Agenda paper: 2016-40

Purpose: Information

Inquiry: 2020 Review

Prepared for meeting of: 21 September 2016

WHAT STATES DO - MINING

REASON

To provide detailed reference material on how States collect mining royalties that will inform the development of the assessment for the next review.

ISSUES

- How States collect mining royalties.
- What the average policies and the drivers of State revenue capacity are.
- Aspects of the current assessment which may need to be reconsidered.

RECOMMENDATIONS

Putting what States do papers on the CGC cloud

It is recommended that the factual part of the What States do paper be uploaded on the CGC cloud. Staff would remove any discussions of assessment issues and the recommendations. The paper would be uploaded as a Commission staff research paper.

Other recommendations

It is recommended that the Commission:

- note that the mining revenue assessment will continue to have large impacts on the GST distribution in forthcoming updates but this impact may moderate in the 2020 Review
- consider the impacts of the mining assessment in the context of further research on contemporaneity
- approve a program of future research which would examine the best way of assessing average policy for resources where there are production bans in some States

- approve a program of research on elasticity effects and options for making adjustments in the assessment
- approve a program of research on the impact of grants in lieu of royalties to inform a decision on whether they should be treated as mining revenue or a Commonwealth payment.

Contact officer John Barber

Confidentiality statement

This document contains the following confidential material:

- Table 3 — State onshore oil and gas royalties data
- Table 4 — State onshore oil and gas value of production data
- Table 6 — Assessed onshore oil and gas data.

Statement provided by John Barber.

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SUMMARY

1 The Mining revenue category includes mining royalties levied on mining production. States collect mining royalties in exchange for allowing private companies to extract mineral and petroleum resources within their borders.

2 Some States also receive grants in lieu of royalties under revenue sharing arrangements with the Commonwealth government.

3 While States have different royalty systems the most common types are *ad valorem*, or value-based, royalties that collect a percentage of the value of production.

4 The Commission sources value of production data directly from the States.

5 The different resource endowments of each State result in substantially different amounts of mining revenue each State raises. The mining revenue assessment has subsequently had a large impact on the GST distribution in recent years.

INTRODUCTION

6 This paper provides background information on how States collect mining royalties. It explains the royalties systems used by States to generate revenue as well as the differences in their natural resource endowments.

7 States may wish to provide comments on our findings.

OVERVIEW OF ASSESSMENT

What is included in the assessment?

8 The Mining revenue category includes mining royalties levied on mining production. Royalties represent a payment to the owners of a resource for the right to sell, dispose of, or use the resource.

9 The category also includes payments in lieu of royalties. These are payments received under revenue sharing arrangements with the Commonwealth. Western Australia receives a payment in relation to royalties from offshore oil and gas production (predominantly from the North-West Shelf) and the Northern Territory receives a payment in relation to royalties on uranium.

10 Table 1 shows States raised $9.3 billion from mining royalties in 2014-15. Western Australia raised 60% of those royalties while the ACT generated no mining royalties as there were no operating mines within its borders.[1]

Table 1 States' mining revenue, 2014-15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Mining revenue	1 274	38	2 007	5 573	237	27	0	162	9 318

Source: 2016 Update.

11 Table 2 shows that mining revenue accounted for 7.8% of total State own-source revenue in 2014-15. However, there was considerable variation between States, with Western Australia collecting a substantially higher proportion than other States.

