



Powerlink

Transmission determination

2012–13 to 2016–17

April 2012

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Shortened forms

Shortened form	Full title
ABS	Australian Bureau of Statistics
AER	Australian Energy Regulator
AR	allowed revenue
CPI	consumer price index
2007–08 to 2011–12 regulatory control period	1 July 2007 to 30 June 2012
MAR	maximum allowed revenue
NER	National Electricity Rules
2012–13 to 2016–17 regulatory control period	1 July 2012 to 30 June 2017
opex	operating expenditure
Powerlink	Queensland Electricity Transmission Corporation Limited
RAB	regulatory asset base
TNSP	transmission network service provider
WACC	weighted average cost of capital

Summary

Clause 6A.13.4 of the National Electricity Rules (NER) requires the Australian Energy Regulator (AER) to make a transmission determination in relation to its final decision for Powerlink. In accordance with clause 6A.2.2 of the NER, this transmission determination consists of:

- a revenue determination for Powerlink in respect of the provision by Powerlink of prescribed transmission services
- a determination relating to Powerlink's negotiating framework
- a determination that specifies the negotiated transmission service criteria that apply to Powerlink
- a determination that specifies the pricing methodology that applies to Powerlink.

Revenue determination

In accordance with clause 6A.4.2(a) of the NER, the AER has determined a revenue determination specifying the following matters applicable to Powerlink for the 2012–13 to 2016–17 regulatory control period:

- the method for calculating the total revenue cap and the amount of the estimated total revenue cap
- annual building block revenue requirement for each regulatory year of the regulatory control period
- the method of calculating the maximum allowed revenue (MAR) for each regulatory year of the regulatory control period
- the method for indexation of the regulatory asset base (RAB)
- performance incentive scheme parameter values
- efficiency benefit sharing scheme parameter values
- commencement and length of regulatory control period
- other amounts, values and inputs used by the AER.

Negotiating framework

The NER requires certain transmission services (negotiated transmission services) to be provided on terms and conditions of access that are negotiated between the transmission network service provider (TNSP) and the service applicant. Each TNSP is required to prepare a negotiating framework, which sets out the procedure to be followed during negotiations. The negotiating framework must comply with and be consistent with:

- the applicable requirements of a transmission determination applying to the provider

- the minimum requirements for a negotiating framework, which are set out in clause 6A.9.5(c).

The document at part 2 of this transmission determination is the negotiating framework that the AER has determined will apply to Powerlink for the 2012–13 to 2016–17 regulatory control period.

Powerlink may seek to amend or replace its negotiating framework at the time it submits its revenue proposal for the regulatory control period commencing 1 July 2017, by submitting a new proposed negotiating framework in accordance with the NER as in force at that time.

Negotiated transmission service criteria

Clause 6A.9.4 requires the AER to set out the criteria that apply to a TNSP in negotiating the provision of negotiated transmission services, specifically:

- the terms and conditions of access for negotiated transmission services, including the prices that are to be charged
- access charges that are negotiated by the provider during that regulatory control period.

The criteria must also be applied by a commercial arbitrator to resolve disputes about negotiated transmission services, specifically:

- the terms and conditions of access for the negotiated transmission service, including the price that is to be charged for the provision of that service by the TNSP
- access charges that are to be paid to, or by, the TNSP.

The AER has determined that the negotiated transmission service criteria at part 3 of this transmission determination will apply to Powerlink for the 2012–13 to 2016–17 regulatory control period.

Pricing methodology

The NER defines a pricing methodology by the pricing principles as set out in rule 6A.23. Each TNSP is required to prepare a proposed pricing methodology which must give effect to and be consistent with the pricing principles for prescribed transmission services and must comply with the requirements of the AER's pricing methodology guidelines.

The document at part 4 of this transmission determination is the pricing methodology that the AER has determined will apply to Powerlink for the 2012–13 to 2016–17 regulatory control period.

1 Revenue

Method for calculating total revenue cap

The value of Powerlink's total revenue cap will be the sum of its maximum allowed revenues for each year of the 2012–13 to 2016–17 regulatory control period. The AER determines an estimated total revenue cap of \$4679.1 million (\$nominal) for Powerlink for the 2012–13 to 2016–17 regulatory control period.

Powerlink's annual building block revenue requirement

The AER determines the annual building block revenue requirements for Powerlink as shown in table 1.1.

Table 1.1 AER final determination on annual building block revenue requirement (\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Return on capital	553.3	610.8	657.7	688.8	723.6	3,234.1
Regulatory depreciation	41.0	53.6	77.3	95.2	104.7	371.8
Operating expenditure	181.8	193.7	203.7	216.9	229.0	1,025.1
Efficiency benefit sharing scheme (carryover amounts)	–2.7	– 0.7	– 3.0	2.3	–	–4.0
Net tax allowance	11.5	12.5	13.4	15.4	17.0	69.7
Annual building block revenue requirement (unsmoothed)	784.9	869.8	949.2	1,018.6	1,074.2	4,696.7

Source: AER analysis.

Method of calculating Powerlink's maximum allowed revenue

The AER has determined that the method of calculating Powerlink's MAR for each year of the 2012–13 to 2016–17 regulatory control period will be the sum of its allowed revenue (AR) for that year and adjustments arising from the AER's service target performance incentive scheme (STPIS) and any approved pass through amounts.

The AER determines Powerlink's AR for 2012–13 is \$835.0 million. The 2012–13 AR value may be adjusted for any service standards incentive rewards or penalties carried over from the 2007–08 to 2011–12 regulatory control period, as determined in accordance with the AER's 2007 revenue cap decision for Powerlink.

Powerlink's AR for subsequent years of the 2012–13 to 2016–17 regulatory control period requires an annual adjustment based on the previous year's AR and is calculated using the CPI-X methodology:

$$AR_t = AR_{t-1} \times (1 + \Delta CPI) \times (1 - X_t)$$

where:

AR	=	the allowed revenue
t	=	time period/financial year (for $t = 2, 3, 4, 5$)
ΔCPI	=	the annual percentage change in the ABS consumer price index (CPI) all groups, weighted average of eight capital cities from March in year $t - 2$ to March in year $t - 1$
X	=	the smoothing factor of 3.02 per cent.

The MAR is determined annually by adding to (or deducting from) the AR, the STPIS revenue increment (or revenue decrement) in accordance with clause 6A.7.4 of the NER, and any approved pass through amounts in accordance with clauses 6A.7.2 and 6A.7.3:¹

$$\begin{aligned} \text{MAR}_t &= \text{allowed revenue} + \text{performance incentive} + \text{pass through} \\ &= \text{AR}_t + \left(\frac{(\text{AR}_{t-1} + \text{AR}_{t-2})}{2} \times S_{ct} \right) + P_t \end{aligned}$$

where:

MAR	=	the maximum allowed revenue
AR	=	the allowed revenue
S	=	the revenue increment or decrement determined in accordance with the service target performance incentive scheme
P	=	the pass through amount that the AER has determined in accordance with clauses 6A.7.2 and 6A.7.3 of the NER
t	=	time period/financial year (for $t = 2, 3, 4, 5$)
ct	=	time period/calendar year (for $ct = 2, 3, 4, 5$).

Table 1.2 sets out the timing of the annual calculation of the AR and performance incentive.

¹ As required under clause 6A.24.4(c)(2)(iii) of the NER, a TNSP must also adjust the MAR for under or over recovery amounts in accordance with clause 6A.23.3(c)(2)(iii).

Table 1.2 Timing of the calculation of allowed revenues and the performance incentive

<i>t</i>	Allowed revenue (financial year)	<i>ct</i>	Performance incentive (calendar year)
2	1 July 2013–30 June 2014	2	1 January 2012–31 December 2012
3	1 July 2014–30 June 2015	3	1 January 2013–31 December 2013
4	1 July 2015–30 June 2016	4	1 January 2014–31 December 2014
5	1 July 2016–30 June 2017	5	1 January 2015–31 December 2015

Based on this methodology, the AER's forecast of Powerlink's annual expected MAR for the 2012–13 to 2016–17 regulatory control period (using a forecast CPI, and without revenue increment or decrement in accordance with the STPIS and pass through amounts) is shown in table 1.3.

Table 1.3 AER's forecast of the annual expected maximum allowed revenue for Powerlink (\$m, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
MAR (smoothed)	835.0	882.6	933.0	986.2	1042.4	4679.1

Source: AER analysis

Method for indexation of the regulatory asset base

The AER has determined that the method for indexing Powerlink's RAB for each year of the next regulatory control period will be the same as that used to escalate its AR for that relevant year—that is, to apply the annual percentage change in the most recently published Australian Bureau of Statistics' (ABS) CPI all groups, weighted average of eight capital cities. For Powerlink, this will be the March quarter CPI. This method will be used to roll forward Powerlink's RAB for the purposes of the AER's transmission revenue determination for the regulatory control period commencing on 1 July 2017.

Performance incentive scheme parameters

The AER has determined the values for the performance targets, caps, collars and weightings for each of the parameters for the service component and market impact component of the STPIS applicable to Powerlink for the 2012–13 to 2016–17 regulatory control period. These are shown in table 1.4 and 0.

Table 1.4 Powerlink service component performance targets, caps, collars and weightings to apply for the 2012–13 to 2016–17 regulatory control period

Service component parameters	Collar	Target	Cap	Weightings (per cent of MAR)
Transmission circuit availability parameter				
Peak transmission circuit availability (per cent)	98.31	98.76	99.20	0.10
Transmission line availability (per cent)	97.60	98.76	99.92	0.10
Transformer availability (per cent)	98.27	98.76	99.24	0.10
Reactive plant availability (per cent)	94.45	97.15	99.84	0.15
Loss of supply event frequency parameter				
>0.10 system minutes (number of events per annum)	6	4	2	0.15
>0.75 system minutes (number of events per annum)	2	1	0	0.30
Average outage duration parameter				
Average outage duration (minutes)	1306	859	412	0.10
Total service component weighting				1.00

n/a Not applicable.

Source: AER analysis.

Table 1.5 Powerlink market impact component performance target, cap and weighting to apply for the 2012–13 to 2016–17 regulatory control period

Market impact component parameter	Collar	Target	Cap	Weighting (per cent of MAR)
Market impact parameter (number of dispatch intervals)	n/a	1420	0	2.00

Source: AER analysis

Efficiency benefit sharing scheme parameters

The AER has determined the values for the efficiency benefit sharing scheme (EBSS) parameters that are to apply to Powerlink in the 2012–13 to 2016–17 regulatory control period, subject to adjustments required by the EBSS. These values are set out in table 1.6.

Table 1.6 AER forecast controllable opex for EBSS purposes (\$million, 2011–12)

	2012–12	2013–14	2014–15	2015–16	2015–17	Total
Forecast opex for EBSS purposes	162.7	168.6	172.3	178.7	183.4	865.8

To calculate EBSS carryover amounts, the AER will adjust total forecast opex using the method proposed by Powerlink in appendix Q to its revised regulatory proposal if:

- actual demand growth is less than the summer low economic growth 50 per cent probability of exceedance demand forecasts from its *Annual Planning Report 2011 Update* and actual total asset value is less than forecast, or
- actual demand growth is greater than the summer high economic growth 50 per cent probability of exceedance demand forecasts from its *Annual Planning Report 2011 Update* and actual total asset value is greater than forecast.

The AER will exclude the following cost categories from the EBSS for calculating EBSS carryovers:

- debt raising costs
- network support costs
- insurance costs
- self insurance costs
- movements in provisions.

Commencement and length of regulatory control period

The regulatory control period will be five years, commencing on 1 July 2012 and ending on 30 June 2017.

Other amounts, values and inputs

The AER has also determined the following values that could not be determined before the submission of the revenue proposal or were required to be estimated, approved or otherwise determined by the AER but are not so estimated, approved or otherwise determined before the submission of the revenue proposal. These are shown in table 1.7.

Table 1.7 Other amounts, values and inputs (per cent)

Parameter	Value
Nominal risk free rate	4.17
Inflation forecast	2.60
Debt risk premium	3.93
Effective tax rate	19.84
Cost of equity	9.37
Cost of debt	8.10
Nominal vanilla WACC (per cent)	8.61

Source: AER analysis

2 Negotiating framework



FRAMEWORK

Version 1.1

Negotiating Framework for Regulated Transmission Services

NEGOTIATING FRAMEWORK FOR NEGOTIATED TRANSMISSION SERVICES

Network Strategy & Performance			
Document identifier:	Powerlink Negotiating Framework for Negotiated Services Final - 26 April 2012	Authored by:	S Taylor Manager Network Customers
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1 PURPOSE

Background to Negotiating Framework

- A. The purpose of this document is to define Powerlink's Negotiating Framework for the provision of Negotiated Transmission Services to Service Applicants ("Service Applicants") as required under the National Electricity Rules ("NER").
- B. Clause 6A.9.5 of the NER provides that:
 - a. Transmission Network Service Providers ("TNSPs") must prepare a document setting out the procedure to be followed during negotiations between that provider and any person who wishes to receive a Negotiated Transmission Service from the provider, as to the terms and conditions of access for the provision of the service;
 - b. the negotiating framework must comply with and be consistent with the applicable requirements of a transmission determination applying to the provider; and
 - c. the negotiating framework must comply with and be consistent with the applicable requirements of clause 6A.9.5(c), which sets out the minimum requirements for a negotiating framework
- C. This document does not apply to Prescribed or Non-Regulated Transmission Services.
- D. Powerlink is registered with the Australian Energy Market Operator as a Transmission Network Service Provider.

