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Mr Ben Williams  
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PO Box 7096  
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Dear Ben

**Maximum Reserve Capacity Price – Cost of Transmission Works**

I refer to your recent request for costs of transmission works to be used in the determination of the Maximum Reserve Capacity Price (MRCP).

As requested, the attached document gives indicative costs to connect a 160 MW OCGT to the 330 kV System at various nominated locations in the SWIS. As the 330kV System does not currently extend to all areas of the SWIS, this document also includes indicative augmentation costs to extend the 330 kV network to each of the sample locations.

If you wish to discuss any issues raised in this letter, please contact Jonathan Holgate on (08) 9326 6163.

Yours sincerely



**PETER MATTNER**  
**MANAGER REGULATION, PRICING & ACCESS DEVELOPMENT**

## **RESPONSE TO IMO REGARDING ESTIMATED COSTS OF CONNECTION AND OPERATION OF NEW GENERATION**

This document makes the assumption that a Proponent is planning to connect a 160 MW OCGT to the 330 kV System in the SWIS. As the 330 kV System does not currently extend to all areas of the SWIS, this document provides indicative augmentation costs that would extend the 330 kV network to each of the sample locations.

These augmentations DO NOT provide N-1 capacity under all scenarios. Specific details about each location are provided later in this document.

Because of these major network extensions and the cost of same there will be considerable price volatility in subsequent years as the actual cost of these new network elements propagates through the pricing system.

### IMO Expectations:<sup>1</sup>

#### 1.8. Transmission Connection Works

- 1 Western Power shall provide Transmission Connection Cost Estimates on the basis defined in Step 1.8.2.
- 2 The Transmission Connection Cost Estimate shall be developed on the following basis:
  - (a) The capital cost (procurement, installation and commissioning, excluding land cost) of a generic, industry standard 330 kV substation that facilitates the connection of the Power Station will be estimated.
  - (b) The estimate will include all the components and costs associated with a standard substation.
  - (c) The estimated cost will be based on a generic three breaker mesh substation configured in a breaker and a half arrangement.
  - (d) The substation will be located adjacent to an existing transmission line and include an allowance for 2 km of 330 kV overhead single circuit line to the power station that will have one road crossing.
  - (e) It shall be assumed that the transmission connection to the Power Station will be located on 50% flat - 50% undulating land, 50% rural - 50% urban location and there will be no unforeseen environmental or civil costs associated with the development.
  - (f) The connection of the substation into the existing transmission line will be turn-in, turn-out and will be based on the most economical (i.e. least cost) solution. It is assumed that the existing transmission line will not require modification to allow the connection with the exception of one new tower located at the substation to allow a point of connection.
  - (g) Costs associated with any staging works will not be considered.
  - (h) Shallow connection easement costs will be considered.
  - (i) An estimate of deep connection costs shall be included.

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<sup>1</sup> ELECTRICITY INDUSTRY ACT 2004, ELECTRICITY INDUSTRY (WHOLESALE ELECTRICITY, MARKET) REGULATIONS 2004, WHOLESALE ELECTRICITY MARKET RULES, *Market Procedure for: Determination of the Maximum Reserve Capacity Price Version 1.1*

## Substation Cost

The costs of a substation can take two different forms:

- a completely new substation; and
- an addition to a substation.

Please note that the three-switch mesh 330 kV substation configuration outlined in clause 1.8.2 of the MRCP Procedure would be substantially treated as shared assets because of the cut-in, cut-out arrangement. Accordingly, most of the cost of the substation would be included with other shared assets (if any are applicable) and then the contribution calculated taking into account network access charge revenue for up to a 15 year period. In the costs below, it has been assumed that 10% of the cost of the substation is allocated to connection assets with the remainder allocated to shared network assets. This is in recognition that some of the assets at the substation are dedicated to the connection of the power station.

The table below lists the estimated costs of the new substation option. It should be noted that this option does not include the cost of the land to build the substation nor does it take into account the site specific details.

## Shared Network Costs

These costs are subject to the Capital Contribution Policy.

Description	Metro Construction <sup>2</sup>
Site establishment, building but excluding earthworks <sup>3</sup>	\$3,000,000
Fence	\$800,000
Cut-in transmission works	\$1,000,000
New bay for line cut-in	\$6,200,000
Generator bay	\$4,000,000
	\$15,000,000

## Connection Cost

These costs are 100% borne by the Proponent.

