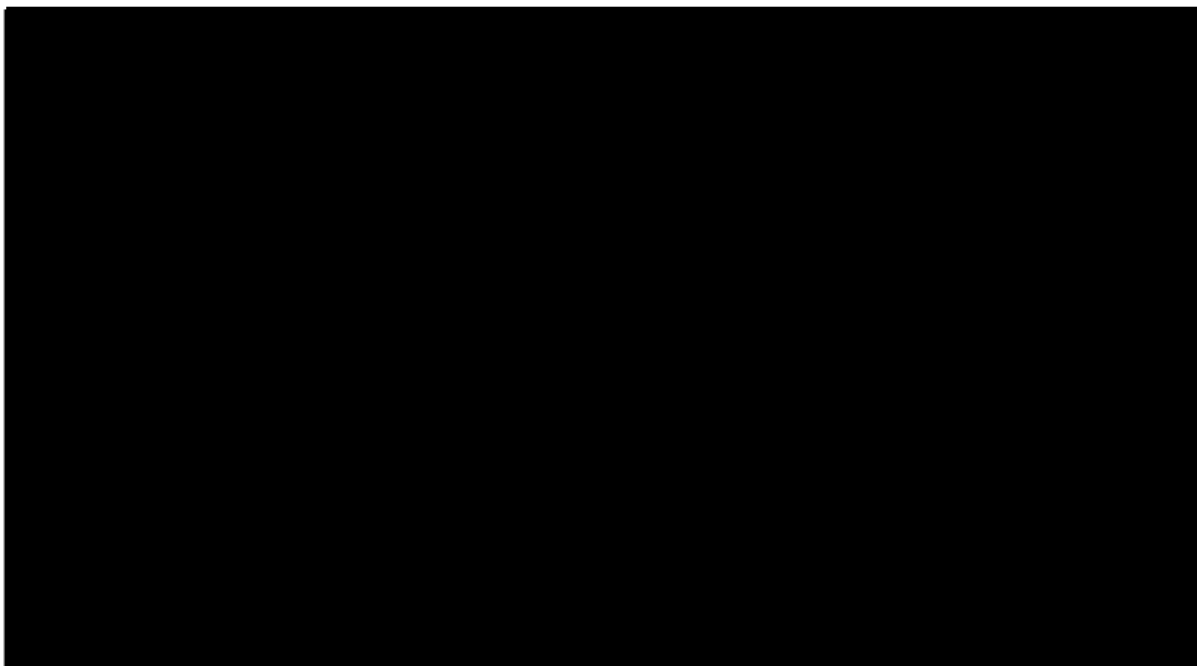


Post acquisition, AGL's generation capacity would exceed its customers' total demand, as shown below, offering the ability to sell excess capacity into the market having covered its customers' demand.





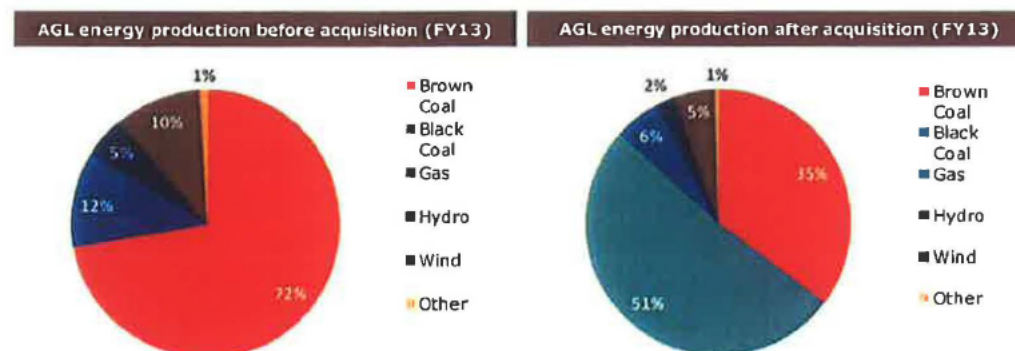
With respect to the NSW region, AGL's capacity position will be as follows after the acquisition of MacGen:



As the above chart indicates, following the acquisition of MacGen, AGL is approximately [redacted] long in NSW (the difference between the net position shown by the black dotted line and the expected maximum demand shown by the red line). This surplus length is roughly the capacity of Liddell and would be used to (i) cover outages at Bayswater or other

AGL plant, (ii) cover AGL load in Queensland, (iii) sold into the market or a combination of all three.

The acquisition of MacGen will move AGL's generation output by fuel mix substantially towards coal, from 72% pre acquisition to 86% post acquisition.



