

always powering ahead Directlink

Stakeholder Meeting 1: Future of Directlink

11 September 2023



I'd like to begin by acknowledging the Traditional Owners of the land on which we all meet from today and pay my respects to Elders past, present and emerging.

Welcome and purpose

Objective: To set the scene for the meeting.

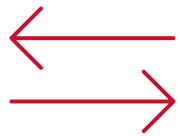
Agenda for today's meeting

Activity	Lead	Time
Welcome and purpose	Ross Gersbach, Group Executive Strategy and Corporate Development APA Group	1:30pm – 1:35pm
Recap – Overview of Directlink	Mark Allen, Regulatory Manager, Economic Regulation and Policy APA Group	1:35pm – 1:45pm
Current Regulatory Period: 2020 to 2025	Mark Allen, Regulatory Manager, Economic Regulation and Policy APA Group	1:45pm – 1:50pm
Future of Directlink	Annie Martyn, Asset Manager, Operations APA Group	1:50pm – 2:25pm
Wrap up and thanks	Mark Allen, Regulatory Manager, Economic Regulation and Policy APA Group	2:25pm – 2:30pm

Recap – Overview of Directlink

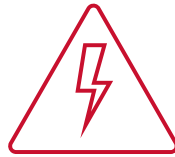
Objective: To ensure stakeholders have a common understanding of the Directlink asset and its challenges and benefits.

Overview of Directlink



Interconnector

Operates like a two-way highway for electricity to be sent between QLD and NSW



180MW

Delivery capacity to both NSW and QLD



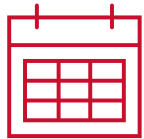
63 km

of transmission lines consisting of 3 parallel high voltage direct current transmission lines



2

Converter stations at Bungalora and Mullumbimby



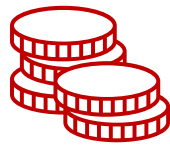
December 2000

Directlink was commissioned using leading edge technology for the time. Due to reach end of economic life in 2042.



3 Owners

Marubeni Corporation (49.9%)
Osaka Gas (30.2%)
APA (19.8%)



~\$16M

Approximate annual revenue



0.05%

of NSW customers' total electricity bills.



Operating benefits and challenges



Independent operator

Connects to Essential Energy network and dispatched by AEMO



Affordability

Helps lower costs for customers by supporting transfer of electricity between NSW and QLD



Growth

Helps to meet the electricity needs of the growing population centre south of the Gold Coast



1,800mm

Average annual rainfall in the Mullumbimby area



Difficult terrain

Easements run through steep terrain and across different land uses



Reliability

Has been poor due to legacy construction issues and operating environment.



Current Regulatory Period: 2020 to 2025

Objective: To ensure stakeholders have a high level understanding of the regulatory proposal and AER final decision for the current regulatory period

2020-2025 Directlink Regulatory Proposal

Challenges

- High rainfall, difficult terrain
- Technological environment is complex
- Maturing asset base
- Regional development and public safety concerns
- Competition for labour