Description	Metro Construction <sup>4</sup>
Bay works that are connection works including meter, disconnector, gantry and surge arrestors assuming no breaker	\$1,500,000
Two kilometres of single circuit steel towers to connect the generator	\$2,700,000

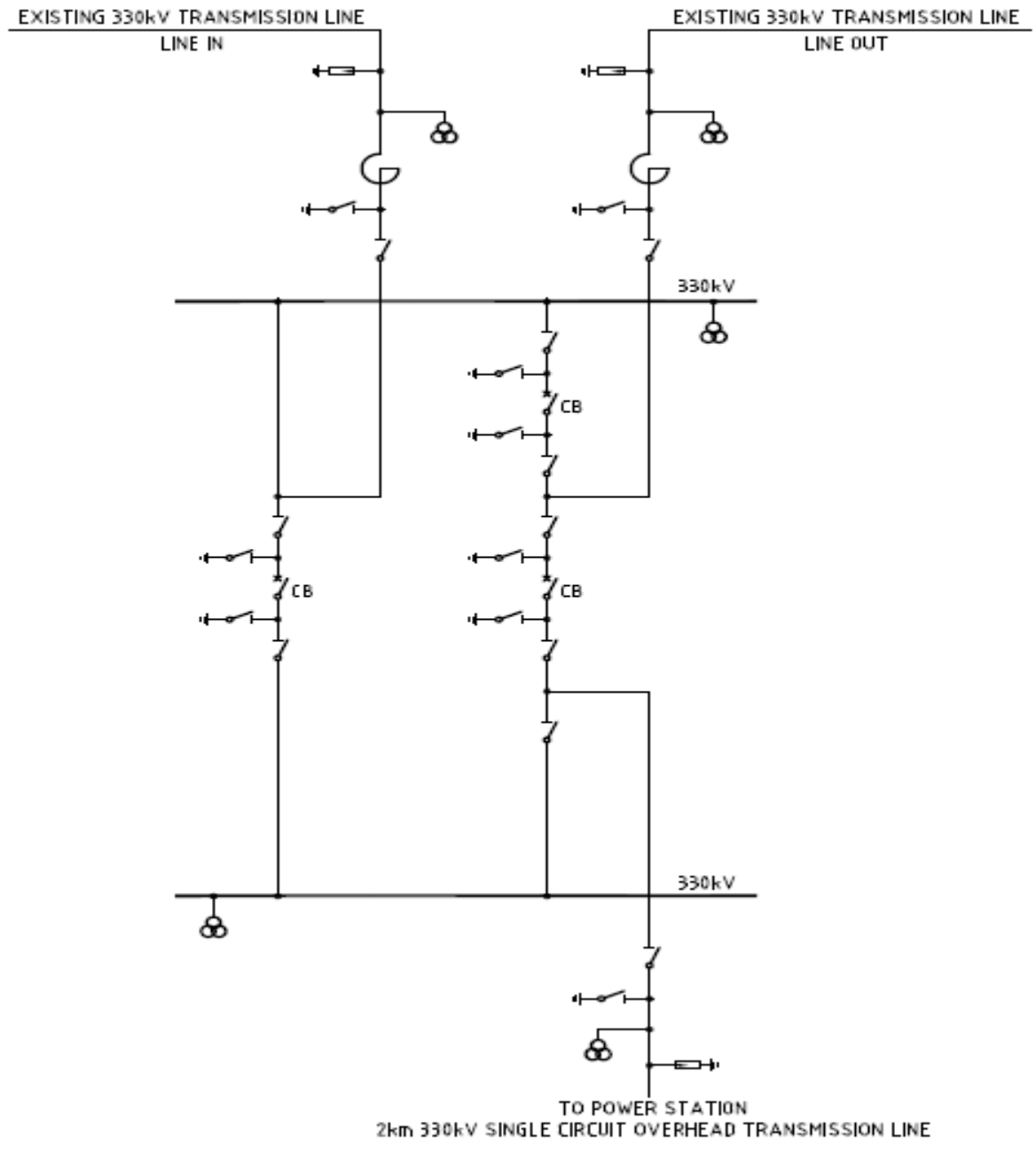
<sup>2</sup> For country construction increases see Rawlinson's Australian Construction Handbook 2009 P30 E.G. Bunbury 105%, Collie 115%, Kalgoorlie 135%, Geraldton 110%, Kambalda 140%, etc.

<sup>3</sup> Recent examples of site specific costs are Bluewaters Terminal had an 11 metre drop from one side to the other. New works at Kemerton Terminal to add further capacity have similar height issues, being a sand hill for the west to be removed and a depression to the east to be filled in. Additionally Kemerton has wetland issues throughout the site requiring roadways to be curved to avoid vulnerable locations. These costs are not allowed for.

<sup>4</sup> See note above for country construction costs

For the purposes of this document only the first of these two items (bay works) is included in the costs for the purposes of the Capital Contribution calculation. The Customer is expected to construct any other works that will allow the connection of their generator to the works constructed by Western Power.

**Single Line Diagram (typical three-switch mesh 330 kV substation configuration)**



### Likely network tariffs at each site

The tariffs for a new customer at a new substation are initially determined using an average or other calculation using similar nearby substations as a guide. In subsequent years the actual costs of running the new substation are calculated by a standard process. This means that in the subsequent years the actual Network Access Charges for a specific customer may have an amount of volatility because of the changes made to the SWIS by the insertion of a new node in the network.

