



COMMONWEALTH GRANTS COMMISSION

DRAFT ASSESSMENT PAPER CGC 2003/79

INPUT COSTS — ELECTRICITY AND ACCOMMODATION

Prepared for the Commission's 2003 Conferences on Draft Assessments

AUGUST 2003

NOTE

Included in this paper are the results of preliminary calculations based on the methods proposed throughout the paper and using the data currently available. Those results are indicative only and should be seen as work in progress. Ongoing changes are being made to standards and factor calculations as new data come to hand. Moreover, the calculations have been done using a prototype assessment system and are subject to ongoing revision as checking processes proceed.

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INTRODUCTION

1. In the 1999 Review, the input costs allowances took account of unavoidable interstate differences in the cost of inputs: prices of labour, office accommodation and electricity, to services provision. *Discussion Paper CGC 2003/04 Wages Input Costs* outlined the work the Commission has undertaken to investigate issues associated with input costs wage and salary component. This draft assessment paper deals with the other elements of input costs: office accommodation and electricity.

ELECTRICITY

1999 Review method

2. In the 1993 Review, the electricity cost disabilities were assessed by judgement using data on electricity generation costs from the Electricity Supply Association of Australia (ESAA). Electricity cost disabilities were assessed for Western Australia, South Australia, the ACT and the Northern Territory.

3. In the 1999 Review, given the movements towards a competitive electricity market, the Commission restricted electricity cost disabilities to the Northern Territory, Western Australia and South Australia.¹ It considered that South Australia's disability would be temporary, and decided to phase it out by 2004. It also reduced the expense weight for the electricity cost element from three to one per cent because of falling prices of electricity. Table 1 shows the electricity cost factor used in the 2003 Update.

Table 1 ELECTRICITY COST FACTOR, 2003 UPDATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
By judgement	1.00000	1.00000	1.00000	1.50000	1.05000	1.00000	1.00000	2.00000
Rescaled factor	0.94072	0.94072	0.94072	1.41108	0.98776	0.94072	0.94072	1.88145

Source: Commonwealth Grants Commission.

¹ The rationale was that: the Northern Territory lacked both raw fuel and infrastructure, and was not connected to the national grid; Western Australia faced high electricity costs, although to a lesser extent than the North Territory, because of its infrastructure and the availability of fuel used in electricity generation; and South Australia was facing a period of adjustment before it could take full advantage of the national electricity market.

State views

4. Victoria suggested that the Commission should assess an electricity cost disability based on policy-neutral data rather than assessing it by judgement — that is, the Commission should either remove the factor or establish an independent benchmark.²

5. South Australia objected to the decision to phase out its disability by 2004 and suggested the use of electricity retail prices recorded by ESAA to estimate price differences between States. It argued that despite the National Electricity Market (NEM), it continued to experience higher costs in generating, transmitting and distributing electricity that were due to technical and geographic reasons rather than State policies.

6. The ACT used the average retail electricity prices provided by ESAA for the period from 1992-93 to 1999-2000 to argue that:

- (i) no State participating in the NEM, including Tasmania, had a disability;
- (ii) the disability factors for Western Australia and the Northern Territory were too generous, and should be 1.3 and 1.6 respectively³; and
- (iii) the component weight should be reduced from one per cent to 0.4 per cent.

7. The Northern Territory suggested that factors should continue to be assessed to reflect the higher costs it faced in relation to electricity. Comparing retail prices of electricity across States, the Territory supported the Commission's judgement in the 1999 Review factor.

Staff proposals

8. Staff proposed that an electricity cost factor continue to be assessed and that the 1999 decision to discontinue the assessment of a disability for South Australia from 2004 should be revisited. It reached no conclusions on the data that should be used.

Further State views

9. The ACT repeated its arguments that:

- (i) the 1999 Review electricity cost disabilities were overgenerous to Western Australia, South Australia and the Northern Territory compared with cost disabilities based on electricity retail prices from the ESAA; and

² For example, by type of generation capacity. Victoria further suggested that 'alternative measures of the true, policy-adjusted cost of electricity were available, and data could be obtained for CGC use'. We have asked Victoria to provide us with the data.

³ 1999 Review values were 1.5 and 2.0 respectively.

- (ii) the electricity component weight should be reduced from one per cent to 0.4 per cent.