Table 2 Mining revenue share of State own-source revenue, 2014-15

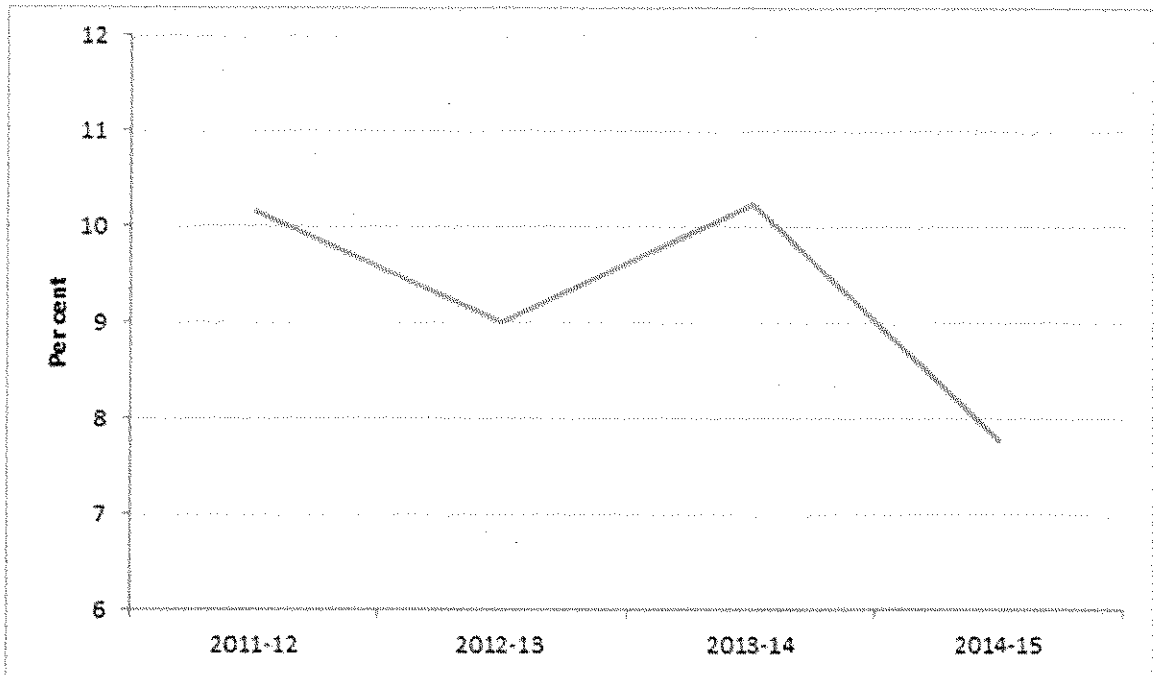
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	%	%	%	%	%	%	%	%	%
Mining revenue	3.4	0.1	8.3	30.4	3.3	1.6	0.0	9.5	7.8

Source: 2016 Update.

12 Mining revenue has fluctuated with the swings in commodity prices during the mining boom. Figure 1 shows the recent drop in bulk commodity prices (iron ore and coal) has resulted in mining revenue's share of total own source revenue dropping from 10.2% in 2013-14 to 7.8% in 2014-15.

[1] The ACT has production from quarries but no mines.

Figure 1 **Mining revenue as percentage of total own-source revenue**



Source: 2016 Update.

Overview of the assessment method

13 The assessment recognises that a State's capacity to raise mining royalties is related to the value of mining production. While States may take account of the profitability of different minerals when setting and adjusting their royalty rates, the majority of States' royalties are imposed on an ad valorem, or value, basis. Therefore, value of production is used as the revenue base for the mining revenue assessment.

14 Value of production data are sourced directly from States for the assessment. As States value mineral production in different ways, value of production data are requested on a 'Free on Board' (FOB) or sale value basis for minerals and 'gross value at the well-head' basis for onshore oil and gas.

15 In the 2015 Review, the Commission separately assessed the minerals that generated most royalty revenue and where it was material to do so. Separate assessments were undertaken for iron ore, coal, gold, onshore oil and gas, copper, bauxite and nickel. All other minerals were grouped into a single component labelled 'other minerals' which included minerals such as zinc, lead, silver and mineral sands. Payments in lieu of royalties were included as a separate component and assessed on an actual per capita basis because States' shares of these payments were determined by the Commonwealth.

16 Table 3 shows the mining royalties, by resource, collected by States in 2014-15.

Table 3 Mining royalties by mineral, 2014-15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Iron ore									4 050
Coal									2 817
Gold									374
Onshore oil and gas									166
Copper									246
Bauxite									200
Nickel									76
Other minerals									405
Grants in lieu of royalties									984
Total	1 274	38	2 007	5 573	237	27	0	162	9 318

Source: State data returns.

17 Table 4 shows the value of production data collected from States for 2014-15.

Table 4 Value of production by mineral, 2014-15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Iron ore									55 469
Coal									36 337
Gold									13 792
Onshore oil and gas									1 643
Copper									6 947
Bauxite									1 970
Nickel									3 243
Other minerals									10 755
Grants in lieu of royalties									n/a
Total	19 538	1 329	28 758	71 335	5 638	906	0	2 652	130 154

Source: State data returns.

18 States have different royalty regimes. The mining assessment deals with their policy choices by calculating an average effective rate for each mineral and applying it to States' value of production. The average effective rate for a mineral is derived by dividing the total royalty collected by the total value of production. Table 5 shows State's effective rate and the average effective rate for each mineral group.

