Warwick Anderson
Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Submitted by email to: Powerlink2022@aer.gov.au

**Powerlink Determination – 2022-27**

25 May 2021

Dear Mr Anderson,

Aurizon Network welcomes the opportunity to make a submission to the Australian Energy Regulator (**AER**) in respect of the Powerlink's initial Revenue Proposal (**Revenue Proposal**) in respect of the period Financial Years 2022-2027.

Aurizon owns and operates the regulated open access Central Queensland Coal Network (**CQCN**). Approximately 2,000 kilometres of the CQCN within the Blackwater and Goonyella Coal Systems are electrified (**Electric Traction Network**) providing Aurizon Network's customers (**Our Customers**) with the choice to operate trains using electricity or diesel fuel as their source of traction power. This Electric Traction Network represents a significant proportion of Queensland's regional and total energy demand and provides a critical supply chain link for Queensland's quality metallurgical and thermal coal exports.

Transmission and wholesale electricity costs together with energy security and reliability are critical to the future competitiveness of electric traction. Our Customers have a technically feasible and readily accessible alternative to electric locomotives in the form of diesel locomotives. If Our Customers decided to substitute electric for diesel locomotives, this would result in a significant reduction in electricity demand in regional Queensland.

Central Queensland's electric locomotive fleet uses 1% of the state's total electricity consumption. Annually, this equates to a saving of approximately 100 million litres of diesel, or 13-35kt of $CO_2$ emissions, when compared to the equivalent operation of diesel locomotives. It has the ability to also assist Our Customers reduce their own scope 3 emissions.

We recognise cost-effective decarbonisation of the freight sector will require increased electrification of transport networks. As the proportion of renewable energy generation in Queensland's electricity grid increases in line with government targets, our Electrified Traction Network will continue to decarbonise. In recognition of this, our 'Tracking Towards Net-Zero

Operational Emissions[1]' initiatives emphasise the need to ensure that we can continue to leverage existing capabilities and assets, such as our Electric Traction Network, as we decarbonise our emissions.

While we are committed to decarbonising our own operations, our focus also remains on maintaining cost effectiveness and improving our operational performance leading to more efficient outcomes for Our Customers. Importantly, affordable wholesale and network electricity costs are also necessary to incentivise rail operators to choose electric traction as the preferred locomotive choice.

Aurizon Network therefore welcomes Powerlink's recognition in its Business Narrative[2] that the cost of electricity remains a key concern for customers and that 'customers expect us to do what we can to place downward pressure on prices and deliver value for money, including through our Revenue Proposal process'.

The Revenue Proposal seeks to promote this Business Narrative through the two levers of operating expenditure and renewal capital expenditure that are primarily within the control of Powerlink. In this regard, Aurizon Network commends Powerlink for proposing operating cost expenditure that, subject to adjustment, appears to hold operating costs over the next regulatory period constant in real terms. This is a reasonable position in the context of the limited growth in both forecast demand and the value of the asset base.

The Business Narrative provides an example that transmission costs typically represent only 8% of a Queensland Household Energy Bill. However, it is important to recognise that transmissions costs will represent a significantly larger proportion of input costs for directly connected customers. Therefore, any changes in the cost of providing transmission services to those directly connected entities will have a larger consequential impact. From Aurizon Network's perspective for the financial year 2021, transmission costs represent 33% of the total cost of electricity costs to our customers as shown in following breakdown.

**Table 1. Transmission Costs as a Proportion of Total Electricity Costs in the CQCN**

33%

*Prescribed and Negotiated Transmission Services represents ~33% of the total cost of supply of electricity to electric trains in the CQCN.X*

| Electricity Supply Components | Proportion of Total Cost |
|---|---|
| Distribution^ | 40% |
| **Transmission** | **33%** |
| Generation/Retail | 27% |

^ Distribution services are a declared services under the QCA Act 1997 and represent the costs of providing the overhead railway network in the Goonyella and Blackwater system under tariffs regulated by the Queensland Competition Authority pursuant to the 2019 Access Undertaking.

The higher proportion of transmission costs within the total CQCN electricity supply costs is largely associated with the geographical scale of the CQCN and the significant number of prescribed (12) and negotiated (6) direct connections with a TNSP to the National Energy Market (**NEM**) as summarised in Table 2.

