



10 October 2023

Major Projects

NSW Department of Planning and Environment

Via email: www.planningportal.nsw.gov.au/major-projects/projects

Dear Sir/Madam

Humelink Environmental Impact Statement (SSI-36656827)

The National Parks Association of NSW (NPA) appreciates the opportunity to comment on the [HumeLink Environmental Impact Statement](#).

NPA is a member-driven community body dedicated to the protection and appreciation of nature. Our strengths include State-wide reach, deep local knowledge, evidence-based input to policy and planning, and over 65 years' commitment to advancing the NSW protected area network and its professional management. We also provide outstanding opportunities to experience and learn about nature through our unrivalled program of bushwalking, field surveys, bush regeneration and other outdoor activities.

This submission describes the significant shortfalls of the current proposal. It poses a series of questions that should have been addressed by the EIS to further highlight the shortcomings of the proposal.

Summary

HumeLink needs a rethink.

HumeLink's recent capacity downgrade to 2,200 megawatt (MW) means it can only transmit Snowy 2.0's electricity when pumping and generating at full load. There is no spare capacity for new renewable generation or interstate transfers. A second HumeLink will be needed immediately after Snowy 2.0 is commissioned. The full requirements for transmission from southern NSW to Sydney and the total environmental impacts must be considered once, and constructed once, not in a project-by-project manner.

HumeLink's latest estimated cost of \$5 billion will significantly exceed its benefits, raising a fundamental question on its viability. As currently proposed, the total cost is to be borne by electricity consumers, increasing NSW transmission tariffs by more than 50%. It is inequitable for Snowy 2.0 and new generators that are triggering the need for HumeLink to not pay their fair share. It's the equivalent of an electricity tax.

HumeLink will permanently scar 8,500 hectares. Its routing along the boundaries of six national parks and nature reserves is unacceptable. The biodiversity offset bill has previously been assessed as \$1 billion, a staggering amount reflecting the enormity of the environmental damage.

Overhead transmission should no longer be the default design in rural NSW. TransGrid has long adopted underground transmission in urban areas and must extend undergrounding to non-urban areas of high value, whether environmental, agricultural, scenic and social. TransGrid will never obtain 'social licence' for overhead lines. The rest of the developed world has adopted underground cables and long-distance direct current (DC) transmission, why shouldn't NSW.

With Snowy 2.0's continual delays there is sufficient time to redesign HumeLink (One and Two) to provide an all-up solution with far less environmental damage, acceptable to local communities, and largely paid for by the electricity participants needing the transmission capacity.





Key components of HumeLink (EIS Summary Fig 3)

1. Unstated primary purpose is to connect Snowy 2.0

“The project would deliver a cheaper, more reliable and more sustainable grid by increasing the amount of renewable energy that can be delivered across the national electricity grid, helping to transition Australia to a low carbon future. It would achieve this by supporting the transfer of energy from existing renewable generation as well as facilitate development of new renewable generation in the declared South West Renewable Energy Zone (REZ) and candidate Wagga Wagga and Tumut REZs. The project would provide the required support for the network in southern NSW, allowing for the increase in transfer capacity between new renewable generation sources and the state’s demand centres of Sydney, Newcastle and Wollongong. The project would also improve the efficiency and reliability of the current energy transfer in this part of the network.” (“quotes” are from the [HumeLink EIS](#) unless otherwise indicated)

HumeLink was initially called “SnowyLink North”:

“AEMO understands that a final decision to go ahead with the Snowy 2.0 project is likely before the end of 2018. SnowyLink can be delivered in two stages – a north component (“SnowyLink North”) connecting Snowy 2.0 to Sydney, followed by a south component (“SnowyLink South”) that enhances interconnection between Victoria and New South Wales.” ([AEMO ISP 2018](#))

SnowyLink North has morphed into HumeLink and SnowyLink South into VNI West. HumeLink is being constructed primarily to provide Snowy 2.0 with capacity to transmit electricity from its generators and to its pumps.

