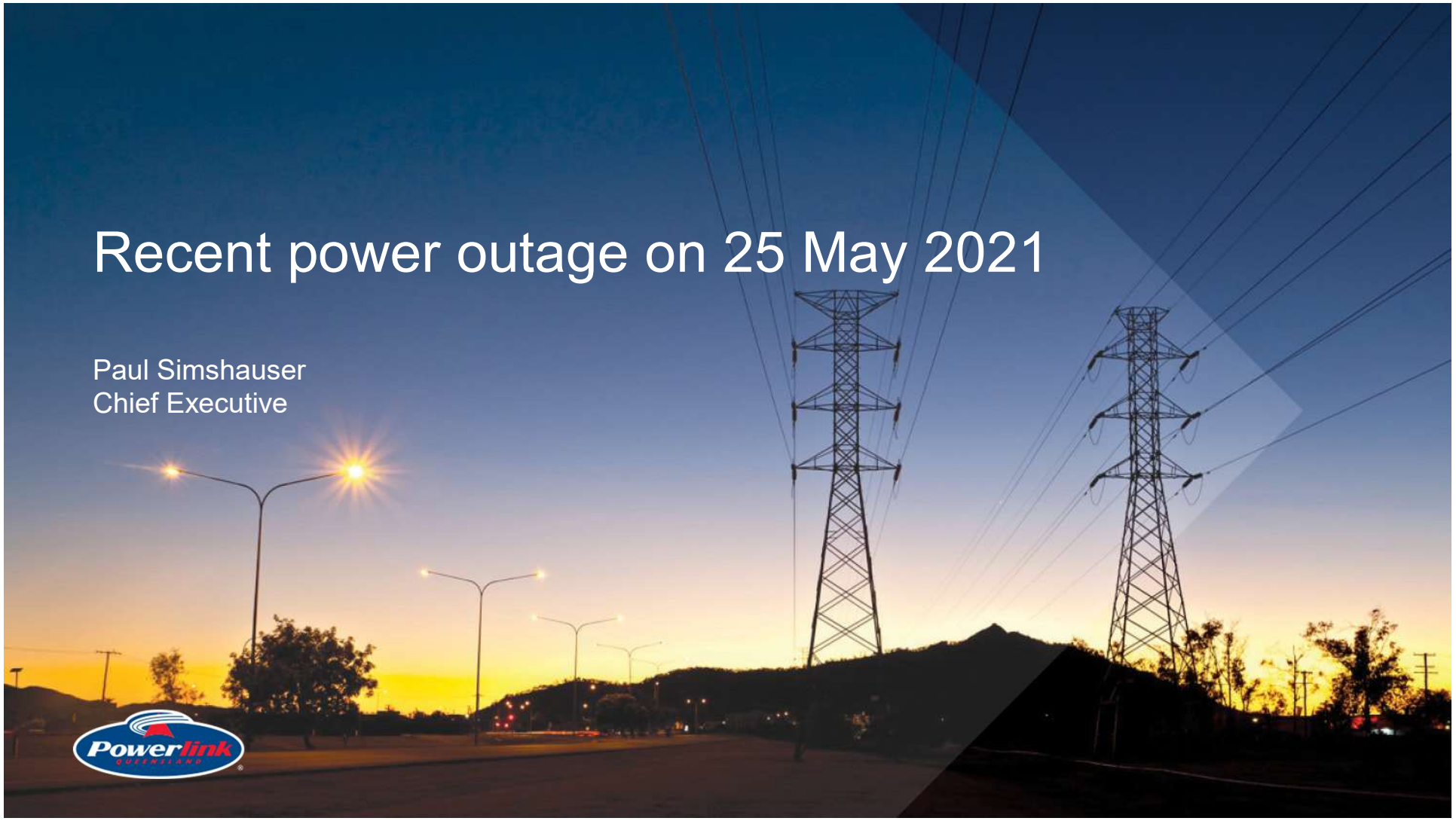
Powerlink's Customer Panel Meeting

17 June 2021

Agenda

- Recent power outage in Queensland on 25 May 2021
- Update on Powerlink's 2023-27 Revenue Proposal
- Network support pass through
- Update on RIT-T for replacement projects
- Afternoon tea
- 2020/21 Energy Charter Disclosure Statement
- AEMO ISP Consumer Panel update

