



7 January 2009

66/11 kV Medical Centre New Facilities Investment Test
Electricity Access
Economic Regulation Authority
PO Box 8469
Perth BC WA 6849

**DRAFT DETERMINATION – NEW FACILITIES INVESTMENT TEST FOR A 66/11KV
MEDICAL CENTRE ZONE SUBSTATION EXPANSION AND VOLTAGE CONVERSION
OF THE DISTRIBUTION NETWORK**

- 1 North Metropolitan Area Health Service (**NMAHS**), incorporating Sir Charles Gairdner Hospital (**SCGH**) is pleased to respond to the request by the Economic Regulation Authority (**ERA**) for public submissions in respect of the aforementioned Draft Determination, issued on 11 December 2008.
- 2 This submission considers separately each of the “component tests” identified in the Draft Determination (paragraph 15), consistent with section 6.52 of the *Electricity Networks Access Code 2004 (Access Code)*.

Efficiency Test

- 3 Generally, NMAHS believes that Western Power has not provided sufficient information to enable the technical efficiency of the project to be appropriately assessed. In our opinion, Western Power should provide to the ERA a detailed cost estimate showing the basis upon which the \$28.4 million project costs have been determined.
- 4 NMAHS notes the comment in the report of the ERA’s technical advisor, Geoff Brown and Associates, that “the existing substation is located in a car park area and space is available to extend the existing 66 kV buswork to serve the new substation” (page 6). While we note that the report later acknowledges the existence of potential site constraints, we confirm that such constraints are real and any further expansion of the footprint of the proposed substation would have significant implications for the redevelopment of the Queen Elizabeth II Medical Centre site, including the proposed relocation of Princess Margaret Hospital to a new children’s hospital on the site.

Incremental Revenue Test

- 5 The following comments are based on a review of the model used by Western Power to calculate the incremental revenue anticipated as a result of the project.

- 6 Western Power's calculation of the present value of incremental revenue does not include any price escalation, in real terms, across the assessment period. While the use of a real discount rate means that inflation should not be included in the forecast incremental revenue, Western Power's model does not allow for any increase in prices in real terms (i.e. above that of inflation).
- 7 NMAHS does not consider this to be a reasonable assumption, and it is not supported by historical evidence of Western Power tariff increases. The relevant annual tariff increased from \$46.16/kVA in 2007/08 to \$49.62/kVA in 2008/09, an increase of 7.5% in nominal terms. Such growth is well above inflation and implies significant real growth in the annual tariff.
- 8 It is also understood that Western Power is proposing significant future increases in annual tariffs in 2009/10, 2010/11 and 2011/12 as part of the proposed revisions to Western Power's Access Arrangement for the South West Interconnected Network. Such increases would greatly increase the incremental revenue to Western Power. In our opinion, if such increases are considered likely (even if they are not yet certain), they should be incorporated in the calculation of the present value of incremental revenue. This is consistent with the definition of "anticipated incremental revenue" in the Access Code, which requires only that such income be "reasonably anticipated" (section 1.3).
- 9 Further, the current calculation uses the 2007/08 annual tariff of \$46.16/kVA rather than the 2008/09 annual tariff of \$49.62/kVA. Western Power advises that the 2008/09 tariffs were not available at the time of submission, although it is noted that the 2008/09 price list was issued in April 2008 and Western Power's submission was made in August 2008.
- 10 NMAHS supports the ERA's finding that "it is reasonable to consider incremental revenue over a longer period than that undertaken by Western Power", given the expected life of the substation assets of around 50 years and the likelihood that SCGH "will continue to operate for many decades" (Draft Determination, paragraphs 42 and 44).
- 11 Given the 50 year life of the assets, the present value of incremental revenue should be assessed over this term, consistent with the requirement in the Access Code that incremental revenue be calculated over a "reasonable period" (section 1.3).
- 12 Based on the above and incorporating modest real growth in revenue of 3% per annum (which is below the real growth evidenced between 2007/08 and 2008/09), we calculate the present value of the incremental revenue to be \$14.6 million. The workings of this calculation and all assumptions are provided as Attachment 1 to this submission. An electronic copy of this modelling is also able to be provided for verification if required.
- 13 The above estimate does not include the significantly increased annual tariffs proposed by Western Power, which would greatly increase the present value of

the incremental revenue. As discussed above, such increases should be incorporated if they are considered to be “reasonably anticipated”.

