NATIONAL PARKS ASSOCIATION OF NSW
protecting nature through community action

Chair
Australian Energy Regulator
Canberra ACT 2601
By email: aerinquiry@aer.gov.au
30 May 2022

Dear Ms Savage,

HumeLink Stage 1 (Early Works) Contingent Project Application

The National Parks Association of NSW (NPA) wishes to make this submission on TransGrid's Contingent Project Application for HumeLink Stage 1 (Early Works), 5 April 2022.

At an estimated cost of $3.3bn, HumeLink will be the most expensive transmission project in NSW history. It will also be one of the most imposing, with 360 km of double-circuit 500 kV lines, nearly 1,000 steel lattice towers 75m tall, a 70 m wide cleared easement, two new substations and one augmented substation. It will have a profound, permanent impact on the land and communities it traverses.

HumeLink's route, timing, capacity and cost have been determined by the need to connect the Snowy 2.0 pumped hydro project. Were it not for Snowy 2.0, HumeLink would be more than 100 km shorter, ~$1bn cheaper, have a higher capacity, less losses, be more reliable, and not be required till much later than its scheduled commissioning date (2026) if at all with its proposed design.

NPA has become involved with HumeLink due to its fundamental linkage with Snowy 2.0 and the proposed overhead transmission connection to Maragle through Kosciuszko National Park (that NPA has been strenuously opposing), and as HumeLink may be routed through national parks and other highly valuable natural and agricultural areas. Our motivation is to minimise the environmental impacts and resource requirements for this massive project and to promote the best (some might say, least-worst) outcome for the community and the environment.

We and others have raised numerous concerns about HumeLink over the past year or so[1].

However, we see no evidence that our concerns and those of other stakeholders have been fully addressed. Nor do we see evidence of the AER undertaking its own rigorous analysis of the HumeLink proposal to ensure that the interests of electricity consumers and the wider community are being served by this massive project.

Yet HumeLink's approval is progressing regardless.

[1] In particular we refer to NPA Submission on Snowy 2.0 Transmission Connection EIS, Apr 2021, Review of HumeLink PACR, VEPC, Sep 2021, correspondence with the AER (Attachment A), comments on the PACR Addendum (Attachment B) and objections to the PACR (Attachment C)

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We submit that the AER's processing of TransGrid's Contingent Project Application should be placed on hold until the PACR[2] and its preferred Option 3C are comprehensively (and transparently) assessed, to ensure that the best route and design is determined first, and the RIT-T[3] is properly applied. At the least, the CPA should encompass all three of TransGrid's 'credible' options and alternate designs.

Our major concerns are:

(i) The HumeLink PACR/RIT-T has not been subjected to a rigorous assessment by the AER or any other entity independent of TransGrid

(ii) The AER has not addressed objections raised by NPA, the Victoria Energy Policy Centre (VEPC), Wunelli and others

(iii) In fact, there is no evidence that the AER has fulfilled its responsibilities *"to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity"*, as outlined in the National Electricity Objective (NEO)

(iv) The AER has not announced that the PACR stage of the RIT-T has been completed nor provided an accompanying assessment report

(v) Regardless, the RIT-T process is rolling along with TransGrid issuing its Contingent Project Application (CPA) and the AER now calling for submissions

(vi) TransGrid's preferred Option 3C is in fact the worst of its three best 'credible' options

(vii) Option 1C-new is the cheapest option, by $0.6bn on TransGrid's estimates, though we believe the difference could be greater. Option 1C-new has the best net benefit, albeit negative (-$50m vs -$199m for 3C). Option 2C is the best option for the NSW grid

(viii) All three options have negative net benefits after adjusting for incorrect assumptions in the PACR. If the costs of Snowy 2.0 are also taken into consideration, the negative benefit of HumeLink exceeds $4bn

(ix) The final cost could be higher than TransGrid's current estimate of $3.3bn for Option 3C, rendering the project even more uneconomic

(x) If the decision is made to persist with Option 3C, it could be staged, starting with the 1C-new leg and followed later by the second leg if/when justified

(xi) Connection to the existing Lower Tumut Switching Station, rather than a new Maragle Substation, is superior, and results in a shorter, cheaper, more efficient HumeLink

(xii) Other design options have not been sufficiently considered, such as upgrading existing lines and undergrounding – TransGrid has yet to complete its underground study

(xiii) NSW electricity consumers should not have to bear the full cost of HumeLink, as its prime purpose is to connect Snowy 2.0

(xiv) The AER, under its NEO obligations, should be advocating a fair apportionment of HumeLink's cost to Snowy Hydro, starting with the Early Works

(xv) The proposed $325m for Early Works can be substantially pared back as Snowy 2.0 will not be commissioned by end-2026, as previously predicted, and hence much of the proposed expenditure on long lead time equipment and planning can be deferred

(xvi) The immediate focus should be to refine the route (which option is best), design and cost (to a much narrower range than the current -30%/+50%) to inform a decision on whether or not to proceed to Stage 2 and by when

[2] Project Assessment Conclusions Report
[3] Regulatory Investment Test for Transmission

1 RIT-T not yet completed

Extract from TransGrid CPA[4]:
"We completed the Regulatory Investment Test for Transmission (RIT-T) in July 2021, which identifies HumeLink (Option 3C in the RIT-T) as the preferred option for reinforcing the southern shared network."

Whilst TransGrid published its HumeLink Project Assessment Conclusions Report (PACR) on 29 July 2021, TransGrid is incorrect in stating that that action completed the RIT-T.

Following the lodgement of objections by Wunelli Pty Ltd, the AER issued a Determination of a Dispute, 24 Nov 2021 concluding that *"Transgrid did not meet the RIT-T requirements with respect to its consideration of credible options"* and was required *"to amend the HumeLink PACR"*. NPA also lodged objections, but they were not accepted as a formal dispute as they were submitted after the AER's deadline (see Section 2 below).

Subsequently, TransGrid issued an Addendum to the PACR on 17 December 2021. (Note that the AER required the PACR to be 'amended', whereas TransGrid used a milder terminology, calling its response an 'addendum').

NPA contends that the RIT-T has still not been 'completed':

- there is no evidence that the AER has comprehensively assessed the PACR or the Addendum/Amendment, particularly the issues raised by Wunelli, NPA and others
- nor has the AER formally approved the PACR/Addendum or stated that that stage of the RIT-T is complete

1.1 Wunelli dispute not 'resolved'

"On 17 December 2021, we [TransGrid] resolved the dispute raised by Wunelli Pty Ltd by publishing an addendum to the PACR. This contained the additional analysis requested by the AER in its dispute determination, published on 24 November 2021. The resolution of this dispute marked the completion of the RIT-T process."

Clearly this statement contradicts the earlier statement (above) claiming that TransGrid completed the RIT-T in July 2021.

Anyway, it is presumptuous of TransGrid to assume it 'resolved' the dispute simply by publishing an Addendum. Surely it is up to the AER to adjudge. As yet the AER has not announced a decision that the Addendum is satisfactory, the issues raised by Wunelli have been addressed, the Dispute is resolved or that the RIT-T requirements have been completed.

NPA does not agree that the Addendum resolves the dispute or confirms that 3C is the best option, as claimed by TransGrid - in fact, it confirms the opposite.

We wrote to the AER five days after the Addendum was published (22 December 2021, and again on

[4] *Quotes in italics* have been extracted from A.1 HumeLink – Stage 1 (Early Works) Contingent Project Application, TransGrid, 5 April 2022

17 January 2022) disputing the Addendum's findings (Attachment B). We did not receive an acknowledgement or response until 8 April 2022, three days after the AER publicly released TransGrid's CPA for comment (Attachment A).

2 NPA objections not addressed

NPA first submitted concerns about HumeLink to the AER on 30 November 2020 and 18 January 2021.

Detailed objections on numerous aspects of the HumeLink PACR were submitted on 17 September 2021, followed up on 24 September (see Attachment C). Four further communications were submitted on the PACR and subsequent Addendum on 2, 8, 22 December and 17 January 2022.

The AER did not respond until 8 April 2022 (seven months later), noting that NPA had been advised at a meeting on 27 October 2021 that it *"could not treat the issues raised as a formal RIT-T dispute as they were received after 30 August 2021 [as per the National Electricity Rules (NER), clause 5.16B(c)]."* (Attachment A).

As we stated at that October meeting, we were unaware of a formal dispute process and deadline (there was no mention of such in the PACR), and we couldn't submit soundly based comments and objections till completion of the Review of HumeLink PACR, VEPC, 13 Sep 2021, on which our objections were based.

We asked that our objections be fully considered despite the late-submission technicality, especially in view of the seriousness of our findings and the fact that the AER's 'analysis', which we were expecting (mistakenly) to be comprehensive, would have only just begun.

We respectfully disagree with the AER's response that our objections could not be considered in time (Attachment A):

> *"We observe that the AER's ability to act on the matters raised in your correspondence was, to some extent, limited by the fact that these matters were not brought to the AER's attention in time for them to be treated as a dispute of the Humelink PACR under the NER."*

The (48 page) VEPC Research Paper was provided to the AER just six weeks after the PACR was released. For there to only be a 30-day deadline to submit well-researched objections is unrealistic, particularly for stakeholders without salaried resources. (Paradoxically, stakeholders have been given 55 days to lodge a submission on the CPA – a far less complex document than the PACR).

Our objections to the PACR were submitted more than two months before the AER issued its Determination of a Dispute on 24 November 2021, triggered by Wunelli's objections (submitted within the deadline). Also, our objections were submitted before four of the AER's five requests to TransGrid for additional information. Further, as noted above, NPA had advised the AER of such concerns with HumeLink, albeit less detailed, well prior to the PACR.

