

Lake Lyell Pumped Hydro Project

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1. Background details

Introduction

Background and history

The proponents own land, lease the water which is located near power lines. But this claim does not give the project merit.

The original provision was for power station cooling purposes which worked in harmony with the social and recreational scene in the Lithgow area. Pumped Hydro will destroy this attraction which has been a popular tourist hub and of great attraction to come into the Lithgow LGA.

This is a high impact project which will deliver reduced benefits, which is not in the best public interest.

Lake Lyell has been operating with increasing patronage since the 1980s, working along with the iconic Mount Walker which exudes cultural and heritage values.

Mount Walker was named after the well-known early settlers in the area, the Walkers who hosted Charles Darwin in his visit to Australia and is the area where Darwin first saw and observed platypus.

Mount Walker is also recognised as an important indigenous and cultural area. The peak of Mount Walker is 1190 m high and is the highest point for a radius of approximately 40 km with 360 degree views. Thus served as a viewing, meeting and cultural point for the early Australian Aboriginal groups. Numerous artefacts have been found on the site during investigations, approximately 1340 finds, which were taken off site and are apparently stored at Mount Piper Power Station. Not all Aboriginal local groups are happy with some of these arrangements and events.

Recreational activities include boating, watersports, fishing, canoeing, and tourism. In summer, 1500 visitors per day, this is one of the best known economy providers in the area, alongside flourishing businesses such as the Japanese Bath House, Seclusions, Eagleview, Springmead, and the popular recreational camping ground. These businesses provide community and

economic values already in place, the intervention of the Hydro Project will develop adverse effects and impact on these amenities.

Water fluctuations during operation and the dropping of the water level of over 3m during construction period will create recreational problems and create unsafe and scouring of shorelines, thus loss of tourist area.

The proponents claim that both the development and lake activities can work together. The proponents have not witnessed as the locals have when the lake was affected badly by drought conditions which become unsafe and unappealing to the public. These conditions will be man-made on a regular basis.

Livability is a desirable asset for any township, a lake such as Lake Lyell which has made the area appealing for visitors and prospective residents, needs to be maintained in its present state to benefit the community. Long term benefit that the proponents claim after construction ceases and then becomes operational will not supply much economic benefit. Only 15 on-going jobs will occur, compared to the possible loss of all the present tourism jobs, damage to the local economy and reduced livability attraction for the area.

2. Project facts

Project facts from the EIS:

Storage - 3080 MWh at 385 MW for 8 hours or 440 MW for shorter time

Construction time - 4 to 5 years

Disturbance footprint - 130 Ha

Upper reservoir capacity - 5.3 Gigalitres - 16% of dam capacity

Lower area - Lake Lyell - 33.5 Gigalitres

Lowering of dam during construction - 3.2 m

Lake Lyell operating range - altitude level target 784.5 m to 781 m equals a 3.5 m drop

Upper reservoir operating range - altitude level 1050 m to 1010 m

Differential head - 264 m max to 224 m min - Conservative average - 255 m

Note: the important question is the differential head compliance with the NSW Electricity Infrastructure Roadway Guidelines which states any Hydro project should have a minimum of differential head or 300m. At its maximum level this falls short at the 264m mark but even less at the conservative average figure of 255m and then down to the minimum figure of 224m.

Comparison Table 1 compares the Lake Lyell project with the Snowy Hydro, the Phoenix PH and Western Sydney PH.

Comparison table 1

	Snowy Hydro	Phoenix Pumped Hydro	Western Sydney Pumped Hydro	Lake Lyell Pumped Hydro
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Differential head	680 m	360 m	400 m	255 m
Head exceeding 300m	+380 m	+60 m	+100 m	-45 m
Generating duration hours	175 hrs	12hrs	8 hrs	8hrs
Capacity MWh	350 000 MWh	9 600 MWh	8000 MWh	3080 MWh
Distance to a town	50 km	35 km	17 km	5 km

Head pressure will decline as upper dam falls, in Lake Lyell's case, the differential head starts below the standard required and is compromised even more as the upper reservoir empties.

Generation duration hours show Western Sydney and Lake Lyell both on 8 hour duration, but Western Sydney's capacity is 8000 MWh compared to 3080 MWh.

Distance from townships. Lake Lyell is only 5 km away from the centre of Lithgow, 2.5 km from urban fringes, 800m from rural residences.

Note: the proponents in the EIS quote "THE DIFFERENTIAL HEAD IS SATISFACTORY" which is not a convincing statement to produce in an EIS.

