



TransGrid Advisory Council

Thursday 19 August 2021

Welcome and introductions

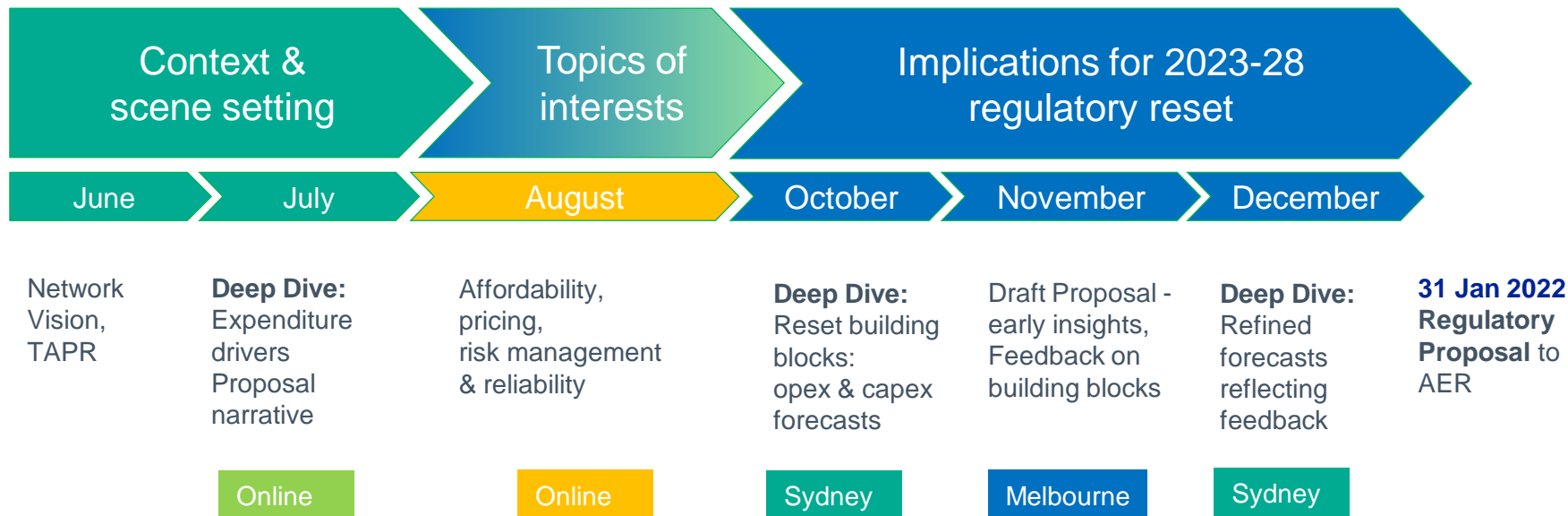
Brian Salter, Acting Chief Executive Officer

Catherine O'Neill, Stakeholder Engagement Lead

Meeting agenda

Time	Agenda item	Presenter	Overview
9:00am	Welcome and introductions	Brian Salter, Acting CEO	<ul style="list-style-type: none"> > Welcome to participants > CEO Update > Introduction of new executives > Feedback
9:15am	Rate of Return (RORI)	Stephanie McDougall, Head of Regulation	
9:45am	Risk & Uncertainty	Stephanie McDougall, Head of Regulation	<ul style="list-style-type: none"> > Climate Change > ISP / contingent projects
10:15am	<i>Break (5 mins)</i>		
10:20am	Project cost development	Stephanie McDougall, Head of Regulation	
10:50am	Broken Hill Supply RIT-T Update	Kasia Kulbacka, EM network Planning and Operation	> Update to TAC members on progress of Broken Hill Supply RIT-T
10:50am	Next steps	Catherine O'Neill, Customer & Stakeholder Lead	<ul style="list-style-type: none"> > Customer research update > October meeting – Deep Dive
11:00am	Meeting close	Brian Salter, Acting CEO	

Revenue Reset: 2021 Consultation timeline



Rate of Return Instrument

Stephanie McDougall, Head of Regulation

Weighted Average Cost of Capital (WACC)

- What is the WACC?
- Why it is important?
- How is it estimated?
- Why is AER is reviewing its approach to the WACC?
- How can you get involved?

What is the WACC?

