



NSW Mining Industry Expenditure Impact Survey 2015/16

Prepared for
NSW MINERALS COUNCIL
November 2016



Prepared for NSW Minerals Council

November 2016



EXECUTIVE SUMMARY

The New South Wales Minerals Council (NSWMC) analysed the expenditure patterns of 25 NSW exploration and mining companies to determine the economic contribution of the industry throughout NSW in 2015/16. The spending data, which included employee salaries and wages, business purchases, community contributions and local and state government payments, was collected by postcode where it was spent to allow local, regional and state-wide economic benefits to be assessed. **This report is an extension of previous annual surveys completed over the last four years and includes two additional companies from the survey conducted in 2015/16.**

Direct expenditure

The 25 companies surveyed **directly spent an estimated \$10.8 billion in the NSW economy in 2015/16, comprised of:**

- **\$2.6 billion in wages and salaries to approximately 20,990 full-time equivalent residing employees (including contractors); representing an average salary level of \$125,985 per annum across the sector;**
- **\$6.9 billion in purchases of goods and services from approximately 8,078 local businesses, community contributions and payments to local government (including rates, developer contributions and other payments); and**
- **\$1.3 billion in state government payments (including royalties, stamp duty, payroll tax and land tax).**

The Hunter region recorded the highest direct expenditure in 2015/16, with \$4.8 billion (or 44% of the total direct spend across NSW), followed by the Sydney (\$2.4 billion, or 23%) and Illawarra (\$0.7 billion, or 7%) regions.

Direct Stimulus by Region of Companies Surveyed

New South Wales 2015/16

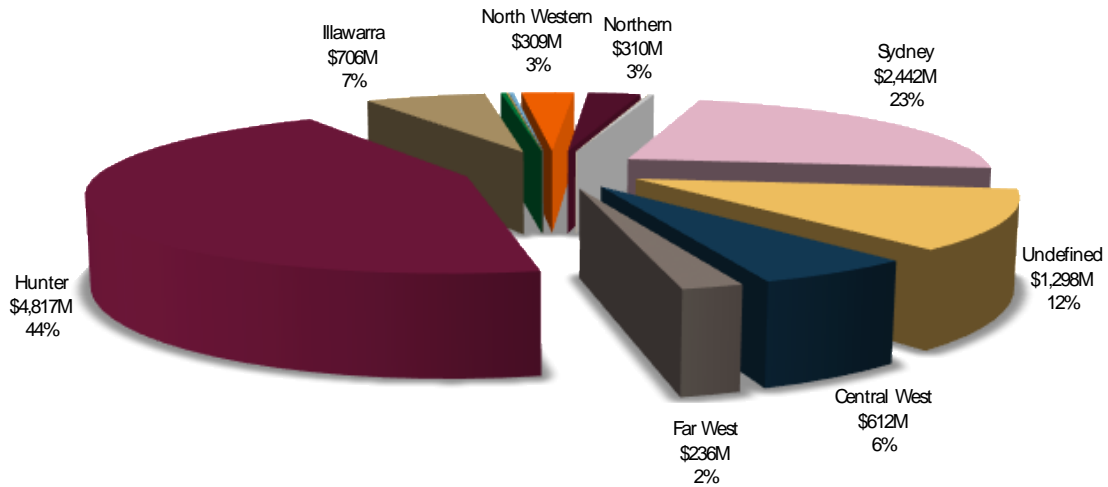


Table E1: Direct Impact of Surveyed Companies by Region, 2015/16

Region	Residing employees	Associated salaries	Business purchases & community contributions	No. of businesses	Total direct spending	% of total direct spend, NSW
	(FTEs)	(\$M)	(\$M)		(\$M)	
Central West	3,484	411.9	200.2	733	612.1	5.7%
Far West	397	47.6	187.9	168	235.5	2.2%
Hunter	11,218	1,488.9	3,328.2	3,647	4,817.1	44.5%
Illawarra	1,505	161.1	544.8	575	705.8	6.5%
Mid-North Coast	73	7.1	23.6	47	30.7	0.3%
Murray	16	1.7	6.3	51	8.1	0.1%
Murrumbidgee	44	4.5	24.1	65	28.6	0.3%
North Western	1,462	184.5	124.9	437	309.5	2.9%
Northern	1,070	111.0	198.9	650	309.8	2.9%
Richmond-Tweed	14	1.0	1.5	16	2.5	0.0%
South Eastern	25	2.4	30.0	45	32.4	0.3%
Sydney	1,671	221.4	2,220.5	2,240	2,441.9	22.5%
Unallocated ^(a)	11	1.3	5.9	-	1,297.6	12.0%
Total NSW	20,990	2,644.5	6,896.8	8,078	10,831.6	100.0%
Balance of Australia	2,080	220.6	4,030.9	3,660	4,251.5	-
Total Australia	23,071	2,865.1	10,927.7	11,738	15,083.1	-

Note: (a) Includes state government payments

Indirect and Total Economic Impacts

Economic modelling of the flow-on effects of the surveyed companies' direct expenditure allowed the indirect and total economic impact to be estimated. Across NSW, the total economic impact of the surveyed companies in 2015/16, based on Type II multipliers (i.e. including both indirect industry and consumption-induced effects), amounted to:

- \$26.1 billion in output/turnover (a measure of direct and supply chain purchases from businesses);
- \$23.5 billion in value added (contribution to Gross State Product), amounting to 4.4% of GSP for NSW in 2015/16, through \$10.8 billion in direct effects and \$12.6 billion in supply chain and consumption-induced effects;
- \$9.6 billion in income (wages and salaries) paid to direct and indirect workers; and
- 132,625 full time equivalent jobs supported, or 3.6% of total employment in NSW during 2015/16.

