



# **COMMONWEALTH GRANTS COMMISSION**

**DRAFT ASSESSMENT PAPER CGC 2003/13**

## **MINING REVENUE**

Prepared for the Commission's 2003 Conferences on Draft Assessments

**JULY 2003**

# CONTENTS

---

INTRODUCTION	1
THE 1999 REVIEW ASSESSMENT METHOD	1
Description of the category	1
The revenue base	2
Importance of the category	4
ISSUES FOR THE 2004 REVIEW	5
The definition of the category	5
The revenue base measure	6
Data issues	13
Elasticity adjustment	15
Commission decision	17
PROPOSED ASSESSMENT METHOD FOR THE 2004 REVIEW	17
Calculation of the revenue base	18
2004 REVIEW DRAFT CALCULATIONS	18
Grant share effects	18
Revenue raising capacity ratios	18
Standardised revenue	19
Reality check	20
Updateability	20
ATTACHMENT A: COMPARISON OF INTERSTATE ROYALTY RATES	21
ATTACHMENT B: 2004 REVIEW DRAFT REVENUE BASE	26

## INTRODUCTION

1. This paper presents a draft assessment for the Mining Revenue category for the 2004 Review. It builds on the staff proposals set out in *Discussion Paper 2002/15, The Mining Assessment* and responds to State comments provided in submissions and at the 2002 conferences.

### THE 1999 REVIEW ASSESSMENT METHOD

#### *Description of the category*

2. The Mining Revenue category comprised revenues from royalties, or rental equivalents, levied on minerals.

3. In the 1999 Review, the category included amounts identified as excess profits from the rail haulage of black coal in Queensland because the Commission deemed these to be quasi-royalties. Since then, Queensland has phased out its special rail haulage contracts. From 1 July 2000, it applied one royalty rate regime across all its mines and the Commission discontinued its quasi-royalty adjustment from 2000-01.

4. The category excluded payments in lieu of royalties. These payments related to off-shore petroleum and gas and (for the Northern Territory) uranium and were derived from revenue sharing agreements with the Commonwealth. States had little control over these revenues and the Commission treated them as specific purpose payments (SPPs) rather than State own source revenue.

5. Table 1 shows the revenue standards for this category in the 2003 Update. In 2001–02, Mining Royalties totalled \$1 781.06 million (or \$90.87 per capita), this represented 3.37 per cent of State own source revenue. Table 1 also shows the SPPs in lieu of royalties in each year.

**Table 1** STANDARD REVENUE FOR MINING REVENUE AND GRANTS IN LIEU OF ROYALTIES

		1997-98	1998-99	1999-2000	2000-01	2001-02
<b>Mining revenue</b>						
Standard revenue	\$pc	70.24	73.71	73.58	87.59	90.87
Percentage of own source revenue	%	3.05	2.97	3.14	2.84	3.37
<b>SPP in lieu of royalties</b>						
	\$pc	12.24	8.74	16.92	25.39	20.60

Source: 2003 Update Working Papers, Volume 2, pages 14 and 18. 2003 Update Report, Supporting Information, pages 42 to 61.

### ***The revenue base***

6. The revenue base was adjusted value added of the mining industry. That is, value added:

- (i) *less*: value added for off-shore petroleum and (for the Northern Territory) uranium;
- (ii) *plus*: the higher estimated excess freight charges collected by Queensland (an amount equal to the estimated quasi-royalties for Queensland);
- (iii) *less*: wages and salaries and related on-costs (payroll tax, workers' compensation and superannuation), net of amounts relating to off-shore petroleum and (for the Northern Territory) uranium;
- (iv) *less*: a five-year average of on-lease exploration expenses, net of amounts relating to off-shore petroleum and (for the Northern Territory) uranium; and
- (v) *less*: a ten-year average of capital expenditure, net of amounts relating to off-shore petroleum and (for the Northern Territory) uranium.

7. It was considered that the level of mining activity was affected by the royalty rate imposed on it. The Commission, therefore, made an elasticity adjustment aimed at varying the measure of each State's base to reflect what it might have been if the national average royalty rate had applied rather than the State's own rate.

8. Data to calculate the revenue base for the last year of the assessment period (2001-02 for the 2003 Update) were not available in time for the inquiry. The revenue base for that year was estimated from the revenue base for the year immediately proceeding it, adjusted in proportion to the change in actual revenues (an adjustment was made to remove the impact of changes in royalty rates between the two years).

9. Table 2 shows the calculation of the revenue base for the assessment for 2001-02.

**Table 2** CALCULATION OF REVENUE BASE FOR MINING

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
<b>(A) Value Added (\$'000)</b>								
1997-98	3 572 703	3 280 260	5 462 744	11 507 522	1 035 853	199 659	3 645	933 336
1998-99	4 076 989	2 324 261	5 547 010	12 272 996	938 775	222 965	3 676	829 037
1999-2000	3 506 811	3 527 709	5 552 488	11 715 805	1 095 412	219 650	3 725	942 998
<b>(B) Value added – off-shore petroleum and gas (\$'000)</b>								
1997-98	0	2 645 053	0	4 713 494	0	0	0	288 324
1998-99	0	1 802 494	0	4 414 575	0	0	0	232 085
1999-2000	0	2 857 385	0	4 729 415	0	0	0	286 989
<b>(C) Value added – uranium (\$'000)</b>								
1997-98	0	0	0	0	0	0	0	58 038
1998-99	0	0	0	0	0	0	0	51 462
1999-2000	0	0	0	0	0	0	0	90 053
<b>(D) Freight charges - quasi royalties (\$'000)</b>								
1997-98	0	0	84 300	0	0	0	0	0
1998-99	0	0	86 300	0	0	0	0	0
1999-2000	0	0	97 300	0	0	0	0	0
<b>(E) Net value added (\$'000) = (A) - (B) - (C) + (D)</b>								
1997-98	3 572 703	635 208	5 547 044	6 794 028	1 035 853	199 659	3 645	586 973
1998-99	4 076 989	521 767	5 633 310	7 858 421	938 775	222 965	3 676	545 491
1999-2000	3 506 811	670 325	5 649 788	6 986 391	1 095 412	219 650	3 725	565 956
<b>(F) Net wages and salaries (\$'000)</b>								
1997-98	1 565 633	173 613	1 436 399	1 248 861	146 450	86 213	797	116 514
1998-99	1 311 162	200 140	1 250 090	1 260 085	162 087	78 812	733	116 694
1999-2000	1 212 157	191 609	1 216 675	1 185 002	157 728	101 848	703	97 854
<b>(G) Net capital expenditure (\$'000)</b>								
1997-98	627 830	86 293	816 233	1 631 073	173 289	49 085	383	80 949
1998-99	651 862	90 555	942 954	1 759 707	189 637	51 863	416	104 554
1999-2000	635 585	85 265	1 007 608	1 799 100	232 606	53 502	438	157 524
<b>(H) On-lease exploration expenditure (\$'000)</b>								
1997-98	9 933	4 932	23 747	68 585	8 522	2 199	0	9 186
1998-99	9 800	5 271	23 147	70 181	9 029	2 246	0	9 028
1999-2000	9 368	5 321	20 942	68 468	8 619	2 113	0	8 600

**Table 2** CALCULATION OF REVENUE BASE FOR MINING (continued)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
(I) Adjusted value added (\$'000) = (E) - (F) - (G) - (H)								
1997-98	1 369 307	370 370	3 270 665	3 845 510	707 593	62 163	2 465	380 324
1998-99	2 104 166	225 801	3 417 119	4 768 448	578 021	90 044	2 528	315 214
1999-2000	1 649 700	388 129	3 404 563	3 933 820	696 459	62 188	2 584	301 978
(J) Elasticity adjustment								
1997-98	1.05100	0.74800	1.14340	0.92650	0.86080	1.04020	0.60730	0.82240
1998-99	0.92500	0.82420	1.18330	0.92530	0.94150	0.99580	0.63700	0.87700
1999-2000	0.98710	0.74080	1.13260	0.93940	0.92680	1.17460	0.59620	0.84130
(K) Revenue base (\$'000) = (I) * (J)								
1997-98	1 439 236	277 128	3 739 796	3 562 869	609 113	64 671	1 498	312 778
1998-99	1 946 339	186 192	4 043 479	4 412 151	544 213	89 668	1 610	276 435
1999-2000	1 628 468	287 588	3 856 040	3 695 298	645 535	73 050	1 541	256 905

Source: 2003 Update Working Papers, Volume 2, pages 207 and 243.