The WACC is the cost of financing investment in our network

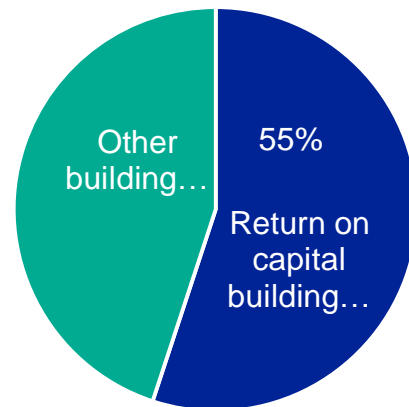
- The weighted average of the cost of equity and cost of debt. weights are based on the share of investment assumed to be funded by debt (i.e. leverage)
- It reflects benchmark efficient financing costs rather than our actual costs
- It is estimated based on market and other data, assumptions, and methods using well-accepted approaches
- It is updated periodically to reflect prevailing market data and changes to methods and assumptions

Why is WACC important?

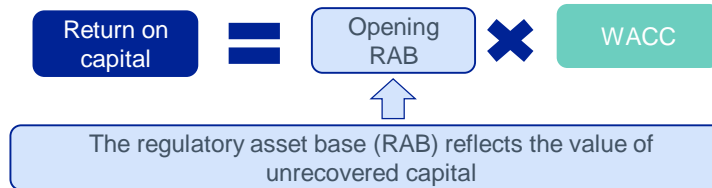
WACC is important because it has a large impact on network revenues and prices

- Comprises a large share of customer bills – 55% in the 2018-23 regulatory period
 - *Changes in WACC can lead to large changes in to those bills*
- Impacts our ability to fund efficient investment in our network
 - *if set too low we may not be able to fund that investment, which can affect the reliability and quality of our services*
 - *Need to consider long-term effect on investment and service outcomes*

**AER 2018-23
building block revenue allowance**

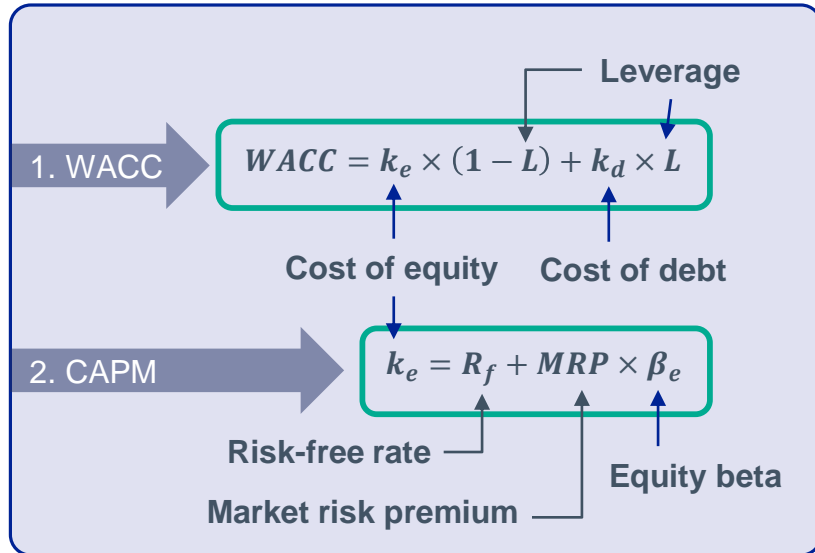


For each year...



How is WACC estimated?

Two key formulas



WACC Components

Risk-free rate	<ul style="list-style-type: none"> Return required on an asset with no risk. Usually estimated based on yields on government bonds (assumed to have limited risk).
Market risk premium	<ul style="list-style-type: none"> The difference between the return required on the market as a whole and the risk-free rate. Not observable – estimated using various approaches.
Equity beta	<ul style="list-style-type: none"> The share of the MRP relevant to energy networks. A measure of risk – the higher the value the greater the risk, and vice versa. Difficult to determine accurately - different views on how it should be done
Cost of debt	<ul style="list-style-type: none"> Cost of debt financing. Usually estimated by observing benchmark yields on corporate debt based on an assumed credit rating (i.e. riskiness) and term for benchmark debt.
Leverage	<ul style="list-style-type: none"> The share of the investment in the network that is funded by debt, a bit like the loan-to-value ratio on a house.

Why is the AER reviewing its approach to WACC?