\* Generation volumes based on FY13 actuals

## 8. Electricity price path

Three supply and demand cases were developed for forecasting electricity price paths. A number of assumptions are common to all scenarios. Case 1 is broadly characterised as "conservative", Case 2 as "conservative plus additional downside" and Case 3 as "multiple downsides". In each case, the price path uses current market contract prices for the first three years, with modelled market outcomes used for years four and onwards.

Case 2 has been selected as the price path for determining the bid price. The table below summarises the assumptions for Case 2 as modelled in Plexos. Details of the assumptions for Cases 1 and 3 are provided in Attachment 4. The investment return outcomes for Case 1 and Case 3, based on the proposed maximum acquisition price, are detailed as sensitivities in Section 10 below.

The key assumptions used for Case 2 are as follows:

Item	Assumption
Demand	AEMO low demand case
Small scale solar	Blended uptake rate: 30% slow, 60% moderate and 10% fast as per AEMO

Item	Assumption
------	------------

[REDACTED]

[REDACTED]

**NEM plant closures** No funded plant closures, just mothballing of plant based on plant economics

[REDACTED]

[REDACTED]

**QLD/NSW Interconnector** QNI expansion as required

**Bayswater maintenance** Plant maintained to achieve 2035 life. Move to 4 year major outages

[REDACTED]

[REDACTED]

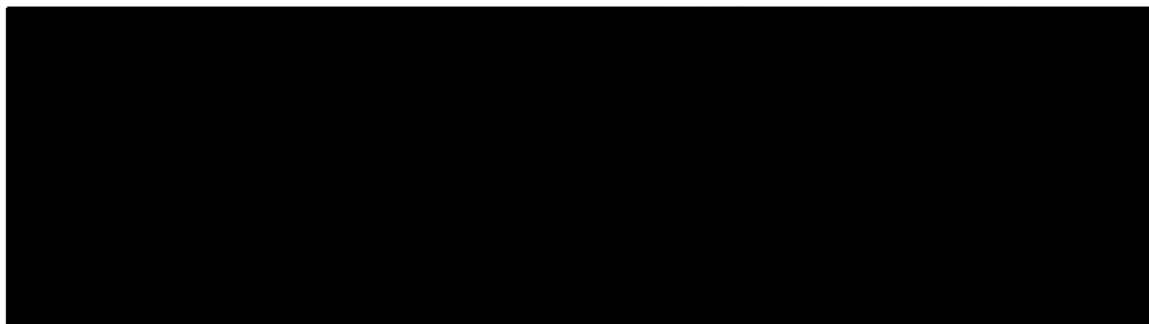
The AGL price path reflects spot market prices with a cap premium added to include volatility capture for firm capacity. The modelling assumes that only [REDACTED] of MacGen's capacity is hedged based on a hedging strategy of n-1 for Bayswater and n-2 for Liddell.

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## 9. Financial impacts

### *MacGen Profit and Loss*

Forecast MacGen P&L out to FY20 at an assumed acquisition price of [REDACTED] million is as shown below.



Major assumptions include:

- acquisition date of 1 April 2014;
- electricity price path as per Case 2 above;
- operating costs and capex as per AGL estimates;
- [REDACTED]
- carbon cost/benefit as per above; and
- Bayswater closes in 2035, Liddell in 2017.

[REDACTED]

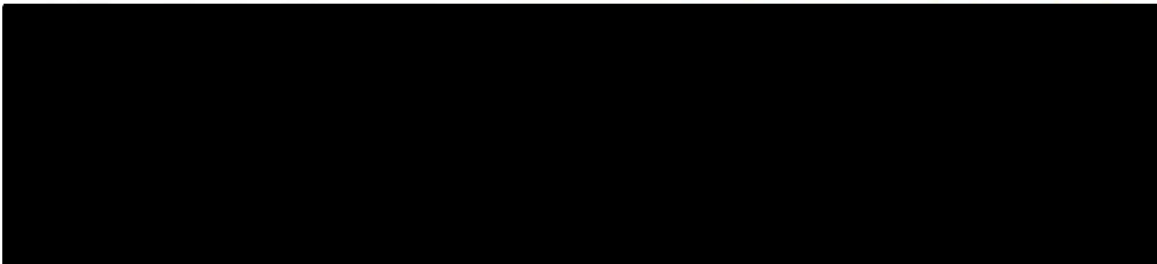
[REDACTED]

[REDACTED]





### *Cash flow*



Acquisition costs include the purchase price, all adviser fees associated with the acquisition and all underwriting and other costs associated with the debt and equity raised to fund the acquisition.

Reflecting the front end loaded nature of earnings, the model shows an ungeared payback period of eight years.

### *Impact on AGL cash flow*



Forecast AGL cashflows following the acquisition of MacGen are as follows:



MacGen cashflow (net of stay in business capex) will materially increase AGL's operating cashflow.

