

# PUBLIC SUBMISSION

## Environmental Impact Statement

### Lake Lyell Pumped Hydro Energy Storage Project

Submitted to	NSW Department of Planning, Housing and Infrastructure
Project	Lake Lyell Pumped Hydro Energy Storage (PHES)
Proponent	EnergyAustralia and EDF Power Solutions (joint venture)
Submitted by	Ashley Manning
Address	263 Main Street, Lithgow, NSW, 2790
Date	31 March 2026

## 1. Introduction and Standing

I am an individual resident submitting this objection to the Environmental Impact Statement (EIS) for the proposed Lake Lyell Pumped Hydro Energy Storage (PHES) project, located near Lithgow, New South Wales.

I submit that this project, as currently proposed, should not be approved. This submission does not oppose the principle of renewable energy storage — it opposes this project at this location, in this form, without adequate resolution of the significant environmental, cultural, ecological and economic concerns detailed below.

My objection is grounded in five substantive areas:

- The irreversible harm to a genetically isolated and scientifically significant platypus population
- Unresolved and inadequately addressed Aboriginal cultural heritage impacts
- The ongoing, 80-year operational impacts of water level fluctuation on aquatic ecology
- Serious questions about the project's economic viability and the availability of superior alternatives
- Community, visual and landscape impacts that have not been adequately mitigated

## 2. Platypus and Aquatic Ecology — Critical Concern

### 2.1 The Population's Scientific Significance

The platypus population at Lake Lyell represents one of the most serious environmental concerns with this project and warrants the strongest possible scrutiny from the Department.

This population was not identified through the proponent's own environmental surveys — it was brought to EnergyAustralia's attention by a concerned local resident, Rob White, who had observed groups of 10 to 12 individuals while kayaking on the lake. Because the population had no prior scientific record, it effectively did not exist in regulatory terms until advocacy forced its formal study. This fact alone

raises profound questions about the adequacy of baseline environmental surveys conducted before the EIS was prepared.

The subsequent 12-month UNSW-led study confirmed a surprising number of platypus were present. National research spanning 258 years of distribution data has found that 41.4% of sub-catchments now have no platypus records over the past decade. The species was listed as Near Threatened in 2016, with population declines exceeding previous estimates. This population is not a common resource — it is a demonstrably declining species in a known, observable, significant aggregation.

**K  
E  
Y**

*Genetic research has established very strong population structure in the platypus, with populations in different river systems forming discrete groupings between which there is no evidence of recent gene flow. The Lake Lyell/Macquarie River catchment population cannot be replenished from elsewhere if it declines. It is, in the most literal sense, irreplaceable.*

## 2.2 Specific Operational Threats

The EIS must demonstrate it has rigorously assessed the following mechanistic threats to the platypus population:

### Water Level Fluctuation and Burrow Disruption

Platypus nest in burrows dug into riverbanks, typically just above water level. The Lake Lyell PHES operating cycle — pumping and generating continuously according to grid demand — will produce rapid, repeated water level fluctuations. This will directly expose or flood burrow entrances at unpredictable intervals, with potentially catastrophic consequences during the breeding season of August to October when females are incubating eggs and raising young in sealed burrows.

### The 'Hydropeaking' Effect on Food Supply

A comprehensive review of 155 studies into hydropeaking — the technical term for the rapid cycling of water levels that pumped hydro produces — found it causes alterations in flow patterns, water temperature, sediment dynamics and dissolved gas levels. These in turn affect benthic (bottom-dwelling) macroinvertebrates, which constitute virtually the entire diet of the platypus. Disrupt the invertebrate community at Lake Lyell, and the platypus population faces starvation regardless of whether burrows are protected.

### Thermal and Chemical Stratification

The pumping cycle will cause mechanical mixing of the water column, disrupting thermal stratification and dissolved oxygen profiles. Evidence from similar facilities indicates increased propensity for algal blooms, altered water chemistry, and degraded feeding habitat — all directly threatening a population that forages almost exclusively in the benthic zone.

### Farmers Creek Connectivity

The interface between Lake Lyell and Farmers Creek is critical platypus movement corridor and habitat. The proposed intake design and Farmers Creek diversion may address construction-phase impacts but does not resolve ongoing operational

disruption to movement, foraging and genetic exchange between the lake and creek populations.

## 2.3 International and Australian Evidence

**The EIS cannot credibly claim this is an unknown or unforeseeable risk. The evidence base is substantial:**

- Research on Brazil's Balbina Dam found that despite a 63-fold increase in water surface area, giant otter populations only doubled due to reduced food availability and loss of denning habitat — a direct parallel to platypus.
- Hydro Tasmania's operational experience on the Gordon River led to the adoption of mandatory step-down ramp rates — requiring the power station to reduce discharge for one hour before shutdown — specifically to protect macroinvertebrate communities for fish and platypus. This measure costs approximately \$1–2 million per annum in lost revenue. The question is whether EnergyAustralia is prepared to accept equivalent operational constraints for the full 80-year life of this project.
- Queensland's Pioneer-Burdekin pumped hydro assessment documented that pumping and releasing water would alter downstream flow and temperature, damage riverbanks, increase sedimentation, and reduce the quality and availability of food and shelter for platypus. A study of an NSW pumped hydro facility found significant declines in fish, macroinvertebrates and plankton.
- Australia's own Snowy 2.0 project provides a cautionary precedent: the EIS was found to have inadequately addressed threats to critically endangered native fish, dismissing effective mitigation as too costly. The lesson is clear — cost-driven under-mitigation has become a pattern in Australian pumped hydro assessment.