Directlink commitment

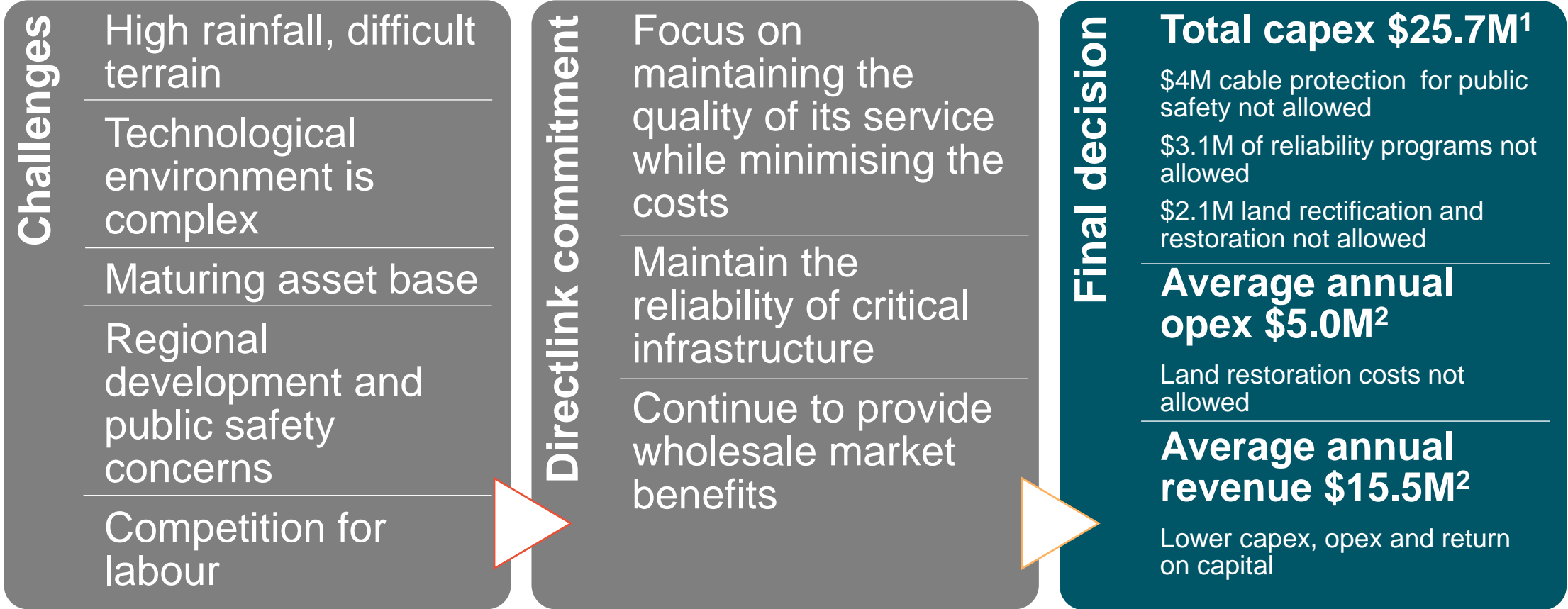
- Focus on maintaining the quality of its service while minimising the costs
- Maintain the reliability of critical infrastructure
- Continue to provide wholesale market benefits

Proposal highlights

- Total capex \$40.5M¹**
- Obsolete insulated-gate bipolar transistors (IGBTs)
- Cable protection for public safety
- Reliability programs
- Land rectification
- Average annual opex \$5.3M²**
- Routine, control room, non-system and fault and compliance
- Average annual revenue \$18.0M²**

¹ Forecast capex FY21 to FY25 (\$m FY20)
² Average annual forecast opex (\$m, nominal)

2020-2025 AER Final Determination



¹ Table 2.5, AER Final Decision, Forecast capex FY21 to FY25 (\$m FY20)
² Table 2.1, AER Final Decision, Average annual forecast opex (\$m, nominal)
 Market benefits were estimated to be \$1.2 billion for the period from 1 January 2016 to 30 December 2018

Improving Reliability

Investments in the current period (2020 to 2025) to improve reliability while delivering value to consumers:

- Long running cable repair strategy has reduced cable failure rate
- Significantly improved fire protection system to prevent future damage from fire
- Control & protection system replacement to improve reliability
- Insulated Gate Bipolar Transistors (IGBT) replacement to mitigate obsolescence risk

These improvements will also continue into the next revenue period.

- AER sets targets for number of outages and market impact of a given outage; which affects revenue at risk of up to 2.25%. These targets are set based on previous performance and expected reliability improvements associated with any CAPEX.

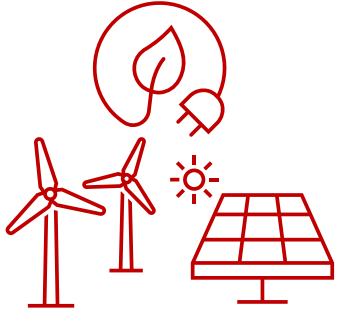


Future of Directlink

Objective: To recap issues raised by stakeholders and to identify next steps for each issue

What we heard

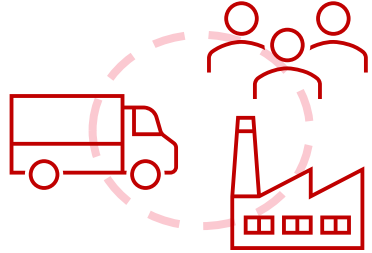
Emerging and future challenges identified at the co-creation workshop



Energy transition



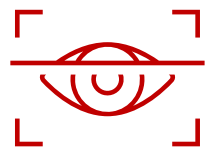
Climate change, environment and resilience