### *Impact on AGL EPS*

The following table shows the EPS impact of acquiring MacGen, assuming:

- Equity raising of \$1,200 million
- Rights issue priced at a  to market (currently \$15.00)
- A Theoretical Ex Rights value per Share (TERP) adjustment has been applied to the AGL underlying earnings to reflect the value of the rights to existing shareholders
- Additional debt of  million

[REDACTED]

The valuation model assumes carbon moves to a floating price from 1 July 2014. If there is no change to carbon legislation, then the cost of carbon in FY15 will be fixed at [REDACTED] and the acquisition will be [REDACTED] decreative in FY15 (and AGL underlying profit will be significantly increased). Current legislation already moves carbon to a floating price from 1 July 2015, so there is no change to FY16 modelled EPS.

With respect to EPS:

- [REDACTED]
- [REDACTED]
- [REDACTED]

*Impact on EBIT/Funds Employed*

The following table shows:

- EBIT/Funds Employed of the MacGen acquisition; and
- Impact of the MacGen acquisition on the AGL Group EBIT/Funds Employed calculation

[REDACTED TABLE]

MacGen's ROFE in the first full year FY15 is [REDACTED] and then rises due to depreciation of assets exceeding the capex spend. The transaction is beneficial to the wider AGL group ROFE and is expected to be materially accretive from FY17.

### *Investment position as at 2025*

Based on an IRR of [REDACTED] million of the maximum acquisition price of [REDACTED] million will remain to be recovered at 2025. The book value of the MacGen investment at 2025 will be [REDACTED]

## **10. Sensitivities**

[REDACTED]

[REDACTED]

[REDACTED]

- no carbon - MacGen benefits in the short term from its slightly higher than market carbon intensity. However, post FY20 Victorian brown coal generators increase output, increasing interconnector flows into NSW and moving large scale renewable build to meet the RET target into NSW.
- re-introduction of carbon - MacGen is less competitive in the near term, however benefits post FY20 as Victorian brown coal is displaced by the significantly higher carbon price under the Treasury price curve

- ### Outcomes under Case 1 and Case 3 price paths


[illegible][illegible]



## **12. ACCC clearance**

An application for clearance to acquire MacGen was lodged with the ACCC on 29 November 2013. A meeting with ACCC management (including its Chairman) was subsequently held in December at which AGL management and advisors presented the key themes of the application.

The ACCC called for public submissions with respect to the application, with the deadline for submissions being 18 December. The ACCC has indicated that it expects to announce its findings on 30 January 2014. This could be (i) clearance, (ii) a statement opposing the acquisition or (iii) a statement of issues that need to be considered before a decision can be reached. A statement of issues could be expected to delay the ACCC's final decision by approximately 3-4 weeks.

Ashurst and Frontier Economics have been engaged to assist AGL in preparing the application and responding to any issues of concern to the ACCC.

## **13. Funding and impact on credit rating**

The acquisition will initially be funded by an equity issue of approximately [REDACTED] and a twelve month debt bridge of approximately [REDACTED] million.

Subject to market conditions, it is proposed to undertake a medium term note (A\$ MTN) facility. AGL's inaugural A\$ MTN program is anticipated to be completed within twelve months.

The final equity and debt amounts required will be determined once the acquisition price is known. Details of the proposed equity issue and debt bridge are included in Attachment 5.

[REDACTED]

For the debt bridge, ANZ and NAB have been appointed as the debt providers and also awarded the mandate as joint lead managers for replacing this short term debt.

Both the equity issue and debt facility will be launched at the time of announcing the acquisition. The equity proceeds and debt will be available ahead of the scheduled completion date.

[REDACTED]

[REDACTED]

[REDACTED]

In summary, the acquisition of MacGen on the proposed funding basis is expected to reinforce AGL's BBB stable credit rating. The proposed acquisition has been discussed with S&P, which is expected to reaffirm AGL's BBB credit rating once the equity raising is complete.

#### *Equity Issue*

At its meeting on 7 December 2013 the Board approved the formation of a Due Diligence Committee (DDC) to oversee the production of the documentation required for the equity issue. This will include (inter alia):

- an ASX announcement with details of the Rights Issue (Investor Presentation – a draft of which accompanies this paper);
- a notice prepared in compliance with section 708AA to be lodged with the Australian Securities Exchange (ASX) at the outset of the Rights Issue (Rights Issue Cleansing Notice); and
- an offer document setting out the terms of the Rights Issue (including a letter from the Chairman of AGL and an entitlement and acceptance form) to be sent to AGL's retail shareholders (Shareholder Offer Document).

The DDC has subsequently met twice and preparation of documentation is progressing according to timetable.

