

**HumeLink**  
**Material Change in Circumstance Assessment**  
**and**  
**Contingent Project Application Stage 2 (Delivery)**

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## Summary

This submission provide comments on both the [HumeLink Material Change in Circumstance Assessment, 29 Feb 2024](#) (MCCA) in PART A, and the [HumeLink Stage 2 Contingent Project Application, 21 Dec 2023](#) (CPA) in PART B (page 14 onwards).

It contends that many of the claims in the MCCA and CPA are incorrect or implausible and that the case for proceeding with the preferred HumeLink option (3C) has not been proven and hence Stage 2 should not be approved.

The MCCA concludes that there has been no material change in the HumeLink project since the RIT-T (Project Assessment Draft Report (PACR), issued in December 2021):

***“Transgrid has completed this assessment and determined that:***

- ***the preferred option identified in the 2021 RIT-T has not changed; and***
- ***therefore there is no requirement for Transgrid to re-apply the RIT-T (i.e. there has not been an ‘MCCA event’)”***

How can there not have been a material change in circumstances when:

- the cost of HumeLink has blown out from \$3.3 billion in the PACR, two years ago, to \$4.9 billion now in the MCCA/CPA. Four years ago the cost was just \$1 billion (PADR).
- despite these cost blowouts, gross market benefits are claimed to have jumped from \$2 billion (PADR), to \$3.3 billion (PACR) to \$9 billion (MCCA)
- net market benefits have skyrocketed from (an overstated) \$39 million in the PACR to \$4.2 billion, excluding competition benefits. MCCA net benefits are four times AEMO’s latest estimate of \$0.95 billion, which itself is also questionable.
- the capacity of HumeLink has declined 14%, from 2570 MW to 2200 MW, considerably less than the transmission capacity now needed

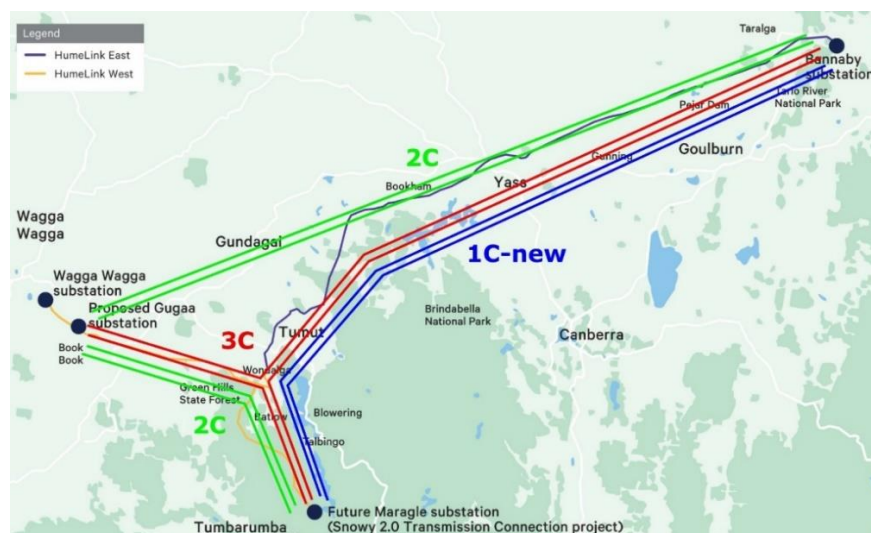
Such substantial changes over just two years, with extraordinary cost blowouts being more than compensated by skyrocketing benefits, seem implausible and warrant the AER seeking an independent expert review. TransGrid’s abysmal record of understating costs and overstating benefits, again evident in the MCCA/CPA, provides no confidence in the accuracy of its latest estimates and claims.

TransGrid is persisting with a delivery date for HumeLink of July 2026. Such a target is unnecessarily soon, unachievable, and adding substantial costs, ultimately paid for by electricity consumers. AEMO considers the optimal timing to be 2029-30. TransGrid set an impossible deadline for the AER to approve the CPA by 31 March 2024, warning that a delay will incur ‘significant penalties’ under the two construction contracts. Inconceivably, the contracts were settled well before any regulatory or environmental approvals have been obtained.

HumeLink’s three objectives are to connect Snowy 2.0 (2200 MW), connect renewable generators in southern NSW (4300 MW), and increase the capacity for interstate transfers between NSW, Victoria and South Australia (2735 MW), totalling 9235 MW. Clearly HumeLink,

with a capacity of 2200 MW, has been oversold, and can't possibly accomplish all three objectives – it will only be sufficient for transmitting Snowy 2.0's generation and pumping. Why hasn't a larger capacity HumeLink been proposed? Have the benefits of fully serving those objectives been incorrectly included in the cost-benefit analysis? And have the costs of the additional infrastructure needed for HumeLink's capacity to reach Sydney and Melbourne been appropriately included in the cost-benefit analysis?

The MCCA continues to bias the assessment of the three options to the preferred 3C option. For ease of reference, Figure 1 provides a diagrammatic representation of the three options (1C-new, 2C and 3C). Option 3C was only marginally better than the other two options in the PACR (2% of the \$3.3 billion cost), and the net benefit was not positive in the first place if correct assumptions had been made. Again in the MCCA the difference between the options is miniscule, after correcting for errors, and continuing to take the narrow approach of only considering the outcome of a cost-benefit analysis fails to take into consideration many other relevant factors and externalities.



**Figure 1 – The three HumeLink options, 1C-new, 2C and 3C**

There are so many errors in the MCCA that it fails to provide a convincing case that Option 3C is any better than 1C-new or 2C or that any of the options has a positive net benefit.

The extraordinary changes in circumstance since the PACR/RIT-T mean that options other than those considered previously need to be considered, including a larger capacity. Also, an underground HumeLink needs to be assessed in light of the strident local opposition to overhead lines and the substantial closing of the gap in costs, especially when factoring in other benefits and externalities ([HumeLink Undergrounding, Amplitude Consultants, Oct 2023](#)).

The entire cost of HumeLink is proposed to be added to TransGrid's Regulatory Asset Base and recouped from electricity consumers via transmission tariffs. However, were it not for the dog-leg deviation to Snowy 2.0 (Maragle), HumeLink would be significantly shorter, cheaper, have greater capacity, be more efficient, and have far less environmental and social impacts. Snowy Hydro must be required to pay its fair share of the cost, especially the Maragle Substation which is only being built to connect Snowy 2.0.

The HumeLink RIT-T needs to be redone, possibly for a larger capacity (underground) connection, and the Stage 2 CPA should be rejected. It is well past time for a comprehensive, robust, long-term transmission plan for southern NSW to be developed and submitted.

## PART A - HumeLink Material Change in Circumstance

### 1 The case for Option 3C in the PACR was questionable in the first place

The PACR Addendum concluded that Option 3C was the preferred option, with a net benefit of \$491 million.