Table 5 Effective royalty rates by mineral, 2014-15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	%	%	%	%	%	%	%	%	%
Iron ore	0.3	0.0	2.5	7.5	1.3	3.2	0.0	2.7	7.3
Coal	7.5	6.5	8.1	4.4	2.0	1.9	0.0	0.0	7.8
Gold	2.8	0.0	2.8	2.5	3.7	3.4	0.0	5.4	2.7
Onshore oil and gas	10.0	9.5	10.0	10.0	10.0	0.0	0.0	13.1	10.1
Copper	3.0	0.0	3.1	4.4	3.9	3.9	0.0	0.0	3.5
Bauxite	2.9	0.0	10.3	9.4	0.0	0.0	0.0	13.1	10.2
Nickel	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	2.4
Other minerals	2.5	1.6	3.8	4.0	2.4	2.8	0.0	6.0	3.8
Grants in lieu of royalties	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Commission calculation.

19 For each mineral, a State's assessed revenue is the amount the Commission assesses it could raise if it applied the average effective rate to its value of production. States' assessed revenues are shown in Table 6.

Table 6 Assessed revenue by mineral, 2014-15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Iron ore									4 050
Coal									2 817
Gold									374
Onshore oil and gas									166
Copper									246
Bauxite									200
Nickel									76
Other minerals									405
Grants in lieu of royalties									984
Total	1 336	64	1946	5495	310	43	0	124	9 318

Source: Commission calculation.
Note: Grants in lieu of royalties are assessed on an actual per capita basis.

Ratio of assessed to average revenue

20 Table 7 shows each State's ratio of assessed to average revenue[2] for the mining revenue category. It is derived by dividing a State's assessed revenue per capita by the Australian average revenue per capita.

- A ratio of 100 suggests a State has no assessed disabilities.
- A ratio greater than 100 suggests it has above average capacity – it could raise more than the average revenue if it applied the average rates of tax.
- A ratio less than 100 suggests it has below average capacity – it could not raise the average revenue if it applied the average rates of tax.

Table 7 Ratio of assessed to average revenue

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
2011-12	53	5	147	448	40	28	0	98	100
2012-13	51	4	125	487	46	22	0	103	100
2013-14	44	3	108	531	51	23	0	141	100
2014-15	50	3	116	497	52	24	0	142	100

Source: State data returns and Commission calculation.

21 Table 7 shows Queensland, Western Australia and the Northern Territory were assessed as having above average capacity from 2012-13 to 2014-15. The very high ratio for Western Australia is mainly due to its substantial revenue from iron ore. In recent years, iron ore prices have fallen from the highs seen during the peak of the mining boom. Growth in production volumes has partially offset the price falls and moderated the decline in both the tax base and the royalties collected in Western Australia.

Ratio of actual to assessed revenue

22 Table 8 shows each State's ratio of actual to assessed revenue for the category. It is derived by dividing a State's actual revenue per capita by its assessed revenue per capita.

- A ratio of 100 suggests a State is raising revenue at average levels.
- A ratio of greater than 100 suggests it is raising more than the average, given its revenue base.
- A ratio of less than 100 suggests it is raising less than the average, given its revenue base.

[2] This is also known as the State's revenue raising capacity ratio.

Table 8 Ratio of actual to assessed revenue

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
2011-12	95	61	102	102	63	94	0	160	100
2012-13	96	53	104	101	66	84	0	158	100
2013-14	98	66	102	102	68	59	0	118	100
2014-15	93	58	105	102	78	61	0	101	100

Source: State data returns and Commission calculation.

23 Differences between actual and assessed revenues can be due to State policies, efficiency of revenue collection, disabilities not assessed (either because they could not be reliably measured or because they were not material), lack of reliable data, or discounting applied where there was uncertainty surrounding the results.

24 In 2014-15 Western Australia, Queensland and the Northern Territory had actual revenue that was higher than assessed revenue. These States tend to impose higher royalty rates on the minerals they produce.

The GST distribution in the 2016 Update

25 In the 2016 Update, the mining assessment moved $6 042 million compared with an equal per capita distribution (Table 9). Over the three assessment years, States assessed to have an above average capacity (Queensland, Western Australia and the Northern Territory) required less than an EPC share of GST, while those with below average capacity required more than an EPC share of GST.

