2023-27
POWERLINK QUEENSLAND REVENUE PROPOSAL

Regulatory Information Notice Return - PUBLIC

Basis of Preparation

Glossary of Terms

AEMO	Australian Energy Market Operator
AFW	Application for Work
ABS	Australian Bureau of Statistics
CA RIN	Annual Category Analysis Regulatory Information Notice
CESS	Capital Expenditure Sharing Scheme
CPI	Consumer Price Index
DAE	Deloitte Access Economics
EB RIN	Annual Economic Benchmarking Regulatory Information Notice
EBSS	Efficiency Benefit Sharing Scheme
MIC	Market Impact Component of the STPIS
MIP	Movements In Provisions
NCC	Network Capability Component of the STPIS
NCIPAP	Network Capability Incentive Parameter Action Plan
NOS	Network Outage Scheduler (AEMO system)
PTRM	Post Tax Revenue Model
RAB	Regulatory Asset Base
RBA	Reserve Bank of Australia
Reset RIN	2023-27 Revenue Proposal Regulatory Information Notice
SC	Service Component of the STPIS
SCADA	Supervisory Control and Data Acquisition
SMP	Statement on Monetary Policy
STPIS	Service Target Performance Incentive Scheme

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Overarching Comments

For clarification, Powerlink has adopted the following general approaches in a number of tables across its 2023-2027 Revenue Proposal Regulatory Information Notice (Reset RIN) templates. Where relevant, these have generally been identified in the Basis of Preparation (BoP) for the specific workbook/sheet/table.

This BoP relates to historical information only and is prepared in accordance with the Reset RIN requirements outlined in:

- Schedule 1, Section 1.5;
- Schedule 2, Section 1.2; and
- Appendix E Instructions.

Regulatory Financial Statements

Where applicable, all costs have been reconciled to Powerlink's historical Regulatory Financial Statements.

Actual and Estimated Data

Where the preparation of data met the AER's definition of actual information, this data has been identified as actual.

All data which did not meet the AER's definition of actual information has been identified as estimated. This includes information whose presentation *is materially dependent* on historical accounting or other business records and *is contingent* on judgements, assumptions, allocation methodologies or other adjustments for the purposes of responding to the Reset RIN.

Where data has been estimated, Powerlink considers these to reasonably reflect efficient and prudent costs based on realistic estimates of cost inputs. All estimates are considered to be Powerlink's best estimates based upon suitable information reasonably available at the time of preparation.

Information prepared in accordance with Reset RIN Schedule 1 clause 4.1(a)(ii)

Schedule 1, clause 4.1(a)(ii) of the Reset RIN requires Powerlink to provide an estimate of the proportion of assets replaced or added for each year of the current regulatory period due to ageing (i.e. condition, obsolescence, etc), augmentation or expansion, or other factors.

Powerlink only reports asset replacement quantities in Workbook 1 – Sheet 2.2, Table 2.2.1 for projects categorised as Reinvestment expenditure. If assets are replaced for the primary purpose to augment or expand the capacity of the shared network or at connection points they are reported in the templates for Augex and Connections respectively and are not reported in Workbook 1 – Table 2.2.1.

To estimate the proportion of assets replaced due to ageing versus other factors the reported quantities have been classified into the following categories:

- Condition and obsolescence – assets replaced within the primary scope of a reinvestment project; and
- Other[1] – assets replaced in the course of a reinvestment project as part of the efficient delivery of the project

The classification of assets has been undertaken on a project completion basis.

[1] An example of assets within the other category is where a transmission tower outside a substation is replaced in order to realign transmission line entries as part of a substation reinvestment project.

Conversion to 2021/22 real values

Powerlink has applied the following methodology to convert to June 2022 real dollars where required.

The actual Consumer Price Index (CPI) is as per the indices published by the Australian Bureau of Statistics (ABS) for the weighted average of eight capital cities. The forecast for 2020/21 and 2021/22 is in accordance with the Reserve Bank of Australia's (RBA) latest Statement on Monetary Policy (SMP), released in November 2020.

Historical Data Workbooks

For clarification, the relevant Reset RIN workbooks which contain historical data include the following:

Workbook 1 – Forecast

- Sheet 2.16 – Opex Summary;
- Sheet 7.4 – Shared Assets; and
- Sheet 7.9 – Service Target Performance Incentive Scheme.

Workbook 3 – Recast Category Analysis

- Sheet 2.11 – Labour.

Workbook 4 – Recast Economic Benchmarking

- Sheet 3.7 – Operating Environment.

Workbook 5 – Capital Expenditure Sharing Scheme (CESS)

- Capital Expenditure Sharing Scheme (CESS).

Workbook 6 – Efficiency Benefit Sharing Scheme (EBSS)

- Sheet 7.5 – Efficiency Benefit Sharing Scheme (EBSS).

Workbook 8 – Capex Historical

- Sheet 8.2 – Capex – Immediate Expensing of Capex.

Workbook 1 – Forecast

Sheet: 2.16 Opex Summary

Table: 2.16.1 Prescribed Transmission Services – Opex by Driver

RIN Requirements

This section has been completed in accordance with Schedule 1, Section 7.3 and Section 8.9 of the Reset RIN. Section 7.3 and Section 8.9 require Powerlink to provide information on the base year used to develop its total forecast opex and the amount of category specific opex in the base year.