- 14 Therefore, NMAHS is of the opinion that Western Power’s calculation of the present value of incremental revenue should be adjusted in order to:
- (a) appropriately incorporate a reasonable estimate of real price growth (including any future tariff increases that are reasonably able to be forecast);
 - (b) utilise the most recently available annual tariff (currently 2008/09: \$49.62/kVA); and
 - (c) appropriately assess the present value of the revenue over a ‘reasonable period’, being the independently-assessed life of the assets.
- 15 The incremental revenue calculation should be independently reviewed and verified from a financial perspective to ensure that components such as escalation and the discount rate have been appropriately applied. If the calculation is undertaken by Western Power, all workings and assumptions should be provided to the ERA to enable such independent verification to occur.

Net Benefits Test

- 16 NMAHS notes the ERA’s finding that Western Power has claimed a range of benefits that would arise from the upgrade of the distribution system, including deferral of other major network reinforcements, lower line losses, higher load supplies, less operational constraints, and a more reliable supply (Draft Determination, paragraph 48).
- 17 NMAHS supports the ERA’s finding that such benefits “would fall within the scope of net benefits to be considered under section 6.52(b)(ii) of the Access Code” (Draft Determination, paragraph 47).
- 18 The Draft Determination estimates the value of such net benefits to be around \$3.5 million (Table 2). This appears to only include Western Power’s estimate of the present value of deferring new facilities investments at the University substation for 5 years. Other benefits stated by Western Power and noted by the ERA (Draft Determination, paragraph 48) do not appear to be included.
- 19 Further, a review of Western Power’s calculations in relation to the incremental revenue test and the safety and reliability test (as discussed in this submission) raises concerns regarding the accuracy of other estimates provided by Western Power, including the \$3.5 million cost saving associated with the University substation deferral. All such benefits should be independently verified and the present value of such benefits independently determined.

Safety and Reliability Test

- 20 NMAHS has reviewed the model used by Western Power in determining the amount of works that would satisfy the safety and reliability test (section 6.52(b)(iii) of the Access Code), and has significant concerns with this model.
- 21 Similar to the issues identified above in relation to the calculation of the present value of incremental revenue, Western Power's calculation of the 'brought forward cost' does not include any capital cost escalation (in real terms). This is a significant omission, as the basis for the calculation is a comparative assessment of the cost of undertaking the works earlier than originally required. If no escalation is included, the model assumes that the cost of undertaking the works will be the same, in real terms, regardless of when the project occurs. This is not considered to be a reasonable assumption and is not supported by historical cost escalation evidence.
- 22 The impact of such an assumption is that a deferral of the works appears significantly more favourable on a net present cost basis. This is a fundamentally incorrect application of present cost analysis which has a significant impact on the recoverable amount allowable under the safety and reliability test.
- 23 NMAHS is of the opinion that Western Power's calculation of the cost that satisfies the safety and reliability component of the new facilities investment test should be adjusted in order to:
- (a) appropriately incorporate a reasonable estimate of real capital cost escalation; and
 - (b) appropriately consider the age of the current substation assets and an asset replacement plan to replace the transformers by 2015/16 (Draft Determination, paragraph 57).
- 24 Further, the apparent flaws in Western Power's calculations as noted above also raise concerns regarding the accuracy of other estimates provided by Western Power, including the \$1.3 million annual saving achieved by delaying the voltage conversion of the University substation. All such calculations should be independently verified and their present value independently determined. Such estimates should be incorporated in the calculation of the 'brought forward cost'.
- 25 Based on the above, we calculate a 'brought forward cost' of less than \$0.5 million (excluding the estimated \$1.3 million annual saving referred to in paragraph 24). The workings of this calculation, including assumptions, are provided as Attachment 2 to this submission. An electronic copy of this modelling is also able to be provided for verification if required.
- 26 Hence, with the exception of the above-calculated 'brought-forward' cost, NMAHS submits that the remaining cost of the substation works (i.e. \$25.4 million, being the total project costs satisfying the efficiency test (\$25.9 million),

less the 'brought forward cost' of \$0.5 million) satisfies the safety and reliability test.