It is the need to connect Snowy 2.0 that has determined HumeLink’s configuration, route, length, cost, timing, capacity, environmental footprint, and community impact. Without Snowy 2.0 HumeLink, if needed at all, would have been routed directly between Bannaby and Wagga Wagga, not have a 110 kilometre dog-leg deviation to Maragle, and be two-thirds the cost (saving \$1.5 billion).

The capacities of HumeLink and Snowy 2.0 are now identical at 2,200 MW, so Snowy 2.0 takes up HumeLink’s full capacity when pumping/generating at full load/output.

1. Why doesn’t the EIS acknowledge that HumeLink’s primary purpose is to connect Snowy 2.0?

2. Wouldn't HumeLink have a shorter route, lower cost, and later timing were it not for the need to connect Snowy 2.0?

2. Enormous environmental impacts

HumeLink will have an enormous environmental impact over 360 kilometres, with a cleared easement at least 70 metres wide, together with access tracks. The project footprint is 8,500 hectares - 5,700 ha of native vegetation, 800 ha of non-native vegetation and 2,000 ha of Category 1 exempt land¹. The following extracts from the EIS give an idea of the enormity of the environmental loss:

"Based on several existing spatial datasets and field validation within accessible lands, the project footprint includes about 5,692.96 hectares of native vegetation, about 810.25 hectares of non-native vegetation and about 1,983.48 ha of Category 1 – exempt land."

"Five threatened ecological communities (TECs) listed under the BC Act were recorded within the project footprint during field surveys. Two of these TECs are also listed under the EPBC Act."

"Three candidate threatened flora species were recorded directly within the project footprint during surveys as part of the biodiversity assessment."

"Field surveys carried out for the project recorded 232 native fauna species comprising 13 frog, 136 bird, 45 mammal, 37 reptile and one fish species."

"The project could potentially directly impact about 670.21 hectares of native vegetation based on the indicative disturbance area (excluding Category 1 – exempt land)."

"Of the 58 threatened flora species that have potential to be directly impacted, 11 species are listed as critically endangered under the BC Act and/or EPBC Act."

"Of the 47 candidate threatened fauna species, a total of 33 species (12 bird, 11 mammal (including three bat species), three reptile, five amphibian and two insect species) and two endangered fauna populations have the potential to be directly impacted by the project. The impacted threatened fauna species includes 15 species listed only under the BC Act with the remaining 18 species listed under both the BC Act and the EPBC Act."

While undergrounding would also have an environmental impact, it is a much narrower easement and the disturbed ground can be rehabilitated at least partially.

3. What is the carbon footprint of HumeLink?

3. Too close to National Parks and Nature Reserves

"No nature conservation land use areas are mapped within the project footprint. However, the project footprint is located close to a number of national parks, nature reserves, and state conservation areas including (refer to Figure 11-3):

- *Minjary National Park – less than 10 metres west of the project footprint*
- *Mudjarn Nature Reserve – about 180 metres north of the project footprint*
- *Bango Nature Reserve – about 140 metres north of project footprint*
- *Back Arm Nature Reserve – about 70 metres north of the project footprint*
- *Tarlo River National Park – less than 10 metres south of the project footprint*
- *Kosciuszko National Park – about 90 metres east of the project footprint."*

While HumeLink will not traverse any reserved Protected Areas, it is barely 10 to 180 metres outside the boundary of six such areas. That is far too close for such a massive transmission line - 500 kV double-circuit, 50 - 76 metre towers, 26 wires, 70 metre cleared easement.

¹ Land where native vegetation can be cleared without approval

Most of these declared areas are relatively small and make up a minor proportion of HumeLink's 360 kilometre length. They will be dominated by HumeLink's towers and lines on their boundaries.

There needs to be a minimum buffer zone of at least one kilometre between the boundary of areas of natural significance and transmission lines. In some locations, such as lookout points, the distance from the boundary of natural significant areas will need to be much greater to reduce the visual impacts to acceptable levels.