Section 7.3(c) requires explanation and justification for why our selected base year reflects efficient and recurrent costs. This information is included in Chapter 6 Forecast Operating Expenditure of our Revenue Proposal and in HoustonKemp's independent report on the efficiency of our base year in Appendix 4.01 of our Revenue Proposal.

Source

Operating expenditure has been sourced from Powerlink's Enterprise Resource Planning system, SAP. All historical data in Workbook 1 – Sheet 2.16 for financial year 2018/19 is populated with actual data except for Movements in Provisions (MIP), which is estimated. The MIP are equal to the sum of all changes in provisions allocated to opex extracted from the provisions template in Powerlink's 2018/19 Economic Benchmarking RIN Return.

Methodology and Assumptions

Powerlink has used a revealed cost approach and selected 2018/19 as the efficient base year. Actual expenditure in the base year has been adjusted for non-recurrent items or items that are not considered to reflect an efficient level of recurrent operating expenditure.

Adjustments have been made for:

- MIP[2] in 2018/19; and
- Network Capability Incentive Parameter Action Plan (NCIPAP)[3] project costs incurred in 2018/19.

MIP includes movements in employee entitlements, organisation restructuring and easement compensation provisions. As not all the information is separately captured in SAP, the MIP is considered estimated information. The employee entitlements provisions are disaggregated using labour time charged to prescribed and non-regulated activities. The prescribed provision balances are then apportioned between opex and capex based on the labour time charged to opex and capex activities.

NCIPAP project costs reflect actual information and have been extracted from Powerlink's SAP project system.

Powerlink has included the following category specific costs in Workbook 1 – Table 2.16.1:

- debt raising costs; and
- the Australian Energy Market Commission (AEMC) Levy.

[2] Adjusted per the Expenditure Forecast Assessment Guideline for Electricity Transmission, Australian Energy Regulator, November 2013, p22.
[3] Adjusted per the Electricity Transmission Network Service Provider STPIS Version 5, clauses 5.2(r)(1) and 5.2(q)

Both debt raising costs and costs for the AEMC Levy are actual information and have been extracted from Powerlink's SAP system.

The data in these tables has been escalated to June 2022 values, as required for input into Workbook 1 – Table 2.16.1. This has been achieved by using actual indices published by the Australian Bureau of Statistics (ABS) for the Consumer Price Index (CPI) of the weighted average of eight capital cities for June quarters and forecast CPI for 2020/21 and 2021/22 in accordance with the November 2020 Reserve Bank of Australia's (RBA's) Statement on Monetary Policy (SMP).

Workbook 1 – Forecast

Sheet: 7.4 Shared Assets

Table: 7.4.1 Total unregulated revenue earned with shared assets

RIN Requirements

This section has been completed in accordance with Schedule 1, Section 1.1 of the Reset RIN. Section 1.1 requires Powerlink to provide historical information related to its shared assets as part of Workbook 1 – Table 7.4.1.

Source

Shared assets data has been sourced from Powerlink's Enterprise Resource Planning system, SAP.

The historical data in Workbook 1 – Table 7.4.1 (for financial years 2012/13 to 2019/20) is populated with actual data, i.e. for oil testing and laboratory services, property rentals and tower access.

Methodology and Assumptions

Powerlink has identified all assets considered to be Shared Assets in accordance with the 2013 AER's Shared Asset Guideline.

The assets used to provide these prescribed and non-regulated services were allocated only to the Regulatory Asset Base (RAB).

For each financial year, Powerlink collated non-regulated revenues and operating expenses for those identified shared assets from SAP. The data reported in Workbook 1 – Sheet 7.4 reflects non-regulated revenues net of expenses.

Workbook 1 – Forecast

Sheet: 7.9 Service target performance incentive scheme (STPIS)

Table: 7.9.1 Historical performance and proposed floor, caps and targets for the service component of the STPIS

Parameter: **Unplanned circuit outage event rate**

Variables: ***Transmission line outage – fault***

Transformer outage – fault

Reactive plant – fault

Transmission line outage – forced outage

Transformer outage – forced outage

Reactive plant – forced outage

Explanatory Note on Table 7.9 STPIS

The STPIS elements of this Basis of Preparation relate to Table 7.9 STPIS.

Powerlink has added Table 7.9 STPIS (Alternative) to its Reset RIN Return. This table includes 2020 year data, which is not required to meet the below requirements of the Reset RIN. Powerlink has provided this data to support the AER's consideration of our proposal to use data up to 2020 for the purpose of target setting of the service component and market impact component of the STPIS. This is outlined further in Chapter 15 STPIS of Powerlink's Revenue Proposal.

RIN Requirements

The below requirements and approach apply to all service component variables listed above.

This section and each following sub-section have been completed in accordance with Schedule 1, Section 11.1 (a) of the Reset RIN. Clause 11.1 states that:

> For the service component of the STPIS, provide the values that Powerlink proposes are to be attributed to the performance incentive scheme parameters for the purposes of the application to Powerlink of the STPIS[4] in the attached Workbook 1 – Forecast, regulatory template 7.9, in two parts:
>
> (a) data for 2015-19, and the proposed scheme parameters based on that data is to be provided by 1 February 2021

Workbook 1 – Table 7.9.1 has been populated with actual data for calendar years 2015 through to 2019 and populated with proposed values for floors, targets and caps.