- 27 Similar to that recommended above for the calculation of incremental revenue (paragraph 15), such calculation should be independently reviewed and verified from a financial perspective. If the calculation is undertaken by Western Power, all workings and assumptions should be provided to the ERA to enable such independent verification to occur.

Consideration of Land Value

- 28 The report by the technical advisor engaged by the ERA notes that "the project cost does not include land, which is to be leased to Western Power by SCGH at a peppercorn rental" (p. 8).
- 29 This land is vested in the Queen Elizabeth II Medical Centre Trust (**Trust**) under the *Queen Elizabeth II Medical Centre Act 1966* and hence the Trust would be the lessor under any such arrangement with Western Power.
- 30 To date, no formal agreement has been reached between the Trust and Western Power in respect of the amount of rental to be paid by Western Power for the land pertaining to the substation expansion.
- 31 NMAHS is of the opinion that the land upon which the proposed substation upgrade would be located is of value, and the Trust should reserve the right to require an appropriate commercial rental for the use of this land under a long term lease.
- 32 Such land value has not been incorporated into the project costs contained in Western Power's submissions or in the Draft Determination.
- 33 In our opinion, if a lease over this land was granted on commercial terms, such costs would comprise reasonable costs "which would be incurred by a service provider efficiently minimising costs", and would thus satisfy section 6.40 of the Access Code.

Summary

- 34 NMAHS notes the conclusion of the ERA's technical advisor, that:
- "We have concerns about the validity of the economic model used by Western Power and doubt that it has captured all the benefits of advancing the project. While we are reluctant to draw firm conclusions on the limited information provided, we consider that it would not be difficult to construct an equally valid model that shows that the SCGH should not make any capital contribution." (p. 12)
- 35 NMAHS supports the above conclusion. The following table summarises our current view in relation to the amount of the new facilities investment that satisfies the new facilities investment test.

Component	Estimated Amount (\$m)
Section 6.52(a) – efficiency test	\$25.86 million¹
Section 6.52(b) – ‘other tests’	
Incremental revenue test (section 6.52(b)(ii)(A))	\$14.6 million
Net benefits test (section 6.52(b)(ii)(A))	\$3.5 million, plus other benefits not yet costed
Safety and reliability test (section 6.52(b)(ii)(A))	\$25.4, plus other benefits not yet costed
Sub-total of Section 6.52(b)	(In excess of) \$25.86 million
Total satisfying the new facilities investment test	(In excess of) \$25.86 million

36 We emphasise that the above summary is an indicative estimate only, based on the limited information available. It excludes a number of additional benefits identified by Western Power as well as any potential costs associated with the lease of land from the Trust.

37 As recommended above, all such estimates should be independently verified, from both a technical and a financial perspective, including all previous estimates made by Western Power of potential cost savings associated with the proposed substation expansion.

Should you have any queries or wish to discuss items of this submission further, please do not hesitate to contact Mr Ian Lacey (Acting Director Capital Management) on (08) 9346 2669 or Mr John Fullerton (SCGH Redevelopment Project Coordinator) on (08) 9346 1060.

Yours sincerely

Dr David Russell-Weisz
CHIEF EXECUTIVE

¹ Subject to sufficient cost information provided by Western Power, and excluding land costs.

