AGL Energy Limited
ABN: 74 115 061 375

Level 22, 101 Miller St
North Sydney NSW 2060

Locked Bag 1837
St Leonards NSW 2065

T: 02 9921 2999
F: 02 9921 2552
agl.com.au

Jeanette Radcliffe
Committee Secretary
Select Committee on Wind Turbines
By email: community.affairs.sen@aph.gov.au

14 May 2015

Dear Committee,

Re: response to comments concerning AGL to Senate Select Committee on Wind Turbines

Thank you for inviting AGL Energy Limited (AGL) to provide written responses to comments about AGL and its Macarthur Wind Farm made in the submissions to the Select Committee on Wind Turbines.

1. Did AGL inappropriately interfere in the medical system via a letter sent to Victorian medical centres concerning the Macarthur Wind Farm?

In 2012 AGL sent to a letter to several local medical centres in Victoria, as we were aware of concerns in the community about wind farm projects and we wanted to provide some facts about the AGL Macarthur Wind Farm. A copy of the letter is attached. AGL sent this letter to provide information about our project and to direct the recipients to credible scientific studies from reliable sources, including Australian Government agencies.

We understand that the primary responsibility of doctors and other medical professionals is to their patients and doctors are best-placed to provide health advice to patients based on their professional expertise. AGL's letter notes that where doctors thought it appropriate and beneficial, that patients with complaints related to our projects could raise these with AGL so that they could be addressed.

AGL has never sought to restrict community members or health professionals from raising any health concerns with doctors, government agencies or the general public (e.g. see attached statement relating to landholders). AGL encourages community members concerned about their health to visit their GP, and respects the independent role of GPs to provide medical advice in the best interests of their patients.

Attachments:
Example of letter from AGL to local medical centres around the Macarthur Wind Farm
CEC Wind industry statement on confidentiality clauses in landowner contracts

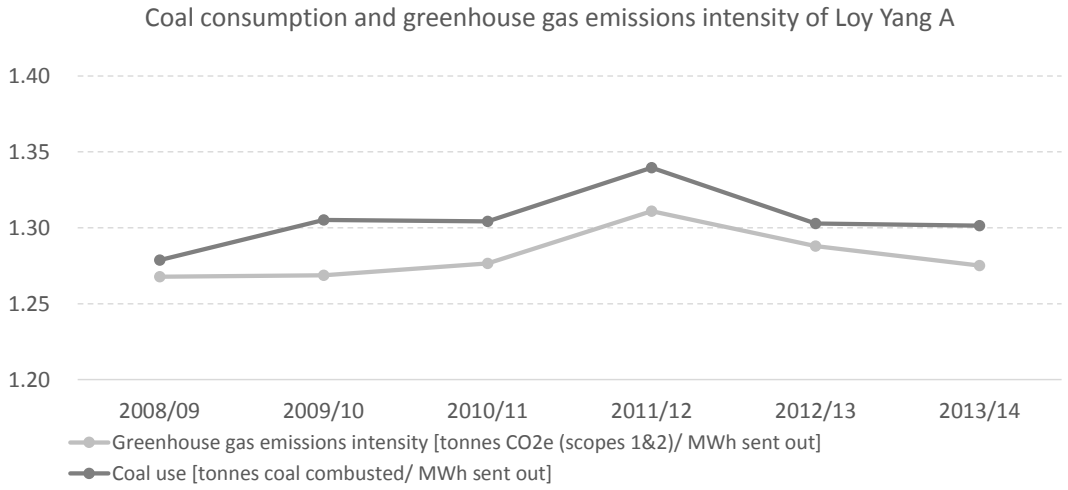
2. Did the carbon intensity of the Loy Yang A Power Station increase in recent years, proportionally to the increase in wind turbine output? Do Victorian power stations burn more coal now than before the penetration of wind turbines into the grid? Is this coal being combusted with the resulting steam production simply vented?

The emissions intensity of AGL's Loy Yang A Power Station has not changed significantly over the past six years (in FY2009 it was 1.27 tonnes of greenhouse gas emissions per megawatt-hour of electricity sent into the network, and in FY2014 it was 1.28).