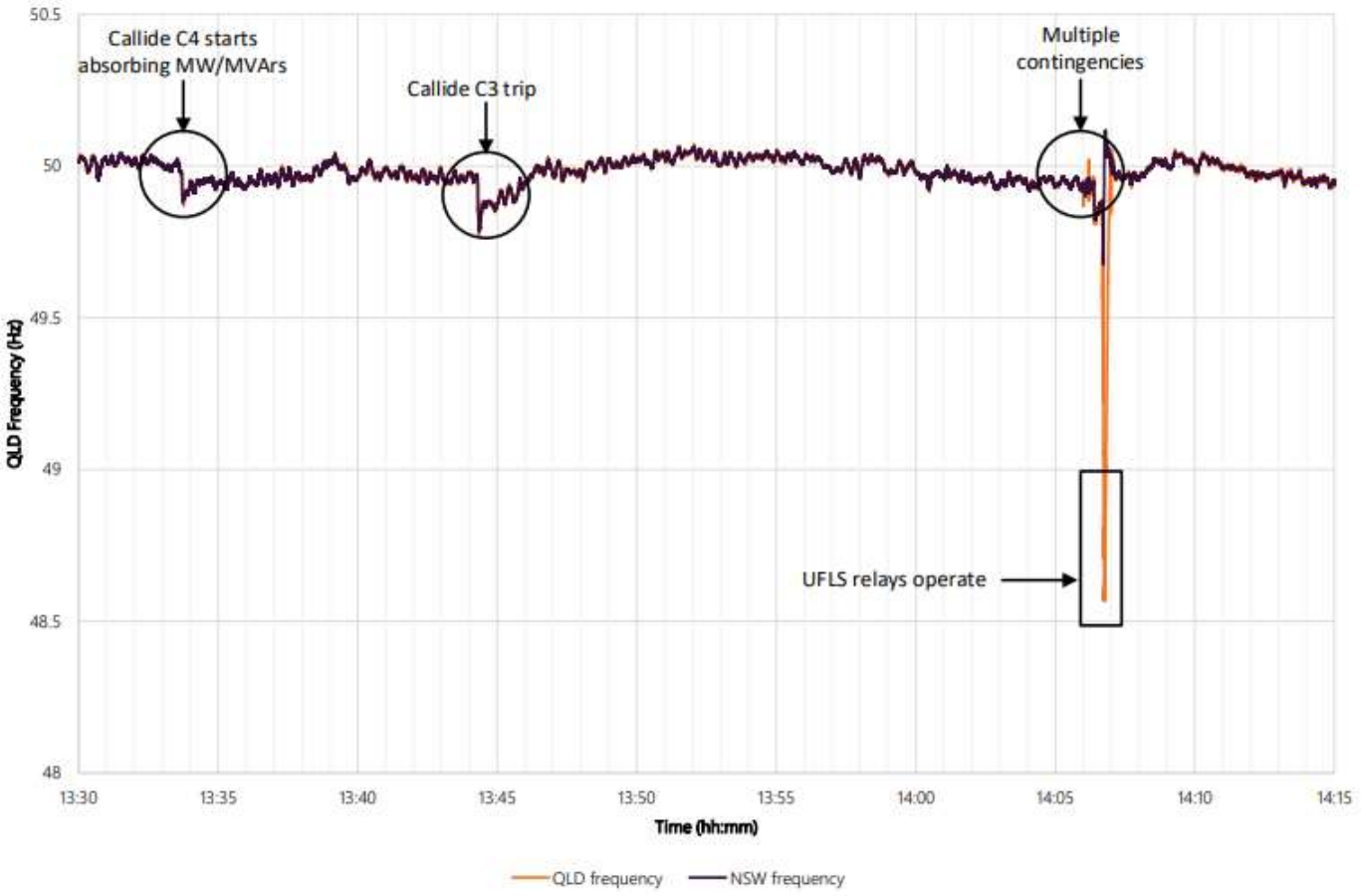


Recent power outage on 25 May 2021

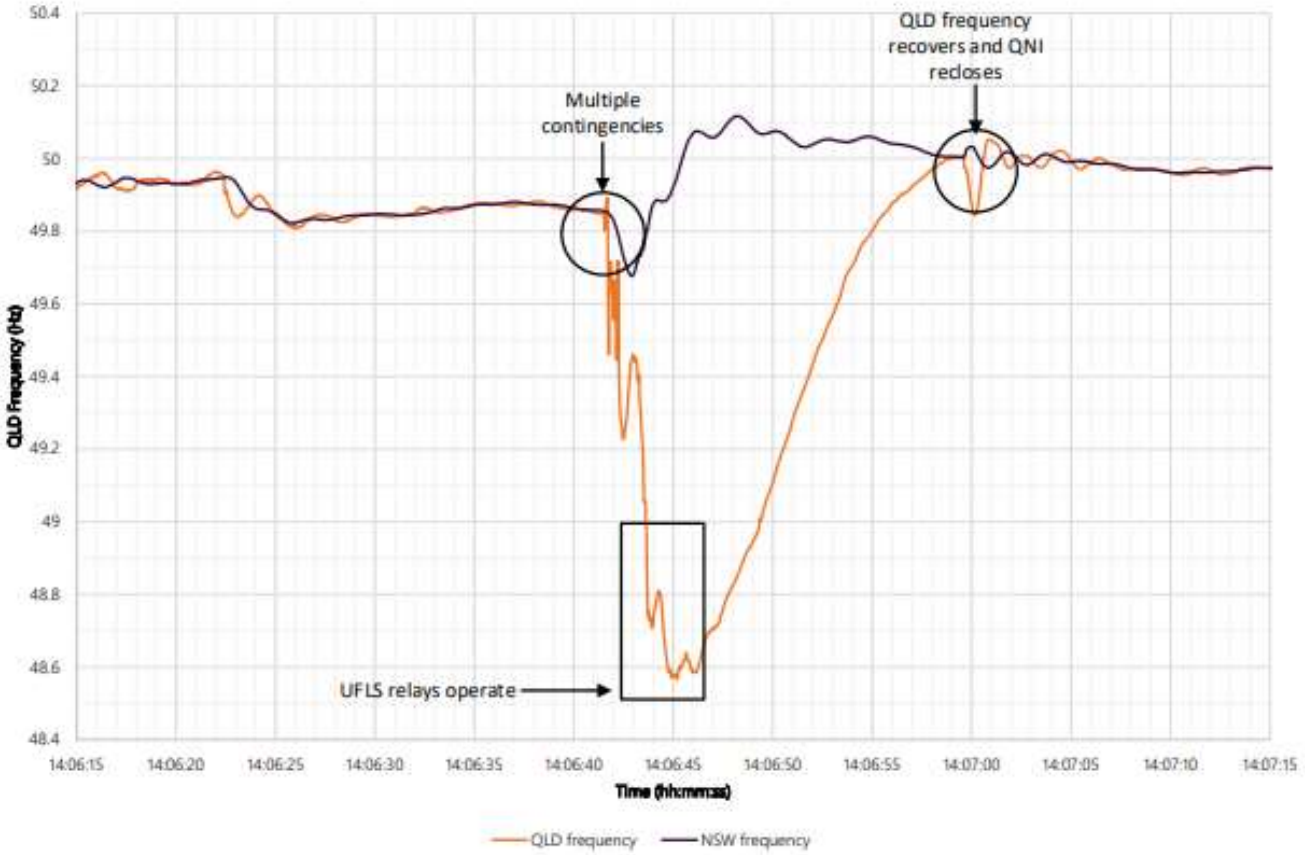
Paul Simshauser
Chief Executive

Fire in Callide power station turbine hall

Queensland and NSW frequency on 25 May 2021



Queensland and NSW frequency during multiple contingencies on 25 May 2021



2023-27 Revenue Proposal update

Matthew Myers
Manager Revenue Reset

Network support pass-through – System strength services in North Queensland

Greg Hesse
Manager Regulation

Summary

- During 2020/21 Powerlink expects to incur approximately $3 million in network support costs to address a declared fault level shortfall in North Queensland.
- These expected costs exceed the network support allowance for this year in the AER's Revenue Determination for our current regulatory period ($0).
- We will apply to the AER within 60 business days of the end of this regulatory year (i.e. before 22 September 2021) to pass through these increased network support costs. The application will be consistent with the relevant AER guideline.
- The AER must make a determination within 60 business days of receipt of Powerlink's application.
- Any pass through amount determined by the AER will be recovered from customers in 2022/23.

Background

- On 9 April 2020 AEMO declared a fault level shortfall at the Ross 275kV fault level node in North Queensland.

- As the System Strength Service Provider for the Queensland region, Powerlink must provide system strength services that address the fault level shortfall, and must use reasonable endeavours to make these services available by the date specified by AEMO (31 August 2021).

- System strength services to be provided by Powerlink may include construction of new Powerlink-owned network assets, such as transmission lines or synchronous condensers, or be provided to Powerlink by third parties under system strength services agreements.

- Powerlink conducted an Expression of Interest (EOI) process during April/May 2020 to identify potential system strength services that could address the fault level shortfall. We received 14 submissions proposing a range of potential solutions, which included:
    - modified operation of existing synchronous generators
    - upgraded and/or retuned inverter controls at existing renewable generators
    - installation of new equipment such as synchronous condensers and/or grid forming inverters by third parties.

System strength services

- Following the EOI, we concluded the most cost effective provision of system strength services was to modify the normal operation of certain existing synchronous generators while we further examined the feasibility of retuning existing inverter controls.

- During 2020/21 Powerlink expects to pay approximately $3 million for the provision of system strength services, to address the declared fault level shortfall in North Queensland:
  - CleanCo Queensland to provide system strength services from its existing assets in Far North Queensland from July to December 2020
  - Daydream, Hamilton, Hayman and Whitsunday solar farms in North Queensland to update and retune inverter controls by April 2021.

- We also updated generator control settings at another generator in Far North Queensland in October 2020.

- Updating and retuning controls has reduced the minimum required fault level at the Ross 275kV node. Subject to final due diligence and testing, we expect AEMO will confirm by end June the fault level shortfall at Ross has been remediated. Addressing the fault level shortfall allows existing inverter connected generation in North Queensland to operate unconstrained by system strength limitations under normal conditions and results in lower overall electricity system costs.

