

# Project EnergyConnect Update

## Stakeholder Webinar #2

9 October 2020



# Webinar Outline

Agenda item	Lead	Organisation	Time
1. Welcome and context	Rainer Korte	ElectraNet	10 min
2. Updated cost benefit analysis	Rainer Korte	ElectraNet	10 min
3. Customer price benefits	Simon Appleby Sean McGoldrick	ElectraNet TransGrid	20 min
4. Contingent Project Applications	Simon Appleby Sean McGoldrick	ElectraNet TransGrid	20 min
5. Q&A	Rainer Korte	ElectraNet	20 min
6. Conclusion and next steps	Rainer Korte	ElectraNet	10 min

# Context



Rainer Korte  
Group Executive Asset Management  
ElectraNet

# What you will hear about today

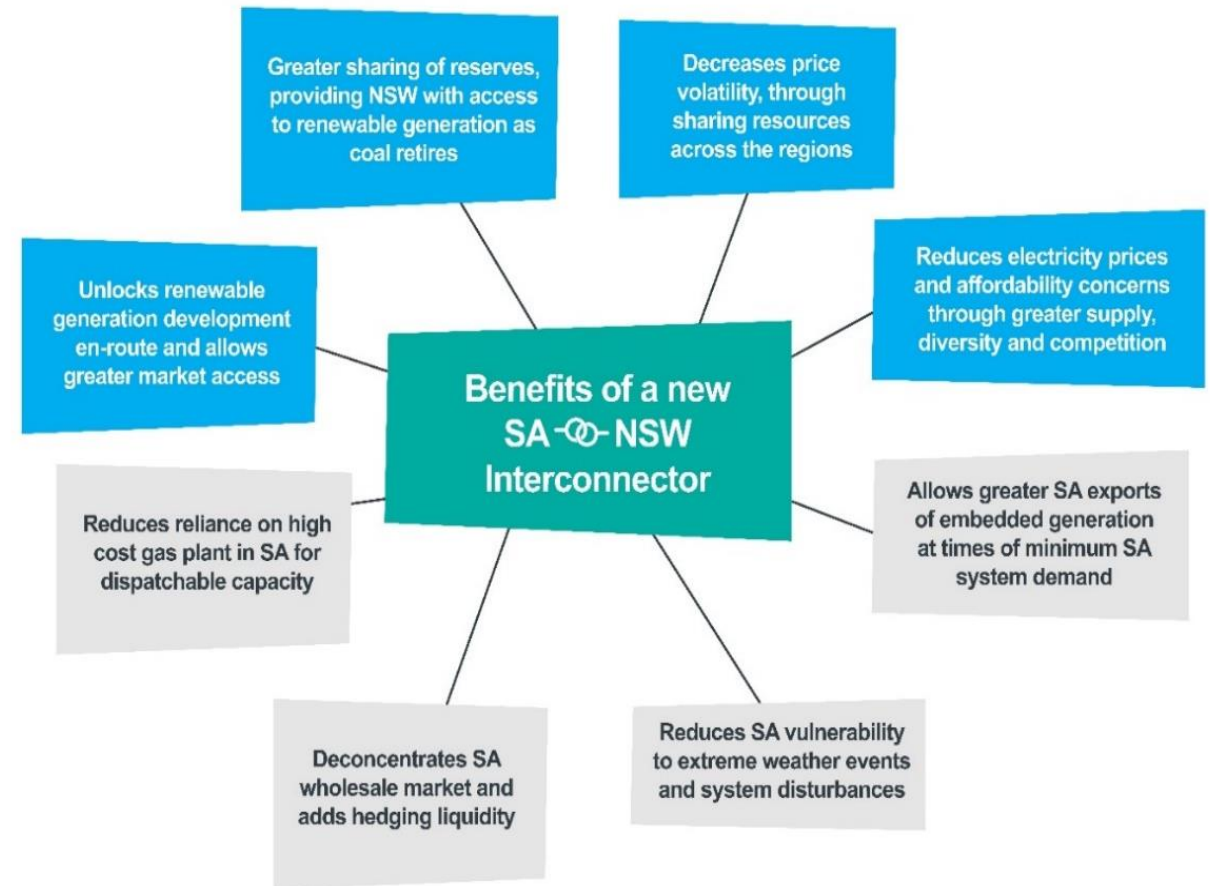
- Webinar on 20 August 2020 discussed:
  - Changes to PEC costs and benefits
  - AEMO Final 2020 Integrated System Plan (ISP) findings on PEC
  - Draft results of updated cost benefit analysis with inputs aligned to the 2020 ISP
  - Additional benefits of PEC
- Today we will share:
  - Final results of updated cost benefit analysis
  - Updated customer price benefits
  - Contingent Project Application overview

**Project EnergyConnect (PEC) is a new high capacity electricity interconnector between SA and NSW**



# Benefits of Project EnergyConnect

- PEC is a central part of AEMO's ISP roadmap for the transition of the power system
- RIT-T modelling shows a broad range of benefits
- For NSW customers, benefits include improved diversity of supply and access to cheaper renewable energy sources as the coal fleet progressively retires – it also unlocks significant renewable energy development along the route
- For SA customers, benefits include access to additional capacity when needed to replace expensive gas generation and improves the resilience and security of the power system
- Customer price impact modelling shows price reductions are expected in both regions which outweigh the additional transmission costs by a factor of 6 – 7 times or more