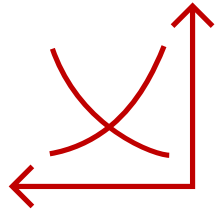
Vulnerability to supply chain issues



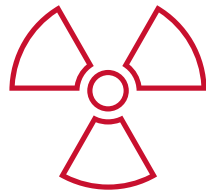
Labour and skills shortages



Technology advancements



Demand for Directlink



Managing risks



Planning for end of life



Affordability

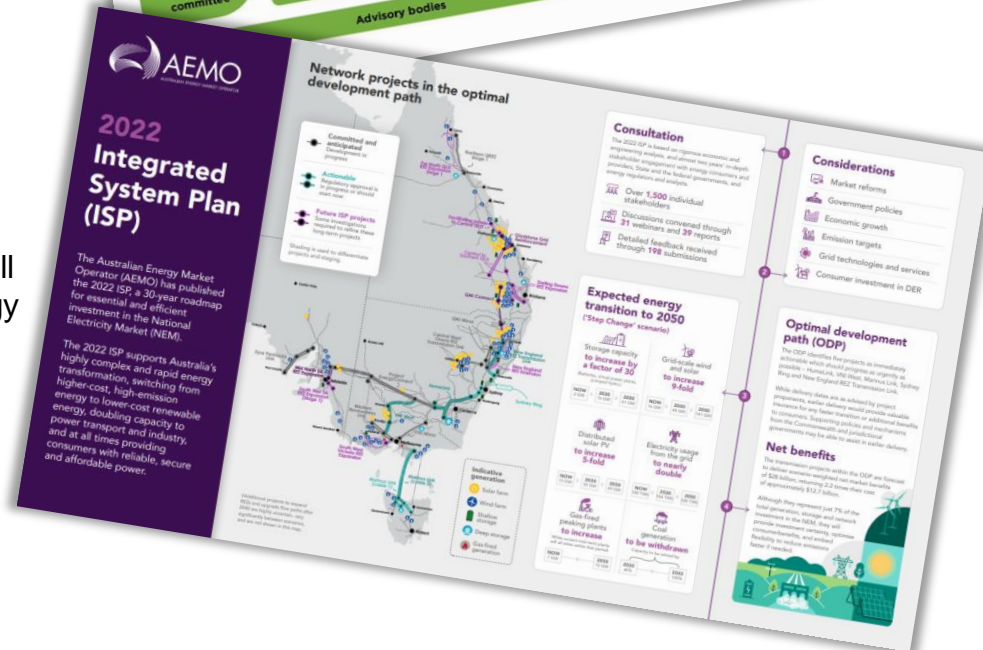
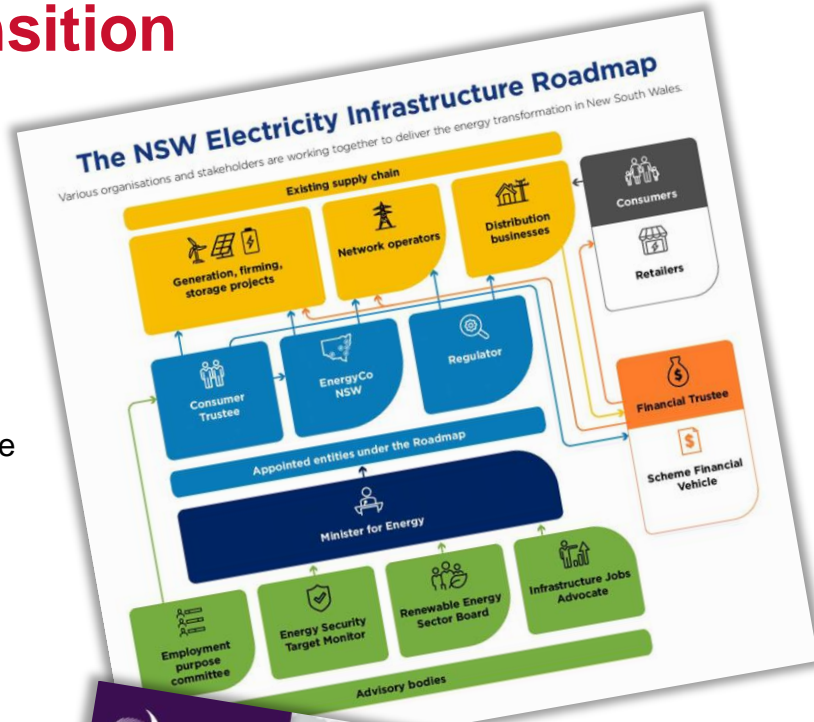
The Energy Transition