Table E2: Economic Impact of Companies Surveyed, 2015/16

	New South Wales	Rest of Australia	Total Australia
Value Added (\$M)			
Direct	10,832	4,252	15,083
% of GSP/GDP	2.0%	0.4%	0.9%
Indirect	8,123	2,854	10,977
Total value added (Type I)	18,955	7,105	26,060
% of GSP/GDP	3.5%	0.6%	1.6%
Consumption-induced	4,518	1,693	6,211
Total value added (Type II)	23,472	8,798	32,271
% of GSP/GDP	4.4%	0.8%	2.0%
Employment (FTEs)			
Direct	20,990	2,080	23,071
% of total state/national employment	0.6%	0.0%	0.2%
Indirect	68,889	17,139	86,028
Total employment (Type I)	89,879	19,220	109,099
% of total state/national employment	2.4%	0.2%	0.9%
Consumption-induced	42,746	10,737	53,483
Total employment (Type II)	132,625	29,956	162,582
% of total state/national employment	3.6%	0.4%	1.4%
Business spend (incl. community contributions and govt payments) (\$M)			
Direct	8,187	4,031	12,218
Indirect	6,469	2,992	9,461
Total business spend (Type I)	14,656	7,023	21,679
Consumption-induced	8,813	3,183	11,996
Total business spend (Type II)	23,469	10,206	33,675
Wages & salaries (\$M)			
Direct	2,644	221	2,865
Indirect	4,391	1,472	5,863
Total wages & salaries (Type I)	7,036	1,693	8,728
Consumption-induced	2,570	779	3,349

Table E2: Economic Impact of Companies Surveyed, 2015/16

	New South Wales	Rest of Australia	Total Australia
Total wages & salaries (Type II)	9,605	2,472	12,077

Note: Consumption-induced impacts seek to measure the change in consumption for all goods and services that arise from an increase in final output from the industry in question.

The direct expenditure of the 25 companies surveyed has the highest overall impact in the Hunter region, with estimated total value added of \$10.2 billion, meaning these companies contributed 24.0% to gross regional product (\$42.6 billion) in 2015/16, although the largest proportional impact occurred in the Far West region, where the direct and indirect effects of the 25 companies surveyed contributed approximately 51.0% to the regional economy. The impact in the Hunter region was significantly higher than other regional economies, the next highest of which was Sydney (\$5.1 billion in value added) and Illawarra (\$1.7 billion).

Table E3: Total Economic Impact of Companies Surveyed by Region, 2015/16 (Type II)

Region	Total output (\$M)	Total estimated value added (\$M)	Gross regional product (\$M)	Total value added as % of GRP
Central West	1,344	1,321	12,573	10.5%
Far West	567	530	1,039	51.0%
Hunter	11,242	10,208	42,568	24.0%
Illawarra	1,817	1,685	20,971	8.0%
Mid-North Coast	78	77	15,562	0.5%
Murray	18	16	5,998	0.3%
Murrumbidgee	43	42	9,827	0.4%
North Western	685	674	7,047	9.6%
Northern	747	738	10,406	7.1%
Richmond-Tweed	7	6	10,181	0.1%
South Eastern	82	81	10,444	0.8%
Sydney	6,014	5,092	391,942	1.3%
Undefined	3,471	3,002	-	-
Total NSW	26,114	23,472	538,513	4.4%

Note: Regions are based on 12 former Statistical Divisions in NSW

Number of Businesses Directly Supported by the Mining Industry

Supplier business details were analysed to determine the total number of businesses supported by survey respondents. Duplicates were removed to the best extent practicable to ensure an accurate estimation of the number of individual businesses supported.

An estimated 8,078 businesses in New South Wales received payments for goods and services supplied to survey respondents during 2015/16. The highest number of businesses was recorded in the Hunter (3,647 businesses) and Sydney (2,240 businesses) regions.

Table E4: Number of Businesses Supported by Region

Region	Number of businesses supported
Central West	733
Far West	168
Hunter	3,647
Illawarra	575
Mid-North Coast	47
Murray	51
Murrumbidgee	65
North Western	437
Northern	650
Richmond-Tweed	16
South Eastern	45
Sydney	2,240
Total NSW	8,078

Note: The total number of businesses supported for New South Wales is less than the aggregate for all regions due to the removal of duplicates.

Community Contributions

During 2015/16, survey respondents directly contributed \$9.9 million to 991 community groups in a wide range of areas including health, education, environment and the arts.

