

Submission against Lake Lyell Pumped Hydro 77018220

The submission is made by John Henry Herron and Ann M Herron, the owners of 1920 Hampton Rd Rydal 2790.

Our property is approximately 1.5 kilometres in a direct line from the project works

Introduction and Project Overview

This project is located at a site which fails criteria set by the NSW Government, fails to satisfy investigations conducted by the ANU, and achieves less capacity than a battery installed at a fraction of the cost and with no environmental damage at Wallerawang. Nevertheless, the project will cause permanent, irrevocable and large scale environmental damage, the details of which are briefly set out below but which are dealt with in great detail in the submission of Concerned Lithgow Community Group of which i am a member.

The sole value of the project is that it will provide very significant profits to the Applicant which is a joint venture of Energy Australia Pty Ltd (25%) (EA) a wholly owned subsidiary of China Light and Power of Hong Kong and a French Company, Energy de France (EDF)

Historical Background of lake Lyell

Prior to 1982, Delta Energy Ltd acquired the land through which the Cox's river flows and above which Lake Lyell now exists. Delta acquired an Approval under the NSW Water Management Act to construct certain authorised water supply works. Those works comprised a dam across the Cox's river, outlet works, a pump station and pipelines designed to take water from the lake to be created to provide cooling water at Wallerawang power station and Mt Piper power station.

The approval was specifically limited to the provision of that cooling water to both the power stations. Lake Lyell now has a surface area around 238 hectares, a maximum depth of 38 metres and capacity of approximately 34 gigalitres. It is a major recreational water skiing, swimming, boating fishing, canoeing picnicking and camping area. The lake attracts up to 1,500 people a day in peak periods. For the reasons set out below, those activities are unlikely to survive the proposed pumped hydro project if it proceeds.

In 2011, EA Acquired the land underneath Lake Lyell and the authorised water supply works, and all of the land surrounding the lake including Mt Walker.

The Effect of The LLPH Project on the Aquatic Health and Life of Lake Lyell

At the time of acquisition, EA was issued with a Statement of Approval issued under the Water management Act under which the authorised use of Lake Lyell was confined to operating the authorised water supply works. EA was also issued with a water license number WAL 27428

which at the time of acquisition was issued to EA. Similarly, that licence did not permit any other use of the water in Lake Lyell.

As a condition of the WAL, EA provided an annual compliance report for the 2024-2025 year. This report and its appendices (which found the health of the lake to be compliant) was provided to EA by Stantec Ltd, is over 100 pages in length and deals in what can only be described as extraordinary detail with the health in the lake of:

- Aquatic macroinvertebrates
- Periphyton
- fish assemblages
- Effects of Flow regulation on components of Aquatic Ecology
- the response of aquatic ecosystems to a new environmental flow regime implemented in 2011.

Water Management Act Concerns

The Water Management Act will have no role in the question of whether the effects on the aquatic life and water quality of the proposed Pumped Hydro project should prevent that project proceeding. That is because section 5.23(g) of the Environmental Planning and Assessment Act provides that Approved State Significant Infrastructure Projects, including CSSI projects, do not require water supply work, water use or controlled activity approvals under the Water Management Act

However there is still a requirement that all approval related works and activities be adequately assessed to DCEEW's satisfaction as part of the project impact assessment process.

Failure to Properly Assess Aquatic Impacts

In order to seek to achieve that satisfaction, the applicant engaged a new consultant - Austral Research and Consulting . Austral has provided a lengthy report which fails to recognise and deal with the effect on the aquatic life and water quality in the lake which will result from the massive amount of water which will be removed from the lake. The real issue confronting Austral is that the project will every single day for 12 hours pump 5.3 gigalitres of water (16% of the entire water in the lake) out of the lake and returned back into the lake under pressure over a further 8 hour

period. The total amount of water being dumped back into the lake will be 5,500 million litres, the equivalent of 2,200 Olympic swimming pools or one Olympic swimming pool every 13 seconds. This amount of water will be dumped from a height of 265 metres which means the pressure will be 400psi. All of this water will be dumped through a 7 metre pipe.

Inadequate treatment of Water Discharge Impacts

Now what does Austral say about this?