Wherever a proposed transmission line passes near an area of natural significance the route should be subject to a comprehensive visual, landscape character and noise assessment.

The World Health Organisation states '*Existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low*'. The EIS predicts the noise levels of HumeLink during certain weather conditions would potentially exceed 35 dBA.

HumeLink and all future transmission lines should be located at least one kilometre away from the boundary of national parks, nature reserves and state conservation areas.

4. Why is it considered acceptable to build HumeLink within 200 metres of the boundaries of six Protected Areas?

4. Significant impact on State Forests

The State Forests to be traversed are Green Hills, Bago, Maragle, Red Hill and Tumut.

As shown in Table 11-2, the HumeLink footprint encompasses 1,067 ha of native forests and 21.5 ha of plantation forests, constituting 12.5% and 0.2%, respectively, of the project. The native forests most impacted are those to the south of Tumut and Batlow for the dog-leg connection from Wondalga to Maragle and Snowy 2.0:

"State forests are managed by the FCNSW to balance environmental conservation, recreation, and timber production. The project footprint intersects about 1,087.5 hectares of State forest south of Batlow towards the future Maragle 500 kV substation which is mainly associated with Bago State Forest."

Though the footprint for native forests will have increased with the recent [announcement](#) of a realignment from private property near Batlow to Green Hills State Forest, adding another 10 kilometres to the length of HumeLink and no doubt many tens of \$millions.

NPA believes that all public native forest, including the six State Forests impacted by this proposal, warrant permanent protection through gazettal as national park. Accordingly, it is inappropriate for such future reserves to be included in the proposed route.

NPA expresses deep concern at the extent of native forest to be cleared.

5. What is the updated footprint over native forest?
6. What is the loss of carbon storage?
7. What is the revised length of HumeLink, 370 kilometres?

5. Unprecedented biodiversity offsets

The biodiversity offset cost for HumeLink was assessed in the PACR as almost \$1 billion, a staggering amount reflecting the enormity of environmental damage.

Offsets are supposed to be a last resort according to the [EPBC Act Offsets Policy](#):

"Offsets will not be considered until all reasonable avoidance and mitigation measures are considered, or acceptable reasons are provided as to why avoidance or mitigation of impacts is not reasonably achievable." (Section 4.1 and Fig 1)

TransGrid has not sufficiently considered undergrounding HumeLink as a "*reasonable avoidance measure (by horizontal directional drilling) and mitigation measure (by trenching)*".

Offsets should be connected with the impact areas.

“In accordance with the BAM, offset requirements are necessary to address any residual biodiversity impacts associated with the project. BAM calculations for both ecosystem and species credits have been determined by using the Biodiversity Assessment Method Credit Calculator (version 1.3.0.00) and includes:

- 10,997 ecosystem credits
- 134,578 species credits

The offset requirements are based on the indicative disturbance area and include 17 species that were recorded during surveys for the biodiversity assessment and 78 species that were assumed present.

As the project would not result in a net loss of KFH, or significant impacts on threatened aquatic species, offsets for aquatic species and key fish habitats are not proposed under the FM Act.

As detailed in Section 8.6, the project has the potential for significant impacts on several MNES.”

In HumeLink’s case, \$1 billion of offsets hardly reflects “any residual biodiversity impacts associated with the project”.

Where it is not possible to avoid damaging important habitat, ecosystem offsets should be established as close as possible to the impact and located within the same IBRA subregion (Interim Biogeographic Regionalisation of Australia). Offset areas and management activities should aim to maintain or increase the actual local populations that are to be impacted, including populations of the many plant and animal species in endangered ecological communities, so they are not reduced or fragmented into unviable populations destined to be lost from the local area. In determining the suitability of possible offset areas, factors such as similar soil type, habitat qualities like shelter, and the dispersal abilities or requirements of species should be considered.