The largest category of expenditure was indigenous with \$3.4 million in contributions by survey respondents, followed by education (\$2.1 million), social (\$1.7 million) and health (\$1.0 million).

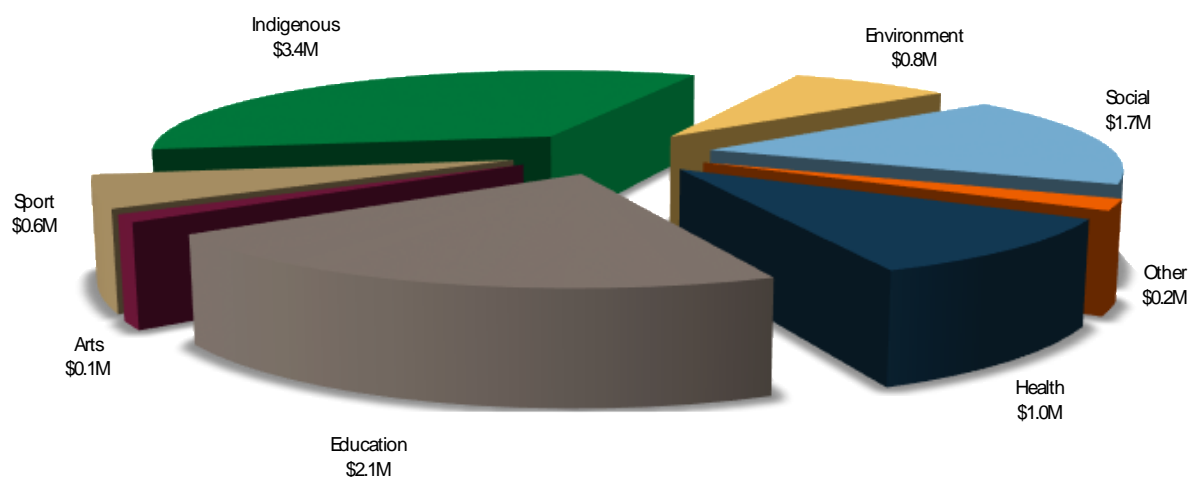
Table E5: Number of Community Groups Supported by Region

Region	Number of community groups	Total contributions (\$)
Central West	252	3,377,488
Far West	19	8,084
Hunter	416	3,728,098
Illawarra	35	441,702
Mid-North Coast	n.a.	n.a.
Murray	n.a.	6,523
Murrumbidgee	n.a.	2,270
North Western	95	626,360
Northern	74	537,086
Richmond-Tweed	n.a.	n.a.
South Eastern	n.a.	n.a.
Sydney	95	1,135,685
Total NSW	991	9,863,806

Note: The total number of community organisations supported for New South Wales is less than the aggregate for all regions due to the removal of duplicates.

Community Contributions by Category of Expenditure

New South Wales (\$million), 2015/16



Local Council Contributions

Mining companies contribute to local councils through the payment of rates, developer contributions agreed as a condition of planning approval, and through other payments such as water rates and payments for specific infrastructure upgrades.

During 2015/16, survey respondents reported direct contributions to local councils totalling \$58.6 million, with rates (\$35.0 million) comprising the largest proportion of local council payments, followed by Voluntary Planning Agreements (VPA)/developer contributions (\$14.6 million) and other contributions (\$6.1 million) and.

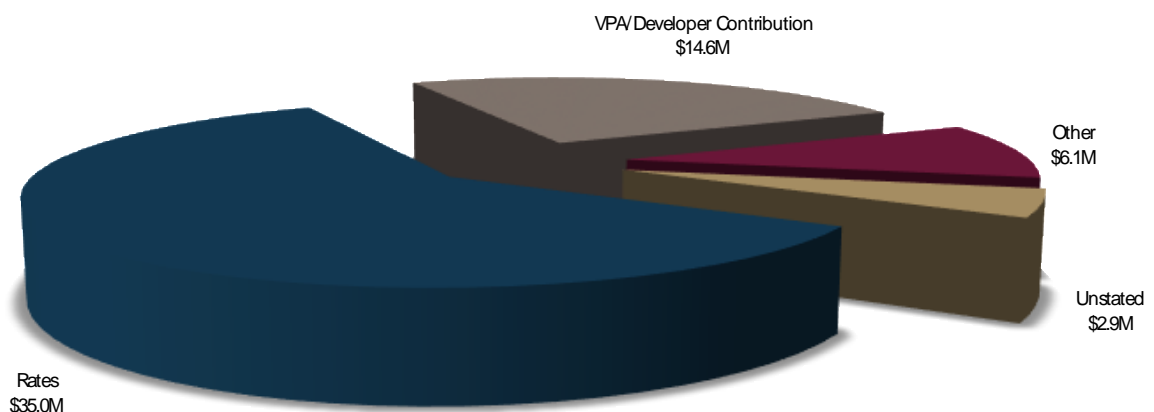
Table E6: Local Council Contributions by Region