Attached in **Appendix A** are tables of tariff calculations for each of the requested areas for price comparison. These tables come from the “Tariff Calculator” spreadsheet used by Western Power. The first page of this Appendix “Base Input Details” is the cover sheet of the Tariff Calculator. This in include to show the basic input data used for this tariff calculation. The figures in the calculations used for each different area are basically the same except for the following:

- The “Zone Substation” changes
- The cost of the “Connection Asset” varies
- The cost of the “O&M Expenses” varies

The above values are as shown in the table below:

<b>Location</b>	<b>Zone Substation</b>	<b>Value of Connection Asset</b>	<b>O&amp;M Expenses for Connection Asset</b>
<b>Pinjar</b>	Pinjar GTs	\$1,500,000	\$36,900
<b>Kwinana</b>	Kwinana PWS	\$1,500,000	\$36,900
<b>Kemerton</b>	Kemerton PWS	\$1,575,000	\$38,745
<b>Collie</b>	Collie PWS	\$1,725,000	\$42,435
<b>Geraldton</b>	Walkaway Windfarm	\$1,650,000	\$40,590
<b>Eneabba</b>	Emu Downs	\$1,725,000	\$42,435
<b>Kalgoorlie</b>	West Kalgoorlie GTs	\$2,025,000	\$49,815

### **Assumptions about each site including likely augmentation**

The following information is provided as a guide to the likely scope of augmenting the SWIS to meet forecast demand. The estimates are indicative only and assume (conservatively) that augmentation costs are allocated fully to generators only.

#### ***Pinjar Region***

Needs North Country Line augmentation, first side as far as Pinjar. Also needs reinforcement between Neerabup and Northern Terminal.

Does not give N-1 under all scenarios in initial period

Cost of Connection Asset:	\$1,500,000
O&M Cost of Connection Asset:	\$36,900/annum
Cost of Augmentation:	\$120,000,000
Applied to 160 MW generator:	\$38,400,000

#### ***Kwinana Region***

Needs major fault level upgrade throughout the Metropolitan Area.

Cost of Connection Asset:	\$1,500,000
O&M Cost of Connection Asset:	\$36,900/annum
Cost of Augmentation:	\$100,000,000
Applied to 160 MW generator:	\$48,500,000

#### ***Kemerton Industrial Park Region***

Needs South West Bulk upgrade and assumes no Muja A/B. Likely to be shared across a number of new generator connections.

Cost of Connection Asset:	\$1,575,000
O&M Cost of Connection Asset:	\$38,745/annum
Cost of Augmentation:	\$220,000,000
Applied to 160 MW generator:	\$35,200,000

#### ***Collie Region***

Need South West Bulk upgrade and assumes no Muja A/B. Likely to be shared across a number of new generator connections.

Cost of Connection Asset:	\$1,725,000
O&M Cost of Connection Asset:	\$42,350/annum
Cost of Augmentation:	\$220,000,000
Applied to 160 MW generator:	\$35,200,000

#### ***Geraldton Region***

Needs North Country Line first circuit to Moonyoonooka. Also needs the reinforcement between Neerabup and Northern Terminal.

Does not give N-1 under all scenarios in initial period

Cost of Connection Asset:	\$1,650,000
O&M Cost of Connection Asset:	\$40,590/annum
Cost of Augmentation:	\$660,000,000
Applied to 160 MW generator:	\$264,000,000

***Eneabba Region***

Needs North Country Line first circuit to Eneabba. Also needs the reinforcement between Neerabup and Northern Terminal.

Does not give N-1 under all scenarios in initial period

Cost of Connection Asset:	\$1,725,000
O&M Cost of Connection Asset:	\$42,435/annum
Cost of Augmentation:	\$410,000,000
Applied to 160 MW generator:	\$131,200,000

***Kalgoorlie Region***

Would need a major terminal upgrade and a new transmission line. Any new generation would currently require existing generation to be curtailed.

Does not give N-1 under all scenarios

Cost of Connection Asset:	\$2,025,000
O&M Cost of Connection Asset:	\$49,150/annum
Cost of Augmentation:	\$350,000,000
Applied to 160 MW generator:	\$350,000,000

### **Operation and Maintenance Costs**

This is a fixed percentage charged based on the capital cost of the assets being operated and maintained. Historically this value is essentially fixed at 2.46% for transmission assets.

This charge only applies to connection assets that are fully funded by proponents and is levied separately as part of the billing mechanism. The O&M costs for shared assets are included in the tariffs.

### **Capital Contribution Calculations**

The following pages provide indicative capital contribution calculations for various regions:

Please note that these values cover only the cost of the interconnection to the SWIS and covers the estimated cost of deep augmentations.