Next steps

- Submit network support pass through application to the AER before 22 September 2021. Engage with the AER on appropriate timing for submitting our application, noting it may interact with the AER's Draft Decision on our Revenue Proposal as well as our revised Revenue Proposal.

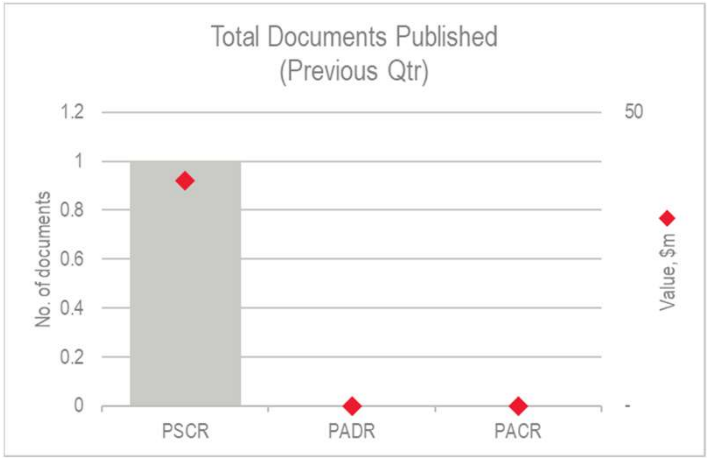
- Our pass through application will include the information requirements set out in the AER guideline:
  - network support pass through amount, including time cost of money calculations
  - reasons for network support cost variations from allowance
  - verification of actual network support expenditure (audited regulatory accounts or similar)
  - details of new contractual arrangements
  - details on Powerlink decisions that may have affected the magnitude of the network support event.

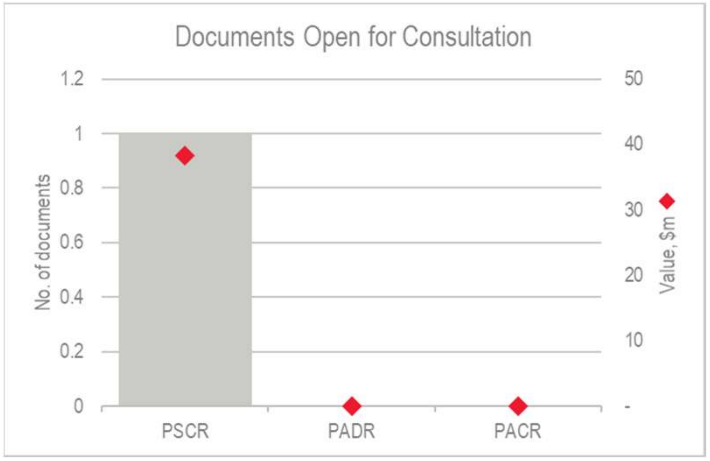
- This information reflects the relevant factors the AER must take into account in making a determination.

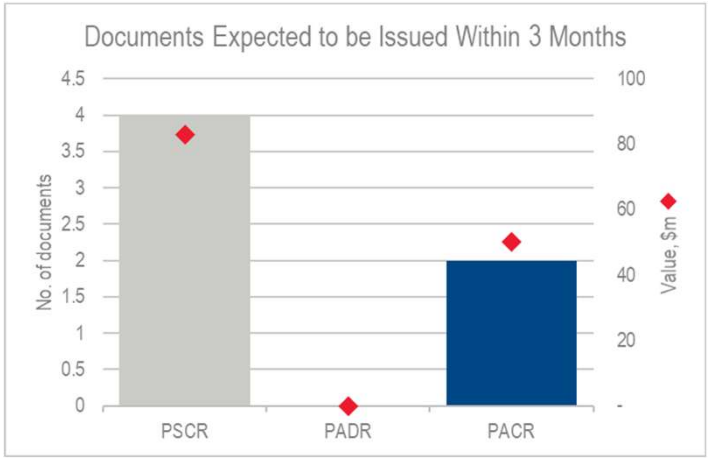
Update on RIT-T for replacement projects

