8 October 2021

NSW Environment Protection Authority
PO Box 488G
NEWCASTLE NSW 2300

By email: RegOps.MetroRegulation@epa.nsw.gov.au

Attention: Mr Adam Gilligan

Dear Adam,

RE: VALES POINT EPL761 – LICENCE VARIATION APPLICATION FOR NOX EMISSION LIMITS

I refer to Delta Electricity's licence variation application (LVA) submitted to the NSW EPA in December 2020 to vary the Vales Point Environment Protection Licence #761 (EPL) with respect to the emissions of oxides of nitrogen (NOx) and the request by the EPA on 10 May 2021 for additional supporting information.

The LVA seeks to vary EPL condition L3.8 to extend the exemption of Group 5 standards of concentration under Protection of the Environment Operations (Clean Air) Regulation 2021 (CAR) for NOx emissions from Vales Point Power Station for a further 5 years.

The LVA, along with the updated information submitted with this letter, meets all the requirements in the CAR to enable the NSW EPA to approve the LVA as outlined in this letter.

Importantly, the air studies continue to show that the contribution of coal-fired generation in the region to annual NOx levels is small, with local air quality also better than other built-up areas in the State. This trend will continue as Vales Pt, like all other power stations, is reducing output annually as the uptake of wind and solar generation in the State increases. There is no justifiable reason why Vales Point power station should be subject to lower NOx emission levels than most other coal-fired power stations in the State. NOx emission levels from Vales Point have already been reduced to the required standard for over 98% of time, based on continuous monitoring, which is an internationally high standard for the latest new-build coal-fired power stations. Moreover, as the Australian Energy Market Operator has publicly stated, closure of Vales Point, as presently planned for 2029, will result in critical shortages of dispatchable power generation in the State. There is time to rectify the current forecast for critical shortages post 2029 but forced earlier closure would leave less time to ensure sufficient replacement power generation in the State to ensure the reliability and sustainability of electricity supply.

<u>Clause 36 of the Clean Air Regulation</u>

Clause 36(3) requires Delta to submit an LVA no later than 12 months before the date on which the current variation expires. Delta's LVA is dated 22 December 2020, which is slightly greater than the required 12 months for the expiry date in condition L3.8 of the EPL of 1 January 2022 and therefore within the required timeframe. Delta's LVA was lodged pursuant to clause 35 of the *Protection of the Environment Operations (Clean Air) Regulation* 2010 (**Repealed Regulation**). Clause 35 of the Repealed Regulation is in relevantly similar terms to clause 36 of the CAR and the LVA is preserved by clause 81 of the CAR.

Clause 37 of the Clean Air Regulation

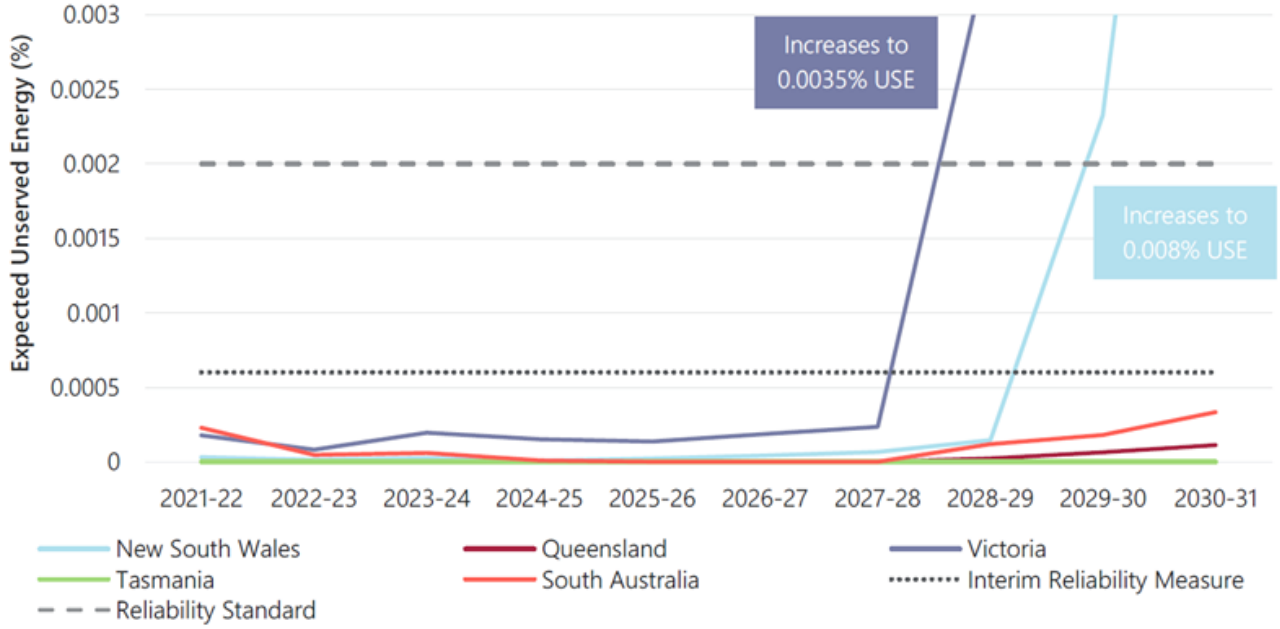
Clause 37 of the CAR requires the LVA to be accompanied by a report containing each of the following:

a) particulars of the concentration or rates at which air impurities are emitted. Section 3.1 of Attachment A to the LVA outlines emission rates of NOx at Vales Point. Emission data has been further evaluated in the attached report titled '*Vales Point Power Station Air Quality Assessment for Group 5 Exemption Extension'* (Katestone Report);
b) the results of an air pollutant impact assessment. Appendix B of Attachment A for the LVA contained the air impact pollutant assessment from the original 2010 application to first amend the EPL for Vales Point to be exempt from Group 5 standards, along with up to date assessments of emissions and air quality since that time. The LVA submitted in December 2020, along with the additional information provided now, provides the air pollutant impact assessments required for a valid application. As requested by the EPA since the LVA was submitted, the attached Katestone Report contains an air pollutant impact assessment using contemporary meteorological data. In addition to NOx, the assessment also contains modelling of sulfur dioxide emissions as requested by the EPA;
c) details of any pollution reduction programs. Delta submitted a pollution reduction study (PRS) to the EPA as a condition of its EPL in 2017. In response to the EPA's request for information, the PRS has been updated and is being submitted at the same time as this letter;
d) details of any control equipment that has been installed. NOx emissions from a coal-fired boiler and the control equipment are addressed in the PRS prepared by Jacobs. This report was first submitted to the EPA in 2017 and has recently been updated and attached, titled '*Vales Point - Evaluation of Potential NOx Emission Controls NOx Pollution Reduction Study – 2021'* (Jacobs Report); and
e) such other information as may be relevant to demonstrate the acceptability of impacts associated with the alternative standards arising from the proposed LVA. Delta has presented extensive information in the LVA as well as in the Katestone Report and Jacobs Report submitted with this letter. The submitted reports demonstrate that Vales Point will be compliant with the Group 5 limit (i.e. the more stringent limit) for over 98% of the time in the next 5 years. In other words, the less stringent limits sought by the LVA are anticipated to apply in practice for less than 2% of the time over the period of the LVA.

Energy Security

The Australian Energy Market Operator (AEMO) recently published its *2021 Electricity Statement of Opportunities* (ESOO). The purpose of the ESOO is to provide technical and market data that informs the decision-making processes of market participants, new investors, and jurisdictional bodies as they assess opportunities in the National Electricity Market. It incorporates a reliability assessment against the reliability standard, including AEMO's reliability forecasts.

Figure 1 Expected unserved energy, 2021-22 to 2030-31, Central outlook



In the ESOO, AEMO modelled the early closure of Vales Point (the anticipated closure date is in 2029) and found that an unplanned closure of Vales Point would pose substantial risk to consumers. When Vales Point does retire, expected unserved energy increases substantially as demonstrated in Figure 1, reproduced from the ESOO.