Lake Lyell Hydro as compared to the Great Western Battery. The Great Western Battery has been approved for construction in the Lithgow LGA. There are also three other batteries being proposed, one by EnergyAustralia at Mount Piper, another by Centennial Coal Company and another at the disused Wallerawang Power Station. Any one of these batteries will supply approximately equal to the Hydro without the footprint.

Comparison Table 2 compares the Great Western Battery with the Lake Lyell Pumped Hydro:

	Great Western Battery	Lake Lyell Hydro
Generation output	3500 MWh	3080 MWh
Generation time	10.6 hrs	8 hrs
Project footprint	10 Ha	137 Ha
Environment	Cleared land	Uncleared, native land
Construction time	2 years	5 years
Cost	Decreasing	Increasing

Conclusion from table 2: The batteries output is higher, duration longer, less construction footprint on already cleared land, construction time is less, reduced environment and project risk, less social impact, and one can only predict, much less construction cost, more easier to be decommissioned and rehabilitated.

Other batteries are contributing to overall output.

Battery technology is rapidly improving and more efficient. Replacement costs of batteries is an argument but a Hydro once in place would not increase output and also has on-going repairs and replacement. There are more batteries being constructed than Hydros and thus is as well-known both present their cases as being storage. Environmentally everything discussed points to a better outcome with battery installation and as a comparison Lake Lyell falls short compared to other Hydros.

3. Biodiversity (Chapter 7 EIS)

Impacts (7.3.2 EIS Main Document)

The EIS states that “clearing of 130 Ha of vegetation and habitats for threatened species, of which biodiversity offsets are required for 102 Ha. 3989 ecosystem credits required and additional 18 115 species credits required.”

This area is untouched native bushland which offsets are required to fabricate justification for a project stated in the EIS - applications to remove offsets after 2 years. Does this imply once the flora and fauna are removed that the area then becomes purpose built for this project?

This makes a contradiction of net zero emissions when the flora and fauna is removed to achieve the target.

As stated in the EIS, these threatened species will be affected: Koala, Large bentwing bat, Eastern coastal free tail bat, Southern myotis bat, Glossy black cockatoo, Gang gang cockatoo, White bellied sea eagle, little eagle, Powerful owl, Sooty owl, Square tailed kite, Scarlet robin, Varied Sittella, Dusky wood swallow, Purple copper butterfly and platypus. Along with numerous trees and vegetation that provides breeding and foraging habitats.

Complete loss of fish habitat, a total of 11.88 Ha.

Loss of macroinvertebrate species.

Water fluctuations will create entrapment of fish and platypus.

Risk to platypus - loss of life, loss of burrowing and feeding habitat

Impact causes - lowering of lake, construction operations and fluctuations in water level

Mitigation - “Lack of data and research on platypus within a dynamic water environment such as the project”

The main waterfront area for the project swallows up a large area of the platypus habitat and this is where a massive land form alteration will occur. A divergent channel will be blasted through the adjacent ridge and the original river course and dam area will be filled with spoil, unfortunately at the demise of the platypus, fish and their habitats. The EIS states this in their conclusion in Chapter 7.3.5.

This is unacceptable!

In Chapter 7.3.5, a biodiversity management plan is to be developed. If a diversity plan has not been investigated and needs to be developed, how can the proponents justify the validity of their EIS?

The EIS states that two serious and irreversible impacts were recorded within the construction envelope, the Sooty owl and the Large bent wing bat. Two others assumed to occur are the Swift parrot and the Regent Honeyeater, and the Copper purple butterfly was also detected nearby.

The construction footprint has numerous impacts on flora, fauna and habitats and on-going existence of the biodiversity of the native bushland area. As stated, a project with irreversible impacts that will be there forever, even after decommissioning.

Note: Decommissioning has no clear plan provided in the EIS.

4. Lithgow Council Resolutions - Lake Lyell Pumped Hydro

Item 1

Due to some electoral changes on council, advocacy of opposition to the Lake Lyell Hydro Project was moved. No. 24-208 resolved, carried.

That Lithgow Council opposes any pumped hydro project facilities within our local government area.

