Meeting Date	Location
11th March 2022	Hybrid – Powerlink Offices/Teams meeting

Attendees

Name	Organisation
Mark Henley	Uniting Communities
Bev Hughson	Darach Energy Consulting Services
Chris Hazzard	St Vincent de Paul
Mark Grenning	EUAA
Andrew Broadbent	CS Energy
Albert Tong	AER
Paul Ascione	Powerlink
Jenny Harris	Powerlink
Gerard Reilly	Powerlink
David Gibbs	Powerlink
Lutfiye Manli	Powerlink
Roger Smith	Powerlink
Jules Taylor	Powerlink

Meeting Minutes & Actions

Comments (C), questions (Q) and response (R)

Meeting commenced with overview of agenda and introductions of ARR Working Group members

Agenda items:

- Overview of engagement approach
- Roles & responsibilities of Powerlink and ARR Working Group members
- Background to Asset Reinvestment Review
- Investment context
- Initial views on scope.

Engagement approach

Q. Will the AER need to approve the outcome of the review?

R. We will touch base with the AER at key points but no formal approval will be sought.

C. The AER rep will report back to the AER Network Committee on review progress and take back key findings.

Q. Why has Powerlink proposed to engage at the “Involve” level of the IAP2 Spectrum?

R. The Terms of Reference state that the Working Group will predominantly operate at the "Involve" level of the IAP2 Spectrum. This decision was made considering the technical nature of the content and the assessment of potential level of influence. It is important to note the Terms of Reference also allows for engagement at other levels if appropriate.

C. I think this is a good starting point based on the initial scope. We may choose to operate at a different level, depending on what else might arise over the course of the review.

C/Q. There was a comment on our engagement objectives and strategy. Where does the rest of Queensland fit into this review, noting the lack of regional Queensland representation on the working group given the infrastructure being discussed as part of the review is for the most part in regional areas.

R. Powerlink highlighted that it had boosted regional stakeholder representation on its Customer Panel. Stressed the Customer Panel would gain regular updates from the ARR Working Group and have the opportunity to provide input and feedback as part of the review process.

C. We need to be mindful that while the focus of this review is technical in nature, we may need to consider the potential consequences of where this may head on other parts of our business. For example, opex and capitalisation policy. These are not necessarily questions for this group and some questions may need to be taken away for broader consideration by others in the business.

Background to Asset Reinvestment Review

Powerlink discussed the background behind the review, referencing the AER's statement that Powerlink's current asset reinvestment models are well developed and generally provide a reasonable assessment of the expected benefits of the proposed investment.

The AER did identify areas for further improvement in the reinvestment asset approach, particularly in relation to transmission lines with an opportunity to take a more targeted economic risk-based approach.

Powerlink talked through 'typical' compliance and economic risk based approaches.

Powerlink then talked through its Ross to Chalumbin Transmission Line Replacement project to provide further insights into its current reinvestment approach.

Q. Does the AER's review of Powerlink's approach factor in Queensland's topography which can be quite rugged and difficult to access when compared to other transmission networks such as AusNet?

Q. To what extent do risk-based and compliance-based approaches be inconsistent?

R. The two approaches complement each other in a balanced way when an asset decision has to be made. For example purely risk based approach may not lead to a replacement decision based on consequence valuation without having a safety compliance consideration.

Q. Are all compliance criteria ranked equally?

R. No, there are different weightings for different criteria.

C. Some of the consequences that Powerlink takes into consideration are network outages, impact on generation market, safety risk, financial risk and environmental.

Q. With regards to environmental risk – does that refer to the potential for Powerlink's assets to impact on the environment or is it the risk that environmental factors will impact on Powerlink's infrastructure - such as in cyclones in North Queensland?

R. This environmental risk is focused on the risk of Powerlink assets impacting on the environment. Important to note that Powerlink also undertakes condition assessments to gauge how different environments impact assets.

C. An example of how changes in environment impacts on reinvestment decisions was provided with a transmission line in Cairns. The line was originally built in the 1950s and was set for replacement. When built it was in a lowly populated area but now urban sprawl has seen high-density residential development which directly impacts on access and changes the potential costs and risks.

Q. Is Powerlink taking into account resilience in the compliance approach in terms of the impact of climate change on reinvestment and design?

R. Powerlink is involved in a working group at the moment looking into this issue and there is an ENA report entitled *Energy network infrastructure and the climate change challenge* that might be valuable pre-reading for the group.

C. Request that Social Licence be added to future agenda items as a major issue in terms of project delivery and cost.

C. Resilience is factored into Powerlink design standards for its assets. These are aligned with guidelines specified by Queensland Government where relevant (e.g. flooding).

Q. How is the changing patterns of generation impacting resilience? How does that change the flows over your network? Will energy transformation have more impact on network resilience?

R. Powerlink is moving towards real-time ratings of its transmission lines to help manage the change in flows. Otherwise we still need to make sure we don't exceed the static ratings of our lines.