10. Western Australia argued that it incurred higher costs in electricity because it faced:

- (i) higher fuel costs due to diseconomies of small scale in coal production;
- (ii) lower than average use of capital intensive generating plant due to its need to have a relatively large reserve capacity to cater for peak demand (partly because it is not interconnected to the Eastern States grid);
- (iii) higher per capita transmission and distribution costs due to its need to serve relatively large sparsely populated geographic regions;
- (iv) the need to provide small isolated systems in remote areas which suffer from severe diseconomies of small scale and high fuel transport costs and maintenance costs.

11. South Australia argued again that its electricity cost factor should be retained and that electricity retail prices, as recorded by ESAA, should be used in the assessment of relative electricity cost differences between States.

Analysis

12. Data from ESAA indicate that there are differences in costs of obtaining electricity across States. These differences are significant, especially for some States. Since electricity is an important input to State functions, there remains a conceptual case for the recognition of State differences in the electricity input costs they face. The issue was how to measure them. We considered two options. One option was based on generation costs, the other was based on electricity retail prices.

13. ***Factors based on generation costs.*** Information on the volume of electricity generated by plant type and States was obtained from an ESAA publication.⁴ The average cost of production for different plant types was estimated using several sources. They are detailed in Table 2.

14. Table 2 also shows the factors derived from this information. Based on the proportion of electricity generated by plant type and the corresponding estimated cost, a weighted cost index was calculated for each State. The ACT has been assigned New South Wales costs since ACT does not generate any electricity and its electricity supplies come predominantly from New South Wales.

⁴ Electricity Supply Association of Australia Limited, *Electricity Australia*, 2002.

15. The electricity cost disability factors based on generation costs suffer from a number of deficiencies.

- (i) Electricity plant mix in a State may be a policy choice.
- (ii) The cost data used were largely based on New South Wales data and generalising the results to other States may not be appropriate.
- (iii) Disabilities based on generation costs reflect cost differences in only part of the electricity supply chain. It does not take account of cost differences in transmission, distribution and retail services. Of the four elements of the electricity supply chain, generation costs account for about 60 per cent of total cost in the industry⁵. Distribution costs, which account for about 25 per cent of the total cost in the industry, could also have a significant effect on the price differences across States.

16. Factors affecting distribution costs are many. For example, energy and consumption levels, customer density, demand characteristics, physical environment, such as terrain, soil conditions and climate, extent of contributed assets, production economies and energy loss are among them. Some of these can be influenced by State policies. Some of them cannot.

17. Through workplace visit and submissions, the Commission has noted that South Australia has a higher level of transmission costs relative to New South Wales, Victoria and Queensland. However, a review of electricity supply costs in the NEM published by the National Electricity Code Administrator Limited (NECA) concluded that:

‘The relatively small size of transmission costs within the overall cost structure of the industry and the regulation of transmission revenues suggests that the differences in the costs of transmission between States, utilities and customer types are unlikely to be a significant contributing factor to differences in prices faced by end-users.’⁶

18. Given the insignificant impact of transmission costs on electricity prices and the lack of comprehensive transmission costs data across States, the Commission has decided not to consider the impact of transmission costs on electricity factors.

⁵ Productivity Commission, *Electricity Prices and Cost Factors*, Staff Research Paper, August 2001.

⁶ BurnVoir Partner, *Review of Supply Chain Cost in the National Electricity Market*, Report for the National Electricity Code Administrator Limited, December, 2001.

Table 2 ELECTRICITY FACTORS BASED ON GENERATION COST

	NSW	Vic	Qld	WA ^(a)	SA	Tas	ACT ^(b)	NT	Av. cost ^(c) A\$/MWh
Proportion (%) of electricity generated^(d) and cost by plant type									
Hydro ^(e)	0.5	1.3	1.5	0.0	0.0	99.2	0.5	0.0	17.9
Steam	97.9	98.6	93.7	92.6	70.6	0.7	97.9	0.0	33.6 ^(f)
Internal combustion	0.0	0.0	0.0	2.1	0.0	0.2	0.0	16.0	248.0 ^(g)
Gas turbine	0.0	0.2	0.5	5.3	5.3	0.0	0.0	34.8	49.6
Combined cycle	1.6	0.0	4.3	0.0	24.1	0.0	1.6	49.3	45.0 ^(h)
Weighted cost index	33.7	33.4	33.9	38.9	37.2	18.4	33.7	79.0	34.6 ⁽ⁱ⁾
Factor	0.97552	0.96768	0.98208	1.12581	1.07652	0.53248	0.97552	2.28605	1.00000