However, this claimed benefit was overstated, as:

- it included competition benefits of \$452 million, which if removed left a miniscule net benefit of \$39 million:  
*“On a weighted-basis, Option 3C is the top-ranked option and is expected to deliver approximately \$39 million in net benefits (excluding competition benefits), which is around \$83 million more net benefits than the second-ranked option (Option 2C) in present value terms.” (PACR)*  
(it is noted that AEMO does not include competition benefits in its ISP analysis)
- it assumed the (then) proposed Tallawarra B and Kurri Kurri gas power stations would not be constructed. The PACR sensitivity analysis estimated that the benefits of HumeLink would reduce by \$180 million if both power stations were built. Tallawarra B has already been commissioned and Kurri Kurri (now called the Hunter Power Project) is scheduled to be completed by December 2024.
- it assumed VNI West would be commissioned in 2028/29, estimating that a delay to 2034/35 would reduce HumeLink benefits by \$121 million. VNI West’s commissioning looks likely to be delayed beyond 2028/29.
- it assumed a discount rate of 5.9%. The MCCA and draft 2024 ISP have adopted a rate of 7%, which the PACR estimated would reduce HumeLink’s benefits by over \$200 million.
- it adopted an opex of just 0.5% of capex, much less than the PADR’s 1% and TransGrid’s current practice of 3.4%. If 1% had been adopted it would have added \$103 million to the cost of the project.
- it assumed a (generation) capacity factor for Snowy 2.0 of 25%, meaning it would be pumping or generating at full capacity (2200 MW) for (an impossible) 14 hours a day, 365 days a year. It also assumed Snowy 2.0 would be completed by December 2026, two years earlier than the latest schedule (which is also optimistic).

Collectively, these adjustments total over \$1 billion, rendering Option 3C uneconomic at the time of the PACR, with an actual net benefit of minus \$0.5 billion.

As well as the net benefit for Option 3C being inflated, the estimates for all three options were practically the same. Excluding competition benefits, the net benefit of Option 1C-new was minus \$11m and Option 2C was minus \$33 million – see [Review of HumeLink PACR, VEPC, Sep 2021](#). The range in net benefits of the three options of \$72 million is miniscule, only 2% of the cost, and well within the margins for error for a project then estimated to cost \$3.3 billion with an accuracy of minus 30% to plus 50% i.e. \$2.3 billion to \$4.9 billion.

It is now clear that at the time of the PACR the net benefit of all three options was negative and that Option 3C was not a clear cut preferred option. The RIT-T should not have been approved in the first place

### 2 The MCCA’s estimated benefits are implausible

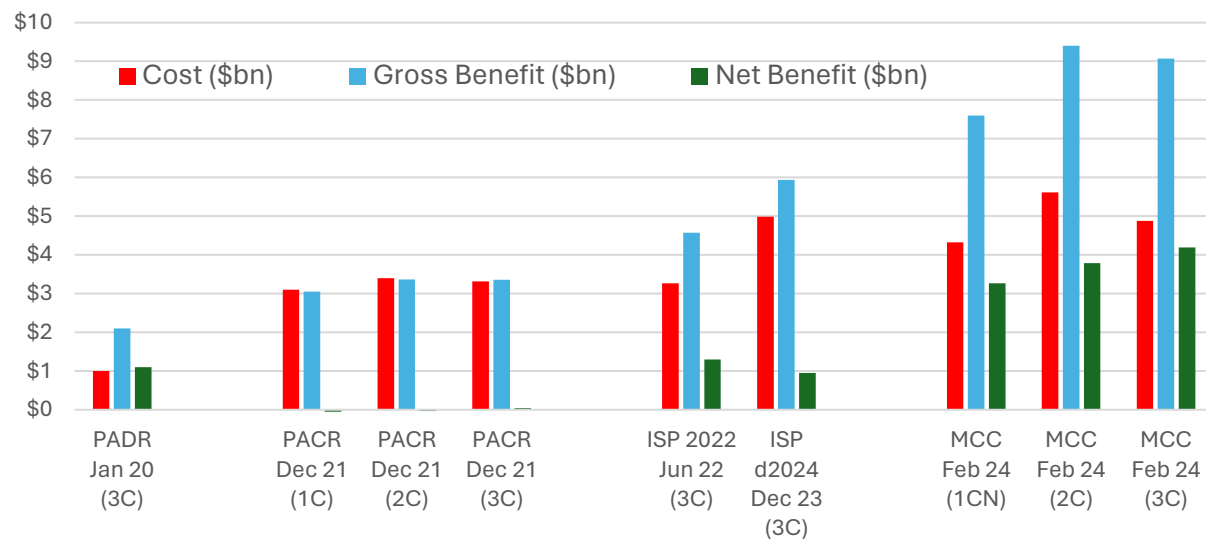
The MCCA now estimates that net benefits have skyrocketed in just two years from near \$zero (or negative) in the PACR to \$3.3 billion (1C-new), \$3.8 billion (2C) and \$4.2 billion (3C)! Gross

benefits are now claimed to be between \$7.6 billion and \$9.4 billion, more than offsetting the increase in HumeLink’s costs.

Figure 2 shows the estimated costs, gross benefits and net benefits of the three options since the PADR, excluding competition benefits to maintain consistency with the MCCA:

TransGrid has **“elected to exclude this category of benefit in this MCC assessment. The complex modelling required, and the expected commonality of any such benefits across the options assessed, is not considered proportionate relative to the requirements of this MCC assessment”**.

Hence, the apples v apples comparison in Figure 2 excludes competition benefits.



**Figure 2 – History of HumeLink cost and benefits estimates (2020 – 24)**

It is noted that:

- the estimated cost (red bars) of the preferred option (3C) has blown out from \$1 billion (PADR) to \$3.3 billion (PACR) to \$4.9 billion (MCCA) – a five-fold increase (not accounting for real figures) in just four years
- the estimated net benefit (green bars) has oscillated from \$1.1 billion (PADR) to near zero or negative (PACR) to \$4.2 billion (MCCA)
- the MCCA estimated gross benefit (blue bars) of \$9 billion is over four times that in the PADR and triple that in the PACR
- the MCCA net benefit of \$4.2 billion is four times AEMO’s Weighted estimate of \$0.95 billion in its draft 2024 ISP, Dec 2024 ([App 6, Table 22](#)). (AEMO’s Step Change estimate is \$0.74 billion).
- unlike the MCCA, AEMO’s latest estimate of net benefits hasn’t increased, but has declined \$0.35 billion since the 2022 ISP (though is still considered to be inflated)
- the capacity of HumeLink has decreased from 2570 MW in the PACR to 2200 MW now, effectively imposing a 14% cost increase in transmission capacity per megawatt

- 1) The PACR claimed that its estimates were ‘robust’, but have since been demonstrated to be anything but. What assurance is there that the MCCA estimates are any better?
- 2) Will the AER obtain an independent expert assessment in light of these extraordinary MCCA estimates?

## 2.1 Claim that HumeLink cost would need to more than double to thwart a positive benefit

***“Option 3C is expected to provide a positive net market benefit of \$4.19 billion (on a weighted basis), which is 10 percent higher than the second ranked option (ie Option 2C).”***

***“The assessment in this report shows that capital costs of Option 3C would need to more than double from the estimate used in this MCC assessment (and in our Stage 2 CPA) for the Project to no longer provide a positive net benefit.”***

This claim that the cost of HumeLink would need to more than double (i.e. to over \$10 billion) for there to no longer be a positive net benefit is at odds with the warning given by AEMO two years ago in its 2022 Draft ISP that the then \$3.3 billion cost of HumeLink must be urgently 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.”*

- 3) How could the cost of HumeLink have increased by \$1.06 billion since the PACR, according to TransGrid (see below), yet gross benefits increased by \$6 billion during those two years?