Region	Rates (\$)	VPA/Developer (\$)	Other (\$)	Total contributions (\$)
Central West	9,382,457	1,486,581	1,164,833	12,033,871
Far West	1,839,110	n.a.	8,674	1,847,783
Hunter	13,038,803	2,655,935	1,124,373	19,401,398
Illawarra	880,441	n.a.	5,985	886,426
Mid-North Coast	6,683	1,115	7,323	15,121
Murray	879,705	n.a.	n.a.	879,705
Murrumbidgee	n.a.	n.a.	n.a.	n.a.
North Western	4,135,322	2,069,504	3,363,848	9,608,511
Northern	3,120,278	8,413,429	377,891	12,232,505
Richmond-Tweed	n.a.	n.a.	n.a.	n.a.
South Eastern	n.a.	n.a.	n.a.	n.a.
Sydney	1,653,334	n.a.	n.a.	1,653,334
Total NSW	34,995,113	14,626,402	6,052,901	58,617,448

Note: The total local government payments for each region may be less than the aggregate of contribution type due to unstated amounts and statistical or rounding errors from the original source.

Local Council Contributions by Category

New South Wales (\$million), 2015/16

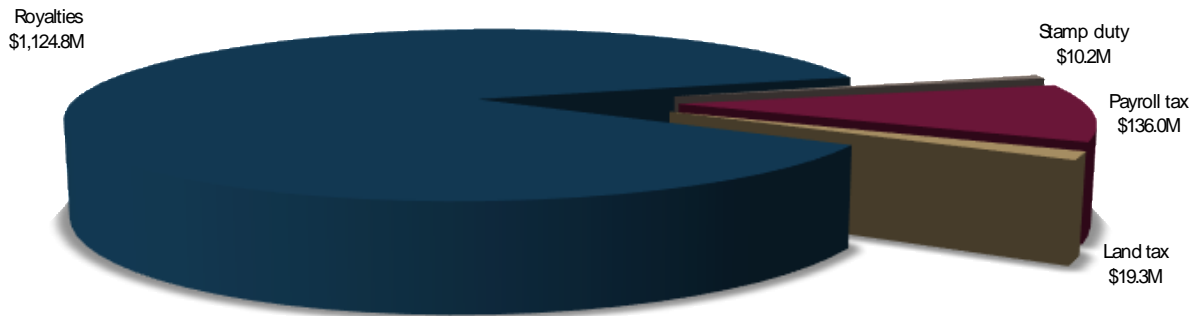


State Government Payments

During 2015/16, the direct contribution made by companies surveyed in state government payments was approximately \$1.3 billion, comprised of royalties (\$1.1 billion), payroll tax (\$136.0 million), land tax (\$19.3 million) and stamp duty (\$10.2 million).

State Government Contributions by Category

New South Wales (\$million), 2015/16



Comparison to Previous Survey Results

Comparison with results from previous surveys is difficult due to a slight difference in the number of participating companies. Based on whole-of-survey totals, the direct expenditure in NSW of the companies surveyed in 2015/16 decreased by approximately \$492.7 million, or 4.4% compared to 2014/15. The total number of employees, both direct and contract workers, fell slightly by 275 FTEs, or 1.3%.

Table E7: Comparison of Survey Results

	Level 2015/16	Level 2014/15	Level 2013/14	Level 2012/13	Level 2011/12	Annual % change 2014/15- 2015/16
No. of companies surveyed	25	23	22	26	21	8.7%
DIRECT EMPLOYEES						
No. of direct employees (FTEs)	17,209	17,566	17,517	19,280	13,418	-2.0%
No. of apprenticeships and traineeships (FTEs)	261	284	227	418	241	-8.1%
Total wages/salaries paid (\$M)	2,165.4	2,254.1	2,351.6	2,567.5	1,627.8	-3.9%
BUSINESS PURCHASES						
No. of suppliers	8,078	7,694	8,202	10,547	n.a.	5.0%
OPEX						
No. of contractors (FTEs)	3,291	2,931	2,907	3,515	7,524	12.3%
Payments to contractors (\$M)	1,445.2	1,308.7	1,919.6	1,477.0	1,822.8	10.4%
Other goods and services purchases (\$M)	4,971.5	5,462.3	7,058.6	6,950.3	6,067.5	-9.0%
Total opex spend (\$M)	6,416.6	6,771.0	8,978.2	8,427.3	7,890.2	-5.2%
CAPEX						
No. of contractors (FTEs)	490	768	1,108	687	1,116	-36.2%
Payments to contractors (\$M)	252.6	464.4	537.4	351.8	227	-45.6%
Other goods and services purchases (\$M)	638.2	438.3	560.8	1,424.7	764.1	45.6%
Total capex spend (\$M)	890.8	902.6	1,098.2	1,776.5	991.2	-1.3%
Total business purchases (\$M)	7,307.4	7,673.6	10,076.0	10,204.0	8,881.0	-4.8%
COMMUNITY CONTRIBUTIONS						
No. of community organisations supported	991	1,298	1,014	912	n.a.	-23.6%
Total community contributions (\$M)	9.9	12.3	11.2	16.1	8.3	-19.8%
LOCAL COUNCIL PAYMENTS						
Total local government payments (\$M)	58.6	60.6	59.1	41.4	19.1	-3.3%
STATE GOVERNMENT PAYMENTS						
Total state government payments (\$M)	1,290.3	1,323.6	1,141.6	n.a.	n.a.	-2.5%
TOTAL SPEND (\$M)	10,831.6	11,324.3	13,639.9	12,828.8	10,536.6	-4.4%
TOTAL EMPLOYMENT (FTEs)	20,990	21,265	21,516	23,483	22,058	-1.3%