The *National Greenhouse and Energy Reporting Act 2007* has required all facilities that produce significant greenhouse gas emissions – including power stations – to calculate and report their greenhouse gas emissions to the Commonwealth Government for each financial year since FY2009 (reports are submitted to the Clean Energy Regulator). The legislation and its supporting instruments prescribe the methodologies and measurement standards that must be used in this reporting, so there are consistent data sets that have been prepared for all

Australian power stations during this period, which means that trends of increasing fuel consumption or greenhouse gas emissions intensities would be readily identifiable.

For coal power stations, the legislation requires the measurement of the total tonnes of coal burned during the period, as well regularly undertaking chemical analysis of samples of the coal, so that the resulting greenhouse gas emissions can be determined with a great degree of accuracy for each period. Crucially, the National Greenhouse and Energy Reporting for coal power stations does not rely on assumptions of thermal efficiency; it is *actual measurement data*. From this data, it is simple to calculate the greenhouse gas emissions intensity of generation, and the tonnes of coal combusted per unit of electricity sold, for a given power station. For Loy Yang A this data is shown below.



The thermal efficiency and the greenhouse gas emissions intensity of a power station can fluctuate over time, due to a number of factors, including the quality of the coal being burned, weather, the station's capacity factor, maintenance and aging, and other operating parameters. Over the past six years, the rate of fuel consumption, and the greenhouse gas emissions at the Loy Yang A Power Station have both increased slightly, and decreased slightly due to these factors. Over the same period, wind generation in the National Electricity Market has more than doubled, with several new wind farms built in Victoria and other states.

If Loy Yang A was having to burn a lot of additional coal on stand-by, without generating power, to back up the intermittent power generated by wind farms, then there would be a very significant increase over time in both the emissions intensity, and the tonnes of coal burned per megawatt-hour of power sold, as more and more wind farms entered the market. However, these trends have not occurred (and in the past two years, there has actually been a decrease).

3. Is the Loy Yang A Power Station burning an additional six million tonnes of coal now versus 2005?

No. For the past six years, the Loy Yang A Power Station has combusted between 19 and 21 million tonnes of coal, depending on the amount of power generated and sold into the network. Six million tonnes represents about one third of the total coal consumed by Loy Yang A, so if this claim were true, there would be a commensurate increase in the emissions intensity of electricity sold, and in the tonnes of coal used to generate each unit of electricity sold. As shown in the figure above, there has not been a significant change or consistent trend in either data set over this period.

4. Has AGL recently changed the way that it reports on the greenhouse gas emissions and emissions intensity of its power stations, including the Loy Yang A Power Station?

No. AGL's annual sustainability reports since 2010 include greenhouse gas emissions data, and the greenhouse gas emissions intensity of AGL's generation portfolio, calculated in exactly the same way (historical trending data in these reports goes back to 2007/08), based on the requirements of the *National Greenhouse and Energy Reporting Act 2007*. The AGL 'operational footprint' therefore includes scope 1 and 2 greenhouse gas emissions from facilities under AGL's 'operational control' during the period, and the emissions intensity of AGL's generation portfolio is calculated as the total scope 1 and scope 2 greenhouse gas emissions from all power stations, divided by the total amount of electricity 'sent out' (sold) from those power stations.

AGL completed its acquisition of the Loy Yang A Power Station in June 2012. Since this time, AGL's approach to greenhouse gas emissions reporting has not changed.

Before AGL was required to report under the *National Greenhouse and Energy Reporting Act 2007* (i.e. before 2009), AGL reported its emissions on a slightly different basis (including a minor amount of scope 3 emissions). Once this legislation was applicable, AGL adjusted its sustainability reporting so that it was consistent and comparable with the data available for other organisations[1]. AGL continues to estimate and report separately on its scope 3 emissions. Where a methodology has been changed in the past, all the data for previous years that was presented for historical trending purposes was re-calculated using the new methodology so that a like-for-like comparison could be made. AGL has not ever selectively adjusted one part of a historical data series, to hide a trend or for any other reason.