Formally acting on NPA's objections and the issues raised in the VEPC Paper should not have delayed AER's processing of the RIT-T and would have made the process far more rigorous and transparent.

AER's letter of 8 April 2022 stated that "*the AER has considered the issues raised in your*

correspondence and our responses are detailed below".

However, the AER's 'responses' are little more than a dissertation of TransGrid's assertions. There is no indication of any detailed questioning of TransGrid's advice and conclusions or any independent analysis – the very essence of what is expected of a regulator.

It appears that the AER has taken a passive, narrow approach, as exemplified by the bland comment that *"the information currently before the AER does not indicate that Transgrid has failed to prepare the PACR in accordance with the requirements of the NER".*

None of NPA's, VEPC's or Wunelli's contentions has been comprehensively addressed, despite our extensive correspondence and detailed submissions.

3 Shouldn't the AER remain 'open' to issues during the whole of the RIT-T process

One would expect that the AER would be 'open' to issues being raised at any time during the RIT-T process and not be bound to an unknown, unpublicised 30-day dispute lodgement period.

The HumeLink RIT-T process has been proceeding for nearly three years since the release of the Project Specification Consultation Report (PSCR) on 25 June 2019 and then the Project Assessment Draft Report (PADR) on 10 January 2020.

Surely the AER should act on any issues/objections being raised at any time, not just during the 30 days after the release of the PACR.

Also, one would expect the AER to remain open to issues raised after the release of the PACR Addendum, as that forms part of the PACR.

It would appear that the AER has only acted on one objection (raised during the statutory 30-day period), and such action merely involved asking TransGrid to provide additional information, with no subsequent review or scope for considering stakeholder comment.

4 The AER's role has been minimal

Electricity industry participants would assume that the AER has the prime regulatory role in overseeing and assessing RIT-T's and that this involves a rigorous independent analysis **by the AER**. It is expected that the AER would undertake its own comprehensive assessments of the PACR, irrespective of receiving objections from stakeholders.

TransGrid reflects that assumption in its public communications:

> *"Like all major network investments, HumeLink is subject to a rigorous benefits test overseen by the Australian Energy Regulator to ensure it provides a net economic benefit to energy consumers"*

However, the reality is that it is TransGrid that undertakes the benefits test (which has been far from 'rigorous' or accurate in our view). The AER does not undertake any 'rigorous' analysis or 'oversight'.

So far in the HumeLink RIT-T process the AER has performed little more than a passive 'post-box' function:

(i) receiving TransGrid's PACR
(ii) receiving one 'legitimate' dispute on the PACR and requiring TransGrid to respond
(iii) receiving TransGrid's response (viz. the PACR Addendum)
(iv) receiving TransGrid's CPA and inviting submissions

The only AER 'actions/announcements' have been to issue a Dispute Determination (Nov 2021) and to invite submissions on TransGrid's CPA (Apr 2022). Supposedly, no Dispute Determination would have been issued, finding that *"TransGrid did not meet the RIT-T requirements"*, had a stakeholder objection not been received (in the stated time period).

The AER has taken an extremely narrow view of its role, as to merely check if TransGrid prepared the PACR in accordance with the NER (Attachment A):

> *"While you have raised a range of issues relating to Humelink, the AER's functions, at this stage of the project, are directed towards Transgrid's compliance with the relevant provisions of the NER. In this context, the information currently before the AER does not indicate that Transgrid has failed to prepare the PACR in accordance with the requirements of the NER."*

If the AER does not review the adequacy, accuracy and recommendations in the PACR and the Addendum, who does? Who is ensuring that this massive project is congruent with the National Electricity Objective (NEO)?

> ***The National Electricity Objective***
>
> *"to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
> - *price, quality, safety and reliability and security of supply of electricity*
> - *the reliability, safety and security of the national electricity system."*

If we have been unfairly critical of the AER's inactivity and it has actually performed all of its responsibilities under the NER, to the letter of the law, then we question the adequacy of the Rules to ensure the appropriate assessment of major transmission proposals like HumeLink. Such projects should be subject to rigorous independent review to ensure the best possible result for electricity consumers and the wider community.

4.1 AEMO appears to have usurped the AER's role, again without any assessment

The only public announcement since the release of the PACR Addendum (on 17 December 2021) has been AEMO's ISP Feedback Loop Notice for the HumeLink Early Works on 27 January 2022, in response to TransGrid's request two days earlier. AEMO's Notice states:

> *"in December 2021 TransGrid completed the RIT-T to assess the technical and economic viability of the project. The RIT-T estimated net market benefits for the project of $491 million. TransGrid's feedback loop request provides that the cost estimate for the project is $3,317 million, which includes $330 million for early works".*

AEMO's Notice implies that the RIT-T was completed in December 2021 simply by TransGrid releasing the Addendum. There is no mention of the AER, its regulatory role or of any decisions.

The Notice did not indicate that AEMO had assessed the Addendum or confirmed its conclusions, particularly on the preferred route options. AEMO accepted TransGrid's estimates for cost ($3,317m) and net market benefit ($491m). We note that AEMO's Draft 2022 ISP accepted TransGrid's Option 3C route and cost estimate, but forecasted higher benefits (partly due to adopting a different scenario).

It would appear that AEMO has usurped the AER's regulatory role in 'receiving/approving' the PACR and authorising the RIT-T to move to the next stage, but without itself assessing the PACR or Addendum.

The CPA should be put on hold until the PACR and its preferred Option 3C are comprehensively (and transparently) assessed by experts independent of TransGrid, to ensure that the best route and design is determined first, and the RIT-T is properly applied. There is no need to rush, as Snowy 2.0's commissioning is about to be delayed again (see later).

5 Negative net benefits

> *"The RIT-T estimates that HumeLink will deliver $491 million in net benefits (in NPV terms), primarily from avoided, or deferred, costs associated with generation and storage infrastructure."*

Why did the AER (and AEMO) accept TransGrid's net benefit estimate at face value, especially after its flaws had been identified by NPA and the VEPC?

Attachment B shows that the net benefits for Option 3C are minus $199m after adjusting for incorrect assumptions in the PACR Addendum, even ignoring the exclusion of Snowy 2.0 costs.

6 Option 3C is not the best option

Option 1C-new is the cheapest credible option and has the superior net benefit, albeit negative. Option 2C is also a better option than 3C from an electrical perspective for the NEM.

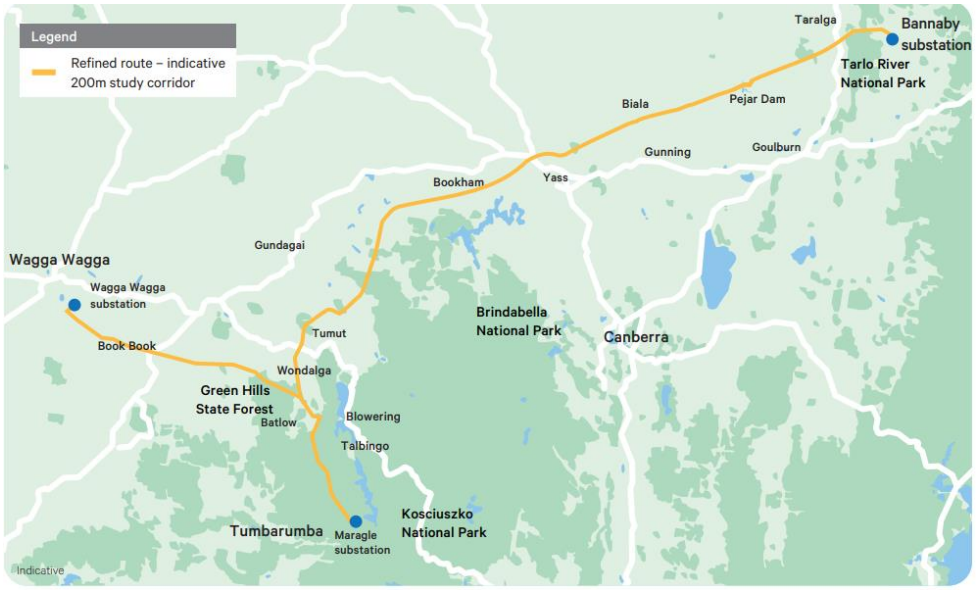
When TransGrid's net benefit estimates are adjusted for the sensitivity scenarios and exclusion of competition benefits, Option 1C-new has a $149m superior net benefit compared to Option 3C.

The comparative costing of Option 1C-new and 3C seems to be in error due to the significantly lower cost/km for the Maragle to Wagga Wagga section. If so, the comparative net benefit of Option 1C-new to 3C increases even more.

6.1 Staging

If the decision is made to persist with Option 3C, it could be staged.

The leg from Maragle to Bannaby could be built first (i.e. Option 1C-new), with the second leg from Blowering to Wagga Wagga being built later if/when it could be justified.



HumeLink Route (3C)

This staging alternative would be even more attractive if the Snowy connection was at LTSS, rather than Maragle (see next), as it provides multiple paths for Snowy 2.0 generation/pumping and less need for a double-circuit 500 kV connection to Wagga Wagga.

7 Connection to LTSS is superior to Maragle, and cheaper

The VEPC Paper outlines the numerous advantages for the NEM of the connection point between Snowy 2.0 and HumeLink being at Lower Tumut Switching Station (LTSS) rather than the proposed Maragle Substation.

HumeLink passes by LTSS on its route to Maragle, and it seems far more sensible to connect to Snowy 2.0 at that location rather than a further 20 kilometres into Bago State Forest at Maragle. HumeLink then would connect into the heart of the existing Snowy network, plus Snowy 2.0, rather than just to Snowy 2.0.

HumeLink would be 20 km shorter, cheaper, and less susceptible to lightning and bushfires, irrespective of which of the three route options was chosen.