## 2.2 The cost increase is more than \$1.06 billion (June 2023 dollars)

***“We have recently submitted our Contingent Project Application (CPA) for Stage 2 (Delivery) of the Project. Since the completion of the RIT-T, and informed by our early works activities, the capital cost estimates for the Project have increased from \$3.27 billion (June 2021 dollars) assumed for Option 3C at the time of the PACR Addendum, to the current estimate of \$4.88 billion (June 2023 dollars) reflected in our Stage 2 CPA. This represents a cost increase of \$1.06 billion in June 2023 dollar terms<sup>2</sup>, since the publication of the PACR Addendum.***

***The \$3.27 billion (June 2021 (sic) dollars) capex cost in the PACR Addendum is equal to \$3.82 billion (June 2023 dollars).”***

The CPA states that the PACR estimate of \$3.27 billion is real 2019-20, but the PACR actually stated that “All dollars presented in this report are \$2020/21, unless otherwise stated”.

- 4) Can the inconsistency between the PADR, CPA and MCCA on the real cost increase be clarified?

## 2.3 Low opex

***“Annual opex for each of the three options is assumed to be 0.5 per cent of capex relating to lines and substations (ie excludes land and biodiversity offset costs). This assumption is consistent with that adopted in the PACR Addendum and was derived through a bottom-up forecast employing our standard estimating approach.”***

- 5) Why has such a low opex been adopted when it does not reflect the amounts charged by TransGrid for other transmission lines?
- 6) What is the extra cost if a more realistic opex estimate were assumed?

## 2.4 Associated costs ignored

HumeLink is one section of a proposed double-circuit 500kV connection between Sydney and Melbourne via Snowy 2.0, increasing the transmission capacity between Wagga Wagga and Bannaby to 2200 MW via Maragle (both directions).

But for this extra capacity to be able to reach Sydney, Sydney Ring South is required at a cost of \$1.6 billion, and to reach Melbourne, VNI West plus further lines are required at a cost of over \$6 billion.

A proportion of these associated costs should be included in the HumeLink cost-benefit analysis as these two other links in the Sydney-Melbourne connection are essential for HumeLink to attain its full capacity and to deliver its claimed benefits.

- 7) Have any of the associated costs for HumeLink attaining its full capacity to Sydney and Melbourne been accounted for in the cost-benefit analysis?
- 8) If so, what amount? If not, what amount is appropriate?

## 2.5 Benefits overstated – HumeLink incapable of meeting all its objectives

HumeLink is claimed to have three objectives:

- i) connect Snowy 2.0 for generation and pumping
- ii) connect generators in the emerging REZ's in southern NSW
- iii) increase interstate transfers between NSW and Victoria, via VNI West, and South Australia, via EnergyConnect

The problem is that HumeLink doesn't have sufficient capacity to serve all three objectives.

The table below, extracted from Table A5.3.1 in the Draft 2024 ISP Appendix A5, illustrates the overselling of HumeLink, with its capacity of 2200 MW being far less than the 9235 MW of additional generation and interstate transfers it is supposed to be serving:

• Snowy 2.0	2200MW	
• REZ network limit increase:		
N6	1500 MW	
N6+N7	2000 MW	
N5	800 MW	<u>4300 MW</u>
• Interstate transfers:		
South Australia (EnergyConnect)	800 MW	
Victoria northwards (VNI West)	1935 MW	<u>2735 MW</u>
<b>Total</b>	<b>9235 MW</b>	

ISP candidate option(s)				
Description	Status	Additional network capacity (MW)	Expected cost (\$ million)	Timing
<ul style="list-style-type: none"> <li>New Gugaa 500/330 kV substation and 330 kV double-circuit connection to the existing Wagga Wagga 330 kV substation.</li> <li>Three 500 kV transmission circuits between: <ul style="list-style-type: none"> <li>Maragle and Bannaby 500 kV substations.</li> <li>Maragle and Gugaa 500 kV substations.</li> <li>Gugaa and Bannaby 500 kV substations.</li> </ul> </li> <li>These circuits will be built on double circuit transmission structures.</li> <li>Three 500/330 kV 1,500 MVA transformers at Maragle substation.</li> <li>Two 500/330 kV 1,500 MVA transformers at new Gugaa substation.</li> <li>500 kV Line shunt reactors at the ends of Maragle – Bannaby, Maragle – Gugaa and Gugaa – Bannaby 500 kV lines.</li> <li>Augmenting the substations at Maragle, Wagga Wagga and Bannaby to accommodate the additional transmission lines and transformers.</li> </ul>	Actionable ISP Project	2,200 MW in both directions. Access to Snowy 2.0 generation and storage of 2,200 MW. REZ network limit increase: 1,500 MW in N6, 2,200 MW in N6+N7, 800 MW in N5.	4,892 (June 2023 dollars) Class 3 (-5% to +12%)	<b>Implementation:</b> Timing advised by proponent: Northern Circuit (Gugaa to Bannaby): July 2026 Southern Circuit (Gugaa to Maragle to Bannaby): December 2026  <b>ISP optimal timing:</b> Progressive Change: July 2030 Step Change: July 2029 Green Energy Export: July 2029

Obviously there will be diversity between the three needs, but HumeLink cannot provide for all and is substantially undersized. Snowy 2.0 alone, when it is generating or pumping at full load, will take up the capacity of HumeLink.

- 9) Has the cost-benefit analysis assumed that HumeLink will serve all the transmission needs identified above, and therefore has incorrectly included all those benefits?



- 10) If not, shouldn't the limitations of its ability to fully deliver all needs (above) have been revealed and further augmentations proposed?
- 11) What additional transmission capacity is proposed between Wagga Wagga and Bannaby to satisfy the unserved needs of up to 7035 MW [9235 – 2200], as well as additional infrastructure south of Wagga Wagga and north of Bannaby?
- 12) When will this further capacity be needed and how much will it cost?
- 13) Why isn't his further capacity being planned now – surely it isn't envisaged that a second HumeLink will be proposed before, or soon after, the first project is completed?

### 3 Mooted HumeLink 2 is for additional REZ generators

AEMO's Draft 2023 Transmission Expansion Options Report, May 2023 (Section 4.8), included various additional connection options between Wagga Wagga and Bannaby in the long term:

- DC connection for N6 2000 MW \$2.3 billion
- double-circuit 500 kV for N5+N6 6000 MW \$2.9 billion
- single-circuit 500 kV line for N5+N6 3000 MW \$2.2 billion