### *Importance of the category*

10. Table 3 shows that, compared with an equal per capita assessment, the Mining Revenue category redistributed \$855.4 million and the Grants in Lieu of Royalties redistributed \$340.8 million in the 2003 Update.

**Table 3** GRANT REDISTRIBUTION OF MINING REVENUE AND GRANTS IN LIEU OF ROYALTIES COMPARED WITH AN EQUAL PER CAPITA DISTRIBUTION, GST RELATIVITIES

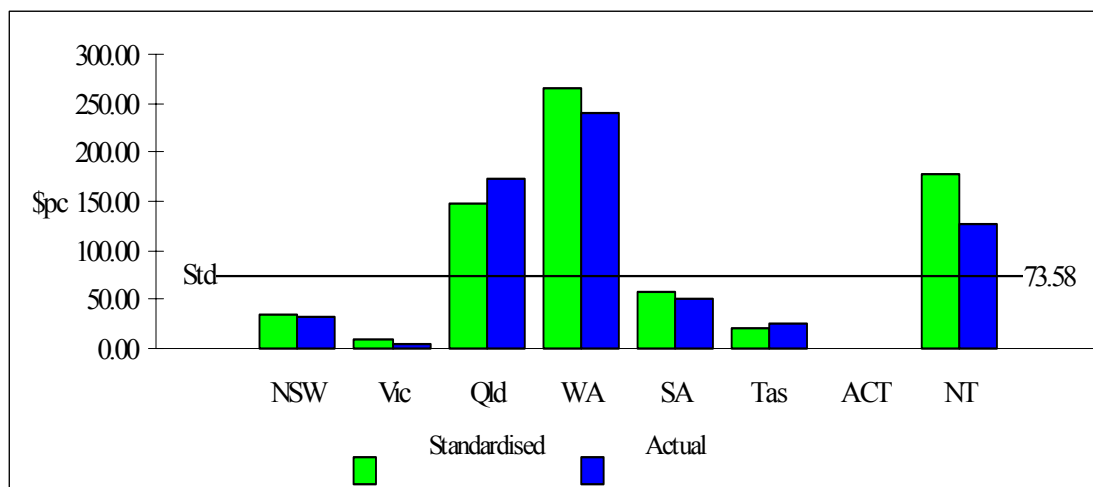
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redistrib'n
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Mining category	350.5	407.5	-310.3	-516.0	35.4	33.0	28.9	-29.1	855.4
Grants in lieu of royalties	128.2	95.1	71.9	-340.8	29.2	9.1	6.1	1.1	340.8
Total change	478.6	502.6	-238.4	-856.7	64.6	42.1	35.0	-28.0	1 123.0

11. Figure 1 shows the standardised, actual and standard revenues per capita for 1999-2000, the latest year for which consistent and actual data were available.<sup>1</sup> It shows big

<sup>1</sup> As noted in the in the 2003 Working Papers, the Commission estimated the Mining Revenue base for 2000-01 and 2001-02. The way in which the ABS produced mining data for 2000-01 represented a significant change from the methods used for earlier years. The 2000-01 data were not comparable with those for earlier years. In addition, the mining industry in several States, especially the Northern Territory and Tasmania, seemed to have

differences across States' in both actual revenue per capita and standardised revenue per capita, reflecting the large differences in mining activity across States.

**Figure 1** MINING REVENUE: STANDARDISED, ACTUAL AND STANDARD REVENUES PER CAPITA, 1999-2000



### ISSUES FOR THE 2004 REVIEW

12. The main issues for the 2004 Review of the mining assessment were:
  - (i) should payments in lieu of royalties be included in the category?
  - (ii) from both conceptual and practical data viewpoint, what is the preferred measure of State mining revenue raising capacity?
  - (iii) will data be available to support the preferred assessment method? and
  - (iv) should an elasticity adjustment be made?

#### *The definition of the category*

13. **Preliminary proposal.** In *Discussion Paper CGC 2002/15*, Commission staff proposed changing the presentation of the assessment for payments in lieu of royalties,

---

undergone significant structural change in 2000-01. The data changes, combined with the large changes in the structure of mining activities in some States, meant that applying the 2002 Update methods to the 2000-01 mining data produced markedly different results from previous years. As a consequence, the Commission estimated the revenue base for 2000-01 and 2001-02 by adjusting the 1999-2000 revenue base in proportion to the change in actual revenues, other than that due to changes in royalty rates.

which were treated as SPPs in the 1999 Review. They proposed showing them as Mining Revenue but continuing to assess them by the actual per capita method.

14. **State views.** *Western Australia* and *Tasmania* supported the proposal to treat these payments as State revenue, provided it did not change State relativities or grants.

15. **Analysis and evaluation.** Under this proposal, payments in lieu of royalties would be assessed as a separate component of the mining category. It would be assessed by the actual per capita method. This is the same assessment as that applied to these payments in the 1999 Review, where they were classified as SPPs. This presentational change would not affect relativities or grant shares.

16. **Commission decision.** Given no State has opposed the proposal, the Commission has decided to:

- (i) expand the definition of the category to include payments in lieu of royalties;
- (ii) assess payments in lieu of royalties as a separate component of the Mining Revenue category; and
- (iii) assess the payments in lieu of royalties component by the actual per capita method.

### ***The revenue base measure***

17. **Preliminary proposal.** In *Discussion Paper CGC 2002/15*, Commission staff proposed replacing the current adjusted value added assessment with a weighted value of production<sup>2</sup> assessment. While Commission staff said there were good conceptual reasons for continuing with the current assessment, there were also serious and increasing data problems which brought into question its sustainability.

18. **State views.** *New South Wales* supported an assessment based on profitability because it recognised differences in costs of production and differences in State mineral industry structures. It opposed the two measures proposed in the discussion paper (weighted value of production and weighted value added) because they made no adjustments for differences in costs of production.

19. It agreed with an ABARE study<sup>3</sup>, which said governments might use production or volume royalties for administrative efficiency, but it was overall profitability of the industry that was the best indicator of the true capacity of States to generate mining revenue.

---

<sup>2</sup> In the discussion paper, Commission staff referred to this as a royalty rate adjusted value of production assessment.

<sup>3</sup> Hogan, L & Donaldson, K (2000) *Mineral Royalties – Net Economic Benefits of Mining in Australia*, Australian Commodities, vol. 7, no. 3, Sept Quarter 2000, ABARE.

20. **Victoria** opposed the introduction of a rate of return on capital. It supported the deduction of off-lease exploration expenses but not on-lease exploration expenses because it said on-lease expenses can be thought of as production costs. Companies should already have these costs incorporated into their wages and salaries, which the Commission already deducts in deriving the value added revenue base. Therefore, to deduct on-lease exploration expenses would be double counting.

21. **Queensland** supported a value of production assessment because it reflected State policies. It said States generally set royalties as a percentage of value of production without consideration of exploration or wage costs. It agreed industry composition impacted on mining revenue capacity.

22. Queensland said three adjustments would be required if a weighted value of production approach were adopted. These adjustments were required to better reflect industry structure and average State policies:

- a separate calculation of Western Australian oil and gas weighted value of production — because there was a problem with its 1999-2000 assessment;
- an allowance for the differences in coal production for New South Wales (a 25 per cent discount) and Victoria (an 85 per cent discount) — to reflect their lower capacity to raise coal royalties compared to Queensland; and
- use the average effective tax rate for all minerals for commodities — because commodities should not be compared to other minerals.