This principle goes beyond the legislative requirement, which is to establish ecosystem offsets within the same IBRA region and species offsets within the state. This will require a proactive approach to landholders near to the transmission line routes to encourage and enable them to establish Biodiversity Stewardship Agreements on their land to generate credits for the project. This will ensure that the offsets are close to where the impacts are and will generate additional income for affected landholders and neighbours. This could be developed in partnership with the Biodiversity Conservation Trust or the Credit Supply Taskforce.

Species offsets should be established close enough to the impact area that affected populations can move to the offset areas. The distance will depend on the dispersal ability of the affected species and may require the establishment of corridors or improved connectivity. For some fauna species, capture and release into offset areas should be considered and carefully monitored.

Management of offset stewardship areas should be consistent with the National Standards for the Practice of Ecological Restoration in Australia: <https://www.seraustralasia.com/pages/standards.html>. This would be a means to achieve the specific offset outcomes through either passive or active management, or both.

8. What is the estimated cost of biodiversity offsets?
9. Why are critically endangered species (matters of national environmental significance) being significantly impacted when undergrounding is best practice and a means of avoiding and mitigating impacts?
10. What processes are proposed for applying offsets?
11. Will ecosystem and species offsets be located as close as possible to where the impact occurs?

6. Undergrounding dismissed without genuine assessment

“Based on the findings from the report, undergrounding HumeLink would not be consistent with the regulatory rules that require TransGrid to propose the most efficient option for consumers based on the capital cost of the solution, the ongoing operational costs, the market benefits, the expected reliability, and the costs associated with the impact on landowners, the community, and the environment.”

Much has been written on this subject over the past couple of years, with TransGrid adamantly against undergrounding HumeLink, and against it being a DC rather than AC circuit.

In this context there seems little point in repeating the benefits of undergrounding (visual amenity, no exposure to lightning or other weather events, no noise, no bushfire generation, no restrictions to firefighting, less environmental damage, biodiversity, tourism, productive efficiency of agriculture etc) and of a DC backbone connection from Sydney to Melbourne. This is what would happen in other developed countries. Private entities are not even bothering proposing overhead lines and have adopted underground cables (e.g. Star of the South, Marinus Link (land sections) and wind and solar farms throughout Australia).

TransGrid has long adopted underground transmission in urban areas and must extend undergrounding to non-urban areas of high value – environmental, agricultural, scenic and social. The rest of the developed world has adopted underground cables and long-distance direct current (DC) transmission, why shouldn't NSW.

If TransGrid persists with overhead lines for HumeLink it will be a protracted and traumatic process for all involved. It is likely to be cheaper, faster and far less traumatic for all concerned, including TransGrid, to go underground.

12. Why does TransGrid build underground transmission in urban areas but not in other areas with high environmental, agricultural, social and tourist value?
13. Why has TransGrid dismissed the case for establishing a DC transmission network in NSW?

7. Net benefit out of date and negative

“Once operational, the project is expected to deliver \$491 million in net benefits to electricity customers (TransGrid, 2021b). According to the 2022 Integrated System Plan, the project is estimated to contribute roughly \$1.3 billion in net market benefits associated with avoided unserved energy, fuel costs, energy generation/storage costs, REZ transmission capital expenditure and voluntary load curtailment as well as competition benefits. By increasing the amount of electricity that can be delivered to the National Electricity Market and providing greater access to reliable and affordable electricity, the project would increase competition in wholesale energy and help lower and stabilise electricity prices. More reliable and affordable energy would in turn help to increase business productivity and lower living expenses.”

Again, no mention of HumeLink's primary purpose to connect Snowy 2.0.

TransGrid's claim that HumeLink would provide a positive net benefit of \$491 million is considerably out of date. That estimate was contained in the Project Assessment Conclusions Report (PACR, July 2021) based on HumeLink costing \$3.3 billion. At the time many experts criticised the highly optimistic assumptions and dubious results in the PACR, assessing the net benefit to be substantially negative – e.g. see [‘A review of the HumeLink PACR’, VEPC, Sep 2021](#).