# Background: Project economic assessment (the RIT-T)

The RIT-T\* considered options to reduce the cost of secure and reliable electricity while facilitating NEM-wide transition to renewable energy

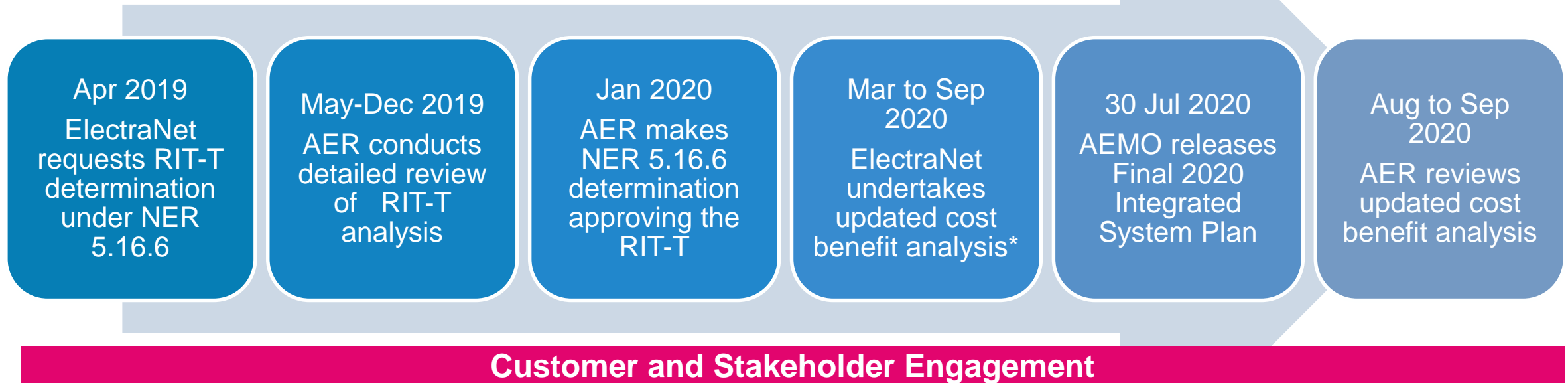


\* The Regulatory Investment Test for Transmission (RIT-T) is the economic cost benefit test overseen by the Australian Energy Regulatory (AER) and applies to all major network investments in the National Electricity Market (NEM)



# Background: Post RIT-T economic assessment

In January 2020, the AER approved the RIT-T noting that “any significant changes to the costs of the preferred option could have a material impact on the outcome of the RIT-T”



\* The purpose of the updated cost benefit analysis was to investigate whether there has been a “material change of circumstances” under NER 5.16.4(z3), considering new information on both costs and benefits aligned with AEMO’s Final 2020 ISP

# Response to stakeholder feedback summary

Key Themes – September Webinar	Response
How can consumers have confidence in the outcomes of the updated CBA?	The CBA applies the same methodology approved by the AER with updated inputs aligned with the ISP 2020. The outcomes have been subject to a detailed review by the AER.
How are costs allocated between the regions?	The current Rules allocate costs on a geographic basis. ElectraNet and TransGrid remain committed to delivering the project at the lowest practicable cost.
Will PEC increase transfer capacity by 500MW or 800MW?	PEC will deliver an 800MW of bi-directional transfer capacity for a combined transfer limit of 1,300MW (Murraylink adds to this).
Was PEC assumed or modelled as an outcome of the ISP?	PEC was identified as an outcome of the ISP modelling delivering customer benefits as soon as it can be delivered.
What is the level of confidence around the gas forecasts?	The CBA applies the ISP 2020 gas forecast AEMO adopted on independent advice after consulting with stakeholders. We have verified these through independent forecasts by EnergyQuest.
What is the basis of the system security assumptions? Are resilience benefits included?	The system security assumptions are based on the latest advice published by AEMO. Resilience benefits have not been quantified and are additional to those modelled.



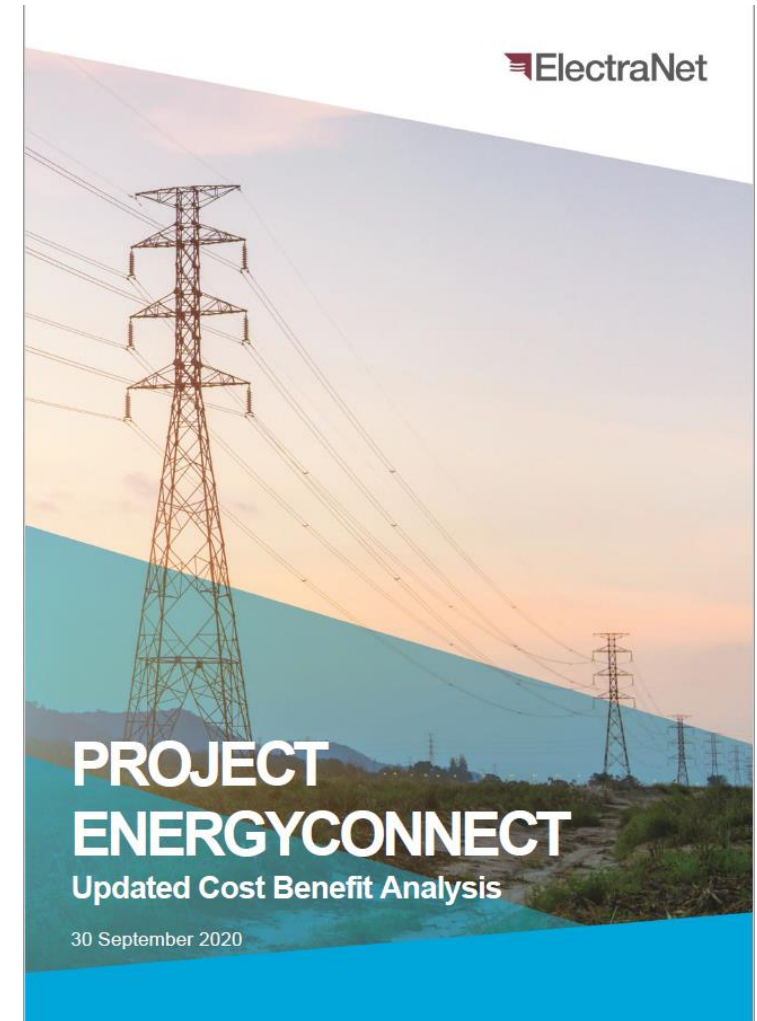
# Updated Cost Benefit Analysis (CBA)