23. **Western Australia** strongly opposed the current adjusted value added assessment because it did not reflect either what States did or the industry's long-term capacity to pay. It said economic rent (profit less a return to equity capital) was the most appropriate base because it was what was ultimately available to States to tax.

24. Western Australia said for many major mineral projects (for example, alumina and iron ore) it set *ad valorem* royalties on a negotiated basis through State Agreement Acts. About 50 per cent of the State's mineral royalties were set at non-standard rates through Agreement Acts. Western Australia said that through this process, it took account of economic rent considerations and it set project-specific royalty rates at a lower level than the standard schedule, if this is necessary to maintain project viability.

25. Western Australia said the value of production approach was, in principle, highly relevant to the assessment of States' revenue capacity because States usually set *ad valorem* or quantity royalties for minerals. There was a relationship between such royalty systems and economic rent. It levied the majority of its royalties on an *ad valorem* basis because of simplicity and ease of understanding of this method. Only in a few cases (for example, petroleum royalties and Argyle diamonds) did it set royalty rates on an economic rent basis. Nevertheless, when it set an *ad valorem* rate, it took into account the capacity of the industry to pay — its use of a stepped schedule of basic royalty rates (2.5 to 7.5 per

cent) took account of the full cost of inputs for higher levels of processing and a required return on capital.

26. Western Australia said if a value of production approach was adopted, it should recognise that lower royalty rates applied to minerals with higher levels of processing (and hence higher costs of production and higher sales revenues). This could be achieved by standardising value of production to an ex-mine basis. If this were impractical, an approximation would be to group minerals into three classes (unprocessed, concentrates and highly processed) and calculate a standard royalty rate for each class. It would not object to distinguishing between above and below ground operations (or other relevant structural characteristics of the industry) to better reflect standard policy.

27. Western Australia opposed the adjusted value added approach because it was selective about which costs it recognised in deriving a base. It took account of labour and average capital expenditure costs, but ignored opportunity costs and off-lease exploration costs. Western Australia said the approach ought to take all industry costs into account.

28. **South Australia** supported profitability or adjusted value added because they allowed for differences in cost structures faced by mining industries in each State.

29. It said the discussion paper proposal to split the assessment into three industry groups (coal, oil and gas, and other) did not overcome the cost differences evident across States. It said some mining industries were more profitable than others but this did not mean that such industries were uniformly profitable in all States. It noted that coal extraction costs differed greatly between States. It said the mining assessment had to take account of such differences.

30. **Tasmania** said that, unlike other own source revenues, there were big differences in:

- States' natural resource base; and
- States' basis of taxation, including the variety of minerals subject to royalty and varying methods of taxing different minerals and different sites.

31. This complicated the assessment and a significant level of judgment was required.

32. Tasmania previously supported a profitability approach because it accepted a government's ability to impose royalties on the mining industry (no matter what form those royalties take) was constrained by the industry's capacity to pay and capacity to pay was best measured by profitability. It said States supporting a value of production approach argued for it because it more accurately reflected the way states actually imposed royalties. It agreed that what States generally used as their base appeared to be closer to value of production.

33. Tasmania also agreed that industry composition impacted on mining revenue capacity.

34. At this stage, Tasmania could not see a practical and better alternative to weighted value of production as the revenue base. As a high proportion of royalty rates were expressed in terms of value of production, adopting this approach might mean more reliable data would be available to the Commission.

35. The *Northern Territory* said revenue capacity was ultimately related to the long term profitability of the mining industry and therefore a profit approach was its preferred revenue base measure.

36. The Territory said profitability was closer to what States used when levying mining royalties than value of production. It took account of the cost structures faced by mining companies in each State, whereas the value of production approach only took account of differences between mineral types — it did not take account of the relative differences between the cost structures of each State. It concluded value of production was not appropriate because it was not a good reflection of what States actually did when raising mining royalties.

37. The Territory agreed that industry composition impacted on States' capacity to raise revenues from mining activities.

38. *Analysis and evaluation.* States which advocate a value of production approach say it reflects what States do — they impose royalties on a value (and volume) basis. Attachment A<sup>4</sup> suggests this is the case for New South Wales, Victoria, Queensland, Western Australia and South Australia. While the common approach appears to be to use value and volume of production measures, differences remain on what value is used and the level of royalty rate.

39. States which advocate profitability also say this reflects what States do. They say it is the long run profitability that determines the industry's capacity to pay. While accepting that States might use value and volume royalties because of their administrative simplicity, Western Australia said it took account of the capacity of the industry to pay when setting its royalty rates.

40. The difference between the two approaches is whether they recognise that costs of production impact on State mining capacity and whether, as a result, certain costs of production should be deducted from value of production in arriving at a revenue base measure. South Australia said there were cost differences between States and simply splitting the assessment into industry groups (coal, oil and gas, and other) would not address those cost differences. It said that just because some mining industries were more profitable did not mean that those industries were uniformly profitable in all States. It cited the coal industry as an example.

41. Table 3 shows the impact of the costs of production adjustments (wages, capital and on-lease exploration) made in the 2003 Update assessment. The redistributions associated with the wages and capital adjustments are large. The table also shows the

---

<sup>4</sup> The Commission notes that States legislate royalty rates for most minerals, even those that are not currently produced in the State. In this paper, the Commission gives no weight to royalty rates for minerals which are not produced in a State.

importance of making the offshore oil and gas and (for the Northern Territory) uranium adjustment.

**Table 3** EFFECT ON GRANT DISTRIBUTIONS – COMPONENTS OF THE MINING ASSESSMENT, 2003 UPDATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT Redistrib'n	
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Value added	384.4	248.7	-28.5	-692.4	69.1	31.2	30.3	-42.8	763.7
Quasi-royalties	0.8	0.7	-5.0	2.9	0.3	0.0	0.0	0.2	5.0
Wages	69.0	-39.6	31.4	-62.5	-1.7	5.2	0.0	-1.8	105.6
Capital	8.5	-29.3	10.7	4.2	4.8	1.5	0.0	-0.5	29.7
On-lease exploration	-0.5	-0.7	-0.3	0.9	0.3	0.1	0.0	0.3	1.5
Sub-total	462.2	179.9	8.3	-747.0	72.8	38.0	30.3	-44.6	791.5
Off-shore oil and gas and, in the NT, uranium	-84.7	178.6	-216.4	149.2	-33.2	-3.6	0.0	10.1	337.9
Elasticity	5.5	14.7	-85.5	46.6	10.5	-0.9	0.2	9.0	86.4
Total <sup>(a)</sup>	382.9	373.2	-293.6	-551.2	50.0	33.6	30.5	-25.5	870.3

(a) The difference between this total and the total on Table 2 is the difference between removing all elements simultaneously and removing each element on its own and aggregating the results.

42. Economic theory suggests royalties should be based on economic rent, which suggests the revenue base should be based on a profitability measure. While profitability might underlie the way States think about royalties, it does not reflect how most act in setting their royalty regimes. Whether States come to their royalty regime by looking at economic rent or not, what they eventually do is strike either a value or volume based royalty.

43. Most State royalty regimes in Australia are based on outputs — value of production (an *ad valorem* tax), volume of production (a specific tax) or a combination of the two — rather than economic rent. New South Wales, Victoria, Queensland, Western Australia and South Australia use an output based approach<sup>5</sup>. These States contributed over 90 per cent of Australian mineral output in 2000-01. The Northern Territory's royalty regime is the closest to an economic rent based approach. Tasmania mainly uses a combination of an *ad valorem* and profit approaches. Attachment A provides a comparison of State royalty rates by mineral.

44. The Commission has concluded that the prevalence of the royalty rates levied on a value or volume basis implies that the standard policy is to levy royalties on that basis. If royalty rates were based on profitability, the Commission would expect:

<sup>5</sup> Although up to 50 per cent of Western Australian production are under State Agreement Acts.