Option 2:	2,000 (both directions)	2,322	Class 5b (± 50%)	Long
<ul style="list-style-type: none"> <li>• A 2000 MW bi-pole overhead transmission line from locality of Bannaby to locality of Wagga Wagga.</li> <li>• A new 2,000 MW bipole converter station in locality of Bannaby.</li> <li>• A new 2,000 MW bipole converter station in locality of Wagga Wagga.</li> <li>• AC network connection between new HVDC converter station in the locality of Bannaby and the existing Bannaby 500 kV substation.</li> <li>• AC network connection between HVDC converter station in the locality of Wagga Wagga and a future Wagga Wagga 500 kV substation.</li> <li>• (Assumption: This option comes after HumeLink)</li> </ul>	NSW to CNSW) N6: 2,000			
Option 3: <ul style="list-style-type: none"> <li>• An additional new 500 kV double-circuit line from Dinawan to Near Wagga Wagga.</li> <li>• An additional new 500 kV double-circuit line from Near Wagga Wagga to Bannaby.</li> <li>• 4 additional new 500/330/33 kV 1500 MVA transformers at Dinawan.</li> </ul> <i>Pre-requisite: HumeLink, VNI West, SNW Southern 500 kV loop.</i>	6,000 (both directions NSW to CNSW) REZ N5+N6: 6,000	2,903	Class 5b (± 50%)	Long
Option 4: <ul style="list-style-type: none"> <li>• An additional new 500 kV single-circuit line from Dinawan to Near Wagga Wagga.</li> <li>• An additional new 500 kV single-circuit line from Near Wagga Wagga to Bannaby.</li> <li>• 2 additional new 500/330/33 kV 1500 MVA transformers at Dinawan.</li> </ul> <i>Pre-requisite: HumeLink, VNI West, SNW Southern 500 kV loop.</i>	3,000 (both directions NSW to CNSW) REZ N5+N6: 3,000	2,279	Class 5b (± 50%)	Long

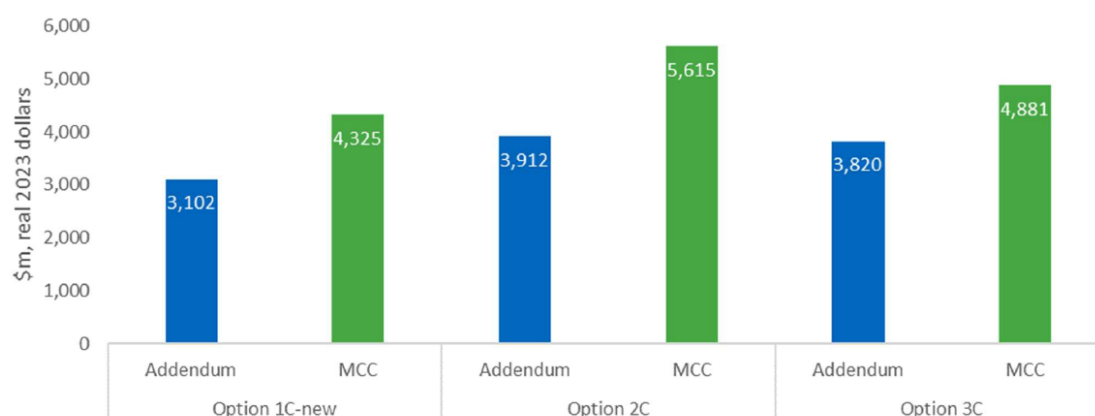
But these additional connections are to connect additional REZ generators, not to provide the missing capacity for HumeLink (9235 MW).

- 14) When will a second HumeLink be required to provide adequate capacity for Snowy 2.0, plus additional generation capacity in southern NSW, plus interstate transfers?
- 15) Why isn't this second HumeLink being planned now?
- 16) Might not the need for a second HumeLink increase the advantages of underground cables?

## 4 Bias towards Option 3C

Not only are the claimed benefits of HumeLink implausible, the relative benefits between the three options have significant inconsistencies and are biased in favour of the preferred option (3C).

Figure 2.1: Revised MCC HumeLink capital expenditure cost estimates compared to PACR Addendum capital expenditure cost estimates (\$, real 2023 dollars)



- 17) How is it that the costs for Option 1C-new and Option 2C have increased since the PACR Addendum by a similar amount – i.e. 39% (\$1,223 million) and 38% (\$1,503 million), respectively - yet the cost for Option 3C has only increased by 28% (\$1,061 million)?
- 18) How could the increased cost for 3C be \$162 million less than the increased cost for 1C-new, as Option 3C incorporates all of Option 1C-new plus the leg from Wondalga to Wagga Wagga?

Table 2.1: Breakdown of revised MCC HumeLink capital expenditure cost estimates (\$m, real 2023 dollars)<sup>35</sup>

	Option 1C-new	Option 2C	Option 3C
<i>Network capital costs</i>			
Lines	2,818	3,419	3,251
Substations	658	1,243	872
Land	173	277	248
<b>Network capital cost total</b>	<b>3,650</b>	<b>4,939</b>	<b>4,372</b>
<i>Biodiversity costs</i>			
Lines	656	656	499
Substations	19	19	10
<b>Biodiversity cost total</b>	<b>675</b>	<b>675</b>	<b>510</b>
<b>Total</b>	<b>4,325</b>	<b>5,614</b>	<b>4,881</b>

- 19) How is it that Option 3C costs about \$10.3 million/km [(\$3251+499)/365km] yet Option 1C-new costs 30% more, at about \$13.4 million/km [(\$2,818+656)/260km]
- 20) Why aren't the substation costs for Option 2C and 3C the same, or similar?
- 21) How is it that the biodiversity costs (lines) for Option 1C-new (\$656 million) is \$157 million higher than for Option 3C (\$499 million)? Surely it should be significantly lower.
- 22) Similarly, how is it that the biodiversity costs (lines) for Option 1C-new and 2C are identical, as well as the biodiversity costs (substations)?



- 23) Comparing the substation costs for 1C-new and 3C indicates that the cost of Gugaa is only \$214 million [\$872 - \$658 million] – isn't this cheap for a 500/330 kV substation?
- 24) Why are the biodiversity costs (substations) for Options 1C-new and 2C twice that of Option 3C?
- 25) Doesn't Option 1C-new have only two substations, whilst Options 2C and 3C have three (identical) substations, two of which are completely new (Maragle and Gugaa)?

#### 4.1 Incorrect treatment of biodiversity costs

***“The detailed analysis and studies undertaken for Option 3C as part of our early works activities have resulted in a refinement of the route and a consequent refinement and a quantifiable reduction in the associated biodiversity costs for Option 3C. This reduction is not also applicable to the biodiversity costs for Options 1C-new and Option 2C, as the same early works to enable route refinement have not occurred.”***

- 26) Why have the biodiversity costs for Option 3C reduced so dramatically?
- 27) Does the decision to not reduce the biodiversity costs for 1C-new and 2C in line with Option 3C reductions, provide a substantial bias to Option 3C?
- 28) Won't the revised biodiversity costs for 1C-new be known anyway, as it is a subset of 3C?
- 29) Won't the biodiversity costs for Option 2C also be known for all common sections with Option 3C, leaving just the Gugaa to Gundagai section, which is less than 20% of its length?

#### 4.2 Unsubstantiated claim of lower level of risk for Option 3C

***“In undertaking the MCCA assessment, we have therefore also updated the cost estimates for Option 1C-new and Option 2C with a higher level of contingency to account for the higher level of risks involved in cancelling Option 3C and progressing an alternative option.”***

- 30) Why is there a higher level of contingency with Option 1C-new, when it is a component of Option 3C?
- 31) What is the cost attributed to the higher level of contingency for Option 1C-new and 2C?