- (a) Figures represent generation from Western Power Cooperation only.
- (b) Assigned New South Wales' figures
- (c) Based on the study: Cap, Gemini Ernst & Young, *Assessing the Long Run Marginal Costs of Generation in New South Wales*, Report for IPART, September 2000. The average long run cost of generation by plant type was calculated as the smoothed cost of generation over the life of the plant. The cost components included in the estimate were capital, fuel, operating and maintenance costs.
- (d) Based on Electricity Supply Association of Australia Limited, *Electricity Australia, 2002*, Table 2.5, Electricity generation, million kilowatt-hour (GWh) by plant type, 2000-01, p 32.
- (e) Exclude output from pump store plant.
- (f) This refers to black coal operation. Although brown coal is cheaper than black coal, its quality is inferior to black coal. Data published in a study by BurnVoor Partner (*Review of Supply Chain Costs in the National Electricity Market*, Report for the National Electricity Code Administrator Limited, December, 2001), suggest that the total generation costs for brown and black coal are similar.
- (g) Based on the Northern Territory 2004 Review main submission: *Concessions and Other Payments*, Chapter 20, p 270, that the cost per unit of energy produced using diesel was about five times that of gas.
- (h) Based on a study: BurnVoor Partner, *Review of Supply Chain Costs in the National Electricity Market*, Report for the National Electricity Code Administrator Limited, December, 2001, that the average generation cash cost of combined cycle was about 1.3 times that of conventional steam coal production.
- (i) Weighted average cost using the 2000-01 mean resident population.

19. **Factors based on electricity prices.** The Commission also considered calculating a disability factor based on electricity retail prices as suggested by South Australia and the ACT .

20. Table 3 sets out the factors calculated using retail electricity prices. Estimated electricity prices for large business, as published in the ESAA publication⁷, were used in the calculation. Those estimated retail prices reflect the total energy cost, including wholesale market operation cost, network charges, costs of transmission and distribution losses and the cost of retail operations and marketing.

⁷ Electricity Supply Association of Australia Limited, *Electricity Prices in Australia 2002/2003*.

Table 3 ELECTRICITY FACTORS BASED ON RETAIL ELECTRICITY PRICES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Real electricity prices (cents per kWh 2002-03 dollar)^(a)									
2000-01	6.34	6.29	7.89	9.43	9.85	6.95	7.94	10.64	7.28
2001-02	6.44	7.55 ^(b)	7.34	9.16	10.27	6.60	8.54	9.90	7.52
Factors									
2000-01	0.87101	0.86414	1.08395	1.29552	1.35322	0.95481	1.09082	1.46176	1.00000
2001-02	0.85636	1.00396	0.97603	1.21805	1.36565	0.87763	1.13560	1.31645	1.00000

(a) Based on demand of 2 500 kW with 60 per cent load factor or consumption of 13 140 MWh per year and contestable prices excluding GST (ESAA, *Electricity Prices in Australia 2002/2003*, Table A2, Real electricity prices by classified customers 1996/97 to 2002/03, p 8).

(b) The large increase in price was due to the relatively high wholesale prices in the previous summer in response to a tight demand and supply market in Victoria.

21. The factors based on retail electricity prices provide a more comprehensive assessment of the total cost differences. However, they are less policy-neutral. Australian Governments introduced significant changes to the electricity sector progressively through the 1990s. The intention was to create a competitive national electricity market. The changes included the separation of the previously vertically integrated electricity supply chain, the introduction of competition between generators and retailers, regulation of network (both transmission and distribution) access and price, and the creation of the NEM. The pace of change has been different in different States.

22. The recent review conducted by the Council of Australian Governments (the Energy Market Review) suggests that the generation market is not yet fully competitive and that the potential for generator providers to exercise market power remains high in some States, particularly those with only a limited number of competing providers.⁸

23. While the Australian Competition and Consumer Commission is responsible for regulating the transmission network nationally, State regulators monitor and set prices for State distribution networks. Therefore, there is uncertainty concerning the extent to which State policies influence distribution costs and prices even though distribution pricing decisions are released for full public scrutiny. Similarly, a competitive retail market has not fully developed. For example, regulators such as the Office of the Regulator in Victoria and the Independent Pricing and Regulatory Tribunal in New South Wales have been active in reviewing retail operating costs.⁹

24. Of the two options proposed in this paper, the Commission considers that factors based on generation costs are less policy influenced than the factors based on retail prices. Retail prices are more prone to State policy influences because they reflect all of the

⁸ Council of Australian Governments Energy Market Review, *Towards a Truly National and Efficient Energy Market*, 2002.