Negotiating Framework

- E. This document is prepared to fulfil Powerlink's obligations under clause 6A.9.5 of the NER to establish a negotiating framework.
- F. This document applies to Powerlink and any Service Applicant who applies to receive a Negotiated Transmission Service.
- G. As defined in the NER¹ as, a Negotiated Transmission Service is any of the following Services:
 - a. a shared transmission service that:
 - i. exceeds the network performance requirements (whether as to quality or quantity) (if any) as that shared transmission service is required to meet under any jurisdictional electricity legislation; or
 - ii. except to the extent that the network performance requirements which that shared transmission service is required to meet are prescribed under any jurisdictional electricity legislation, exceeds or does not meet the network performance requirements (whether as to quality or quantity) as are set out in schedule 5.1 a or 5.1;

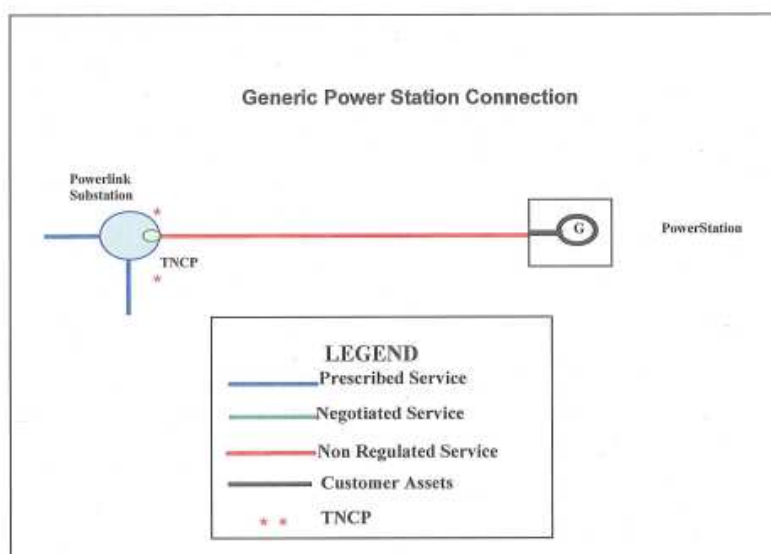
¹ NER, Version 43, commenced 21 April 2011.

- b. connection services that are provided to serve a Transmission Network User or group of Transmission Network Users, at a single transmission network connection point, other than connection services that are provided by one Network Service Provider to another Network Service Provider to connect their networks where neither of the Network Service Providers is a Market Network Service Provider; or
- c. use of system services provided to a Transmission Network User and referred to in rule 5.4A(3) in relation to augmentations or extensions required to be undertaken on a transmission network as described in rule 5.4A;

but does not include an above-standard system shared transmission service or a market network service.

2 SCOPE & CONTEXT

- H. The NER² provides that services that are not “negotiated” or not “prescribed” as defined in the Rules are expressly not subject to regulation under Chapter 6A. These services are therefore not subject to this Negotiating Framework.
- I. The distinction between the categories of service - prescribed, negotiated and non-regulated is shown diagrammatically below for a generic generator connection.



- J. The single line diagram above shows each of the prescribed, negotiated and non-regulated services for a generic radial line generator connection to the transmission network. This Negotiating Framework applies only to the provision of Negotiated Transmission Services.

² NER clause 6A.1.1(j)

3 NEGOTIATING FRAMEWORK

1. APPLICATION OF NEGOTIATING FRAMEWORK

- 1.1. This negotiating framework applies to Powerlink and each Service Applicant who has made an application in writing to Powerlink for the provision of a Negotiated Transmission Service.
- 1.2. Powerlink and any Service Applicant who wishes to receive a Negotiated Transmission Service from Powerlink must comply with the requirements of this negotiating framework in accordance with 6A.9.5 (e).
- 1.3. The requirements set out in this negotiating framework are additional to any requirements or obligations contained in Chapters 4, 5 and 6A of the NER. In the event of any inconsistency between this negotiating framework and any other requirements in the NER, the requirements of the NER will prevail.
- 1.4. Nothing in this negotiating framework or in the NER will be taken as imposing an obligation on Powerlink to provide any service to the Service Applicant.

2. OBLIGATION TO NEGOTIATE IN GOOD FAITH

- 2.1. Powerlink and the Service Applicant should negotiate in good faith the terms and conditions of access for the provision by Powerlink of the Negotiated Transmission Service sought by the Service Applicant.

3. TIMEFRAMES FOR COMMENCING, PROGRESSING AND FINALISING NEGOTIATIONS

- 3.1. Paragraphs 3.3 and 3.4 set out the timeframe for commencing, progressing and finalising negotiations in relation to applications for Negotiated Transmission Services under Chapter 5 of the NER, and for applications for Negotiated Transmission Services other than under Chapter 5 of the NER respectively.
- 3.2. The timeframes set out in paragraphs 3.3 and 3.4 may be suspended in accordance with paragraph 8.
- 3.3. Applications for Negotiated Transmission Services under Chapter 5 of the NER:
 - 3.3.1. Where the Negotiated Transmission Service is a service sought under Chapter 5, the specified time for commencing, progressing and finalising negotiations with a Service Applicant for the purposes of clause 6A.9.5 of the Rules is as set out in Chapter 5 of the NER; and
 - 3.3.2. Powerlink and the Service Applicant shall use reasonable endeavours to adhere to the time periods specified in paragraph 3.3.1 during the negotiation for the supply of the Negotiated Transmission Service.

- 3.4. Applications for Negotiated Transmission Services other than under Chapter 5 of the NER³:
- 3.4.1. Where the application is in respect of a Negotiated Transmission Service other than a connection service sought under Chapter 5, the specified time for commencing progressing and finalising negotiations with a Service Applicant for the purposes of clause 6A.9.5 of the Rules is as set out in Table 1.
- 3.4.2. Powerlink and the Service Applicant shall use reasonable endeavours to adhere to the time periods specified in Table 1.
- 3.4.3. The preliminary timeframes finalised under Step C in Table 1 may be modified from time to time by agreement of the parties. Such agreement must not be unreasonably withheld. Any such amendment to the preliminary timeframe shall be taken to be a reasonable period of time for commencing, progressing and finalising negotiations with a Service Applicant for the provision of the Negotiated Transmission Service for the purposes of 6A.9.5(c)(5) of the NER. The requirement in paragraph 3.4.2 applies to the last amended preliminary timeframe.

Table 1: Timeframes

	Event	Indicative Timeframe
A	Receipt of written application for a Negotiated Transmission Service.	X
B	Parties meet to discuss a preliminary timeframe with milestones for supply of the Negotiated Transmission Service that represent a reasonable period of time for commencing, progressing and finalising negotiations for the provision of the Negotiated Transmission Service.	X + 20 business days
C	Parties finalise the preliminary timeframe, which may include, without limitation, milestones relating to: the request and provision of commercial information; and Notification and consultation with AEMO and/or any affected Transmission Network Users.	X + 30 business days
D	Powerlink provides the Service Applicant with an offer for the Negotiated Transmission Service.	X + 120 business days
E	Parties finalise negotiations.	X + 160 business days

³ (i.e. services other than connection services, viz: shared transmission services or use of system services provided to a Transmission Network User and referred to in rule 5.4A(f)(3):

- 3.5. Subject to paragraph 3.3 and 3.4, Powerlink and the Service Applicant must, following a request by the Service Applicant, use their reasonable endeavours to:
- 3.5.1. hold a meeting within 20 Business Days of receipt of the written application by the Service Applicant, or such other period as agreed by the parties to agree a timetable for the conduct of negotiations and to commence discussion regarding other relevant issues;
 - 3.5.2. progress the negotiations for the provision of a Negotiated Transmission Service by Powerlink such that the negotiations may be finalised in accordance with paragraph 3.5.1;
 - 3.5.3. adhere to any timetable established for the negotiation and to progress the negotiation in an expeditious manner; and
 - 3.5.4. finalise the negotiations for the provision of a Negotiated Transmission Service by Powerlink within a time period agreed by the parties.
- 3.6. Notwithstanding paragraph 3.1, or any other provision of this negotiating framework, the timeframes set out in paragraphs 3.3 and 3.4:
- 3.6.1. do not commence until payment of the amount to Powerlink pursuant to paragraph 10; and
 - 3.6.2. recommence at Step A in Table 1 if there is a material change in the Negotiated Transmission Service sought by the Service Applicant, unless Powerlink agrees otherwise.

4. PROVISION OF INITIAL COMMERCIAL INFORMATION BY SERVICE APPLICANT

Obligation to provide Initial Commercial Information

- 4.1. Within a time agreed by the parties, Powerlink must use its reasonable endeavours to give notice to the Service Applicant requesting Commercial Information held by the Service Applicant that is reasonably required by Powerlink to enable it to engage in effective negotiations with the Service Applicant in relation to the application and to enable Powerlink to submit Commercial Information to the Service Applicant.
- 4.2. Subject to paragraphs 4.3 and 4.4, the Service Applicant must use its reasonable endeavours to provide Powerlink with the Commercial Information requested by Powerlink in accordance with paragraph 4.1 within 10 Business Days of that request, or within a time period agreed by the parties.
- 4.3. Notwithstanding paragraph 4.1, the obligation under paragraph 4.1 is suspended as at the date of notification of a dispute if a dispute under this negotiating framework arises, until conclusion of the dispute, in accordance with paragraph 9.

Confidentiality Requirements - Commercial Information

- 4.4. For the purposes of this paragraph 4, Commercial Information does not include:
- 4.4.1. confidential information provided to the Service Applicant by another person; or
 - 4.4.2. information that the Service Applicant is prohibited, by law, from disclosing to Powerlink.
- 4.5. Commercial Information may be provided by the Service Applicant subject to conditions including the condition that Powerlink must not disclose the Commercial Information to any other person unless the Service Applicant consents in writing to the disclosure. The Service Applicant may require Powerlink to enter into a confidentiality agreement, on terms reasonably acceptable to both parties, with the Service Applicant in respect of any Commercial Information provided to Powerlink.
- 4.6. A consent provided by the Service Applicant in accordance with paragraph 4.5 may be subject to the condition that the person to whom Powerlink discloses the Commercial Information must enter into a separate confidentiality agreement with the Service Applicant.

5. PROVISION OF ADDITIONAL COMMERCIAL INFORMATION BY THE SERVICE APPLICANT

Obligation to provide additional Commercial Information

- 5.1. Powerlink may give a notice to the Service Applicant requesting the Service Applicant to provide Powerlink with any additional Commercial Information that is reasonably required by Powerlink to enable it to engage in effective negotiations with the Service Applicant in relation to the provision of a Negotiated Transmission Service or to clarify any Commercial Information provided pursuant to paragraph 4.
- 5.2. The Service Applicant must use its reasonable endeavours to provide Powerlink with the Commercial Information requested by Powerlink in accordance with paragraph 5.1 within 10 Business Days of the date of the request under paragraph 5.1, or such other period as agreed by the parties.

Confidentiality requirements

- 5.3. For the purposes of this paragraph 5, Commercial Information does not include:
- 5.3.1. confidential information provided to the Service Applicant by another person; or
 - 5.3.2. information that the Service Applicant is prohibited, by law, from disclosing to Powerlink; and
- 5.4. Commercial Information may be provided by the Service Applicant subject to conditions including the condition that Powerlink must not disclose the Commercial Information to any other person unless the Service Applicant consents in writing to the disclosure. The Service Applicant may require Powerlink to enter into a confidentiality agreement, on terms reasonably

acceptable to both parties, with the Service Applicant in respect of any Commercial Information provided to Powerlink.

- 5.5. A consent provided by the Service Applicant in accordance with paragraph 5.4 may be subject to the condition that the person to whom Powerlink discloses the Commercial Information must enter into a separate confidentiality agreement with the Service Applicant.