For clarification, data reported in Workbook 1 – Table 7.9.1 on the service component of the STPIS, relates to calendar years 2015 through to 2019, consistent with the AER's STPIS reporting periods[5]. Version 5 of the STPIS has been used and Powerlink has provided additional information consistent with its annual Economic Benchmarking RIN Returns to assist in user understanding.

[4] Final Electricity Transmission Network Service Provider, STPIS Version 5 (corrected), Australian Energy Regulator, October 2015.
[5] *Ibid*, p. 4.

There are also no revisions to historical data previously provided in Powerlink's annual Economic Benchmarking RIN Returns.

Source

For performance actuals, information has been sourced from Powerlink's internal network operating systems. Powerlink collects, records and maintains defined transmission circuit outage data and transmission circuit counts, consistent with the AER's STPIS.

Actual data for calendar years 2015 to 2019 has been used to determine fault outage and forced outage rates.

Powerlink's historical transmission element outage data has been used as the source for the number of events per annum.

Methodology and Assumptions

The unplanned circuit outage event rate data is based on a calendar year measurement period, for consistency with the AER's STPIS reporting years.

The methodology applied is as follows:

- The AER requires that transmission element outage records exclude any outages of elements per the STPIS unplanned element outage event rate parameter definition exclusions[6].
- Powerlink has assessed each element outage record against the AER's Version 5 STPIS criteria for a "fault outage" or "forced outage" using the following approach:
  - A "Fault Outage" is any element outage that occurs as a result of unexpected automatic operation of switching devices. That is, the element outage did not occur as a result of intentional manual operation of switching devices.
  - A "Forced Outage" is any element outage that occurs as a result of intentional manual operation of switching devices based on the requirement to undertake urgent and unplanned corrective activity where less than 24 hours' notice was given to affected customers and/or AEMO. The notification time is determined by:
    - Time between "Actual Element Outage Start Time" and time advised to AEMO and/or time advised to affected customers, as identified in Powerlink's internal network operating systems.
- The total number of elements for each reporting year was determined by averaging the number of elements as at 1 January and 31 December of each reporting year.
- The actual number of *fault* outages per annum and the actual number of element counts were used to calculate the *fault* outage rate for each of the element transmission types – lines, transformers and reactive plant.
- The actual number of *forced* outages per annum and the actual number of element counts were used to calculate the *forced* outage rate for each of the element transmission types – lines, transformers and reactive plant.

[6] *Ibid*, p. 27. For clarity, given that the AER's STPIS references to 'circuits' actually comprise various 'elements' (e.g. lines, transformers and reactive plant), Powerlink has referred to these as 'elements' in this document.

Parameter: **Loss of Supply Event Frequency**

Variables: ***> (x) system minutes***

> (y) system minutes

Source

For performance actuals, information has been sourced from Powerlink's internal network operating systems. Powerlink collects, records and maintains defined transmission circuit outage data, consistent with the AER's STPIS.

The information provided in response to the Reset RIN has been prepared using the actual dataset upon which Powerlink's annual STPIS report from calendar years 2015 to 2019 was based.

Powerlink's historical transmission loss of supply outage data has been used as the source for the number of loss of supply events per annum.

The loss of supply event records have been used as the source for the megawatt hours (MWh) unsupplied for the loss of supply event and event counts.

Methodology and Assumptions

The methodology applied is as follows:

- The AER requires that loss of supply event records exclude any outages of circuits as per the STPIS loss of supply event frequency parameter definition exclusions[7].

- Each loss of supply event record contains a "System Minutes Lost" value. If the value of "System Minutes Lost" of any loss of supply event exceeds the "x system minute" and/or "y system minute" thresholds, then a count of "1" is added to each applicable threshold, indicating one count for the applicable reportable loss of supply event threshold. Powerlink's historical loss of supply event "Number of Events" data were used to count the number of reportable events for each loss of supply event frequency threshold category that is required by the Reset RIN template.

- The Version 5 STPIS loss of supply event frequency thresholds the AER set for Powerlink's current 2018-22 regulatory period are as follows:

  (x) system minutes = 0.05 system minutes

  (y) system minutes = 0.40 system minutes

[7] *Ibid*, p. 29.

Parameter: Average Outage Duration

Variable: Average outage duration

Source

For performance actuals, information has been sourced from Powerlink's internal network operating systems. Powerlink collects, records and maintains defined transmission circuit outage data, consistent with the AER's STPIS.

The information provided in response to the Reset RIN has been prepared using the actual dataset upon which Powerlink's annual STPIS report from calendar years 2015 to 2019 was based.

Powerlink's historical transmission loss of supply event records have been used as the source for the loss of supply event duration and the number of loss of supply events per annum.

Methodology and assumptions

The methodology applied is as follows:

- Powerlink's loss of supply event records exclude any outages of elements per the AER's STPIS average outage duration parameter definition exclusions[8].
- The loss of supply event data contains "Supply Outage Duration in minutes" data and the longest duration record for each event was used to sum all reportable loss of supply outage event duration times annually. This record was also used to count the number of all reportable loss of supply outage events annually.
- The annual average outage duration was calculated by dividing the cumulative summation of the loss of supply event duration time for the period by the number of loss of supply events.