## Pinjar Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

##### 5 Applicant Details

6 Applicant Name **IMO Sample Generator Pinjar**

7

##### Economic Parameters

##### 9 Regulated WACC

10 WACC (real pre-tax) **6.76%**

11 WACC (nominal pre-tax) **10.07%**

12 RBA Indicator Rate **8.80%** RBA Large Business Indicator Rate

13

##### Asset Parameters

##### 15 Capital Costs

16 Construction Commences in Year Ending 30 June **2010**

17 **Year Ending 30 June** 2010 2011 2012 2013 2014 **TOTAL**

18 Capital Cost of Shared Assets [\$ Nominal] **53,400,000** 53,400,000 external cc

19 Capital Cost of Connection Assets [\$ Nominal] **1,500,000** 1,500,000 external cc

20 **Total Costs [\$ Nominal]** 54,900,000 0 0 0 0 54,900,000

21

##### 22 Operating Costs

23 O&M Costs of Shared Assets **1,313,640** 3% dist/2.46% trans internal cost - in today's dollars

24 O&M annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

25

##### Applicant Parameters

##### 27 Covered Service Revenue

28 Applicant Revenue Commences in Year Ending 30 June **2012**

29

30 Applicant Tariff Revenue **734,672** first year (exclude GST) - in today's dollars

31 Applicant Tariff Revenue annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

32

##### Model Parameters

##### 34 Model

35 Discounted Cashflow Period **15** years (no longer than 15)

36

##### Periodic Payments

##### 38 Payment Options

39 Periodic Payment Period **0** years (no longer than 5)

40 Credit Risk **Security in p** assume "Security in place (full amount)" unless advised by Treasury

41

#### Model Outputs

**Capital Contribution** Capital Contribution (ex-GST) GST Total (inc-GST)

##### 44 Calculated Capital Contribution

45 Capital Contribution for Shared Assets 53,400,000 5,340,000 **58,740,000**

46 Capital Contribution for Connection Assets 1,500,000 150,000 **1,650,000**

47 **Total Capital Contribution** 54,900,000 5,490,000 **60,390,000**

48 Capital contribution valid if full payment is received within 60 days of 16/11/2009

49 IRR over Discounted Cashflow Period #DIV/0!

50 **Check** **OK**

## Kwinana Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

##### 5 Applicant Details

6 Applicant Name **IMO Sample Generator Kwinana**

7

##### Economic Parameters

##### 9 Regulated WACC

10 WACC (real pre-tax) **6.76%**

11 WACC (nominal pre-tax) **10.07%**

12 RBA Indicator Rate **8.80%** RBA Large Business Indicator Rate

13

##### Asset Parameters

##### 15 Capital Costs

16 Construction Commences in Year Ending 30 June **2010**

17 **Year Ending 30 June** 2010 2011 2012 2013 2014 **TOTAL**

18 Capital Cost of Shared Assets [\$ Nominal] **63,500,000** 63,500,000 external cc

19 Capital Cost of Connection Assets [\$ Nominal] **1,500,000** 1,500,000 external cc

20 **Total Costs [\$ Nominal]** 65,000,000 0 0 0 0 65,000,000

21

##### 22 Operating Costs

23 O&M Costs of Shared Assets **1,562,100** 3% dist/2.46% trans internal cost - in today's dollars

24 O&M annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

25

##### Applicant Parameters

##### 27 Covered Service Revenue

28 Applicant Revenue Commences in Year Ending 30 June **2012**

29

30 Applicant Tariff Revenue **842,128** first year (exclude GST) - in today's dollars

31 Applicant Tariff Revenue annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

32

##### Model Parameters

##### 34 Model

35 Discounted Cashflow Period **15** years (no longer than 15)

36

##### Periodic Payments

##### 38 Payment Options

39 Periodic Payment Period **0** years (no longer than 5)

40 Credit Risk **Security in p** assume "Security in place (full amount)" unless advised by Treasury

41

#### Model Outputs

**Capital Contribution** Capital Contribution (ex-GST) GST **Total (inc-GST)**

##### 44 Calculated Capital Contribution

45 Capital Contribution for Shared Assets 63,500,000 6,350,000 **69,850,000**

46 Capital Contribution for Connection Assets 1,500,000 150,000 **1,650,000**

47 **Total Capital Contribution** 65,000,000 6,500,000 **71,500,000**

48 Capital contribution valid if full payment is received within 60 days of 16/11/2009

49 IRR over Discounted Cashflow Period #DIV/0!

50 **Check** **OK**

## Kemerton Industrial Park Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

5	Applicant Details	
6	Applicant Name	IMO Sample Generator Kemerton
7		

##### Economic Parameters

9	Regulated WACC	
10	WACC (real pre-tax)	6.76%
11	WACC (nominal pre-tax)	10.07%
12	RBA Indicator Rate	8.80% RBA Large Business Indicator Rate
13		

##### Asset Parameters

##### Capital Costs

16	Construction Commences in Year Ending 30 June	2010						
17		Year Ending 30 June	2010	2011	2012	2013	2014	TOTAL
18	Capital Cost of Shared Assets [\$ Nominal]		50,950,000					50,950,000 external cr
19	Capital Cost of Connection Assets [\$ Nominal]		1,575,000					1,575,000 external cr
20	Total Costs [\$ Nominal]		52,525,000	0	0	0	0	52,525,000
21								