[1] Aurizon (2020) Climate Strategy and Action Plan: Delivering for a sustainable future. Available at: https://www.aurizon.com.au/-/media/aurizon-media-library/sustainability/overview/sustainability-report-2020/climate-strategy-and-action-plan_web-version.pdf

[2] Powerlink (2021) Business Narrative, Revenue Proposal: Appendix 2.01, January

Aurizon Network disconnected three prescribed connections in July 2017 to further reduce the total cost of electricity supply to improve affordability and competitiveness of operating electric traction locomotives. Affordability remains a key driver of the traction choice of both existing rail operators when making reinvestment decisions and new rail operators who enter the above rail haulage market in the CQCN. Reduction in the demand for electric traction services relative to diesel substitutes further erodes the competitiveness of electric traction services. As such, affordability of electric traction is of significant importance to both Aurizon Network and our customers in order to avoid further potential disconnections from the NEM.

**Table 2. Aurizon Network Direct Connections with a TNSP to the NEM**

| Goonyella Coal System | | | Blackwater Coal System | | |
|---|---|---|---|---|---|
| *Location* | *Connection* | *SVC^* | *Location* | *Connection* | *SVC* |
| Bolingbroke | Prescribed | N | Callemondah | Prescribed | N |
| Coppabella | Prescribed | Y | Grantleigh | Prescribed | Y |
| Mackay Ports/DBCT (SVC @ Alligator Creek) | Negotiated | Y | Gregory | Prescribed | Y |
| Mindi | Prescribed | N | Rangal | Prescribed | Y |
| Mt McLaren | Prescribed | Y | Raglan | Negotiated | N |
| Norwich Park | Prescribed | N | Wycarbah | Negotiated | Y |
| Oonooie | Prescribed | Y | Dauringa | Negotiated | Y |
| Peak Downs | Prescribed | N | Bluff | Negotiated | Y |
| Wandoo | Prescribed | N | | | |
| Wotonga | Negotiated | Y | | | |

^ Static Var Compensators (**SVC**)

***Our engagement with Powerlink***

As a directly connected load customer, Aurizon Network has ongoing direct commercial and operational engagements with Powerlink in relation to the provision of connection and transmission services. Aurizon Network has welcomed the deeper engagement Powerlink has undertaken with directly connected load customers in respect of the Pricing Methodology and that engagement has benefited Aurizon Network in terms of obtaining a deeper understanding of the proposed changes to the Pricing Methodology.

In addition, a representative of Aurizon Network has attended the Customer Panel forums held by Powerlink in respect of the Revenue Proposal. On balance the quality and breadth of the engagement undertaken by Powerlink is a significant improvement on prior Revenue

Proposals and this has been reflected in the supporting submission by the Customer Panel in respect of those matters for which Powerlink has engaged stakeholders.

Throughout the customer engagement process, Powerlink has established an objective of preparing a Revenue Proposal which is capable of acceptance. Aurizon Network notes that the National Electricity Rules (**NER**) provide no direct guidance as to what is intended to be established for a Revenue Proposal to be 'capable of acceptance', the conditions that should be satisfied for a proposal to be capable of acceptance and how the AER is to take those positions into account.

Aurizon Network notes that ultimately whether a Revenue Proposal is capable of acceptance must be determined by the AER as they are the only party for which all relevant information has been provided and with the ability to scrutinise that information against the requirements of the NER. For example, not all information within the document register is available to stakeholders as reflected within the confidentiality register.

Notwithstanding, Aurizon Network commends Powerlink on the significant improvements in its stakeholder engagement and recommends that the AER have regard to the quality of the stakeholder engagement in assessing Powerlink's Revenue Proposal. A clear indication of the quality of that engagement will be reflected in the matters included within stakeholder submissions. In this regard, Aurizon Network's submission addresses only matters which have either not been subject to consultation or that were not consulted with a degree of detail. Aurizon Network welcomes further engagement with Powerlink in discussing these matters prior to submitting a revised Revenue Proposal.

This submission has been prepared to address issues arising from the evolving nature of the energy market and the significant changes to Powerlink's business, particularly in relation to the provision of prescribed and non-prescribed transmission services from significant investment in renewables. This investment in renewables has broader implications for transmission access charges in respect of:

- the Pricing Methodology;
- the changing role of transmission assets in the provision of prescribed and negotiated transmission services; and
- the Cost Allocation Methodology (**CAM**) for the allocation of the shared and indirect costs between prescribed transmission services and an increasing proportion of non-prescribed transmission services.

***The Powerlink Business and the National Energy Market is undergoing significant change***

The NEM is undergoing substantial and dynamic change in respect of both how and when energy is consumed and the types, timing and quality of the energy being injected. This is most prominent in the significant expansion of non-synchronous renewable generation and the progressive and expected retirement of large-scale thermal plant.