⁹ BurnVair Partner, *Review of Supply Chain Cost in the National Electricity Market*, Report for the National Electricity Code Administrator Limited, December, 2001.

four cost elements (generation, transmission, distribution and retail sales) in the electricity supply chain.

Commission decision

25. The Commission accepts that a conceptual case has been established for assessing electricity cost disabilities. The conceptual case is supported by data which considers to be sufficiently indicative to suggest that States face differences in the per capita costs of electricity. The evidence indicates that these differences have an impact on State budgets which the Commission considers to be material. Therefore, the Commission has decided to assess electricity costs disabilities and to base them on generation costs. Table 4 compares the factors assessed for the 2004 Review with those used in the 2003 Update.

Table 4 ELECTRICITY COST FACTOR, 2003 UPDATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2003 Update factor	0.94072	0.94072	0.94072	1.41108	0.98776	0.94072	0.94072	1.88145
2004 Review factor	0.97552	0.96768	0.98208	1.12581	1.07652	0.53248	0.97552	2.28605

Source: Commonwealth Grants Commission.

Updateability

26. We expect to be able to update the volume of electricity generated by plant type and States using the ESAA annual publications. If the data are available, the factors will be updated annually.

Expense weight

27. **1999 Review.** In the 1993 Review, the electricity cost element was applied to three per cent of standard expenditure. In the 1999 Review, New South provided data which showed its average expense on electricity was about 0.57 per cent of total general government outlays. The Commission considered electricity costs in other States would be a higher proportion of outlays in other States. On the basis of the evidence from New South Wales and other evidence that electricity prices were falling, the Commission reduced the expense weight for electricity from three per cent to one per cent of standard expenses.

28. **State views.** The ACT argued that the proportion of expenses represented by electricity should be reduced from one per cent to 0.4 per cent.

29. **Analysis.** Electricity prices have continued to fall since the 1999 Review, suggesting that the one per cent expense weight is too high. A further reduction in the expense weight for electricity costs is warranted and we propose to reduce it from one per cent to 0.5 per cent of the standard expenses.

30. **Commission decision.** The Commission accepts that a conceptual case has been established for reducing the expense weight for electricity disabilities. The evidence suggests that electricity prices have declined since the 1999 Review and they have less impact on State budgets. The Commission accepts the evidence is sufficient to warrant a reduction in the expense weight for electricity disabilities and it has decided to reduce the weight from one per cent to 0.5 per cent of standard expenses.

31. The reduction in expense weight is not yet reflected in the draft assessment papers for individual categories.

Updateability

32. The expense weight will not be re-examined until the next review.

ACCOMMODATION

1999 Review method

33. In the 1993 Review, the Commission assessed office accommodation cost disabilities based on average commercial rents in a standard set of real estate regions. To ensure that State policy decisions on the locations of their offices did not influence the factor, it used a standard distribution of offices by types of real estate region.

34. In the 1999 Review, the Commission used 'effective rents' instead of face rents to take account of particular leasing arrangements. Commercial rent data provided by Jones Lang Lasalle were used as the policy neutral indicator of such cost differences. However, no data were available for Tasmania or the Northern Territory. On the basis of judgement, they were assigned the South Australian values.

35. The expense weight was increased from one to two per cent of category expense to reflect the increasing tendency of State governments to lease property rather than owning it.

State views

36. Tasmania questioned the need to assess accommodation cost disabilities. It argued that the additional costs of leasing infrastructure used in the provision of services would have been factored into the decision a State made when deciding to buy or lease, or even sell and lease back. It argued, therefore, that it was inappropriate to assess above-average rental costs.

37. The Northern Territory suggested the use of AVO data in relation to the accommodation factor, particularly for Darwin and Hobart.

Staff proposals

38. Staff proposed retaining the accommodation input cost factor because any cost differences in the costs of accommodation, either through renting, leasing or purchasing should be recognised. They said they would explore the use of the AVO data.

Further State views

39. The ACT suggested that the accommodation weight should remain at two per cent for the 2004 Review.

Analysis

40. In the 1999 Review, the raw accommodation cost factor was calculated by comparing the weighted average effective rent rates in five office accommodation areas in each State with the Australian average. The calculation for the 2003 Update is set out in Table 5.