6. PROVISION OF COMMERCIAL INFORMATION BY POWERLINK

Obligation to provide Commercial Information

- 6.1. Powerlink shall provide the Service Applicant with all Commercial Information and clarification of that information where requested (including additional commercial information) held by Powerlink that is reasonably required by a Service Applicant (including by request) to enable it to engage in effective negotiations with Powerlink for the provision of a Negotiated Transmission Service. This information is to be provided within 10 business days of the date of the request or such other period agreed by the parties, including the following information:
- 6.1.1. a description of the nature of the Negotiated Transmission Service including what Powerlink would provide to the Service Applicant as part of that service;
 - 6.1.2. the terms and conditions on which Powerlink would provide the Negotiated Transmission Service to the Service Applicant;
 - 6.1.3. (i) the reasonable costs and/or the increase or decrease in costs (as appropriate) of providing the Negotiated Transmission Service to the Service Applicant; and
(ii) a demonstration to the Service Applicant that the charges for providing the Negotiated Transmission Service reflect those costs and/or the cost increase or decrease (as appropriate).

Confidentiality requirements

- 6.2. For the purposes of paragraph 6.1, Commercial Information does not include:
- 6.2.1. confidential information provided to Powerlink by another person; or
 - 6.2.2. information that Powerlink is prohibited, by law, from disclosing to the Service Applicant.
- 6.3. Powerlink may provide the Commercial Information in accordance with paragraph 6.1 subject to relevant conditions including the condition that the Service Applicant must not disclose the Commercial Information to any other person unless Powerlink consents in writing to the disclosure. Powerlink may require the Service Applicant to enter into a confidentiality agreement with Powerlink, on terms reasonably acceptable to both parties, in respect of Commercial Information provided to the Service Applicant.
- 6.4. A consent provided by a Service Applicant in accordance with paragraph 6.3 may be subject to the condition that the person to whom the Service Applicant discloses the Commercial Information must enter into a separate confidentiality agreement with Powerlink.

7. DETERMINATION OF IMPACT ON OTHER TRANSMISSION NETWORK USERS AND CONSULTATION WITH AFFECTED TRANSMISSION NETWORK USERS

- 7.1. Powerlink should determine the potential impact on Transmission Network Users, other than the Service Applicant, of the provision of the Negotiated Transmission Service.
- 7.2. Powerlink should notify and consult with any affected Transmission Network Users and ensure that the provision of the Negotiated Transmission Service does not result in non-compliance with obligations in relation to other Transmission Network Users under the NER.

8. SUSPENSION OF TIMEFRAME FOR PROVISION OF A NEGOTIATED TRANSMISSION SERVICE

- 8.1. The timeframes for negotiation of provision of a Negotiated Transmission Service as contained within this negotiating framework, or as otherwise agreed between the parties, are suspended if:
 - 8.1.1. within 15 Business Days of Powerlink providing the Commercial Information to the Service Applicant pursuant to paragraph 6.1. the Service Applicant does not formally accept that Commercial Information and the parties have not agreed a date for the undertaking and conclusion of commercial negotiations;
 - 8.1.2. a dispute in relation to the Negotiated Transmission Service has been notified to the AER under clause 6A.30.1, from the date of notification of that dispute to the AER until:
 - (a) the withdrawal of the dispute under clause 6A.30.1(c) of the NER;
 - (b) the termination of the dispute by the commercial arbitrator in accordance with clause 6A.30.5 (d) or (e) of the NER; or
 - (c) determination of the dispute by the commercial arbitrator under clause 6A.30.7 (b) of the NER;
 - 8.1.3. within 10 Business Days of Powerlink requesting additional Commercial Information from the Service Applicant pursuant to paragraph 5, the Service Applicant has not supplied that Commercial Information;
 - 8.1.4. without limiting paragraphs 8.1.1 to 8.1.3, either of the parties does not promptly conform with any of its obligations as required by this negotiating framework or as otherwise agreed by the parties;
 - 8.1.5. Powerlink has been required to notify and consult with any affected Transmission Network Users under paragraph 7.2 or AEMO at any time, from the date of notification to the affected Transmission Network Users or AEMO until the end of the time limit specified by Powerlink for any affected Transmission Network Users or AEMO, or the receipt of such information from the affected Transmission Network Users or AEMO, whichever is the later regarding the provision of the Negotiated Transmission Service.

9. DISPUTE RESOLUTION

- 9.1. All disputes between the parties as to the terms and conditions of access for the provision of a Negotiated Transmission Service are to be dealt with in accordance with Part K of Chapter 6A of the NER.

10. PAYMENT OF POWERLINK'S COSTS

- 10.1. Prior to commencing negotiations, the Service Applicant shall pay an application fee to Powerlink. Where the application is for a Negotiated Transmission Service under Chapter 5 of the NER, this payment is made in accordance with clause 5.3.3(c)(5).
- 10.2. The application fee lodged pursuant to paragraph 10.1 will be deducted from the reasonable Costs incurred in processing the Service Applicant's application to Powerlink for the provision of a Negotiated Transmission Service.
- 10.3. From time to time, Powerlink may give the Relevant Service Applicant a notice setting out the reasonable Costs incurred by Powerlink and the off-set of any amount applicable under paragraph 10.1.
- 10.4. If the aggregate of the Costs exceed the amount paid by the Service Applicant pursuant to paragraph 10.1, the Service Applicant must, within 20 Business Days of the receipt of a notice in accordance with paragraph 10.3, pay Powerlink the amount stated in the notice.
- 10.5. Powerlink may require the Service Applicant to enter into a binding agreement addressing conditions, guarantees and other matters in relation to the payment of on-going Costs.

11. TERMINATION OF NEGOTIATIONS

- 11.1. The Service Applicant may elect not to continue with its application for a Negotiated Transmission Service and may terminate the negotiations by giving Powerlink written notice of its decision to do so.
- 11.2. Powerlink may terminate a negotiation under this framework by giving the Service Applicant written notice of its decision to do so where:
- 11.2.1. Powerlink believes on reasonable grounds⁴ that the Service Applicant is not conducting the negotiation under this negotiating framework in good faith;
- 11.2.2. the Service Applicant consistently fails to comply with the requirements of the negotiating framework;

⁴ Reasonable grounds would include for example the Service Applicant not contacting or responding to Powerlink's request for a period of 6 months. If an application for a Negotiated transmission Service is terminated, it must recommence at Step A in Table 1



- 11.2.3. the Service Applicant fails to comply with an obligation in this negotiating framework to undertake or complete an action within a specified or agreed timeframe, and does not complete the relevant action within 20 Business Days of a written request from Powerlink; or
- 11.2.4. an act of Solvency Default occurs in relation to the Service Applicant.

12. GIVING NOTICES

- 12.1. A notice, consent, information, application or request that must or may be given or made to a party under this document is only given or made if it is in writing and delivered or posted to that party at its address set out below.

If a party gives the other party 5 Business Days' notice of a change of its address, a notice, consent, information, application or request is only given or made by that other party if it is delivered or posted to the latest address.

Powerlink

Name: Manager Network Customers
Address: Powerlink Queensland
33 Harold Street
Virginia QLD 4014

Service Applicant

Name: Service Applicant
Address: The nominated address of the Service Applicant
provided in writing to Powerlink as part of the application

Time notice is given

- 12.2. A notice, consent, information, application or request is to be treated as given or made at the following time:
- 12.2.1. if it is delivered, when it is left at the relevant address;
- 12.2.2. if it is sent by post, 2 Business Days after it is posted;
- 12.2.3. if sent by facsimile transmission, on the day the transmission is sent (but only if the sender has a confirmation report specifying a facsimile number of the recipient, the number of pages sent and the date of transmission); or
- 12.2.4. if sent by email, once acknowledged as received by the addressee.



If a notice, consent, information, application or request is delivered after the normal business hours of the party to whom it is sent, it is to be treated as having been given or made at the beginning of the next Business Day.

13. DEFINITIONS AND INTERPRETATION

Definitions

13.1. In this document the following definitions apply:

Business Day	means a day on which all banks are open for business generally in Brisbane, Queensland.
Commercial Information	shall include as a minimum, the following classes of Information: <ul style="list-style-type: none">• details of corporate structure;• financial details relevant to creditworthiness and commercial risk;• ownership of assets;• technical information relevant to the application for a Negotiated Transmission Service;• financial information relevant to the application for a Negotiated Transmission Service;• details of an application's compliance with any law, standard, NER or guideline.
Costs	means any costs or expenses incurred by Powerlink in complying with this negotiating framework or otherwise advancing the Service Applicant's request for the provision of a Negotiated Transmission Service.
Powerlink	means Queensland Electricity Transmission Corporation Limited trading as Powerlink Queensland, ACN 078 849 233.
Solvency Default	means the occurrence of any of the following events in relation to the Service Applicant: <ul style="list-style-type: none">a. An originating process or application for the winding up of the Service Applicant (other than a frivolous or vexatious application) is filed in a court or a special resolution is passed to wind up the Service Applicant, and is not dismissed before the expiration of 40 Business Days from service on the Service Applicant;b. A receiver, receiver and manager or administrator is appointed in respect of all or any part of the assets of the Service Applicant, or a provisional liquidator is appointed to the Service Applicant;c. A mortgagee, chargee or other holder of security, by itself or by or through an agent, enters into possession of all or any part of the assets of the Service Applicant;

- d. A mortgage, charge or other security is enforced by its holder or becomes enforceable or can become enforceable with the giving of notice, lapse of time or fulfilment of a condition;
- e. The Service Applicant stops payment of, or admits in writing its inability to pay its debts as they fall due;
- f. The Service Applicant applies for, consents to, or acquiesces in the appointment of a trustee or receiver of the Service Applicant or any of its property;
- g. A court appoints a liquidator, provisional liquidator, receiver or trustee, whether permanent or temporary, of all or any part of the Service Applicant's property;
- h. The Service Applicant takes any step to obtain protection or is granted protection from its creditors under any applicable legislation or a meeting is convened or a resolution is passed to appoint an administrator or controller (as defined in the *Corporations Act 2001*), in respect of the Service Applicant;
- i. A controller (as defined in the *Corporations Act 2001*) is appointed in respect of any part of the property of the Service Applicant;
- j. Except to reconstruct or amalgamate while solvent, the Service Applicant enters into or resolves to enter into a scheme of arrangement, compromise or reconstruction proposed with its creditors (or any class of them) or with its members (or any class of them) or proposes re-organisation, re-arrangement moratorium or other administration of the Service Applicant's affairs;
- k. The Service Applicant is the subject of an event described in section 459C(2)(b) of the *Corporations Act 2001*; or
- l. Anything analogous or having a substantially similar effect to any of the events specified above happens in relation to the Service Applicant.

Interpretation

13.2. In this document, unless the context otherwise requires:

- 13.2.1. terms defined in the NER have the same meaning in this negotiating framework;
- 13.2.2. a reference to any law or legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision;
- 13.2.3. a reference to any agreement or document is to that agreement or document as amended, novated, supplemented or replaced from time to time;
- 13.2.4. a reference to a paragraph, part, schedule or attachment is a reference to a paragraph, part, schedule or attachment of or to this document unless otherwise stated;
- 13.2.5. an expression importing a natural person includes any company, trust, partnership, joint venture, association, corporation, body corporate or governmental agency; and
- 13.2.6. a covenant or agreement on the part of two or more persons binds them jointly and severally.

4 LEGISLATION AND STANDARDS

The following legislation and standards are applicable:

- *National Electricity Rules – Chapter 6A, 5 and 4*
- *Competition and Consumer Act 2010*



5 AUTHORISATION


.....
Manager, Network Customers


.....
Date


.....
Manager, Network Strategy & Performance


.....
Date

3 Negotiated transmission service criteria

3.1 National electricity objective

1. The terms and conditions of access for a negotiated transmission service, including the price that is to be charged for the provision of that service and any access charges, should promote the achievement of the national electricity objective.

3.2 Criteria for terms and conditions of access

Terms and conditions of access

2. The terms and conditions of access for a negotiated transmission service must be fair, reasonable, and consistent with the safe and reliable operation of the power system in accordance with the NER.
3. The terms and conditions of access for a negotiated transmission service (including, in particular, any exclusions and limitations of liability and indemnities) must not be unreasonably onerous taking into account the allocation of risk between the TNSP and the other party, the price for the negotiated transmission service and the costs to the TNSP of providing the negotiated transmission service.
4. The terms and conditions of access for a negotiated transmission service must take into account the need for the service to be provided in a manner that does not adversely affect the safe and reliable operation of the power system in accordance with the NER.