#### 4.3 Treatment of sunk costs

***“We have identified costs of approximately \$216 million as sunk. These costs have therefore been included in the MCC assessment in the base case, as well as in all three option cases.***

***In addition to sunk costs, we have accounted for the additional costs that would be incurred if Option 3C were to be cancelled in favour of an alternative option (ie Option 1C-new or Option 2C), or if the HumeLink project were to be cancelled altogether (ie the base case). These costs have been estimated to be:***

- ***\$23 million in contractor costs to cancel the D&C contract; and***
- ***\$24 million for the cost of storage required to store long lead equipment items that are already on order, until the later time that they would be needed.”***

- 32) Is it not incongruous to lump costs associated with Option 3C on to the other options, even though they may be sunk?
- 33) Couldn't some of the attributed sunk costs, such as pre-ordering and storage, be transferred to other transmission projects using the same materials?

#### 4.4 Inappropriate contingency for Option 1C-new cost estimate

***“Transgrid has therefore derived updated cost estimates for Options 1C-new and Option 2C by basing them on the updated estimates for the equivalent components of Option 3C (which have been refined through early works) and then applying a contingency to recognise the risks and impact on costs from changing options and re-contracting at this stage.”***

- 34) What amount has been added to Options 1C-new and 2C?
- 35) Why would there be a negative impact on costs and additional re-contracting costs for Option 1C-new, as it is effectively HumeLink East plus the section from Wondalga to Maragle, which are covered by established contracts?



Figure 2 - HumeLink East and West ([HumeLink website](#))

#### 4.5 Bias against Option 1C-new

***“We note that while the updated costs for Option 3C are considered to be consistent with an AACE classification 2 to 3, as a result of the early works that Transgrid has undertaken in relation to this option (which forms the basis of the HumeLink Project), the cost estimates for Option 1C-new and Option 2C are necessarily not at the same expected degree of accuracy (as the same early works have not been undertaken to inform the cost estimates for these two options).”***

- 36) Again, why isn't the cost estimate for Option 1C-new at the same AACE classification as Option 3C, as it is part of 3C?
- 37) Isn't the only portion of Option 2C that would be (slightly) less accurate be just the section from Gugaa to Gundagai?

#### 4.6 Overstated and narrow criteria in determining the preferred option

***“Capital costs for Option 3C would need to increase 10 per cent for it to no longer be the preferred option, and would need to more than double from the current estimate for the option to exhibit net costs.”***

The MCCA concludes that the net benefit of Option 3C (\$4.2 billion) is \$0.4 billion more than Option 2C (\$3.8 billion) and \$0.9 billion more than Option 1C-new (\$3.3 billion). Hence, on this basis alone it concludes that Option 3C is preferred.

- 38) Wouldn't the cost of Option 3C only need to increase by 8% [0.4/4.9], not 10%, for it to no longer be the preferred option?

39) What is the result after correcting the errors and biased assumptions in the MCCA/CPA identified in this submission (possibly there are further errors not yet identified)?

The PACR selected the preferred option on the basis of a miniscule difference of \$50 million in (estimated) net benefits over a cost of \$3.3 billion (less than 2% difference). After correcting for MCCA/CPA errors, it would appear that selection of the preferred option will once again swing on a miniscule amount compared to a cost now of \$4.9 billion.

The MCCA fails to take account of many relevant factors other than the raw financial outcome of the cost-benefit analysis.

One example is the relative electrical characteristics. Option 2C is superior to Option 3C for transmission between Wagga Wagga and Bannaby, which is the core pathway for interstate and intrastate flows, as it would:

- be two-thirds the length
- incur less electrical losses – hence cost savings
- have a higher transmission capacity
- be more reliable, avoiding the exposure of the Maragle deviation to bushfires and lightning strikes

The MCCA also fails to take account of numerous externalities, such as:

- impacts on the environment, other than paying for biodiversity offsets
- visual impacts
- local community, landowner and neighbour impacts, for 365 kilometres
- tourism impacts
- the cost of lost agriculture and inconvenience of inefficient practices to work around the overhead lines and towers

40) What factors, other than cost and financial benefit, should be taken into account when selecting the preferred option?

41) What is the margin for error and the level of certainty that Option 3C is the clear winner, especially when all relevant factors and externalities are taken into account?

## **5 Unnecessarily urgent timing for connection to Maragle**

***“Further, delivery of HumeLink in July 2026 is necessary to support the sequence of commissioning works required to connect Snowy 2.0 and relieve network constraints in southern NSW. Any delay of HumeLink beyond 2026/27, would forgo market benefits as it risks constraining Snowy 2.0 (ie, limiting its dispatch to 660 MW) and delay its full connection to the transmission system.”***

Even on Snowy Hydro’s extremely optimistic schedule, Snowy 2.0 will not start commissioning the first unit till mid-2027, meaning the first two units would not be commissioned till early 2028 (taking a typical three months each), at which time the existing 660 MW of spare transmission capacity would be utilised.

AEMO’s draft 2024 ISP sets the optimal timing for HumeLink as July 2029-30 for Step Change:

*“Under all scenarios in the Draft 2024 ISP, delivery of HumeLink within its actionable window is found to be optimal, ranging from 2029-30 in Step Change and Green Energy Exports to 2030-31 in Progressive Change” [App 6, Table 22](#)*

- 42) Why does HumeLink need to be completed by July 2026, one and a half years earlier than commissioning of the first two of the Snowy 2.0 units, and two and a half years earlier than its completion (assuming it meets its impossibly optimistic schedule)?
- 43) Why does HumeLink need to be completed four years before AEMO's optimal date of 2029-30?

***“The faster transition to renewable energy and storage reflected in the latest ISP scenarios is associated with greater utilisation of transmission between Wagga, Maragle and Bannaby, and greater opportunity for Humelink to be utilised to avoid investment in renewable energy, storage and gas-fired generation.”***

- 44) What is the need for greater transmission utilisation to Maragle before Snowy 2.0 is commissioned?

Also, as covered above, HumeLink has insufficient capacity ‘to connect Snowy 2.0 and relieve network constraints in southern NSW’, and connect the new REZ's and provide additional interstate transfers.

### 5.1 Varying delivery dates for the options

***“To ensure options considered in the MCC assessment could still be delivered, and so remain credible options (in line with the RIT-T requirements), the projected commissioning dates for Option 1C-new and Option 2C have been updated to 2028/29. This reflects that, if these options were to be pursued now, there would be a need to undertake early works to enable their final design and delivery.***

***The expected delivery date for Option 3C remains 2026/27, as early works have already been largely completed for this option and therefore this date remains achievable.”***

- 45) Why does the CPA have a different delivery date for Option 3C, of July 2026 (not 2026-27)?
- 46) Why wouldn't Option 1C-new have the same delivery date (2026/27) as Option 3C, or even earlier, as it is a component of 3C?
- 47) Would taking this into account improve the relative benefits of 1C-new?

### 5.2 Bias against Option 1C-new

***“These early work activities are largely specific to Option 3C and would not be generally transferable to Option 1C-new or Option 2C, due to differences in technical design and the topology traversed by Option 3C compared to these other options. Effectively, Stage 1 early works has advanced Option 3C's timeframes, as intended, by two years, with approximately three years remaining to deliver the Project in 2026/27 from today's perspective.***

***In contrast, there would be a five-year timeframe to deliver Option 1C-new or Option 2C if works on these options were to start today, resulting in delivery being delayed to 2028/29. This longer timeframe is due to the need for equivalent early works (that are largely completed for Option 3C) to be replicated for Option 1C-new or Option 2C.***

- 48) What are the 'differences in technical design and topography traversed by Option 3C', compared with Option 1C-new?
- 49) How could the adoption of (the much shorter) Option 1C-new result in a five year timeframe, compared with Option 3C's three year timeframe?