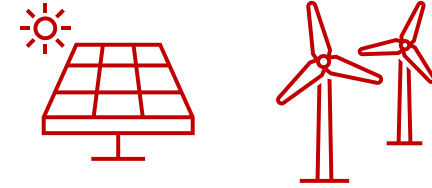
Emission reduction objectives are driving significant investment in energy infrastructure



Electrification of everything - homes, transport and industry will place extra demand on the energy system



How does Directlink support the energy transition?



Directlink assists in stabilising the electricity grid when renewable energy is intermittent. This role will be increasingly critical under the energy transition.



Interconnection can help to reduce wholesale market price volatility

Future Demand for Directlink

- Directlink provide electricity transfer and stability. The demand for transfer and for stability support is seen as increasingly critical during the energy transition due to increased renewable generation
- A specific feedback session has been held with AEMO. AEMO has reinforced this future demand expectation.
- AEMO have indicated a preference for reduce duration of scheduled outages given this criticality.
- Directlink will also continue to support minimising market price volatility
- Reliability of Directlink will be key to support the energy transition.



Climate Change and Resilience



Fire risk

Mitigation strategies

- Directlink includes fire protection systems and fire suppression equipment
- Design of cabling does not pose a bushfire risk



Flood risk

Mitigation strategies

- Improvements to cable supports to prevent collapse during high rainfall events
- Site cable trench modification to prevent failure in high rainfall events
- Converter station siting is elevated and free draining



Heat risk

Mitigation strategies

- Cooling system design maximum ambient temperature is 40 degrees. Current period forecasted peak temperature will not exceed this and peak temperature conditions will be actively monitored
- An engineering study performed for Directlink has identified that temperature changes in the cable when it enters and leaves the ground are a common source for cable failures



Wind and storm risk

Mitigation strategies

- The design of the cabling system is relatively resilient to high extreme wind due to its largely underground or close to ground construction

Technology advancement

Today and until the 2040s, Directlink offers and will continue to offer an efficient and cost-effective transfer of electricity between QLD and NSW.

APA's goal is to continue to operate, maintain and incrementally improve Directlink for reliable provision of this service.

There is no single driver that will require Directlink to cease operation at 2042; however, a number of key components are expected to be nearing obsolescence; IGBTs in particular.

What replaces/augments Directlink in the 2040s will depend on:

- The supply and demand in QLD and NSW
- The nature/flexibility of this supply and demand in the 2040s
 - e.g. does every home have batteries and renewable?
- The technology available at the time.

APA proposes to focus on reliable and responsible management of the current asset; noting there will be changes in external factors that will inform future investment in interconnectors in this geographical location.



Managing risks going forward

Managing risk effectively and making good, risk informed decisions give us confidence to deliver on our business strategy and plans. This includes considering our commitments to our investors, our staff, our customers and other stakeholders.



Health and Safety

Injuries illness or death of employees, contractors or members of the public



Environment, Heritage or Social impact

Environmental harm or impacts to heritage or negative social impacts without approvals



Operational capability

Disruption in our operations (supply or services)



People

Impact size, engagement, capability of our staff



Compliance

Non-compliance with operating licences legal regulatory, contractual obligations, debt financing covenants or reporting/disclosure requirements



Reputation and customer

The view of APA from its stakeholders, customers, investors, regulators, governments and the community



Financial

APA Group - Balance sheet, P&L impact
Individual Asset- Revenue, cost impact

Planning for end of life



Directlink will reach the end of its economic life and be fully depreciated in 2041/2042