[8] *Ibid*, p. 30.

Parameter: **Proper Operation of equipment**

Variable: ***Failure of Protection System***

Source

Information has been sourced from Powerlink's internal network operations systems. Powerlink analyses the performance of protection and control systems as part of its analysis of unplanned outage events. The performance of the protection and control systems is recorded with the associated unplanned outage event data.

The unplanned outage event records provided in response to the unplanned circuit outage event rate parameter for Workbook 1 – Table 7.9.1 were used as the source for the protection and control system failure event counts.

Methodology and assumptions

The methodology applied for the failure of protection and control system data is as follows:

- Any recorded failure/s of a protection or control system in an unplanned outage event record associated with assets that are not providing prescribed transmission services were excluded as per the STPIS Proper operation of equipment parameter definition exclusions[9].
- Any recorded failure/s of a protection or control system in an unplanned outage event record associated with a force majeure event were excluded as per the STPIS Proper operation of equipment parameter definition exclusions[9].
- As part of Powerlink's unplanned outage event analysis and recording process, the operation of systems providing a protection or control function to high voltage plant and equipment is analysed and recorded. This protection and control system operation analysis data was used to identify the protection and control system failure event counts in accordance with the following definition in the AER's Version 5 STPIS:

  > … 'protection system failure events' are those events where the relevant protection equipment or control equipment does not operate for a fault event as designed or where the relevant equipment operates when there is no relevant fault event[10].

- The unplanned outage event records were used to identify the counts of the number of protection and control system failures for each event.
- Any failure of primary equipment such as circuit breakers to respond to signals sent by protection or control equipment was not counted as a protection system failure event, per the failure of protection system parameter exclusions[11].
- The annual number of protection system failure events was calculated by summing the number of protection and control system failure events for that year identified for reportable unplanned outage events.

[9] *Ibid*, p. 33.
[10] *Ibid*, p. 32.
[11] *Ibid*, p. 33.

Variable: Material Failure of the Supervisory Control and Data Acquisition (SCADA) System

Source

Powerlink receives the SCADA Minutes Lost report from AEMO on a monthly basis. The number of SCADA failure event counts from the AEMO report has been used as the source for the SCADA system failure event counts.

Methodology and assumptions

Powerlink populated the cells for the 2015 to 2019 calendar years with data directly from AEMO's SCADA Minutes Lost report.

Variable: Incorrect Operational Isolation of Primary or Secondary Equipment Data

Source

Data has been sourced from Powerlink's internal network operating systems associated with recording the incidence of incorrect operational isolation. The records include:

- The occurrence of incorrect operational isolation resulting in an unplanned outage of the transmission network; and
- The occurrence of incorrect operational isolation that did *not* result in an unplanned outage of the transmission network.

Methodology and assumptions

The methodology applied for the incorrect operational isolation of primary or secondary equipment data is as follows:

- Powerlink assessed each incorrect operational isolation incident record against the AER's definition below:

  > … 'incorrect operational isolation events' are those events where primary or secondary equipment has not been properly isolated during scheduled or emergency maintenance, irrespective of whether an outage occurred as a result[12].

- Where incorrect operational isolation occurred during primary or secondary isolation sequences, the associated record was included in the count for the number of events.
- The number of incorrect operational isolation events was summated for each year.

[12] *Ibid*, p. 32.

Workbook 1 – Forecast

Sheet: 7.9 Service target performance incentive scheme (STPIS)

Table: 7.9.4 Market impact component

Workbook 2 – MIC Data Template

RIN requirements

This section has been completed in accordance with Schedule 1, Section 11.2 (a) of the Reset RIN. Clause 11.2 states that:

> For the market impact component of the STPIS, provide performance data in accordance with Appendix C of the STPIS[13] for the seven calendar years, in two parts:
>
> (a) Data for 2013-19 is to be provided by 1 February 2021

For clarification, data reported in Workbook 1 – Table 7.9.4 and Workbook 2 – MIC Data Template on the market impact component of the STPIS relate to calendar years 2013 through to 2019, consistent with the AER's STPIS reporting periods[14]. Version 5 of the STPIS has been used and Powerlink has provided additional information consistent with its annual Economic Benchmarking RIN Returns to assist in user understanding.

Source

Workbook 1 – Table 7.9.4 and Workbook 2 – MIC Data Template have been populated with actual data for calendar years 2013 through to 2019.

For performance actuals, historical network constraint equation records have been sourced from AEMO's Market Management System (MMS). The historical network constraint equation records have been used as the source for the MIC data.

Methodology and assumptions

The methodology applied is as follows:

- The AER requires that MIC performance records exclude any events per the Version 5 STPIS MIC definition exclusions[15] and AER MIC Guidance Document[16].
- The historical network constraint equation records from AEMO were reviewed in conjunction with AEMO's Network Outage Scheduler (NOS), Market Notices published by AEMO and Powerlink's internal network operating systems.
- This dataset was assessed against the Version 5 STPIS MIC exclusion criteria and a planned and unplanned outage type was allocated to each record to prepare the market impact parameter values that are required by the Reset RIN workbooks (Workbook 1 – Table 7.9.4 and Workbook 2 – MIC Data Template).