Attachment 1 - Incremental Revenue Test

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14 (Part Year)	2	3	4	5	6
Substation commencement											
Maximum Existing Substation Capacity (kVA)	Jan-14 25,000										
Incremental Load											
OEII Substation Load Growth After 2020/21 (%)	1.0%										
External Substation Load Growth After 2020/21 (%)	1.0%										
Forecast OEII Substation Load						17,289	17,289	18,986	20,225	21,465	22,704
Forecast External Substation Load						8,881	9,281	9,681	10,081	10,481	10,881
Forecast Total Substation Load						26,170	26,570	28,667	30,306	31,946	33,585
Forecast Incremental Load (Above Existing Capacity)	0	0	0	0	0	585	1,570	3,667	5,306	6,946	8,585
Unit Price											
Standard Price (\$/kVA) (2008/09)	\$49.62										
Real Price Growth (p.a.)	3.0%										
Standard Price (\$/kVA) (escalated)	\$49.62	\$51.11	\$52.64	\$54.22	\$55.85	\$57.52	\$59.25	\$61.03	\$62.86	\$64.74	\$66.69
Net Present Value											
Discount Rate (Real)											6.76%
Incremental Revenue to Western Power											
NPV of Incremental Revenue	\$0	\$0	\$0	\$0	\$0	\$33,651	\$93,021	\$223,784	\$333,545	\$449,691	\$572,505
											\$14,559,964

Key Assumptions:

1. Commencement January 2014.
2. Incremental revenue for first year (2013/14) based on 6 months incremental load.
3. Forecast substation load based on estimates provided by KBR.
4. Conservative load growth of 1.0% p.a. after 2020 assumed.
5. Unit price obtained from Western Power 2008/09 Price List (Medical Centre Substation).
6. Conservative real price growth of 3.0% p.a. assumed.
7. Incremental cash flow of 50 years, consistent with asset life.
8. Real discount rate adopted from Western Power calculations.

Attachment 1 - Incremental Revenue Test

	7	8	9	10	11	12	13	14	15	16	17
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Substation commencement											
Maximum Existing Substation Capacity (kVA)	25,000										
Incremental Load											
OEII Substation Load Growth After 2020/21 (%)	1.0%										
External Substation Load Growth After 2020/21 (%)	1.0%										
Forecast OEII Substation Load	23,944	25,183	25,435	25,689	25,946	26,206	26,468	26,732	27,000	27,270	27,542
Forecast External Substation Load	11,281	11,681	11,798	11,916	12,035	12,155	12,277	12,400	12,524	12,649	12,775
Forecast Total Substation Load	35,225	36,864	37,233	37,605	37,981	38,361	38,744	39,132	39,523	39,918	40,318
Forecast Incremental Load (Above Existing Capacity)	10,225	11,864	12,233	12,605	12,981	13,361	13,744	14,132	14,523	14,918	15,318
Unit Price											
Standard Price (\$/kVA) (2008/09)											
Real Price Growth (p.a.)	3.0%										
Standard Price (\$/kVA) (escalated)	\$68.69	\$70.75	\$72.87	\$75.05	\$77.31	\$79.63	\$82.01	\$84.47	\$87.01	\$89.62	\$92.31
Net Present Value											
Discount Rate (Real)	6.76%										
Incremental Revenue to Western Power											
NPV of Incremental Revenue	\$702,284	\$639,334	\$891,376	\$946,062	\$1,003,515	\$1,063,863	\$1,127,240	\$1,193,787	\$1,263,648	\$1,336,978	\$1,413,935
											\$14,559,964

Key Assumptions:

1. Commencement January 2014.
2. Incremental revenue for first year (2013/14) based on 6 months incremental load.
3. Forecast substation load based on estimates provided by KBR.
4. Conservative load growth of 1.0% p.a. after 2020 assumed.
5. Unit price obtained from Western Power 2008/09 Price List (Medical Centre Substation).
6. Conservative real price growth of 3.0% p.a. assumed.
7. Incremental cash flow of 50 years, consistent with asset life.
8. Real discount rate adopted from Western Power calculations.