## 6 Confusion on impact of re-routing through Green Hills

***“In relation to the coverage of the capex estimate for Option 3C, we note that the estimate incorporates the costs associated with:***

- a re-routing of the line through Green Hills, which has had a net impact of a \$1 million increase in capital costs;***
- development of a 500kV substation site at Gugaa, including the civil works and installation of HV infrastructure. Approximately \$85 million has been included in HumeLink cost estimates for the Gugaa substation site.***

***However, despite this higher degree of cost certainty, we acknowledge that Transgrid may incur additional costs relating to contract variations, as raised by submissions to the draft Stage 2 CPA.”***

TransGrid’s comments on the impact of the re-routing through Green Hills have been confusing.

The [HumeLink Community Newsletter, Nov 2023](#) stated under the heading ‘Project footprint total length update’ that as a result of the re-routing the length of HumeLink would increase by 25 kilometres to 385 kilometres:

*“As a result, the HumeLink project footprint now has an adjusted total transmission line length of 385 kilometres, compared to the original 360 kilometres. While this is an increase in total length of the project, the project route significantly reduces impacts to 10 private landowners and aligns with NSW Government principles on placing transmission infrastructure on public land where feasible.”*

That was subsequently ‘corrected’ in the [January Newsletter](#) under the heading ‘Update on transmission line length’ to just 5 kilometres extra, with a perplexing explanation:

*“In the December issue of our project newsletter and communications shared late 2023, we referred to an updated transmission line length of 385 kilometres. The reference to 385 kilometres refers to the total length of materials, not the transmission line length. The correct length of the transmission line is 365 kilometres. We apologise for any confusion caused.”*

Comparing Fig 2-1 (previous route) with Fig 4-1 (new route) in the CPA, it seems that the new route is much longer than an extra 5 kilometres.

- 50) Can the extra length of HumeLink due to the re-routing through Green Hills be checked?
- 51) It seems questionable that an extra 5 km of line has a net cost of just \$1 million, when the average cost of HumeLink is around \$10 million/km?
- 52) Has the \$85 million associated with Gugaa substation only been applied to options 2C and 3C, not 1C-new as well?
- 53) What is the extent of ‘additional costs relating to contract variations’?
- 54) How did the submissions on the draft CPA result in additional costs for contract variations?
- 55) What is the extent of these additional costs, and are they on top of the figures in the MCCA/CPA?

## PART B - HumeLink Contingent Project Application Stage 2 (Delivery)

On 22 December 2023 I submitted comments on the [HumeLink Draft Stage 2 Contingent Project Application, Dec 2023](#) by TransGrid's deadline. I had assumed that submissions would then be considered prior to the issuing of the final CPA. However, the [final CPA](#) had been issued a day earlier, on 21 December, making my and other submissions irrelevant.

In the circumstances, the following comment made several times in the final CPA touting TransGrid's seeking of early stakeholder feedback seems a tad disingenuous:

***"As evidence of our strong commitment to delivering this project, we have worked with our stakeholders to publish our draft Stage 2 Application on the 8 December 2023. Our aim was to allow early stakeholder feedback and sufficient time for the AER to make its Determination on our Stage 2 Application by 29 March 2023 and help meet the 2022 ISP time frames."***

After more than three months I have yet to receive a response to my submission, other than confirmation it was received and is being worked on. In the absence of a response many of my following comments on the final CPA repeat those made in my earlier submission.

For ease of reference my comments follow the sequential order of extracts from the CPA.

### 1. Delivery date of July 2026 is unachievable and exacerbating the cost

***"We are committed to meeting the delivery date for HumeLink of July 2026 in the Australian Energy Market Operator's (AEMO) Final 2022 Integrated System Plan."*** (P9)

The actual target date in the 2022 ISP was 2026-27, not July 2026. And this target date was earlier than the optimal timing of 2028-29 for Step Change and 2033-34 for Progressive Change:

*"In AEMO's view, the project would optimise benefits to consumers if delivery is targeted for 2026-27. The ISP modelling does suggest that net market benefits would be \$3 million more if HumeLink were scheduled to be delivered in 2028-29 in Step Change and 2033-34 in Progressive Change. However, the later schedules would provide less valuable protection against the risks of project slippage or early coal closures."* (2022 ISP)

It is noted that the MCCA has a different delivery date to the CPA of 2026-27.

This out-of-date 2022 AEMO target is now unachievable, and persisting with it is increasing costs, unnecessarily, at the expense of consumers.

In the two years since the 2022 ISP it has become obvious that the optimal delivery date for HumeLink would slip back, due to Snowy 2.0 delays, new gas generators and batteries, delays with other transmission projects etc. AEMO's draft 2024 ISP sets the optimal timing for HumeLink as July 2029-30 for Step Change.

56) Why does the MCCA have a different delivery date (2026-27) to the CPA (July 2026)?

57) Why is TransGrid persisting with an out-of-date AEMO target date – why not adopt the latest date of 2029-30?

58) What extra costs will be incurred by sticking to the (non-optimal) July 2026 target?



- 59) Isn't it unlikely that July 2026 could be achieved anyway, given the lack of social license and construction constraints?
- 60) Are the claims made by TransGrid executives, at the NSW Inquiry into undergrounding transmission lines, that HumeLink's benefits have risen by more than its costs since the PACR and that Snowy 2.0's delay has actually increased the net benefit and urgency for completion by the July 2026 target date, correct?

## 7 Impossible deadlines for AER approval just add to the cost

***"Our contractual arrangements with our D&C contractors require us to execute the contract by July 2024. We will incur significant penalties under the contract for every day the agreement is delayed beyond this date. Receiving the AER's Decision by 29 March 2024 is the latest possible date to enable us to finalise matters, including our funding arrangements, to meet the July 2024 contract execution timeframe. This contractual arrangement reflects the timing we have imposed on our D&C contractors to construct the Project to meet the July 2026 delivery date and lock in contract terms early to avoid cost escalation."* (P9)**

Obviously, it is impossible for the AER to meet TransGrid's self-imposed deadline of approving Stage 2 by 31 March 2024.

- 61) Why did TransGrid enter contractual arrangements that were impossible to meet?
- 62) Don't such deadlines apply inappropriate pressure on the AER to rush its determination?
- 63) What are the 'significant financial penalties' that will be incurred 'every day' from failing to meet these contractual deadlines and does TransGrid expect electricity consumers to pay for them?

## 8 The claimed accuracy range seems narrow

***"Our Stage 1 activities have resulted in our Stage 2 capex forecast being in line with an AACE class 2 to 3 cost estimate, to provide the necessary cost certainty that consumers will not be over-or-under investing in the Project."* (P10)**

It is understood that Class 2 to 3 means the final cost will fall within the range of -5% to +12% of the estimate. It is assumed that the upper limit has been informed by the *"top 25 risks in the register totalling \$537.14 million of forecast capex"* (P56).

- 64) Does this mean that, starting from a base estimate of \$4.92 billion, HumeLink's final cost will fall within the range of \$4.67 billion to \$5.5 billion?
- 65) To be clear, does it mean that HumeLink's final cost will not exceed \$5.5 billion?