Connection to LTSS results in a far more substantial electrical hub, with improved flexibility, reliability and transmission capacity, and lower heating losses. There would be no overhead lines in Kosciuszko National Park and less in Bago State, reducing environmental impacts. The connection of Snowy 2.0 to the grid is far shorter (25 km vs 370 km) and more reliable (albeit twice the length to Maragle and hence more costly for Snowy Hydro). And augmenting an existing switching station, rather than constructing a new substation in a remote, forested location, has cost and operational benefits.

While LTSS could become a connection point for a range of projects developed by parties other than Snowy Hydro, Maragle is a “private” connection point for Snowy 2.0. Connection of HumeLink at LTSS would allow more of Snowy output to be shifted to 500 kV, freeing up the 330 kV network.

TransGrid considers LTSS as unsuitable due to a claimed reduction in network resilience, which we have disputed (see VEPC Paper and NPA Submission on Snowy 2.0 Transmission Connection Response to Submissions).

8 Snowy Hydro should pay its fair share of HumeLink

"HumeLink will be our largest capital project since construction of our existing network. It involves around 360km of new 500 kV transmission lines in an electrical 'loop' that links the Greater Sydney load centre with the Snowy Mountains Hydroelectric Scheme and Project EnergyConnect in south west NSW."

The CPA assumes that HumeLink will be deemed to be a shared asset, with its cost added to TransGrid's Regulatory Asset Base and paid for by electricity consumers.

Without question the need for, route, timing, capacity and cost of HumeLink have been determined by the need to connect Snowy 2.0. Were it not for Snowy 2.0, HumeLink would be more than 100 km shorter, ~$1bn cheaper, have higher capacity, lower losses, be more reliable and not be required till well after 2026 (if at all with its current design).

HumeLink's capacity of 2,570 MW only marginally exceeds Snowy 2.0's pumping/generation capacity of 2,040 MW.

NSW electricity consumers should not have to bear the full cost of HumeLink. The AER, in its obligation to protect the long-term interests of electricity consumers under the NEO, should be advocating a fair apportionment of HumeLink's cost.

This should begin with the apportionment of the proposed $325m for Early Works, though as we contend later this cost should be reduced substantially.

9 Transmission costs keep increasing

"This analysis showed the following for our Stage 1 (early works):

- *total indirect and labour costs are 4% higher than the equivalent costs for Project EnergyConnect and are 19% higher than AEMO's TCD*
- *project management and development costs are 4% than the equivalent costs for Project EnergyConnect and are 19% higher than AEMO's TCD*
- *land and environment costs are within 2% of the equivalent costs for Project EnergyConnect and are 20% higher than AEMO's TCD*
- *stakeholder engagement costs are 2% lower than the equivalent costs for Project EnergyConnect and are 20% lower than AEMO's TCD, and*
- *procurement transaction costs are 17% higher than the equivalent costs for Project EnergyConnect and AEMO's TCD. This is due to relatively higher bidder payments for HumeLink in a constrained construction market."*

These further references in the CPA to rising costs don't bode well, especially as AEMO's Draft 2022 Integrated System Plan (ISP) states the project could not be justified if there is a further increase:

"project costs cannot materially increase from the current estimate of $3.3 billion. Further work to drive down costs should be undertaken urgently".

The PACR estimate of $3.3bn is $2bn higher than the PADR estimate ($1.3bn) just 18 months earlier. The PACR states that the $3.3bn estimate has a *"high degree of uncertainty in relation to the accuracy"*, of between -30% and +50%. That is, the cost lies somewhere between $2.3bn and $5bn – a range of $2.7bn!

What will be the stance of the AER and AEMO if the cost increases beyond $3.3bn and the net benefit becomes even more negative? The prime focus of the early works should be to refine the cost estimate.

10 No consideration of factors other than the CBA

10.1 Selection of the best option should be based on more than a cost-benefit analysis

Other factors beyond a simple mathematical estimate of the net financial benefits should be considered when selecting the preferred option. This is especially relevant when the differences in net benefits between the three options are relatively small – just a few tens of millions of dollars in a project costing thousands of millions.

For example, there are significant differences in the network performance and relative benefits of the route options – Option 2C is best, as is connection to LTSS. There are also significant differences in the environmental impacts on natural areas and in impacts on agriculture, land amenity, tourism and most importantly local communities.

None of such factors have been considered in determining the preferred route option. Many have a financial benefit/cost, which will more than offset any marginal difference in net market benefits.

And the estimation of benefits twenty or more years into the future needs to be viewed with a degree of caution, especially in the case of the HumeLink PACR which has highly optimistic, and in our view unrealistic, assumptions.

One such unrealistic assumption was that Snowy 2.0 will operate (generate or pump) at an average of 1,200 MW for 24 hours/day every day of the year. This would imply that Tumut 3 and other pumped hydro stations were also operating at similar elevated levels. Scaling back this assumption to a more realistic level will result in lower benefits for HumeLink.

10.2 Biodiversity offset costs

> *"AEMO identifies the following activities as likely to fall within Stage 1 (early works) for HumeLink:*
>
> - *land-use planning – to identify and obtain all primary planning and environmental approvals, route identification, field surveys, geotechnical investigations, substation site selection, easement acquisition and preparation of option agreements with landowners"*

It is noted that there is no mention of biodiversity offset costs in the list. Though such costs are mentioned in the Scope Definition Document A2 and it is assumed will be incorporated in refining the estimated cost of HumeLink.

11 Undergrounding warrants serious consideration

"We appreciate that most landowners do not want a new transmission line on their property, and we are continuing to work collaboratively to minimise impacts to landowners wherever feasible"

(TransGrid statement)

500 kV double-circuit lines are the tallest, bulkiest, and most imposing of all transmission lines in Australia, completely dominating the landscape for tens of kilometres and impacting the environment. 360 kms of lines, with 70m wide easements will result in a massive cleared corridor. The estimated biodiversity cost in the PACR of nearly $1bn indicates the extent of the impact.

Undergrounding is the most obvious alternative. Whilst the initial capital cost will be higher, there are many offsetting benefits including higher reliability, no exposure to weather events (lightning strikes, bushfires, winds), no sparking of bushfires, lower operating cost, far less environmental impact, reduced biodiversity offset payments, lower easement payments and much less local opposition. Quelling public opposition is itself a significant 'cost saving', as well as avoiding community angst.

A pragmatic approach to choose underground circuits has been adopted elsewhere, e.g. Murraylink (180 km), Directlink (63 km) and the on-shore connection to the proposed Star of the South (the Bass Strait 2,000 MW wind farm).

Undergrounding electricity transmission is standard practice in many overseas countries and should also be seriously considered in NSW for HumeLink and other proposed transmission augmentations. Adopting undergrounding would consolidate the progressive, new-technology, clean and green thrust of the NSW Electricity Infrastructure Roadmap.

Paradoxically, TransGrid is undertaking an investigation of building part or all of HumeLink underground, as a response to widespread landholder opposition.

But the CPA makes only cursory mention of this study, no doubt indicating that TransGrid has no intention of seriously considering underground cables.

As a wider community, we should be prepared to pay a little more for these 'community assets' and minimise their negative impacts on those unlucky enough to be impacted by new lines through their properties or those of their neighbour.

It would be premature for the AER to respond to the CPA before this study is completed and before the Commonwealth and NSW governments had the opportunity to consider contributing to the cost of undergrounding for the good of the wider community. The proportionate contribution from Snowy Hydro should also be determined as part of the AER's decision.

12 HumeLink target date can be deferred

"The Australian Energy Market Operator's (AEMO's) Draft 2022 Integrated System Plan (Draft 2022 ISP) has defined HumeLink as a staged actionable ISP project with a target delivery date of 2026-27"

It is noted that the ISP indicates that the strictly rules-based optimal timing is for HumeLink to be completed by 2028-29 in the Step Change scenario and 2035-36 in the Progressive Change scenario.

The earlier target date has been proposed to line up with Snowy 2.0's expected commissioning of all six units by the end of 2026. It is noted that Snowy 2.0 was initially to be built by 2021, with this date slipping back every year or so.

Snowy 2.0 continues to run behind schedule and an announcement on a further slippage in timing and costs is imminent. An interview with Snowy Hydro's Managing Director, reported in the Australian Financial Review on 14 April 2022, revealed a looming review *"that has the potential to more than eat up the $400 million of contingencies included in the latest official figure of $5.1 billion – despite the protections against cost and schedule changes in the contract – as well as pushing out the current target date of late 2026 for commissioning to be completed".*

Energy experts contend that, with a project of this magnitude and complexity, it is highly likely that there will be further delays and budget increases.

The continual slippages in Snowy 2.0's commissioning will ease any perceived "pressure" to rush through the approvals and build HumeLink as soon as possible.

13 Early works can be significantly pared

"Table 1 shows our total actual and forecast Stage 1 (early works) capex is $321.87 million"
"Our Stage 1 activities include:

- *procurement activities ($104.59m; 33% of capex), including testing tower types and procuring production slots for equipment with long lead times*
- *acquiring land and establishing option agreements for easements ($22.12m; 7%)*
- *project management and corporate support for procurement, land and environmental activities ($75.45m; 23%)*
- *project development ($32.86m; 10%)*
- *land and environmental planning and approval ($28.85m; 9%)*
- *supporting the procurement process ($27.55m; 9%)*
- *consulting with stakeholders and the community ($18.56m; 6%)*
- *seeking regulatory approvals ($11.90m; 4%)."*

(condensed extract from CPA)

The proposed expenditure of over $300m is substantial. It is also relatively high, at 10% of the estimated total cost of the total project ($3.3bn), no doubt driven by the perceived requirement for HumeLink to be built by 2026 in time for Snowy 2.0's commissioning – a tight deadline.