Strategic Need and Justification for the Licence Variation Application

The LVA is required to ensure Vales Point power station keeps operating within compliance limits. The NOx limit sought for Vales Point is identical to the limits for the most recently built power stations in NSW at Mt Piper and Bayswater. The CAR Group 5 limit, if mandated, would impose a much tighter NOx limit on Vales Point than is required of more contemporary generating units in NSW. It would be inequitable to set a tighter limit based on age, especially when the Government has not further reviewed the CAR as was anticipated in 2005 when the transitional arrangements were introduced (refer Attachment A for more information on the Regulatory Impact Assessment for the CAR).

The Jacobs Report identifies and assesses various potential NOx controls, demonstrating that while NOx controls are technically feasible, they are not economically feasible, particularly for a utility nearing the end of its economic life. The requirement for additional NOx controls would present an unnecessary financial burden on Vales Point's viability. Early closure of the station would present a significant challenge to energy security, which is unwarranted given the power station will comply with the existing EPL limits for itself and similar plants at Bayswater and Mt Piper.

The Katestone Report sets out the local, regional and inter-regional impacts of emissions from Vales Point, demonstrating that there would be no discernible difference in air quality if emissions were compliant with the Group 5 limit 100% of the time. This is due to the relatively low contribution of Vales Point to regional and inter-regional air quality, combined with the fact that emissions from Vales Point are compliant with the Group 5 limit for over 98% of the time.

The Jacobs Report, Katestone Report and a review paper by Hugh Malfroy are submitted to the EPA to assist with its determination of the Vales Point LVA. The key points are that:

1. analysis of local air quality monitoring data demonstrates that concentrations of NO2 have remained below the air quality criteria for the last 10 years, with the contribution from Vales Point being only a small part of measured NO2 levels;
2. a review of published literature on regional ozone formation, secondary particulate formation and inter-regional transport of air pollutants found that measures to reduce NOx emissions at Vales Point would not have a discernible impact on air quality across the greater NSW Metropolitan Region;
3. based on recent emissions, Vales Point is likely to comply with Group 5 emission limits for over 98% of the time, with NOx concentrations demonstrated to be consistently reducing over time; and
4. the significant costs required to comply with the Group 5 NOx limit for 100% of the time would provide no discernible impact on inter-regional, regional or local air quality and therefore would provide no discernible improvement to the environment or human health.

Additional context to the CAR with respect to the Regulatory Impact Assessment that was prepared in 2005 when the review of emission standards for older scheduled plant was introduced into the CAR, and a response to the EPA's request for additional information is provided in Attachment A to this letter.

Delta is aware of, and consents to, the planned public exhibition of the information submitted to the NSW EPA as part of the LVA. Consent is provided on the basis that Delta is provided the opportunity to respond to public submissions. It would be appreciated if notice of the intended exhibition period could be provided as soon as it is known.

Delta and the consultants that prepared information in support of the LVA would be pleased to meet with the EPA to provide an overview of the work that has been conducted. Please contact me to arrange a time.

Regards,

Justin Flood
Executive Manager Sustainability

Attachment A

Regulatory Impact Assessment for the Clean Air Regulation

This section pertains to the Regulatory Impact Statement (RIS) that accompanied the Protection of the Environment Operations (Clean Air) Amendment (Industrial and Commercial Activities and Plant) Regulation 2005 when it was legislated, which introduced the more stringent Group 5 limits. The RIS contains several relevant statements to the LVA, presented in italics below. Delta's analysis in light of the extracts is presented in plain text.