Since then HumeLink's cost has increased \$1.7 billion to \$5 billion and its benefits have declined due to many factors including Snowy 2.0 delays, the 14% reduction in HumeLink's capacity, the now-certain construction of two gas power stations, and the need to exclude \$0.45bn of 'competition benefits' from the previous analysis in accordance with the current practice of the Australian Energy Market Operator (AEMO).

Paradoxically, TransGrid executives claimed at the [NSW Inquiry into undergrounding transmission lines](#) that HumeLink's benefits had risen by more than its costs and that Snowy 2.0's delay has actually increased the net benefit and urgency for completion by the July 2026 target date. That all sounds

highly questionable.

It is also inconsistent with the warning given by AEMO in its [2022 Draft ISP](#) that the then estimated cost of \$3.3 billion must be cut:

“Nonetheless, protection is needed against rising project costs. To ensure the benefits are robust, the project costs cannot materially increase from the current estimate of \$3.3 billion. Further work to drive down costs should be undertaken urgently.”

Surely the subsequent adverse variations in cost and benefits result in a sizable negative net benefit now, constituting a ‘material change in circumstance’ and therefore prompting a review of HumeLink’s regulatory approval.

14. What are the latest estimates of HumeLink’s cost, benefits, and net benefit?
15. Will TransGrid advise the Australian Energy Regulator of the ‘material change in circumstances’ for HumeLink and seek a review/confirmation of its regulatory approval?

8. 2026 target date is unrealistic and well before Snowy 2.0

The current target date for HumeLink’s completion of July 2026 was set to coincide with a previous commissioning estimate for Snowy 2.0.

The recent Snowy 2.0 reset estimates the date for first power in 2027 and full commercial operation in December 2028. These dates are totally unrealistic, as have been every previous Snowy 2.0 estimate.

There is no need to rush HumeLink. Snowy 2.0 is unlikely to be completed till sometime next decade. A 2026 target is impossible anyway, with so many transmission projects vying for limited resources and the lack of social licence from local communities for overhead lines.

16. Is 2026 a realistic completion date for HumeLink?
17. Why hasn’t the target date for HumeLink been delayed at least to align with the latest (still highly optimistic) estimate for Snowy 2.0’s commissioning?
18. What is the current spare transmission capacity between Wagga Wagga and Bannaby?
19. Setting aside Snowy 2.0, what is the additional transmission capacity required this decade between Wagga Wagga and Bannaby?

9. Connecting to LTSS far better than Maragle

Connecting HumeLink to Maragle was proposed by Snowy Hydro to minimise its cost of connecting Snowy 2.0.

However, connecting Snowy 2.0 to HumeLink at the existing Lower Tumut Switching Station (LTSS) is a far superior option compared with connecting to a new substation at Maragle – it would be 20 kilometres shorter, \$300 million cheaper and have less environmental impacts. This alternative was covered in numerous documents (including [‘A review of the HumeLink PACR’, VEPC, Sep 2021](#)), and never genuinely considered by TransGrid.

Most importantly, connecting to LTSS significantly improves the transmission capacity of the existing Snowy Scheme and the resilience of the NSW network, whereas connecting to Maragle is effectively only connecting to Snowy 2.0 (other than a tie-in to an existing 330 kV line). Snowy 2.0 will be effectively separate from the existing Snowy network.

Connecting Snowy 2.0 to LTSS would involve a 23 kilometre tunnel, versus a 3 kilometre tunnel and 9 kilometre overhead lines through Kosciuszko National Park to Maragle. Obviously more expensive for Snowy Hydro, but a far superior option electrically for the NEM and Snowy Hydro.

20. Why have the commercial interests of Snowy Hydro prevailed over a better and cheaper design for HumeLink of connecting to LTSS rather than Maragle?