AEMO's Feedback Loop Notice refers to 'early works' being:

"Pre-construction activities that can be taken now, while keeping open the option to either continue, defer, or cancel the project as new information becomes available"

With the ongoing slippages in Snowy 2.0, much of the proposed early works expenditure could be deferred, for example the advanced procurement of long lead time equipment ($105m + $29m).

The early works stage should focus on refining the route (which option is best), design and cost (to a much narrower range than -30%/+50%) to inform a decision on whether or not to proceed and by when. It need not include major commitments for procurement and regulatory approvals.

This would result in a significantly lower expenditure for the early works stage than that proposed in the CPA.

14 Stakeholder participation

> *"Stakeholder participation in the consultation processes prescribed under the RIT-T framework is critical to ensuring that RIT-T proponents demonstrate how they have addressed stakeholder concerns, and we strongly encourage the National Parks Association to participate fully in the RIT-T consultation processes in order to contribute to robust RIT-T outcomes"*
>
> (AER Correspondence)

NPA looks forward to a robust RIT-T outcome in the best interests of electricity consumers, the community and the environment.

Yours sincerely,

Gary Dunnett
Chief Executive Officer
National Parks Association of NSW
protecting nature through community action

Attachment A

AER Letter of 8 April 2022

(with response returned on 14 April 2022 in blue italic)

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8 April 2022

Mr. Ted Woodley
Executive Member
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Pyrmont NSW 2009

Dear Mr. Woodley

Thank you for your correspondence to the AER dated 17, 24 September 2021 and 17 January 2022, and meetings with AER staff, in which you raised concerns about Transgrid's Project Assessment Conclusions Report (PACR) published on 29 July 2021 for the 'Reinforcing the NSW Southern Shared Network' (Humelink) regulatory investment test for transmission (RIT-T).

Thank you for your letter responding to my concerns (and those of NPA and others) with the HumeLink PACR (albeit nearly seven months after my first email objecting to TransGrid's proposals and preferred option).

For completeness, I corresponded three other times on 2, 8 and 22 December 2021. I also wish to acknowledge several phone calls from Jesse Price in the past few months concerning the timing of the AER's response (thank you) together with our zoom meeting on 27 October 2021.

My correspondence on 22 December 2021 and 17 January 2022 concerned the PACR Addendum, referring to new information and issues not canvassed in the PACR. (Such new concerns and objections were well within any 30-day deadline for commenting on or lodging additional disputes on the PACR Addendum, if permitted.)

As you are aware, the AER is responsible for developing and maintaining guidelines for the application of the RIT-T. The AER also has a specific dispute resolution function for disputes raised by interested stakeholders during the RIT-T process. As noted in our 27 October 2021 meeting, we could not treat the issues raised in your report titled "A review of the HumeLink Project Assessment Conclusions Report" dated 13 September 2021 as a formal RIT-T

dispute as they were received after 30 August 2021[5].

As you would appreciate, after the release of the PACR we were concentrating on analysing the PACR and contributing to the Victorian Energy Policy Centre (VEPC) Research Paper Review of HumeLink PACR, 16 Sep 2021. Until we had fully researched the inconsistencies and failings of the PACR could the VEPC Paper be completed and publicly posted, and were we in a position to submit soundly based objections to the AER.

The (48 page) VEPC Research Paper was provided to the AER as soon as it was completed, just six weeks after the PACR was released on 29 July 2021.

For there to only be a 30-day deadline to submit well-researched objections is unrealistic, particularly for stakeholders without full-time salaried resources. Though we note your reference to the letter-of-the-law in NEM Clause 5.16B(c).

It seems incongruous with the AER's role for it to ignore a comprehensive analysis of the PACR by such a reputable organisation as the Victorian Energy Policy Centre that revealed fundamental flaws in the PACR and its reasoning for the preferred option, simply because the Paper was completed two weeks after an unpublished deadline. Surely, all relevant information on the RIT-T that becomes available should be considered by the AER, irrespective of its origin, format or timing.

Our objections to the PACR were submitted on 17 September 2021, more than two months before the AER issued its Determination of a Notice of Dispute on 24 November 2021 with regard to the objection received from Wunelli Pty Ltd. The AER's Determination required TransGrid to "amend its PACR as part of the RIT-T". (TransGrid applied the milder terminology of 'PACR Addendum' rather than 'PACR Amendment'.)

Also, our objections were submitted before four of the AER's five Requests (to TransGrid) for additional Information. Acting on the NPA submission should not have delayed AER's processing and would have ensured that the PACR was more rigorously assessed.

The PACR dispute process and its deadlines would be known to very few, especially as it was not mentioned by TransGrid nor was in the HumeLink PACR. We would contend that the dispute process should be highlighted in future PACRs, similar to the notification provided in Environmental Impact Statements of the opportunity to make submissions to support, object to or comment on the EIS.

It is also relevant to note that NPA informed the AER of our concerns with HumeLink well prior to the PACR (on 30 November 2020 and 18 January 2021). Our request to discuss our concerns resulted in a meeting on 15 June 2021. I recall that the main advice from the AER at that meeting was to talk with TransGrid (which we had already done at that time, and then did again).

However, the AER has considered the issues raised in your correspondence and our responses are detailed below.

Thank you for your letter, but it seems that the AER has not assessed the PACR to any

[5] NER, clause 5.16B(c).

significant extent and has, at best, only cursorily "considered the issues raised in our correspondence".

This is a serious call, not made lightly, but it seems to us that the AER has abrogated its responsibility under the National Electricity Objective (NEO) to protect the interests of electricity consumers.

Role of the AER

The AER understands that your correspondence sought guidance on the role of the AER in RIT-T processes such as Humelink. The AER's role for actionable ISP RIT-Ts such as Humelink is set out in the NER is as follows:

a. Developing the CBA and RIT-T guidelines under clause 5.22.5 of the NER

b. Resolving disputes in accordance with clause 5.16B of the NER

c. Assessing whether an exemption to a re-application of the RIT-T following a material change in circumstances should be determined under clause 5.16A.4(n); and

d. On receipt of a contingent project application, assessing whether an actionable ISP project trigger event has occurred under clause 5.16A.5, and accordingly, making a determination in respect of cost recovery under clause 6A.8.2.

This appears to be an extremely narrow interpretation of the AER's role as the regulator responsible for protecting the long-term interests of consumers by contributing to the achievement of the NEO, in this case through the RIT-T process.

> ***The National Electricity Objective***
>
> *"to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
> - *price, quality, safety and reliability and security of supply of electricity*
> - *the reliability, safety and security of the national electricity system."*

The above list makes no mention of any role for the AER to actually assess the PACR. Surely that self-imposed limited involvement prevents the AER from contributing to achieving the NEO.

There seems to have been no assessment by the AER of the HumeLink PACR (or its subsequent Addendum), at least not to the degree appropriate for a $3.3bn project – the most expensive transmission augmentation in the history of the NEM.

If the AER does not review the adequacy, accuracy and recommendations in the PACR, who does, and how does the AER meet its obligation to contribute to achieving the NEO for this massive project?

The AER only seems to have become 'involved' in the RIT-T process after receiving the dispute from Wunelli, through issuing TransGrid with (five) Requests for Information and then making its Determination of a Dispute on 24 November 2021 (Role b. above).

Had the Wunelli dispute not been lodged, would the AER have taken any action to question the PACR or seek further information? What initiative does the AER take to assess a PACR other than taking a purely reactive role of becoming 'involved' when a party raises an issue?

Analysing the PACR should not be left to individual stakeholders, like Wunelli or the VEPC or NPA. It is clearly the responsibility of independent, well-resourced entities, primarily the AER.

TransGrid subsequently released its PACR Addendum on 17 December 2021, confirming its preferred option (3C). We wrote to the AER on 22 December 2021, updated on 17 January 2022, questioning the analysis and conclusions of the Addendum, contending that Option 3C was not the best option.

There is no indication of the AER assessing the Addendum or 'resolving' the dispute. It would appear that the AER has interpreted its Role b. to act merely as a post-box to convey the dispute to TransGrid for its response, and no more.

Has the AER 'resolved' the dispute?

What analysis has the AER undertaken of the PACR and the Addendum?

The only public announcement since release of the Addendum was by AEMO on 27 January 2022, issuing its ISP Feedback Loop Notice for the HumeLink Early Works in response to TransGrid's request two days earlier. That Notice stated that "in December 2021 TransGrid completed the RIT-T to assess the technical and economic viability of the project. The RIT-T estimated net market benefits for the project of $491 million". AEMO's Notice made no mention of the AER and its regulatory role and seems to have assumed that the RIT-T process was completed with the release of the PACR Addendum (i.e. with no subsequent analysis required). It would appear that AEMO has usurped the AER's regulatory role in 'approving' the PACR and authorising the RIT-T to move to the next stage.

In the interests of public transparency, will the AER be making an announcement covering its analysis and apparent acceptance of the PACR, the Addendum, resolution of the dispute and authorising progression to the next stage of the RIT-T process? If not, how will the AER assure its stakeholders that it has been protecting the interest of electricity consumers with this multi-$billion project.

Cost estimates of credible options

The AER acknowledges your concerns that actual project costs associated with Humelink may differ from the estimated costs in the PACR and this could alter the conclusions set out in the PACR, in particular, where the Environmental Impact Statement (EIS) and route selection is yet to be finalised. The RIT-T Guidelines[6] require the RIT-T proponent to calculate the expected cost of each option under a range of different reasonable cost

[6] https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rit-t-and-rit-d-application-guidelines-2018

assumptions and subject to a probability weighting[7].