Table 9 GST distribution due to the mining assessment, 2016 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Iron ore	1 728	1 356	1 088	-4 653	274	94	89	23	4 653
Coal	-341	858	-1 304	369	249	73	59	37	1 645
Gold	81	94	43	-237	14	6	7	-8	245
Onshore oil and gas	..	..	..	..	..	..	..	..	..
Copper	38	72	-30	-28	-59	0	5	3	118
Bauxite	63	50	-47	-62	14	4	3	-26	135
Nickel	33	26	21	-91	7	2	2	1	91
Other minerals	197	147	-108	-63	-114	-5	12	-65	356
Grants in lieu of royalties	426	334	268	-1 181	94	28	22	8	1 181
Total	2 227	2 936	-70	-5 946	479	203	198	-27	6 042

Source: 2016 Update.
Note: Redistribution is the total GST revenue not distributed on an EPC basis as a result of this assessment.

WHAT STATES DO

How do States raise mining revenue?

26 States collect mining royalties in exchange for allowing private companies to extract mineral and petroleum resources within their borders. There are a number of different methods used by the States to collect royalties. These include:

- ad valorem royalties, which are based on a percentage of the value of production
- specific royalties, which are based on a fixed rate per volume of production
- profit-based royalties, which are based on a percentage of profit (value of production less allowed expenses associated with extraction)
- hybrid systems, which incorporate two of the above.

27 The royalty systems and rates used vary between States as well as within States for different minerals. For example, Queensland applies an ad valorem royalty to coal but a hybrid system to bauxite. While States' royalty policy choices differ, these systems are generally designed with a view to extracting a share of the industry's profitability. Table 10 summarises the royalty systems used by States for key mineral and petroleum resources.

Table 10 State royalty regimes

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Iron ore	Ad valorem	Ad valorem	Hybrid	Ad valorem	Ad valorem	Hybrid	na	Profit
Coal	Ad valorem	Specific rate	Ad valorem	Specific rate	Ad valorem	Hybrid	na	na
Gold	Ad valorem	Nil	Ad valorem	Ad valorem	Ad valorem	Hybrid	na	Profit
Onshore oil and gas	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	na	Ad valorem
Copper	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Hybrid	na	Profit
Bauxite	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Hybrid	na	Profit
Nickel	Ad valorem	Nil	Ad valorem	Ad valorem	Ad valorem	Hybrid	na	Profit

Source: 2015-16 Overview of State Taxes and Royalties, Government of Western Australia.

28 Value based royalties are the most common method in States' royalty systems, but there are differences in the way States calculate the value of production and in the royalty rates they set. States also charge different royalty rates depending on the level of processing undertaken, because processing creates a higher value product. For example, Western Australia charges a 7.5% royalty on lump and fines iron ore (less processing) but a 5% royalty on beneficiated product (more processing). Similarly, Queensland applies a 3.5% royalty to metallic copper but a 5% royalty on copper contained in concentrate. Attachment A summarises the different royalty rates used by States.

29 Attachment A also shows the different methods States use to value mine production, such as ex-mine, net mine production and net sales. The difference between these methods is mainly around whether allowances for costs of production are removed from the value of production and, if so, which costs. These allowances have the effect of lowering the value of production to which the royalty is applied. Thus, the revenue raised is affected by States' different policy choices on royalty systems and methods of valuation.

30 States have tended to undertake royalty reviews when commodity prices rise. For example, in 2011-12 Western Australia announced an increase in its iron ore royalties and Queensland announced increases in coal royalties in its 2012-13 budget — both of which occurred near the peak of the latest commodity price cycle. Similarly, during the peak of the commodity price cycle the Commonwealth introduced Mineral Resource Rent Tax (MRRT) on iron ore and coal to raise additional revenue. Mineral royalties were fully creditable against the tax and increases in royalty rates may have

contributed to it raising less revenue than originally expected. The MRRT was repealed in September 2014.

31 Western Australia announced a further review of its royalty system in its 2012-13 Budget. Released in 2015, after a substantial fall in commodity prices, the *Mineral Royalty Rate Analysis* recommended increasing the royalty rate on minerals to 10%. However this was not supported by the government and has not been implemented.

32 As States' mining revenue is mostly based on the value of production it is highly correlated with fluctuations in commodity prices. The mining boom that commenced in the early years of the 21st century resulted in record high prices for many commodities and subsequently led to revenue increases for resource rich States. However, the commodity price downturns over the past three years have now resulted in falls in mining revenue for these States.