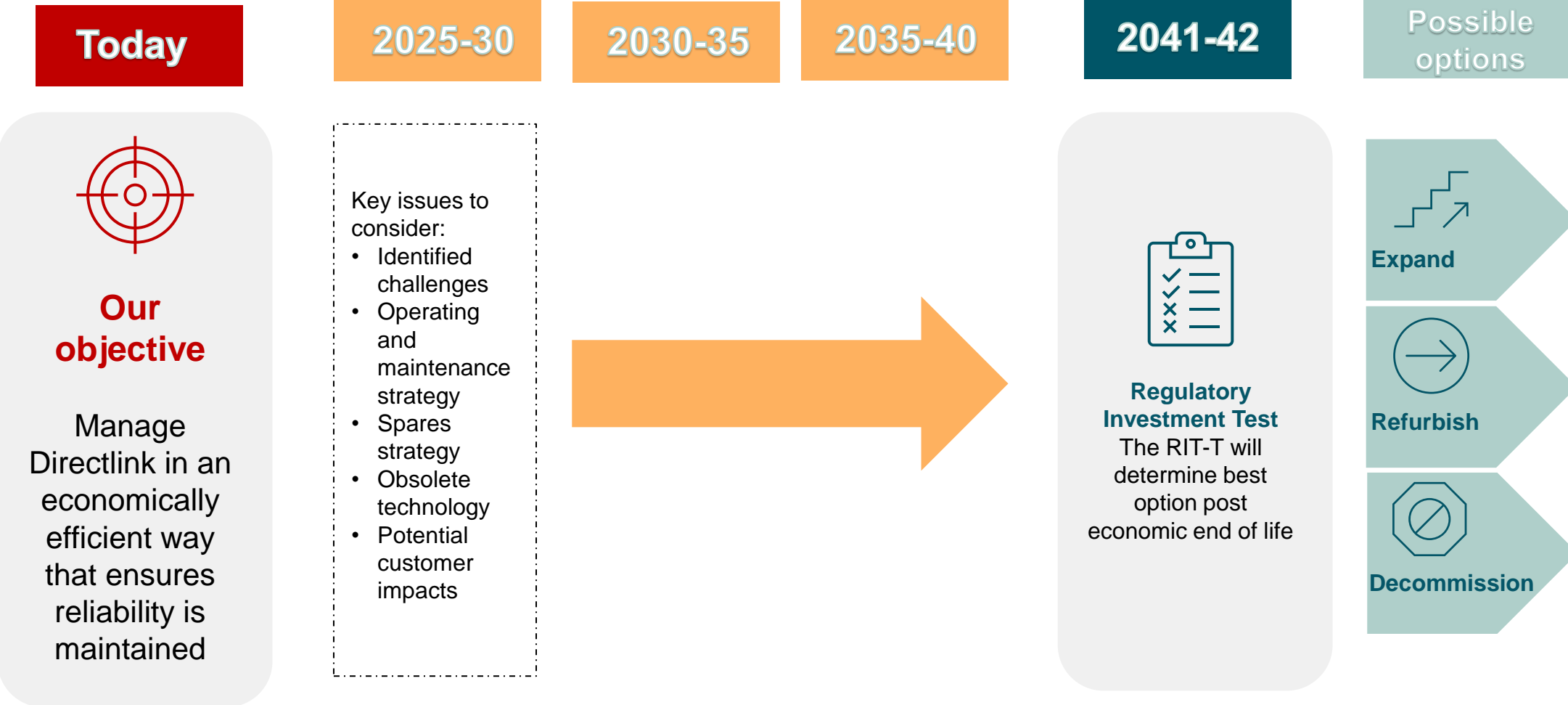
Key technology in the original design of Directlink will be obsolete or sub-optimal by approximately 2042.



Planning for its end of life will need to be considered for the 2025-30 period to ensure reliability and affordability is balanced for continued operation to 2042.



What does end of life mean for Directlink?



What are the issues for consideration?



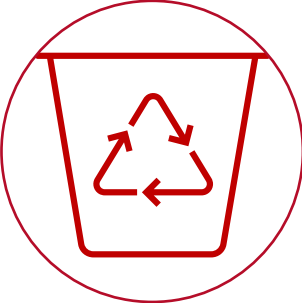
Cost/Reliability balance

- Balancing costs now to reduce risks in increased cost or reliability issues in the future



Critical asset assessment and sparing

- Holistic review of asset redundancy to avoid expensive upgrades due to future unavailability of spares



Decommissioning

- Removal, disposal or repurpose of redundant assets



Make good

- Remediation and rehabilitation



Wrap up and next steps

Objective: To thank participants and explain next steps.

Next steps

- **Stakeholder group to:**
 - Complete evaluation survey for today's meeting
 - Advise on areas of interest for the next meeting on the forecast capital expenditure for Directlink on Wednesday 11 October, 1:30pm – 3pm
- **APA to:**
 - Confirm agenda for the next meeting
 - Send out meeting papers for the next meeting by Wednesday 4 October



Questions

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apa

Thank you