It is noted that previous HumeLink forecasts in the PADR (of \$1.35 billion, but effectively \$1 billion after adjusting for double-circuit lines) and PACR (\$3.3 billion) with accuracy ranges of -30% to +50% have all turned out to be hugely underestimated. The CPA estimate is well above the +50% upper limit of the PADR (\$1.5 billion) and has reached the upper limit of the PACR (\$4.9 billion).

- 66) What assurances can be given that the CPA estimate really is Class 2 to 3?

## 9 Underlying infrastructure cost increase is more than the claimed 29%

***"The total cost to deliver Humelink based on our Stage 1 (early works) and Stage 2 (delivery) Applications is \$4.92 billion. This is around 29 per cent higher than the cost***

**estimate of \$3.82 billion<sup>8</sup> in the PACR, which was published in July 2021 and did not reflect current global supply chain, socio-political events and labour costs. This increase is in line with the overall cost increase of around 30 per cent for energy infrastructure projects across all elements of the supply chain over the last two years.**

**8 This is equivalent to \$3.27 billion in Real 2019-20.” (P10)**

The PACR states in footnote 3 that “All dollars presented in this report are \$2020/21, unless otherwise stated”, not 2019/20 dollars as quoted in the CPA.

67) Hence, isn't the equivalent cost estimate in the PACR less than the \$3.82 billion stated and so the increase to the latest CPA estimate is more than 29%?

68) Looking back to the PADR, hasn't the cost of HumeLink increased about 500%?

The claimed cost increase of 29% is further understated by:

- the capacity of HumeLink decreasing from 2570 MW in the PACR to 2200 MW now, effectively adding another 14% to the cost/MW transmitted
- the latest cost including a reduction of \$0.5 billion in biodiversity costs, nothing to do with infrastructure, and so masking the increase in infrastructure costs
- other claimed cost savings such as:
  - i) **“These independent verifications support our belief that we are delivering Humelink at the lowest sustainable cost for consumers, having secured \$412 million of cost savings across Stages 1 and 2 of the Project, comprising:**
    - **\$85 million for securing LLE through our PTT program (Stage 1 forecast capex)**
    - **\$237 million from adopting a variable ITC D&C contract rather than a fixed price D&C contract to deliver the design and construction for substations and transmission lines including access tracks (Stage 2 forecast capex)**
    - **\$90 million from undertaking the Gugga integration works as part of VNI West Stage 1 activities.” (P15)**
  - ii) **a reduction of about \$300 million for acquiring easements and acquitting biodiversity offsets, to \$634.76 million (P59).**

69) Would the infrastructure cost have been about \$700 million higher without these ‘savings’?

70) Isn't the underlying increase in infrastructure costs more like 70% since the PACR and 600% since the PADR?

## **10 AEMO feedback loop and net benefits keep increasing**

**“We have received our feedback loop response and AEMO has confirmed the project continues to optimise benefits to consumers and remains on the ODP. AEMO undertook its feedback loop assessment using its 2023 IASR and draft 2024 ISP, published on the 15 December 2023.” (P11)**

It is noted that “AEMO’s 2022 ISP assessed the net market benefits of the Project to be \$1.3 billion [when the cost was \$3.27 billion]” (P10). The Draft 2024 ISP now estimates weighted market benefits of \$0.95 billion at a cost of \$5 billion (\$2029-30).

The latest estimate is at odds with the warning given in the 2022 Draft ISP that the cost of HumeLink must be urgently 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.”**

TransGrid's estimated net market benefits have oscillated from \$1.1 billion (PADR) to near zero or negative (PACR) to \$3.3 - \$4.2 billion now (see MCCA submission for a more complete analysis of the implausible benefit claims.

71) How can it be that every time the cost of HumeLink increases, the estimated benefits increase a similar or greater amount?

One aspect of the AEMO and TransGrid market benefits analyses is that they don't include non-infrastructure costs, particularly to property owners and local communities.

72) Shouldn't the non-infrastructure costs be acknowledged in the cost-benefit analysis?

## **11 Connection doesn't extend to Sydney nor the existing Snowy Scheme**

***"Humelink is a project of national significance. Humelink involves around 365km of new 500kV transmission lines in an electrical 'loop' that links the Greater Sydney load centre with the Snowy Scheme and Project EnergyConnect in south west NSW." (P11)***

HumeLink does not link the 'Greater Sydney load centre', as it only gets to Bannaby. The Sydney Ring South project is then required to reach the Sydney load centre, over 150 kilometres away, at a cost of \$1.6 billion.

Also, HumeLink does not connect 'with the Snowy Scheme'. It only connects to Snowy 2.0 via Maragle, other than a minor tie-in to the Upper Tumut to Lower Tumut 330 kV transmission line. It will do little to increase the transmission capacity from the existing Snowy Scheme.

73) Shouldn't (some of) the costs of Sydney Ring South be included in the HumeLink cost-benefit analysis, or the benefits reduced commensurately, as both circuits are required to deliver the full 2200 MW of capacity and benefits of HumeLink?

74) What impact will HumeLink have on increasing the transmission capacity from the existing Snowy generators to Sydney and Melbourne?

75) Again, shouldn't some of the costs of VNI West (and extensions to Melbourne) be included in the HumeLink cost-benefit analysis, as it will be needed to contribute to the additional transmission capacity to Melbourne?

## **12 HumeLink will be maxed out whenever Snowy 2.0 is operating at full capacity**

***"Humelink will create additional capacity for new generation in southern NSW areas with high-quality resources – primarily, wind and solar generation – increase the transfer capacity between Victoria and NSW, and improve wholesale market competition, reducing customers' electricity bills." (P12)***

The 2200 MW capacity of HumeLink is identical to the capacity of Snowy 2.0's pumps and generators. There will be no spare capacity for new REZs and transfers to South Australia (EnergyConnect) and Victoria (VNI West).

76) How will HumeLink 'create additional capacity for new generation in southern NSW ... and increase interstate transfer capacity', whenever Snowy 2.0 is generating at or near full capacity?

- 77) Have all the 'benefits' of providing transmission capacity for Snowy 2.0, the new REZ's and transfers to South Australia (EnergyConnect) and Victoria (VNI West), been included in the cost-benefit analysis, disregarding the limited capacity of HumeLink?
- 78) When will a second HumeLink be required to provide adequate capacity for Snowy 2.0, plus additional generation capacity in southern NSW, plus interstate transfers?
- 79) Why isn't this second HumeLink being planned now?
- 80) Might not the need for a second HumeLink increase the advantages of an underground connection?

### 13 Claimed integrated savings

***"Our PTT program involves the integrated delivery of Humelink, EnergyConnect and VNI West and has been established to accelerate the delivery of transmission infrastructure and reduce costs through economies of scale and scope. The cost saving in this Application for consumers from the PTT program is estimated to be \$85 million. Further cost savings of \$787 million are expected via the synergies arising from concurrent investment in Humelink, Project EnergyConnect (PEC) and VNI West."*** (P13)

- 81) How can there be integrated delivery and cost savings of nearly \$900 million for HumeLink when EnergyConnect is being constructed now, HumeLink will be constructed some years later and VNI West some years later again?