Price of services

5. The price for a negotiated transmission service must reflect the costs that the TNSP has incurred or incurs in providing that service, and must be determined in accordance with the principles and policies set out in the Cost Allocation Methodology.
6. Subject to criteria 7 and 8, the price for a negotiated transmission service must be at least equal to the avoided cost of providing that service but no more than the cost of providing it on a stand alone basis.
7. If the negotiated transmission service is a shared transmission service that:
 - i. exceeds any network performance requirements which it is required to meet under any relevant electricity legislation; or
 - ii. exceeds the network performance requirements set out in schedule 5.1a and 5.1 of the NERthen the difference between the price for that service and the price for the shared transmission service which meets network performance requirements must reflect the TNSP's incremental cost of providing that service (as appropriate).
8. If the negotiated transmission service is the provision of a shared transmission service that does not meet or exceed the network performance requirements, the difference between the price for that service and the price for the shared transmission service which

meets, but does not exceed, the network performance requirements should reflect the amount of the TNSP's avoided cost of providing that service (as appropriate).

9. The price for a negotiated transmission service must be the same for all Transmission Network Users unless there is a material difference in the costs of providing the negotiated transmission service to different Transmission Network Users or classes of Transmission Network Users.
10. The price for a negotiated transmission service must be subject to adjustment over time to the extent that the assets used to provide that service are subsequently used to provide services to another person, in which case such adjustment must reflect the extent to which the costs of that asset is being recovered through charges to that other person..
11. The price for a negotiated transmission service must be such as to enable the TNSP to recover the efficient costs of complying with all regulatory obligations associated with the provision of the negotiated transmission service.

3.3 Criteria for access charges

Access charges

12. Any access charges must be based on costs reasonably incurred by the TNSP in providing Transmission Network User access and (in the case of compensation referred to in clauses 5.4A(h) to (j) of the NER) on the revenue that is likely to be foregone and the costs that are likely to be incurred by a person referred to in clauses 5.4A(h) to (j) of the NER where an event referred to in those paragraphs occurs (as appropriate).

4 Pricing methodology



METHODOLOGY

Version 1.0

Powerlink Proposed Pricing Methodology

PROPOSED PRICING METHODOLOGY 1 JULY 2012 TO 30 JUNE 2017

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Powerlink Proposed Pricing Methodology

For information about Powerlink visit www.powerlink.com.au.

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Powerlink Proposed Pricing Methodology

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Powerlink Proposed Pricing Methodology

1 INTRODUCTION

Powerlink is the principal electricity *Transmission Network Service Provider (TNSP)* in Queensland.

This proposed *pricing methodology*, for the regulatory period from 1 July 2012 to 30 June 2017, is submitted to the Australian Energy Regulator (AER) in accordance with the requirements of Chapter 6A of the National Electricity Rules (the Rules) and the AER's *pricing methodology guidelines*.

2 INTERPRETATION

All terms in this proposed *pricing methodology* that are italicised have the meaning given to them in the *pricing methodology guidelines* or, where no definition is provided in that document, the Rules.

A reference to the Rules is taken to be a reference to the current version of the National Electricity Rules, version 43, which commenced operation on 21 April 2011 as amended from time to time.

3 PRESCRIBED TRANSMISSION SERVICES

Powerlink's proposed *pricing methodology* relates to the provision of *prescribed transmission services* in the Queensland region by Powerlink. These services include:

- Shared transmission services provided to customers directly connected to the transmission network and connected network service providers (*prescribed TUOS services*);
- Connection services provided to connect the distribution networks such as Ergon Energy and Energex to the transmission network (*prescribed exit services*);
- Grandfathered connection services provided to generators and customers directly connected to the transmission network for connections that were in place or committed to be in place on 9 February 2006 (*prescribed entry services* and *prescribed exit services*); and
- Services required under the Rules or in accordance with jurisdictional electricity legislation that are necessary to ensure the integrity of the transmission network, including the maintenance of power system security and assisting in the planning of the power system (*prescribed common transmission services*).

Powerlink's proposed *pricing methodology* does not relate to the provision of *negotiated transmission services* or other *transmission services* provided by Powerlink (non-regulated transmission services) that are not subject to economic regulation under the Rules.



Powerlink Proposed Pricing Methodology

4 RULES REQUIREMENTS

Rule 6A.24.1 states that a *pricing methodology* is a methodology, formula, process or approach that, when applied by a TNSP:

- (1) allocates the *aggregate annual revenue requirement (AARR)* for *prescribed transmission services* provided by that provider to:
 - (i) the *categories of prescribed transmission services* for that provider; and
 - (ii) *transmission network connection points of Transmission Network Users*; and
- (2) determines the structure of the prices that a *Transmission Network Service Provider* may charge for each of the *categories of prescribed transmission services* for that provider.

The Rules also require that the *pricing methodology* satisfy principles and guidelines established by the Rules. In particular, Rule 6A.10.1(e) requires that a proposed *pricing methodology* must:

- (1) give effect to and be consistent with the *Pricing Principles for Prescribed Transmission Services* (i.e. the principles set out in Rule 6A.23); and
- (2) comply with the requirements of, and contain or be accompanied by such information as is required by, the *pricing methodology guidelines* made for that purpose under Rule 6A.25.

5 PRICING METHODOLOGY GUIDELINES REQUIREMENTS

The *pricing methodology guidelines* supplement and elaborate on the pricing principles contained in Chapter 6A of the Rules in so far as they specify or clarify:

- the information that is to accompany a proposed *pricing methodology*;
- permitted pricing structures for the recovery of the locational component of *prescribed TUOS services*;
- permitted postage stamp pricing structures for the recovery of the adjusted non-locational component of *prescribed TUOS services* and *prescribed common transmission services*;
- the types of *transmission system* assets that are *directly attributable* to each category of *prescribed transmission services*; and
- the parts of a proposed *pricing methodology*, or the information accompanying it that will not be publicly disclosed without the consent of the TNSP.



Powerlink Proposed Pricing Methodology

All key elements of Powerlink's *proposed pricing methodology* are permissible under the *pricing methodology guidelines*. These elements include:

- calculation of the locational component of *prescribed TUOS services* costs using the *cost reflective network pricing methodology*;
- the locational *prescribed TUOS services* price being based on an agreed nominated demand and the *average-half hourly demand*;
- the postage stamp pricing structures for the non-locational component of *prescribed TUOS services* and *prescribed common transmission services* being based on *contract agreed maximum demand* or historical energy;
- the methodology for implementation of the priority ordering being the priority ordering approach under Rule 6A.23.2(d);
- a description of how asset costs which may be attributable to both *prescribed entry services* and *prescribed exit services* will be allocated at a connection point;
- a description of billing arrangements under Rule 6A.27;
- a description of prudential requirements as outlined in Rule 6A.28;
- the inclusion of hypothetical worked examples; and
- a description of how Powerlink intends to monitor and develop records of its compliance with its approved *pricing methodology*, the pricing principles for *prescribed transmission services* (Rule 6A.23) and part J of the Rules in general.



Powerlink Proposed Pricing Methodology

6 PROPOSED PRICING METHODOLOGY

6.1 Background

The diagram in Appendix A outlines the structure of transmission pricing under part J of the Rules that is applicable to this proposed *pricing methodology*.

6.2 Single Transmission Network Service Provider

Powerlink is the sole provider of *prescribed transmission services* within Queensland and is responsible for the allocation of the *AARR* within Queensland, in accordance with Rule 6A.29.2.

6.3 Aggregate Annual Revenue Requirement (AARR)

The revenue that a *TNSP* may earn in any *regulatory year* of a *regulatory control period* from the provision of *prescribed transmission services* is known as the *maximum allowed revenue*¹.

The *AARR* is calculated in accordance with Rule 6A.22.1 as:

"the *maximum allowed revenue* referred to in clause 6A.3.1 adjusted:

- (1) in accordance with clause 6A.3.2, and
- (2) by subtracting the operating and maintenance costs expected to be incurred in the provision of *prescribed common transmission services*."

Adjustments in accordance with Rule 6A.3.2 could relate to a number of factors including reopening of the revenue determination for capital expenditure, network support pass through, cost pass through, service target performance incentive scheme outcomes, contingent projects or impacts due to wrong information or error.

The costs referred in (2) above are derived from budget projections and include:

- network switching and operations;
- administration and management of the business;
- network planning and development; and
- general overheads.

¹ Rule 6A.3.1



Powerlink Proposed Pricing Methodology

6.4 Categories of transmission services

Powerlink's AARR is recovered from transmission charges for the following categories of transmission services:

- **Prescribed entry services**, are entry services that are *prescribed transmission services* by virtue of the operation of Rule 11.6.11 which include assets that are directly attributable to serving a Generator or group of Generators at a single connection point;
- **Prescribed exit services**, which include assets that are directly attributable to serving a *Transmission Customer* or group of *Transmission Customers* at a single connection point and: (a) are deemed prescribed by virtue of the operation of Rule 11.6.11; or (b) are provided to Distribution Network Service Providers at the boundary of the prescribed transmission network;
- **Prescribed common transmission services**, which are services that provide equivalent benefits to all *Transmission Customers* without any differentiation based on their location, and therefore cannot be reasonably allocated on a locational basis; and
- **Prescribed TUOS services**, which include services that provide benefits to *Transmission Customers* depending on their location within the transmission system, that are shared to a greater or lesser extent by all users across the *transmission system* and are not *prescribed common transmission services*, *prescribed entry services* or *prescribed exit services*.

The determination of prescribed transmission service prices involves four steps:

- (1) allocation of the costs of transmission system assets to the categories of transmission service, to the extent to which assets are directly attributable to the provision of a *category of prescribed transmission services* (Section 6.5);
- (2) calculation of the *attributable cost shares* (Section 6.6);
- (3) allocation of the AARR to each category of *prescribed transmission services* in accordance with the attributable cost share for that category of services (Section 6.7); and
- (4) allocation of the *annual service revenue requirement (ASRR)* for *prescribed entry services*, *prescribed exit services* and *prescribed TUOS services* to each transmission network connection point in accordance with the principles of Rule 6A.23.3 (Section 6.8).

Each step is described in further detail below.



Powerlink Proposed Pricing Methodology

6.5 Cost allocation

The **first step** in calculating prescribed transmission service prices is to allocate the costs of *transmission system* assets to the categories of transmission service in section 6.4 above, to the extent to which assets are *directly attributable* to the provision of a category of *prescribed transmission services*.

The delineation between the assets that provide *prescribed entry services*, *prescribed exit services*, *prescribed TUOS services* and *prescribed common transmission services* is set out in clause 2.4 of the *pricing methodology guidelines*.

The Powerlink cost allocation process assigns the optimised replacement cost (ORC)² of all *prescribed transmission services* assets to individual network pricing branches. Each network pricing branch is then defined as common, connection (entry or exit) or shared network. The pricing branches are used to determine the costs of the *transmission system* assets directly attributable to each *category of prescribed transmission services*, as required under Chapter 6A of the Rules. This cost allocation process is explained in more detail in Appendix B.

6.6 Calculation of the attributable cost share for each category of service

The **second step** in calculating prescribed transmission service prices is the calculation of the *attributable cost shares*. The *attributable cost share* for each *category of prescribed transmission services* is calculated in accordance with Rule 6A.22.3, as the ratio of:

- (1) the costs of the *transmission system* assets directly attributable to the provision of that *category of prescribed transmission services*; to
- (2) the total costs of all of Powerlink's *transmission system* assets directly attributable to the provision of *prescribed transmission services*,

where these amounts are determined as detailed in section 6.5 above.

For example, if the ORC's of prescribed services assets have been allocated to the applicable categories of *prescribed transmission services* as shown in Table 1 then the *attributable costs shares* are calculated as shown in the hypothetical example below. All numbers and amounts used in the hypothetical examples in the paper are fictional:

$$\begin{aligned}\text{Attributable cost share}_{\text{EXIT}} &= \text{ORC}_{\text{EXIT}} / \text{ORC}_{\text{TOTAL}} \\ &= \$6,972,222 / \$43,050,000 \\ &= 0.162\end{aligned}$$

with the *attributable cost shares* of the other categories calculated in the same manner, as shown in Table 2.

² Consistent with Rule 6A.22.3(b).



Powerlink Proposed Pricing Methodology

Table 1: Hypothetical costs allocated to categories of prescribed transmission services

Category	ORC
Exit service	6,972,222
Entry service	1,761,111
TUOS service	33,566,667
Common Service	750,000
Total	43,050,000

Table 2: Hypothetical attributable cost shares

Category	ORC	Attributable cost share
Exit service	6,972,222	0.162
Entry service	1,761,111	0.041
TUOS service	33,566,667	0.780
Common Service	750,000	0.017
Total	43,050,000	1.000

6.7 Calculation of the Annual Service Revenue Requirement (ASRR)

The **third step** in calculating prescribed transmission service prices is to allocate the *AARR* to each *category of prescribed transmission services* in accordance with the *attributable cost share* for that category of services.

This allocation results in the *ASRR* for each *category of prescribed transmission services*.