- (i) greater variability of royalty rates within a State.<sup>6</sup> However, within most States, royalty rates for most minerals are the same. It is difficult to accept profitability could be the same across so many minerals; and
- (ii) more frequent adjustments in royalty rates. Royalty regimes (and royalty rates) are relatively stable. Thus, even if relative royalty rates may have reflected profitability (or costs of production) when they were first set, they have since become ‘decoupled’. Mining profitability has varied widely over time (particularly as a result of fluctuations in international prices and the exchange rate of the Australian dollar), but States have changed royalty rates infrequently.

45. If States take account of profitability, it is in a very broad sense such as setting different royalty rates for different minerals. States appear to use a stepped schedule of royalty rates — the highest *ad valorem* rates are applied to petroleum, lower *ad valorem* rates to coal, the lowest *ad valorem* rates to other minerals and specific rates for construction materials. This implies that the value of production of different minerals should be weighted differently. The Commission concludes that the standard policy is to levy:

- (i) volume royalties on specific minerals;
- (ii) value royalties on most other minerals;
- (iii) higher value royalties on coal; and
- (iv) the highest value royalties on petroleum.

46. For that reason, it favours a revenue base derived from a weighted value/volume of production approach in which it would assess each of these minerals as a separate component.

47. **Commission decisions.** While the Commission accepts that a conceptual case can be made for assessing mining capacity using a profit measure, the evidence suggests most States collect royalties on a value/volume basis. The Commission considers the case for using output measures to be stronger because it more closely reflects what States do.

48. The evidence also suggests that States use volume royalties for some minerals and value royalties for others, with a higher royalty rate for coal and petroleum. For these reasons, the Commission proposes to:

- (i) assess mining capacity using value/volume of production; and

---

<sup>6</sup> Western Australia said it used a stepped schedule of rates for minerals other than coal and petroleum to reflect the different profitability of its industry. Other States do not appear to do this.

<sup>7</sup> Other ABS measures based on management unit data (such as industry value added) are also affected.

<sup>8</sup> ABS, *Mining Operations, 2000-01*, Cat. No. 8415.0, page 60.

(ii) assess the revenue base in components.

49. **Mining revenue components.** For the draft calculation, the following components have been used:

- (i) oil and gas (petroleum);
- (ii) coal;
- (iii) metallic ore and other minerals; and
- (iv) construction and other materials.

50. The revenue base for the first three components would be value of production. The revenue base for the fourth component would be volume of production.

51. **Coal weights.** Because of the large differences in the costs of coal production, weights have been applied to underground coal, open cut coal and brown coal. The weights were calculated using the different effective royalty rates that apply to each form of coal production. For the 2004 draft calculations, the weights for 2000-01 (the last year for which actual data was available) were:

- 1.2703 for open-cut coal
- 1.0000 for underground coal; and
- 0.5854 for brown coal.

52. For the calculation of the 2004 Review draft assessment, these weights have been used for all years. They will be updated using coal royalty and value of production data once they have been provided by States.

53. **Construction and other materials group.** Table 4 lists the minerals included in construction and other materials group. The standard practice was to strike a volume based royalty for these minerals.

**Table 4** MINERALS INCLUDED IN THE CONSTRUCTION AND OTHER MINERALS GROUP

Mineral	Mineral	Mineral
Aggregate	Clays	Dimension stone
Dolomite	Felspar	Gravel
Gypsum	Limestone	Rock
Phosphate	Salt	Talc

## ***Data issues***

54. ***State views. New South Wales*** noted that at the November 2002 conference the Australian Bureau of Statistics (ABS) indicated there was data to support a profitability measure. It would support an assessment using Industry Value Added data with an adjustment for depreciation costs or Operating Profit Before Tax data. Both measures are available by industry by State.

55. It said that the ABS has also indicated the difficulty in splitting data between offshore and on-shore mining activity was a problem for most measures. It said the ABS has made some suggestions on how to determine a split including using proportions for off-shore and on-shore activity to resolve confidentiality issues.

56. ***Queensland*** said there were data problems with the current assessment and considerable judgment was required to complete it. It said a weighted value of production approach would be based on much more reliable data which would improve data comparability.

57. ***Western Australia*** said all approaches (adjusted value added, economic rent and value of production) had data problems — although it thought the data issues were significantly greater with the adjusted value added and economic rent approaches than with the value of production approach. It said States should be able to provide value of production data, but only the ABS could provide data for the other approaches (with attendant problems of confidentiality and lack of survey detail).

58. ***South Australia*** said another reason for not using value of production as the revenue base measure was problems in the comparability of value of production data. It said its Department of Primary Industries and Resources considered these problems would always exist.

59. It noted the ABS indicated at the November conference that industry value added data would be available from 2000-01. Although this measure differed slightly from value added, it said this was one alternative option this if value added were not available.

60. ***Tasmania*** said data availability posed a threat to the sustainability of the adjusted value added approach. There were serious questions about the accuracy and reliability of an assessment based on that approach. While it saw merit in the weighted value added and weighted value of production approaches, it said the weighted value added approach would have more data problems than the weighted value of production approach. It noted that the ABS value added data did not separate:

- coal, oil and gas and metallic minerals for Victoria, Tasmania and the Northern Territory; or
- coal and oil and gas for New South Wales and Western Australia.

61. The ***Northern Territory*** recognised the mining assessment was extremely difficult and it was likely to be plagued by data limitations regardless of which approach was adopted. It said it would be important to develop an approach that provided the best fit

with what States do while minimising data related problems. It hoped that discussions between the Commission and the ABS will assist in doing this.

62. The Territory noted the ABS suggestion that data concerns may be alleviated, if only partially. It said the ABS intended to produce profitability information in the form of industry value added by State and by the three main industry categories from 2001-02. It said this appeared to be a reasonable starting point for developing an alternative approach to assessing mining revenue based on profitability.

63. The Territory noted that making the distinction between offshore oil and gas production and onshore oil and gas production would remain the biggest obstacle for the Commission regardless of which approach was taken. It suggested this particular issue be pursued further with the ABS.

64. ***Analysis and evaluation.*** The Commission requires reliable, consistent and comparable data by State for its assessments. Discussions with the ABS suggest that an output based assessment is more likely to be supported by robust and accurate data and require less estimation than an economic rent or profit based assessment.

65. The data problems facing an economic rent/profit approach include:

- mining statistics will no longer reflect solely mining activity. This is a result of a change in the way ABS collects mining data — it has moved from collecting mining establishment unit data to collecting management unit data. If a management unit is classified as mining, all its activity (including non-mining activity) is included in mining statistics. Similarly if a management unit is classified as non-mining, all its activity (including mining activity) is excluded from mining statistics. The ABS indicates this could produce differences ranging from 1 per cent for turnover to 58 per cent for employment<sup>9</sup>;
- State breakdowns will increasingly be based on estimates. The move by ABS to collecting management unit data requires it to estimate State breakdowns for units which have operations in more than one State, using three indicators: employment, wages and salaries and sales of goods and services for each State in which they operate;
- confidentiality restrictions limit the amount of information the ABS can provide to support an offshore oil and gas production and (for the Northern Territory) uranium adjustment; and
- an additional problem with the Operating Profit Before Taxes (OPBT) statistic is that data are only available for one year. A second year's data might be available before 2004 Review calculations are finalised.

66. There are data problems with a value of production approach, but they appear to be less severe. The Commission considers State mining departments are the best source

---

<sup>9</sup> ABS, *Mining Operations, 2000-01*, Cat. No. 8415.0, page 60.

of production data. The ABS statistics on the value and volume of mining production are sourced from State mining departments. Given differences in the way States value their mining production<sup>10</sup>, Commission staff will have to work with State officials and the ABS to harmonise States' valuation methods to ensure that valuation data are comparable. Western Australia suggests standardising value of production to an ex-mine basis. As an alternative, it suggested grouping minerals into unprocessed, concentrates and highly processed. Commission staff, ABS staff and State mining department staff will need to discuss how best to deal with the different State approaches to valuing production.