## 2.4 Mitigation Measures Required

**If this project is to be considered at all, the following mitigation measures must be mandated as binding approval conditions — not aspirational commitments:**

Measure	Purpose	Must Be Binding?
Controlled ramp rates (Tasmania model)	Protect burrow stability and macroinvertebrate habitat	Yes — operational constraint for full project
Minimum water level rules with seasonal limits	Protect burrow entrances Aug–Oct breeding season	Yes — must restrict commercial operation
Independent platypus monitoring programme	Early detection of population decline	Yes — with trigger thresholds for operational review
Intake screens	Prevent invertebrate and fish losses through pumping	Yes — proponent must not dismiss on cost
Riparian habitat offset programme	Compensate for disturbed bankside habitat	Yes — independently audited
Adaptive management framework	Allow operational changes if monitoring shows decline	Yes — with statutory teeth

**Critically, these measures must be enforceable for the entire 80-year project life, with independent auditing and the capacity to compel operational changes if monitoring demonstrates population decline. Voluntary commitments made during the approval process have historically not survived the commercial pressures of operation.**

### **3. Aboriginal Cultural Heritage — Unresolved Harm**

**I am deeply concerned by the reported loss of hundreds of Aboriginal artefacts during the project's feasibility testing phase, prior to the formal EIS process. This is not a theoretical future risk — it is documented harm that has already occurred. The community meeting at Lithgow heard this raised by multiple speakers, and it has not been adequately addressed in the proponent's public communications.**

**The EIS must answer the following questions clearly and completely:**

- How many Aboriginal artefacts were documented prior to feasibility works commencing? What is the proponent's own count of those lost or disturbed?
- Were the appropriate Aboriginal Land Councils and community representatives consulted before feasibility works commenced, in accordance with the Aboriginal Heritage Act 2006 (NSW)?
- What assessment was conducted of the likelihood that further cultural heritage sites, artefacts or significant places exist in the proposed upper reservoir footprint, access road corridors and tunnel construction zones?
- What binding measures will prevent further loss during construction, particularly in areas that have not yet been subject to full archaeological survey?

It is a fundamental principle of cultural heritage law and practice that harm of this kind is irreversible. Artefacts lost during feasibility works cannot be recovered. The EIS process must grapple honestly with the fact that the project's own pre-approval activities have already compromised the heritage values of this site.

I request that the Department require a full, independent Aboriginal cultural heritage assessment conducted in genuine partnership with relevant Aboriginal communities, with findings made public as part of the formal assessment process — not managed as a confidential appendix.

### **4. Water Level Fluctuation — 80 Years of Ongoing Impact**

**Section 2 addresses the impact of water level fluctuation on the platypus specifically. This section addresses the broader ecological and community impacts of what will be a permanent, continuous alteration to the character of Lake Lyell.**

**Lake Lyell is not an industrial water storage. It is an established recreational and ecological asset that has developed a stable ecological community over decades. The pumping and generation cycle will fundamentally change that character — not temporarily during construction, but permanently for the 80-year operating life of the project.**

#### **4.1 Ecological Impacts**

- Thermal stratification disruption will alter the entire aquatic food web, from phytoplankton through macroinvertebrates to fish and birds
- Rapid drawdown and refill cycles will expose and then re-inundate littoral (shoreline) habitat repeatedly, preventing the establishment of stable aquatic vegetation communities that shelter juvenile fish and invertebrates
- Increased turbidity from sediment resuspension during pumping cycles will reduce light penetration, affecting photosynthesis and visual predators including platypus
- Altered water temperature profiles may promote algal blooms, including potentially toxic blue-green algae, reducing the lake's recreational safety and ecological health

## **4.2 Recreational and Community Impacts**

**Lake Lyell is currently used for kayaking, fishing, birdwatching and general amenity by the Lithgow community and visitors. The proponent's own materials acknowledge that water level fluctuations will occur. The EIS must quantify:**

- The maximum rate of water level change during normal operations and during periods of grid stress
- The expected frequency of recreational access restrictions due to unsafe water conditions arising from rapid level changes
- The expected exposure of mudflats, drawdown zones and sediment during low-level periods, and the aesthetic and ecological consequences

These are not minor inconveniences. They represent a permanent downgrading of a community asset that residents and visitors have depended upon for decades.