[13] *Ibid*.
[14] *Ibid*, p. 4.
[15] *Ibid*, Appendix C, pp. 36-38.
[16] STPIS Version 5 - MIC Guidance, Australian Energy Regulator, 30 0ctober 2015.

Explanatory Note

Calendar year 2019 data

In March 2020, the AER advised Powerlink that AEMO made manual changes to its Marginal Constraint Cost (MCC) data after Powerlink lodged its annual STPIS report for the 2019 reporting year to the AER[17]. Powerlink re-ran the data and identified that the updated dataset would have added extra reportable events to its 2019 result.

Given that the new data from AEMO had no financial impact on Powerlink's 2019 STPIS result, Powerlink advised the AER that its final outcome on this matter should stand, and that Powerlink would report the MIC information in the annual Economic Benchmarking RIN Return, consistent with its 2019 STPIS report.

Powerlink's 2023-27 Revenue Proposal includes the additional MIC information.

Calendar year 2015 data

In its Final Decision for Powerlink's 2018-22 regulatory period[18], the AER determined that the one count in 2015 related to a Powerlink initiated planned network outage which was associated with a generator[19], should be excluded under exclusion clause 3 (outages caused by a third party system). Accordingly Powerlink's 2023-27 Revenue Proposal excludes the one MIC count.

For clarification, the revised figures are provided below and in the Workbook 2 – MIC Data Template.

Powerlink's annual Economic Benchmarking RIN section 7.1[20] states that quality of services must be reported in accordance with the AER's December 2012 STPIS[21]. As a result, the Economic Benchmarking RIN Return data is not directly comparable to the performance that is reported in the Reset RIN. Powerlink has provided the Version 5 equivalent performance in brackets below for a direct comparison to the Reset RIN requirement.

MIC Dispatch Intervals	2013	2014	2015	2016	2017	2018	2019
Annual Economic Benchmarking RIN Return Version 4	97	3941	66	42	73	446	15113
(Version 5 equivalent)	(97)	(3941)	(66)	(42)	(73)	(217)	(12620)
2023-27 Reset RIN – Version 5	97	3941	65	42	73	217	13152

[17] Email - Inquiry Re: Impact on 2019 STPIS of AEMO Change to Outage Data, Australian Energy Regulator, 25 March 2020.
[18] Powerlink Final Decision, Attachment 11 Service Target Performance Incentive Scheme, Australian Energy Regulator, April 2017, pp.13-14.
[19] Feeder 863 Outage Constraint Q_STSTN_863 on 24 September 2015.
[20] Section 7, Economic Benchmarking RIN for Transmission Network Service Providers Instructions and Definitions, Australian Energy Regulator, p. 29.
[21] This is referred to as Version 4 (V4) of the AER's STPIS.

Workbook 3 – Recast Category Analysis

Sheet: 2.11 Labour

Table: 2.11.1 Cost Metrics Per Annum

RIN requirements

The Reset RIN Appendix E, Sections 2.26 to 2.29 require Powerlink to provide a forecast of labour data, broken down into categories.

In 2016/17, Powerlink reviewed its classification of labour data in preparing its annual Category Analysis RIN data. This resulted in the inclusion of additional Powerlink resources in template 2.11 of Powerlink's Category Analysis RIN Returns. As this resulted in a material change to the data, Powerlink has provided recast labour data in Workbook 3 – Table 2.11.1 for 2008/09 to 2015/16 for this Reset RIN.

This enables our historical labour data to be compared to forecast labour data on a more like-for-like basis.

Powerlink has also complied with Schedule 1, Section 1.3(d) of the Reset RIN, which states:

> When reporting any change in any table in a regulatory template, include within that table all information that remains unchanged from that previously reported to the AER.

To meet this requirement, Powerlink has included unchanged data for 2016/17 to 2019/20 in Workbook 3 – Table 2.11.1.

Source

The data has been sourced from Powerlink's Enterprise Resource Planning system, SAP.

The Reset RIN also requires labour information to be disaggregated. Powerlink's systems do not disaggregate the labour cost information at the level required by the Reset RIN, therefore Workbook 3 – Table 2.11.1 has been populated with estimated data.

Methodology and assumptions

Powerlink has disaggregated the Average Staffing Level (ASL) and Total Labour Costs to prescribed transmission services based on the pro-rata allocation of time charges to prescribed and non-prescribed activities from all service providers to all activities.

Average Staffing Levels (ASL)

Information from SAP is used to identify ASL's. Powerlink has included the following employee types in each of the relevant Classification Levels defined by the AER[22]:

Classification Level	Powerlink Job(s) or other definition
Executive Manager	Chief Executive and Division Managers
Senior Manager	Group Managers and previous equivalents
Manager	All other Managers and Team Leaders
Professional	Engineer, Accountant, Professional – Other, Construction Management, Project Management, Information Technology.
Semi Professional	Engineering Officer, System Controller.
Support Staff	Administration.
Intern, Junior Staff, Apprentice	Administration Trainee, Co-op/Vacation Student, Development Engineer, Development Engineering Officer, Graduate IT, Development Environmental Officer.
Skilled Electrical Worker	Trade Technician (Lines, Subs, Sec Sys), Supervisor, Field based engineering officers who also hold a trade, Labour hire in Construction Inspector positions.
Skilled Non-Electrical Worker	None applicable at Powerlink.
Apprentice	Apprentice, Apprentice Linesperson, Intern & Junior Staff.
Unskilled Worker	Power Worker.