10. Snowy 2.0 should contribute to the cost of HumeLink

HumeLink's route, cost, capacity, and environmental footprint have been determined by Snowy Hydro's desire to connect Snowy 2.0 as cheaply as possible.

Whenever Snowy 2.0 is pumping and generating at full capacity (2,200 MW) it takes up all of HumeLink's capacity. HumeLink is effectively Snowy 2.0's 'Connection Asset'².

Electricity consumers shouldn't have to bear the full \$5 billion cost of HumeLink. If they do NSW transmission tariffs will increase by over 50% just to pay for Snowy 2.0's transmission connection.

If Snowy Hydro doesn't pay its fair share of HumeLink, then this is a transfer of wealth from NSW electricity consumers to the Commonwealth – it's equivalent to an electricity tax.

21. Why isn't Snowy Hydro being required to pay its fair share of the cost of HumeLink?

11. Plan now for HumeLinkTwo

The reduction in HumeLink's capacity from 2,570 MW (PACR) to 2,200 MW ([AEMO 2023 Transmission Expansion Options Report](#)), the same capacity as Snowy 2.0, has brought forward the prospect of further transmission capacity being required to connect the nascent Renewable Energy Zones (REZ) in southern NSW and Victoria.

AEMO's Report, sourced from TransGrid advice, includes options to increase the transmission capacity between Bannaby and Wagga Wagga and beyond by up to 6,000 MW at a cost of up to \$3 billion (±50%). And Sydney Ring South (\$1.5 billion) should be included in the mix as the generation from Snowy 2.0 does not complete its 'journey' till it reaches Sydney. All up, this brings the total expenditure for transmission from Wagga Wagga to Snowy 2.0 to Sydney to around \$10 billion by the end of this decade.

Instead of taking a project-by-project piecemeal approach, the transmission requirements from Wagga Wagga to Sydney should be considered all at once (i.e. HumeLink + HumeLinkTwo + Sydney Ring South). Such consideration needs to include the legitimate concerns of local communities and the full costs and benefits - financial, social, and environmental - of the various alternatives.

The opportunity to adopt underground cables and DC as well as AC transmission must be seriously considered, not summarily dismissed as has been the case to date. Australia needs to catch up with the rest of the developed world and apply the latest and least impactful technologies for our future transmission network.

The prospect of TransGrid seeking to build HumeLinkTwo in the near future doesn't bear thinking about for the affected communities and no doubt for TransGrid too.

It may well be that undergrounding the two HumeLink's as one project could cost less than two separate overhead projects, as well as being far less environmentally damaging.

22. When will HumeLinkTwo be required?

23. Why isn't the planning and seeking of approvals, including the EIS, for additional transmission capacity between Wagga Wagga and Sydney over the next decade being carried out all at once?

12. Concluding remarks

We need to transition away from fossil fuels and we definitely need additional transmission.

But the transmission requirements from southern NSW to Sydney over the next two decades or so need to be considered together. Such consideration needs to include the legitimate concerns of local

² A Connection Asset is used exclusively by a generator or load, whereas a Shared Asset is used by all market participants. The purpose of HumeLink is to connect Snowy 2.0 to the grid, even though once constructed it would form part of the grid and be used by other participants, but only when Snowy 2.0 is not operating at full capacity.

communities and the full costs and benefits - financial, social, and environmental - of the various alternatives.

Crucially, Snowy 2.0 and the new solar and wind generators in the REZs must be required to contribute their fair share to the cost of new transmission, not leave electricity consumers with the full bill.

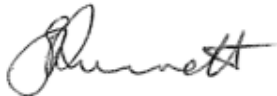
Let's do HumeLink once and do it right. Whatever is built now will be with us for the rest of this century.

The never-ending delays in Snowy 2.0 provide sufficient time to get this \$10+ billion investment right.

HumeLink needs a rethink.

I can be contacted at garyd@npansw.org.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'Dunnett', written in a cursive style.

Gary Dunnett

Chief Executive Officer

National Parks Association of NSW

protecting nature through community action