## **5. Project Viability and Superior Alternatives**

### **5.1 Commercial Viability Concerns**

**The NSW Government's own long-duration storage tender in 2025 produced a significant outcome: none of the more than half-dozen pumped hydro projects submitted by major utilities — including projects with far stronger site characteristics than Lake Lyell — were successful. Industry analysis has concluded that pumped hydro cannot currently compete on commercial terms with eight-hour battery storage systems.**

**EnergyAustralia has been explicit that the project's viability depends on government support — specifically through the NSW Energy Security Corporation. This raises a legitimate public interest question: should scarce public funding be directed toward a project with material environmental risks at a site with below-average technical characteristics, or toward technologies that deliver equivalent or superior grid services with significantly lower ecological impact?**

### **5.2 Lake Lyell's Technical Ranking**

**The ANU Pumped Hydro Energy Storage Atlas — funded by ARENA and used by both the NSW and Queensland governments to identify priority sites — assesses potential PHES sites on head (altitude difference between reservoirs), water-to-rock ratio, and cost rating. Lake Lyell's gross head of approximately 255 metres is substantially below the 400–600 metres commonly available at better NSW sites. The ANU Atlas**

specifically highlights the Araluen Valley (heads up to 600 metres) and the Glen Innes region as offering outstanding PHES opportunities in NSW.

The Atlas also makes clear that Australia has approximately 300 times more PHES potential than required to support a 100% renewable energy system. Developers — and governments — can afford to be highly selective. The fact that Lake Lyell offers existing land ownership and grid connection does not overcome the fundamental technical and environmental disadvantages of the site.

### 5.3 Comparison with Alternative Storage Technologies

Factor	Lake Lyell PHES	Grid-Scale Batteries	Higher-Rated PHES Sites
Round-trip efficiency	70–80%	85–95%	75–82%
Build time	5–10 years	1–2 years	5–10 years
Operating life	80 years	15–20 years (replaceable)	80+ years
Head	~255 metres (below average)	N/A	400–600 metres (superior)
Platypus / ecology risk	Very high (existing population)	Low	Site-dependent, selectable
Cultural heritage risk	High (artefacts already lost)	Low	Site-dependent, selectable
Commercial viability	Requires government subsidy	Commercially competitive	Requires government support
Flexibility	Fixed at construction	Highly configurable	Fixed at construction

I submit that this comparison provides a compelling case that the Department should require the proponent to demonstrate why this specific site — with its below-average head, documented platypus population, unresolved heritage issues and community opposition — is preferable to the superior NSW PHES sites identified in the ANU Atlas, before approval is even considered.

## 6. Visual, Landscape and Community Impact

While EnergyAustralia redesigned the upper reservoir location to reduce visibility from Lithgow township — a positive response to community feedback — significant visual and community concerns remain:

- The upper reservoir, access roads, tunnel portal, and associated infrastructure will represent a permanent industrial transformation of a landscape currently valued for its natural character and recreational amenity
- Over 300 residents attended a community meeting to raise concerns — a substantial level of community opposition for a regional project, which the EIS must engage with substantively rather than dismiss
- The construction phase will involve significant heavy vehicle movements, noise, dust and disruption to the Lithgow community over a multi-year period, with inadequate detail in the EIS about mitigation measures
- Local tourism and hospitality businesses dependent on lake amenity have not been adequately consulted or compensated in the project's community benefit framework

I note that community opposition at this scale is a material indicator of social licence risk, and that projects that proceed without genuine social licence often face costly delays, legal challenges and ongoing conflict during operation. The Department should treat community opposition as a substantive planning concern, not merely a consultation box to be ticked.

## **7. Conclusion and Requested Actions**

**For the reasons set out in this submission, I request that the NSW Department of Planning, Housing and Infrastructure:**

1. Refuse approval for the Lake Lyell Pumped Hydro Energy Storage project as currently proposed, on the grounds that the environmental, cultural heritage, community and economic impacts have not been adequately assessed or mitigated.
2. Alternatively, require the proponent to commission and publicly release an independent scientific assessment of the Lake Lyell platypus population — including population genetics, habitat dependency, and modelled impacts of the project's operational water level regime — before any approval decision is made.
3. Require a full and independent Aboriginal cultural heritage assessment conducted in genuine partnership with relevant Aboriginal communities, with all findings publicly released.
4. Require the proponent to demonstrate, by reference to the ANU PHES Atlas, why this specific site is preferable to higher-rated NSW sites, given its below-average technical characteristics and the presence of a significant platypus population.
5. Require the proponent to detail, as a binding approval condition, the specific operational constraints it will accept — including ramp rate limitations modelled on Hydro Tasmania's Gordon River practice — to protect the platypus population for the full 80-year operating life of the project.

I support the NSW Government's renewable energy transition goals and acknowledge that long-duration storage infrastructure is genuinely necessary. However, the transition to clean energy must not be achieved by trading one form of environmental harm for another. Australia has 300 times more pumped hydro potential than it needs. There is no case for approving this project at this site, with this level of unresolved risk, when better sites exist.

### **Submitter Details**

**Name:** Ashley Manning

**Address:** 263 Main Street, Lithgow, NSW, 2790

**Email:** ash@deviantproductions.com.au

**Phone:** 0449 857 796

**Date:** 31 March 2026

**Signature:**

DocuSigned by:  
*Ashley Manning*  
6922488F9ACF44C...