CONTENTS

INTRODUCTION.....	1
METHODOLOGY	2
Data Collection.....	2
Input-Output Modelling	4
Background.....	4
Development of I-O Modelling	4
Advantages and Assumptions in I-O Models.....	5
I-O Model Outcomes	7
Construction of the NSW Regional I-O Models	7
ECONOMIC BENEFITS.....	10
State Impact.....	10
Direct Spending.....	10
Indirect and Consumption-Induced Spending	14
Regional Impact	17
Central West.....	20
Far West.....	21
Hunter	22
Illawarra.....	23
Mid-North Coast.....	24
Murray.....	25
Murrumbidgee.....	26
North Western	27
Northern.....	28
Richmond-Tweed.....	29
South Eastern	30
Sydney.....	31
Local Impact.....	32
Direct Spending.....	32
Indirect and Consumption-Induced Spending	32
CONCLUSION.....	36
REFERENCES.....	38
APPENDIX A: DIRECT IMPACTS BY LGA.....	39
APPENDIX B: TOTAL ECONOMIC IMPACTS BY LGA.....	43
APPENDIX C: DIRECT IMPACTS BY STATE ELECTORATE	47
APPENDIX D: DIRECT IMPACTS BY FEDERAL ELECTORATE	50

Disclaimer

The information contained herein is believed to be reliable and accurate. However, no guarantee is given to its accuracy or reliability, and no responsibility or liability for any information, opinions or commentary contained herein, or for any consequence of its use, will be accepted by Lawrence Consulting, or by any person involved in the preparation of its publication.

Prepared by:



INTRODUCTION

The NSW Minerals Council (NSWMC) commissioned Lawrence Consulting to determine the total direct, indirect and consumption-induced economic benefit to the state economy based on expenditure data provided by 25 exploration and mining companies operating in NSW. This report provides a detailed summary of the level of expenditure into the New South Wales economy by these companies in 2015/16 and the multiplier and consumption-induced effects that are generated by that initial stimulus. The analysis is an update of previous studies completed over the past four years, available to download at www.nswmining.com.au.

While the mining sector¹ makes a significant contribution to the New South Wales and Australian economies, information about the impacts of the sector on regional and metropolitan economies within New South Wales is limited. Impacts on regional and metropolitan areas of New South Wales occur through direct, indirect and consumption-induced effects. There are two key types of direct impacts:

- Wages for direct employment of workforce; and
- Expenditure on business goods and services in local and regional economies.

Business expenditure generates both upstream and downstream ripple effects through the supply chain as local businesses purchase goods and services from other businesses, often through several links in the supply chain. The net effect of subsequent rounds of economic activity in the business supply chain can be categorised as indirect effects. The increased employment generated through the direct effects (resources sector employment) and the indirect effects (business supply chain) generates a number of final consumption-induced effects to support the increased population base.

The focus of this report is to identify the geographical spread of impacts (direct, indirect and consumption-induced) from the mining industry across New South Wales at five geographic scales:

- State (the whole area of New South Wales);
- **Regional (represented by 12 former Statistical Divisions in NSW);**
- **Local (represented by 152 Local Government Areas in NSW);**
- **State electoral divisions (represented by 93 SEDs in NSW); and**
- **Commonwealth electoral divisions (represented by 47 CEDs in NSW).**

¹ For these purposes, mining is defined broadly as the ANZSIC industry division and includes mine operation (i.e. operating mines, quarries, or oil and gas wells, as well as mining sites under development) and mining support activities (i.e. businesses that perform mining services on a contract or fee basis, and exploration (except geophysical surveying)).

METHODOLOGY

Data Collection

The process was initiated in July 2016 when NSWMC distributed an expenditure survey form to 29 exploration and mining companies, which were asked to disclose total operational spending in 2015/16 in the following categories:

- Employee salaries and wages (by place of residence) for full-time direct employees, along with the number of apprenticeships and traineeships;
- Goods and services expenditure, including payments made to contractors (including identification of the number of contract FTEs employed on-site) as well as other goods and services providers;
- Voluntary community contributions;
- Local government payments, including council rates and infrastructure charges; and
- State government payments, including royalties, stamp duty, payroll tax and land tax.

Of the 29 companies surveyed, 25 returned the survey, representing the majority of the New South Wales mining sector based on current value of production. **The data includes both operational expenditure (OPEX) data for current projects and capital expenditure (CAPEX) data from proposed investments currently under development.** This data was supplied by the location where the salary was paid (residence of the worker or contractor) and where the community contributions and business expenditures were made by Australia postcode. The companies that provided expenditure data as part of the study are listed in Table 1.