Reasons why Lithgow Council opposes Lake Lyell Pumped Hydro:

- No strategic justification for the project
- Did not fit the pumped hydro guidelines
- Loss of recreational asset and loss of tourism
- Water safety at risk with varying water levels
- Impacts on flora and fauna, especially platypus
- Impacts on recreational fishing and habitats
- No long term benefit after construction
- Geological stability
- Unwanted social problems
- Increased traffic and noise

Item 2

EnergyAustralia's documents and borehole studies. Date: 28.1.25 No. 28-5 Resolved, carried.
Council administration request

- 1) EnergyAustralia delete using the Lithgow Council's LEEP Plan off it's documents and newsletters
- 2) EnergyAustralia to either release the core sample results obtained in their borehole studies or explain why.

Commentary

- 1) Lithgow Council developed the LEEP Plan and its contents. Now a position of opposition exists to the project it was considered inappropriate for EnergyAustralia's use
- 2) EnergyAustralia refused to release as it was claiming confidentiality. Conjecture remains as to the results as a major relocation of the upper reservoir site occurred.

Note: Further information was received in the release of the EIS which I will refer to later.

Item 3

Administration submission Date: 28.1.25 No. 25-6 Resolved, carried.

- 1) The council administration is required to present a submission opposing the Lake Lyell Pumped Hydro Project when, and if, they are to be submitted.

Item 4

EnergyAustralia's Communications Date 24.2.25 No. 25-48 Resolved, carried

That council:

- 1) Request EnergyAustralia to provide a more detailed, accurate, transparent and accountable news release in regards to the Lake Lyell Pumped Hydro
- 2) This is to be distributed to the Lithgow community of the LGA as they have done in the past by newsletters and other sources.
- 3) EnergyAustralia to keep the public and council aware of any changes in regard to infrastructure.

This was requested as some information was mis-informing and corrections were not made nor redistributed.

Item 5

EnergyAustralia Community Consultation Committee Date 1.12.25 No 25-296 Resolved, carried

That council:

- 1) Interview the council delegates to EACCC which can be placed on public record and made available to the public.
- 2) Recognise the lack of complete and satisfactory community consultation and add to the submission when called upon for the state planning.

Critical points regarding the project had only been recently released to the EACCC and needed to be made public.

Issues noted:

- Clearing of 137Ha
- Requiring the need to procure offsets
- Lake Lyell being lowered during construction for 4-5 years
- Farmers Creek arm being declared a 'no-go zone'

- 1200 vehicular movements daily on nearby access roads, Sir Thomas Mitchell Drive at present 20-40 per day.
- Blasting operations underground 24/7
- Blasting operations on the surface 9am to 6pm
- Substantial opposition and community seeks more detail
- Admitted that land holders nearby would be in an untenable position

Summary for Lithgow Council resolutions

- EnergyAustralia stated that they were committed to supplying reliable information and consultation, sadly this has not occurred.
- Information is belated on arrival, lacking substance and at times inaccurate
- In resolution 25-48, an EnergyAustralia newsletter stated that - the project was one of the best locations in NSW and this was supported by the Lithgow City Council's LEEP Plan
- Council administration reply - the LEEP Plan does not identify it as being one of the best sites in NSW and the proponents withdraw the publication, correct the error and redistribute. Note: which failed to occur and the misinformation was left in the public domain. ANU's Professor Blakers does not rank this site.
- In resolution 25-5, asked for the release of the borehole results for the project, which was rejected claiming confidentiality. Finally after many requests for years from the public, and subsequently council, and in CCC meetings, the EIS 14.3.2 Geotechnical stability has released what we suspected:
 - The site is underlain by metamorphic rock, predominantly quartzite. Indicating the presence of faulting and igneous intrusions (basalt and andesite present) in the upper reservoir area.
Presence of faulting and igneous intrusion may impact on the project infrastructure and be targeted with further investigation. Re-evaluation of the geological model will be required after investigation based on results of several faults and dykes found.

Commentary

- EnergyAustralia were asked some time back if this ground was volcanic and their answer was no. This EIS states that the ground is volcanic and faulted.
- Whilst the boreholes were underway a report was released in the local newspaper and spoken about in council forum of an occurrence at Farmers Creek turning milky white during the borehole investigation which was flatly refuted by EnergyAustralia and claimed to be a council problem. Borehole studies use drilling compounds that when mixed with water turns milky white. Under the DA approval for the boreholes, drilling compounds were stated as being used, possibly the compound liquid entered the creek through fractured strata.
What occurred next was that the site for the upper reservoir was altered because of a claim of aesthetics. The points to note is the risk of failure of ground:

1. This ground has signs of faulting and instability, underground tunnelling may not be an easy process. A good case example is Snowy Hydro with geological problems and with blow out costs.