Roger Smith
Manager Network & Alternate Solutions

RIT-T quarterly overview





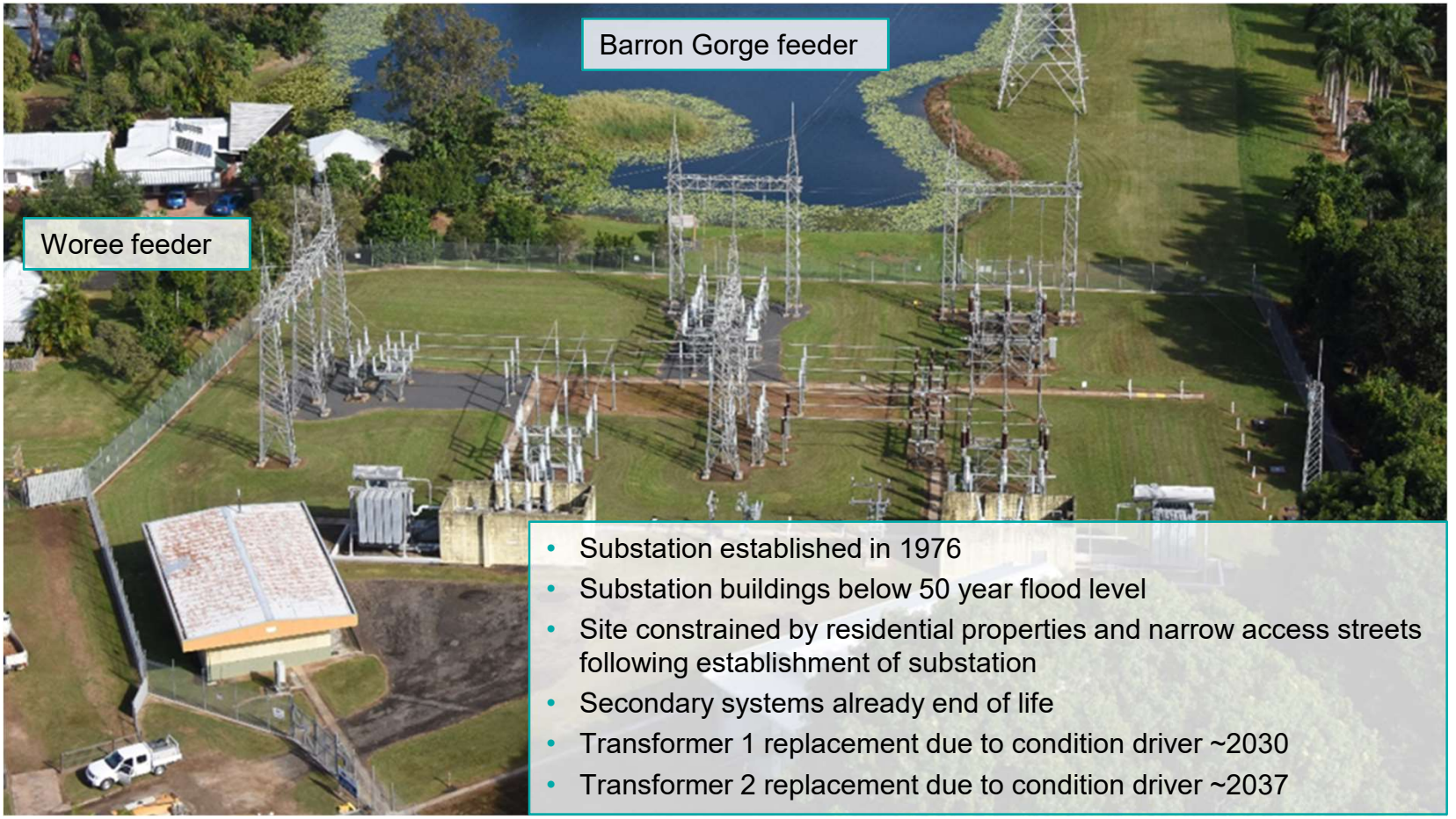


RIT-T quarterly overview

Engagement level	Project characteristics	RIT-T consultations	Proposed engagement activities
Minor (PADR Exempt)	• Non-network options unlikely • No material market benefits identified • Preferred option <$41 million	• Innisfail secondary systems • Davies Creek to Bayview Heights refit • SEQ voltages • Redbank Plains primary plant • Nebo local supply transformers	• Notification to Powerlink Non-Network Engagement Stakeholder Register • AEMO Notice and summary • Publication of RIT-T project details on Powerlink website • Dedicated email contact to Customer Panel members • Alerts through Powerlink's Twitter and LinkedIn accounts
Normal	• Minor network reconfiguration/ material impact on network users • Possibility of non-network options • Material market benefits identified	• Tarong/Chinchilla area replacements	In addition to engagement activities at minor level: • Webinars • Stakeholder briefings • Discussion at Powerlink's Customer Panel
Complex	• Network reconfiguration/material impact on multiple network users • Likelihood of non-network options • Significant market benefits identified		In addition to engagement activities at normal level: • Stakeholder engagement plan • Phone calls to key stakeholders • Emails to all identified stakeholders • Dedicated engagement forum to seek feedback on options

Kamerunga Substation rebuild

Kamerunga substation site



- Substation established in 1976
- Substation buildings below 50 year flood level
- Site constrained by residential properties and narrow access streets following establishment of substation
- Secondary systems already end of life
- Transformer 1 replacement due to condition driver ~2030
- Transformer 2 replacement due to condition driver ~2037

Original project development

- RIT-T consultation process concluded in July 2019
- Two options included in economic assessment:
  - complete brownfield replacement with air insulated switchgear (AIS)
  - complete brownfield replacement with gas insulated switchgear (GIS)
- A complete greenfield replacement option was considered but not progressed due to unavailability of land
- Powerlink Board approved the complete brownfield replacement of secondary systems and primary plant with AIS equipment in August 2019
- Expected completion was December 2022.

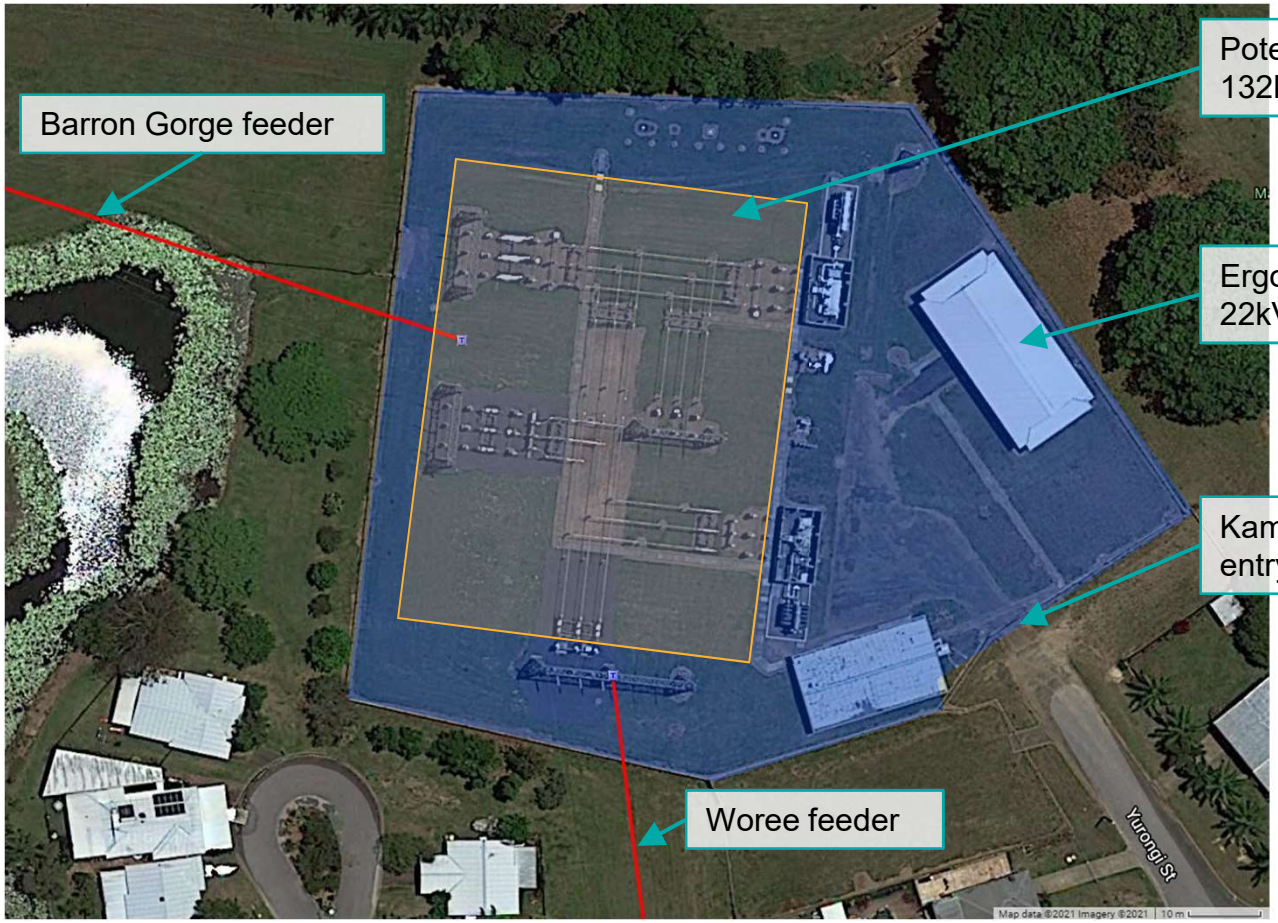
Current project status

- Further detailed analysis and design changed our view on many of the assumptions from the 2019 RIT-T including:
  - greater impacts on project delivery due to physical site constraints
  - unintended visual and construction impacts on neighbouring properties
  - poor ground conditions identified through geotechnical investigation.

- Cumulative result of substantial increase in construction and commissioning stages with resulting significant increase in cost.