There are mechanisms for assessing the impact of material cost changes, including TransGrid's obligations under cl. 5.16A.4(n) of the NER, which requires it to re-apply the RIT-T for a material change in circumstances. In the case of Humelink, Transgrid undertook further sensitivity analysis to test the robustness of the PACR outcome[8]. The AER will engage further with Transgrid as the Humelink EIS process progresses to understand any impacts to the cost inputs estimates for Humelink. In addition, the operation of the decision rules and feedback loop applicable to the implementation phase of Humelink under AEMO's ISP Update are intended to limit any material cost increases[9].

As you mention, the PACR includes sensitivity analyses. But as was pointed out in our correspondence and the VEPC Paper, some of the designated sensitivity scenarios are now certainties (viz. Kurri Kurri and Tallawarra B Gas Power Stations proceeding, and VNI-West being delayed) resulting in reduced benefits for HumeLink of $100's millions.

In the AER's view did the PACR include all relevant sensitivity analyses? What about other mooted electricity projects, such as further renewable energy generators, major battery and pumped storage projects, and further gas/hydrogen generators?

Also, there are questions on the overestimated benefits in the PACR and Addendum. For example, the unrealistic operation levels for Snowy 2.0, averaging 1,200 MW of pumping/generating continuously.

Has the AER assessed TransGrid's estimates for costs or benefits? If not, who has? How has the NEO been met?

Cost estimates related to PACR Option 1C-new

We note your concerns about the higher line cost estimates for Option 1C-new compared to Option 1 C and the higher line and biodiversity cost estimates of Option 1 C-new compared to Option 3C.

The AER sought further clarification from Transgrid to understand the cost estimates used in the amended PACR related to Option 1C-new, including the underlying methodology.

Transgrid has advised the AER that it applied a consistent methodology in determining the estimated costs of Option 1C-new, Option 2C and Option 3C in the PACR and Addendum. Transgrid advises that the cost difference between Option 1C new and Option 1C arises because:

- Option 1C is based on a $/km rate; and
- Option 1C-new is based on the concept design quantities for Options 2C and 3C, which provide more accurate information to inform the cost estimate than it previously used in the assessment for Option 1C.

TransGrid's response indicates that different costing methodologies were applied for 1C and

[7] RIT-T Guidelines, p 52.
[8] Transgrid, Humelink PACR, 29 July 2021, p.54-57
[9] AEMO, 2020 ISP Update, p 66.

2C/3C in the PACR. Surely this should have been mentioned - the PACR implied a common methodology:

> *Extract from page 24 of PACR:*
> *"We consider our cost estimates to be 'class 4' estimates, which is in-line with the level of accuracy expected at this stage of the investment process. For example, AEMO commented during the consultation process on its transmission cost database that the cost certainty at the PACR stage is typically between -30 per cent and +50 per cent ('class 4' estimates) or -20 per cent and +30 per cent ('class 3' estimates)".*

Transgrid further advises that if a consistent approach to cost estimation was adopted for Option 1C, this option would have been more expensive than Option 1C-new.

Obviously, Option 1C, being a combination of single and double circuit, has to be more expensive than 1C-new, all double circuit.

In determining the overall estimated project costs for Option 1C-new, Option 2C and Option 3C, Transgrid determined a 'base cost' estimate based on the scope of each option, which is then added to a contingency amount for each option that accounts for known and unknown risks.

Transgrid advises that the contingency amount is assessed as a percentage of the base cost estimate, however it is not specific to any particular scope element of the relevant option. Rather, it relates to the relevant option in its entirety. Transgrid advises that there are distinct geotechnical and landscape factors that affect the overall cost estimate of a credible option. In particular, Transgrid advises that the Blowering to Wagga scope element of Option 3C is much flatter and allows easier access compared to the Maragle to Bannaby scope element, which is a more mountainous terrain and therefore is more difficult to access. Further, Transgrid states the Maragle to Bannaby scope element is also:

- characterised by more complex geotechnical conditions (i.e. underground conditions such as hard-rock); and
- relatively more environmentally sensitive and has higher expected biodiversity and land acquisition costs.

Accordingly, Transgrid considers that prorating the lump sum contingency to individual scope elements of a particular option is not appropriate as the risks associated with each scope element is not calculated in isolation but rather for each option in its entirety.

It is accepted that different route sections will incur differing costs, but TransGrid did not provide section costs to back up this general 'explanation'. The AER should have requested such basic information to confirm the cost differences between the top two options.

Our quick extrapolations from the data in the Addendum indicates anomalies in the estimated costs between Options 1C-new and 3C.

For example, the line cost per kilometre of the Maragle to Wagga Wagga section is less than half the Maragle to Bannaby section, and the biodiversity cost is about a quarter:

- *M-WW line cost is $2.7m/km [($1,796m(3C) - $1,545m(1C-new))/94 km] compared to M-B of $5.7m/km [$1,545m(1C-new)/272].*

- *M-WW line biodiversity cost is $0.8m/km [($894m(3C) - $821m(1C-new))/94] compared to M-B of $3.0m/km [$821m(1C-new)/272].*

It is inconceivable that the (slightly) different topographies would result in such a disproportionate difference in costs. Also, the first 25 or so kilometres of the Maragle to Wagga Wagga section, which accounts for a quarter of its length, is common with the Maragle to Bannaby section. The extremely cheap estimate for the Maragle to Wagga Wagga section serves to improve the relative cost of Option 3C to Option 1C-new.

Has the AER assessed TransGrid's cost estimates and explanation for the apparent anomalies between 1C-new and 3C? If TransGrid has provided biased estimates, the relative net benefit for Option 1C-new compared to Option 3C could be even greater than our contentions.

Consideration of credible options

As set out in our Humelink Dispute Determination, the NER requires RIT-T proponents to consider all options it could reasonably classify as credible options.[10] It is important to recognise that a credible option may be an option or group of options. Thus, it is permissible for a RIT-T proponent to group variations of an option together as long as the overall cost-benefit analysis of each variation is expected to be similar.[11]

The AER acknowledges your view that Lower Tumut Switching Station connection point should have been considered as a credible option or an undergrounding option in its PACR. However, we understand that Transgrid as the jurisdictional planner and AEMO as the national planner (ISP) did not identify the Lower Tumut Switching Station connection point or an undergrounding option as a credible option in its PACR and latest ISP.

TransGrid considers LTSS is unsuitable due to a claimed reduction in network resilience, which we have disputed (see VEPC Paper and recent NPA submission on Response to Submissions on the Snowy 2.0 Transmission Connection EIS (attached)). If there is a concern with locating HumeLink next to existing lines near LTSS then why is TransGrid planning to do exactly that further along the route. Anyway, HumeLink can be located away from existing lines at LTSS.

AEMO's ISP simply adopted the route proposed by TransGrid. We are not aware of AEMO being involved in the selection of Maragle as the connection point or any consideration of LTSS as an alternative. We note (again) that HumeLink passes by LTSS, and it seems far more sensible to connect to Snowy 2.0 at that location rather than a further 20 kilometres into Bago State Forest, with a cost saving to HumeLink of tens of $millions and reduced susceptibility to lightning and bushfires.

A fundamental issue here is that TransGrid is acting as both the NSW network planner for HumeLink and as a contractor to Snowy Hydro for the Snowy 2.0 Transmission Connection. The cheapest option for the Snowy 2.0 connection is to Maragle, whereas the cheapest (and better network) option for HumeLink is for the connection point to be at LTSS.

[10] NER, clause 5.15.2(b).
[11] AER, Determination on RIT-T dispute - TransGrid -Humelink, 24 November 2021, p.19

The proposed credible options and the connection at Maragle was also subject to consultation during the RIT-T process and we are not aware that this issue was raised.

We have been raising the LTSS option for over a year. It was raised at meetings with the AER, AEMO and publicly in the NPA Submission on Snowy 2.0 Transmission Connection EIS, 2 April 2021, the Open Letter to Ministers Stokes and Kean, 18 Jan 2021, and the VEPC Paper.

In this context, the AER also notes that the NER provides that the RIT-T must not require a level of analysis that is disproportionate to the scale and likely impact of each credible option being considered.[12]

LTSS is a far better connection point than Maragle for Snowy 2.0 and HumeLink for many reasons outlined in previous correspondence. It would seem that the AER considers this (fundamental) issue of HumeLink's connection point to Snowy 2.0 as not within its area of responsibility, and nor does AEMO. How does the AER's failure to consider this issue address its fundamental obligation to contribute to meeting the NEO?

Treatment of Snowy 2.0 and committed projects in Humelink RIT-T

Transgrid's analysis considers that the Snowy 2.0 project satisfies the definition of a committed investment under the RIT-T. That is, that Snowy 2.0 meets the requirements of the definition of a committed investment which are identified in the RIT-T.[13] The criteria for a committed project are set out in the RIT-T instrument which can be accessed here. Given that Snowy 2.0 is a committed project, the RIT-T requires that it must be included in all states of the world.[14] Snowy 2.0 is therefore included in the base case without the Humelink investment. This means the costs (and some of the benefits) of Snowy 2.0 are not included in the estimated incremental costs of new generation investment associated with the options for transmission upgrades to connect Snowy 2.0.

We do not dispute that Snowy 2.0 has been committed by Snowy Hydro and the Commonwealth Government. However, we believe the costs of Snowy 2.0 should be included in the cost-benefit analysis (CBA) if the benefits of Snowy 2.0 are.

Nevertheless, how does the AER know what assumptions have been made if it hasn't assessed the CBA?

