

AGL a renewable energy company?

Market Forces has investigated how much AGL could reasonably claim to be a renewable energy company. We explored this question in terms of AGL's electricity generation assets and their sources of revenue.

AGL has made several purchases of coal fired electricity generation assets in recent years, moving the company's business model to one that is dominated by coal-fired electricity generation. In 2014 AGL acquired the Liddell and Bayswater power stations, which resulted in substantial changes to their wholesale power generation profile.

Key findings

- AGL's electricity production capacity is dominated by fossil fuels, with coal providing the largest share at 64%, oil and gas at 19% and renewable energy the remaining 17%. Most of AGL's renewable energy projects are in Victoria and South Australia, while AGL's significant gas projects are typically located in Queensland.
- AGL's electricity generation is currently 81% from coal, 7% gas and 11% renewable energy. Prior to the 2014 takeover of Macquarie Generation's Liddell and Bayswater power stations, renewable energy had increased from 16% to 20% of power generated in AGL's portfolio. However, these acquisitions have almost halved the share of renewable energy in AGL's power generation portfolio.
- We estimate that the proportion of AGL's revenue derived from renewable energy is approximately 8% for the first half of the 2015 financial year and will remain well under this mark for the full 2015 financial year.
- Given that Bayswater and Liddell power stations have a lower CO₂ intensity per megawatt-hour generated (0.9t / MWh) compared to Loy Yang (1.3t / MWh) the carbon intensity of AGL's portfolio has fallen with these acquisitions. However, the addition of these two assets has dramatically increased the company's overall emissions. We estimate that AGL's total emissions from electricity generation now exceed 25 million tonnes per annum.

Power capacity

AGL's electricity generating assets are as follows:

Capacity		MW
Coal	Bayswater	2,640
	Liddell	2,000
	Loy Yang	2,210
Oil & Gas	Torrens Island	1,280
	Diamantina	151
	Oakey	282
	Yabulu	121
	Somerton	150
	Other	88
		1%

Renewable	Macarthur	420	4%
	Hallett	351	3%
	Wattle Point	91	1%
	Oaklands Hill	63	1%
	VIC Hydro	743	7%
	NSW Hydro	53	0%
	Other	45	0%
Total		10,688	100%

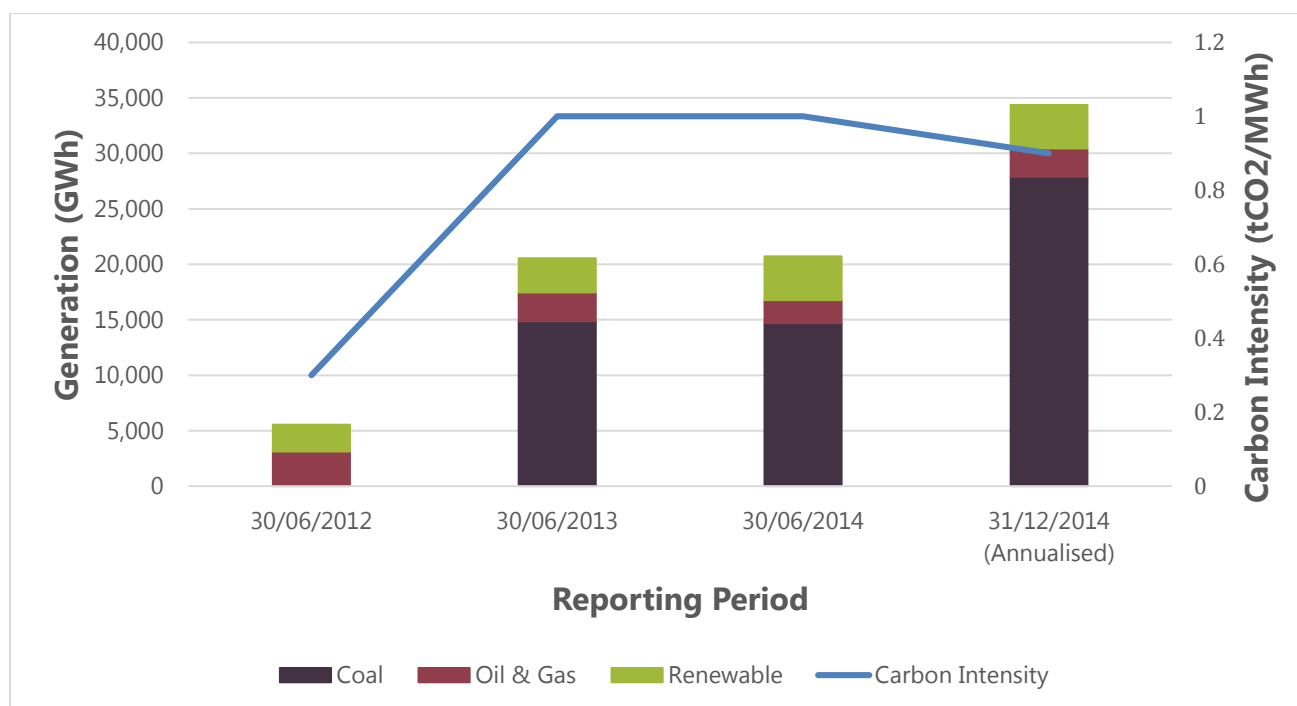
Power generation

The table below shows how AGL's gross and proportional power generation changes over recent years. Note that the final columns are for the first half of the 2015 financial year while the others are for the full financial years of 2013 and 2014. The change in proportional generation in coal, and its effects on the remainder of AGL's energy mix can be observed in the columns to the right, as Bayswater and Liddell are added to the mix. It is also worth noting that these assets were acquired in September 2014, meaning it is likely that the overall shift in electricity generation towards coal will be greater than is reflected in these figures.