14. Key risks and mitigations

Risk	Mitigation
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

Risk	Mitigation
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

Risk	Mitigation
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

## 15. Indicative time line

The following time line assumes that ACCC clearance is granted on 30 January:

5 February	Binding bid lodged
5-25 February	Discussions/negotiations with the State
25 February	Execution of sale and purchase documentation
26 February	Announcement of acquisition and launch of equity raising and debt facility
31 March	Completion

Any delay in securing ACCC clearance would delay the timetable.



## 16. Summary

Acquiring MacGen on the terms proposed in this paper will:

- enable self supply of all of AGL's NSW customer load;
- provide additional operating flexibility to AGL's generation portfolio;
- [REDACTED]
- deliver significant NPV;
- improve AGL earnings and operating cash flows, with an earnings bias towards the early years of the investment;
- further increase AGL's scale and improve its supply/demand balance, reducing business risk and lowering funding costs; and
- secure ownership of generation assets that present levels of operating risk comparable to the AGL's existing portfolio.

The principal investment risk is a rapid and fundamental shift in the demand/supply balance in the NEM to the point where base load coal generators are displaced as the lowest cost of generation. Given Bayswater and Liddell are currently the lowest SRMC thermal generators in NSW and the investment has a payback period of eight years, this risk is considered low in the context of the investment providing an acceptable return to AGL shareholders.

[REDACTED]

## 17. Recommendation

In relation to MacGen, this Paper seeks the Board's approval to:

1. authorise AGL (either itself or through one of its subsidiaries) to lodge a binding bid of up to [REDACTED] million with the State of NSW to acquire the assets of MacGen (**Proposed Acquisition**) including, the Bayswater and Liddell power stations, the Bayswater and Tomago development sites, coal and water supply infrastructure, the Tomago smelter contracts and MacGen's coal supply contracts, coal stockpile and hedge book.
2. if successful, authorise AGL and each of its subsidiaries to proceed with the Proposed Acquisition, including by entering into the "Approved Documents" referred to in the Schedule to this paper;
3. submit a Statement of Support (as required by the bid rules) from the Board confirming that the Board has reviewed the binding bid for the Proposed Acquisition and fully supports and approves the binding bid, acknowledging that the binding bid will be binding on AGL; and

4. authorise the Attorneys (being Michael Anthony Fraser, Michael Paul McWilliams, Brett Alan Redman and Anthony Garth Fowler) being appointed, under Power of Attorney, to jointly and severally do all things reasonably necessary to enter into, or procure the entry into, any of the documents referred to in (1) and (2) above or which are incidental or relate to, or are necessary to give effect to the transaction contemplated by (1) and (2) above.
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**Brett Redman**  
Chief Financial Officer

**Michael Fraser**  
Managing Director & CEO

## SCHEDULE

### APPROVED DOCUMENTS

- 1 A binding Bid Document and all accompanying documents;
- 2 Sale and Purchase Agreement (Macquarie Generation Assets);
- 3 All Transaction Documents referred to in the *Sale and Purchase Agreement (Macquarie Generation Assets)* including, but not limited to, the Pass Through Agreement;
- 4 All documents and instruments required to satisfy the "Completion Requirements" (as described in the *Sale and Purchase Agreement (Macquarie Generation Assets)*); and
- 5 All other documents which are incidental to any of the documents referred to in (1)-(4) above or the transactions contemplated by them.

#### Entitlement Offer documents

- 6 The Underwriting Agreement between AGL, Citigroup Global Markets Australia Pty Limited, Deutsche Bank AG, Sydney Branch and Merrill Lynch Equities (Australia) Limited.

#### Acquisition Debt Facilities and ancillary documents

- 1 [REDACTED]
- 2 [REDACTED]
- 3 [REDACTED]

## Attachment 1

### Overview of MacGen Operating Assets

MacGen's principal physical operating assets are:

1. Bayswater & Liddell power stations;
2. Coal handling infrastructure; and
3. Water entitlements and storage facilities.

In addition to the above, MacGen has a variety of ancillary facilities such as ash disposal voids and dams, the Hunter Valley Gas Turbines (**HVGT**) and the Liddell Solar plant.

Aside from the rail unloaders and certain water storage facilities, these physical assets are located on an 8,500ha site in the Hunter Valley between Singleton and Muswellbrook. Summary descriptions of the principal operating assets are provided below.

#### 1. Bayswater & Liddell power stations

Overview details of Bayswater, Liddell and the HVGTs are shown in the table below.

	Bayswater	Liddell	HVGT
Commissioned	1985-1986	1971-1973	1986
Technical life	2035	2022	2022
Fuel	Black coal	Black coal	Diesel
Generation type	Baseload	Intermediate	Black start
Generation capacity	2,640 MW	2,000 MW	50 MW
Configuration	4 x 660 MW	4 x 500MW	2 x 25 MW
Coal consumption	Up to 8Mtpa	Up to 4Mtpa	n/a
% of NSW installed capacity	17%	13%	n/a
% of NEM installed capacity	6%	5%	n/a

#### ***Bayswater Power Station***

Bayswater power station has operated as a base load plant since commissioning in 1986, reflecting its low SRMC in NSW.