Table 1: Companies Supplying Expenditure Data

Alkane Resources Ltd	Idemitsu Australia Resources Pty Ltd
Bengalla Mining Company Pty Ltd	Iluka Resources
BHP Billiton NSW Energy Coal	Malabar Coal Limited
Bloomfield Collieries Pty Ltd	Newcrest Mining Ltd Cadia Valley Operations
Centennial Coal Company Limited	Peabody Energy Australia
Cristal Mining Australia	Perilya Limited
CMOC Northparkes	Rio Tinto Coal & Allied Australia
Downer Group	South 32 Illawarra Coal
Evolution Cowal Gold	Shenhua Watermark Coal Pty Ltd
Glencore Coal (NSW) Pty Ltd	Whitehaven Coal Limited
Gloucester Resources Limited	Wyong Areas Coal Joint Venture
Hillgrove Resources Limited	Yancoal Australia
Hume Coal Pty Ltd	

The postcode spend data was then aggregated using geographical concordance files² from the Australian Bureau of Statistics and the economic impacts (direct, indirect and consumption-induced impacts) of the survey respondents were analysed at five geographic levels:

² <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1259.0.30.001Main+Features1July%202010?OpenDocument>

- State (the whole area of New South Wales);
- **Regional (represented by 12 former Statistical Divisions in NSW);**
- Local (represented by 152 Local Government Areas in NSW);
- State electoral divisions (represented by 93 SEDs in NSW); and
- Commonwealth electoral divisions (represented by 47 CEDs in NSW).

Input-Output Modelling

Background

For this study, input-output (I-O) modelling has been used to estimate the sum of direct, indirect and consumption-induced effects of the companies surveyed on different regions of New South Wales. I-O techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and hence are an appropriate tool for determining the direct, indirect and induced economic impact of economic stimuli.

Development of I-O Modelling

The I-O technique was developed by Wassily Leontief in the 1930s to describe how impacts in one sector of an economy interacted with other sectors to generate economic changes, with matrix algebra used to perform the complex calculations. More advanced forms of I-O models are computable general equilibrium models, which are used for analysis of larger national economies, but are generally not as applicable for smaller areas. The standard I-O model approach is particularly useful for predicting the impacts of events or projects in an economy, or analysing local or regional level economies (Loveridge 2004).

Outside of the previous analysis of the impact of mining in New South Wales completed in 2011/12 to 2014/15 – and similar studies undertaken by Lawrence Consulting and Central Queensland University in Queensland in recent years on behalf of the Queensland Resources Council and in Western Australia on behalf of the Chamber of Minerals and Energy of Western Australia (CMEWA) based on the same underlying methodology – there have been several studies applying input-output modelling techniques to analyse the contribution of resources industries to economic growth in different countries and regions. Previous modelling directly relevant to this study was carried out by ACIL Tasman in 2007, and reported by the State of Queensland (Department of Mines and Energy) (2007). In that report, the contribution of the mining and minerals processing sector to the Queensland economy, using 2004-05 data, was estimated with the use of I-O analysis and general equilibrium modelling. More recently, the Reserve Bank of Australia completed a study in 2013 that quantified the links from demand for Australia's natural resources to activity in other domestic industries using input-output tables (Rayner and Bishop, 2013).

Rubin and Solomon (1983) used economic base and regional multiplier analysis to estimate the impacts of coal liquefaction projects on 27 counties in Indiana and Kentucky in the United States. Stilwell et al. (2000) used the technique to estimate the contribution of the mining industry to South Africa over a 22-year period. Bangsund and Leistritz (2007) estimated the economic contribution of the petroleum industry to the state economy of North Dakota in the United States. Fannin et al. (2008) used community impact models to estimate the economic effects of oil and gas production from deepwater leases on growth on a regional area of Louisiana in the United States. Finally,

Leaming (2010) estimated the economic impacts from the copper industry to the Arizona economy in 2009.

I-O models can be used to capture only the indirect impacts that occur through other industry sectors (Type I models), or the indirect plus the consumption-induced effects (Type II models), which have been adopted for the current study. Further, the I-O models used in this study were based on the ABS model of the Australian economy generated from general equilibrium models.

A concept underlying I-O modelling is that an initial economic shock or stimulus can have multiplier effects through a series of successive spending rounds. The size of the economic multiplier in a local or regional area can be summarised in the following way (Jensen and West 2002):

- The extent to which project operators purchase inputs from the local or regional economy. Examples of inputs include wages for labour supplied from the local or regional area, and purchases of goods and services. The more that a project operator sources from the local or regional economy, the more money that is directly injected into the economy; and
- The extent to which money spent in a local or regional economy is retained within that economy. If there is not much opportunity for people receiving income to spend it on goods and services in their local or regional area, then not as much money will be kept in the local or regional area. Larger and more diverse regional economies tend to be better at keeping expenditures in their economy and not 'losing' it to other regions.

To generate predictions, the economic contribution of an industry is applied to the relevant industry sectors of the input-output model of a regional economy. The stimulus from economic activity can be traced through the economy in several different ways:

- The first round effects, or direct effects, are those from the expenditure in purchasing goods and services from other industries;
- The second round effects are those from supplying industries increasing their purchases to meet the additional demand. The second and subsequent rounds of purchasing are termed the indirect effects; and
- The consumption-induced effects identify the increase in economic activity generated to service the additional employment (and population) generated or sustained through the direct and indirect effects.