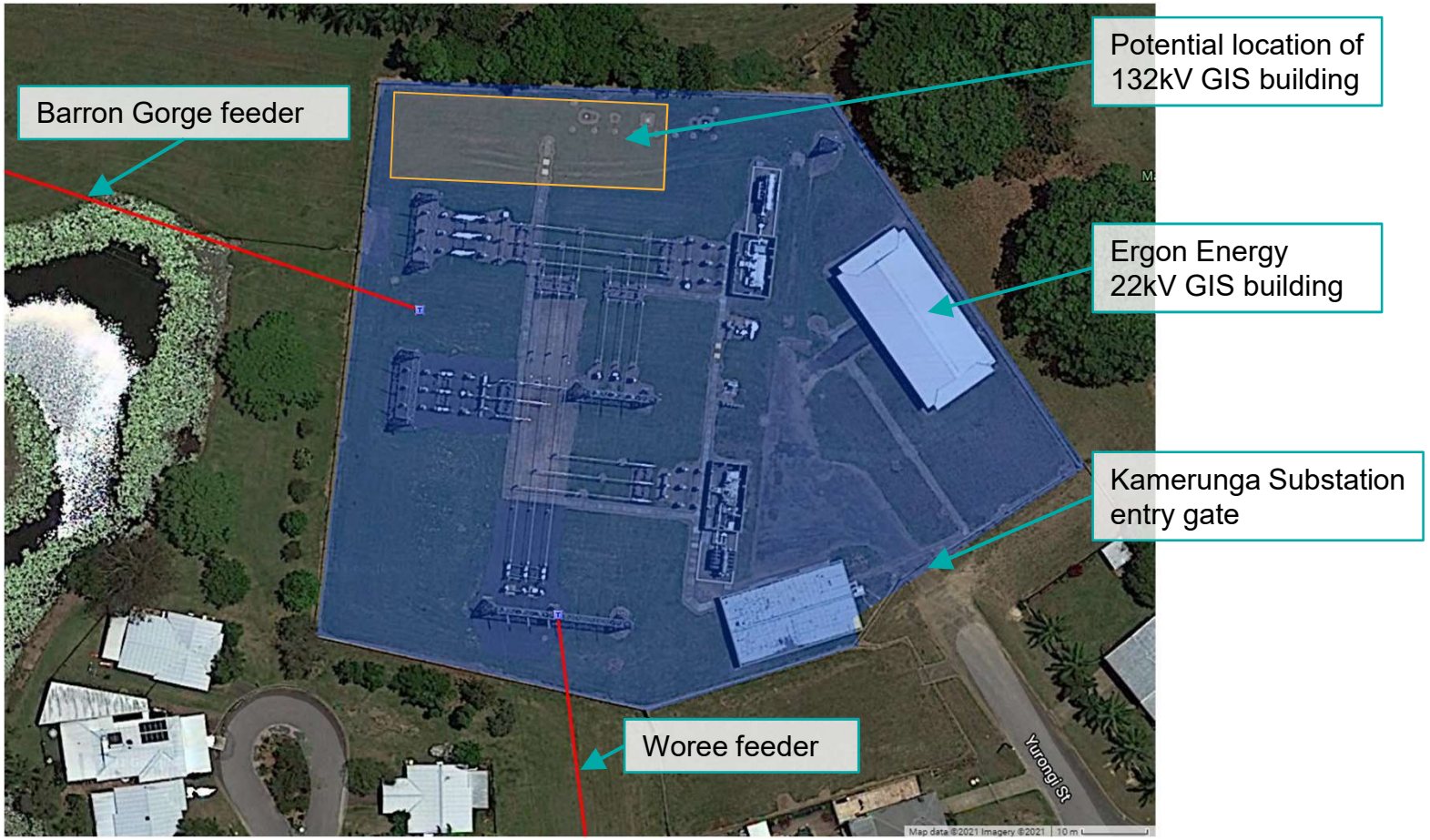
- Delivery placed on hold and review commenced.

Potential brownfield AIS replacement



Strategic land acquisition

Potential brownfield GIS replacement



Overview of options

Option	Description	Included in RIT-T?	Pros	Cons
1	Single stage brownfield replacement with AIS equipment	Yes	• Enhanced operational flexibility • Capacity for limited future expansion	• Visual amenity – temporary arrangements and permanent arrangement • Significant staging required – prolonged construction timeframe
2	Single stage brownfield replacement with GIS equipment	Yes	• Enhanced operational flexibility • Visual amenity (permanent arrangement) • Reduced substation footprint • Capacity for future expansion • Potential to leverage off Energy Queensland (EQ) expertise	• New technology risk (to Powerlink) • Visual amenity – temporary arrangements
3	Single stage greenfield replacement with AIS equipment (including transformers)	No	• Enhanced operational flexibility • Less complex construction and commissioning • Meets need timing with no ongoing risk mitigation • Significant capacity for future expansion	• Multiple 22kV cables between new and existing site • Visual amenity – transmission line diversions and significant substation site • Early replacement of transformers
4	Single stage brownfield replacement with AIS equipment (reduced configuration)	No	• Reduced complexity and staging during brownfield construction • Reduced substation footprint	• Reduced operational flexibility • Potential availability and reliability impacts on transmission line • Visual amenity – temporary arrangements (and potentially permanent arrangement)
5	Single stage greenfield replacement with AIS equipment (excluding transformers)	No	• Enhanced operational flexibility • Less complex construction and commissioning • Meets need timing with no ongoing risk mitigation • Significant capacity for future expansion	• Two 132kV cables between new and existing site • Visual amenity impacts at two sites

Next steps

- Review previous options and investigate additional options to confirm/reduce costs:
  - single stage brownfield replacement with reduced AIS configuration at existing site
  - single stage greenfield replacement with transformers retained on existing site

- Liaise with EQ to utilize their expertise to reduce time and cost of GIS option:
  - obtain distribution GIS specifications and market pricing from EQ

- Community impacts of alternative options to be assessed beside economic impacts:
  - each has impacts, but need to balance against cost of options

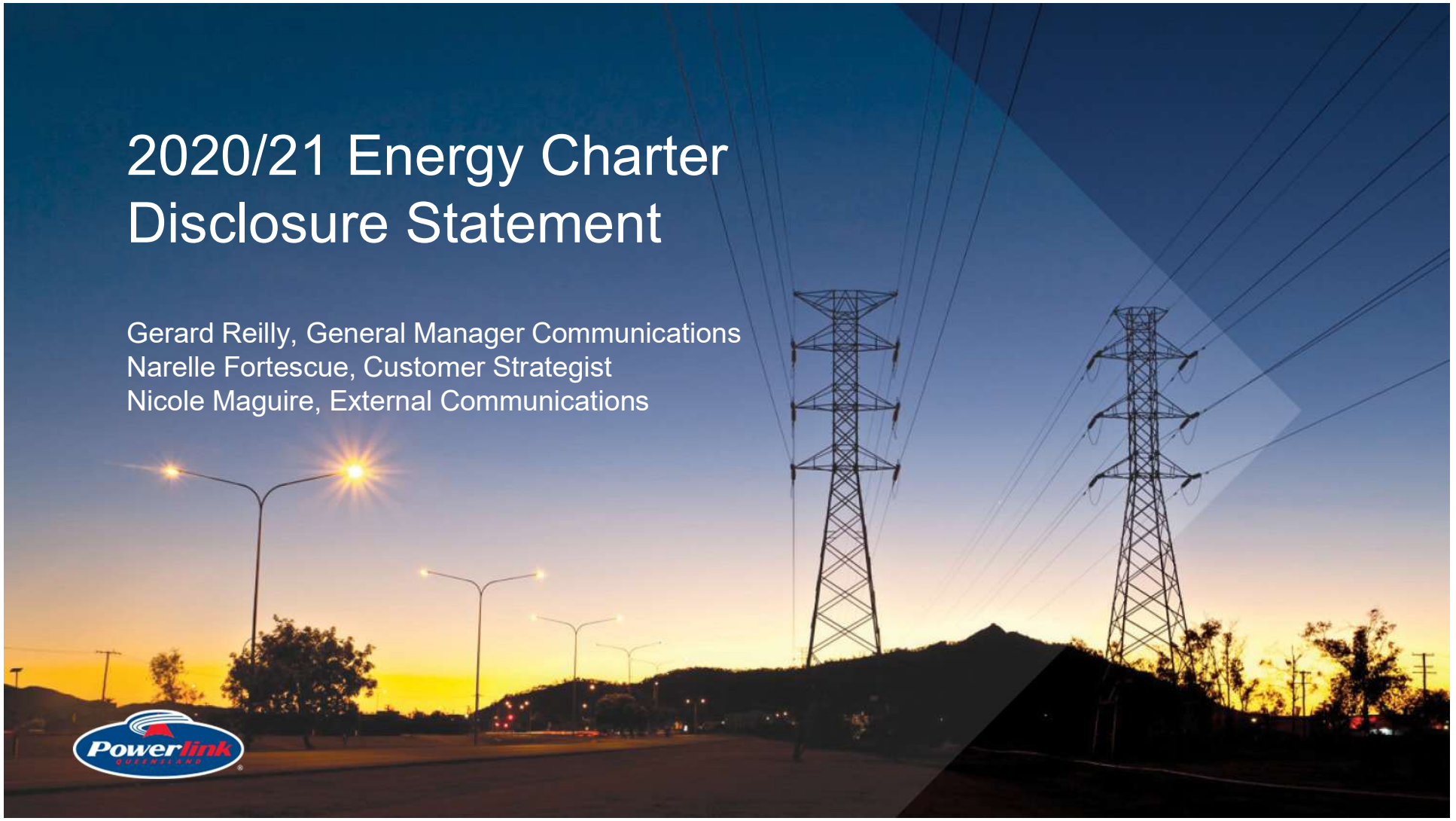
- Commence government and community engagement – once shortlisted option(s) established