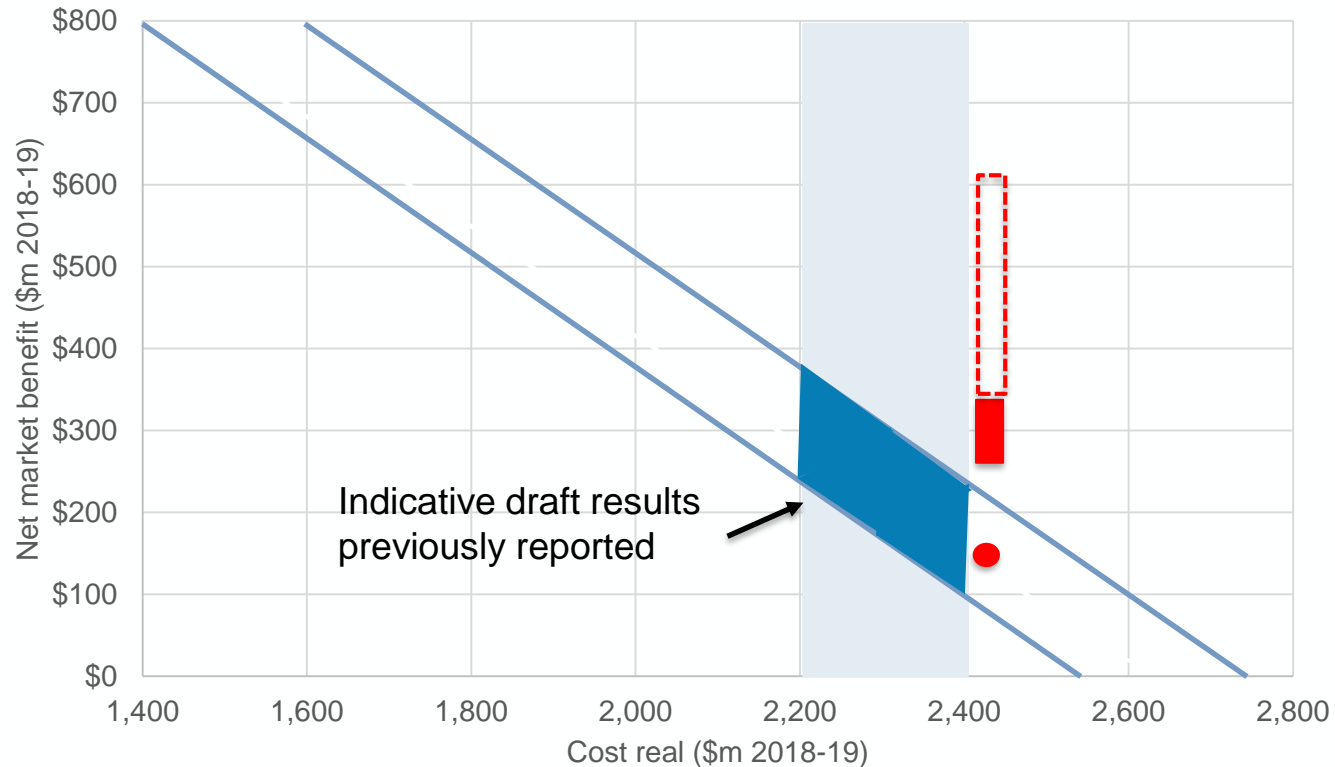
Rainer Korte  
Group Executive Asset Management  
ElectraNet

# Cost Benefit Analysis outcomes

- Our updated CBA examined whether changes to inputs and assumptions aligned with the 2020 ISP would change the RIT-T outcome, using the same methodology previously reviewed and approved by the AER
- Capital cost forecast has increased from \$1.53bn to \$2.43bn (\$2018-19) since the RIT-T was concluded
- Benefits have also increased substantially with PEC continuing to maximise net market benefits compared to other options
- ElectraNet has concluded there has not been a “material change in circumstances” requiring reapplication of the RIT-T under NER 5.16.4(z3)