33 The Commonwealth is responsible for imposing royalties on offshore oil and gas. Australia's offshore oil and gas production principally occurs in two regions – off the coast of Victoria in the Bass Strait and the north-west of Western Australia.

34 Prior to 1 July 2012, the Commonwealth imposed a Petroleum Resource Rent Tax (PRRT) on oil and gas production. Production in Bass Strait and the North West Shelf was not included in the Petroleum Resource Rent Tax (PRRT) when the Commonwealth introduced it in 1988 to replace its royalties and crude oil excise regime. The Commonwealth continued to collect royalties and crude oil excise for Bass Strait and the North West Shelf. Production in Bass Strait switched to the PRRT from 1990-91.

35 From 1 July 2012, the Commonwealth has extended the PRRT to North West Shelf projects, onshore oil and gas, oil shale and coal seam gas projects. Under the extension, all Federal and State resource taxes will be creditable against current and future PRRT liabilities. Crude oil excise will continue to be collected from North West Shelf projects, but it will be creditable against PRRT liabilities.

36 The Commonwealth has an agreement with Western Australia for sharing royalties on onshore and offshore oil and gas. Under this agreement it provides revenue to Western Australia, which the Commission treats as Grants in lieu of royalties. Royalties from the North West Shelf are shared between the Commonwealth and Western Australia (in the ratio 33:67). The Commonwealth also has a revenue sharing agreement with Western Australia for production at Barrow Island[3] (in the ratio 75:25).

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[3] Under the agreement made in 1985, Western Australia collects resource rent royalties on Barrow Island production and shares the revenue with the Commonwealth. In return, the Commonwealth exempts production from crude oil excise.

37 Grants in lieu of royalties are a large source of revenue for Western Australia and were worth $981 million in 2014-15. This was 17% lower than the previous year due to the fall in petroleum prices. While lower petroleum prices have continued to impact this revenue source, production volumes are expected to increase substantially over the coming years with the Gorgon and Wheatstone liquefied natural gas (LNG) projects coming on line. The combined outputs of these projects will double the LNG production capacity of Western Australia and under prevailing Commonwealth policy lead to higher grants in lieu of royalties for the State.

38 The Commonwealth is also responsible for imposing royalties on uranium production in the Northern Territory. It provides the Territory with a share of these revenues, which the Commission also classifies as Grants in lieu of royalties.

39 Under a 1978 Memorandum of Understanding with the Northern Territory, the Commonwealth has made biannual payments to the Northern Territory in lieu of royalties on uranium mining. The cessation of ore extraction at the Ranger mine in the Northern Territory is likely to bring these payments to an end in coming years.

40 States can also raise revenue from mining related activities. These include charges for exploration rights, rehabilitation funds and compliance fines. These are not as large as royalty revenue and are assessed as part of other revenue.

Are there differences between States in the revenue they raise?

41 There are substantial differences between States in the mining revenue they raise. Table 11 shows the total amounts collected by States and the impact of the mining boom over the past 15 years.

Table 11 Total mining royalties by State

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
1999-00	215	19	609	775	77	12	0	27	1 733
2004-05	396	22	993	1 337	101	19	0	45	2 913
2009-10	985	47	2 036	3 177	126	39	0	161	6 570
2014-15	1 274	38	2 007	5 573	237	27	0	162	9 318

Source: State data returns. ABS GFS Data.

42 All States that raise mining revenue have experienced substantial growth in the amounts collected with total mining revenue increasing 438% from 1999-00 to 2014-15. Western Australia's revenue increased the most in this period and was 619% higher. This has resulted in Western Australia's share of mining revenue increasing from 45% in 1999-00 to 60% in 2014-15.

43 The main factors affecting a States' capacity to raise mining royalties include:

- its endowment of resources, which are not evenly distributed across Australia
- the quality of its resource endowment, which affects the economic viability of developing a mining operation
- its mining policy.

44 ***Resource endowment.*** Australia has substantial mineral and petroleum resources but they are not evenly distributed among States. For example, Western Australia accounts for 89% of Australia's economically demonstrated resources of iron ore and South Australia contains around 80% of Australia's uranium resources.[4]

45 States typically collect royalties in different proportions to each other, based on their relative endowments. Western Australia collects very high proportions of Australia's iron ore, gold and nickel royalties as it has substantial shares of Australian deposits. Its coal royalties are considerably less as its endowments are less abundant compared to Queensland and New South Wales, States that have larger deposits of higher quality coal.