- Potentially update or repeat RIT-T process.


Afternoon tea break
Powerlink
QUEENSLAND

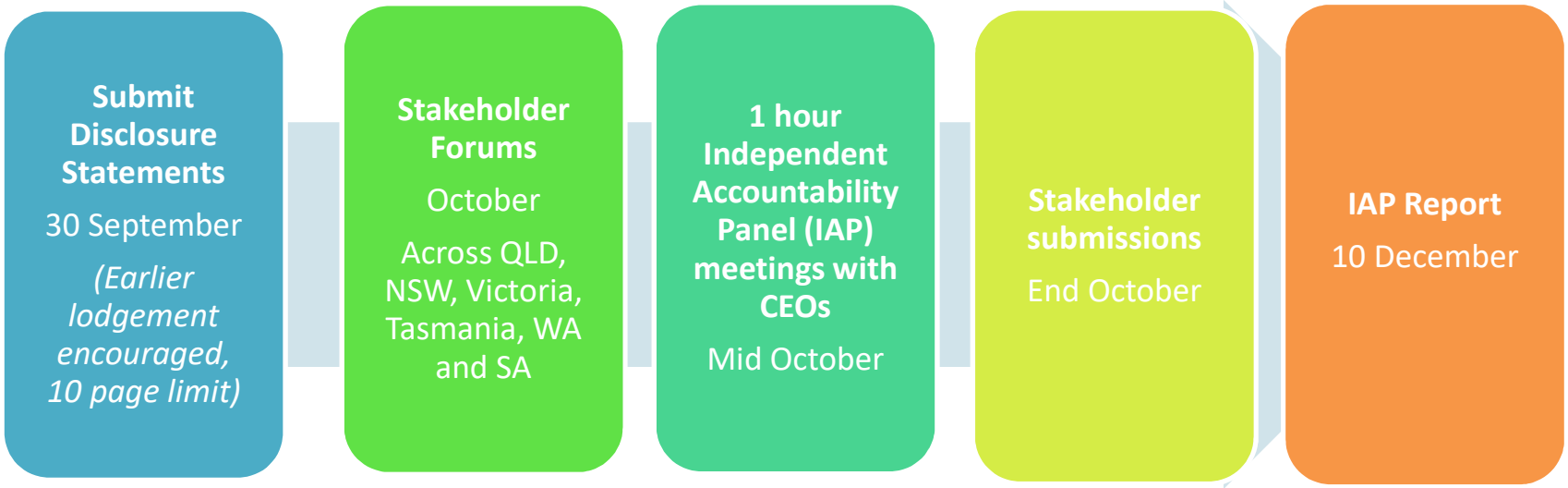
2020/21 Energy Charter Disclosure Statement

Gerard Reilly, General Manager Communications
Narelle Fortescue, Customer Strategist
Nicole Maguire, External Communications



2020/21 Energy Charter Disclosure Statement Overview

2020/21 Energy Charter Disclosure Statement process



The Energy Charter

Key IAP feedback for 2020/21 Disclosure Statements

- Disclosure Statements should be authentic – the IAP wants to hear ‘warts and all’.
- Demonstrate a clear path to move beyond ‘business as usual’ customer engagement.
- Ensure that self-assessment under the maturity model incorporates opportunities to demonstrate ratings with data, information and stakeholder input, including by involving their Customer Panel/Community Council in development of Disclosure Statements.
- Focus on outcomes not activity. Indicate whether previous commitments have been delivered.
- Signatories should identify their top three to five actions.
- Signatories to clearly and more consistently outline how they have responded to previous IAP Report recommendations and commitments in their previous Disclosure Statements. (In-text referencing recommended for all signatories where appropriate.)

The Energy Charter

Powerlink's proposed Disclosure Statement structure

1. Introduction from Chair, Chief Executive and Customer Panel
2. Focus for 2021/22 maturity uplift (immediate future high-level priorities)
3. Our customers and our communities – customer segmentation and customer value proposition work
4. Scorecard – metrics and measures
5. Highlights – case studies to showcase key customer outcomes and learnings:
    - Business strategy 2021 onwards
    - Renewable Energy Zones
    - Powering Ahead (cultural immersion program)
    - 2023-27 Revenue Proposal engagement
    - Community engagement strategy
6. Principles
    - Current, short-term and long-term maturity levels
    - Overview of key activities during 2020/21

The Energy Charter

2020/21 Energy Charter Disclosure Statement
Maturity model – draft self assessment

Energy Charter maturity model - background

- Energy Charter signatories are at different stages of maturity, but all have committed to ongoing improvement.

- The Energy Charter maturity model:
  - relates to all five Energy Charter Principles
  - enables organisations to consistently (but subjectively) assess their current maturity
  - consider where they intend to progress and on what timeline.

- The Customer Panel gave feedback on our draft maturity assessment last year and we are interested in your thoughts again.