Prior to AGL's operation of Loy Yang A, greenhouse gas data that was published by the previous operator was calculated according to slightly different definitions to the standard approach used by AGL. For this reason, AGL provides historical trending back to FY2009, the period for which National Greenhouse and Energy Reporting data is available, as we are confident that this data is consistent year-to-year, and consistent with the reporting for AGL's other power stations.

5. Does government and industry rely solely on data where greenhouse gas emissions are 'reverse-calculated' based on theoretical thermal efficiencies? Does the Clean Energy Regulator have access to 'the facts' on actual fuel combusted?

No. When reporting on its greenhouse gas emissions, AGL primarily relies upon data prepared for reporting under the *National Greenhouse and Energy Reporting Act 2007*. As outlined above, this data is based on the actual quantity of fuel consumed at each of AGL's large power stations, as well as the chemical composition of that fuel, to allow a highly accurate calculation of the greenhouse gas emissions produced from its combustion. This data therefore allows AGL to track the performance of its power stations over time, including their emissions intensity, thermal efficiency, capacity factor, etc. Since 2014, the Clean Energy Regulator has also published energy and emissions data for individual power generation facilities, so the public can also review this data.

All operators of facilities that produce significant greenhouse gas emissions (including power stations) are required to collect energy and emissions data and report it to the Commonwealth Government (the Clean Energy Regulator) each year under the *National Greenhouse and Energy Reporting Act 2007.* One of the objectives of this legislation was to provide the government with access to more accurate and granular data sets to assist it in calculating Australia's national greenhouse gas emissions, and therefore its compliance with international reporting obligations.

For modelling purposes, some energy consultants and analysts do assume static rates of emissions intensity, thermal efficiency, auxiliary power use, fuel quality, etc. The results of these modelling exercises can be illustrative in the absence of actual emissions data (for example, due to time lags between availability of official reporting data, or when used for forecasting purposes). However the government, including the Clean Energy Regulator, has access to actual emissions data (based on actual fuel consumption information) and uses this information when preparing official data sets, such as the comprehensive National Greenhouse Gas Inventory.

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[1] AGL also publishes additional data in the form of its 'equity footprint' and an 'energy supply footprint' which provide information and estimate emissions from AGL's equity assets and supply chain.

6. Is AGL lying about its data or when it disputes Mr Cumming's claims about greenhouse gas emissions and wind farms?

No. AGL endeavours to be accurate and transparent in the sustainability data that we disclose. AGL's greenhouse gas emissions data is audited each year by external auditors prior to submission to the government and release to the public.

Data from many credible sources, including the Commonwealth Government, has shown that over the past several years, there has been a decline in both the total greenhouse gas emissions from electricity generation, and the emissions intensity (the tonnes of emissions per unit of electricity sold in the market). This has happened because demand for electricity has declined, and because an increase in power generation from renewable sources (e.g. wind, hydro) has replaced some output from emissions-intensive thermal generation, like coal.

At the granular level, data for AGL's own power generation assets such as the Loy Yang A Power Station disproves the theory that as the penetration of wind power into the network increases, there is also material increase the amount of coal burned at thermal power stations as 'back up' (i.e. without generating additional power).

7. How efficient are wind turbines? How much does generation from wind turbines contribute to the overall generation mix?

AGL's wind farms typically operate with capacity factors averaging between 28% and 40%, depending on the quality of the wind resource and any operational constraints. This means that they generally produce around a third of the power that would be theoretically possible if the wind was blowing strongly all the time so that they constantly produced at their maximum capacity.

During FY2014, wind power contributed around 4% of the total electricity generation in the National Electricity Market (according to analysis of market data).

Closing remarks

Should you have any questions or comments, please contact myself or Fiona Orton

Yours sincerely,

Tim Nelson
Head of Economic Policy and Sustainability
AGL Energy Limited

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ABN: 74 115 061 375

Level 22, 101 Miller St.
North Sydney, NSW. 2060

Locked Bag 1837
St Leonards NSW 2065

T: 02 9921 2999
F: 02 9921 2552
www.agl.com.au

A few words.