Generation (GWh)		FY 2013		FY 2014		1H FY15	
Coal	Bayswater	-	0%	-	0%	4,682	27%
	Liddell	-	0	-	0	2,310	13%
	Loy Yang	14,851	72%	14,693	71%	6,947	40%
Oil & Gas	Torrens Island	1,996	10%	1,615	8%	788	5%
	Diamantina	-	0	-	0	300	2%
	Oakey	12	0%	57	0%	35	0%
	Yabulu	295	1%	132	1%	24	0%
	Somerton	16	0%	11	0%	8	0%
	Other	68	0%	67	0%	127	1%
Renewable	Macarthur	578	3%	1,045	5%	493	3%
	Hallett	1,164	6%	1,246	6%	578	3%
	Wattle Point	239	1%	285	1%	120	1%
	Oaklands Hill	150	1%	164	1%	70	0%
	VIC Hydro	836	4%	1,035	5%	586	3%
	NSW Hydro	129	1%	71	0%	34	0%
	Other	214	1%	308	1%	80	0%
Total		20,548		20,729		17,182	

Carbon intensity and greenhouse gas emissions

Unsurprisingly, the addition of the Macquarie Generation assets to AGL's portfolio results in a major increase in CO₂-intensive generation, even though the overall energy intensity of the company's portfolio decreases. The graph below shows the change in electricity generated by source, and the change in carbon intensity over recent years.



Emissions in 2015

Based on these figures, we can estimate that AGL's annualised coal fired electricity emissions alone amount to over 40 million tonnes per year. The generation figures for 2015 are likely to rise steeply as the full impact of the Macquarie Generation assets is realised.

We estimate the likely emissions for AGL's electricity generation portfolio at 40,316,294 tonnes CO₂ e, approximately 7.5% of Australia's total annual emissions as of March 2015.

Revenue

In the first half of the 2015 financial year, AGL's revenue was as follows:

Revenue (\$m)	H1 2015	
Electricity	3,070	59%
Gas	1,437	28%
Generation sales to pool	547	10%
Other revenue	149	3%
TOTAL	5,183	100%

We use the proportion of AGL's electricity generation from renewables in the first half of the 2015 financial year (11.41%), to imply what portion of their revenue is from renewables as follows:

$$\text{Electricity } (3,070 \times 0.1141 = \$350\text{m}) + \text{Generation sales } (547 \times 0.1141 = \$62\text{m})$$

$$\text{Total revenue } (\$5,183\text{m})$$

We therefore expect that the proportion of AGL's revenue derived from renewable energy in the 2014 financial year is 7.92%

It should be noted that the Bayswater and Liddell generating assets were only acquired by AGL two months in to the current financial year, meaning their full effect on the generation portfolio of AGL and its revenue stream will not be reflected in these calculations. Given that the 2nd half of the 2015 financial year will see a full six months of these generators contributing to AGL's energy mix and revenue streams (as opposed to four months out of six in the 1st half of the year), we expect that the figure we have calculated will fall further.

Note that this figure has not accounted for the value of renewable energy certificates, which would increase the value of AGL's renewable energy generation revenue.

Once again, this has not accounted for the changes to AGL's electricity mix in the current financial year, which will lead to a drop in overall revenue. The 14.4% proportional figure should be seen as a "high point" for AGL in terms of being a company that derives its revenue from renewable electricity generation.

Concluding remarks

It is reasonable to say that if ever AGL were able to claim that they are a renewable energy company, it is certainly not now. Renewable energy has always made up a minority of AGL's power generation assets and this proportion has shrunk in the past year as the company moves to become a much higher supplier of coal-fired electricity.

Sources used for this research:

http://www.agl.com.au/~media/AGL/About%20AGL/Documents/Media%20Center/ASX%20and%20Media%20Releases/2014/140917_annualReport1364569.pdf

<http://www.agl.com.au/~media/AGL/About%20AGL/Documents/Media%20Center/Investor%20Center/2013/August/FY13%20Full%20Year%20Results%20Presentation.pdf>

<http://reneweconomy.com.au/2014/agl-energy-fades-from-green-to-black-51230>

<http://www.wattclarity.com.au/2014/08/so-what-would-the-similar-trend-look-like-for-the-larger-agl/>

http://www.agl.com.au/~media/AGL/About%20AGL/Documents/Investor%20Centre/2015/150211_REsults_Presentation.pdf

http://www.agl.com.au/~media/AGL/About%20AGL/Documents/Investor%20Centre/2015/150211_InterimResults.pdf