The Energy Charter

Classification of maturity levels

	Elementary	Emerging	Evolved	Empowered	Exceeding
Definitions/ characteristics of capability	No formal approach to the majority of the Principles in Action	Emerging and repeatable approach to the majority of the Principles in Action	Evolved and defined approach to the majority of the Principles in Action and implemented	Empowered and proactive approach to the Principles in Action and customer outcomes measured and managed	Exceeding all Principles in Action and achieving optimal customer outcomes

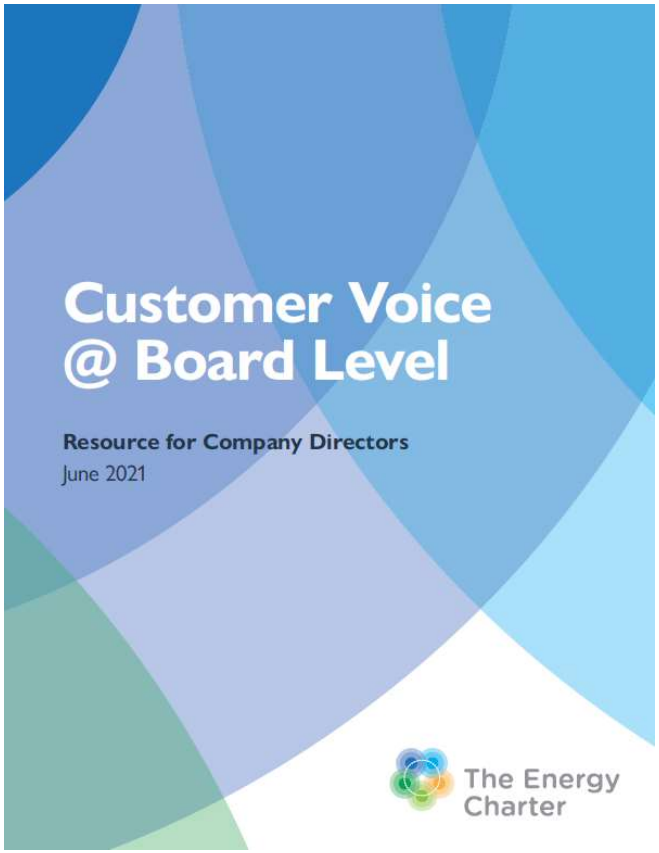
The Energy Charter

Energy Charter Principles	Capabilities				
	Elementary	Emerging	Evolved	Empowered	Exceeding
1. We will put customers at the centre of our business and the energy system		Maturity Level 2019/20	Target Maturity for 2022/23	Longer Term Maturity Goal	Longer Term Maturity Goal
		Draft Maturity Level 2020/21			
2. We will improve energy affordability for customers		Maturity Level 2019/20	Target Maturity for 2022/23	Longer Term Maturity Goal	Longer Term Maturity Goal
		Draft Maturity Level 2020/21			
3. We will provide energy:					
Safely			Maturity Level 2019/20	n/a	n/a
			Target Maturity for 2022/23		
			Draft Maturity Level 2020/21		
Sustainably			Maturity Level 2019/20	Target Maturity for 2022/23	Longer Term Maturity Goal
			Draft Maturity Level 2020/21		
Reliably			Maturity Level 2019/20	Longer Term Maturity Goal	Longer Term Maturity Goal
			Target Maturity for 2022/23		
			Draft Maturity Level 2020/21		
4. We will improve the customer experience		Maturity Level 2019/20	Target Maturity for 2022/23	Longer Term Maturity Goal	Longer Term Maturity Goal
		Draft Maturity Level 2020/21			
5. We will support customers facing vulnerable circumstances	Maturity Level 2019/20	Target Maturity for 2022/23			
		Longer Term Maturity Goal			
	Draft Maturity Level 2020/21				

Energy Charter #BetterTogether initiatives

Customer Voice @ Board Level

- Resource to prompt discussions at board level about ways to ensure the customer voice is ‘amplified’
- In direct response to IAP recommendation
- Collection of resources and better practice case studies
- In conjunction with Australian Institute of Company Directors
- Focus areas:
  - Board composition and training
  - Board meetings
  - Decision making
  - Customer engagement
  - Risk and assurance
  - Customer advocacy structures



Know your customers and communities update

- The #BetterTogether Know Your Customers and Communities has been working to respond to the IAP 2020 report recommendation:

  Work with policy makers and market bodies to implement a way for consumer advocacy to be better resourced.

- As a starting point, we have collated information on the current support that different signatories provide to consumer advocates.

- In addition, we have used the Uniting Communities Final Report, *Consolidated Resourcing Consumer Engagement Project July 2019* (funded by Energy Consumers Australia) as background on suggestions for support.

- We have an online co-design workshop on 1 July 2021 to explore ‘Better Support for Consumer Advocates’.

The Energy Charter

Better Practice Landholder & Community Engagement Guide

- Developed in early 2021 after the National Farmers' Federation approached the Energy Charter, Powerlink and TransGrid to discuss opportunities to work together with industry to deliver better outcomes for farmers and rural communities.

- Working group also consisted of:

• Qld Farmers' Federation • Victorian Farmers Federation • NSW Farmers Federation • Energy Networks Australia	• Clean Energy Council • AEMO • APA

- Initial meetings to discuss the development of a resource commenced in February 2021, followed by weekly workshops from March to May 2021.

- Final Draft of the 'Guide' is currently out for industry stakeholder consultation until end of June.

- Guide is designed to help businesses build social licence in communities they operate in and offers landholders a high-level overview of what to expect from an engagement perspective.

- Public launch expected in July/August 2021 (date TBC).

The Energy Charter

ISP and Consumers

Briefing for the Powerlink Customer Panel

2022 ISP Consumer Panel: Mark Grenning & Andrew Nance

17 June 2021

Objectives of this session

To Introduce the ISP Consumer Panel and provide an update of the 2022 ISP Process

To provide an overview of the DRAFT ISP Methodology published by AEMO last week

To answer questions on what's most important for consumers

To seek feedback on Consumers' engagement with the ISP

AEMO

About Us

- ISP Consumer Panel established in 2020 under the NER, part of the ISP Oversight Framework
- We are not a substitute for consumers' engagement with the ISP
- We have two main reports to write and maintain a focus on process AND content
- In terms of content, we maintain a dual focus on managing uncertainty as well as improving the accuracy of forecasts
- AEMO has just released the DRAFT ISP Methodology
- This will combine with the Inputs, Assumptions and Scenarios (IASR) work to generate the 2022 ISP