Assuming an *AARR* of \$2,504,434 and applying the *attributable cost shares* determined above, the *ASRR* for each category of prescribed services is calculated as:

$$\begin{aligned} ASRR_{\text{EXIT}} &= AARR \times \text{Attributable cost share}_{\text{EXIT}} \\ &= \$2,504,434 \times 0.162 \\ &= \$405,609 \end{aligned}$$

with the *ASRRs* of the other categories calculated in the same manner.

Powerlink Proposed Pricing Methodology

Table 3: Hypothetical Annual Service Revenue Requirements

Category	Attributable cost share	Annual Service Revenue Requirement (ASRR)
Exit service	0.162	405,609
Entry service	0.041	102,453
TUOS service	0.780	1,952,741
Common Service	0.017	43,631
Total	1.000	2,504,434

6.8 Allocation of the ASRR to transmission network connection points

The **fourth step** in calculating prescribed transmission service prices is to allocate the ASRR for *prescribed entry services*, *prescribed exit services* and *prescribed TUOS services* to each transmission network connection point in accordance with the principles of Rule 6A.23.3.

6.8.1 Prescribed entry services

The whole of the ASRR for *prescribed entry services* is allocated to each transmission network connection point in accordance with the *attributable connection point cost share* for *prescribed entry services* that are provided by the TNSP at that connection point.

The *attributable connection point cost share* for *prescribed entry services* is the ratio of the costs of the *transmission system assets directly attributable* to the provision of *prescribed entry services* at that transmission network connection point to the total costs of all the TNSP's *transmission system assets directly attributable* to the provision of *prescribed entry services*.

For example, if two generators, Gen A1 and Gen A2 receive *prescribed entry services* and the cost allocation process has allocated the ORCs of assets *directly attributable* to *prescribed entry services* to them as shown in Table 4.

$$\begin{aligned}
 \text{Attributable connection point cost share}_{\text{GEN A1}} &= \text{ORC}_{\text{GEN A1}} / \text{ORC}_{\text{ENTRY}} \\
 &= \$1,033,333 / \$1,761,111 \\
 &= 0.587
 \end{aligned}$$

with the *attributable connection point cost share* of the other generator being calculated in the same manner as shown in Table 5.



Powerlink Proposed Pricing Methodology

Table 4: Hypothetical prescribed entry services ORCs

Entry	ORC
Gen A1	1,033,333
Gen A2	727,778
Total ORC of prescribed entry assets	1,761,111

Table 5: Hypothetical attributable connection point cost shares

Entry	ORC	Attributable connection point cost share
Gen A1	1,033,333	0.587
Gen A2	727,778	0.413
Total	1,761,111	1.000

The ASRR allocated to the Gen A1 transmission network connection point is calculated as follows:

$$\begin{aligned} ASRR_{\text{GEN A1}} &= ASRR_{\text{ENTRY}} \times \text{Attributable connection point cost share}_{\text{GEN A1}} \\ &= \$102,453 \times 0.587 \\ &= \$60,114 \end{aligned}$$

with the ASRR of the other generator connection point being calculated in the same manner.

Table 6: Hypothetical connection point ASRRs (entry)

Entry	ORC	Attributable connection point cost share	Connection point ASRR
Gen A1	1,033,333	0.587	60,114
Gen A2	727,778	0.413	42,338
Total	1,761,111	1.000	102,453

6.8.2 Prescribed exit services

The whole of the ASRR for *prescribed exit services* is allocated to each transmission network connection point in accordance with the *attributable connection point cost share* for *prescribed exit services* that are provided by the TNSP at that connection point.

The attributable connection point cost share for *prescribed exit services* is the ratio of the costs of the *transmission system assets directly attributable* to the provision of *prescribed exit services* at that transmission network connection point to the total costs of all the *transmission system assets directly attributable* to the provision of *prescribed exit services*.

Powerlink Proposed Pricing Methodology

The ASRRs of the prescribed exit connection points are calculated in the same manner as for the prescribed entry connection points.

Table 7: Hypothetical Connection point ASRRs (exit)

Exit	ORC	Attributable connection point cost share	Connection point ASRR
Load A1	2,083,333	0.299	121,198
Load A2	1,405,556	0.202	81,768
Load B1	2,633,333	0.378	153,194
Load C1	850,000	0.122	49,449
Total	6,972,222	1.000	405,609

6.8.3 Prescribed Transmission Use of System (TUOS) services

The prescribed TUOS (shared network) services ASRR is recovered from:

- *Prescribed TUOS services* (locational component); and
- *Prescribed TUOS services* (the adjusted non-locational component).

6.8.3.1 Prescribed TUOS services – locational component

Rule 6A.23.3(c)(1) requires that:

"a share of the ASRR (the locational component) is to be adjusted by subtracting the estimated *auction amounts* expected to be distributed to the TNSP under clause 3.18.4 from the *connection points* for each relevant *directional interconnector* and this adjusted share is to be allocated as between such *connection points* on the basis of the estimated proportionate use of the relevant *transmission system* assets by each of those customers, and the *CRNP methodology* and *modified CRNP methodology* represent two permitted means of estimating proportionate use".

Consistent with Rule 6A.23.3(c)(1), the locational share of the *prescribed TUOS services* ASRR is adjusted for estimated inter-regional settlements residue proceeds, and the adjusted share is allocated between connection points on the basis of the estimated proportionate use of the relevant *transmission system* assets by each customer using the *CRNP methodology*.

The *CRNP methodology* allocates shared network costs to individual customer connection points on the basis of optimised replacement costs and assumes a 50 - 50 split between the locational and non-locational components of network charges.

Powerlink applies the *CRNP methodology* using the TPRICE *cost reflective network pricing* software approved by the AER for use by TNSPs in the NEM.

Powerlink Proposed Pricing Methodology

The *CRNP methodology* requires three sets of input data:

- an electrical (loadflow) model of the network;
- a cost model of the network (the results of the cost allocation process described in Appendix B); and
- an appropriate set of load/ generation patterns.

Appendix C describes the *CRNP methodology* in more detail.

6.8.3.2 Prescribed TUOS services – non- locational component

The remainder of the *ASRR* (the pre-adjusted non-locational component) is adjusted:

- by subtracting the amount (if any) referred to in Rule 6A.23.3(e);
- by subtracting or adding any remaining *settlements residue* (not being *settlements residue* referred to in the determination of the locational component but including the portion of *settlements residue* due to *intra-regional loss factors*) which is expected to be distributed or recovered (as the case may be) to or from the *TNSP* in accordance with Rule 3.6.5(a);
- for any *over-recovery amount* or *under-recovery amount* from previous years;
- for any amount arising as a result of the application of Rule 6A.23.4(h) and (i), which detail adjustments so that prices for recovering the locational component of the *ASRR* for the provision of *prescribed TUOS services* do not change by more than 2% per annum compared to the load weighted average price for this component for the relevant region; and
- for any amount arising as a result of the application of prudent discounts in accordance with Rule 6A.26.1(d)–(g).

6.9 Transmission prices and charges

6.9.1 Prescribed entry and exit services prices and charges

Prescribed entry services and *prescribed exit services* prices are calculated to recover the *prescribed entry and prescribed exit services ASRRs* from the network users who are served by the relevant connection assets.

The *prescribed entry services ASRR* is recovered as a fixed annual charge for each entry point, which is recovered on the basis of a fixed \$/month entry price.

Similarly, the *prescribed exit services ASRR* is recovered as a annual monthly charge for each exit point, which is recovered on the basis of a fixed \$/month exit price.



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6.9.2 Prescribed TUOS services – locational component prices and charges

The prescribed TUOS locational ASRR described in 6.8.3 is recovered through a single demand based price at each connection point. The price is based on the sum of the average half-hourly demand and the nominated demand, reflecting the greatest utilisation of the *transmission network* and times for which network investment is most likely to be contemplated, in accordance with Rule 6A.23.4(e) and 2.2(a) of the *pricing methodology guidelines*.

The CRNP methodology outlined in S6A.3 of the Rules and detailed in Appendix C of this proposed *pricing methodology* describes the process for cost allocation for the locational component of *prescribed TUOS services*, which results in a lump sum dollar amount to be recovered at each connection point.

This lump sum dollar amount for each connection point is divided by the sum of the average half hourly demand and the nominated demand, and then divided by twelve to calculate the monthly locational price for that particular connection point³. Prices for *prescribed TUOS services* are expressed in \$/kW/month.

As provided for under Rule 6A.23.4(f), TUOS locational prices must not change by more than 2% per annum at connection points relative to the load weighted average TUOS locational price for the region. The balance of any revenue shortfall or over recovery resulting from these price caps is recovered, or offset as appropriate, by adjusting TUOS non-locational prices and charges.

As further provided for under Rule 6A.23.4(g) the change specified above "may exceed 2 per cent per annum if, since the last prices were set:

- (1) the load at the connection point has materially changed;
- (2) in connection with that change, the *Transmission Customer* requested a renegotiation of its connection agreement with the *Transmission Network Service Provider*; and
- (3) the AER has approved the change of more than 2 per cent per annum."

This provision sets the prescribed TUOS locational price at a connection point with a material change in load, on the same basis as a new connection point.

Prescribed TUOS locational charges are determined, for each connection point providing *prescribed TUOS services* by multiplying the prescribed TUOS locational price by the sum of the agreed nominated demand (prevailing at the time transmission prices are published) and the measured average half-hourly demand for that month for that connection point, in accordance with 2.2(h) of the *pricing methodology guidelines*.

³ The connection point for the purposes of determining the prescribed TUOS prices and prescribed TUOS charges will be the agreed point (or points) of supply between Powerlink and the transmission network user.



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6.9.3 Prescribed TUOS services – non-locational component prices and charges

Prices for recovery of the adjusted non-locational component of *prescribed TUOS services* are set on a postage stamp basis in accordance with Rule 6A.23.4(j).

Consistent with the provisions of 2.3(c)(1) of the *pricing methodology guidelines* postage stamped prices are determined on the basis of *contract agreed maximum demand* or historical energy and calculated annually as follows.

Each financial year Powerlink will determine the following two prices to apply at every connection point:

- an energy based price that is a price per unit of historical metered energy or current metered energy at a connection point expressed as c/kWh; and
- a *contract agreed maximum demand* price that is a price per unit of *contract agreed maximum demand* at a connection point expressed as \$/kW/month.

Either the energy based price or the *contract agreed maximum demand* price will apply at a connection point providing *prescribed TUOS services* except for those connection points where a transmission customer has negotiated reduced charges for the adjusted non-locational component of *prescribed TUOS services* in accordance with Rule 6A.26.1 (prudent discounts).

The energy based price and the *contract agreed maximum demand* price is determined so that:

- a transmission customer with a load factor in relation to its connection point equal to the median load factor for connection points with transmission customers connected to the transmission network in the region or regions is indifferent between the use of the energy based price and the *contract agreed maximum demand* price; and
- the total amount to be recovered by the adjusted non-locational component of *prescribed TUOS services* does not exceed the ASRR for this category of prescribed transmission service.

When applying the energy based price, the prescribed TUOS charge (non-locational component) for a billing period is calculated for each connection point by:

- multiplying the energy based price by the metered energy offtake at that connection point in the corresponding billing period two years earlier (i.e. *historical metered energy offtake*); or
- multiplying the energy based price by the metered energy offtake at that connection point in the same billing period (*current metered energy offtake*) if the *historical metered energy offtake* is unavailable; or
- multiplying the energy based price by the current metered energy offtake if the historical metered energy offtake is significantly different to the current metered energy off take. This method of calculation is only expected to be applied where the



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conditions necessary to enact Rule 6A.23.4(g)⁴ have been satisfied or a connection point is operated in a standby arrangement as detailed in section 6.10 of this *pricing methodology*.

When applying the *contract agreed maximum demand* price, the prescribed TUOS – non-locational component charge for a billing period will be calculated for each connection point by multiplying the *contract agreed maximum demand* price by the *contract agreed maximum demand* for the *connection point* (prevailing during the billing period concerned).

Forecast prescribed TUOS non-locational charges will be calculated using the *contract agreed maximum demand* prevailing at the time prices are determined as distinct from the actual *contract agreed maximum demand* based charges which will be calculated using the *contract agreed maximum demand* prevailing during the billing period concerned.

Any over or under recovery of prescribed revenue arising from variances between forecast *contract agreed maximum demands* and the *contract agreed maximum demands* used for calculating charges will be addressed by way of an under or over recovery adjustment when calculating prices for the following financial year.

6.9.4 Prescribed common service prices and charges

Prices for *prescribed common transmission services* are set on a postage stamp basis in accordance with Rule 6A.23.4(d).

Consistent with the provisions of clause 2.3(c)(1) of the *pricing methodology guidelines* postage stamped prices will be determined on the basis of *contract agreed maximum demand* or historical energy and calculated in a manner identical to that described for TUOS non-locational charges in the previous section.