67. Another advantage of using output data is that it is easier to exclude off-shore activities. Compared with value-added, wages and salaries and profit, data on output from offshore activity encounter less confidentiality problems and are more easily to obtain.

68. If these data are sourced from State mining departments, data are likely to be available for the final year of an inquiry.

69. **Commission decision.** The Commission has decided to assess mining capacity using a weighted value/volume of production approach. The best source of value/volume data are State mining departments. The Commission will rely on its staff and those of the ABS and State mining departments to ensure that States' value and volume data are comparable.

### ***Elasticity adjustment***

70. **Preliminary proposal.** In *Discussion Paper CGC 2002/15*, Commission staff said an elasticity adjustment should be considered if either a weighted value of production approach or the existing adjusted value added approach were used, but its size would depend on further empirical evidence.

71. **State views.** *New South Wales, Queensland and Western Australia* supported a review of the existing elasticity adjustment.

72. *New South Wales* recognised the effect of policies on tax bases and agreed with Queensland's proposal for a smaller elasticity adjustment. It said the degree of the current adjustment is questionable and, to date, did not appear to be justified with any substantial research. It concluded the elasticity adjustment should remain but be reduced in line with Queensland's evidence.

73. *Victoria* said its elasticity adjustment should be increased to recognise the greater responsiveness of the Victorian mining industry to changes affecting its operating cost base.

---

<sup>10</sup> The actual definition of value of production differs from State to State. New South Wales levies royalties on gross proceeds or ex-mine value; Victoria on sales value; Western Australia on realised value; Queensland on fob or value or gross proceeds; and South Australia on an assessed value basis. Although the real extent of these differences is not yet clear, Commission staff expect it to be small and could be addressed satisfactorily.

74. **Queensland** generally opposed elasticities. It provided data which suggested that the current mining elasticity coefficient (-3) was too large and should be reduced. It said that if an elasticity were retained the coefficient should be -1 at most.

75. Queensland provided research which showed that the upper limit of the elasticity adjustment should be -0.48 for specific and ad valorem royalties. It also cited research from the Australian Bureau of Agricultural and Resource Economics and the Industry Commission for crude oil, black coal and ore, which implied an elasticity in the range -0.22 to -0.85.

76. **Western Australia** supported an elasticity adjustment and a review of the current coefficient. It did not accept the evidence put forward by Queensland (which suggested that the elasticity impact has been overstated) because it was not convinced that the analysis was sound. It cautioned against any simplistic formula approach to adjusting revenue bases for elasticity impacts.

77. **South Australia** was sceptical about elasticity adjustments and of the Commission's ability to accurately measure such effects. Notwithstanding that it benefited from the current elasticity adjustment, it doubted there was sufficient evidence to support a mining elasticity assessment. If profitability were used as the revenue base measure, an elasticity adjustment would not be required. It said the elasticity adjustment should be removed.

78. **Tasmania** opposed elasticity adjustments. It noted the mining elasticity adjustment was derived some time ago as part of the 1993 Review.

79. The **Northern Territory** supported an elasticity adjustment. It opposed any reduction in the elasticity factor. It said the current factor took into account the Territory's greater level of mining activity as a result of its profit based regime.

80. **Analysis and evaluation.** Table 5 shows the elasticity adjustment redistributed about \$86.4 million in the 2003 Update. This represented 10 per cent of the total category redistribution of \$855.4 million (see Table 2).

**Table 5** EFFECT OF ELASTICITY ADJUSTMENT IN THE 2003 UPDATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT Redist'n	
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Elasticity adjustment	5.5	14.7	-85.5	46.6	10.5	-0.9	0.2	9.0	86.4

81. Rarely do States impose the standard rate of tax – some States impose above the standard rate and others below the standard rate. This is particularly the case for mining. As can be seen from Table 6, the effective royalty rates assessed by the Commission<sup>11</sup> vary markedly from State to State and from year to year.

<sup>11</sup> These have been calculated as royalty revenue divided by adjusted value added.

**Table 6** EFFECTIVE ROYALTY RATES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
1997-98	16.79	5.06	21.22	11.33	12.89	8.35	na	12.36	15.04
1998-99	18.74	5.04	19.73	11.07	9.02	18.94	na	16.41	14.38
1999-2000	10.74	7.34	17.68	9.96	10.60	14.19	na	6.45	12.18
2000-01	13.03	4.84	15.46	11.42	11.12	20.65	na	8.26	12.60

na Not applicable.

82. The Commission considered the issue of elasticity adjustments in the 1999 Review and released a report.<sup>12</sup> The Commission concluded that an elasticity adjustment was warranted for the mining assessment, but removed them from other categories.

83. The Commission accepts the conceptual case that State expenditure and taxation regimes affect the level of economic activity. However, to be able to analyse this effect properly, the Commission would require a general equilibrium model of State economies, which it does not have. In the absence of such models, it is not convinced that selective elasticity adjustments would move equalisation in the right direction or by the right magnitude. So, the Commission is not attracted to making selective elasticity adjustments for differences in State rates of tax.

### *Commission decision*

84. The Commission does not accept the conceptual case has been established for assessing selective elasticity adjustments. There is no doubt that State expenditure and taxation regimes affect the levels of economic activity. However, it is not at all clear that these effects could be estimated with any reliability (in respect of either direction or the magnitude) by a series of selective adjustments. This is particularly true in respect of mining, where States have the potential capacity, if they chose to do so, to tax economic rent, which, in theory, would not impact on the level of mining activity. For these reasons, the Commission has decided not to assess an elasticity adjustment in the Mining Revenue category.

## **PROPOSED ASSESSMENT METHOD FOR THE 2004 REVIEW**

85. The assessment method for the 2004 Review is very different from that used in the 1999 Review. The revenue base will be weighted value/volume of production rather than the adjusted value added revenue base that was used in the 1999 Review.

<sup>12</sup> Reports of research in Progress, *Elasticity And Mobility Adjustments In Revenue Assessments*, Volume II 1996.

### *Calculation of the revenue base*

86. Attachment B presents the calculation of the revenue base for the draft assessment. Value of production data for each of the mineral groups is presented in Table B-1. These numbers are weighted using the weights set out above to calculate the revenue base for Mining Revenue. The calculation of weighted value/volume of production is shown in Table B-2.

87. The figures shown in Attachment B will have to be recalculated using data collected from State mining departments. Some royalty data were not available and no adjustment was made for the different State approaches to valuing production.

## **2004 REVIEW DRAFT CALCULATIONS**

### *Grant share effects*

88. Table 7 shows the proposed assessment redistributes \$994.5 million compared with an equal per capita assessment. This level of redistribution is much less than the \$1 123.0 million redistributed by the 2003 Update assessment. (Both redistributions include the impact of the redistributions due to Grants in Lieu of Royalties.) The large differences are due to the change in the revenue base from adjusted value added to weighted value/volume of production.

**Table 7** GRANT SHARE EFFECT OF THE PROPOSED METHOD OF ASSESSMENT, MINING TAXATION AND GRANTS IN LIEU OF ROYALTIES, GST RELATIVITIES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT Restrib'n	
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
2003 Update	478.6	502.6	-238.4	-856.7	64.6	42.1	35.0	-28.0	1 123.0
2004 Review draft	364.5	514.4	-177.3	-779.8	56.1	24.3	35.2	-37.4	994.5
Change	-114.1	11.9	61.1	76.8	-8.5	-17.9	0.2	-9.4	149.9

### *Revenue raising capacity ratios*

89. Table 8 presents revenue raising capacity ratios for the proposed 2004 Review assessment for 2001-02, as compared with those for the 2003 Update.