The proposed review of the emission standards applicable to older scheduled industry recognises:

- *the objective of protecting against adverse health impacts by controlling emissions through application of contemporary technology, in relation to which the application of suitable control technology to potentially harmful emissions is no less necessary just because a plant is established*

- *the economic life of pollution control equipment and the investment cycle of industry. Most pollution control equipment has a life of approximately 20 years; therefore, it is reasonable to expect that older industry has replaced older equipment with more contemporary control equipment and processes, or is due to do so*

With respect to the above:

i. Vales Point meets all other Group 5 limits aside from NOx emissions and went through the exercise in 2008 of installing a fabric filter dust collection plant to improve particulate emissions, replacing the older technology previously used at the site involving electrostatic precipitation when the precipitator equipment reached end of life and required replacement. However, ongoing NOx control is multi layered and is substantively a part of the boilers, making it more difficult to address NOx control as a specific replacement item at Vales Point, as has been outlined in the Jacobs Report; and
ii. coal-fired power stations have a technical life of 50 years due to the significant infrastructure involved in building and operating them. While parts of the power station are modernised over time as part of regular maintenance cycles, changes to incorporate lower NOx emissions would effectively require either a rebuild of the boiler or a loss of capacity.

At future reviews of the Regulation, expiry dates for the emission standards of other groups of scheduled industry, e.g. Groups 3, 4 etc., may be considered, as plant subject to these groups ages and becomes due for replacement.

Subsequent reviews of the CAR have not considered changing the emissions standards for Group 3 and Group 4 scheduled industry. Instead of amending the CAR, the EPA has imposed NOx emission standards at a a limit of 1,500 mg/m3 for more modern power stations such as Mt Piper and Bayswater, which is below the CAR Group 3 and 4 limit of 2,500 mg/m3 for these power stations. The EPA has granted Vales Point the same limit of 1,500 mg/m3 for NOx emissions, while Eraring power station has a limit of 1,100 mg/m3 applied due to a change in planning consent that occurred when a substantial investment in uprating the power plant was undertaken.

As the current level of NOx emissions from Vales Point is lower or equivalent to those of Mt Piper and Baywater, it would be inequitable to impose tighter NOx emissions standards on Vales Point than its

industry peers given the findings in the Katestone Report that there will be no discernible impact on air quality should Vales Point be required to comply with the Group 5 limit at all times.

It is not intended that existing plant is unnecessarily or arbitrarily required to be upgraded as a result of this proposal. Under the proposal, operators of Group 1 and Group 2 premises may seek a five-year extension to their existing standards by:

- *undertaking an air pollution impact assessment (in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW)*
- *demonstrating that its air emissions are not causing any adverse impacts on the surrounding environment.*

This ensures that any requirement to upgrade is informed by an understanding of any environmental impact of the affected plant. At the end of the five-year extension a further extension would be possible, subject to a repeat of the impact assessment process.

The RIS anticipated that ongoing extensions to existing standards may occur and that plant upgrades are not unnecessarily or arbitrarily required to be performed because of this provision in the CAR. There is no limit on the number of extensions permitted, only that the environmental impact of ongoing emissions be assessed on each occasion. Due to the recent replacement of Unit 6 burners and ongoing combustion optimisation, emissions of NOx from Vales Point will be lower than immediate past emissions for the period of exemption being applied for. The LVA presents an extensive series of studies on the environmental impact of the anticipated air emissions, which makes clear that the impact will not be significant, and indeed that there would be no discernible impact on air quality between the anticipated operation and the scenario where Group 5 limits applied at all times.

The proposal is intended to provide flexibility for a case-by-case review of emission standards of older industrial plant, while also sending a clear signal to industry that outdated plant and equipment (including pollution control technology) will need to be progressively upgraded to more contemporary technology.

Delta is seeking that the EPA apply the flexibility that is allowed for in the CAR and review the particulars for Vales Point NOx emissions as submitted, noting that NOx emissions have steadily improved since the first exemption was granted in 2010 and will continue to improve now that Unit 6 burners have been replaced.

<u>Other Information Requested by the NSW EPA</u>

The NSW EPA included additional requirements in its letter to Delta dated 10 May 2021. Delta's updated response to the requirements set out in Attachment A to that letter are provided below using the same number referencing contained in the EPA letter, noting that an initial response by Delta was provided on 4 June 2021.