This change has significant implications for Powerlink in the provision of transmission services as noted in the Revenue Proposal:

> *As the National Electricity Market (NEM) continues to transition toward a new energy future, we must navigate a highly dynamic and uncertain environment. The transmission system has changed from one which transports electricity from a small number of large centralised generators to major loads and distributors, to one that*

*interconnects increasing numbers of generators, loads and storage and transports energy to where it is needed. The rapidly changing energy system is also a key issue of concern for our customers and stakeholders*[3].

Aurizon Network notes that while market reviews by the Australian Energy Market Commission and the Energy Security Board are seeking to address these challenges there has been limited attention given to the implications of these changes in respect of transmission pricing. These changes need to consider how the transmission network is used and how this change-in-use should be addressed through various mechanisms for which the AER has regulatory oversight, including *Pricing Methodologies*, *Cost Allocation Methodologies* and *Transmission Ringfencing Guidelines*.

Of particular importance to Aurizon Network is the role dedicated transmission assets will have in addressing the system strength and reliability issues that are likely to arise from further growth in non-synchronous renewable generation. In this regard, Static Var Compensators will provide support services for voltage control issues that arise from this type of generation. This is acknowledged by Transgrid in its 2020 Transmission Annual Planning Report (**TAPR**) which states:

*Voltage control is provided by generators and network assets such as transformer tap changers, capacitor banks, reactors and Static VAr Compensators (SVCs). Additional voltage control issues are however emerging in the south west NSW network due to increased power transfers as a result of high levels of renewable generation in the area.*[4]

*The application of SVCs has had a considerable impact on the power transfer capabilities of parts of the main grid, and in the past has deferred or removed the need for higher cost transmission line developments.*[5]

There are currently 23 SVCs installed across the Powerlink transmission network, of which 11 of those are assumed to be dedicated assets providing prescribed and negotiated transmission services to Aurizon Network as shown in table 3.

**Table 3. Powerlink SVC Quantities, Prescribed and Non-Prescribed**

| | Powerlink SVC Totals | Aurizon Network Connection with SVC | Aurizon Network SVCs % of Total SVCs |
|---|---|---|---|
| Prescribed | 15* | 6 | 40% |
| Non-Prescribed | 8 | 5 | 63% |
| **Total** | **23^** | **11** | **48%** |

* Powerlink Revenue Proposal: Age Profile 3 Secondary Systems

^ Powerlink Annual Report 2019/20, p.23

[3] Powerlink (2021) Revenue Proposal 2023-27, January, p. 8

[4] Transgrid (2020) New South Wales Annual Transmission Planning Report 2020. June. p. 80 https://transgrid.com.au/what-we-do/Business-Planning/transmission-annual-planning/Documents/2020%20Transmission%20Annual%20Planning%20Report.pdf

[5] Ibid. p. 114.

Given the increasing penetration of renewables and the role of SVCs in managing system strength and reliability, or avoiding additional investment in transmission infrastructure then it is probable that the 11 dedicated SVCs are either now, or will likely over the term of the Revenue Proposal, cease to be dedicated assets solely for the provision of connection services to the CQCN and will provide a combination of prescribed exit services, prescribed TOUS services and negotiated connection services.

***Pricing Methodology***

Historically, the Transmission Network has been configured to match load with the incumbent generation. As such, transmission pricing objectives have been targeted towards providing locational incentives to demand which has been reflected in the recovery of TUOS costs through a locational and non-locational component. However, strengthening the locational price signals to demand at this time of rapid change in network flows will not be consistent with the underlying supply side drivers of those changes in network flow as noted by Powerlink:

> *rapid installation of renewables and the forecast closure of ageing coal generation assets across the NEM have driven large changes in power flows across the network. This introduces a high degree of uncertainty around the need for investment in major transmission network flow paths.*[6]

Under cost reflective network pricing, an increase in the locational component could significantly impact prices for large dedicated customers associated with a material change in the transmission infrastructure they use due to changes in the generation mix as opposed to any change in their own demand.

Aurizon Network therefore welcomes Powerlink's Revenue Proposal to not increase the proportion of TOUS costs recovered through locational charges and supports the amendment to transition customers to locational charges based on peak demand only. In addition, the transition period of 10 years provides customers with an appropriate period to respond to the price signals of the proposed changes.