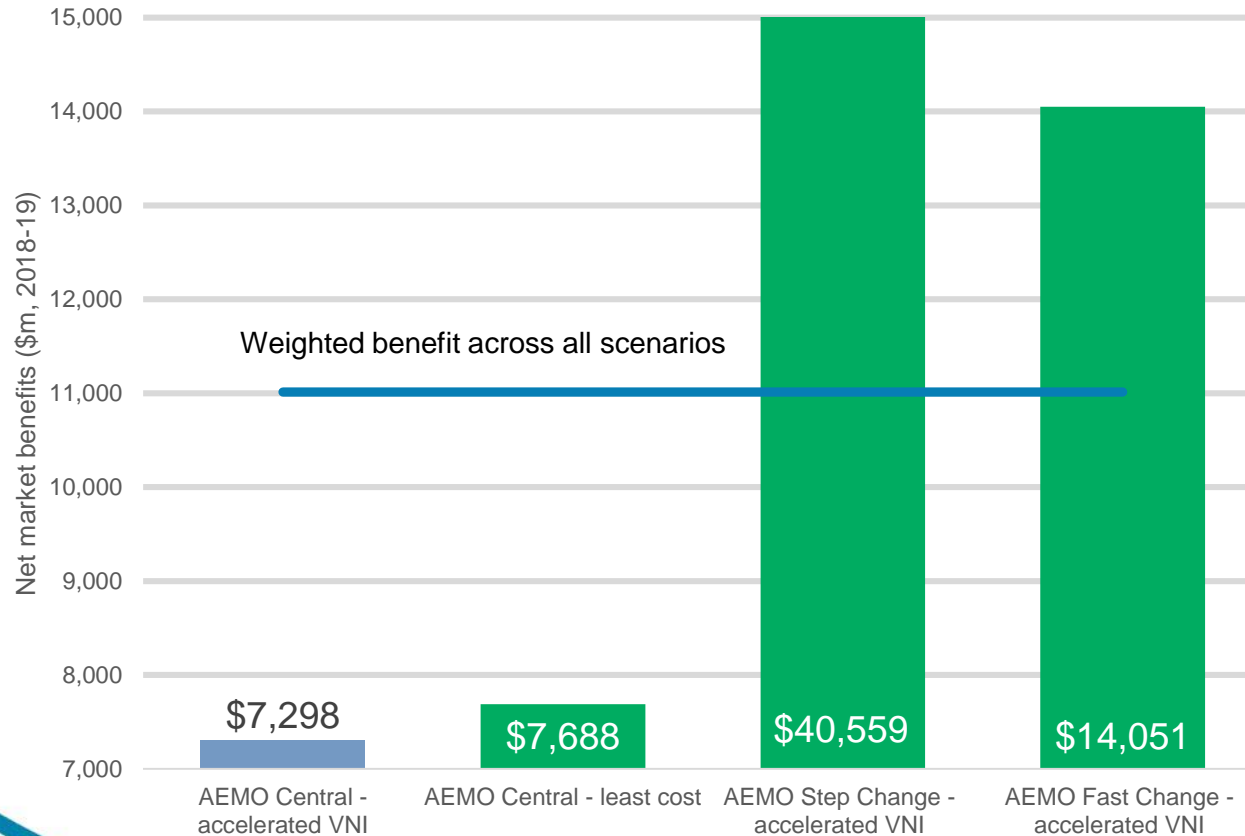
# Results of updated cost benefit analysis



- Result for ISP Central scenario with accelerated VNI West - a weighted scenario approach would result in higher benefits

- Market benefits modelled in line with ISP
- Capex forecast of \$2.43bn (\$2018-19)
- Estimated net benefits are \$148m for ISP Central scenario with accelerated VNI West – breakeven cost is \$2.7bn
- Closest ranked alternative, Victorian Option D, has breakeven cost of \$2.45bn
- Sensitivity testing shows higher ISP Central scenario net benefits of between \$260m and \$320m with VNI West delayed
- Additional system resilience benefits remain unquantified

# Higher scenario weighted benefits



- Updated CBA is based on ISP Central scenario with accelerated VNI West
- A weighted scenario approach would deliver higher benefits
- AEMO's 2020 ISP demonstrates much higher benefits of transmission if the world moves quickly towards a renewable future
- Therefore PEC is considered to be a very low regret investment

# Why costs and benefits have increased

## Cost drivers

- Congested infrastructure market and scale of project
- Biodiversity and property impacts
- Work, Health and Safety requirements
- Technical standards
- Specialist labour requirements