In addition, Transgrid notes in its Humelink PACR that Snowy 2.0 has received environmental approval and construction approval by the federal government in mid-2020.[15] The PACR also refers to the 2020 ISP and AEMO's Inputs Assumptions and Scenarios Report published in July 2021, where AEMO considers Snowy 2.0 as a committed generator. AEMO is required under the AER's Cost Benefit Analysis Guideline,[16] to determine whether a project meets the definition of a committed/anticipated project based on the criteria identified in the RIT-T instrument. In accordance with the NER[17], the RIT–T instrument specifies that

[12] NER, cl. 5.15A.3(b)(2).
[13] RIT-T, p.13.
[14] RIT-T, p.11.
[15] Transgrid, Humelink PACR, 29 July 2021, p.11.
[16] AER, Cost benefit analysis guidelines, August 2020, p.14-18
[17] NER clause 5.15A.3(7)(iv)

the RIT–T proponent must adopt the most recent ISP parameters or identify and provide demonstrable reasons for why an addition, omission or variation to the ISP parameters is necessary.

Treatment of market benefits and apportionment of costs

The RIT-T selects the preferred option which maximises the net market benefit to all those who produce, consume and transport energy in the NEM.

As we have previously stated, the selection of the preferred option only rests on the results of a CBA, ignoring any consideration of many other relevant factors (network, environment, social impacts etc) that are relevant for protecting the interests of consumers.

Also, the result of a CBA needs to be viewed with caution, as it is based on numerous assumptions on the operation of the NEM over future decades.

The RIT-T also requires RIT-T proponents to test the robustness of the cost benefit analysis outcomes and hence the RIT-T outcome through scenario and sensitivity analysis. Transgrid, in its Humelink PACR, undertook scenario and sensitivity analysis to test the robustness of Option 3C which was selected as the preferred option.[18]

As we have demonstrated, the CBA analysis shows Option 1C-new to be superior to 3C.

Additionally, the AER understands that you raised concerns regarding Transgrid's assessment of competition benefits in Humelink RIT-T. As you are aware, competition benefits are a category of benefits that are prescribed in the NER for inclusion in a RIT-T. AEMO's approach to considering competition benefits does not preclude a RIT-T proponent from considering these benefits in a RIT-T in accordance with the NER.

All HumeLink options have a negative net benefit if the highly dubious competition benefits are excluded and the actual sensitivity scenarios are applied.

Lastly, you raised concerns regarding apportionment of costs of transmission projects such as Humelink and the role of AER. In accordance with the current regulatory framework set out in the NER, transmission costs are shared transmission costs and will be allocated in accordance with the requirements of the NER and the approved pricing methodology set out in Transgrid's revenue determination.

The need for, route, timing, capacity and cost of HumeLink have been determined by the need to connect Snowy 2.0. Were it not for Snowy 2.0, HumeLink would be shorter, cheaper, have higher capacity and lower losses, be more reliable and not be required till later than 2026.

Option 1C-new is the cheapest credible option and has the superior net benefit. Option 1C-new would be classified as a Connection Asset, purely for the use of Snowy Hydro. As such it should be paid for by Snowy Hydro.

[18] Transgrid, Humelink PACR, 29 July 2021

Options 2C and 3C, whilst providing transmission capacity for other market participants, would still be primarily for Snowy Hydro's benefit and use. HumeLink's capacity of 2,570 MW only marginally exceeds Snowy 2.0's pumping/generation capacity of 2,040 MW.

It would be totally incongruous if the adoption of Option 3C results in all HumeLink costs being deemed as "shared transmission costs and will be allocated in accordance with the requirements of the NER and the approved pricing methodology set out in TransGrid's revenue determination".

NSW electricity consumers should not have to bear the full cost of HumeLink. Surely the AER, in its obligation to protect the long-term interests of electricity consumers under the NEO, should be advocating a fair resolution of HumeLink's cost apportionment.

Conclusion

While you have raised a range of issues relating to Humelink, the AER's functions, at this stage of the project, are directed towards Transgrid's compliance with the relevant provisions of the NER. In this context, the information currently before the AER does not indicate that Transgrid has failed to prepare the PACR in accordance with the requirements of the NER.

Can you please elaborate on the requirements of the NER that the AER has confirmed that TransGrid has complied with? How can it be that Transgrid has not failed "to prepare the PACR in accordance with the requirements of the NER" when we have demonstrated that the preferred option (3C) is not the best option on any criteria?

It would appear that to date the AER's only involvement in the RIT-T has been as a post-box for the receipt of a dispute (from Wunelli) and passing that on to TransGrid for a response.

It seems that the AER has not undertaken any meaningful assessment of the PACR or the Addendum. Is this correct? If so, how has the AER met its obligations to contribute to meeting the NEO?

We observe that the AER's ability to act on the matters raised in your correspondence was, to some extent, limited by the fact that these matters were not brought to the AER's attention in time for them to be treated as a dispute of the Humelink PACR under the NER.

Some of our matters were brought to the AER's attention well before the PACR was issued. The full gamut of matters was brought to the AER's attention on 17 September 2022, well within the period that the AER should have been assessing the PACR and considering whether to make a Determination of a Notice of Dispute.

After the Addendum was released on 17 December 2021 we raised further concerns five days later. There is no evidence that the AER has properly assessed the Addendum or our further concerns.

Stakeholder participation in the consultation processes prescribed under the RIT-T framework is critical to ensuring that RIT-T proponents demonstrate how they have addressed stakeholder concerns, and we strongly encourage the National Parks Association to participate fully in the RIT-T consultation processes in order to contribute to robust RIT-T outcomes.

We agree that stakeholder participation is 'critical' and thank you for "strongly encourage[ing] the National Parks Association to participate fully in the RIT-T consultation processes".

Can you suggest how we could have participated more fully?

We have been involved in the PACR/RIT-T and EIS processes for over two years. We have written and been associated with numerous papers and submissions. We have met with the AER, AEMO, NSW government and TransGrid.

As far as our attempts to fully participate we note that it has taken the AER nearly seven months to respond to our initial objections to the PACR, despite follow-up emails and phone calls.

We fully support the objective of 'contribute[ing] to robust RIT-T outcomes' but fail to see how this will be achieved when there is no comprehensive analysis and involvement by the AER (or AEMO).

Our analysis shows that HumeLink has no net benefit and that Option 1C-new is the cheapest and has the lowest net cost. This fundamental assertion has not been addressed.

We would appreciate a meeting please to be advised of any misunderstandings by us, confirm the limited extent of AER's analysis of the PACR and Addendum, be advised of the AER's reasoning for accepting TransGrid's preferred option and why our objections have been ignored/dismissed, and discuss how the interests of electricity consumers can be better served by a better HumeLink option and connection point, and by avoiding the full cost of HumeLink being borne unfairly by them.

Even at this advanced stage a far better outcome is possible for the NEM and electricity consumers.

Yours sincerely
Justin Oliver
Board Member, AER

About Us

We, the Australian Energy Regulator (AER), work to make all Australian energy consumers better off, now and in the future. We are the independent regulator of energy network service providers (NSPs) in all jurisdictions in Australia except for Western Australia. We set the revenue requirements these NSPs can recover from customers using their networks.

The National Electricity Law and Rules (NEL and NER) and the National Gas Law and Rules (NGL and NGR) provide the regulatory framework which govern the NSPs. Our role is guided by the National Electricity and Gas Objectives (NEO and NGO).

NEO:

> *…to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
> *(b) the reliability, safety and security of the national electricity system.*

NGO:

> *…to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.*

The decisions we make and the actions we take affect a wide range of individuals, businesses and organisations. Effective and meaningful engagement with stakeholders across all our functions is essential to fulfilling our role, and it provides stakeholders with an opportunity to inform and influence what we do. Engaging with those affected by our work helps us make better decisions, provides greater transparency and predictability, and builds trust and confidence in the regulatory regime. This is reflected in our Stakeholder Engagement Framework and the consultation processes we follow for our reviews.

[Extracted from "AER Objectives and priorities for reporting on regulated electricity and gas network performance" June 2020]

Attachment B

Comments on the HumeLink PACR Addendum
Ted Woodley (NPA Executive Member)
22 December 2021 (updated 17 January 2022)

As expected TransGrid contends that *"the preferred option remains a new 500 kV double-circuit lines in an electrical 'loop' between Maragle, Wagga Wagga and Bannaby (Option 3C)".*

The PACR Addendum provides a rather biased portrayal of net benefit estimates, based on uncertain costs and highly contestable forecasted benefits.

However, despite TransGrid's spin, the updated figures actually indicate that Option 3C is not the clear-cut best option. The estimated net benefits of 1C-new, 2C and 3C are similar, in the context of a $3+bn project.

But more relevantly, the updated information shows that the estimated net benefit of all options is negative. This is even ignoring the contention in the VEPC Paper A review of the HumeLink PADR, that Snowy 2.0 costs ought be included in the analysis, rendering a negative net benefit for HumeLink exceeding $4bn.

If the project must proceed because of the need to connect Snowy 2.0, selection of the preferred option should include factors other than the current mathematical calculation of estimated net benefits.

Proceeding now with Option 3C is arguably the worst approach.

Option 1C-new is the cheapest and has the least-worst net benefit. It could be built to enable connection of Snowy 2.0, with the Maragle-Wagga Wagga leg (of Option 3C) being deferred till/if it can be justified. In this case Snowy Hydro should be required to pay for all of 1C-new, as it is effectively a Connection Asset for Snowy 2.0's sole benefit.

On the other hand, Option 2C is the best route from a network perspective, providing the greatest long-term benefits for NSW.

And whichever option is selected, connecting HumeLink to Snowy 2.0 via Lower Tumut Switching Station rather than the proposed Maragle Substation has network benefits and a lower cost.

The PACR and its Addendum are deficient and flawed. The RIT-T process should not progress until these crucial issues are comprehensively addressed.

1 Cost is highly uncertain and 'at the limit'

The Addendum repeats the qualification in the PACR that *"there is currently a high degree of uncertainty in relation to the accuracy of the capital cost estimates."*

But then adds the assurance that *"Consumers can therefore have confidence that any increase in the*

cost estimate for the preferred option will only result in the project proceeding if AEMO confirms that it remains part of the ISP at the higher cost."