2. Relocation of the upper reservoir reduced the working differential head, decreasing the effectiveness of the project.

Was the relocation of the upper reservoir recommended because of dam burst?

3. The published request for the results of the geotechnic studies which has now been released through the EIS amplifies the proponents lack of previous transparency and now starts to justify the concerns of the public, CCC, and council.

5. Impacts on nearby neighbours

Site location

Surrounded by national park, crown land, privately owned rural land, within 2.5km of recent and progressing residential estates.

Prior to 2021, investors had no knowledge of any such project being proposed and the site was deemed as being a national park with the rest of the surrounding area.

When I purchased a property in 2006 on Sir Thomas Mitchell Drive, no mention of the project was supplied. The accountability of all concerned regarding information at the time of purchase was not forthcoming. Some neighbours have been here over 20 years and only found out about the project in 2021.

The proponents bought the Energy assets in 2013, most knew of the asset sale but not of the inclusion of the project land. Some investors bought adjacent properties after the sale and were not informed of any future projects.

Post 2021 Nearby neighbours have been treading water since 2021 while questioning what the future holds, some want to sell but at what price? Estate agents are uncertain on pricing due to the possibility of the project going ahead - naturally the figure is less if it goes ahead. These properties are valued for their serene and natural settings to enable people to enjoy a quiet lifestyle.

One neighbour's husband unfortunately passed away and she had to sell, but at a reduced price level because of the uncertainty of the project going ahead. Another neighbour has been wanting to sell but has been caught with the same price tag problem. A reduced sale price will impact future investment and lifestyle and they are still waiting for the outcome. Unfortunately, this has caused psychological drama when engaging with proponents. They feel they have been strung along and frustration has taken over and they have now disengaged with the team.

Another neighbour had an engagement with two young males outside his boundary property which seemed suspicious because of recent farmland theft. Their car was not marked to indicate that work was taking place, nor did they have tools. He confronted the two young males

and questioned what their purpose for being there was. They were reluctant to give any reason and quickly left the scene. Sometime later a letter was received from EnergyAustralia warning the neighbour not to be physically and verbally intimidating. He then only realised they were performing work for the proponents. Subsequently, he sent a letter back to the proponents for an apology stating he was the one who felt threatened, of which no response occurred. To weigh up this confrontation, two healthy young males vs one 72 year old male with two bad knees. Note: at least an apology explaining what they were doing or notification of work or identification would have at least sufficed.

This has been typical of proponents' engagement with numerous neighbours when encountering project employees on the roadways.

The EIS 5.5.4 states that near neighbours will experience the most tangible day-to-day impacts. Main concerns - effects on landscape, environment, businesses, recreational areas, tourism, communication, noise, visual, dust, air quality, vibration, blasting, structural impact, information and notification, property surveys, livestock and pet disruption, ground water level impacts, surface water run-off, property values, road closures and access, visitor amenities, compensation, personal and emotional challenges, well-being support, altered views, road safety, increasing traffic and heavy haulage, resident and visitor safety, and traffic management.

This is unacceptable!

We are not convinced on what has been achieved in Phases 1-3 of this project. The sense of unknowing and stress has intensified. The future commentary on construction readiness if done in the same fashion as the first phases does not carry any guarantee of commitment by the proponent.

Notification process had failed in early phases. Proponent phone numbers were directed to call centres and no given information to questions.

Community Consultation

- This has been creating division in the community providing in some cases misinformation as stated in Lithgow council's resolutions.
- There have been offers of small financial incentives to residents and groups who are not directly affected by the project. The proponents offer agreements with a small figure with the purpose of locking in the acceptor without having any future claims and there are confidentiality clauses. The proponents have stated in the EIS that no agreements have been executed.
- The proponents set up various pop up tents at community engagements. The most vital and important place missing was Lake Lyell, which they cancelled.
- The proponent completed a community dot board poll, conducted by placing a yellow dot on an area of approval or an area of disapproval. In the result the proponents placed both approval and neutral together to make a combined result of 81%. How much were neutral? There is a lack of methodology for this poll.

- Another social media poll was conducted and the results were a 75% disapproval rate for this project.
- A recent rebranding of the project, now called the LLP (dropping the word pumped). Was this strategically done for deception purposes just to create confusion on submission time?
- The exhibition period was hindered by public holidays and confusion with doing submissions online.
- Overall community consultation was conducted very poorly with little information supplied, over the years requests for information have been denied or classed as confidential. Some answers are emerging through the EIS as has proven that some of the more devastating, problematic questions of the past are proving to support the public's concern.