46 ***Quality of resources.*** A State's ability to raise mining revenue is influenced by the quality of its resources. The presence of deposit is no guarantee they will be developed. Private sector investment decisions to develop mineral deposits are influenced by factors such as ore grade, mineral type and deposit depth. These factors affect the cost of extracting the mineral and thus the economic viability of a mining operation.

47 Quality also affects the price received for a resource. Higher ore grades typically attract higher prices and tend to have lower production costs due to less processing. In royalty systems based on value and profit measures, both the production costs and prices received affect the royalties collected. For example, iron ore resources in the Pilbara region of Western Australia have attracted large investments during the mining boom due to their high ore grades which allow the extracted material to undergo minimal processing before shipping. With many mines producing direct shipping ore with iron content above 60% they also attract premium prices and subsequently higher mining royalties under value based systems. By comparison, iron ore produced in South Australia and Tasmania is extracted with lower iron content that requires additional processing to make it a marketable commodity that is competitive in international markets. These mines have higher operating costs compared to the Pilbara which under their respective States' royalty regimes that are net of costs, raise relatively less revenue[5].

48 ***State mining policies.*** The mining industry is regulated and assisted through a range of both State and Federal government policies and programs. These include

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4 Source: Geoscience Australia.

5 The mining assessment recognises the difference in value of production by collecting data from States on a free on board basis to calculate the average effective royalty rate and assessed revenue.

environmental management policies, business activity reporting and trade assistance as well as establishing laws governing workplace relations and land access. While resource endowments are a key determinant of mining activity the degree to which States facilitate mining investment with their policy settings also affects private sector investment decisions.

49 The annual Fraser Institute Survey of Mining Companies assesses the impact of public policy factors on mining company exploration investment decisions and rates mining regions investment appeal using a Public Policy Perception Index (PPI)[6]. The importance of government policy is highlighted by survey respondents consistently indicating that roughly 40% of their investment decision is determined by policy factors.

50 Western Australia has historically scored the highest among States in overall investment attractiveness both for its resources endowment and because of a more favourable perception of its mining policies. In the 2015 report it scored 91.53 (out of 100) on the public policy perception index which was the highest in Australia and 8th highest internationally. The public policy perception index for all States is shown in Table 12.

Table 12 Fraser Institute Public Policy Perception Index (PPI)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
PPI score	69.12	72.91	79.19	91.53	85.50	78.34	n/a	85.15
PPI rank	51	43	32	8	20	34	n/a	21
Overall rank	38	62	16	1	10	30	n/a	7

Source: Fraser Institute Annual Survey of Mining Companies 2015
Note: Rank is out of 109 international mining regions considered in the survey.

51 One of the key policy areas considered in the Fraser Institute survey is environmental regulation. States have a variety of environmental policies that cover land, water and air use as well as impact on surrounding flora and fauna. These can vary in both the number of regulations and the degree to which environmental impacts will be accommodated. These policy choices can be both supportive of the development of a State's natural resources or limit investment in them by encouraging investors to seek opportunities in other regions.

52 In some cases environmental policy decisions completely prevent the mining of certain resources and subsequently this reduces a State's mining revenue. For example, Queensland currently produces large quantities of coal seam gas, but States

[6] The annual Fraser Institute report rates several factors to assess a region's overall Investment Attractiveness index. This includes the Policy Perception index which is a composite index that measures the effects of government policy on attitudes toward exploration investment. The report is available at www.fraserinstitute.org.

such as New South Wales and Victoria have placed moratoriums on its exploration and production. Queensland's capacity to raise royalties from this coal seam gas production could be said to be the result of its mining policy and the lack of royalties in New South Wales and Victoria a result of theirs. Whether or not revenues are raised, these two States have a capacity to raise revenue from coal seam gas production. However, the lack of royalties in New South Wales and Victoria may also be due to the location of the resource in more environmentally sensitive regions compared to the Queensland resources.

53 Policy decisions also have a large impact on uranium mining with regulations in several States banning the development of uranium mines. South Australia is currently the only State with operating uranium mines while Western Australia and the Northern Territory have policies that permit but no operating mines[7]. Policies in other States in some way limit the development of uranium mines. Policies on the storage of radioactive waste may also need to be considered in future reviews. The revenue assessment does not yet consider any revenue raised by States in relation to the storage of nuclear waste material though this may become an issue for the Commission to consider in the future if South Australia proceeds with building a storage facility.