Q. What does the environmental consequence category cover?

R. It picks up the risk of impacting the environment, e.g. in the event of an oil spill.

Q. What about the risk of the environment impacting on Powerlink? eg. floods, heat, etc.

R. That's a good question. The impacts of heat and temporary high loading of transmission lines is less pronounced than other equipment, such as transformers. During high heat periods (ambient temperature or high loading), the conductors of a transmission line will sag more (up to the safe clearance limit) but will then revert to normal as the heat dissipates. This needs to be considered for transformers, where consistent high loading/heat can lead to accelerated ageing as the heat is dissipated much more slowly.

C. There is an insurance element to this too.

C. The AER report highlighted that Powerlink is using the right risk-based approach but it's the application that is the issue.

C. Some insights from an AER perspective – there are two extremes when you talk about potential approaches for a built section. One is that when you bundle work – i.e. replace more than one tower due to factors such as mobilisation costs and access - it is more cost-efficient. The other extreme is that you only invest on an individual asset at the optimal time.

C. AER would expect Powerlink to do a better job in explaining the additional costs of coming back more regularly (every 3 to 5 years) to undertake work on individual towers rather than the approach where work is bundled up.

C. Need to be aware of opex/capex trade-offs. If we replace one tower in a built section, it would be opex not capex.

Investment context

Powerlink talked through Ross Chalumbin transmission line refit example – high level first assessment was $100 million. Then gained better condition reports on towers which enabled us to modify assumptions to allow for a more refined estimate. Powerlink starts its reinvestment approach from a condition view, then we look at economic and compliance considerations. For example, what are the practicalities of getting materials to site and getting the work done?

Q. In reference to Ross to Chalumbin example, it involves a 224km transmission line that traverses extremely diverse terrain. Instead of keeping this as one built section why wouldn't you separate it into smaller built sections from an asset reinvestment perspective? Do we need to redefine what we call a built section?

Q. Is looking at built sections as a whole effective or not?

C. We consider the condition of each structure, one structure at a time.

C. There could be flow on impacts to capitalisation policy, but this is something we will need to take away to other parts of the business and consider further.

C. Powerlink needs to do better at communicating the benefits, including financial, of bundling its transmission line refit work. AER made comment that Powerlink hadn't provided an 'unbundled' cost estimate to show the benefit of taking a bundled approach.

C. We are just starting to understand more about how accessible the network is.

C. Note that when we say network access, we mean both physical access to the lines via access tracks etc. and outages on the network for access to work.

C. We consider the condition of each structure, one structure at a time.

Initial views on scope

Powerlink provided its initial view on a potential scope for the asset reinvestment review with the need to focus on both the prudency and efficiency elements of reinvestment capex and look at matters such as:

- Powerlink's risk-cost modelling
- Extent to which an economic risk-based approach informs network asset reinvestment decisions
- The role of deterministic criteria in an economic assessment framework
- The balance between capital and operating expenditure.

C. Should the Repex Model be included in scope too?

C. Note that we have only used the Repex Model as one of a number of ways to forecast our capex for revenue reset purposes only. We don't use it for BAU (business as usual). We have used the Repex Model to forecast some of our capex for the last two revenue resets. You should also be aware that the reason we used it in the first place, was that senior staff at the AER encouraged us to forecast our capex this way. We even got the father of the Repex Model, Brian Nuttall, to review our approach the first time we used it.

C. Regional zone variants needed to be more overt. Need to get a better understanding of the challenges of access for Powerlink assets, both from a remote geographic and network outage perspective.

C. How do we include future proofing in scope? Given the rapidly changing environment need to ensure we don't introduce improvements to the asset reinvestment approach that only last 12 months.

C. AER is very positive about where this discussion is going and is comfortable with the scope. The devil is in the detail. Need to look at defining what 'built section' means from an asset management sense. In terms of resilience, the AER is publishing a guidance note in 2-3 weeks' time which might be valuable reading for the group.

C. Need to get an understanding of the additional revenue generated by undertaking the reinvestment work to allow for a better cost vs revenue analysis.

Confirmed next meeting will be another foundational opportunity to increase understanding and get everyone on the same page. Will likely extend the next meeting by an hour.

Initial feedback on first ARR Working Group meeting

C. Proposed duration for future meetings is two hours. May need to extend some meetings to allow more in-depth discussions, particularly at the start as knowledge levels are increased among the ARR Working Group.

Actions from meeting

Action	Responsible	Timing
Develop a glossary of asset management terms to common understanding from language	Powerlink	April 2022
Further investigate any associated benefits with dividing long transmission lines into smaller built sections for asset management purposes	Powerlink	Part of formal review
Provide asset management guidelines (non-confidential) to provide greater insight into elements that are required by legislation versus those which are at Powerlink's discretion	Powerlink	April 2022
Do a deep dive into a suitable transmission line refit project to provide greater detail into aspects including: • Geographic access • Network outage constraints • Practical details of project work involved in transmission line refits including how members, bolts or whole towers are replaced	Powerlink	April 2022

Provide condition assessment reports (with a table demonstrates levels of condition for number of towers) for Ross to Chalumbin Transmission Line Refit Project Explain base case need for a project and decision options	Powerlink	April 2022
Provide an updated review scope based on feedback received to date	Powerlink	April 2022
Review timings of future ARR Working Group meetings and extend if required for Deep Dive discussions	Powerlink	Ongoing
Investigate feasibility of a site visit to provide better understanding of practical work involved in transmission line refit.	Powerlink	April/May 2022