**Table 8** REVENUE RAISING CAPACITY RATIOS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2003 Update	0.3730	0.0984	2.0101	3.9351	0.6876	0.1508	0.0072	3.0092	1.0000
2004 Review draft	0.4617	0.0525	1.5874	4.5368	0.7190	0.4324	0.0000	2.2618	1.0000

***Standardised revenue***

90. Table 9 presents the draft assessment results and compares them with the 2009 Update results.

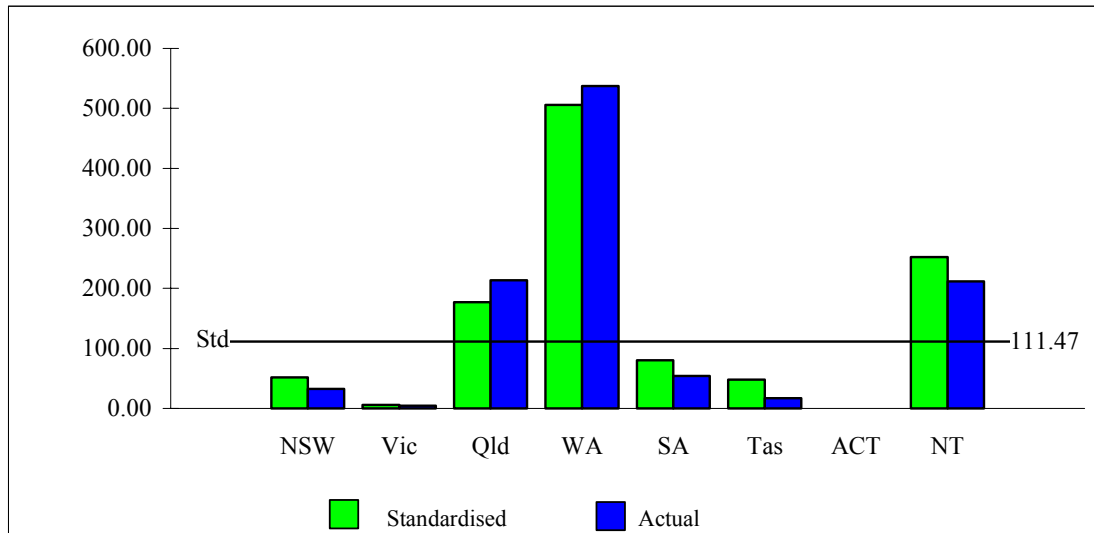
**Table 7** ACTUAL AND STANDARDISED REVENUE 2001-02

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT Standard	
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
<b>Actual revenue</b>									
2003 Update	32.55	4.26	213.57	328.37	54.41	16.88	0.00	198.96	90.87
2004 Review draft <sup>(a)</sup>	32.55	4.26	213.57	537.49	54.41	16.88	0.00	211.76	111.47
<b>Standardised revenue</b>									
2003 Update	33.89	8.94	182.66	357.58	62.48	13.70	0.65	273.45	90.87
2004 Review draft <sup>(a)</sup>	51.47	5.85	176.96	505.72	80.15	48.20	0.00	252.13	111.47

(a) The 2004 Review standard is larger because the category includes Grants in Lieu of Royalties.

91. Figure 2 shows the standardised, actual and standard per capita for the Mining Revenue 2004 Review draft assessment for 2001-02.

**Figure 2** MINING REVENUE: STANDARDISED, ACTUAL AND STANDARD REVENUES PER CAPITA



***Reality check***

92. Queensland, Western Australia and the Northern Territory have large mining sectors. New South Wales, however, has substantial open-cut and underground coal production, while South Australia has significant oil and gas production. Under the proposed assessment, this production has the potential to generate greater royalties than say, iron ore or bauxite production of equal value. The growth of oil and gas output in the Northern Territory also increases that State’s revenue capacity relative to other States.

***Updateability***

93. The proposed revenue base for Mining Revenue will use revenue, value and volume of production data provided by State mining departments. These data will be collected each year. The calculation of coal weights will be updated each year, provided data are available.

## ATTACHMENT A

---

### COMPARISON OF INTERSTATE ROYALTY RATES

1. State royalty regimes are summarised below. These data were sourced from the Western Australian Department of Minerals and Resources publication *Australia – State Taxes and Charges Applicable to Mining*. The most recent issue of this publication is the 1999 edition. State Data Returns to the Commission indicate that there have been only minor changes in royalty regimes since 1999.

2. Some of the features of States' royalty regimes are:

- (i) Within a State, it appears States apply uniform royalty rates to most minerals, coal and petroleum being the exception. For example, the royalty rate for most minerals is 4 per cent of ex-mine value in New South Wales, 2.75 per cent of sales value in Victoria, 2 per cent of gross proceeds in Queensland, 2.5 per cent of assessed value in South Australia and 18 per cent of net profit in the Northern Territory.
- (ii) State royalty rates on coal are, on average, higher than the royalty rates on other minerals (although they are the same in some States). The royalty rate for coal is 2.75 per cent of sale values in Victoria, 2.5 per cent of assessed values in South Australia and 18 per cent of net profit in the Northern Territory. It is now 4 to 7 per cent of free-on-rail value in Queensland. Specific rates apply in New South Wales (\$1.7 to \$2.2 per tonne) and Western Australia (\$2.25 per tonne). These specific rates equate to an ex-mine ad valorem royalty rate of around 4.5 to 5.5 per cent, depending on coal price.
- (iii) State royalty rates on petroleum are higher than the royalty rates on coal. The petroleum royalty rate is 10 per cent in New South Wales, Victoria, Queensland, South Australia and the Northern Territory, 12 per cent in Tasmania and 10 per cent to 12 per cent in Western Australia.

---

<sup>13</sup> Although Western Australia said 50 per cent of its mineral royalties are set at non-standard rates through State Agreement Acts.

(iv) Volume royalties are used for certain minerals, construction materials for example.

3. The regimes in some States are different. For example, the Northern Territory assesses mining royalties on net profit and Tasmania uses a composite base of value of production and profit.

**Table A-1** MINERAL ROYALTY RATES NOT INCLUDING STATE AGREEMENT ACTS

	NSW	Vic	QLD	WA	SA	Tas	NT
Aggregate		84 c/t		30 c/t	20 c/t	\$1/t	18% NV
Bauxite	35 c/t	2.75% SV	10% FOB	7.5%	2.5%AV*	Adv+prof	18% NV*
Chromite	4% EMV	2.75% SV	50 c/t	5% RV	2.5%AV	Adv+prof	18% NV
Clays	25-30 c/t	2.75% SV	25c-\$1/t	30 c/t	20 c/t	\$1.2/t	18% NV
Coal	\$1.7-\$2.2/t	2.75% SV	4%-7% FOR	\$2.25 c/t	2.5%AV	Adv+prof	18% NV
Cobalt	4% EMV	2.75% SV	2% GP	2.5% RV	2.5%AV	Adv+prof	18% NV
Copper	4% EMV	2.75% SV	1.5%-4.5% MV	5% RV*	2.5%AV*	Adv+prof*	18% NV
Dimension stone	35 c/t	\$3.12/t	50 c/t	5% RV	20 c/t	\$5/m <sup>3</sup>	18% NV
Diamonds	4% EMV	2.75% SV	2.7% over \$30k	7.5% RV*	2.5%AV	Adv+prof	18% NV
Dolomite	50 c/t	84 c/t	25 c/t	30 c/t	25 c/t	60c-\$1.2/t	18% NV
Felspar	50 c/t	2.75% SV	50 c/t	5% RV	50 c/t	Adv+prof	18% NV
Gallium	4% EMV	2.75% SV	2%GP	5% RV	2.5%AV	Adv+prof	18% NV
Garnett	4% EMV	2.75% SV	2.7% over \$30k	2.5-5% RV	2.5%AV	Adv+prof	18% NV
Gems and precious stone	4% EMV	2.75% SV	2.7% over \$30k	7.5% RV	2.5%AV	Adv+prof	18% NV
Gold	4% EMV	Nil	1.5%-4.5% MV	1.25% RV*	\$0.30/g unit royalty*	Adv+prof	18% NV
Gravel		84 c/t	50 c/t	30 c/t	20 c/t	60 c/t	18% NV