### 14 What is the all-up cost of HumeLink

***"Our total Humelink Stage 2 forecast capex is \$4,279.14 million, excluding equity raising costs."*** (P14)

- 82) Why exclude equity raising costs? [\$33.14 million? as stated on P82]
- 83) What is the capitalised interest cost, and where is it included in the project cost?
- 84) Aren't these costs ultimately recouped from electricity consumers?
- 85) Have these costs been included in the cost-benefit analysis and the MAR adjustments?

### 15 Understated opex

***"Our forecast Stage 2 opex is \$23.17 million over the 2023-28 regulatory period, excluding debt raising costs."*** (P16)

Opex is estimated to be \$13.32 million in 2027-28, the first full year of HumeLink's operation. This represents 0.27% of capex, which is an exceedingly low figure, even for a new line. The MCCA states opex is 0.5% of capex, excluding land and biodiversity costs.

- 86) Will HumeLink's opex increase over time up to TransGrid's average of around 3%?
- 87) What will be the impact on the MAR?
- 88) Why are debt raising costs excluded? [\$30.1 million for first regulatory period as stated on P82]

### 16 Understated impact on consumer bills

***"Based on the forecast MAR adjustment, the indicative customer bill impact is an increase of \$20.52 per annum for residential customers and an increase of \$40.78 per annum for small business customers, commencing in 2025-26."*** (P17)

- 89) Doesn't this indicative impact exclude a number of costs, such as the Stage 1 early works (\$609 million) and higher ongoing costs into the future (e.g. opex)?
- 90) Doesn't this indicative impact understate the real cost as it has been averaged over the 2023-24 to 2027-28 regulatory period, which has zero Stage 2 costs for the first two years?
- 91) What is the entire increase in consumer bills due to HumeLink (not just Stage 2), in both dollar and percentage terms into the next regulatory period and beyond?

## 17 Why isn't Snowy Hydro contributing to the cost of HumeLink?

The capacity of Snowy 2.0's pumps and generators is 2200 MW, identical with the capacity of HumeLink.

- 92) If Snowy 2.0 were not built, wouldn't HumeLink be routed directly between Bannaby and Wagga, saving one-third the length and cost?
- 93) Why isn't Snowy Hydro contributing its share of the cost of HumeLink (the majority)?
- 94) Why isn't Snowy Hydro paying for Maragle Substation, which is only being constructed to connect Snowy 2.0 to HumeLink?

## 18 Community and Stakeholder engagement

***"Since March 2021, we have hosted more than 50 in-person and online community information events, attended more than 25 independently chaired Community Consultative Group meetings, held more than 1,100 on-on-one meetings with easement-affected landowners and shared over 75,000 project newsletters across the regions impacted by HumeLink." (P18)***

***"Our total capex forecast for CSE of \$65.13 million across all stages of the Project, comprises:***

- ***Stage 1 forecast capex of \$27.25 million***
- ***Stage 2 forecast capex of \$37.88 million (reflected in this draft Stage 2 Application)."*** (P37)

- 95) Is this expenditure of nearly \$65 million, ultimately charged to consumers, expected to improve community acceptance and social license?

## 19 Flimsy reason provided against application of CESS

***"As discussed with the AER and our other stakeholders, including the TAC, we are not supportive of the application of CESS to AEMO's ISP projects, including HumeLink. The AER's underlying building block framework already provides an appropriate financial incentive for us to minimise capex. During the regulatory period, revenues are based on forecast capex, ensuring we do not earn a return on any capex overspend for the duration of the regulatory period. Any capex overspend is rolled into our Regulatory Asset Base (RAB) at the start of the subsequent regulatory period, only then enabling us to earn a return on our actual prudent and efficient capex." (P19)***

- 96) Isn't the suspension of any capital overspend to the following regulatory period of little consequence to the TNSP, given that the ultimate capital spend will earn a return for the remainder of the life of the asset?

## 20 Relevance of commercial viability

***"We consider that Humelink is in the long-term interests of consumers because it is integral to achieving AEMO's ODP. To attract the capital required to deliver the Project, it***

***must be commercially viable. Specifically, it needs to earn sufficient net cashflows to support the AER's benchmark credit rating and provide the AER's benchmark return on capital. It also needs to do this with the same relative risk profile as afforded to it under the broader business. This will give investors the confidence they require to finance the Project.***

***Given the risks associated with this type of project, no business could be reasonably expected to pursue a project forecast to generate less than the return market investors would reasonably require.” (P19)***

97) What is the relevance of this to TransGrid - once the project is approved isn't the final cost, whatever that turns out to be, rolled into TransGrid's Regulatory Asset Base on which a return is guaranteed?

## **21 Questionable saving claimed for the variable contract**

***“\$237 million [saving] from adopting a variable ITC D&C contract rather than a fixed price D&C contract” (P40)***

98) Was it ever intended that the D&C contract would be fixed price – if not, how can the signing of a variable contract be claimed to be a saving?

99) How was the \$237 million saving calculated?

100) What is the likelihood that some or all of that saving being lost through contract variations and extras?

## **22 Shifting costs to VNI West and PEC**

***“\$90 million for undertaking the Gugaa integration as part of VNI West Stage 1 activities.” (P40)***

101) Is the '\$90 million saving' a transfer of previous HumeLink costs to VNI West?

102) Are any of the other claimed savings really a transfer of cost to another project?

103) If so, have the cost increases on the other projects been included in their respective cost-benefit analyses?

## **23 Outdated HumeLink map**

104) Isn't Figure 2-1 (P26) out of date, as it shows the proposed route before the recent re-routing west of Batlow (Fig 4-1 has the latest route)?

## **24 Substantial variations in easement and biodiversity costs**

***“Easement acquisition \$197.29 million; Biodiversity offset costs \$437.47 million (P42)***

105) Why have easement acquisition costs more than doubled since the PACR?

106) Why have biodiversity offset costs halved since the PACR?

107) What confidence is there with this latest biodiversity estimate (noting that the estimated risk is (only) \$29.07 million – page 55)?

## **25 Differences in cost of east and west sections**

The forecast capex for the east and west sections of HumeLink are stated to be \$1.256 billion and \$1.348 billion, respectively (P46), adding “our Stage 2 forecast capex for Humelink is prudent and efficient”.



- 108) Why isn't the cost of the east section considerably higher than the west section, given it is more than twice the length?
- 109) What is the cost of Maragle Substation, and what proportion is being met by Snowy Hydro?

## 26 Loss of social license

### ***"Risk ID37 – Social License***

***Project loses support (social license) that results in disruptions such as blockades, protests, legal challenges and other means of obstruction including councils. Forecast capex \$11.81 million" (P54)***

The CPA includes in its list of construction risks the loss of social license, with an estimated cost of \$11.81 million.

- 110) How was the cost of the social license risk calculated?
- 111) Does it not seem that this cost is underestimated, being less than 2% of \$600 million of construction risks, and given the lack of social license?

## 27 Easement acquisition

***"Our Stage 1 activities focused on undertaking valuations and establishing options agreements with 280 impacted private landholders as well as acquiring land for the Gugaa substation." (P55)***

- 112) What progress has been made in acquiring easements – number of properties, percentage of total, percentage of line length etc?
- 113) Is it likely that all easements will be acquired without resorting to compulsory acquisition?
- 114) What is the estimated cost of compulsory acquisition, in terms of dollars and delays?