Item 6

Lithgow's future economy and water security

Water shapes growth, supply chains and investment. Once taken for granted, it is fast becoming a strategic asset. Water sources in the Lithgow LGA already contribute 30% to Sydney's water supply in Warragamba Dam and has the capability to supply not only its own water but other areas as well.

The proponents of the projects make veiled claims through the EIS that Lake Lyell has an uncertain future if the project is not approved. One could not imagine a water catchment and containment area not being utilised for water security, not only for Sydney but for the whole region.

Lithgow's future economy could be driven by the abundance of water in the area which could support industries that require amounts of water and also reticulate water to other areas in need.

Lithgow City Council has completed a business case which ties in with its emerging economy plans and working through with various government departments.

The main point of water security revolves around the value of water if the Hydro project does not materialise. News media of late stated that the construction of data centres would utilise 30% of Sydney's water. The best valued use of this water is for industry (especially in the Lithgow LGA) which could provide industry and jobs under a recently released program by the NSW government (Future Jobs and Investment).

It must be pointed out that a Hydro on completion of construction will only employ 15 people, if for instance data centres were constructed in the Lithgow LGA, this would provide future jobs for Lithgow and provide shortfalls in Sydney's water security.

The close-by, disused Wallerawang power site could accommodate such centres and other industry, thus supplying many more jobs than this long term project.

Lithgow's future economy is best served utilising water security for other areas in the region.

It must be remembered the Lake Lyell Hydro project does not rank on the Hydro list of best possible sites and also has the lowest capacity output of other projects. It would be suggested that this Hydro should find a better site which could supply better capacity output to the energy supply market.

The councillors of Lithgow City Council voted to oppose the Hydro project for the following reasons:

- Good project, wrong location
- During construction only a small percentage of people will be employed locally
- During operation there will only be 15 jobs
- Council supports the on-going future of the lake, the businesses and jobs and protection the environment
- Advocate to the NSW Government to support better uses of our water assets which could benefit Sydney's water security and give the Lithgow LGA more secure industry to provide greater employment

7. Summary

The proponent's EIS is constrained regarding sensitive issues and uses vague statements, using lines such as "uncertainty", "substantial", "more information and further investigation is required", "may occur" and "possibility". This is not reassuring to the public considering how detailed the EIS needs to be.

Consultation and community engagement has supplied insufficient information to assess the full impacts of the project. Only in the last few months and now via the EIS release can details be realised with wording of uncertainty.

The information being released now confirms community concerns for the long-term economic viability for the Lithgow LGA.

The proponents claim there is an uncertain future for Lake Lyell if the project does not proceed, alternatively the lake may be in a similar position if it does proceed. The veiled threat of uncertainty can be counterbalanced by the security of water and still maintaining a recreational area. This is a win situation for water security, maintaining businesses and their employees and the on-going use of the lake, tourism and livability.

Plus, it must be stated the area will be faced with more problems when the existing power station and coal mines are anticipated to close around the same time if approved if the Hydro

goes into operation. A double whammy situation will exist. 40% of the Lithgow LGA's economy is lost along with the uncertain future of the lake. Result - no power station, no mines, no jobs, no lake.

Maintaining the lake in its present state, with no Hydro, and working on a water security program which engages industry and water distribution would be a better outcome.

Points discussed earlier in the submission. Reasons Hydro opposition are substantial:

- Project placed on wrong site
- Does not rank as a suitable suit by ANU's Professor Blakers
- Massive environmental damage which is irreversible (137Ha)
- Battery sites already cleared land (10Ha)
- Aboriginal artefacts and cultural concerns
- Loss of flora and fauna
- No biodiversity management plan as yet in place
- 11.88 Ha of fish habitat lost
- Massive destruction of present dam and creek areas
- Community impacts
- Location of permanent spoil emplacements not identified
- Water contamination, turbidity, shore line scouring, and fluctuations in water level
- Geotechnical stability study still required
- Technical details - differential head not sufficient
- Irreversible damage as stated in the EIS
- Lack of data and research on platypus
- Inadequate opinion poll relating to community approval

The proponents claim for the viability of the project are own the land, lease the water, power lines in place, and supplier of power. This does not justify the project for the amount of upheaval and destruction that it will cause for the minimal amount of 15 on-going jobs it will provide!