In accordance with Rule 6A.23.3(f) the operating and maintenance costs expected to be incurred in the provision of *prescribed common transmission services*, which are deducted from the *maximum allowed revenue* to form the *AARR*, are added to the *ASRR* for *prescribed common transmission services* and recovered through *prescribed common service* prices and charges.

6.10 Standby service arrangements

If a customer requires a connection point to provide energy from the transmission network on a standby basis, such as to cover the outage of onsite generation, the customer will pay *prescribed exit services* charges and *prescribed TUOS services* – locational component charges as usual, but will only pay *prescribed TUOS services* – non-locational component charges and *prescribed common transmission services* charges during times that the standby service is actually utilised in energy delivery to the customer.

More specifically, prescribed transmission charges will be determined as follows:

- *Prescribed exit service* charges: as detailed in section 6.9.1;

⁴ That being the clause which allows for the relaxation of the side constraints on TUOS locational prices at a connection point.



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- Prescribed TUOS locational charges: based on the prevailing *contract agreed maximum demand* and *prescribed TUOS services* – locational component price as detailed in section 6.9.2, and
- Postage stamped prescribed TUOS non-locational service charges and prescribed common transmission service charges: based on *current metered energy offtake* in the billing period as detailed in sections 6.9.3 and 6.9.4.

Where standby arrangements are required, the customer's connection agreement must specify a *contract agreed maximum demand* and excess demand charges as detailed in section 6.11 will apply.

6.11 Excess demand charge

Where the customer's actual maximum demand exceeds the *contract agreed maximum demand* level at any time during the financial year and the customer has a *contract agreed maximum demand* in their Connection and Access Agreement (C&AA), then an excess demand charge applies and the actual maximum demand will become the *contract agreed maximum demand*, in accordance with the customer's connection agreement.

Powerlink will recover from the customer the incremental charges for the increased *contract agreed maximum demand* for the financial year.

The excess demand charge is determined in accordance with the customer's connection agreement.

6.12 Setting of TUOS locational prices between annual price publications

In the event that Powerlink is required to set a TUOS locational price at a new connection point or at a connection point where the load has changed significantly after prescribed TUOS service locational prices have been determined and published, an interim price, not subject to the side constraints of Rule 6A.23.4(f), will be determined⁵. This will be calculated using the prevailing pricing models with demands estimated in a manner consistent with clause 2.2(f) of the *pricing methodology guidelines*.

If a new *transmission network connection point* requires substantial investment in the network, Powerlink may adjust the TUOS locational price for the first year. This would be undertaken to ensure customers not associated with the investment are not adversely affected consistent with Section 11 of this *pricing methodology*.

A price subject to the side constraints of Rule 6A.23.4(f) will be determined and published at the next annual price determination.

⁵ For an existing connection point this would be subject to Rule 6A.23.4(g).



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7 BILLING ARRANGEMENTS

7.1 Billing for prescribed transmission services

Consistent with Rule 6A.27.1, Powerlink will calculate the transmission service charges payable by *Transmission Network Users* for each connection point in accordance with the transmission service prices published under Rule 6A.24.2.

Where charges are determined for *prescribed transmission services* from metering data, these charges will be based on kW or kWh obtained from the metering data managed by AEMO.

Powerlink will issue invoices to *Transmission Network Users* for *prescribed transmission services* which satisfy or exceed the minimum information requirements specified in Rule 6A.27.2 on a monthly basis or as specified in the transmission connection agreement.

Consistent with Rule 6A.27.3, a *Transmission Network User* must pay charges for *prescribed transmission services* properly charged to it and billed in accordance with this *pricing methodology* by the date specified on the invoice.

7.2 Payments between Transmission Network Service Providers

If another *TNSP* is granted a Transmission Authority and is registered as a *Transmission Network Service Provider* by AEMO in the Queensland region, consistent with Rule 6A.27.4, one *TNSP* will become the *Co-ordinating Network Service Provider* under Rule 6A.29.1. The *TNSPs* will pay to each other relevant *TNSP* the revenue which is estimated to be collected during the following year by the first provider as charges for *prescribed transmission services* for the use of transmission systems owned by those other *TNSPs*.

Such payments will be determined by the *Co-ordinating Network Service Provider* for the region.

Financial transfers payable under Rule 6A.27.4 will be paid in equal monthly instalments or as documented in revenue collection agreements negotiated between the parties.



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8 PRUDENTIAL REQUIREMENTS

8.1 Prudential requirements for prescribed transmission services

Consistent with Rule 6A.28.1, Powerlink may require a *Transmission Network User* to establish prudential requirements for either or both connection services and transmission use of system services. These prudential requirements may take the form of, but need not be limited to, capital contributions, pre-payments or financial guarantees.

The requirements for such prudential requirements will be negotiated between the parties and specified in the applicable transmission connection agreement.

8.2 Capital contribution or prepayment for a specific asset

Powerlink notes that no capital contributions or prepayments have been made in respect of *prescribed transmission services* assets as at the date of this proposed *pricing methodology*.

Consistent with Rule 6A.28.2, where Powerlink is required to construct or acquire specific assets to provide prescribed connection services or *prescribed TUOS services* to a *Transmission Network User*, Powerlink may require that user to make a capital contribution or prepayment for all or part of the cost of the new assets installed.

In the event that a capital contribution is required, any contribution made will be taken into account in the determination of prescribed transmission service prices applicable to that user by way of a proportionate reduction in the ORC of the asset(s) used for the allocation of prescribed charges or as negotiated between the parties.

In the event that a prepayment is required, any prepayment made will be taken into account in the determination of prescribed transmission service prices applicable to that user in a manner to be negotiated between the parties.

The treatment of such capital contributions or prepayments for the purposes of a revenue determination will in all cases be in accordance with the relevant provisions of the Rules.

9 PRUDENT DISCOUNTS

Powerlink expects to have an approved prudent discount in place during the period over which the *pricing methodology* applies.

In accordance with Rule 6A.26.1(d)-(g), Powerlink adjusts both the non-locational component of the *ASRR* for *prescribed TUOS services* and prescribed common transmission services to provide for the amount of any anticipated under-recovery arising from prudent discounts.

The discount amount is the difference in revenue that would be recovered by the application of the maximum prices to the application of the reduced charges. Where Powerlink seeks to recover greater than 70 percent of the discount amount through these charges, Powerlink will apply to the *AER* for approval to recover the proposed recovery amount in accordance with Rule 6A.26.2.



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10 MONITORING AND COMPLIANCE

As a regulated business Powerlink is required to maintain extensive compliance monitoring and reporting systems to ensure compliance with its Transmission Authority, Revenue Determination and the Rules together with numerous other legislative obligations.

In order to monitor and maintain records of its compliance with its approved *pricing methodology*, the pricing principles for *prescribed transmission services*, and part J of the Rules, Powerlink proposes to:

- Maintain the specific obligations arising from part J of the Rules in its compliance management system;
- Maintain electronic records of the annual calculation of prescribed transmission service prices and supporting information; and
- Periodically subject its transmission pricing models and processes to functional audit by suitably qualified persons.

11 NEW CONNECTIONS REQUIRING SIGNIFICANT INVESTMENT

11.1 Impact on TUOS locational prices in cases of significant investment

If a new *transmission network connection point* requires significant investment in the network, Powerlink may determine the TUOS locational price for the first year in accordance with the method in Section 11.2, to ensure customers who do not directly benefit from with the investment are not directly or materially affected, for example, by an inequitable increase in the locational price and charges.

11.2 Setting TUOS locational prices in the first year of significant investment

In the event that a significant investment occurs, Powerlink may determine the locational TUOS prices for the new transmission network connection point(s) using cost reflective network pricing and not apply the 2% side constraint at the new connection point(s) relative to the load weighted average TUOS locational price for the region, as described in Section 6.9.2.

12 ADDITIONAL INFORMATION REQUIREMENTS

A number of additional information requirements arise from the *pricing methodology guidelines* which have not been covered elsewhere in this proposed *pricing methodology*. In order to satisfy these requirements Powerlink notes that it does not:

- consider transitional arrangements are necessary as a result of the implementation of the proposed *pricing methodology*;



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- have any applicable relevant derogations in accordance with chapter 9 of the Rules; or
- have any applicable transitional arrangements arising from chapter 11 of the Rules.

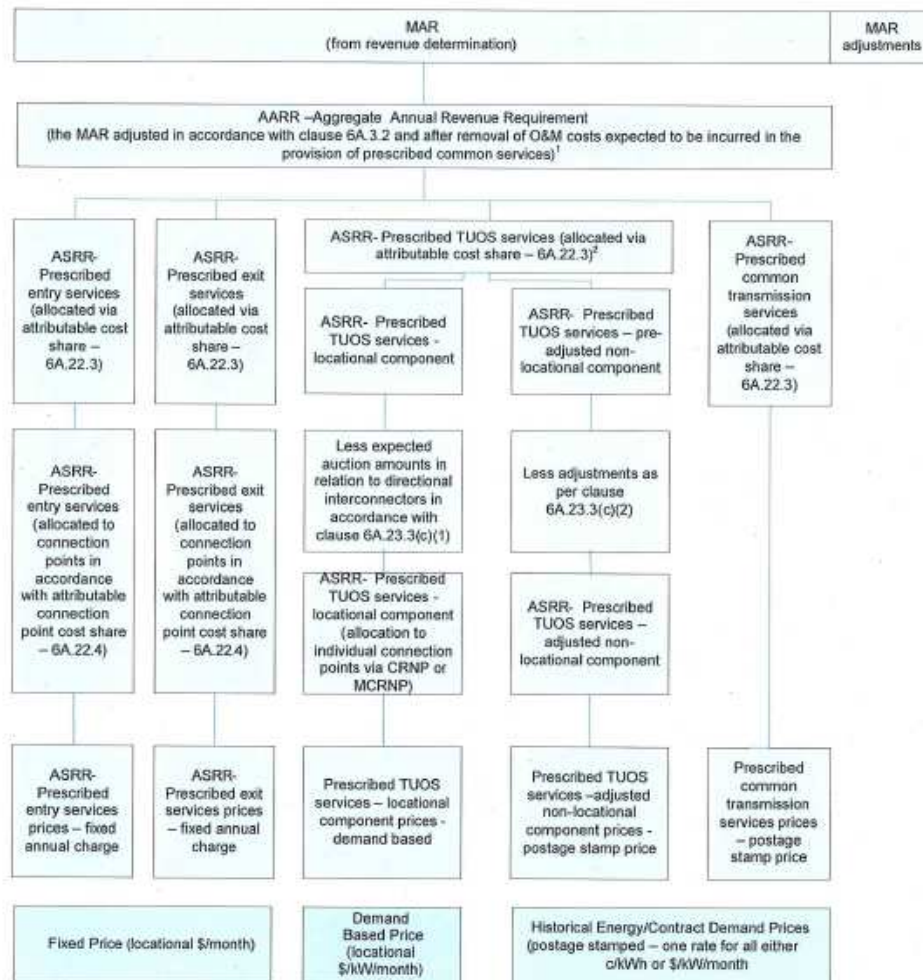
Powerlink has not provided a confidential version of this proposed *pricing methodology* to the AER in accordance with clause 2.5 of the *pricing methodology guidelines* and hence the provisions of clause 2.1(n) of the *pricing methodology guidelines* are not applicable.

13 CONCLUSION

Powerlink's proposed *pricing methodology* for the regulatory control period from 1 July 2012 to 30 June 2017 has been submitted to the AER in accordance with the requirements of Chapter 6A of the Rules and the *pricing methodology guidelines*.

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Appendix A- Structure of Transmission Pricing under Part J of Rules



¹ These operating and maintenance costs are not part of the AARR, nor are they part of the ASRR for prescribed common transmission services, however they are recovered on a postage stamp basis.

² Shares of the ASRR for prescribed TUOS services are to be allocated 50% to the locational component and 50% to the pre-adjusted non-location component or using an alternative allocation as per Rule 6A.23.3(d)(2).



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Appendix B - Details of Cost Allocation Process

A cost allocation process is used to assign the optimised replacement cost (ORC) of all prescribed service assets to either common service (assets that benefit all transmission customers), network branches (transmission lines or transformers)⁶ and prescribed entry or prescribed exit services in a manner consistent with Section 2.4 of the *pricing methodology guidelines*.

The cost allocation process is summarised as follows:

Step 1: Initial Cost Allocation

Assets and their ORCs are assigned to one of the following primary asset categories:

- transmission lines;
- transformers;
- circuit breakers;
- secondary systems, including protection and instrument transformers;
- common service assets (communications, reactive support, office buildings etc); and
- substation local assets (ancillary equipment, civil work, and establishment).

The following plant items are not separately identified in the ORC database and are incorporated into the ORC of the associated primary items above:

- bus work.