The AER is undertaking 2022 Rate of Return Instrument (RORI) Review

- AER must publish the methods and assumptions it will use to determine the WACC in the RoRI
- The current RoRI was published in December 2018 RoRI (2018 RoRI)
- AER is required to review the RoRI every 4 years. AER must publish a new RORI by December 2022 (2022 RoRI)
- AER is undertaking an industry-wide review involving customers, networks, investors and other stakeholders – and is seeking stakeholder feedback
- AER's review builds on prior reviews and developments overseas and is seeking input from stakeholders
- The 2022 RoRI will apply to all NSPs and will apply to our 2023-28 regulatory period

2022 RoRI key issues

Key issues for 2022 RoRI from our perspective:

- **Market risk premium** – are changes needed to ensure that it is consistent with the low interest rate environment that we are in?
- **Equity beta** – how do we ensure this appropriately reflects the risks of providing electricity transmission services?
- **Cross-checks** – given the need for judgement, what role should cross-checks play to ensure the allowed rate of return is fair and reasonable?

How you can get involved?

Although the methods and assumptions used to estimate WACC are complex, it is **important for consumers to provide their input** as the AER reviews its RoRI

We are actively engaging with the AER on its review and welcome the opportunity to speak with you about **your views**

Several ways to provide your input

- The AER is consulting on a series of papers over the period through to December 2022 and is calling for submissions – see indicative timetable
- You can:
 - Engage with the AER directly ([link](#))
 - Engage via the consumer reference group that the AER established ([link](#)), or
 - Engage with us.

AER's indicative timetable

Milestone	Date
Release of Consultation Paper	10 June 2021
Submissions close	9 July 2021
Publish Information Paper	December 2021
Expert Conclave	February 2022
Concurrent Evidence Sessions	February 2022
Submissions on Information Paper close	February 2022
Draft 2022 Rate of Return Instrument released	June 2022
Release of Independent Panel's Report	August 2022
Submissions on Draft Instrument close	September 2022
Final 2022 Rate of Return Instrument released	December 2022

Risk & Uncertainty

Stephanie McDougall, Head of Regulation

Managing risk and uncertainty

- The National Electricity Rules (Rules) include mechanisms for dealing with uncertainty
- So that customers only pay for services they receive, we will rely on the following mechanisms during the 2023-28 regulatory period:
 1. Cost pass throughs
 2. Contingent Project mechanism (non-ISP project)
 3. Actionable Contingent Project process (ISP Process)
 4. Network support pass throughs

Cost pass through mechanism

- *Our operating environment is unpredictable – high cost low probability events could materially impact our costs within a regulatory period.*
- *The Rules allow us to recover costs of defined unpredictable, high costs events not included in our Transmission Determination*

Defined Events

Defined event	Risk mitigated
regulatory change	Costs from complying with changes in or new regulatory obligations or requirements
Service standard	Costs from complying with legislative decisions that impact the provision of prescribed transmission services
Tax change	Costs from complying with new or amended tax laws
Retailer insolvency	Costs arising if a retailer becomes insolvent

Nominated Events

Nominated event	Risk mitigated
Insurance coverage	Liability losses that exceed insurance coverage
Natural disaster	Cost of damage from natural disaster such as floods, earthquakes, bushfires and major storms
Insurer's credit default	Costs from insuring with a new provider i.e. higher premiums, higher deductible
Terrorism	Liability of deliberate damage and our ability to provide transmission services

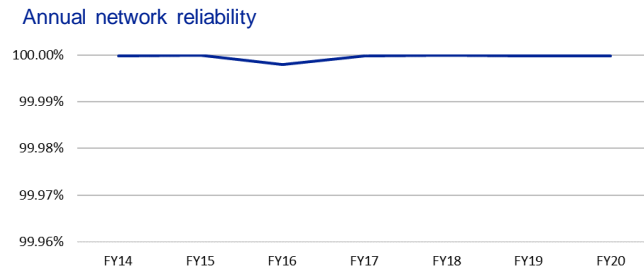
Climate
change and
resilience risk

2023-28 approach to climate change risk

The frequency, intensity and duration of climate driven natural disaster events are increasing.