Total Labour Expenditure

Salary and wage data has been sourced from SAP and allocated to Classification Levels where available.

Where historical data is unavailable, estimated data has been provided. Due to the time and effort required to recast this information, this estimated labour expenditure has been provided based on the corresponding change in ASL category.

For clarification, Powerlink has included employees that are consistent with the AER's definitions as noted above. However, where employees were unable to be assigned to the definitions they were excluded from Workbook 3 – Table 2.11.1. Predominantly these staff relate to those responsible for the delivery of infrastructure and technical services.

[22] Appendix F, Category Analysis RIN for Transmission Network Service Providers Instructions and Definitions, Australian Energy Regulator, March 2014.

Workbook 4 – Recast Economic Benchmarking

Sheet: 3.7 Operating Environment

Table: 3.7.2 Network Characteristics

Variable TEF0202 Variability of Dispatch

RIN Requirements

Schedule 1, Section 9.1 of the Reset RIN requires Powerlink to provide forecast Economic Benchmarking data in accordance with the Economic Benchmarking RIN for Transmission Network Service Providers – Instructions and Definitions, issued to Powerlink on 28 November 2013, Chapters 2 to 9.

Powerlink has recast the Variability of Dispatch % from 2005/06 to 2019/20, as it has changed its methodology to calculate this information to align with the AER's definition of "Proportion of energy dispatch from non-thermal generators"[23]. This new methodology will be reflected in Powerlink's forecast Variability of Dispatch data, therefore we have recast this information so it may be compared on a more like-for-like basis.

Powerlink has also complied with Schedule 1, Section 1.3(d) of the Reset RIN, which states:

> When reporting any change in any table in a regulatory template, include within that table all information that remains unchanged from that previously reported to the AER.

To meet this requirement, Powerlink has included unchanged data in Workbook 4 – Table 3.7.2 Network Characteristics for 2005/06 to 2019/20 for the following variables:

- TEF0201 Route line length;
- TEF0203 Concentrated load distance; and
- TEF0204 Total number of spans.

Source

Historical data in Workbook 4 – Table 3.7.2 is populated with actual data. This has been compiled from a number of sources:

- Powerlink's metering database for historical sent out energy from transmission connected generation sources metered at the transmission network connection point.
- Powerlink's data historian[24] of Supervisory Control and Data Acquisition (SCADA) telemetered data for historical sent out energy from distribution connected generation sources.
- The Australian Energy Market Operator's (AEMO's) National Electricity Market (NEM) Generation Information publication for historical generator scheduled status, technology type, capacity and end date.[25]
- Powerlink's metering database for historical transmission connected generator start and end dates.
- Powerlink's data historian of SCADA telemetered data for historical distribution connected generator start and end dates.

[23] Section 9, Economic Benchmarking RIN for Transmission Network Service Providers Instructions and Definitions, Australian Energy Regulator, November 2013, p. 39.
[24] Powerlink's data historian is a time-series database designed to efficiently collect and store data.
[25] Refer AEMO Generation Information, NEM Generation information publications, accessed November 2020.

Methodology and Assumptions

In its annual Economic Benchmarking RIN Returns, Powerlink has reported Variability of Dispatch % as the total sum of non-thermal generation capacity divided by the total sum of all generation capacity connected to the transmission system[26]. For the purpose of its Reset RIN return and annual Economic Benchmarking RIN Returns going forward, Powerlink has amended its methodology to align with the AER's definition of "Proportion of energy dispatch from non-thermal generators"[27].

Powerlink's view is that measures for energy and capacity are both relevant and provide different, and meaningful, information:

- The energy dispatch measure provides a view of actual energy dispatched by scheduled and semi-scheduled generators within the transmission and distribution networks. Energy dispatch provides a lead indicator of the viability of synchronous generation.
- The capacity measure provides a view of the capacity of scheduled and semi-scheduled generators within the transmission and distribution networks. Capacity indicates the changing mix of investment of types of generation, thermal and non-thermal, and the technical viability of synchronous generation dispatch.

Given the usefulness of the capacity information, Powerlink has supplied a methodology and assumption for both measures.

Variability of Dispatch % - Energy methodology and assumptions

For historical data, interconnector energy inflows and storage plant (large-scale batteries, pumped hydro, and Virtual Power Plant batteries) have not been included as the dependant generation technology cannot be determined.

Historical energy has been compiled by aggregating all metered 30-minute energy intervals for scheduled and semi-scheduled transmission connected and embedded generators (operational generators) by thermal and non-thermal fuel types for each financial year. The fuel types classified as thermal include black coal, Combined Cycle Gas Turbine (CCGT) and Open Cycle Gas Turbine (OCGT). The fuel types classified as non-thermal include hydro, wind, and solar PV.

To derive the proportion of dispatch from non-thermal generators for energy the total sum of non-thermal generation is divided by the total sum of both thermal and non-thermal generation.