Step 2: Allocation to Categories of Transmission Services

Assets are allocated to the categories of prescribed service in accordance with the provisions of Section 2.4 of the *pricing methodology guidelines*. In the case of circuit breakers each circuit breaker has its replacement cost divided evenly between the branches to which it is *directly attributable*. Any circuit breaker that is not *directly attributable* to any branch together with substation local costs identified in step 1 are subject to the priority ordering process.

In the case of a shared connection asset, such as a transformer, serving multiple transmission connection points which may provide both *prescribed entry services* and *prescribed exit services* the cost of the shared connection asset will be allocated to the

⁶ Powerlink maintains an optimised replacement cost (ORC) model of the transmission network to determine the appropriate ORC of individual transmission lines, transformers, circuit breakers, common service assets and substation local costs.



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appropriate category or categories of *prescribed transmission services* using an appropriate cost allocator⁷. For example:

- generation or reactive plant nameplate rating capacity or nominated demand supplied by the specified transmission category as a percentage of the total capacity and demand of all transmission categories at that location; Costs are attributable based on the capacity and/or nominated demand;
- unit of plant method: Costs are allocated based on the number of units of plant installed (typically circuit breakers) where these units of plant can be attributed to a particular category of transmission service; or
- as negotiated between the connecting parties.

This process would also be adopted to allocate shared costs to individual connection points.

Step 3: Priority Ordering

In the case of those costs which would be attributable to more than one category of *prescribed transmission services*, specifically the substation local assets identified in Step 1 and those circuit breakers identified as substation local costs in Step 2, costs will be allocated in accordance with the provisions of Rule 6A.23.2(d) having regard to the stand alone costs associated with the provision of *prescribed TUOS services* and *prescribed common transmission services* with the remainder being allocated to *prescribed entry services* and *prescribed exit services*. The implementation of the priority ordering process is detailed in Appendix D.

Conclusion

The shared network costs resulting from the cost allocation process are used as input to TPRICE, the *Cost Reflective Network Pricing* software that is approved by the AER for use by TNSPs in the NEM.

The entry, exit and common service costs are used as input to the calculation of *prescribed entry services prices*, *prescribed exit services prices* and *prescribed common transmission services prices*.

⁷ This is consistent with Powerlink's cost allocation methodology which is used to allocate costs between *prescribed transmission services*, *negotiated transmission services* and *non-regulated transmission services*.

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Appendix C - Cost Reflective Network Pricing Methodology

Steps

The *cost reflective network pricing methodology (CRNP methodology)* involves the following steps:

- (1) determining the annual costs of the individual transmission network assets in the optimised transmission network;
- (2) determining the proportion of each individual network element utilised in providing a transmission service to each point in the network for specified operating conditions;
- (3) determining the maximum flow imposed on each transmission element by load at each connection point;
- (4) allocating the costs attributed to the individual transmission elements to loads based on the proportionate use of the elements; and
- (5) determining the total cost (lump sum) allocated to each point by adding the share of the costs of each individual network element attributed to each point in the network.

Allocation of Generation to Load

A major assumption in the use of the *CRNP methodology* is the definition of the generation source and the point where load is taken. The approach is to use the "electrical distance" to pair generation to load, in which a greater proportion of load at a particular location is supplied by generators that are electrically closer than those that are electrically remote. In electrical engineering terminology the "electrical distance" is the impedance between the two locations, and this can readily be determined through a standard engineering calculation called the "fault level calculation".

Once the assumption has been made as to the generators that are supplying each load for a particular load and generation condition (time of day) it is possible to trace the flow through the network that results from supplying each load (or generator). The use made of any element by a particular load is then simply the ratio of the flow on the element resulting from the supply to this load to the total use of the load made by all loads and generators in the system.

Operating Conditions for Cost Allocation

The choice of operating conditions is important in developing prices using the *CRNP methodology*. Powerlink has flexibility in the choice of operating conditions but notes that the old NER set out the principles that should apply in determining the sample of operating conditions considered. Of particular note is the requirement that the operating conditions to be used are to include at least 10 days with high system demand, to ensure that loading conditions, which impose peak flows on all transmission elements, are captured.



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Schedule 6A.3.2(3) is less prescriptive requiring that the allocation of dispatched generation to loads be over a range of actual operating conditions from the previous financial year and that the range of operating scenarios is chosen so as to include the conditions that result in most stress on the transmission network and for which network investment may be contemplated.

Load and generation data

Clause 2.2(a) of the *pricing methodology guidelines* requires that prices for the recovery of the locational component of *prescribed TUOS services* are based on demand at times of greatest utilisation of the transmission network and for which network investment is most likely to be contemplated, in accordance with Rule 6A.23.4(e).

The use made of the network by particular loads and generators will vary considerably depending on the load and generation conditions on the network. For this reason Powerlink uses the full year of operating data (i.e. 365 days of half hourly data) as an appropriate set of operating conditions. The TPRICE capacity method of cost allocation (used by Powerlink) automatically captures the peak loading conditions on network elements from the sample of operating conditions analysed.

Consistent with clause 2.2(f) of the *pricing methodology guidelines* where actual operating conditions from the previous complete financial year are unavailable for a connection point, as would be the case for a new connection point, an estimate based on the *contract agreed maximum demand* and other characteristics of the load would be used to allocate costs to that connection point.



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Appendix D - Priority Ordering Methodology

Rules Requirements

Rule 6A.23.2 (d) requires that:

Where, as a result of the application of the *attributable cost share*, a portion of the AARR would be attributable to more than one category of *prescribed transmission services*, that *attributable cost share* is to be adjusted and applied 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:

- (1) to the provision of *prescribed TUOS services*, but only to the extent of the *stand-alone amount* for that category of *prescribed transmission services*;
- (2) if any portion of the costs of a *transmission system asset* is not allocated to *prescribed TUOS services*, under subparagraph (1), that portion is to be allocated to *prescribed common transmission services*, but only to the extent of the *stand-alone amount* for that category of *prescribed transmission services*; and
- (3) if any portion of the costs of a *transmission system asset* is not attributed to *prescribed transmission services* under subparagraphs (1) and (2), that portion is to be attributed to *prescribed entry services* and *prescribed exit services*.

Stand-alone amount is defined as:

For a category of *prescribed transmission services*, the costs of a *transmission system asset* that would have been incurred had that *transmission system asset* been developed, exclusively to provide that category of *prescribed transmission services*.

Transitional Rule 11.6.11(c) states the following:

"For the purposes of new Chapter 6A:

- (1) the costs of the *transmission system assets* that from time to time may be treated as:
 - (i) directly attributable to the provision of a prescribed connection service; or
 - (ii) incurred in providing a prescribed connection service,to a *Transmission Network User* or a group of *Transmission Network Users* at a *transmission network connection point* is limited to the costs of the eligible assets which, from time to time, provide that prescribed connection service;
- (2) any costs of an existing asset or a replacement asset (or of any portion of an existing asset or a replacement asset) that:
 - (i) is not an eligible asset (other than as a result of clause 11.6.11(d)); and



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(ii) is used by a *Transmission Network Service Provider* to provide *connection services* to a *Transmission Network User* or a group of *Transmission Network Users* at a *transmission network connection point*,

must be treated as costs that are directly attributable to the provision of, or are incurred in providing, *prescribed TUOS services* and, to avoid doubt, the services provided by those assets which would otherwise be *connection services* are taken to be *prescribed TUOS services*; and

- (3) the *stand-alone amount* for *prescribed TUOS services* is taken to include any portion of the costs referred to in clause 11.6.11(c)(2) that has not been allocated under clause 6A.23.2(d)(1)."

Objective and General Approach

The allocation methodology relies on the assumption that substation infrastructure and establishment costs are proportionate to the number of high voltage circuit breakers in the substation.

Based on this assumption the appropriate allocator for substation infrastructure and establishment costs for a stand-alone arrangement is the ratio of the number of high voltage circuit breakers⁸ in the stand-alone arrangement to the number of high voltage circuit breakers in the whole substation.

Proposed Methodology

Step 1: Branch Identification

Identify the branches⁹, being the lines, transformers, major reactive devices and exits/entries in the substation which provide *prescribed TUOS*, *prescribed common transmission services* and exit or entry services, in the substation.

Step 2: Allocation of Circuit Breakers to Branches

For each high voltage circuit breaker in the substation identify the branches directly connected to it. Any circuit breaker that does not directly connect to a branch is excluded from allocation and all costs associated with it are added to the substation infrastructure and establishment cost.

Count the total number of circuit breakers directly connected to branches.

Distribution Network Service Providers (DNSPs) are classified as a *prescribed exit service* while Generators are classified as a *prescribed entry service*. Negotiated services are not

⁸ Low voltage circuit breakers are not considered in the standalone arrangements.

⁹ Described in Definition - Branches.



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part of the regulated asset base and fall outside the priority ordering process detailed in Rule 6A.23.2(d).

Step 3.1: Stand-alone arrangements for Prescribed TUOS

With reference to the number of lines providing *prescribed TUOS services* determine the number of circuit breakers required to provide TUOS services of an equivalent standard on a stand-alone basis¹⁰. The stand-alone configuration is the simplest substation configuration (in the absence of development) had it been developed to provide a *prescribed TUOS service*. This may be done by way of a look up of typical stand-alone configurations.

Step 3.2: Stand-alone arrangements for Prescribed common transmission services

With reference to the number of lines providing *prescribed TUOS services* and the devices providing *prescribed common service* determine the number of circuit breakers required to provide *prescribed common transmission services* of an equivalent standard on a stand-alone basis. The stand-alone configuration is the simplest substation configuration (in the absence of development) had it been developed to provide a *prescribed common service*. This may be done by way of a look up of typical stand-alone configurations.

Step 4: Allocation of substation infrastructure and establishment costs

Step 4.1 Allocation of Prescribed TUOS

Allocate a portion of substation infrastructure and establishment costs to prescribed TUOS according to the ratio of the high voltage circuit breakers identified in step 3.1 to the total number of high voltage circuit breakers connected to branches in the substation identified in step 2.

Step 4.2 Calculation of the Unallocated Substation Infrastructure Costs (after TUOS Allocation)

Calculate the unallocated substation infrastructure cost (after TUOS allocation) by subtracting the amount calculated in step 4.1 from the total substation infrastructure amount.

Step 4.3 Allocation of Prescribed Common Service

Allocate a portion of the substation infrastructure and establishment costs to prescribed common service based on to the ratio of the high voltage circuit breakers providing prescribed common transmission services identified in step 3.2 to the total number of high voltage circuit breakers connected to branches in the substation. If the common service portion of substation infrastructure is greater than the unallocated costs, then the unallocated portion only is attributed to prescribed common service. In this instance, nothing will be attributed to prescribed entry and *prescribed exit services*.

¹⁰ A substation would typically not exist to provide TUOS services alone, however this interpretation is inconsistent with the intent of the Rule. Accordingly standalone arrangements for prescribed TUOS are taken to require a level of switching consistent with the prevailing bus arrangements.

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Step 4.4 Calculation of the Unallocated Substation Infrastructure Costs (after Common Service Allocation)

Calculate the unallocated substation infrastructure cost (after Common Service allocation) by subtracting the amount calculated in step 4.3 from the amount calculated in step 4.2.

Step 4.5 Allocation of Prescribed Entry and Exit Service costs to Prescribed TUOS per 11.6.11

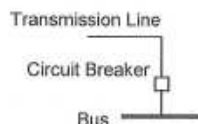
Allocate the remaining substation infrastructure and establishment costs (calculated in step 4.4) to each branch providing *prescribed TUOS services* based on the ratio of the high voltage circuit breakers providing the *prescribed TUOS services* to the branch to the total number of high voltage circuit breakers providing *prescribed TUOS services* or in accordance with the cost allocation process in Appendix B as appropriate.

Notes

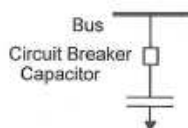
- Costs are only allocated in step 4 until fully allocated.
- Consistent with Rule 6A.23.2(d)(3) it is possible that no costs will be attributed to entry and exit services.
- New and existing negotiated service assets are excluded from the analysis as any incremental establishment costs associated with them are taken to be included in the negotiated services charges on a causation basis.
- The assessment of standalone arrangements only needs to be conducted once per substation except where changes to the configuration of the substation occur.

Definition - Branches

As illustrated by the diagrams below a "Branch" is a collection of assets (e.g. lines, circuit breakers, capacitors, buses and transformers) that provide a transmission service.