**Table A-1** MINERAL ROYALTY RATES (NOT INCLUDING STATE AGREEMENT ACTS (continued))

	NSW	Vic	QLD	WA	SA	Tas	NT
Gypsum	35 c/t	24c-84 c/t	25 c/t	30 c/t	20 c/t	Adv+prof	18% NV
Heavy mineral sands	4% FOB	2.75% SV	5% MCV	50 c/t	2.5%AV	Adv+prof	18% NV
Iron ore:	35 c/t	2.75% SV	35 c/t		2.5%AV*	Adv+prof	18% NV
-Lump ore				7.5% RV*			
-Fine ore				5.625% RV*			
-Beneficiated ore				5% RV*			
Lead	4% EMV	2.75% SV	1.5%-4.5% MV	5% RV*	2.5%AV*	Adv+prof*	18% NV
Limestone	35 c/t	84 c/t	30 c/t	50 c/t	20 c/t	60c-\$1.2/t	18% NV
Manganese	4% EMV	2.75% SV	2% GP	7.5% RV	2.5%AV	Adv+prof	18% NV
Minor minerals	Various	2.75% SV	2% GP	Various	2.5%AV	Adv+prof	18% NV
Nickel	4% EMV	2.75% SV	2% GP	2.5% RV*	2.5%AV	Adv+prof	18% NV
Palladium	4% EMV	2.75% SV	2% GP	5% RV	2.5%AV	Adv+prof	18% NV
Platinum	4% EMV	2.75% SV	2% GP	2.5% RV	2.5%AV	Adv+prof	18% NV
Rare earth minerals	4% EMV	2.75% SV	2% GP	5% RV	2.5%AV	Adv+prof	18% NV
Red oxide	70 c/t	2.75% SV	35 c/t	5% RV	2.5%AV	Adv+prof	18% NV
Rock	35 c/t	84 c/t	50 c/t	30 c/t	20 c/t	60 c/t	18% NV
Salt	4% EMV	2.75% SV	5% MCV or 50 c/t	30 c/t	20 c/t	Adv+prof	18% NV
Silver	4% EMV	2.75% SV	1.5%-4.5% MV	2.5% RV	2.5%AV*	Adv+prof	18% NV
Spodumene	4% EMV	2.75% SV	2% GP	5% RV	2.5%AV	Adv+prof	18% NV
Spongolite		2.75% SV	2% GP	5% RV	2.5%AV	Adv+prof	18% NV
Talc	85 c/t	2.75% SV	50 c/t	50 c/t	50 c/t	Adv+prof	18% NV
Tantalite	4% EMV	2.75% SV	2% GP	2.5% RV	2.5%AV	Adv+prof	18% NV
Tin	4% EMV	2.75% SV	2% GP	2.5% RV	2.5%AV	Adv+prof	18% NV

**Table A-1** MINERAL ROYALTY RATES (NOT INCLUDING STATE AGREEMENT ACTS (continued))

	NSW	Vic	QLD	WA	SA	Tas	NT
Tungsten	4% EMV	2.75% SV	2% GP	5% RV	2.5%AV	Adv+prof	18% NV
Uranium				5% RV*	2.5%AV*	Adv+prof	18% NV
Vanadium	4% EMV	2.75% SV	2% GP	5% RV*	2.5%AV	Adv+prof	NA*
Zinc	4% EMV	2.75% SV	1.5%-4.5% MV	5% RV*	2.5%AV*	Adv+prof*	18% NV
Other minerals	4% EMV	2.75% SV	2% GP	5% RV	2.5%AV	Adv+prof	18% NV
Petroleum	10%-12% of well-head value or resource rent royalty	10% of well-head value	10% of well-head value (on-shore only)	10% of well-head value less field lease rentals	10% of well-head value less field lease rentals (State Ratification)	12% of gross well-head value	12% of gross value at well-head

Source: Western Australian Department of Minerals and Resources, *Australia – State Taxes and Charges Applicable to Mining*, December 1999, Section 2, pages 2-3.

Notes: \* State Agreement Acts applies or alternative calculation.

AV Assessed value = Normal market value assuming normal processing and transportation costs to port.

GP Gross proceeds = Quantity x Price (or gross revenue) above \$30 000.

EMV Ex-mine value = Mineral value once mined and brought to the surface less treatment costs.

FOB/FOR Free on board/rail.

NV Net value of the saleable mineral commodity sold or removed without sale from a production unit in a royalty year.

MCV Mine concentrate value.

MV Metal value = value of the recoverable metal within the extracted ore.

NR Net Realisation = operating profit after production costs, certain capital and exploration costs with a \$50,000 NV general exemption threshold. It is equivalent to an ad valorem rate of approx. 3%-4% of sales value.

RV Realised value – except gold, which is based on the average market price for the last quarter.

SV Sales value = value as sold less any costs directly incurred in the sale.

Adv+Prof Ad valorem and profit based combination according to X where R\$ is the royalty payable, P is the annual profit and N is the annual sales.

Well-head Well-head value is derived by taking the gross value of petroleum recovered and deducting all costs incurred between the well head and the point of sale. Deductible costs are normally confined to the processing, storage and transport of the petroleum recovered by the producer at the point of sale.

## ATTACHMENT B

---

### 2004 REVIEW DRAFT REVENUE BASE

1. Tables B-1 shows mining revenue by component. Table B-2 sets out the calculation of coal value of production. Table B-3 shows the value/volume of production of each component and Table B-3 shows the mining revenue base for each component.

**Table B-1** CALCULATION OF MINING COMPONENT REVENUE

	Oil and Gas	Coal	Metallic and other minerals	Construction and other materials	Total
A. Revenue collected (\$m)					
1997-98	119	477	437	48	1 081
1998-99	194	526	441	48	1 209
1999-2000	218	526	449	48	1 241
2000-01	172	644	964	48	1 828
2001-02	377	830	830	48	2 085
B. Percentage of revenues collected (%) = $A / A_{Aust}$					
1997-98	11.01	44.13	40.43	4.44	100.00
1998-99	16.05	43.51	36.48	3.97	100.00
1999-2000	17.57	42.39	36.18	3.87	100.00
2000-01	9.41	35.23	52.74	2.63	100.00
2001-02	18.08	39.81	39.81	2.30	100.00
C. Size of component (\$m) = Mining Revenue standard (excluding Grants in Lieu of Royalties) * B					
1997-98	144.2	577.9	529.5	58.2	1 309.8
1998-99	223.3	605.3	507.5	55.2	1 391.3
1999-2000	247.0	595.9	508.6	54.4	1 405.9
2000-01	159.5	597.3	894.1	44.5	1 695.4
2001-02	322.0	709.0	709.0	41.0	1 781.1

**Table B-2** CALCULATION OF COAL VALUE OF PRODUCTION

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
D. Open-cut coal (unweighted)									
1997-98	2 443	0	3 933	0	33	0	0	0	6 409
1998-99	2 840	0	3 885	0	43	0	0	0	6 768
1999-2000	2 365	0	3 714	0	50	0	0	0	6 129
2000-01	2 922	0	4 863	0	56	0	0	0	7 841
2001-02	2 922	0	6 289	0	56	0	0	0	9 267
E. Underground coal (unweighted)									
1997-98	1 757	0	1 109	241	0	23	0	0	3 130
1998-99	2 042	0	1 096	256	0	21	0	0	3 415
1999-2000	1 701	0	1 047	272	0	19	0	0	3 039
2000-01	2 101	0	1 371	252	0	19	0	0	3 743
2001-02	2 101	0	1 773	252	0	19	0	0	4 145
F. Brown coal (unweighted)									
1997-98	0	530	0	0	0	0	0	0	530
1998-99	0	533	0	0	0	0	0	0	533
1999-2000	0	539	0	0	0	0	0	0	539
2000-01	0	520	0	0	0	0	0	0	520
2001-02	0	520	0	0	0	0	0	0	520
G. Open-cut coal (weighted) = D * 1.2703									
1997-98	3 103	0	4 996	0	42	0	0	0	8 141
1998-99	3 607	0	4 936	0	55	0	0	0	8 598
1999-2000	3 004	0	4 718	0	64	0	0	0	7 786
2000-01	3 711	0	6 177	0	71	0	0	0	9 960
2001-02	3 711	0	7 989	0	71	0	0	0	11 771
H. Underground coal (weighted) = E * 1.0000									
1997-98	1 757	0	1 109	241	0	23	0	0	3 130
1998-99	2 042	0	1 096	256	0	21	0	0	3 415
1999-2000	1 701	0	1 047	272	0	19	0	0	3 039
2000-01	2 101	0	1 371	252	0	19	0	0	3 743
2001-02	2 101	0	1 773	252	0	19	0	0	4 145