There is no mention at any point in Austral's Aquatic Ecology Assessment of the extent of the dumping of water into Lake Lyell. All that is said is in Appendix K 9.11 - *"operation of LLPHES results in increased turbidity in Lake Lyell as a result of hydrology changes during operations"* and in the Surface Water Assessment (8.6) *"operational phase residual impacts"*. *"The PHES pumping and discharges: the maximum pump rate is 190m³ and the maximum discharge rate is 210m³. During a full cycle 5.3 gigalitres (equal to 16% of lake Lyell total storage value) will be transferred between Lake Lyell and the upper reservoir"*

Nowhere in the Appendix K, the Aquatic Ecology Assessment or the Water Licence Strategy or the Surface Water Assessment sections of the EIS is any mention made of the extent and volume and resultant pressure on and below the Lake. What is mentioned repeatedly is the adverse consequences of the "transfer" (to use the gentle word adopted by the applicant to describe the dumping of 5 and a half thousand million litres of water into the lake every day for 80 years) of water into the lake. **Long Term Ecological Consequences**

The claim that the damage to the aquatic ecology caused by the "generation of turbidity" will be "in the short term" or "transient" is highly debatable and in our submission simply false. Over the 80 years of this project 5 thousand million litres of water will be dumped into Lake Lyell every day. It is impossible to contemplate that the turbidity, scouring, constant destratification, kinetic mixing of lakebed soil, destruction of aquatic life in the dam will reduce over time. the opposite is clearly the most likely result.

Documented Ecological Risks Identified in the EIS

It is critical to observe the following excerpts from the Aquatic Ecology Assessment, the Water Licence Strategy and the Surface Water Assessment, none of which components of the EIS mention at any point, the extent and volume and resultant pressure on or below the lake of the dumping of 5 thousand million litres of water every day for 80 years.

In observing these excerpts it will be noticed that almost without exception they are adverse to the applicant's application. The only strong conclusions that water quality will not be affected relate to the position downstream of Lake Lyell.

the operation of the Lake Lyell PHES may result in a loss of macroinvertebrate habitat, biodiversity and abundance. Impacts to macroinvertebrates resulting from the operation of the Lake Lyell PHES are discussed in 8.2

Increased turbidity and sedimentation has the potential to smother aquatic biota, reducing photosynthesis and decreasing primary production which may have cascading effects on various trophic levels. Impacts are expected to be transient and are discussed further in 9

*Operation of LLPHES results in bank slumping as a result regular changed water levels
Assessments from the Surface Water Assessment (EMM Consulting Pty Limited, 2025b) suggest this is possible based on geology and modelling of flows during operation particularly in the farmers creek arm of Lake Lyell*

*The inlet/outlet structure includes a sump area that will be constructed lower than the surrounding ground. As lake levels recede during non-operational times the sump will become isolated and Aquatic vertebrates may become entrapped.
Water quality will deteriorate the longer the sump is isolated from the main body of the lake. The loss of all trapped fish is almost certain*

Generation of turbidity is likely to occur in the short term. Increased turbidity is predicted to be temporary (refer SWA). The degree of turbidity is currently unknown. If turbidity is significant and occurring over several months there is potential for a loss of macrophytes, an increase in the occurrence of algal blooms and associated trophic cascade including a decrease in macroinvertebrates which may result in impacts to platypus.

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*Potential smothering of aquatic biota, macrophytes and habitats due to erosion
Increased turbidity and sedimentation has the potential to smother aquatic biota, reducing photosynthesis and decreasing primary production which may have cascading effects on various trophic levels. Impacts are expected to be transient and are discussed further in section 8.2.*

*Direct/Indirect Increased turbidity in Lake Lyell as a result of erosional forces
Construction activities and operation of the PHES may increase turbidity within Lake Lyell. Increased turbidity will impact primary productivity, benthic habitat structure,*

water quality, and macroinvertebrate communities. Such changes could impact platypus habitat use, foraging behaviour.

The operation of the PHES will introduce the following key changes to Lake Lyell:

- Water circulation - A full cycle will circulate 5.3 GL of water between Lake Lyell and the upper reservoir.*

This volume is equivalent to 16% of Lake Lyell total storage capacity (33.5 GL), up to the FSL. Water discharged from the upper reservoir into the Farmers Creek arm will be fully mixed and oxygenated which

means it will have a homogeneous temperature, density and water quality and high DO levels.

- Increased kinetic mixing - pumping and discharging will introduce new currents and kinetic mixing in Lake*

Lyell. The currents will be strongest in the Farmers Creek arm of Lake Lyell and in the upper (northern) extent of Lake Lyell which is narrower and shallower than the lower (southern) extent of the lake.

Section 8.5.1 describes a conceptual water cycle processes model for Lake Lyell with PHES operations. Changes to PHES induced mixing (Lake Lyell) – Pumping and discharging will introduce new currents and kinetic mixing in Lake Lyell. The currents will be strongest in the Farmers Creek arm and in the upper (northern) extent of the lake which adjoins the Farmers Creek arm where it is narrower and shallower than the lower (southern) part of the lake. The increased currents and mixing are expected to reduce the extent and magnitude of lake stratification relative to the existing condition. These changes will be more prevalent in the upper portion of the lake than the lower portion

A key conclusion in Table 8.4 is that due to the proposed water management measures and the beneficial effect

of the PHES operation on Lake Lyell water quality, the commissioning and operational phase of the project is

expected to have a neutral to beneficial effect on water quality in the Coffs River downstream of Lake Lyell. This

means that the project would also have a neutral to beneficial effect on water quality in Lake Burragorang, which

is a major water supply dam for the Sydney metropolitan region that receives inflows from the Coffs River and is operated by water NSW.