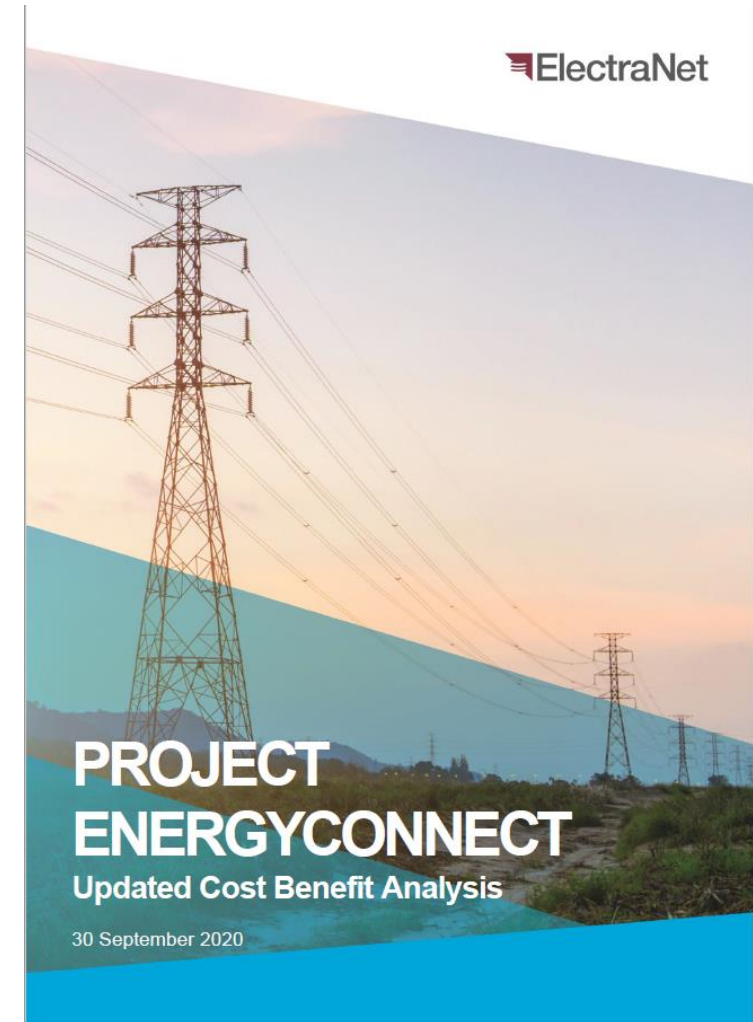
## Benefit drivers

- Movements in long-term gas price forecasts and energy storage costs aligned with AEMO 2020 ISP
- Updated information on committed generation projects and generator retirements aligned to AEMO 2020 ISP
- New system security requirements in SA as reported by AEMO



# AER review of updated CBA

- The AER has conducted a detailed review of the updated CBA
- ElectraNet requested the AER confirm its acceptance of the updated CBA, including the conclusion that there has not been a “material change of circumstances” that would change the outcome of the RIT-T
- On 28 September 2020, the AER confirmed that it considers the updated CBA provides a not unreasonable basis for ElectraNet’s conclusion that PEC remains the preferred option
- On 30 September 2020, ElectraNet and TransGrid each submitted contingent project applications for the SA and NSW components of PEC respectively
- The AER is expected to publish and commence consultation on these applications today