##### Operating Costs

23	O&M Costs of Shared Assets	1,253,370	3% dist/2.46% trans internal cost - in today's dollars
24	O&M annual escalation (real)	0.00%	assume 0% unless advised by Regulation, Pricing & Access Development
25			

##### Applicant Parameters

##### Covered Service Revenue

28	Applicant Revenue Commences in Year Ending 30 June	2012	
29			
30	Applicant Tariff Revenue	1,353,712	first year (exclude GST) - in today's dollars
31	Applicant Tariff Revenue annual escalation (real)	0.00%	assume 0% unless advised by Regulation, Pricing & Access Development
32			

##### Model Parameters

##### Model

35	Discounted Cashflow Period	15	years (no longer than 15)
36			

##### Periodic Payments

##### Payment Options

39	Periodic Payment Period	0	years (no longer than 5)
40	Credit Risk	Security in place	assume "Security in place (full amount)" unless advised by Treasury
41			

#### Model Outputs

##### Capital Contribution

	Capital Contribution (ex-GST)	GST	Total (inc-GST)	
44	Calculated Capital Contribution			
45	Capital Contribution for Shared Assets	50,080,833	5,008,083	55,088,916
46	Capital Contribution for Connection Assets	1,575,000	157,500	1,732,500
47	Total Capital Contribution	51,655,833	5,165,583	56,821,416
48	Capital contribution valid if full payment is received within 60 days of 17/11/2009			
49	IRR over Discounted Cashflow Period	6.76%		
50	Check	OK		

## Collie Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

5	Applicant Details	
6	Applicant Name	IMO Sample Generator Collie
7		

##### Economic Parameters

9	Regulated WACC	
10	WACC (real pre-tax)	6.76%
11	WACC (nominal pre-tax)	10.07%
12	RBA Indicator Rate	8.80% RBA Large Business Indicator Rate
13		

##### Asset Parameters

##### Capital Costs

16	Construction Commences in Year Ending 30 June	2010						
17		Year Ending 30 June	2010	2011	2012	2013	2014	TOTAL
18	Capital Cost of Shared Assets [\$ Nominal]		52,450,000					52,450,000 external cc
19	Capital Cost of Connection Assets [\$ Nominal]		1,725,000					1,725,000 external cc
20	Total Costs [\$ Nominal]		54,175,000	0	0	0	0	54,175,000
21								

##### Operating Costs

23	O&M Costs of Shared Assets	1,290,270	3% dist/2.46% trans internal cost - in today's dollars
24	O&M annual escalation (real)	0.00%	assume 0% unless advised by Regulation, Pricing & Access Development
25			

##### Applicant Parameters

##### Covered Service Revenue

28	Applicant Revenue Commences in Year Ending 30 June	2012	
29			
30	Applicant Tariff Revenue	1,412,112	first year (exclude GST) - in today's dollars
31	Applicant Tariff Revenue annual escalation (real)	0.000%	assume 0% unless advised by Regulation, Pricing & Access Development
32			

##### Model Parameters

##### Model

35	Discounted Cashflow Period	15	years (no longer than 15)
36			

##### Periodic Payments

##### Payment Options

39	Periodic Payment Period	0	years (no longer than 5)
40	Credit Risk	Security in p	assume "Security in place (full amount)" unless advised by Treasury
41			

#### Model Outputs

##### Capital Contribution

	Capital Contribution (ex-GST)	GST	Total (inc-GST)
44	Calculated Capital Contribution		
45	Capital Contribution for Shared Assets	51,394,599	5,139,460
46	Capital Contribution for Connection Assets	1,725,000	172,500
47	Total Capital Contribution	53,119,599	5,311,960
48	Capital contribution valid if full payment is received within 60 days of 17/11/2009		
49	IRR over Discounted Cashflow Period	6.76%	
50	Check	OK	

## Geraldton Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

##### 5 Applicant Details

6 Applicant Name **IMO Sample Generator Geraldton**

7

##### Economic Parameters

##### 9 Regulated WACC

10 WACC (real pre-tax) **6.76%**

11 WACC (nominal pre-tax) **10.07%**

12 RBA Indicator Rate **8.80%** RBA Large Business Indicator Rate

13

##### Asset Parameters

##### 15 Capital Costs

16 Construction Commences in Year Ending 30 June **2010**

17 **Year Ending 30 June** 2010 2011 2012 2013 2014 **TOTAL**

18 Capital Cost of Shared Assets [\$ Nominal] **280,500,000** 280,500,000 external cr

19 Capital Cost of Connection Assets [\$ Nominal] **1,650,000** 1,650,000 external cr

20 **Total Costs [\$ Nominal]** 282,150,000 0 0 0 0 282,150,000

21

##### 22 Operating Costs

23 O&M Costs of Shared Assets **6,900,300** 3% dist/2.46% trans internal cost - in today's dollars

24 O&M annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

25

##### Applicant Parameters

##### 27 Covered Service Revenue

28 Applicant Revenue Commences in Year Ending 30 June **2012**

29

30 Applicant Tariff Revenue **1,621,768** first year (exclude GST) - in today's dollars

31 Applicant Tariff Revenue annual escalation (real) **0.000%** assume 0% unless advised by Regulation, Pricing & Access Development