2022 ISP Progress

Figure 2 Parallel ISP consultations

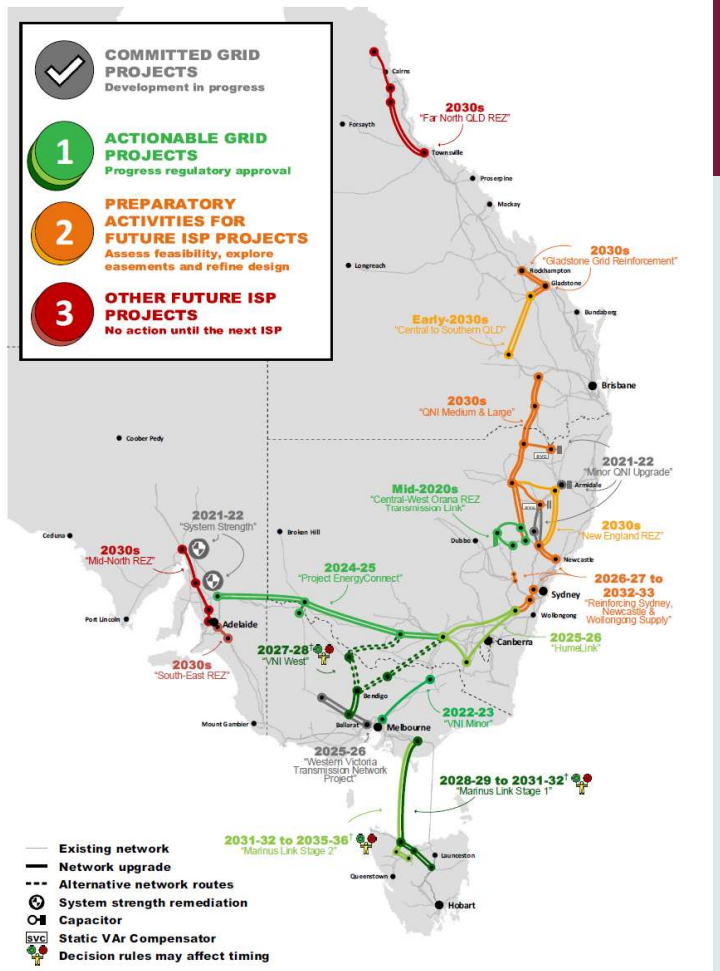
Methodology 101

- The ISP is underpinned by integrated energy market modelling and power system analysis. The objective of the suite of models and analysis is to determine an Optimal Development Path (ODP) that optimises benefits to consumers.
- Combines IASR with 'capacity outlook model', 'time sequential model', engineering assessment, gas supply model AND then, does a cost-benefit-analysis (CBA) to select the ODP.
- The CBA is the approach AEMO uses to develop and test alternative development paths, and ultimately determine the ODP.

2020 ISP ODP

- Where
- When
- Renewable Energy Zones
- Interconnector upgrades
- New interconnectors
- Intra-regional transmission capacity

Figure 3 Optimal development path



† The timing of this actionable project is dependent on decision rules.

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What's Most Important ?

- Gas Prices
- Transmission Costs
- the role of Distributed Energy
- Scenarios and how they are weighted
- The impact of state-based plans (such as NSW and VIC) – alignment with the ISP to the extent possible is likely to be the best result for all NEM consumers
- Managing uncertainty: selecting an 'ODP' that balances the risk of over- or under-investment given all the possible energy futures.
- Inevitably the modelling and analysis makes assumptions about the risk appetite of consumers. Consumer risk appetite is reflected in the weighting of scenarios, sensitivity analyses and through the choice of 'discount rates'

Consumer Engagement with the ISP

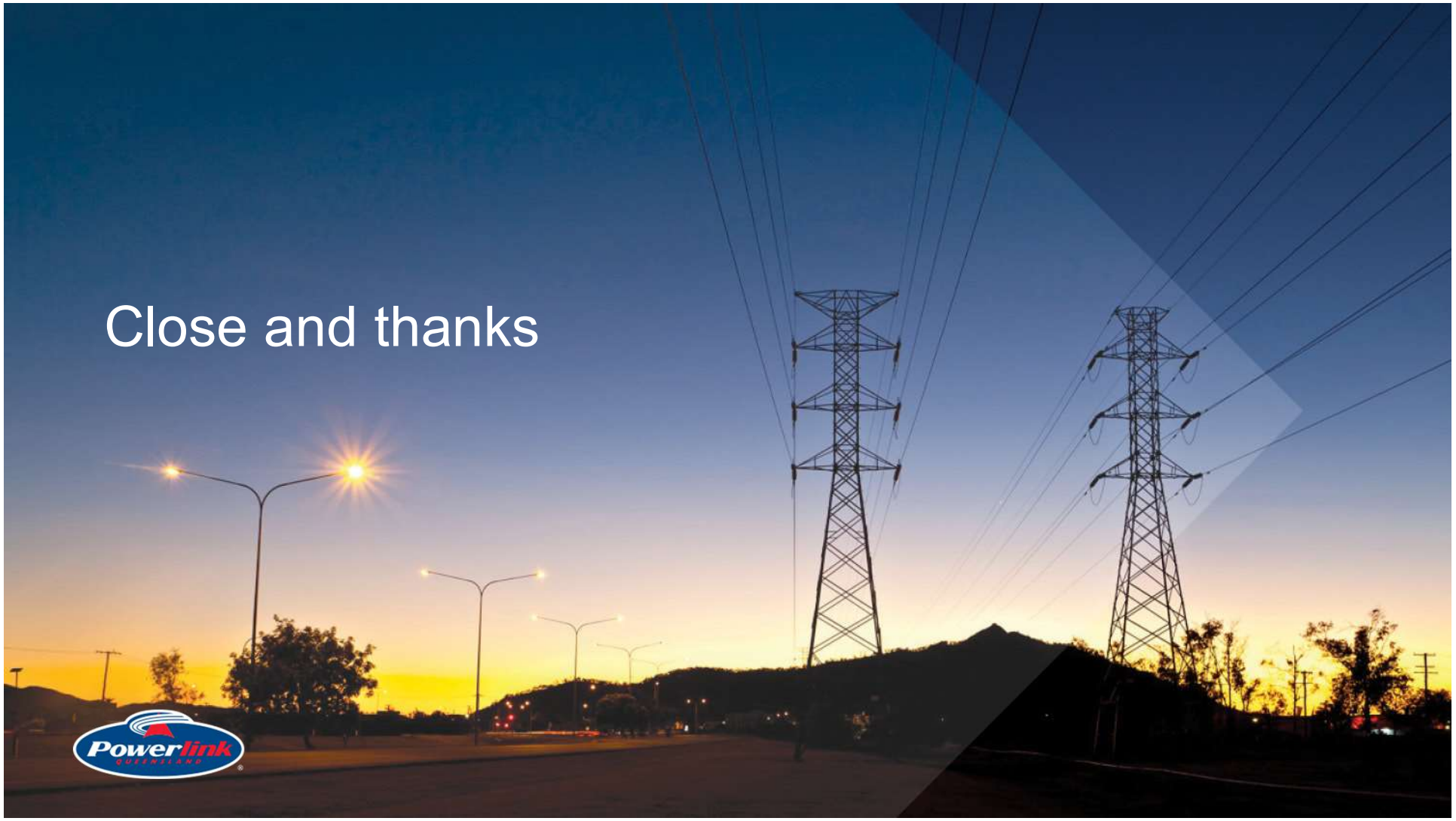
- Panel initiated online survey. 39 Responses but few from consumers
- Complexity and Resources are key barriers to engagement
- There are plenty of opportunities to engage but few felt they could make a difference
- The Powerlink Customer Panel is an important forum for ISP issues
- How can we help engage the Panel on the important issues?

2022 ISP consultation milestones

AEMO Publication
AER Publication
TNSP Publication
Consumer Panel Report

Publication	Timing	Responsibility
ISP Timetable	30 October 2020	AEMO
Establish ISP Consumer Panel	By 30 November 2020	AEMO & ISP Consumer Panel
Draft IASR	11 December 2020	AEMO
ISP Methodology Issues Paper	1 February 2021	AEMO
Draft ISP Methodology	30 April 2021	AEMO
Preparatory Activity Reports	By 30 June 2021	TNSPs
ISP Methodology	30 June 2021	AEMO
IASR	30 July 2021	AEMO
AER's IASR Review Report	By 30 August 2021	AER
Consumer Panel Report on IASR	By 30 September 2021	ISP Consumer Panel
Draft 2022 ISP	10 December 2021	AEMO
AER's ISP Review Report	By 10 January 2022	AER
Consumer Panel Report on Draft ISP	By 10 February 2022	ISP consumer panel
2022 ISP	30 June 2022	AEMO


AEMO
AUSTRALIAN ENERGY MARKET OPERATOR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QUEENSLAND