[26] Variability of Dispatch Methodology and Assumptions, Economic Benchmarking Regulatory Information Notice, Powerlink, October 2020, p. 56.
[27] Section 9, Economic Benchmarking RIN for Transmission Network Service Providers Instructions and Definitions, Australian Energy Regulator, November 2013, p. 39.

Variability of Dispatch % - Capacity methodology and assumptions

Historical capacity is based on transmission and distribution connected generator technology types, start dates and end dates. Capacities by financial year for each generator were tabulated on a pro-rata basis for periods when the generator started or ended. Thermal and non-thermal technology types were then aggregated by financial year.

To derive the proportion of dispatch from non-thermal generators for capacity the total sum of non-thermal generation is divided by the total sum of both thermal and non-thermal generation.

There is no specific location in the Reset RIN Workbooks to capture the results of the application of the capacity methodology, therefore the results are included in the table below for ease of reference.

Year	Variability of Dispatch % (Operational Generator Capacity) *
2005/06	1.54%
2006/07	1.39%
2007/08	1.39%
2008/09	1.37%
2009/10	1.29%
2010/11	1.28%
2011/12	1.28%
2012/13	1.29%
2013/14	1.35%
2014/15	1.35%
2015/16	1.35%
2016/17	1.35%
2017/18	2.72%
2018/19	13.25%
2019/20	17.76%

* total sum of dispatchable non-thermal generation capacity divided by the total sum of all dispatchable generation capacity.

Workbook 5 – Capital Expenditure Sharing Scheme (CESS)

Sheet: Reported capex

Table: Capex Allowance

RIN Requirements

This Section has been completed in accordance with Schedule 1, Section 1.1 of the Reset RIN. Section 1.1 requires Powerlink to provide historical information related to the Capital Expenditure Sharing Scheme (CESS) as part of Workbook 5 – CESS.

Source

The AER's Capital Expenditure Sharing Scheme Model has been populated with information sourced from Powerlink's 2017/18 to 2021/22 Transmission Determination and Post Tax Revenue Model (PTRM)[28].

Methodology and Assumptions

The data in the Capex Allowance table for the 2018-22 regulatory period is required to be entered in the values applicable at the time of the final decision (i.e. June 2017 dollars). This is then escalated in the model to June 2022 values to calculate the carryover amount for the 2023-27 regulatory period.

This has been achieved by using actual indices published by the Australian Bureau of Statistics (ABS) for the Consumer Price Index (CPI) of the weighted average of eight capital cities for December quarter and forecast CPI for 2020/21 and 2021/22 is in accordance with the latest Reserve Bank of Australia's (RBA's) Statement on Monetary Policy (SMP) dated November 2020.

Table: Actual / Estimate Capex

RIN Requirements

This Section has been completed in accordance with Schedule 1, Section 1.1 of the Reset RIN. Section 1.1 requires Powerlink to provide historical information related to the Capital Expenditure Sharing Scheme (CESS) as part of Workbook 5 – CESS.

Source

Data contained in the Actual / Estimate Capex table relating to the current and previous regulatory period are actuals and have been sourced from Powerlink's Enterprise Resource Planning system, SAP, except for Movements in Provisions (MIP). MIP is estimated and is equal to the sum of all changes in provisions allocated to capex extracted from the provisions template in Powerlink's annual Economic Benchmarking RIN Return.

Methodology and Assumptions

The date entered in the Actual / Estimate Capex table has been populated with actual data for financial years from 2017/18 through to 2019/20 except for MIP.

[28] Post Tax Revenue Model, 2018-22 Powerlink Final Decision, Australian Energy Regulator, April 2017.

MIP includes movements in employee entitlements. As this information is not separately captured in SAP, the MIP is considered estimated information. The employee entitlements provisions are disaggregated using labour time charged to prescribed and non-regulated activities. The prescribed provision balances are then apportioned between opex and capex based on the labour time charged to opex and capex activities.

The data in the Actual / Estimate Capex table has been entered in nominal dollars and is then escalated in the model to June 2022 values to calculate the carryover amount for the 2023-27 regulatory period.

This has been achieved by using actual indices published by the Australian Bureau of Statistics (ABS) for the Consumer Price Index (CPI) of the weighted average of eight capital cities for December quarter and forecast CPI for 2020/21 and 2021/22 in accordance with the latest Reserve Bank of Australia's (RBA's) Statement on Monetary Policy (SMP) dated November 2020.

Workbook 6 – Efficiency Benefit Sharing Scheme (EBSS)

Sheet: 7.5 EBSS

Table: 7.5.1.1 Opex Allowance Applicable to EBSS (EBSS Target)

RIN Requirements

This Section has been completed in accordance with Schedule 1, Section 1.1 of the Reset RIN. Section 1.1 requires Powerlink to provide historical information related to the Efficiency Benefit Sharing Scheme (EBSS) as part of Workbook 6 – EBSS.

Source

Workbook 6 – Table 7.5.1.1 has been populated with information sourced from Powerlink's 2012/13 to 2016/17 and 2017/18 to 2021/22 Transmission Determinations and Post Tax Revenue Models (PTRM)[29][30].

Methodology and Assumptions

The data in Workbook 6 – Table 7.5.1.1 for the 2013-17 and 2018-22 regulatory periods are required to be entered in the values applicable at the time of the final decision (i.e. June 2012 and June 2017 dollars, respectively). This is then escalated in the model to June 2022 values to calculate the carryover amount for the 2023-27 regulatory period.