Hamilton Base Hospital

Foster Street

Hamilton VIC 3300

13 November 2012

Macarthur Wind Farm

Dear Doctors at Hamilton Base Hospital,

I am writing to inform you that wind turbines started to turn at the Macarthur Wind Farm located approximately 14 kilometres east of the township of Macarthur, in late September 2012. For your reference, wind farms have been operating in Australia over 20 years, with over 1,300 turbines now in service. The Macarthur Wind Farm is the sixth wind farm that AGL has developed in Australia.

Our experience has shown that some people may claim that in their opinion, there is an association between health issues and wind farms. Often these concerns primarily relate to claims of noise or excessive infrasound being generated by wind farms. This opinion has been communicated in the public arena using terms such as "Wind Turbine Syndrome".

Extensive research has been carried out in relation to this topic. No less than 17 independent international studies have been conducted by credible authorities, all of which have rejected these claims.

The health and safety of our local community is our priority, and the amount of inaccurate information regarding wind farms that is in the public realm is very alarming. It is in this context that we wish to provide you with some background information on this topic.

The attached information has been produced by organisations that are focused on public health and not specifically the wind industry.

To summarise:

- The Climate and Health Alliance (CAHA) is a coalition of organisations and individuals from the health sector, and includes health care professionals, health care service providers, institutions, academics, researchers, and health care consumers. Their position statement on wind farms is: (http://caha.org.au/publications/position-statements/)
  - *An expert review reveals there is no credible scientific evidence that demonstrates a direct causal link between wind turbines and adverse health impacts in people living in proximity to them*
- The Australian Government's National Health and Medical Research Council (NHMRC) has released the following public statement: (http://www.nhmrc.gov.au/guidelines/publications/new0048)
  - *There is currently insufficient published scientific evidence to positively link wind turbines with adverse health effects;*
  - *Relevant authorities should take a precautionary approach; and*
  - *People who believe they are experiencing any health problems should consult their GP promptly.*

The NHMRC will be publishing an update to their review in May 2013.

AGL's primary objective is to ensure all our assets including our wind farms operate without unreasonably impacting the community. We are committed to maintaining factual based assessments of wind farms and sharing this information with the broader

community. If you feel it would be beneficial, we would appreciate your assistance where appropriate in directing any concerned patients to our project website agl.com.au/macarthur or our dedicated Community Engagement team on 1800 039 600.

If you would like to discuss this further, please do not hesitate to contact me [redacted]

Yours sincerely

[redacted]

Amanda Shaw

Community Engagement Manager

ATTACHMENTS: WIND TURBINE HEALTH IMPACT STUDIES

1. Climate and Health Alliance Position Statement
2. National Health and Medical Research Council (NHMRC) Public Statement
3. Doctors for the Environment Australia, Health Effects of Wind Turbines: DEA Position Statement

Further reading:

http://www.goyder.sa.gov.au/webdata/resources/files/Attachment_5.pdf

http://www.awea.org/learnabout/publications/upload/awea_and_canwea_sound_white_paper.pdf

Level 15, 222 Exhibition Street
Melbourne VIC 3000
Australia

T: +61 3 9929 4100
F: +61 3 9929 4101
E: info@cleanenergycouncil.org.au
cleanenergycouncil.org.au
ABN: 84 127 102 443

Clean Energy Council

Wind industry statement on confidentiality clauses in landowner contracts

As responsible wind farm developers, we have never intended to restrict landowners from raising concerns they may have in relation to alleged potential health impacts of wind farms.

All landowners, who are business partners in the wind farm project, may freely discuss such matters with their doctors, government agencies and in public. In order to avoid any confusion, the wind industry is in the process of clarifying this with landowners directly.

The industry strives to provide open communication with landholders and we would encourage anyone with concerns about potential health impacts to contact the relevant company.

Like any other commercial contract, our landholder contracts do contain some confidentiality clauses, which are designed to protect the interests of both parties. These are only intended to be concerned with the commercial terms of our contracts, and are not meant to restrict landowners from discussing any concerns they may have.

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