Table 5 CALCULATION OF THE ACCOMMODATION FACTOR, 2003 UPDATE

	Std Prop	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²
Prime CBD	15	527	309	232	268	176	155	252	150
Secondary CBD	15	355	165	161	255	122	110	215	106
Prime suburban	18	354	245	229	267	176	155	252	150
Secondary suburban	27	293	203	161	255	122	110	215	106
Outside capital city	25	100	100	100	100	100	100	100	100
Weighted average		300.13	195.01	168.64	220.36	134.32	122.35	198.46	119.02
Raw Factor		1.35808	0.88241	0.76309	0.99712	0.60779	0.55363	0.89803	0.53856
Discounted by 50% and rescaled ^(a)		1.17904	0.94121	0.88155	0.99856	0.80390	0.77681	0.94901	0.76928

(a) The discounting of the raw factors is to account for the perceived deficits in rent data.

Source: Corporate Property Research, Jones Lang LaSalle Advisory Service Pty. Ltd.

41. Most States did not comment on the calculation of the accommodation cost factor. The Northern Territory suggested AVO rent data was a better basis for the calculation and these data were available for Darwin and Hobart, thereby removing an element of judgement from the assessments.

42. Although the Jones Lang LaSalle commercial rent data were the best available for the 1999 Review, the data were inadequate in a number of respects:

- (i) no data were available for Tasmania and the Northern Territory;
- (ii) data were not available for any regional centre outside the capital city for any State; and
- (iii) apart from the prime CBD, coverage for other CBD locations was patchy because some data were missing.

43. The available data on office rentals confirm there are large differences in rent levels across States. Building occupancy costs are a noticeable component of aggregate costs of providing virtually all State services. This suggests there is a good conceptual case for continuing to assess the differences in costs that the States face in providing accommodation for their workforce. Data are available to support an assessment. To improve the accuracy of the assessment, we have decided to purchase the commercial rent data from the AVO, for at least one year. This will enable us to assess the quality of the data and their impact on the accommodation factors compared to those used in the 1999 Review. Table 6 sets out the accommodation factors based on the net average commercial rental data as at 30 June 2003 provided by AVO. We think the AVO data are preferable to the Jones Lang Lasalle data because they are more comprehensive, covering all States and regions in each State.

Table 6 CALCULATION OF THE ACCOMMODATION FACTOR, 2004 REVIEW

	Std Prop ^(a)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²
Prime CBD	15	397	320	220	200	205	210	360	215
Secondary CBD	15	310	240	150	140	185	180	280	185
Prime fringe CBD	18	260	260	180	180	195	130	320	195
Secondary fringe CBD	27	229	200	140	135	170	110	260	160
Outside capital city ^(b)	25	127	152	191	160	135	130	0	110
Weighted average		246.4	222.8	173.5	159.9	173.3	144.1	223.8	165.8
2004 Review factor		1.17853	1.06552	0.82951	0.76447	0.82855	0.68915	1.07031	0.79293
2003 Update factor		1.17904	0.94121	0.88155	0.99856	0.80390	0.77681	0.94901	0.76928

(a) We are seeking data to update the standard proportions of commercial areas occupied by State governments.

(b) Except for Canberra, referring to the population weighted average of net average commercial rentals in the selected locations outside capital cities in the States. The selected locations were:

New South Wales: Broken Hill and Wagga Wagga;

Victoria: Bendigo and Mildura;

Queensland: Cairns and Mount Isa;

Western Australia: Kalgoorlie-Boulder;

South Australia: Whyalla;

Tasmania: Launceston; and

Northern Territory: Alice Spring.

Source: AVO

Commission decision

44. The Commission accepts that a conceptual case has been established for assessing accommodation cost disabilities. The conceptual case is supported by data which the Commission considers to be sufficiently indicative to show that States face differences in the per capita costs of accommodation. The evidence indicates that these differences have an impact on State budgets which the Commission considers to be material. Therefore, the Commission has decided to assess accommodation costs disabilities and to base them on rental data provided by the AVO.

Updateability

45. This factor would be updated annually using the current source of data or the relevant consumer price index.

Expense weight

46. ***1999 Review.*** In the 1993 Review, the accommodation cost element was applied to one per cent of standard expenditure. In the 1999 Review, the expense weight was increased from one to two per cent of category expense to reflect the increasing tendency of State governments to lease property rather than owning it.

47. ***State views.*** The ACT supported the retention of the two per cent proportion and no other State commented.

48. ***Commission decision.*** For the 2004 Review, the Commission examined data published in the Budget Papers of Western Australia and Tasmania. These data showed that, on average, these States spent about two per cent of their total expenses on rent/office accommodation for 2001-02. On the basis of that evidence, the Commission has decided to retain the weight at two per cent.

Updateability

49. The expense weight will not be re-examined until the next review.