***Change in use of dedicated transmission connection assets***

SVCs can be characterised as Identified User Shared Assets (**IUSA**) as they are generally:

- used for the purpose of connecting one or more identified user groups to an existing transmission network;
- not used exclusively by the relevant identified user groups; and
- under normal operating conditions, cannot be electrically isolated from the transmission network without affecting the provision of shared transmission services to persons who are not members of the relevant identified user groups.

While these assets may not be used exclusively by Aurizon Network the costs associated with that use are recovered solely by Aurizon Network under negotiated transmission charges. However, the changes in the network described by Powerlink may result in parties other than Aurizon Network obtaining economic benefits from those assets.

[6] Powerlink (2021) Revenue Proposal 2023-27, January, p. v

For example, Powerlink's 2020 TAPR notes:

> *Powerlink has redesigned and commissioned changes to the voltage controller at nine SVCs in North and Central Queensland (CQ). In some cases **the structure of the voltage control itself was modified** to allow the existing plant to support more VRE generation.*
>
> *In other cases, **the gain of the voltage controller was changed to minimise the control interactions**. These changes have materially increased the renewable energy hosting capacity of the network.*
>
> *This has **reduced proponent's connection costs** that would have otherwise been required to provide system strength remediation*[7]*.*

Aurizon Network recognises that assets will typically undergo a change of use over their life cycle. However, where customers derive a benefit from the direct or indirect use of those assets then cost allocations and pricing should be reflective of those benefits. In this regard, where an asset is not solely 'dedicated' to the provision of a negotiated transmission service but is in fact providing a combination of prescribed and negotiated transmission services then this should be reflected in the allocation of costs or the inclusion of a relevant proportion of those assets within the Regulatory Asset Base (**RAB**) for the prescribed services.

In other words while the original size of the assets may have been agreed in the commercial negotiation of a negotiated transmission service this should not preclude a review of those prices where the size exceeds the current and future needs of the connection customer and the assets are consequently providing significant system benefits.

The Revenue Proposal includes proposals to both include and remove assets from the RAB due to a change in use of assets:

> *In December 2020, we flagged up to an estimated value of $50.0m of potential additions to our RAB to our customers, the AER and the AER's Consumer Challenge Panel (CCP23)*
>
> *We have assessed these potential asset transfers and have included a value of $2.0m in the closing RAB at 30 June 2022 in our Revenue Proposal. This amount reflects the **portion of non-prescribed assets** that provide shared network services.*
>
> *Powerlink and the AER are also in confidential discussions in relation to an asset transfer matter which arose outside the Revenue Proposal process and was included in the $50.0m estimate above.*
>
> *We have removed $4.4m in assets from our RAB which have been repurposed to provide non-prescribed transmission services. It also means that **customers who will derive benefit from use** of the assets going forward **will pay for them**.*

Emphasise is made to the 'portion of non-prescribed assets' as an indication that assets can provide a combination of prescribed and non-prescribed services to be included in the RAB.

---

[7] Powerlink (2020) 2020 Annual Transmission Planning Report: Managing System Strength During the Transition to Renewables, May, p. 202

The Revenue Proposal contains limited detail of the nature of the change in use of assets as confidentiality has been claimed on Appendix 8.01 and the Revenue Proposal is cursory in its discussion.

Aurizon Network notes that the method of adjustment of value of the regulatory asset base is outlined in S6A.2.1 of the NER. However, there is limited publicly available information on the process for the inclusion or removal of existing transmission assets from the RAB. On balance, any change appears discretionary and initiated by the TNSP as part of a Revenue Proposal. Therefore, Aurizon Network is seeking greater transparency from the AER in relation to the method of adjustment of value of the RAB, including:

- how is change of use of a transmission asset assessed by the AER;
- what is the minimum information requirements that need to support a proposal;
- what are the evidentiary requirements required for acceptance of a proposal; and
- what are the conditions that the AER requires in support the inclusion of assets previously providing only non-prescribed services into the RAB.

Aurizon Network considers that given the significant changes occurring in the NEM and the prospect of change in use of transmission assets then a greater level of information disclosure is required than publicly provided in the Revenue Proposal. In particular, the Revenue Proposal should include, at a minimum:

- what is the type of transmissions assets subject to a change in use;
- what non-prescribed services were the assets previously providing;
- what was the basis of the change of use of those assets;
- what is the proportion of the assets that are now providing prescribed transmission services; and
- how has that proportion been determined.

The disclosure of this information is in the public interest and can be made without the need to disclose the details of an individual customers connection arrangements. Aurizon Network therefore requests that the AER provide increased disclosure of this information in the making of a draft decision and provides direction on how a change in the use of assets should be addressed in terms of inclusion of existing non-prescribed assets in the RAB.