The Bayswater plant is similar in design to the Eraring plant that was commissioned in 1983 and uses the same Toshiba design steam turbines.



Attachment 1 (cont)

AGL projects a 50 year life for the plant with closure in 2035. An asset management plan to meet this target has been developed which includes major works such as replacement of steam turbines and installation of a new digital control system.

Liddell Power Station

Liddell power station is a 2000MW plant which originally operated as a base load plant from commissioning in 1973.

Due to the large portfolio operated by MacGen [redacted] it now operates in an intermediate duty role [redacted]

AGL projects a 50 year life for the plant with closure as late as 2022. An asset management plan consistent with this closure date has been developed which includes limited capital investment consistent with the safe operation of the plant.

2. Coal handling infrastructure

MacGen has two rail unloading facilities, Antlene and Ravensworth, summary details of which are shown in the table below.

Commissioned		
[redacted]		
[redacted]		
[redacted]		
[redacted]		

Antlene

[redacted]

[redacted]

Ravensworth

[redacted]



## Attachment 1 (cont)

[REDACTED]

### *Stockpiles*

[REDACTED]

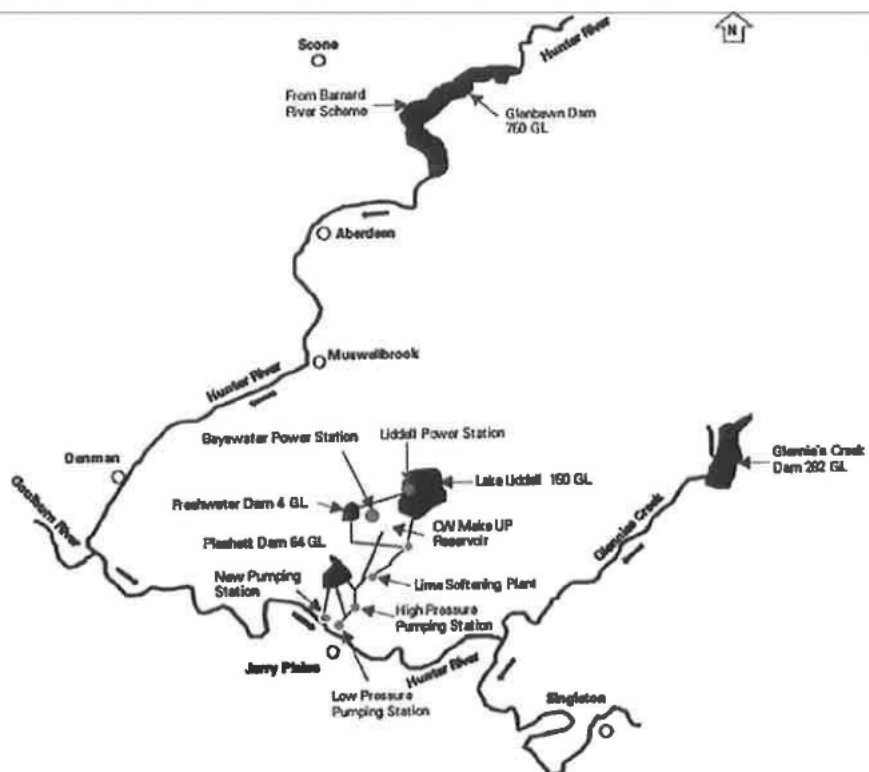
### 3. Water entitlements and storage facilities

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

## Attachment 1 (cont)



## Attachment 2

[REDACTED]