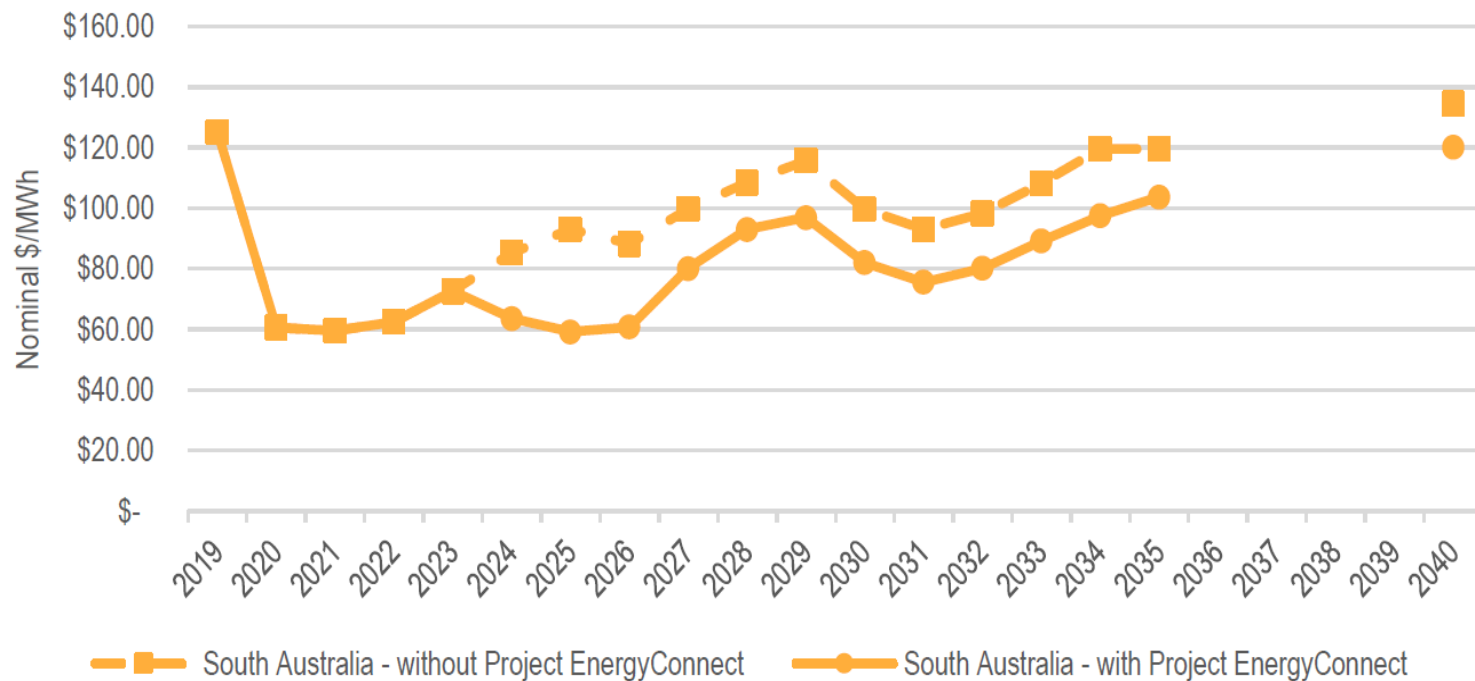
# Customer Price Impacts



Simon Appleby  
ElectraNet

Sean McGoldrick  
TransGrid

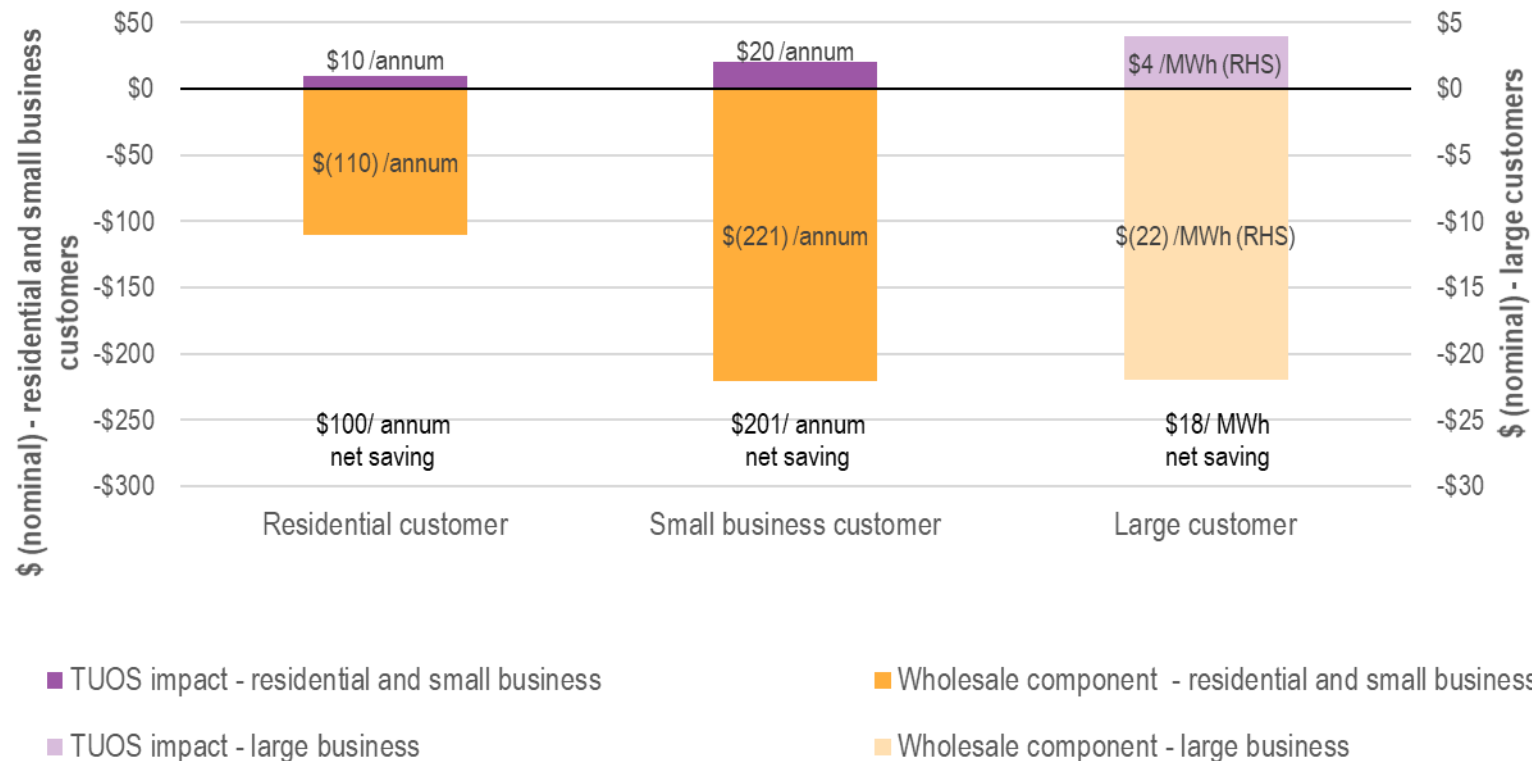
# Impact of EnergyConnect on market prices - SA



Source: ACIL Allen, September 2020

- PEC improves supply diversity and access to cheaper supply sources for SA
- This is projected to result in reduced SA wholesale prices across the forecast period
- This places downward pressure on retail prices for customers
- These reductions have increased from earlier estimates through access to lower prices in NSW

# Impact of EnergyConnect on customer prices - SA



Source: ACIL Allen, September 2020

- ACIL estimates annual average reductions in typical residential customer bills of \$100 per annum in the period to 2030, net of interconnector costs
- Price reductions increase for larger customers based on energy consumption, with net projected savings of \$18/MWh

# Impact of EnergyConnect on NSW customers

- TransGrid engaged FTI Consulting to complete analysis, both with and without EnergyConnect on market prices and customer prices

## Market Prices

- EnergyConnect is forecast to decrease the average NEM wholesale price by between \$7.00 - \$7.40/MWh/year over the forecast period (2020 to 2040), due to:
  - Improved access to cheaper sources of generation from neighbouring regions
  - Increased competition in the wholesale market with a new interconnector available
- In NSW, wholesale prices forecast to decrease by up to \$17.60/MWh/year on average, over the forecast period

## Customer Prices

- EnergyConnect is forecast to decrease NSW customer prices on average by up to \$63.90 per year over the forecast period (2020 to 2040)