- Despite increased climate driven events – bushfires, floods and extreme winds, we have maintained network reliability at 99.9%
- 2021 GHD review finds we are leaders, not lagers, in climate change resilience practices
- To ensure customers only pay for services they receive, we will:
 - include a number of climate related investments in our expenditure forecasts where benefits outweigh costs, and
 - continue to rely on cost pass through mechanism for high costs low probability events such as bushfires, floods and storms

We have maintained network reliability at 99.9%



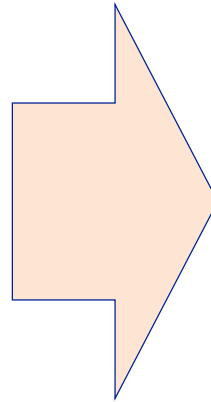
Potential investments for 2023-28	High Temp	High winds	Soil moisture	Bush-fires	Carbon reduction
1. Dynamic rating systems	✓	✓	✓	✓	
2. Replace deteriorated wood poles with steel/concrete poles		✓		✓	
3. Electrify our passenger fleet vehicles					✓

Contingent Projects (non-ISP Projects)

These projects are likely to be required, however the timing/cost is currently uncertain and are therefore not included in our 2023-28 Augex forecasts

Contingent project

1. Improving stability of the South-Western NSW
2. Meeting NSW system inertia requirement
3. Meeting NSW system strength requirement
4. Line 86 refurbishment
5. Increase capacity for generation in the Beryl area
6. Increase capacity for generation in Wollar to Wellington Area
7. Increase supply from northern NSW
8. Improve capacity of Southern NSW lines for renewables
9. Supply to Inner Sydney Area (PSF2)
10. Supply to ACT -Network Capability
11. Supply to Bathurst Orange and Parkes Stage 2



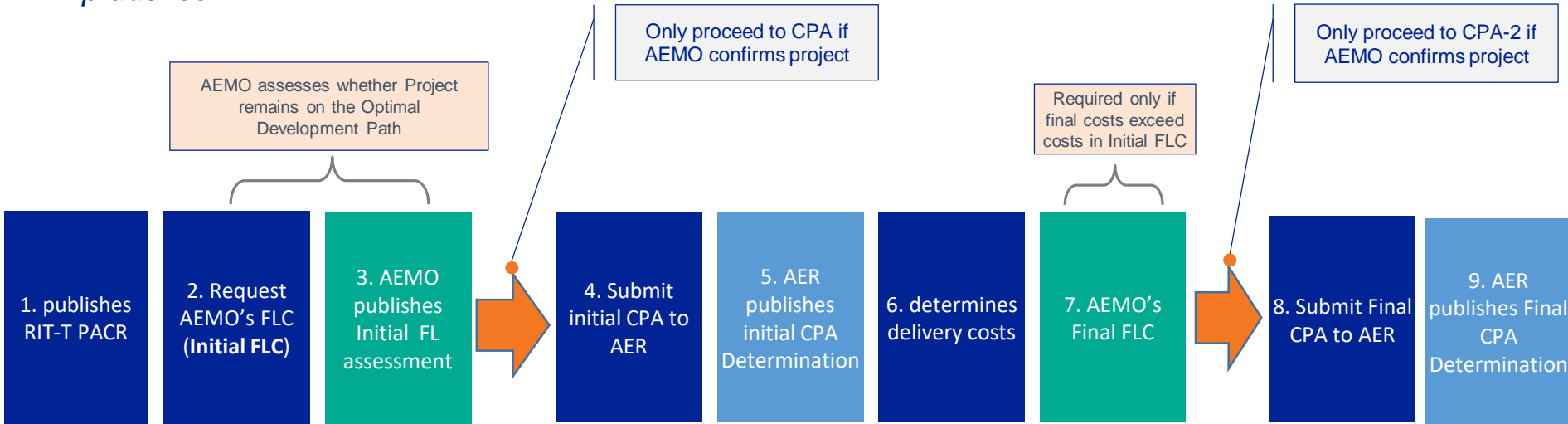
- Estimated costs currently being assessed to reflect an order of magnitude.
- Events include projects to provide system strength & inertia in response to any declaration by AEMO of a system strength and/or inertia gap
- If and when these events occur the AER will determine the prudent and efficient costs under the NER requirements

Actionable ISP Projects

Key:

- TransGrid
- AEMO
- AER

- *New Actionable ISP Rules – Two stage Contingent Project Application (CPA) recognise cost uncertainty*
- *Projects assessed by AEMO in Feedback Loop Confirmation (FLC) as well as AER for cost efficiency and prudence*



Actionable ISP Projects

Not included as nominated contingent projects because Actionable ISP projects are 'automatic contingent projects' under NER

Based on AEMO's 2020 ISP - To be updated early December based on AEMO Draft 2022 ISP