**Table B-2** CALCULATION OF COAL VALUE OF PRODUCTION (continued)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
I. Brown coal (weighted) = F * 0.5854									
1997-98	0	310	0	0	0	0	0	0	310
1998-99	0	312	0	0	0	0	0	0	312
1999-2000	0	316	0	0	0	0	0	0	316
2000-01	0	304	0	0	0	0	0	0	304
2001-02	0	304	0	0	0	0	0	0	304
J. Value of coal production (weighted) = G + H + I									
1997-98	4 860	310	6 105	241	42	23	0	0	11 581
1998-99	5 650	312	6 031	256	55	21	0	0	12 324
1999-2000	4 705	316	5 765	272	64	19	0	0	11 141
2000-01	5 813	304	7 548	252	71	19	0	0	14 008
2001-02	5 813	304	9 762	252	71	19	0	0	16 221

**Table B-3** CALCULATION OF REVENUE BASE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
K. Grants in Lieu of Royalties standardised revenue									
1997-98	0.0	0.0	0.0	225.8	0.0	0.0	0.0	2.4	228.2
1998-99	0.0	0.0	0.0	162.7	0.0	0.0	0.0	2.2	164.9
1999-2000	0.0	0.0	0.0	321.0	0.0	0.0	0.0	2.2	323.2
2000-01	0.0	0.0	0.0	489.1	0.0	0.0	0.0	2.4	491.5
2001-02	0.0	0.0	0.0	401.1	0.0	0.0	0.0	2.6	403.7
L. Oil and gas value of production									
1997-98	0.0	0.0	241.2	161.0	494.2	0.0	0.0	32.7	929.1
1998-99	0.0	0.0	386.0	258.6	664.4	0.0	0.0	35.0	1 344.0
1999-2000	18.6	0.0	617.8	415.4	752.4	0.0	0.0	21.0	1 825.2
2000-01	11.0	0.0	625.0	450.0	868.0	0.0	0.0	62.0	2 016.0
2001-02	11.0	0.0	745.0	450.0	868.0	0.0	0.0	62.0	2 136.0
M. Oil and gas standardised revenue = Oil and Gas component revenue * L / L <sub>Aust</sub>									
1997-98	0.0	0.0	37.4	25.0	76.7	0.0	0.0	5.1	144.2
1998-99	0.0	0.0	64.1	43.0	110.4	0.0	0.0	5.8	223.3
1999-2000	2.5	0.0	83.6	56.2	101.8	0.0	0.0	2.8	247.0
2000-01	0.9	0.0	49.5	35.6	68.7	0.0	0.0	4.9	159.5
2001-02	1.7	0.0	112.3	67.8	130.9	0.0	0.0	9.3	322.0

**Table B-3** CALCULATION OF REVENUE BASE (continued)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
N. Coal weighted value of production = J									
1997-98	4 860	310	6 105	241	42	23	0	0	11 581
1998-99	5 650	312	6 031	256	55	21	0	0	12 324
1999-2000	4 705	316	5 765	272	64	19	0	0	11 141
2000-01	5 813	304	7 548	252	71	19	0	0	14 008
2001-02	5 813	304	9 762	252	71	19	0	0	16 221
O. Coal standardised revenue = Coal component revenue * N / N <sub>Aust</sub>									
1997-98	242.5	15.5	304.7	12.0	2.1	1.2	0.0	0.0	577.9
1998-99	277.5	15.3	296.2	12.6	2.7	1.0	0.0	0.0	605.3
1999-2000	251.7	16.9	308.4	14.5	3.4	1.0	0.0	0.0	595.9
2000-01	247.9	13.0	321.9	10.7	3.0	0.8	0.0	0.0	597.3
2001-02	254.1	13.3	426.7	11.0	3.1	0.8	0.0	0.0	709.0
P. Metallic and other minerals value of production									
1997-98	1 249.0	399.0	2 211.0	11 206.0	596.9	614.0	0.0	1 312.3	17 588.2
1998-99	1 712.9	310.4	2 096.9	9 857.7	507.6	571.0	0.0	1 135.4	16 399.4
1999-2000	1 844.7	403.6	2 645.0	10 385.3	908.8	531.0	0.0	842.4	17 560.8
2000-01	1 997.0	505.0	4 053.0	12 447.0	1 206.0	531.0	0.0	811.8	21 550.8
2001-02	1 997.0	505.0	3 310.0	12 447.0	1 206.0	531.0	0.0	1 007.0	21 003.0
Q. Metallic and other minerals standardised revenue = Metallic and other minerals component revenue * P / P <sub>Aust</sub>									
1997-98	37.6	12.0	66.6	337.3	18.0	18.5	0.0	39.5	529.5
1998-99	53.0	9.6	64.9	305.1	15.7	17.7	0.0	35.1	507.5
1999-2000	53.4	11.7	76.6	300.8	26.3	15.4	0.0	24.4	508.6
2000-01	82.8	21.0	168.1	516.4	50.0	22.0	0.0	33.7	894.1
2001-02	67.4	17.0	111.7	420.2	40.7	17.9	0.0	34.0	709.0
R. Construction and other materials volume of production (kilo tonnes)									
1997-98	49 510.5	36 863.2	7 479.5	16 238.6	19 482.3	4 924.0	0.0	1 342.0	135 840.1
1998-99	49 510.5	36 863.2	7 479.5	16 238.6	19 482.3	4 924.0	0.0	1 342.0	135 840.1
1999-2000	49 510.5	36 863.2	7 479.5	16 238.6	19 482.3	4 924.0	0.0	1 342.0	135 840.1
2000-01	49 510.5	36 863.2	7 479.5	16 238.6	19 482.3	4 924.0	0.0	1 342.0	135 840.1
2001-02	49 510.5	36 863.2	7 479.5	16 238.6	19 482.3	4 924.0	0.0	1 342.0	135 840.1

**Table B-3** CALCULATION OF REVENUE BASE (continued)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
S. Construction and other materials standardised revenue = Const'n and other materials component revenue * R / R <sub>Aust</sub>									
1997-98	21.2	15.8	3.2	7.0	8.3	2.1	0.0	0.6	58.2
1998-99	20.1	15.0	3.0	6.6	7.9	2.0	0.0	0.5	55.2
1999-2000	19.8	14.8	3.0	6.5	7.8	2.0	0.0	0.5	54.4
2000-01	16.2	12.1	2.5	5.3	6.4	1.6	0.0	0.4	44.5
2001-02	14.9	11.1	2.3	4.9	5.9	1.5	0.0	0.4	41.0
T. Revenue base = K + M + O + Q + S									
1997-98	301.3	43.3	411.8	607.1	105.1	21.8	0.0	47.6	1 538.0
1998-99	350.6	39.9	428.3	529.9	136.7	20.7	0.0	43.7	1 556.2
1999-2000	327.4	43.3	471.6	699.1	139.3	18.4	0.0	30.0	1 729.1
2000-01	347.8	46.0	541.9	1 057.2	128.1	24.5	0.0	41.4	2 186.9
2001-02	338.1	41.5	653.0	905.0	180.6	20.2	0.0	46.3	2 184.8