However, AEMO's 2022 Draft Integrated System Plan (ISP) indicates (p65) that the current estimated cost for HumeLink of $3.3bn is already at the maximum level (and even hinting that it is already beyond it) and the project could not be justified if there is a further increase:

> *"project costs cannot materially increase from the current estimate of $3.3 billion. Further work to drive down costs should be undertaken urgently … As part of any feedback loop between stage 1 and stage 2, net market benefits will be reassessed to confirm the project still remains part of the ODP [Optimal Development Path] in the latest ISP."*

With no headroom for further cost increases, the RIT-T process should be put on hold until the cost is more accurately determined. The estimated cost has already increased from $1.3bn in the PADR, just 18 months earlier. If the RIT-T process were allowed to proceed it will be much more difficult to stop the project or change to another route option when more accurate cost and benefits data becomes available.

2 The route and design are still being assessed

TransGrid has just embarked on investigating alternate routes from Maragle to Bannaby and building part or all of the lines underground, as a response to widespread landholder opposition. It would be pre-emptive to continue to progress Option 3C whilst these studies are underway, unless of course TransGrid has no intention of seriously considering the alternate routes or of undergrounding.

Also, TransGrid has not considered using existing easements and upgrading existing 330 kV lines to minimise costs and impacts. Such an approach has the potential to lower construction costs and lessen environmental impacts and biodiversity offset costs.

3 Benefits are overstated and tenuous

The VEPC Paper questioned the validity of the PACR's benefit calculations in many respects.

One example is the assumed operation of Snowy 2.0, generating or pumping at an average of 1,200 MW for 24 hours/day every day of the year.

The Addendum makes it clear that market benefits are largely derived from avoided capital costs from 2030 onwards, decades into the future:

> *"Market benefits of all options are primarily derived from avoided/deferred generation and storage capital costs (shown by the blue sections of each bar in Figure 7 respectively).*
>
> - *These benefits are primarily driven by avoided/deferred large-scale storage (LS battery) developments and avoided solar developments from 2030. While the deferred LS battery capacity starts to be built in the late 2030s, avoided open cycle gas turbine (OCGT) build from the late 2030s and pumped hydro from the early 2040s results in further market benefits."*

Justifying a $3+bn project on assumptions for benefits not starting till 2030 and then continuing for decades into the future is highly problematic. The prudent approach is to delay a decision or proceed with the minimum build (i.e. Option 1C-new). This would be in line with the ISP, which recommends an *"actionable HumeLink timing"* and concludes that the 'strictly rules-based optimal timing' is 2028-

29.

4 Competition benefits should not be included

Contrary to the Addendum anticipating that *"AEMO will need to consider competition benefits in applying the feedback loop to HumeLink"*, the ISP states that *"AEMO has not included competition benefits in the assessment of the Draft ODP due to the significant uncertainty surrounding key assumptions that would need to be made in the calculation of these benefits."*

The PACR has inappropriately applied competition benefits to 'try to get the project over the line'. AEMO doesn't consider competition benefits to be sufficiently robust to be applied in the Optimal Development Path process, and likewise they should not be used in the RIT-T process or the determination of the preferred option. If the AER 'condoned' the application of competition benefits it would be flying in the face of AEMO's determination.

5 Sensitivity adjustments are now certain

The original PACR, and now the Addendum, includes sensitivity analyses for Kurri Kurri and Tallawarra B Gas Power Stations proceeding and for VNI-West being delayed.

Each of those possibilities is now practically certain and should be included in the net benefit analysis:

- the Commonwealth Government has committed $600m for construction and the NSW Government provided planning approval on 20 December 2021
- Tallawarra B has received $83m in support from both the NSW and Commonwealth Governments
- the ISP indicates the earliest date for VNI-West as July 2031
- From the Addendum the consequent adjustments to the estimated net benefits range from -$90m (1C-new) to -$248m (2C & 3C) – see Table 1. The adjustments result in all options having negative net benefits when competition benefits are excluded, 1C-new being -$50m and 3C being -$199m.

	1C-new	2C	3C
No competition benefits	$40	-$33	$49
Adjust for KKPS, Tallawarra B and VNI-West delay	-$50	-$281	-$199
Include competition benefits	$335	$399	$491
Adjust for KKPS and Tallawarra B	$180	$250	$334
Impact of KKPS and Tallawarra B	-$155	-$149	-$157
Adjust for VNI-West delay	$400	$300	$400
Impact of VNI-West delay	$65	-$99	-$91
Impact of KKPS, Tallawarra B and VNI-West delay	-$90	-$248	-$248
Adjust for KKPS, Tallawarra B and VNI-West delay	$245	$151	$243

Table 1 – Net Benefits Central Scenario ($million)

- Of course, further major generation and storage projects will reduce the benefits even

further. One such project that seems likely to proceed is the 635 MW Port Kembla Gas/Hydrogen Power Station, which again has received $30m of Commonwealth Government support.

6 Overstated case for 3C

The Addendum repeatedly overstates the case for Option 3C, for example:

> *"The assessment in this PACR addendum finds that Option 3C has the highest expected net benefit of $49 million under these assumptions and is one of two options with a positive expected net benefit. Option 1C-new is the second-ranked option with estimated positive net benefits of $40 million, which is 18 per cent lower than Option 3C."*

Classifying the ranking as a 18% difference is highly misleading. The difference in net benefits is only $9m, in a cost of $3.3bn, which is miniscule (0.3%). A more balanced conclusion would have been that 1C-new and 3C are equal-first in this analysis.

7 Simplifying the net benefit estimates

The Addendum has a confusing array of net benefit figures for numerous scenarios, with and without competition benefits.

Accordingly, Table 1 attempts to provide a representative set of figures on a common basis, including the sensitivity adjustments. The green shading indicates the best or equal-best option for each comparison and the yellow shading indicates the most relevant comparison.

The Central Scenario was chosen as it was the basis of the PACR and is the only scenario with full details that could be gleaned from the Addendum. Of course other scenarios will have differing estimated benefits. The Step Change Scenario, which appears to be closer to the current trajectory, will have higher benefits. But whichever scenario is modelled, the estimated net benefits are either negative or marginal.

Under the Central Scenario, Option 1C-new is the best or equal-best option, except when competition benefits are included and without adjusting for KKPS, Tallawarra B and VNI-West delay, which, not surprisingly, happens to be the key comparison referred to by TransGrid.

8 HumeLink does not have a net market benefit

The VEPC Paper referred to the fundamental error of the PACR including Snowy 2.0's benefits but not its cost. When proper account is taken of Snowy 2.0's cost HumeLink has a net cost exceeding $4 billion.

But even setting aside that fundamental error, it is now clear that on TransGrid's own figures HumeLink has a net cost, varying from -$50m (1C-new), to -$199m (3C) to -$281m (2C) (see yellow-shaded row in Table 1). Option 1C-new is the clear 'winner', $149m better than the second-placed Option 3C, though still negative.

9 The revised cost estimates don't seem credible

As with the benefit estimates, there are also many questions on the latest cost estimates (Table 2).

Option 1C	Lines	1,411,002,211
Option 1C	Substation	289,269,038
Option 1C-new	Lines	1,544,607,246
Option 1C-new	Substation	264,027,937
Option 3C	Lines	1,795,790,891
Option 3C	Substation	547,430,760
Option 1C	BioCosts - Lines	1,294,347,643
Option 1C	BioCosts - Substation	24,381,108
Option 1C-new	BioCosts - Lines	821,227,995
Option 1C-new	BioCosts - Substation	23,936,823
Option 3C	BioCosts - Lines	893,734,554
Option 3C	BioCosts - Substation	29,043,795

Table 2 – Costs for 1C, 1C-new and 3C (PACR Addendum Model Results)

The most obvious is why the cost of the lines for Option 1C-new ($1,545m) is $134m higher than for Option 1C ($1,411m). Option 1C-new is double-circuit for its full length (272 km[19]), whereas 1C is double-circuit for 132 km west of Bannaby and then two single circuits for the remaining 140 km to Maragle (PACR p28, footnote 75).

Typically a double-circuit line is around 70% the cost of two single-circuit lines, so 1C-new should be significantly cheaper than 1C. Starting from the estimated line cost of 1C as the base, the line cost for 1C-new should be about $1,194m [$1,411m*(1.0 – 0.3*140/272)], which is some $351m less (23%) than the estimate in the Addendum.

If the explanation is that TransGrid has updated/increased its unit cost estimates for the Addendum, then similar adjustments would be applicable for 2C and 3C as well, meaning that the estimated line costs for Options 2C and 3C should also have increased by around 20%. If so, the estimated cost for Option 3C would now be approximately $3.7bn.

A second question concerns the much higher line and biodiversity offset cost estimates for 1C-new compared to 3C:

- the line cost for 1C-new is $5.7m/km [$1,545/272km], 16% higher than for 3C, being $4.9m/km [$1,796/366km]
- the biodiversity cost for 1C-new is $3.0m/km [$821m/272km], 25% higher than 3C, being $2.4m/km [$894m/366km]

There isn't any obvious reason for such a large difference in costs, especially as 1C-new covers the same route as 3C, only 94 km shorter. The only possible explanation is that both the line and biocost for the Blowering to Gugaa section of 3C are considerably less than the cost of the Bannaby to Maragle section. This doesn't seem plausible.

If the actual cost of 1C-new is $350m cheaper than the Addendum's estimate, this will transfer straight through to the net benefit, resulting in Option 1C-new having a net benefit of more than $500m better than Option 3C (excluding competition benefits). But as noted in Section 8, all

[19] The lengths of Options 1C-new and 3C are 272km and 366km (AER Determination Table 2)

HumeLink options still incur a net cost.