ISP Projects	2023-28 Forecast (\$ M)	Total estimated cost (\$M)	\$ Basis and Cost source
Actionable ISP			
Humelink	1,078	3,317	\$2020, RIT-T PACR
VNI West	1,615	4,076	\$2021, AEMO 2021 IASR
Future ISP			
QNI (Medium / Large)	151	4,075	\$2021, AEMO 2021 IASR
Supply to Sydney from the North	880	880	\$2021, AEMO 2021 IASR
Supply to Sydney from the South	2,256	2,256	\$2021, AEMO 2021 IASR

Break – 5mins

Project cost development

Stephanie McDougall, Head of Regulation

Cost estimating approach for Non-network

ICT:

- Cost model based on:
 - known software licences, hardware costs and project resource requirements
 - existing contract rates, service agreements with suppliers and external estimates

Non-network – Property:

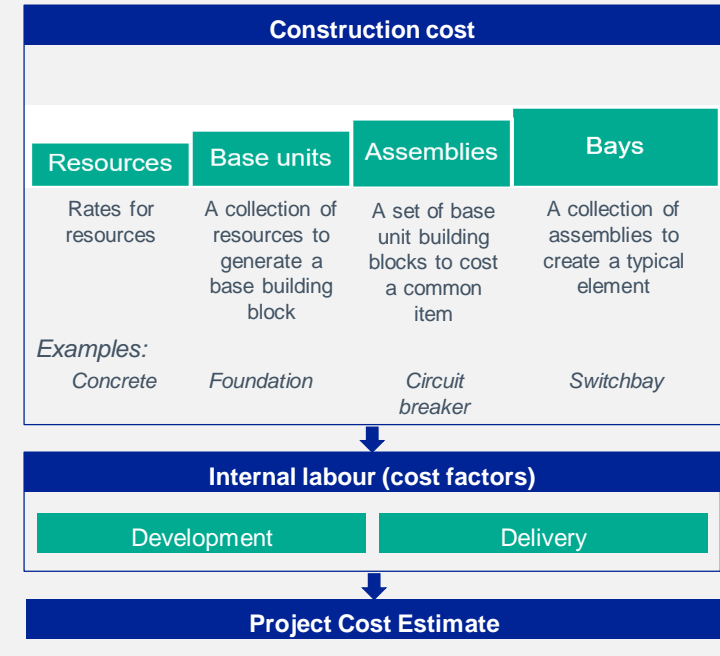
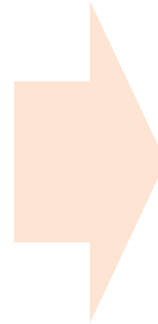
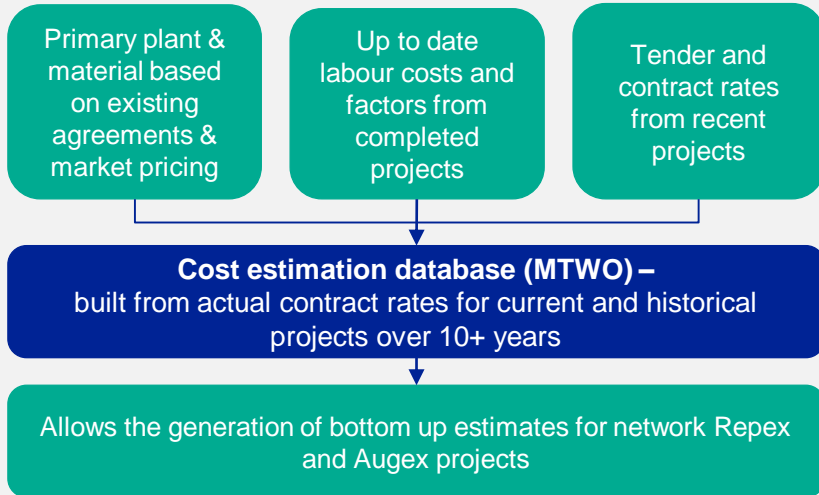
- Estimates based on condition audit (undertaken every five years) of property (buildings and depots) to comply with regulations

Non-network - Fleet, Plant & Equipment:

- Fleet - unit costs
- Plant and equipment - contract rates

Cost estimating approach for Repex and Augex

Established process for annual update and benchmarking of estimates



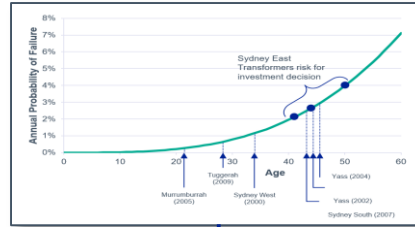
Network investment planning

Repex:

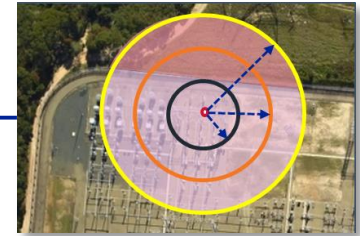
- > Aligned to AER's asset replacement planning industry practice application note
- > Quantify the risk of asset failure
- > Investment options have a corresponding risk reduction

Augex:

- > Quantify expected unserved energy based on network capacity and stability limitations
- > Identify expected market benefits from address network constraints



Development of failure model based on asset performance



Probability of Failure x Probability of catastrophic failure

Asset Failure Risk (\$)

Optimised asset replacement timing



Effective age (health index) for each asset based on condition data

Financial Consequence

Reliability Consequence

Safety Consequence

Environment/ Bushfire Consequence

Cost estimate



Public safety model



Bushfire model

Improvements to our risk models and approach

We have revised our risk quantification models and approach to address the feedback from the 2018-23 revenue determination, and aligned it to the AER's guidance note released since our last determination

Bushfire consequence



- > Phoenix Rapidfire used to model fire starts across varying fire weather conditions for every asset location and the impact



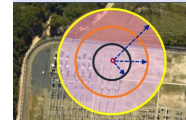
- > Quantified using economic analysis of consequence in a Bayesian network to statistically derive the most likely outcome

Reliability consequence

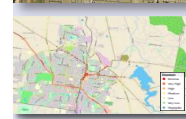


- > Consider a range of demand scenarios and take the weighted sum based on probability
- > Modelled DNSPs restoration switching to determine load that can be 'back-fed'
- > Reviewed unplanned outage durations

Safety consequence

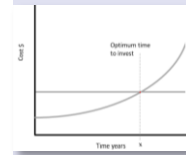


- > Consider the likelihood of exposure and range of potential consequence outcomes from minor injury to fatality



- > Public safety makes use of mobile phone human movement data to quantify quantum and duration of exposure to assets

Optimal replacement timing



- > In addition to assessing the Net Present Value, we also assess the optimal replacement timing
- > We calculate the cross-over between annualised replacement cost and asset risk
- > This is the economically prudent and efficient timing for the investment

Supply to Broken Hill: RIT-T Update

Kasia Kulbacka, EM Network Planning and Operations

Supply to Broken Hill

- Back up supply to Broken Hill is currently provided by diesel turbines owned by Essential Energy
 - Service being discontinued in January 2022
- Original RIT-T PADR identified minigrid using compressed air storage as preferred option
- Impact of the change to the RIT-T application guidelines
 - Changes regulatory preferred option to existing diesel turbines
- TransGrid views the minigrid compressed air storage as preferable option
 - Basis of this decision
 - Original RIT-T identified
 - Avoidance of fossil fuel options
 - Believe to be in the best long term interest of consumers
 - How can the preferred option be preserved
 - External funding to maintain original RIT-T merit order
- Intend to release a revised PADR identifying minigrid as preferred option
 - Seeking positive endorsement of approach

Next steps

Catherine O'Neill, Stakeholder Engagement Lead

Indicative timeline



Next TAC meeting

Date	Focus	Proposed topics for discussion
17 June	Setting the 'Reset scene'	<ul style="list-style-type: none"> • TransGrid's Network Vision • TAC feedback on reset approach and areas for consideration • Overview of reset process
22 July	Deep dive: Expenditure drivers	<ul style="list-style-type: none"> • Expenditure drivers
19 Aug	TAC areas of interest	<ul style="list-style-type: none"> • Responses to TAC feedback • Affordability • Managing uncertainty
5 Oct	Deep dive: Reset building blocks	<ul style="list-style-type: none"> • Capex/Opex forecasts • Key expenditure items
3 Nov	Reset proposal overview	<ul style="list-style-type: none"> • Early insights into draft proposal and TAC feedback
2 Dec	Deep dive: Draft proposal	<ul style="list-style-type: none"> • Overview of draft proposal



TransGrid Advisory Council meeting

Thursday 19 August 2021