32

##### Model Parameters

##### 34 Model

35 Discounted Cashflow Period **15** years (no longer than 15)

36

##### Periodic Payments

##### 38 Payment Options

39 Periodic Payment Period **0** years (no longer than 5)

40 Credit Risk **Security in place** assume "Security in place (full amount)" unless advised by Treasury

41

#### Model Outputs

Capital Contribution	Capital Contribution (ex-GST)	GST	Total (inc-GST)
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##### 44 Calculated Capital Contribution

45 Capital Contribution for Shared Assets	280,500,000	28,050,000	<b>308,550,000</b>
46 Capital Contribution for Connection Assets	1,650,000	165,000	<b>1,815,000</b>
47 <b>Total Capital Contribution</b>	<b>282,150,000</b>	<b>28,215,000</b>	<b>310,365,000</b>

48 Capital contribution valid if full payment is received within 60 days of 17/11/2009

49 IRR over Discounted Cashflow Period #DIV/0!

50 **Check** **OK**

## Eneabba Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

##### 5 Applicant Details

6 Applicant Name **IMO Sample Generator Eneabba**

7

##### Economic Parameters

##### 9 Regulated WACC

10 WACC (real pre-tax) **6.76%**

11 WACC (nominal pre-tax) **10.07%**

12 RBA Indicator Rate **8.80%** RBA Large Business Indicator Rate

13

##### Asset Parameters

##### 15 Capital Costs

16 Construction Commences in Year Ending 30 June **2010**

17 Year Ending 30 June **2010** 2011 2012 2013 2014 **TOTAL**

18 Capital Cost of Shared Assets [\$ Nominal] **148,450,000** 148,450,000 external cc

19 Capital Cost of Connection Assets [\$ Nominal] **1,725,000** 1,725,000 external cc

20 Total Costs [\$ Nominal] 150,175,000 0 0 0 0 150,175,000

21

##### 22 Operating Costs

23 O&M Costs of Shared Assets **3,651,870** 3% dist/2.46% trans internal cost - in today's dollars

24 O&M annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

25

##### Applicant Parameters

##### 27 Covered Service Revenue

28 Applicant Revenue Commences in Year Ending 30 June **2012**

29

30 Applicant Tariff Revenue **1,333,856** first year (exclude GST) - in today's dollars

31 Applicant Tariff Revenue annual escalation (real) **0.000%** assume 0% unless advised by Regulation, Pricing & Access Development

32

##### Model Parameters

##### 34 Model

35 Discounted Cashflow Period **15** years (no longer than 15)

36

##### Periodic Payments

##### 38 Payment Options

39 Periodic Payment Period **0** years (no longer than 5)

40 Credit Risk **Security in p** assume "Security in place (full amount)" unless advised by Treasury

41

#### Model Outputs

Capital Contribution	Capital Contribution (ex-GST)	GST	Total (inc-GST)
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##### 44 Calculated Capital Contribution

45 Capital Contribution for Shared Assets	148,450,000	14,845,000	<b>163,295,000</b>
46 Capital Contribution for Connection Assets	1,725,000	172,500	<b>1,897,500</b>
47 Total Capital Contribution	150,175,000	15,017,500	<b>165,192,500</b>

48 Capital contribution valid if full payment is received within 60 days of 17/11/2009

49 IRR over Discounted Cashflow Period #DIV/0!

50 **Check** **OK**

## Kalgoorlie Region

### Western Power Revised Access Arrangement Capital Contribution Model



Ref 2 3 8 9 10 11 12 13 14 15

#### Model Inputs

##### Applicant Details

##### 5 Applicant Details

6 Applicant Name **IMO Sample Generator Kalgoorlie**

7

##### Economic Parameters

##### 9 Regulated WACC

10 WACC (real pre-tax) **6.76%**

11 WACC (nominal pre-tax) **10.07%**

12 RBA Indicator Rate **8.80%** RBA Large Business Indicator Rate

13

##### Asset Parameters

##### 15 Capital Costs

16 Construction Commences in Year Ending 30 June **2010**

17 **Year Ending 30 June** 2010 2011 2012 2013 2014 **TOTAL**

18 Capital Cost of Shared Assets [\$ Nominal] **370,250,000** 370,250,000 external cr

19 Capital Cost of Connection Assets [\$ Nominal] **2,025,000** 2,025,000 external cr

20 **Total Costs [\$ Nominal]** 372,275,000 0 0 0 0 372,275,000

21

##### 22 Operating Costs

23 O&M Costs of Shared Assets **9,108,150** 3% dist/2.46% trans internal cost - in today's dollars

24 O&M annual escalation (real) **0.00%** assume 0% unless advised by Regulation, Pricing & Access Development

25

##### Applicant Parameters

##### 27 Covered Service Revenue

28 Applicant Revenue Commences in Year Ending 30 June **2012**

29

30 Applicant Tariff Revenue **1,181,432** first year (exclude GST) - in today's dollars

31 Applicant Tariff Revenue annual escalation (real) **0.000%** assume 0% unless advised by Regulation, Pricing & Access Development