**Cost Allocation Methodology**

The change in use of assets is also relevant to the CAM which underpins both the Pricing Methodology and the Transmission Ringfencing Guidelines.

Where a transmission asset that was previously providing a dedicated prescribed exit service but subsequently provides both exit services and TUOS services then it would be necessary to determine the attributable cost share such that any costs of a transmission system asset that would otherwise be attributed to the provision of more than one category of prescribed transmission services, is allocated as follows:

- to the provision of prescribed TUOS services, but only to the extent of the stand-alone amount for that category of prescribed transmission services[8].

An asset may provide more than one category of transmission service where the size of the assets exceeds the requirements of the customer. This can occur for a range of reasons, including:

- A TNSP may wish to design a larger identified user shared asset to help it meet its reliability standards or to maximise market benefits, and should not be prevented from doing so provided that it recovers difference between what is required for connection and what is to meet an identified need in the provision of prescribed transmission services in accordance with the cost allocation principles in the NER[9]; or

- The Customer's current and forecast demand may be materially lower than that assumed in the original design specifications.

Aurizon Network notes that shared assets associated with its prescribed exit services may require asset renewal over the term of the Revenue Proposal. Aurizon Network will work constructively with Powerlink over the term of the Revenue Proposal to identify the scope of the renewals that would be commensurate with Aurizon Network's stand-alone requirements.

For example, while Aurizon Network disconnected a prescribed connection supported by an SVC in 2017 there has been no reduction in the number of SVCs within the RAB indicating these assets have not been decommissioned and continue to contribute towards the security and reliability requirements of the national electricity objective. These will now be recovered through prescribed TUOS services and increasing costs to all consumers.

Powerlink's CAM was originally developed and approved by the AER in 2008. There have been, and are expected to further, significant changes to Powerlink's business over the course of the 2022-27 Revenue Proposal. It is therefore timely that a more detailed and formal review of the CAM is undertaken to ensure that Powerlink's method of allocating costs:

- Remains fit for purpose;

- Represents a fair and equitable allocation of indirect costs between prescribed and non-prescribed services; and

- Informs the appropriate basis for determining the operating cost allowances for the FY28 Revenue Reset.

For example, the CAM states that 'if direct attribution is not possible, a causal basis of allocation is undertaken. Powerlink utilises Direct Labour as the cost allocator for most business support costs to transmission service categories. Whether direct labour remains the appropriate allocator will be largely dependent on relative labour intensity in the direct costs of providing prescribed and non-prescribed services. For example, if non-prescribed services are primarily outsourced construction then they would attract a lower cost allocation.

This change can be observed in data obtained from Powerlink's published regulatory accounts in Figures 1 and 2. Figure 1 shows that prescribed network charges now account for less than 80% of revenue from network charges. However, the allocation of business support costs and

[8] National Electricity Rules. 6A.23.2(d)

[9] Australian Energy Market Commission (2017) Rule Determination. National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2017, May. P.169

overheads has remained relatively stable. Similarly, in Figure 2 the growth in depreciation expense shows non-prescribed assets growing at a greater rate than prescribed assets.