Branch with Transmission Line, Bus and Circuit Breaker



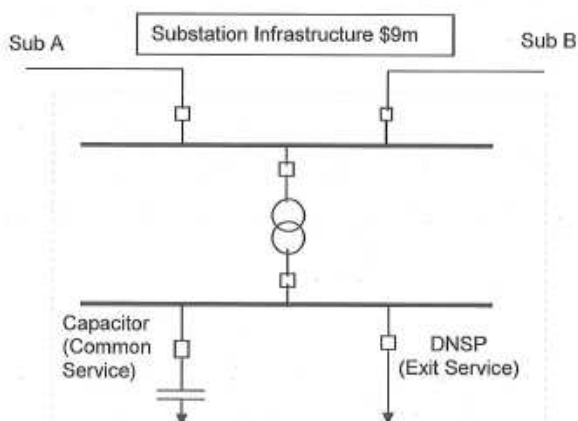
Branch with Capacitor, Circuit Breaker and Bus

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Examples

Example A

Substation Configuration



Step 1: The branches are Sub A, Sub B, DNSP, Tie Transformer and *Prescribed Common Service*.

Step 2: The total number of circuit breakers directly connected to branches is 6.

Step 3.1: The stand-alone arrangement for the provision of *prescribed TUOS services* to an equivalent standard is shown below and consists of 2 circuit breakers.

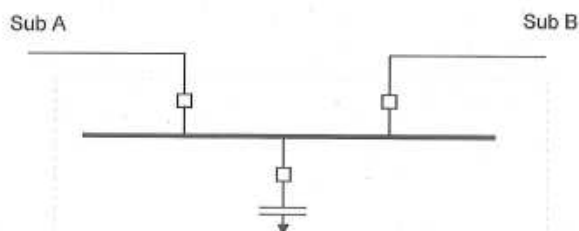
Stand Alone Prescribed TUOS Service



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Step 3.2: The stand-alone arrangement for the provision of *prescribed common transmission services* to an equivalent standard is shown below and consists of 3 circuit breakers.

Stand Alone Prescribed Common Service



Step 4:

Assume total Infrastructure cost is \$9m.

Costs are allocated to prescribed TUOS in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost Allocated to TUOS = $(2/6) \times \$9\text{m} = \3m

Unallocated Substation Infrastructure Costs (after TUOS allocation) = $\$9\text{m} - \$3\text{m} = \$6\text{m}$

Costs are allocated to *prescribed common service* in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost allocated to Common Service = $(3/6) \times \$9\text{m} = \4.5m

Unallocated Substation Infrastructure Costs (after Common Service allocation)
= $\$6\text{m} - \$4.5\text{m} = \$1.5\text{m}$

Remainder of unallocated (calculated above) to be allocated to *prescribed TUOS per 11.6.11*

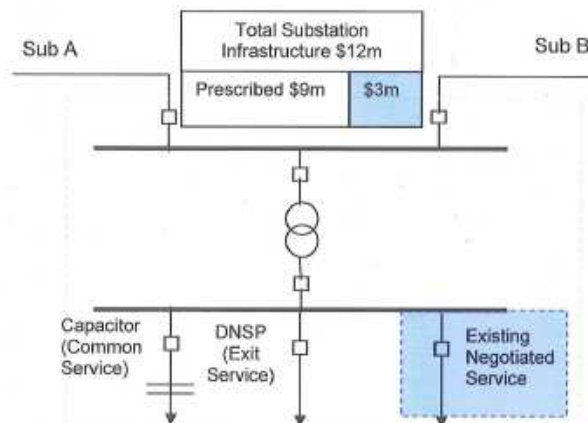
Infrastructure Cost allocated to prescribed TUOS = \$1.5m

Item	Number	Allocation	Unallocated
Substation infrastructure costs		9,000,000	9,000,000
Total Breakers	6		
TUOS Stand-alone breakers	2		
Share to TUOS (a)	0.333	3,000,000	6,000,000
Common Service stand-alone breakers	3		
Share to Common Service	0.500	4,500,000	1,500,000
Share to TUOS (b)		1,500,000	
Total Share to TUOS (a) + (b)		4,500,000	
Total Share to Common Service		4,500,000	

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Example B

Substation Configuration



Step 1: The branches are Sub A, Sub B, DNSP, Tie Transformer, *Prescribed Common Service* and an existing negotiated service.

Step 2: The total number of circuit breakers directly connected to branches is 6 (no prescribed costs are allocated to the existing negotiated service).

Step 3.1: The stand-alone arrangement for the provision of *prescribed TUOS services* to an equivalent standard is shown below and consists of 2 circuit breakers.

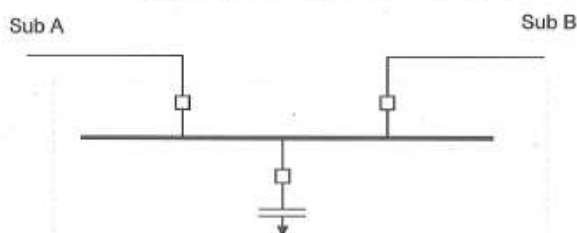
Stand Alone Prescribed TUOS Service



Powerlink Proposed Pricing Methodology

Step 3.2: The stand-alone arrangement for the provision of *prescribed common transmission services* to an equivalent standard is shown below and consists of 3 circuit breakers.

Stand Alone Prescribed Common Service



Step 4:

Assume total Infrastructure cost is \$12m, however \$3m is for the existing negotiated service, which does not form part of the regulated asset base and is not governed by 6A.23.2(d).

Costs are allocated to prescribed TUOS in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost Allocated to TUOS = $(2/6) \times \$9m = \$3m$

Unallocated Substation Infrastructure Costs (after TUOS allocation) = $\$9m - \$3m = \$6m$

Costs are allocated to *prescribed common service* in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost allocated to Common Service = $(3/6) \times \$9m = \$4.5m$

Unallocated Substation Infrastructure Costs (after Common Service allocation)
= $\$6m - \$4.5m = \$1.5m$

Remainder of unallocated (calculated above) to be allocated to *prescribed TUOS*.

Infrastructure Cost allocated to *prescribed TUOS* = \$1.5m



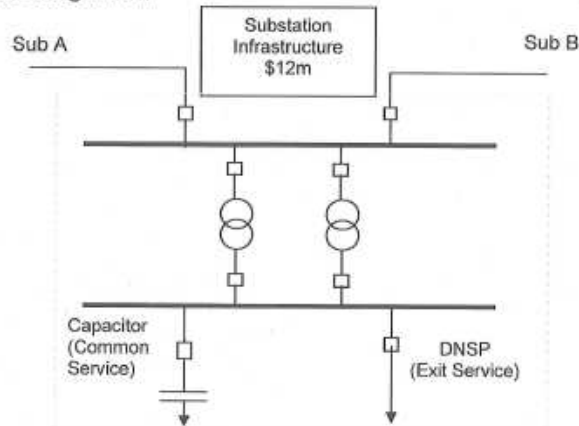
Powerlink Proposed Pricing Methodology

Item	Number	Allocation	Unallocated
Substation infrastructure costs		9,000,000	9,000,000
Total Breakers	6		
TUOS Stand-alone breakers	2		
Share to TUOS (a)	0.333	3,000,000	6,000,000
Common Service stand-alone breakers	3		
Share to Common Service	0.500	4,500,000	1,500,000
Share to TUOS (b)		1,500,000	
Total Share to TUOS		4,500,000	
Total Share to Common Service		4,500,000	

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Example C

Substation Configuration



Step 1: The branches are Sub A, Sub B, DNSP, Tie Transformer 1, Tie Transformer 2 and *Prescribed Common Service*.

Step 2: The total number of circuit breakers directly connected to branches is 8.

Step 3.1: The stand-alone arrangement for the provision of *prescribed TUOS services* to an equivalent standard is shown below and consists of 2 circuit breakers.

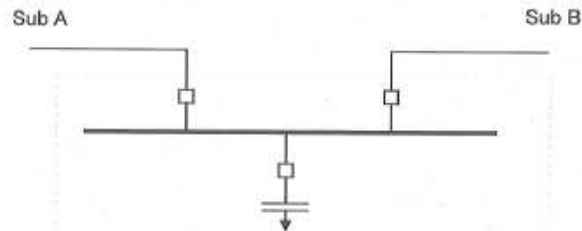
Stand Alone Prescribed TUOS



Powerlink Proposed Pricing Methodology

Step 3.2: The stand-alone arrangement for the provision of *prescribed common transmission services* to an equivalent standard is shown below and consists of 3 circuit breakers.

Stand Alone Prescribed Common Service



Step 4:

Assume total Infrastructure cost is \$12m.

Costs are allocated to prescribed TUOS in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost Allocated to TUOS (a) = $(2/8) \times \$12\text{m} = \3m

Unallocated Substation Infrastructure Costs (after TUOS allocation) = $\$12\text{m} - \$3\text{m} = \$9\text{m}$

Costs are allocated to *prescribed common service* in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost allocated to Common Service = $(3/8) \times \$12\text{m} = \4.5m

Unallocated Substation Infrastructure Costs (after Common Service allocation)
= $\$9\text{m} - \$4.5\text{m} = \$4.5\text{m}$

Remainder of unallocated (calculated above) to be allocated to *prescribed TUOS*.

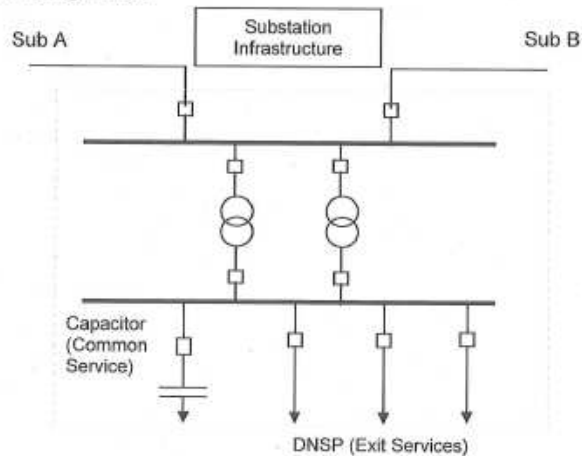
Infrastructure Cost allocated to *prescribed TUOS* (b) = \$4.5m

Item	Number	Allocation	Unallocated
Substation infrastructure costs		12,000,000	12,000,000
Total Breakers	8		
TUOS Stand-alone breakers	2		
Share to TUOS (a)	0.250	3,000,000	9,000,000
Common Service stand-alone breakers	3		
Share to Common Service	0.375	4,500,000	4,500,000
Share to TUOS (b)		4,500,000	
Total Share to TUOS		7,500,000	
Total Share to Common Service		4,500,000	

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Example D

Substation Configuration



Step 1: The branches are Sub A, Sub B, DNSP1, DNSP2, DNSP3, Tie Transformer 1, Tie Transformer 2 and PCS.

Step 2: The total number of circuit breakers directly connected to branches is 10.

Step 3.1: The stand-alone arrangement for the provision of *prescribed TUOS services* to an equivalent standard is shown below and consists of 2 circuit breakers.

Stand Alone Prescribed TUOS

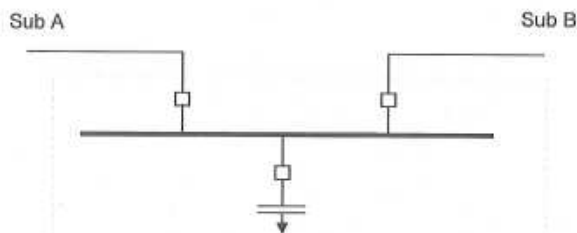


Powerlink Proposed Pricing Methodology

Step 3.2:

The stand-alone arrangement for the provision of *prescribed common transmission services* to an equivalent standard is shown below and consists of 3 circuit breakers.

Stand Alone Prescribed Common Service



Step 4:

Assume total Infrastructure cost is \$15m.

Costs are allocated to prescribed TUOS in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost Allocated to TUOS = $(2/10) \times \$15\text{m} = \3m

Unallocated = $\$15\text{m} - \$3\text{m} = \$12\text{m}$

Costs are allocated to *prescribed common service* in the ratio of the circuit breakers in the stand-alone arrangement to the total circuit breakers.

Infrastructure Cost allocated to Common Service = $(3/10) \times \$15\text{m} = \4.5m

Unallocated = $\$12\text{m} - \$4.5\text{m} = \$7.5\text{m}$

Remainder of unallocated (calculated above) to be allocated to *prescribed entry and prescribed exit services*.

Infrastructure Cost allocated to Exit = \$7.5m

Item	Number	Allocation	Unallocated
Substation infrastructure costs		15,000,000	15,000,000
Total Breakers	10		
TUOS Stand-alone breakers	2		
Share to TUOS	0.200	3,000,000	12,000,000
Common Service stand-alone breakers	3		
Share to Common Service	0.300	4,500,000	7,500,000
Exit service		7,500,000	



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14 AUTHORISATION


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Manager Network Customers & Pricing

25/5/11
.....
Date


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Manager Network Strategy & Performance

25/5/11
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Date