32

##### Model Parameters

##### 34 Model

35 Discounted Cashflow Period **15** years (no longer than 15)

36

##### Periodic Payments

##### 38 Payment Options

39 Periodic Payment Period **0** years (no longer than 5)

40 Credit Risk **Security in place** assume "Security in place (full amount)" unless advised by Treasury

41

#### Model Outputs

**Capital Contribution** **Capital Contribution (ex-GST)** **GST** **Total (inc-GST)**

##### 44 Calculated Capital Contribution

45 Capital Contribution for Shared Assets 370,250,000 37,025,000 **407,275,000**

46 Capital Contribution for Connection Assets 2,025,000 202,500 **2,227,500**

47 **Total Capital Contribution** 372,275,000 37,227,500 **409,502,500**

48 Capital contribution valid if full payment is received within 60 days of 17/11/2009

49 IRR over Discounted Cashflow Period #DIV/0!

50 **Check** **OK**

## Appendix A

### Base Input Details



DATA ENTRY AREA	
<b>LOCATIONAL INFORMATION</b>	
Premises	Business
Network System Connection	Transmission (66, 132, 330kV)
Exit/Entry Point	Entry
Zone Substation	Pinjar GTs
Zone Substation TNI	WPJR
Pricing Zone	
Distance to Zone Substation (km)	
Connected directly at zone substation?	
<b>METERING INFORMATION</b>	
Meter Type	
Number of Metering Installations	1
<b>ANNUAL ENERGY CONSUMPTION INFORMATION</b>	
Electricity Consumed (kWh)	
On-Peak Electricity Consumed (kWh)	
Off-Peak Electricity Consumed (kWh)	
<b>DEMAND INFORMATION</b>	
Forecasted Maximum Demand (kVA)	
Forecasted Maximum Demand (kW)	
Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
<b>TRANSMISSION CONNECTION ASSETS</b>	
Value of Connection Assets	1500000
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	36900
WACC - Real pre-tax	6.76%
<b>DISTRIBUTION ENTRY POINTS</b>	
Distribution Loss Factor	
<b>STREETLIGHT ASSETS</b>	
Streetlight Asset	
<b>OTHER INFORMATION</b>	
Nominated no of days in a month	
Number of days in the year	365

The Substation is varied as necessary for the following tables.



**Pinjar Region**

**TRT2 - Transmission Entry**

**Tariff Inputs**

Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
Zone substation	Pinjar GTs
Transmission Node Identifier	WPJR
Value of Connection Assets	0
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	36900
WACC	6.76%

Updated: 7 May 2009 - 2009/10 Price List (Approved)  
20/10/2009 9:20

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

**Tariff Calculation**

	Units	Daily & GST Exclusive		GST	GST Inclusive		
		Rate	Charge		Daily	Monthly	Annual
User Specific Charge		10,109.59	101.10	10.11	111.21	-	40,590.00
Variable Use of System Charge	160000	1.258	2,012.80	201.28	2,214.08	-	808,139.20
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>2,409.59</b>	<b>240.96</b>	<b>2,650.55</b>	<b>0.00</b>	<b>967,452.24</b>

**For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)**

Revenue for Capital Contribution Calculations 734,672.00

## Kwinana Region

### TRT2 - Transmission Entry

#### Tariff Inputs

Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
Zone substation	Kwinana PWS
Transmission Node Identifier	WKPS
Value of Connection Assets	0
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	36900
WACC	6.76%

Updated: 7 May 2009 - 2009/10 Price List (Approved)

20/10/2009 9:23

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

#### Tariff Calculation

	Units	Daily & GST Exclusive		GST	GST Inclusive		
		Rate	Charge		Daily	Monthly	Annual
User Specific Charge		10,109.59	101.10	10.11	111.21	-	40,590.00
Variable Use of System Charge	160000	1.442	2,307.20	230.72	2,537.92	-	926,340.80
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>2,703.99</b>	<b>270.40</b>	<b>2,974.39</b>	<b>0.00</b>	<b>1,085,653.84</b>

#### For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)

Revenue for Capital Contribution Calculations 842,128.00

## Kemerton Industrial Park Region

### TRT2 - Transmission Entry

#### Tariff Inputs

Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
Zone substation	Kemerton PWS
Transmission Node Identifier	WKEM
Value of Connection Assets	0
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	38745
WACC	6.76%

Updated: 7 May 2009 - 2009/10 Price List (Approved)

