Nature Conservation Council
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NCC Submission on Bayswater Power Station Turbine Efficiency Upgrade - Additional information

Dear Madam/Sir,

NCC welcomes the opportunity to provide additional information to be considered by AGL and the Department of Planning. This information is additional to our previous submission, which we have not reproduced here.

Upgrade triggers POEO group 6 classification and requires improved NOx controls

Clause 33 (1) of the POEO regulation stipulates that following certain alterations to units, they will be considered as group 6 emissions units, and therefore be required to meet more stringent emissions standards.

NCC suggests that the increase of the capacity of each generating unit by 25 MW will lead to increased air emissions, so clause 33 (1) is triggered and the consent authority should regard upgraded Bayswater units as "group 6". Therefore require modern pollution controls such as selective catalytic reduction are required, that will allow Bayswater to meet group 6 requirements.

In the EIS, the proponent claims that the upgrade, air emissions will remain unchanged. However we contend that this is due to (1) incorrect and untested coal throughput assumptions, and (2) unrealistic baselines.

Likely increase in energy generation, capacity factor and air emissions

Although the EIS finds that Bayswater coal consumption and therefore air emissions will remain flat, or slightly decline, we note that this is a direct result of assumptions made by the proponent, rather than a reliable forecast that includes the dynamics of the energy market.

Table 7.6 in section 7.2.4.1 identifies operational input data used to calculate greenhouse gas emissions. In this section, the proponent states that "within the model it has been assumed that there will be no other change to the capacity factor" - i.e. the capacity factor is assumed to be 69% in both the upgrade and do nothing scenarios.

Given that under the upgrade, Bayswater will be operating with a lower cost per MWh produced, we suggest that the default economic scenario should expect an increase in dispatch from Bayswater, i.e. the plant will run at a higher capacity factor. That is, despite the approximately 4% efficiency improvement, market forces would tend to incentivise Bayswater owners to burn more coal and produce more electricity and hence air emissions than in the do nothing scenario.

The proponent appears to recognise this possibility in Table 7.6, however they claim that it will be offset by increased penetration of renewable energy generation resulting in reducing demand for energy generation at Bayswater. This is flawed because it fails to consider that three important points. Firstly, other coal fired power stations will close in the interim. AEMO expects Liddell, Eraring and possibly Vales Point to close in the meantime. Secondly, Bayswater is competing more with other coal power stations - both in NSW and imported coal power from Queensland and Victoria - than renewable energy. Recent generation data (Department of the Environment and Energy, Australian Energy Statistics, Table O, April 2018) shows from that coal accounted for 81% of NSW generation in 2017, while wind and solar accounted for a total 6%. NSW also imported significant quantities of mostly coal generation from Qld in this period. Thirdly, even if

renewable energy does reduce demand for Bayswater to produce power, as the proponents claim, this would also happen in the "do-nothing" scenario. It is plain that the comparison in EIS Table 7.7 is flawed on this third point - either the capacity factor in the "upgraded" case should increase due to market effects, or the capacity factor in the "current turbines" case should decrease due to a claimed increase in renewable energy penetration. Table 7.7 needs to be revised.

Bayswater is the lowest marginal-cost coal generator in NSW, and the proposed project will further this advantage. Failing further information in the form of an independent assessment of the likely market outcomes of Bayswater reducing its cost of production due to energy efficiency gains, the default assumption should be that this upgrade will result in an increased capacity factor, and therefore air emissions for Bayswater.

Unrealistic baselines

The proponent admits that the base case used in Table 7.7 is not realistic:

> "The 'do nothing' scenario is theoretical because the turbines need to be replaced due to their age..." EIS page 46.

That is, without the upgrade works, the turbines would need to be overhauled, or the plant retired sooner.

The EIS results are flawed because the proponents use this unrealistic baseline to claim that the upgrade will reduce, or at least cause no increase in emissions.

NCC suggests that other scenarios, such as "efficiency 660" (EIS section 1.7.4) be used as an appropriate baseline for determining whether the proponent's upgrade results in an emissions increase. The "efficiency 660" scenario appears to be the lowest cost scenario (other than closing the plant) and the proponent notes that it results in even greater efficiency gains than the preferred option - capacity 685.

Turbines form part of an "emissions unit" for the purposes of the POEO Act

According to the POEO regulation Part 5, an "emissions unit" is defined as follows:

> Emission unit means an item of plant that forms part of, or is attached to, some larger plant, being an item of plant that emits, treats or processes air impurities or controls the discharge of air impurities into the atmosphere.

As the EIS sets out in EIS Table 7.6, and we expand on above, the change in capacity and efficiency of the turbines is likely to result in the generators running more often and generating more electricity. It is therefore clear that the four turbines form an inseparable part of the four emissions units at Bayswater plant, as changes to the turbines will change the rate of discharge of air impurities to the atmosphere.

We trust that these points have been useful in guiding the Department's recommendations.

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