This has been achieved by using actual indices published by the Australian Bureau of Statistics (ABS) for the Consumer Price Index (CPI) of the weighted average of eight capital cities for June quarter and forecast CPI for 2020/21 and 2021/22 in accordance with the latest Reserve Bank of Australia's (RBA's) Statement on Monetary Policy (SMP) dated November 2020.

Table: 7.5.1.2 Actual and Estimate Opex Applicable to EBSS

RIN Requirements

This Section has been completed in accordance with Schedule 1, Section 1.1 of the Reset RIN. Section 1.1 requires Powerlink to provide historical information related to the Efficiency Benefit Sharing Scheme (EBSS) as part of Workbook 6 – EBSS.

Source

Data contained in Workbook 6 – Table 7.5.1.2 related to the current and previous regulatory period are actual results and have been sourced from Powerlink's Enterprise Resource Planning system, SAP, except for Movements in Provisions (MIP). MIP is estimated and is equal to the sum of all changes in provisions allocated to opex extracted from the provisions template in Powerlink's annual Economic Benchmarking RIN Return.

Methodology and Assumptions

Workbook 6 – Table 7.5.1.2 has been populated with actual data for financial years from 2014/15 through to 2019/20 except for MIP.

[29] Post Tax Revenue Model, 2013-17 Powerlink Final Decision, Australian Energy Regulator, April 2012.
[30] Post Tax Revenue Model, 2018-22 Powerlink Final Decision, Australian Energy Regulator, April 2017

MIP includes movements in employee entitlements, organisation restructuring and easement compensation provisions. As not all the information is separately captured in SAP, the MIP is considered estimated information. The employee entitlements provisions are disaggregated using labour time charged to prescribed and non-regulated activities. The prescribed provision balances are then apportioned between opex and capex based on the labour time charged to opex and capex activities.

The data in Workbook 6 – Table 7.5.1.2 has been entered in nominal dollars and is then escalated in the model to June 2022 values to calculate the carryover amount for the 2023-27 regulatory period. This has been achieved by using actual indices published by the Australian Bureau of Statistics (ABS) for the Consumer Price Index (CPI) of the weighted average of eight capital cities for June quarters and forecast CPI for 2020/21 and 2021/22 is in accordance with the latest Reserve Bank of Australia's (RBA's) Statement on Monetary Policy (SMP) dated November 2020.

The approved excludable costs detailed in Workbook 6 – Table 7.5.1.2 are in line with the allowable exclusions contained in Powerlink's 2018-22 Transmission Determination[31] and as allowed under the AER's 2013 EBSS (Version 2). The exclusions include debt raising costs, network support costs, MIP related to opex and Network Capability Incentive Parameter Action Plan (NCIPAP) project costs that occurred in 2017/18 and 2018/19. Note the NCIPAP adjustments are identified under the row 'other adjustments or exclusions required by the EBSS'.

Powerlink has included a non-recurrent efficiency adjustment of $12.1m (nominal) to 2014/15 to calculate the incremental efficiency gain for 2017/18. This non-recurrent expenditure relates to 500kV project costs that were excluded from the 2014/15 year base year operating expenditure, to forecast operating expenditure for the 2018-22 regulatory period, to establish an efficient level of recurrent expenditure.

[31] Attachment 9 – Efficiency Benefit Sharing Scheme, 2018-22 Powerlink Final Decision, Australian Energy Regulator, April 2017.

Workbook 8 – Capex Historical

Sheet: 8.2 Capex

Table: 8.2.7 Immediate Expensing of Capex

RIN Requirements

This Section has been completed in accordance with Schedule 1 Section 18.8 (a) to (c) of the Reset RIN. Section 18.8 (a) to (c) require Powerlink to provide information related to Powerlink's immediate expensing capital expenditure in the current 2018-22 regulatory period.

Source

The immediate expensing capital expenditure for 2017/18 to 2019/20 has been sourced from Powerlink's Enterprise Resource Planning system, SAP.

Workbook 8 – Table 8.2.7 requires Powerlink's immediate expensing capital expenditure by asset class on an 'as commissioned' basis. As Powerlink determines the capitalised overhead for the annual tax return based on an 'as incurred' basis and we do not allocate directly to asset classes, Powerlink's data is an estimate.

The historical data provided in Workbook 8 – Table 8.2.7 is consistent with the income tax returns lodged by Powerlink for the relevant regulatory years.

Methodology and Assumptions

Powerlink's immediate expensing of tax consists of capitalised labour and overheads for capital expenditure. Powerlink has no refurbishment capex.

The data reported in Workbook 8 – Table 8.2.7 represents the prescribed component of the capitalised labour and overhead immediate deduction.

Powerlink does not categorise capitalised labour overheads into asset classes. Therefore, we have apportioned the total immediate expensing capex amount across the asset classes from the AER's final Post Tax Revenue Model (PTRM) for 2018-22[32] based on the actual 'as commissioned' capex as reported in Powerlink's Roll Forward Model for the 2018-22 period, as published as part of its 2023-27 Revenue Proposal.

[32] Post Tax Revenue Model, 2018-22 Powerlink Final Decision, Australian Energy Regulator, April 2017.