54 State policy and investment in transport, electricity and water infrastructure varies and can greatly impact the decisions of private companies to invest in greenfield mineral regions. For example, previous State government investment in transport infrastructure in both Queensland and New South Wales has played a key role in the establishment of their coal industries.

Are there elasticity effects?

55 Economic theory suggests that lower profits resulting from higher royalty rates can affect the size of the mining revenue base. Higher royalties could create a disincentive for investment in mines, particular ones with less favourable commercial viability, and lead to relatively lower production volumes over time. The short term effects of royalty increases are hard to quantify as existing mineral producers are likely to continue operating but find alternative cost savings to offset the increase in royalties[8]. As royalties are typically not the largest cost driver for a mining operation increases in rates are unlikely to be the key factor in a company's decision to shut down.

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7 ERA's Ranger mine in the Northern Territory ceased the extraction of ore in 2012 but has been processing stockpiles previously produced.

8 Most mining companies are price takers in competitive markets and could not raise prices to cover the cost of higher royalties. Since closing down mines or placing them on care and maintenance comes with additional costs but ends revenue streams, most owners attempt cost cutting exercises to remain viable.

56 There is some evidence of elasticity effects on mining revenue and the revenue bases as measured by the Commission may be contaminated by State policy choices on royalty rates. For example, a KPMG Econtech report commissioned by the Henry Tax Review found very high excess burdens for mining royalties[9]. Taxes with high burdens are those that distort economic activity to a greater extent.

57 Conceptually, the Commission should remove these effects. A simple elasticity adjustment was made for mining revenue in the 1993 and 1999 Reviews[10], but it was discontinued in the 2004 Review due to the lack of reliable estimates of elasticity effects. The Commission considered elasticity adjustments in the 2015 Review, but decided that it would not assess them because the adjustments would need to be large to be material (larger than those suggested in economic literature) and because it did not have reliable data that would allow it to make an assessment of these effects.

CONCLUSIONS

58 All States except the ACT raise mining revenue by charging royalties on the extraction of natural resources within their borders. States raise different amounts of mining revenue due to differences in their resource endowments and royalty systems. Other policies may also have an influence but finding a way of measuring the impact of these in a reliable manner is a challenge.

59 Value based, or *ad valorem*, royalty systems are the most commonly used by States but they have different methods of valuing production and imposing royalties.

CURRENT ASSESSMENT ISSUES

60 The mining assessment is the main driver of Western Australia's low relativity. Thus, the mining assessment remains a key issue in the GST distribution. In the 2015 Review Western Australia said the mining assessment needed to provide an incentive for States to develop their mining sectors and this could be achieved by applying a discount. It also said a discount should also be considered because of the failure to assess mining-related expenses, policy non-neutralities and other concerns with the mining assessment methodology. The Commission was not convinced that a discount was appropriate. It concluded that trying to untangle the impact of differences in State efforts on production levels was too difficult. It was also concerned that a

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9 See *CGE Analysis of the Current Australian Tax System*, KPMG Econtech, March 2010.

10 A simple elasticity adjustment was made in the 1993 and 1999 reviews. The tax base in these reviews was based on adjusted value added of the mining industry rather than value of production.

discount would imply States with relativity high production were all pro-development States.

61 Contemporaneity has also been an issue in the mining assessment. In the 2015 Review Western Australia favoured introducing a contemporaneity adjustment for the mining assessment, particularly iron ore and grants in lieu of royalties for the North West Shelf gas project, which would only use the most up to date relatives in order to capture structural and cyclical shifts in timelier manner. Contemporaneity in the mining assessment is likely to remain an issue in the 2017 Update as the peak year of the mining boom for State royalties (2013-14) will remain in the assessment period. For subsequent updates and the 2020 Review this is likely to become less of an issue after the peak year drops out of the assessment period.

62 The 2015 Review considered the possible impact of different policies on establishing a mining revenue base. It determined that while there was a conceptual case for removing their impact, determining an average policy was a challenge that prevents a practical method for the mining assessment. Given that a large number of factors that determine mining investment, the Commission concluded that speculating as to whether certain mineral deposits would be developed under different policy settings would not produce a reliable assessment.