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### **Attachment 3**

#### **Tomago Aluminium Contract**

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### **Attachment 3 (cont)**



## Attachment 4

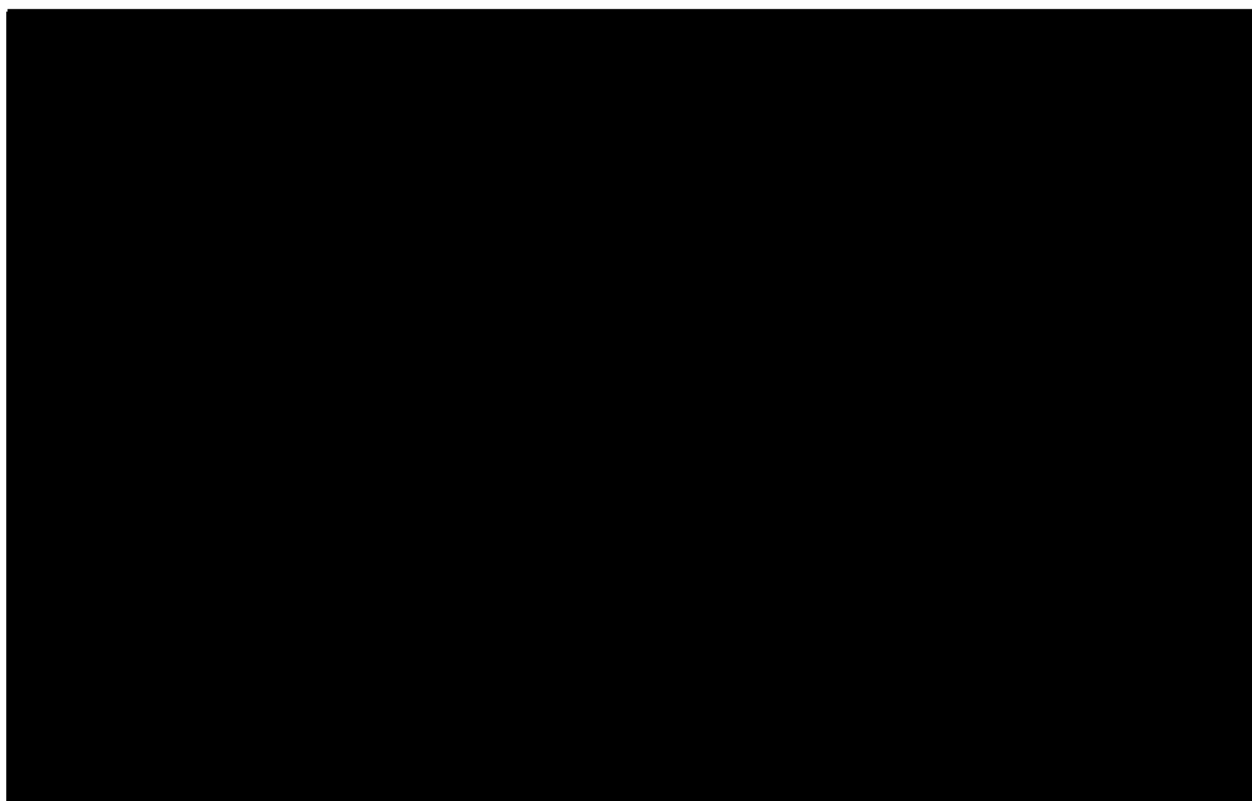
### Demand assumptions and price forecasts

Price forecasts used in the valuation of the MacGen assets were created using the Plexos market model. The Plexos model takes input assumptions including:

- > demand projections;
- > bidding behaviour;
- > new entrant generation;
- > environmental schemes;

and uses them to simulate the AEMO market dispatch algorithm at a half-hourly granularity, producing long-term price and generation forecasts. These outputs become key inputs to the valuation model.

Due to the long-term nature of the modelling, a number of cases were developed in order to understand the key drivers of value, in particular demand, smelter closures and environmental schemes. The table below summarises the key assumptions for the three cases modelled in Plexos:

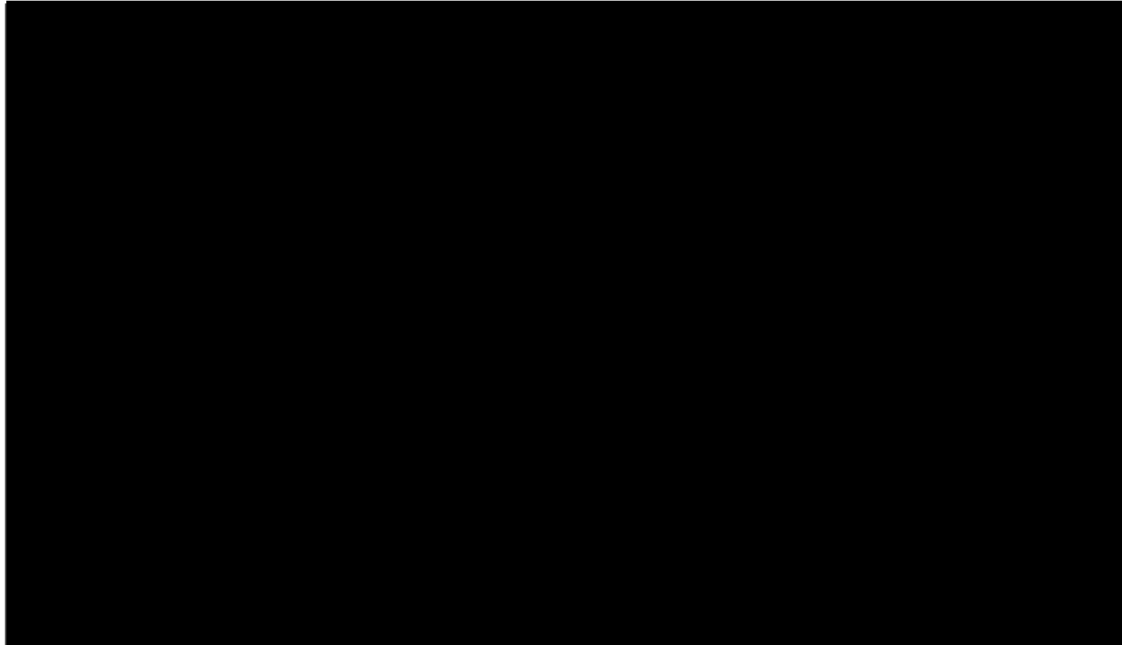


Projections of electricity demand growth have a significant impact on the long term value of base load generation such as Bayswater and Liddell. AEMO conducts an annual National Electricity Forecasting Report (NEFR) in which it provides a range of demand growth scenarios for each region. For the purposes of this valuation the NEFR medium (Case 1) and low

#### Attachment 4 (cont)



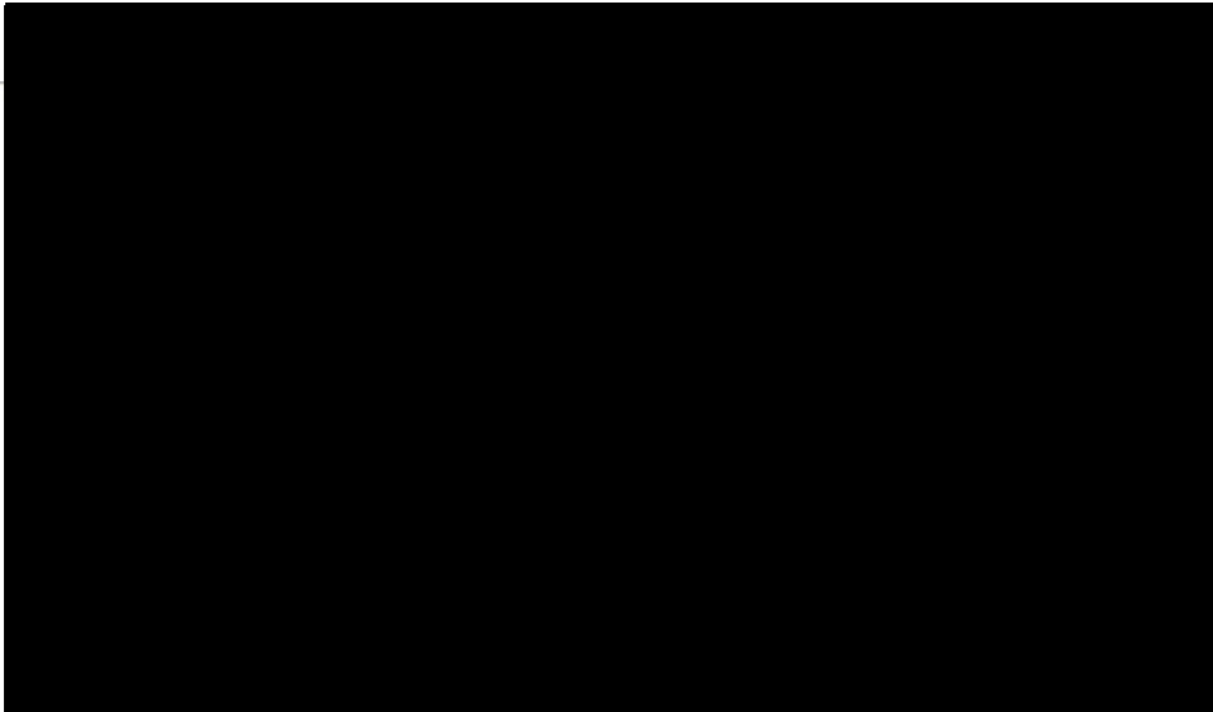
The chart below illustrates the demand growth projections used for each modelling case, showing total annual NSW energy by financial year over the life of Bayswater power station.