16/11/2009 14:19

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

#### Tariff Calculation

	Units	Daily & GST Exclusive			GST Inclusive		
		Rate	Charge	GST	Daily	Monthly	Annual
User Specific Charge		10,615.07	106.15	10.62	116.77	-	42,619.50
Variable Use of System Charge	160000	2.318	3,708.80	370.88	4,079.68	-	1,489,083.20
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>4,110.65</b>	<b>411.06</b>	<b>4,521.71</b>	<b>0.00</b>	<b>1,650,425.74</b>

#### For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)

Revenue for Capital Contribution Calculations 1,353,712.00

**Collie Region**

**TRT2 - Transmission Entry**

**Tariff Inputs**

Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
Zone substation	Kemerton PWS
Transmission Node Identifier	WKEM
Value of Connection Assets	0
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	42435
WACC	6.76%

Updated: 7 May 2009 - 2009/10 Price List (Approved)  
16/11/2009 14:20

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

**Tariff Calculation**

	Units	Daily & GST Exclusive		GST Inclusive			
		Rate	Charge	GST	Daily	Monthly	Annual
User Specific Charge		11,626.03	116.26	11.63	127.89	-	46,678.50
Variable Use of System Charge	160000	2.318	3,708.80	370.88	4,079.68	-	1,489,083.20
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>4,120.76</b>	<b>412.08</b>	<b>4,532.83</b>	<b>0.00</b>	<b>1,654,484.74</b>

**For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)**

Revenue for Capital Contribution Calculations 1,353,712.00

## Geraldton Region

### TRT2 - Transmission Entry

#### Tariff Inputs

Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
Zone substation	Walkaway Windfarm
Transmission Node Identifier	WWWF
Value of Connection Assets	0
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	40590
WACC	6.76%

Updated: 7 May 2009 - 2009/10 Price List (Approved)

17/11/2009 15:19

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

#### Tariff Calculation

	Units	Daily & GST Exclusive			GST Inclusive		
		Rate	Charge	GST	Daily	Monthly	Annual
User Specific Charge		11,120.55	111.21	11.12	122.33	-	44,649.00
Variable Use of System Charge	160000	2.777	4,443.20	444.32	4,887.52	-	1,783,944.80
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>4,850.10</b>	<b>485.01</b>	<b>5,335.11</b>	<b>0.00</b>	<b>1,947,316.84</b>

#### For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)

Revenue for Capital Contribution Calculations 1,621,768.00

**Eneabba Region**

**TRT2 - Transmission Entry**

**Tariff Inputs**

Declared Sent Out Capacity (kW)	<b>160000</b>
Generator nameplate output (kW)	<b>180000</b>
Zone substation	<b>Emu Downs</b>
Transmission Node Identifier	WEMD
Value of Connection Assets	<b>0</b>
Economic life of Connection Assets	<b>50</b>
O&M expenses on the Connection Assets	<b>42435</b>
WACC	<b>6.76%</b>

Updated: 7 May 2009 - 2009/10 Price List (Approved)  
16/11/2009 14:14

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

**Tariff Calculation**

	Units	Daily & GST Exclusive		GST	GST Inclusive		
		Rate	Charge		Daily	Monthly	Annual
User Specific Charge		11,626.03	116.26	11.63	127.89	-	46,678.50
Variable Use of System Charge	160000	2.284	3,654.40	365.44	4,019.84	-	1,467,241.60
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>4,066.36</b>	<b>406.64</b>	<b>4,472.99</b>	<b>0.00</b>	<b>1,632,643.14</b>

**For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)**

Revenue for Capital Contribution Calculations **1,333,856.00**

## Kalgoorlie Region

### TRT2 - Transmission Entry

#### Tariff Inputs

Declared Sent Out Capacity (kW)	160000
Generator nameplate output (kW)	180000
Zone substation	West Kalgoorlie GTs
Transmission Node Identifier	WWKT
Value of Connection Assets	0
Economic life of Connection Assets	50
O&M expenses on the Connection Assets	49815
WACC	6.76%

Updated: 7 May 2009 - 2009/10 Price List (Approved)

16/11/2009 14:16

Note: Set to zero if full cap con received for connection assets

**Note:** Always confirm the User Specific Charge with Regulation, Pricing and Access Development.

#### Tariff Calculation

	Units	Daily & GST Exclusive		GST	GST Inclusive		
		Rate	Charge		Daily	Monthly	Annual
User Specific Charge		13,647.95	136.48	13.65	150.13	-	54,796.50
Variable Use of System Charge	160000	2.023	3,236.80	323.68	3,560.48	-	1,299,575.20
Variable Control System Service Charge	180000	0.15	262.80	26.28	289.08	-	105,514.20
Fixed Metering Charge		3,289.87	32.90	3.29	36.19	-	13,208.84
<b>Total Charge</b>			<b>3,668.98</b>	<b>366.90</b>	<b>4,035.88</b>	<b>0.00</b>	<b>1,473,094.74</b>

#### For use in the Capital Contribution Calculator Only - Tariff Calculation (excludes GST)

Revenue for Capital Contribution Calculations 1,181,432.00