10 Other Factors need to be considered

The continued application of just the estimated net benefits in determining the best option is inappropriate. There are many other highly relevant factors that should be considered, such as network advantages/disadvantages, maintenance, exposure to bushfires and lightning, external losses, environmental, landowner and community impacts.

In particular, there will be a substantial environmental cost for this project over hundreds of kilometres and every action should be taken to minimise that impact. Over 360 kilometres of public and private lands will be impacted. TransGrid is receiving increasingly hostile opposition from local communities, creating social trauma and considerable costs and delays for TransGrid.

11 Option 3C has limited network capacity

The PACR estimates almost identical additional transmission capacity for all three options, of around 2,500 MW.

However, the ISP (Figure A5.4.3) states that the additional network capacity of HumeLink (Option 3C) is *"2,200 MW in both directions [presumably Wagga Wagga to Bannaby]. REZ network limit increase 1,600 MW in N6"*. (It is noted that the accompanying figure could be misleading, as the electrical connection is actually a triangular loop arrangement between Bannaby, Maragle and Wagga Wagga (renamed Gugaa), not a T-section. There is no electrical junction at Blowering.)

Whatever the correct network capacity, whenever Snowy 2.0 is generating at its full 2,040 MW rating there will only be minimal transmission capacity available for south-north flows from Project Connect, VNI-West and 1,600 MW of expected REZ generation. Whilst there will be diversity between the times of transmission, the question is, will HumeLink 3C be sufficient over the ISP's 2050 timeframe?

12 Option 2C is superior to 3C

The VEPC Paper outlines the advantages of Option 2C over 3C.

One of the most significant is that, contrary to the PACR, Option 2C provides significantly greater firm transmission capacity between Gugaa and Bannaby than 3C, due to its shorter direct route, rather than 3C's extended loop configuration.

Option 2C could provide up to 3,500 MW, the capacity of a single 500 kV line, from Gugaa to Bannaby in a double-circuit configuration.

For a similar cost and benefit, Option 2C enables an extra 1,000 MW of transmission capacity compared to Option 3C.

13 LTSS is superior to Maragle

The VEPC Paper outlines the numerous advantages of Lower Tumut Switching Station being the connection point between Snowy 2.0 and HumeLink.

And it would reduce the cost of HumeLink by hundreds of $millions.

14 Who will pay for HumeLink?

The 'elephant in the room' is who is going to pay for HumeLink, particularly pertinent for a project with negative benefits and based on highly contestable estimates.

The AER might well respond that this is not a matter for it in the RIT-T process and it will only intervene if there is no net consumer benefit estimated. Though, as demonstrated in this Paper, there is no net benefit, contrary to TransGrid's assertions.

HumeLink is the most expensive transmission project to ever be built in NSW and its capacity, route, timing, design and cost has been determined by the need to connect Snowy 2.0 to the grid. Were Snowy 2.0 not being built, HumeLink would not be needed till much later, it would take a much shorter and direct route between Bannaby and Gugaa, it would be less susceptible to outages from bushfires and lightning strikes, have lower electrical losses, have greater capacity and be much cheaper.

Snowy Hydro insist it has no responsibility for HumeLink or its cost, yet are expressing increasingly agitated concerns that it may not be built in time for Snowy 2.0's commissioning, scheduled for 2025-26 (though that looks to be optimistic).

As noted in the Draft ISP *"commissioning HumeLink in 2026-27 results in a reduction in weighted net market benefits of $284m, compared to waiting for reassessment in the 2024 ISP".*

At this stage the expectation is that HumeLink will be 'approved' as a regulated asset paid for by electricity consumers. This would be plainly unjust.

Surely this issue needs to be resolved before the RIT-T process goes any further and AER has a role in that determination.

15 Summary

Despite TransGrid's contention that the preferred option remains Option 3C, a proper assessment of TransGrid's latest estimates indicates this to be inconclusive at best, and flawed at worst.

Costs

i) the capital cost estimates have a *"high degree of uncertainty"* and other route options are still being considered, including undergrounding
ii) AEMO's ISP states that *"project costs cannot materially increase from the current estimate of $3.3 billion. Further work to drive down costs should be undertaken urgently"*
iii) costs could be reduced by using existing easements, upgrading existing 330 kV lines and connecting to LTSS rather than Maragle
iv) there appear to be anomalies in the estimated costs of the options – the cost gap between 1C-new and 3C may be larger

Benefits

i) competition benefits should not be included in the RIT-T process, following AEMO's decision

to not include them in the assessment of the Optimal Development Path

ii) other benefits are overstated, particularly the assumed operation of Snowy 2.0

Net benefits

i) removing competition benefits and adjusting for Kurri Kurri and Tallawarra B Gas Power Stations proceeding and VNI-West being delayed, results in substantial negative net benefits for all options

ii) Option 1C-new has the least-worst negative net benefit (-$50m). Option 3C is -$199m

iii) net benefits get even more negative if the apparent costing anomalies are verified

iv) if Snowy 2.0 costs are included in the net benefit calculations, the negative net benefit for all options exceeds $4bn

v) Option 3C is not the best option, on financial or other grounds

Other issues

vi) there are many other relevant factors that should be considered, such as network advantages/disadvantages, exposure to bushfires and lightning, environmental, landowner and community impacts

vii) Option 2C has significant network advantages over 3C as does connection via LTSS rather than Maragle. Option 1C-new is the cheapest option with the least-worst net benefit

viii) resolution of who is to pay for HumeLink needs to be resolved before the RIT-T process goes any further

Clearly, the PACR and its Addendum are flawed. The AER should not 'approve' of the RIT-T progressing to the next stage before undertaking a rigorous assessment, especially for such an expensive and controversial project.

Attachment C

NPA objections to the HumeLink PACR submitted to the AER

From: Ted Woodley
Sent: Friday, 17 September 2021 5:27 PM
To: Burkitt, Blair; Hassan, Ali
Cc: Gary Dunnett
Subject: Objection to HumeLink PACR

Good afternoon Blair and Ali,

Since our meeting in May we have continued to advocate for the Snowy 2.0 connection to be underground and for Lower Tumut Switching Station to be genuinely considered as an alternative connection point to HumeLink. We understand that TransGrid are still assessing the various options, but is likely to stick with its original proposal of overhead lines via the proposed Maragle Substation.

You are probably aware that a Paper on HumeLink was released this week by the Victoria Energy Policy Centre (VEPC), which I co-authored - A review of the HumeLink Project Assessment Conclusions Report, 13 Sep 2021.

The estimated cost of HumeLink has increased 250%, from $1.3 billion to $3.3 billion (-30%/+50%) and well exceeds its market benefits. NSW transmission tariffs will increase by around 40%.

The routing, size, timing and cost of HumeLink have been determined by the need to connect Snowy 2.0 to the grid. Yet Snowy Hydro adamantly oppose paying its fair share.

On NPA's behalf, I would like to submit an objection to the HumeLink PACR, largely on the basis of the findings in the VEPC Paper.

Can you please pass this on to the relevant officers and advise if there is anything else that needs to be done.

Obviously, I and some of our energy experts would be willing to meet with you and/or others to discuss our concerns.

regards
Ted Woodley

From: Ted Woodley
Sent: Friday, 24 September 2021 9:02 AM
To: Burkitt, Blair; Hassan, Ali
Cc: Gary Dunnett
Subject: RE: Objection to HumeLink PACR

Good morning Ali,

I am just following up your call to me on Tuesday and checking to see if your foreshadowed email suggesting times to meet next week was lost in transmission. We stand ready to meet at your convenience.

In the meantime I thought it might be useful for me to more clearly outline our objections to the HumeLink PACR, as contained in the VEPC Paper, including:

i) HumeLink has a negative net loss exceeding $4bn, when proper account is taken of the cost of Snowy 2.0, if the benefits of costs it avoids are to be included
ii) even setting aside this fundamental omission, the benefits are overstated (e.g. the sensitivity scenarios are practically certain; the assumed operation of Snowy 2.0 is unrealistic), and do not exceed the costs
iii) given the dramatic increase in estimated costs since the PADR and the stated level of (in)accuracy of -30%/+50%, little confidence can be attributed to the latest estimated costs
iv) accordingly, the cost/benefit calculation cannot be relied on to the extent needed to proceed to the next stage of the RIT-T process
v) the PACR fails to provide a coherent or compelling case for the preferred option (3C) – in fact, Option 2C seems a better choice, and 1C should also be re-considered with double-circuit lines rather than the more expensive single-circuit lines
vi) the range of options is not comprehensive, nor is the consideration sufficiently rigorous, as demonstrated in the VEPC Paper
vii) TransGrid has already pre-empted the decision on the route, having informed landowners that it has adopted Option 3C. But the route (and hence cost) is still in flux, with further route diagrams published this week
viii) the various routes and configurations (including undergrounding part or all of the lines, using existing easement corridors, or replacing existing 330 kV lines) have not been satisfactorily addressed, together with the cost implications
ix) in particular, the option of connecting Snowy 2.0 and HumeLink at the existing Lower Tumut Switching Station, rather than a new Maragle Substation, has many advantages, as outlined in the Paper and previous correspondence dating back to January 2021
x) the PACR has numerous inconsistencies and errors and is not of a suitable standard for such a massive transmission project

I note that NPA registered its concerns about HumeLink with AER on 30 November 2020 and again on 18 January 2021. Those concerns encompassed the lack of options being considered, the extra costs being incurred due to the connection of Snowy 2.0 and the cost apportionment. Following the AER's response on 22 February 2020 we met on 25 May 2021.

We contend that all the above issues should be considered in the AER's assessment of the PACR. In our view the PACR is clearly deficient and needs to be re-done to comply with the requirements and standards necessary for the AER to be able to make a soundly based determination on this most important project.

We look forward to discussing these issue next week.
Ted Woodley