Effects on the Lithgow Environment and Landscape

Contrary to the incorrect claims of the Applicant, the reservoir on Mt. Walker will be visible from many parts of the City of Lithgow and throughout a wide degree sightline by thousands of residents, farmhouses and many businesses including the famous Eagle View Escape and the Lake Lyell Recreational Park which is Lithgow's major tourist asset and attracts 1,500 visitors a day in peak periods.

Mt Walker is 1,172 metres in height, higher than nearby Mt Victoria and the proposed reservoir will be higher than Mt Walker's peak. The project will destroy 130 hectares of pristine bushland most of which is on the slopes of Mt Walker where the reservoir is to be built.

At the end of the 80 years of the project it will be impossible to restore the damage caused to the environment.

Destruction of an iconic Landscape Feature

The project will destroy Lithgow's iconic Mt Walker since it involves the construction of a reservoir on its Southern side which will be higher, wider and longer than the Sydney Harbour Bridge.

Effect on the Lake Lyell Recreational area.



Every day during the 80 year life of the project, the level of water in the lake will drop 2.8 metres vertically. The above pictures Unrealistic Mitigation Proposals are:

1. The Lake shore when full
2. The same lake shore when the lake surface is reduced by 0.6 metres

The situation which will occur when the lake level is reduced by 2.5 metres makes it clear that the lake as a camping, water skiing, boating and canoeing site will be unuseable and extremely dangerous. The most likely times at which the level of the lake will drop 2.5 metres will be afternoons around 4 to 5 pm - the peak summer times of maximum use. Boaters and campers will find their boats stranded and probably badly damaged in rocks and mud.

In these circumstances, despite the applicant's claims to the contrary, the lake as a camping, boating, waterskiing, canoeing fishing recreational area will not survive the project.

Unrealistic Mitigation Proposals

During low lake levels, particularly - but not solely - in drought, the problem becomes impossibly worse.

The author of this report attended some years ago at a meeting at Wallerawang hosted by Michael de Vink, the chief engineer responsible for this project. His typically honest response to my question "how does EA propose to cope with the effect on the lake of vertical drops in water levels of 2 metres (at the time the drop was thought to be 2 metres but the drop now will be at least 2.5 metres)?" Mr de Vink replied to the effect that EA proposed to bring in truckloads of sand to create artificial beaches.

Such a proposed solution is unrealistic and could not possibly work. It simply confirms the hopelessness of the suggestion that the recreational aspects of the lake will survive this project.

The Alternative to This Environmentally Destructive Project

This morning, an article in the Australian Newspaper announced that the estimated cost of construction of **Snowy 2** will have blown out to 20 billion dollars. EA insist on treating the estimated cost of LLPH as commercial in confidence. However EA accepts that the cost will be somewhere between a smaller Queensland PH project (Kidston) and Snowy 2 which means this project will have a presently estimated construction cost of at least 4 billion dollars. That cost will no doubt double by the time construction is finished.

On the other hand, a battery energy storage system (BESS) will cost a fraction of the price, will have virtually no adverse environmental consequences and will save the destruction of Mt Walker,

the Lake Lyell recreational area, Lake Lyell water quality and aquatic life and the construction of an enormous 500 man construction camp probably on the shores of Lake Lyell.

The Great Western BESS (grid scale battery systems) is at Wallerawang will have an energy storage capacity of 3,500 MWh. The Lake Lyell PH will have a capacity of 3,080 MWh.

The GW BESS will probably cost well below 1` billion dollars. My guess is around 600/700 million.

According to the International Energy Agency Electricity 2026 report, *“Costs have declined significantly in recent years with battery storage project costs falling by about 40% in 2024 alone while average capacity of utility - scale battery storage has been increasing”*

Conclusions

1. The proposed project will be massively environmentally destructive.
2. It will bring about the end of lake Lyell as Lithgow’s major recreational and tourist asset
3. It will seriously affect the aquatic life and water quality of Lake Lyell by dumping 5 thousand 5 hundred million litres of water into Lake Lyell every day for 80 years.
4. It will destroy Lithgow’s iconic Mt Walker by erecting a reservoir the size of the Sydney Harbour Bridge on its Southern side.
5. None of these consequences will occur if the applicant builds a BESS for a fraction of the cost and producing significantly more energy storage capacity.

Common sense, social welfare and the wellbeing of the people of Lithgow demand that this application be rejected

We adopt entirely the comprehensive and superbly assembled submission of the CLC Group. That document makes it impossible in our submission to contemplate approval of the project under the EP&A act