# Contingent Project Applications



Simon Appleby  
ElectraNet

Sean McGoldrick  
TransGrid

# Updated Capital Costs – SA component

- Based on competitive procurement outcomes, the final CPA capital expenditure forecast is \$470.7m (\$2017-18) (excluding prior period spend of \$3.3m)
- The total CPA forecast is higher than the estimate in the PACR of \$374m (\$2017-18) by around 27% (or 22% excluding risk)
- Consistent with general movements in transmission costs seen in the 2020 ISP (30%)
- Upward movements in cost of SA component include:
  - Adjustment to line route lengths for environmental concerns and Cultural Heritage issues
  - Inter-network testing requirements
  - Change to Bunday substation layout following more detailed system studies
  - Environmental approval requirements
- A probabilistic assessment of project risks has also been undertaken



# Cost Breakdown – SA component

Item	\$m (2017-18)	Basis of Forecast
Transmission line works	259	Market pricing from credible competing vendors
Substation works	108	Market pricing from credible competing vendors
Land access & approvals	21	Independent valuations of easement costs and forecast environmental and cultural heritage requirements
Project delivery costs	34	Reflects current delivered costs and benchmarks based on detailed resource assessment
Special Protection Scheme	19	Independent estimate of the expected scope and cost of the scheme
Inter-network testing	13	Estimate of testing costs and requirements developed with TransGrid & AEMO
Project risk	16	Detailed probabilistic risk assessment (reflecting a P50 estimate)
<b>Total</b>	<b>471</b>	<b>Competitive market pricing makes up over 75% of project cost</b>

*Excluding prior period costs of \$3.3m*

# Project Risk Allowance – SA Component

- Project risk allowance established based on evaluation and probabilistic assessment of known risks reflecting the stage of the project in the delivery cycle and complexity of works
- Methodology:
  - Project risks and potential savings opportunities identified through internal review and assessment
  - Risk assessment undertaken to identify appropriate mitigation measures and quantify cost impact of residual risk
  - Monte Carlo Analysis performed to simulate project risk cost outcomes on a probabilistic basis, based on likelihood of occurrence and range of potential cost impacts across each risk
  - Outcomes of this risk assessment are used to establish the risk allowance component of the capital cost estimate on P50 basis (i.e. 50% probability of exceedance)

# Contingent Project Application Summary – SA Component

Component	Value (\$)
Capital expenditure forecast (\$m 2017-18)	471
Operating expenditure forecast (\$m 2017-18)	0.4
Revenue requirement 2018-2023 (\$m nominal)	5.3
Residential customer price impact (\$ pa nominal)	10

- Capital expenditure forecast excludes prior period expenditure associated with the RIT-T assessment (\$3.3m)
- Operating expenditure requirements are minimal, largely relating to specialist engineering resources required for new Special Protection Schemes
- Estimated increase in network costs of approximately \$10 pa for an average residential customer, but far larger reduction in wholesale energy costs

# Updated Capital Costs – NSW component

- Based on competitive procurement outcomes, the final CPA capital expenditure forecast is \$1,910.9m (\$2017-18)
- The total CPA forecast is higher than the estimate in the PACR of \$1,150m (\$2017-18)
- Upward movements in cost of NSW component include:
  - Market pricing for tendered works including substations, transmission lines and large specialist equipment
  - Updated property and easement acquisition costs
  - Updated biodiversity offset strategy costs
  - Indirect costs
- A probabilistic assessment of project risks has also been undertaken

# Cost Breakdown – NSW component

Item	\$m (2017-18)	Basis of Forecast
EPC Contract Works	1,410.4	Market pricing from credible competing vendors
Equity Raising Costs & Labour Escalation	19.4	Includes real labour cost escalation & capex incurred such as land purchases
Other Construction Costs	58.2	Other construction costs not included in EPC Contract scope
Land access	121.5	Independent expert valuations of property & easement costs
Biodiversity Offsets	127.4	Independent expert valuations of biodiversity offset strategy
Indirect Client	135.8	Bottom up estimate of costs & industry standard practices
Environmental Risk	38.2	Detailed risk assessment of DPIE's approach to vegetation clearing
<b>Total</b>	<b>1,910.9</b>	<b>Competitive market pricing makes up over 70% of project cost</b>

# Risk Allowance – NSW component

- In line with the AER'S acceptable risk criteria, TransGrid included one risk event in its CPA:
  - The risk that the NSW Department of Planning, Industry and Environment (DPIE) does not approve the limited clearing approach for environmental offset costs



# Contingent Project Application Summary – NSW Component

Component	Value (\$m)
Forecast capex (\$ 2017-18) <sup>1</sup>	1,910.9
Forecast opex (\$ 2017-18)	2.6
Smoothed Maximum Allowable Revenue (MAR) 2018-2023 (\$nominal)	146.7
Residential customer price impact (\$nominal) in 2022-23 <sup>2</sup>	6.4

1. Includes equity raising costs of \$16.2 million and actual costs that we have incurred up to 31 July 2020.

2. This assumes that a typical customer consumes 4.22 MWh per

## Forecast capex

- Forecast capex based on the BAFO tender outcome - around 17% lower than Phase tender pricing information, a capex forecast of \$2,290.9m (\$real, 2017-18)
- Demonstrates that our competitive tender process resulted in an efficient outcome

## Forecast opex

- Incremental opex is minimal given EnergyConnect will be under construction, and will enter service, at the end of the current regulatory period