63 There remains a question of how the Commission should determine average policy in situations where States' environmental policies prohibit the exploration or mining of a resource. The Commission has expressed its concerns in relation to the impact of differences in States' mining and environmental policies, but has been unable to develop a way of adjusting for them. This issue is impacting on coal seam gas production, with large quantities being produced in Queensland but bans being in place in other States. Low gas prices means the royalties collected by Queensland are small and so this issue is so far not material. However, on the question of how to deal with differences in State mining and environmental policies could become material in the future.

64 Elasticity may be an issue for the mining assessment in the next review. If it is, the Commission would need to undertake research on elasticity adjustments. The purpose of the research would be to set out options for calculating the responsiveness of tax revenue to tax rate changes. This research would be the basis for determining the size of any elasticity adjustments.

65 Changes in Commonwealth policy on the PRRT can affect the grants in lieu of royalties Western Australia receives. With large increases in the volume of petroleum being produced expected to start soon the Commission should consider whether grants in lieu of payments should continue to be part of the mining assessment or treated as a payment for specific purposes.

66 Data quality for the mining revenue assessment is quite good with most of it collected directly from the States. The Commission continues to work with States to

estimate some data such as the value of production for bauxite and offshore petroleum.

RECOMMENDATION

Staff recommend the factual part of the 'What States Do' paper be uploaded on the CGC cloud. Staff would remove any discussion of assessment issues and recommendations. The paper would be uploaded as a Commission staff research paper.

Staff also recommend that the Commission:

- note that the mining revenue assessment will continue to have large impacts on the GST distribution in forthcoming updates but this impact may moderate in the 2020 Review
- consider the impacts of the mining assessment in the context of further research on contemporaneity
- approve a program of future research which would examine the best way of assessing average policy for resources where there are production bans in some States
- approve a program of research on elasticity effects and options for making adjustments in the assessment
- approve a program of research on the impact of grants in lieu of royalties to inform a decision on whether they should be treated as mining revenue or a Commonwealth payment

ATTACHMENT A — STATE ROYALTY REGIMES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Iron ore	4% of ex mine value	2.75% of net market value	$1.25 per tonne plus 2.5% of value above $100 per tonne	Lump and fines, 7.5% Beneficiated 5%	5% of net market vale	1.9% of net sales plus profit royalty up to a max of 5.35% of net sales	n/a	20% of net mine production value
Coal	Mine value: Open cut, 8.2% Underground, 7.2% Deep underground, 6.2%	7.6 cents per gigajoule	Sale price: Up to $100 per tonne, 7% $100 -$150, 12.5% Over $150, 15%	$1.90 per tonne	5% of mineral value	1.9% of net sales plus profit royalty up to a max of 5.35% of net sales	n/a	n/a
Gold	4% of ex-mine value	Nil	2.5% - 5.0% based on price	2.5% of value of production	Market value: Metallic, 3.5% Concentrate, 5%	1.9% of net sales plus profit royalty up to a max of 5.35% of net sales	n/a	20% of net mine production value
Onshore oil and gas	10.0% of well head value	10.0% of well head value	10.0% of well head value	10.0% or 12.5% of well head value	10.0% of well head value	12.0% of well head value	n/a	10.0% of well head value
Copper	4% of ex-mine value		2.5% - 5.0% based on price	Concentrate, 5.0% Metallic, 2.5%	Market value: Metallic, 3.5% Concentrate, 5%	1.9% of net sales plus profit royalty up to a max of 5.35% of net sales	n/a	20% of net mine production value

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Bauxite		2.75% of net market value	Domestic processed: higher of $1.50 per tonne or 75% of calculated rate per tonne for non-domestic Non-domestic: the higher of 10% of the value of the value or $2 per tonne.	Bauxite, 7.5% Alumina, 1.65%	Market value: Metallic, 3.5% Concentrate, 5%	1.9% of net sales plus profit royalty up to a max of 5.35% of net sales	n/a	20% of net mine production value
Nickel	4% of ex-mine value	Nil	2.5% - 5.0% based on price	2.5% of contained metal value	Market value: Metallic, 3.5% Concentrate, 5%	1.9% of net sales plus profit royalty up to a max of 5.35% of net sales	n/a	20% of net mine production value

Source: *2015-16 Overview of State Taxes and Royalties*, Government of Western Australia. Western Australia Department of Mines and Petroleum website. South Australia Department of State Development website. Mineral Resources Tasmania website.

Note: Victoria's coal royalty rate is to increase to 22.8 cents per gigajoule in January 2017.