Advantages and Assumptions in I-O Models

Key advantages of using input-output models are the fineness of detail available at a disaggregated industry level, the relative ease of application, particularly for sub-regional levels, and the ability to model effects in a timely manner (Loveridge 2004). However, care has to be taken in its application and interpretation of results. Key assumptions that underpin the application of I-O models are (Stilwell et al. 2000, Department of Mines and Energy 2007):

- The inputs purchased by each industry are a function of the level of output of that industry. The input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs);
- Each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies that there is only one method used to produce each commodity and that each sector has only a single primary output;
- The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the additivity assumption;
- The system is in equilibrium at given prices. This would not be the case in an economic system subject to external influences;
- In the static input-output model, there are no capacity constraints so that the supply of each good is perfectly elastic. Each industry can supply whatever quantity is demanded of it and there are no capital restrictions.

This assumption would come into play depending upon the magnitude of the changes in quantities demanded, brought about through changes in taxation levels; and

- The input-output model is an optimisation model that allocates resources between sectors to their most efficient use.

Type II models involve additional assumptions about fixed relationships between income and consumption patterns. These factors mean that the results of I-O models should generally be treated as the upper bound of estimates, and that care has to be taken in interpreting the results of very large changes in demand or production.

I-O Model Outcomes

Predictions from I-O models are summarised in terms of multipliers and changes in four key variables:

Output

The output impact measures the increase in gross sales throughout the whole economy by summing all the individual transactions resulting, directly and indirectly, from the economic stimulus.

Income

The income impact measures the additional amount of wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the stimulus to the economy.

Employment

The employment impact measures the combined number of existing jobs sustained and new jobs generated by the stimulus, both directly and indirectly, although allocation between these forms of employment is not separately identified.

Value Added

The value added or Gross Regional Product (GRP) impact measures only the net activity at each stage of production. GRP is defined as the addition of consumption, investment and government expenditure, plus exports of goods and services, minus imports of goods and services for a region. The GRP impacts are the preferred measure for the assessment and contribution of a stimulus to the economy.

I-O techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term – particularly at the small area and regional level – and hence are an appropriate tool for determining the direct, indirect and induced economic impacts of the NSW mining sector.

Construction of the NSW Regional I-O Models

For the derivation of the regional I-O tables based on the Statistical Divisions (SDs) in New South Wales, a variable interference non-survey technique was applied, involving a formalised non-survey method compilation. This allowed data on direct effects of the companies surveyed to be inserted at any stage of the compilation procedure. This approach is based primarily on the Generation of Regional Input-Output Tables (GRIT) technique as developed by Associate Professor Guy West and Professor Rod Jensen of the University of Queensland (Jensen *et.al.*, 1979), a widely used method of constructing local and regional input-output tables in Australia, America and Europe. The procedure utilises cross-industry location quotients (Flegg and Webber 2000) as well as superior data (including expenditure patterns of within the primary company data) for the regionalisation of the national direct requirements matrix (DRM) or at the elements of other final payments and demand, which are at the core of any I-O table.

In summary, the construction of the local and regional I-O models employed the following steps:

- Adjustment to the latest available national I-O table;
- Computation of the regional direct requirement matrix;
- Aggregation of regional sectors (if necessary); and

- Computation of the complete regional I-O table.

All the necessary data for the regionalisation procedure were collected from the Australian Bureau of Statistics as well as other reliable sources for secondary data such as regional household expenditure patterns, income and productivity measures. The latest available national I-O tables was 2012-13, which consisted of 114 sectors of economic activity, at the 4-digit level, compiled following the industry-technology assumption, product-by-product, with total flows and valued at basic values in current prices.

For estimating the regional I-O tables, and especially in the interpretation of results, relevant limitations of the I-O approach (static, linear production function, no substitution or scale economy effects, infinite elasticity of supply) were taken into consideration. Once the I-O models were generated, predictions of impact were estimated for each regional area of interest in New South Wales using the available data on salary and business expenditure.

The predictions of the I-O models for each SD and LGA were estimated in two separate groups. The first group involved the economic impacts of expenditure on business goods and services (business suppliers), while the second involved economic expenditure of the labour force. Each stimulus group was modelled using expenditure coefficients and household consumption patterns applicable for each region, also taking into account the nature of the expenditure (i.e. operating or capital expenditure). The outputs of the models can be classified into First Round and Indirect Effects, representing industry impacts through the business chain, and Final Consumption-Induced effects, which represent the economic activity needed to support the increased workforce from Direct, First Round and Indirect Effects.

The data collection and the methodology applied in this study are notable in three key aspects:

- First, the data collected on actual spending by the resources industry allowed an assessment of impacts by spending in the economy in comparison to the more traditional approach of predicting economic impacts from total revenue changes;
- Second, the collection of primary data by local area allowed a much more accurate assessment of the direct impacts by geographic area than had previously been available; and
- Third, the application of the I-O modelling framework down to the LGA level, when combined with the accuracy of the primary data, meant that relatively accurate models of local impacts from the 25 NSWMC full-member companies surveyed could be generated.