## Revenue and Prices

- Revenue reflects our financeability Rule change proposal to the AEMC – this is required to make EnergyConnect financeable
- FTI Consulting estimate: reduced average annual residential bills in NSW by up to \$64 p.a. in NSW over the period 2020-2040
- Indicative impact on the transmission component of customer's bill is an increase of \$6.40 in 2022-23 (this is more than offset by a reduction in wholesale costs)

# Q & A



Rainer Korte  
Group Executive Asset Management  
ElectraNet

# Conclusion and next steps



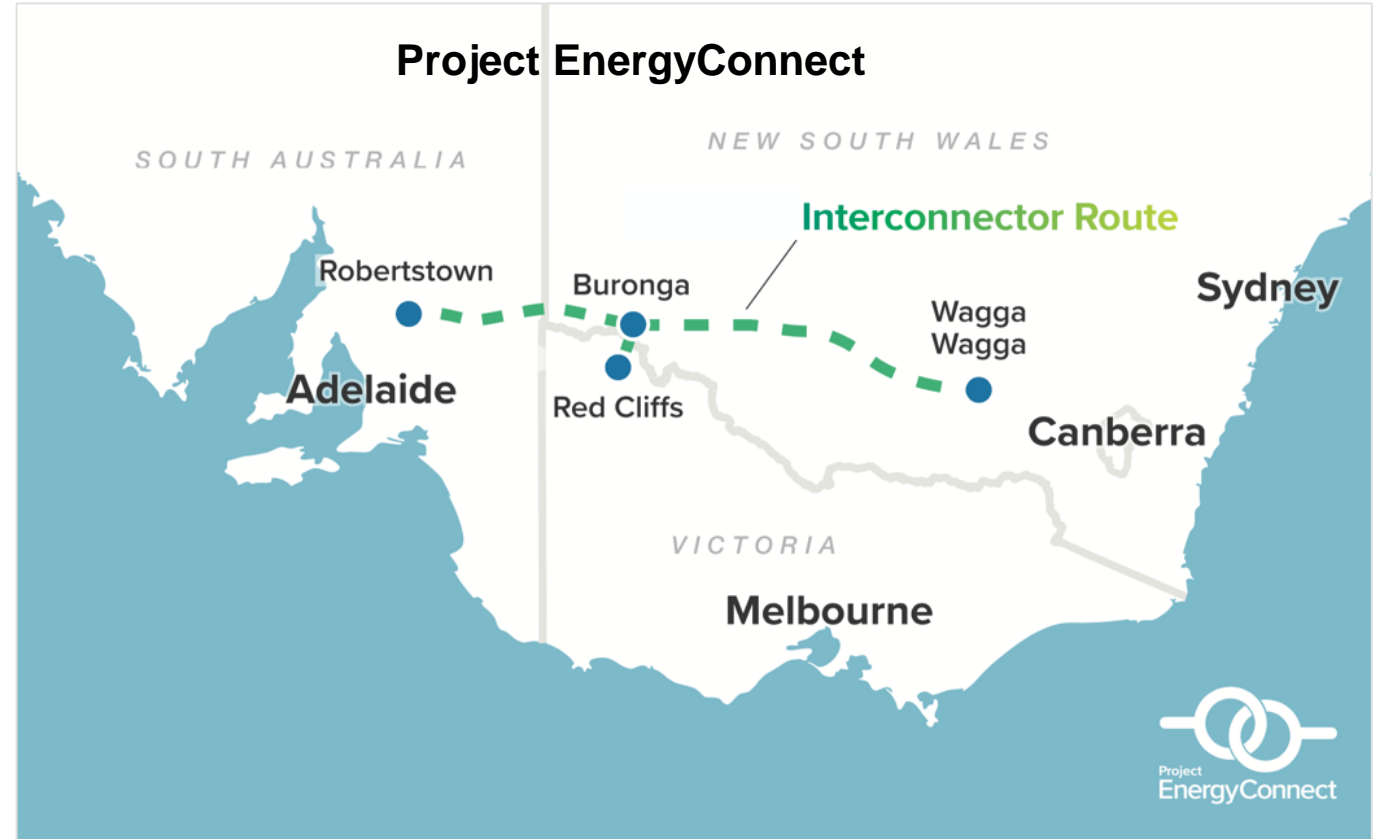
Rainer Korte  
Group Executive Asset Management  
ElectraNet

# Conclusion

- While there have been significant changes in both costs and benefits, the updated CBA confirms the preferred option remains unchanged and there has been no “material change in circumstances” requiring reapplication of the RIT-T under NER 5.16.4(z3)
- The AER has conducted a detailed review and confirmed its acceptance of this outcome
- A weighted scenario approach would be expected to deliver higher benefits, and additional unquantified benefits are also expected through improved system resilience
- PEC remains an essential investment for our energy future, and is expected to deliver material net reductions in customer prices in both NSW and SA
- With the conclusion of the RIT-T process, the last remaining regulatory step involves the approval of the efficient cost to deliver the project – the AER will shortly publish and consult on the ElectraNet and TransGrid Contingent Project Applications

# Next steps

- ElectraNet to publish updated CBA
- AER to publish ElectraNet and TransGrid contingent project applications
- AER to review, consult and make contingent project determinations, aiming for a decision by end 2020





Project  
**EnergyConnect**

For additional information go to [www.projectenergyconnect.com.au](http://www.projectenergyconnect.com.au)