1) The assessment objective is agreed.
2) (a)(i) to (iv) have been complied with.
   (a)(v) is not a statutory method referenced in the CAR. Delta maintains that sufficient modelling of ground level ozone impacts has been performed over the years to understand power station contributions. The Katestone Report includes a literature review and analysis of ozone studies for the Greater Sydney Metropolitan region, which is submitted for the EPA to determine if further modelling work is required in addition to CAR requirements.
   (b) Refer to the Katestone Report for justification of all assessment methods used.
3) (a)(i),(ii) completed, refer to the Katestone Report.
   (a)(iii) the Katestone Report references the latest air emissions inventory published by the EPA.

(a)(vi) and (vii) reference a European Commission directive and policy report on Best Available Techniques (BAT) for large combustion plants. While there is no regulatory guidance applicable to the Australian context within these documents, Delta has included reference to the BAT document in the PRS and the Jacobs Report.

4) (a)(i) refer to the Katestone report that includes consideration of both the Hunter and Newcastle gas power projects.
(a)(ii) the LVA is required due to the uneconomic cost of additional NOx controls (alternatives to the LVA) as identified in the Jacobs report and supported by air quality modelling in the Katestone Report. The covering letter addresses the strategic need and justification for the LVA and energy security and reliability in NSW.

5) (a) refer to the Jacobs Report.
(b) refer to the Jacobs Report.
(c) refer to the Jacobs Report for NOx emission controls. A high level review of SOx controls has been included. Delta has not conducted a detailed feasibility assessment for the nominated SOx controls due to:
- the lack of relevance of SOx controls with respect to the LVA;
- the assessment in the Katestone Report regarding secondary particle formation derived from Vales Point SOx emissions not being a factor in regional or local air quality; and
- the fact there are no SOx emission limits nominated in the CAR, albeit there is a SOx limit in Delta's EPL that has recently been reviewed by the EPA and for which Delta has been 100% compliant.

(d) refer to the Jacobs report for NOx evaluation of feasible measures.
(e) refer to the Jacobs Report.

6) (a) refer to the Katestone Report, noting that a contemporary local air quality model has been provided and not a regional or inter-regional model. The justification for this approach is within the Katestone report.
(b) refer to Katestone Report which provides a risk assessment of potential impacts at ground level.

Delta notes that the briefing note by Dr Ben Ewald, January 2021, "*Power station NO2 emissions and paediatric asthma in Central Coast, Hunter Valley and Sydney Local Government Areas*" has been quoted widely by activists and media outlets. Delta commissioned a review of this briefing by Hugh Malfroy, a copy of which has been submitted to the EPA. That review found that the Ewald briefing note estimates on the incidence of 656 cases of childhood asthma attributed to power station emissions could not be replicated and estimated the true number was more likely to be an order of magnitude lower. It has the potential to create community concern when there is no need for the community to be concerned.
(c) the Katestone Report assesses the potential impacts of Vales Point emissions on the receiving environment.
(d) refer to the Katestone Report.
(e) refer to the Katestone Report.
(f) refer to the Katestone Report.
(g) refer to the Katestone Report.
(h) refer to the Katestone Report.
(i) refer to the Katestone Report.
(j) refer to the Katestone Report.
(k) refer to the Katestone Report.
(l) the requirement to model impacts on the regional and inter-regional receiving environment as requested is excessive and unnecessary as already outlined by Delta. Refer to the Katestone Report for a literature review of previous modelling for the Greater Metropolitan Region. If, after

review, the EPA determines that such a study is required, Delta is prepared to conduct the study but will require an adequate amount of time to complete the task given the significance of the work involved.

(m) this was not able to be performed given the previous item (l) has not been completed. The Katestone Report includes some discussion of this subject.

(n) this was not able to be performed given the previous item (l) has not been completed. The Katestone Report includes some discussion of this subject.

(o) this was not able to be performed given the previous item (l) has not been completed.

(p) this was not able to be performed given the previous item (l) has not been completed. Delta notes that it has engaged independent consulting firms to prepare the contemporary air quality assessment and utilised an independent expert to assist Delta in review of the scope and reports. Given the time constraints to submit the current works, Delta is prepared to engage an independent expert peer reviewer nominated by the EPA.