**Figure 1. Powerlink Prescribed and Non-Prescribed Network Charges.**

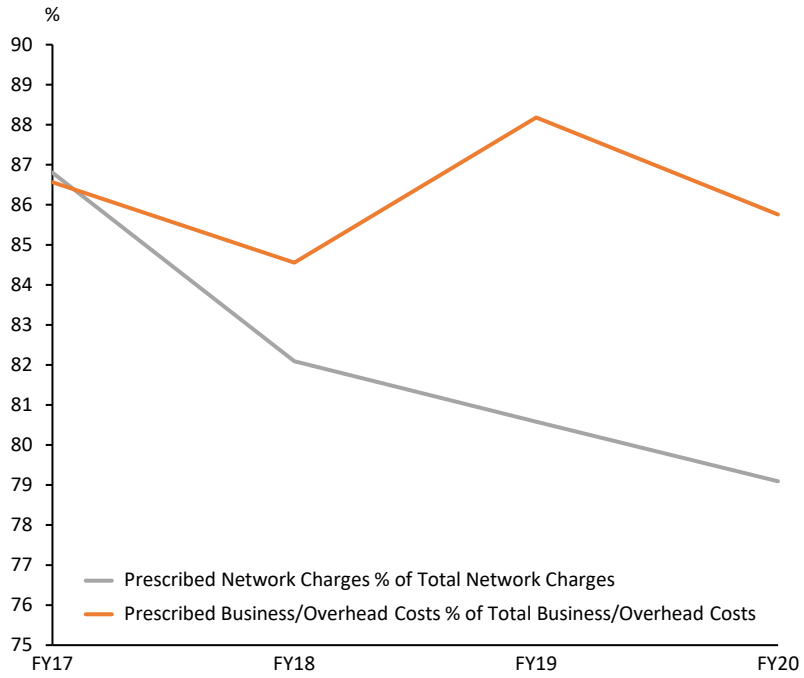
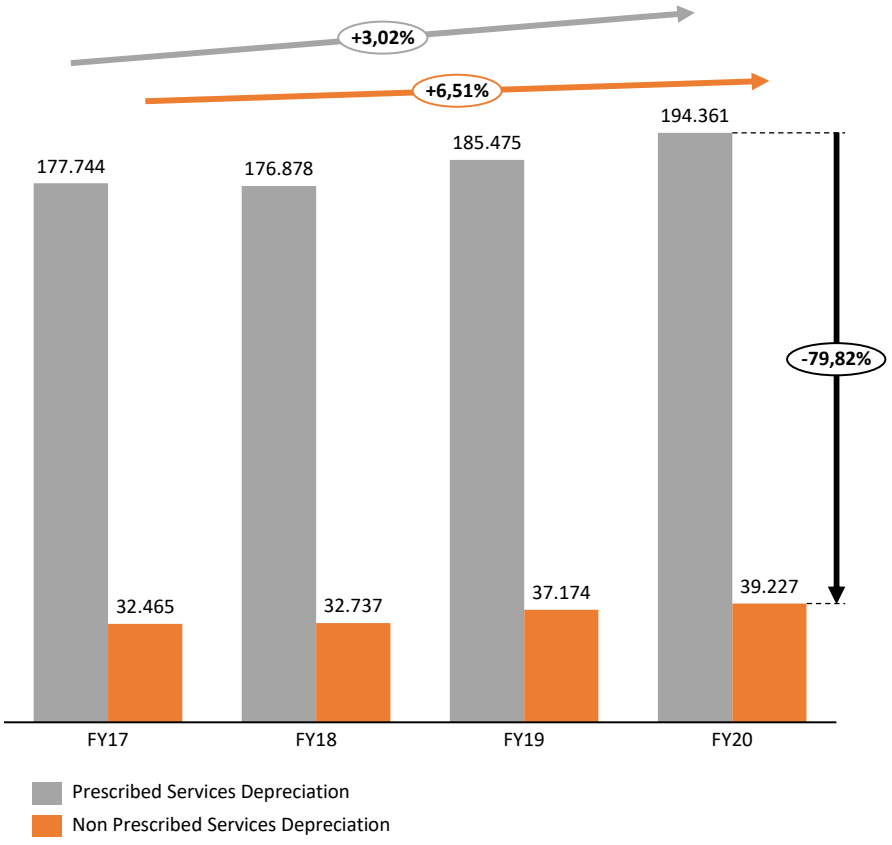



**Figure 2. Prescribed and Non-Prescribed Asset Depreciation**



Aurizon Network commends Powerlink on its openness and transparency in disclosing this information. This information is currently redacted in the published regulatory accounts of other TNSPs which precludes consideration of whether this is an industry wide trend. Aurizon Network strongly encourages the AER to challenge claims of confidentially on non-prescribed revenues and costs to ensure appropriate public scrutiny is provided in the allocation of costs between prescribed and non-prescribed services as the proportion of TNSP revenues from non-prescribed revenues grows with the broader changes in the NEM.

Aurizon Network concerns with the CAM relate primarily to ensuring:

- Costs are allocated on the basis of substance and not legal form[10] (i.e. if an IUSA is providing prescribed transmission services then the relevant portion of those costs is included in prescribed services); and
- The base year costs for the FY28 reset reflect an efficient, fair and equitable allocation of costs between prescribed and non-prescribed services.

Aurizon Network welcomes Powerlink's further engagement with the Customer Panel on reviewing the adequacy and performance of the CAM.

Aurizon Network proposes to work constructively with Powerlink to address any future change in use of assets due to latent capacity or capability in SVCs.

Should you have any questions in relation to this submission please contact [redacted]

Kind regards,

[redacted]

Claire Hemphill
Head of Network Customers
Aurizon Network

[10] National Electricity Rules. 6A.19.2