Attachment 1 - Incremental Revenue Test

	40	41	42	43	44	45	46	47	48	49	50
	2052/53	2053/54	2054/55	2055/56	2056/57	2057/58	2058/59	2059/60	2060/61	2061/62	2062/63
Substation commencement											
Maximum Existing Substation Capacity (kVA)	25,000										
Incremental Load											
OEII Substation Load Growth After 2020/21 (%)	1.0%										
External Substation Load Growth After 2020/21 (%)	1.0%										
Forecast OEII Substation Load	34,625	34,971	35,321	35,674	36,031	36,391	36,755	37,123	37,494	37,869	38,248
Forecast External Substation Load	16,061	16,221	16,384	16,547	16,713	16,880	17,049	17,219	17,391	17,565	17,741
Forecast Total Substation Load	50,686	51,193	51,705	52,222	52,744	53,271	53,804	54,342	54,885	55,434	55,989
Forecast Incremental Load (Above Existing Capacity)	25,686	26,193	26,705	27,222	27,744	28,271	28,804	29,342	29,885	30,434	30,989
Unit Price											
Standard Price (\$/kVA) (2008/09)											
Real Price Growth (p.a.)	3.0%										
Standard Price (\$/kVA) (escalated)	\$182.18	\$187.64	\$193.27	\$199.07	\$205.04	\$211.19	\$217.53	\$224.06	\$230.78	\$237.70	\$244.83
Net Present Value											
Discount Rate (Real)	6.76%										
Incremental Revenue to Western Power											
NPV of Incremental Revenue	\$4,679,376	\$4,914,866	\$5,161,253	\$5,419,019	\$5,688,666	\$5,970,718	\$6,265,720	\$6,574,242	\$6,896,878	\$7,234,248	\$7,586,996
											\$14,559,964

Key Assumptions:

1. Commencement January 2014.
2. Incremental revenue for first year (2013/14) based on 6 months incremental load.
3. Forecast substation load based on estimates provided by KBR.
4. Conservative load growth of 1.0% p.a. after 2020 assumed.
5. Unit price obtained from Western Power 2008/09 Price List (Medical Centre Substation).
6. Conservative real price growth of 3.0% p.a. assumed.
7. Incremental cash flow of 50 years, consistent with asset life.
8. Real discount rate adopted from Western Power calculations.

Attachment 2 - 'Brought Forward Cost' (Safety and Reliability Test)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Project Under Consideration (\$m)															
Project Capital Cost (Transmission Works) Previously Estimated by Western Power	\$2.66	\$6.60	\$13.30	\$1.70	\$0.00	\$1.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Revised Project Capital Cost (Transmission Works) from Draft Determination	\$2.58	\$6.13	\$12.00	\$1.53	\$0.00	\$1.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Original Planned Works (\$m)															
Unescalated Project Capital Cost (Completion by 2015/16, consistent with Asset Replacement Plan)	\$0.00	\$0.00	\$2.58	\$6.13	\$12.00	\$1.53	\$0.00	\$1.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Real Cost Escalation (i.e. above inflation)															
Cumulative Real Cost Escalation (i.e. above inflation)		3.0%	6.1%	8.3%	12.6%	15.9%	19.4%	23.0%	26.7%	30.5%	34.4%	38.4%	42.6%	46.9%	51.3%
Escalated Cost of Original Planned Works	\$0.00	\$0.00	\$2.74	\$6.70	\$13.50	\$1.77	\$0.00	\$1.28	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Net Present Cost															
Discount Rate (Real)															
NPC of Project Under Consideration															
NPC of Original Planned Works															
'Brought Forward Cost'															

Key Assumptions:

1. Commencement of Project Under Consideration in 2008/09; Completion 2013/14
2. Commencement of Original Planned Works in 2010/11; Completion in 2015/16, consistent with Asset Replacement Plan
3. Previously estimated capital cost of Project Under Consideration (Transmission Works only) provided by Western Power
4. Revised capital cost of Project Under Consideration estimated by reducing Western Power's previous estimate on a pro-rata basis to match Draft Determination (excluding Transmission Works)
5. Conservative real cost escalation of 3.0% p.a. assumed.
6. Real discount rate adopted from Western Power calculations