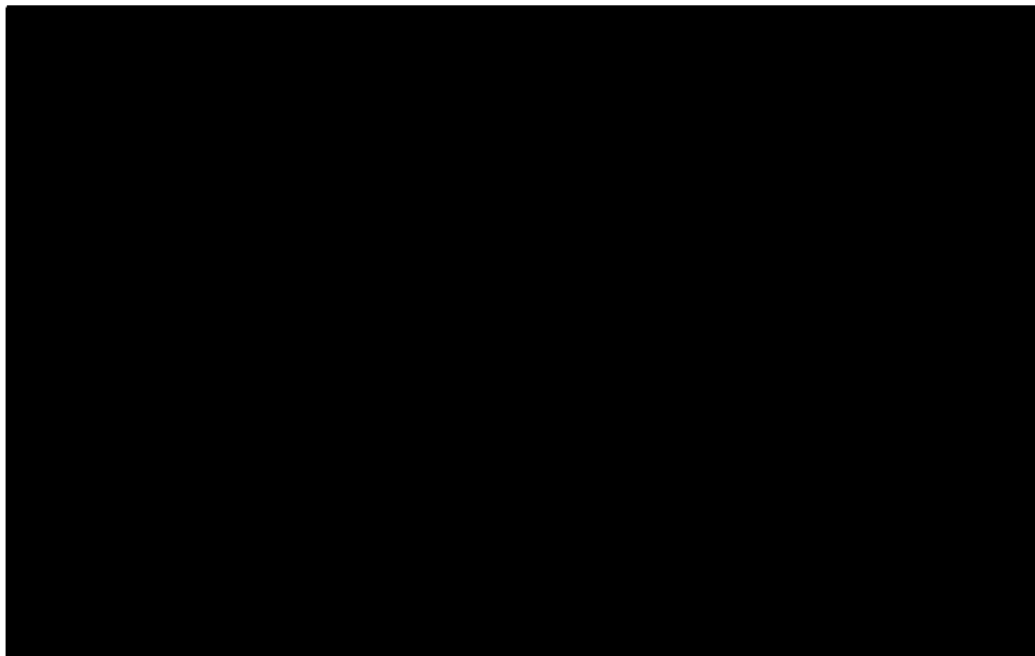
The chart below shows the resulting annual average price projections from the assumptions detailed above. All three cases assume the same carbon price path which is also consistent with the Vendor's assumptions namely, [REDACTED] in FY 2015, dropping to an EUA linked price of ~ [REDACTED] until FY 2020 before increasing to a range of [REDACTED] from FY 2012-2035. The price paths below are carbon exclusive so as to more clearly illustrate the impact of other modelling assumptions.



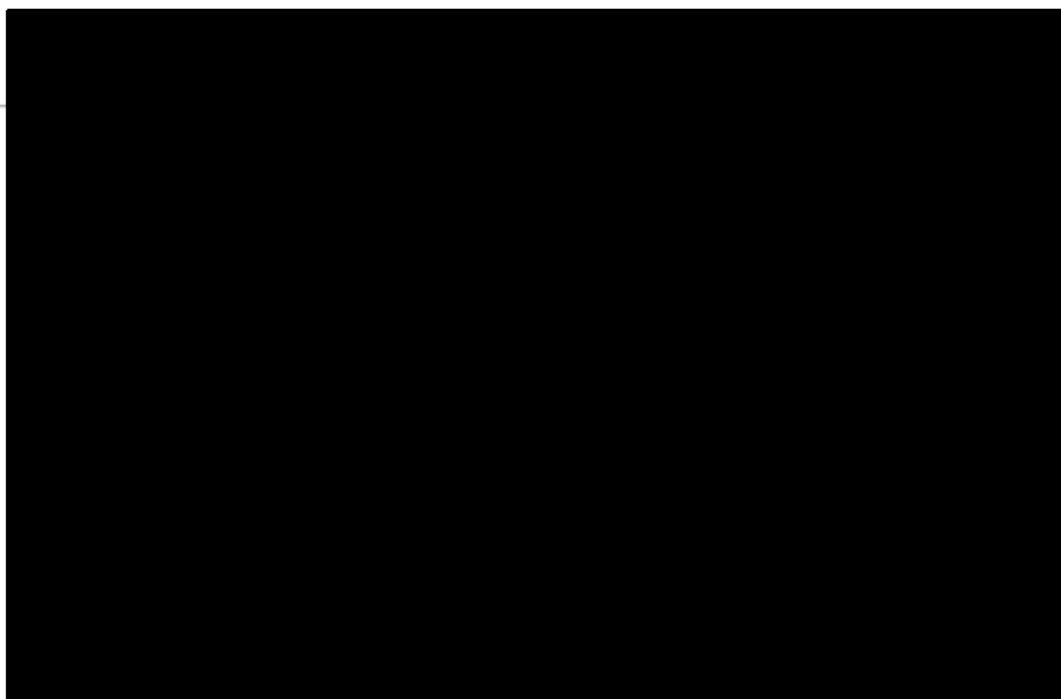
#### Attachment 4 (cont)



Forecasts of Bayswater and Liddell capacity factors were also provided as an input to the valuation model and are shown in the charts below.



#### **Attachment 4 (cont)**



## Attachment 5

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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