The outcomes of the data collection and modelling approach meant that the assessment of direct, indirect and consumption-induced effects could be expected to be more detailed and accurate at the LGA level than could be achieved with standard applications of general equilibrium models.

ECONOMIC BENEFITS

State Impact

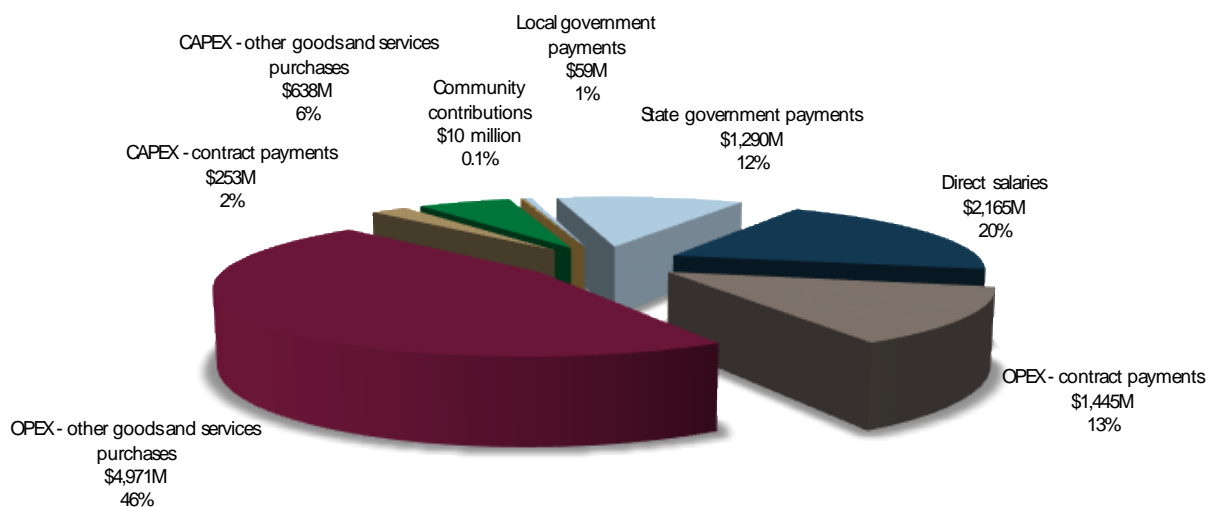
Direct Spending

Expenditure data provided by the 25 companies surveyed indicated that these companies contributed an estimated \$10.8 billion in direct spending to the NSW economy in 2015/16, comprised of:

- \$2.6 billion in wages and salaries to approximately 20,990 full-time equivalent residing employees (including contractors); representing an average salary level of \$125,985 per annum across the sector;
- \$6.9 billion in purchases of goods and services from approximately 8,078 local businesses, community contributions and payments to local government (including rates, developer contributions and other payments); and
- \$1.3 billion in state government payments (including royalties, stamp duty, payroll tax and land tax).

Direct Expenditure by Type for Companies Surveyed

New South Wales (\$million), 2015/16



Further analysis of the workforce employed by the 25 companies surveyed shows that there were 17,209 direct full-time employees, or 82.0% of the total workforce, with another 3,291 contract workers (15.7%) employed for mining operations and 490 contract FTEs (2.3%) engaged on capital projects.

The direct economic stimulus provided by the 25 mining companies in 2015/16 also extended to other states, with an additional \$4.3 billion in direct spending, which combined with the impact in New South Wales for a total impact of \$15.1 billion for the whole of Australia, comprised of:

- \$2.9 billion in wages and salaries to approximately 23,071 full-time residing employees; and
- \$12.2 billion in purchases of goods and services from local businesses, government (state and local) and community contributions.

The total direct spending stimulus to the New South Wales economy by the companies surveyed in 2015/16 can be disaggregated into the following areas:

- \$2.2 billion in wages and salaries to 17,209 direct employees;
- \$6.4 billion in operating expenditure (OPEX), comprised of:
 - \$1.4 billion in contract payments (including 3,291 contract workers);
 - \$5.0 billion in purchases of other goods and services;
- \$890.8 million in capital expenditure (CAPEX), comprised of:
 - \$252.6 million in contract payments (including 490 contract workers);
 - \$638.2 million in purchases of other goods and services;
- \$9.9 million in community contributions;
- \$58.6 million in local government payments; and
- \$1.3 billion in **state government payments**.

The 25 companies surveyed made payments to 8,078 separate businesses in New South Wales in 2015/16 and a further 3,660 businesses across the rest of Australia for a total number of businesses supported of 11,738.

The companies surveyed supported 991 community organisations across New South Wales through voluntary contributions across a number of categories, including:

- Health – 117;
- Education – 232;
- Arts – 34;
- Sport – 150;
- Indigenous – 53;
- Environment – 29;
- Social – 363; and
- Other – 12.

Comparison with results from previous surveys is difficult due to a slight difference in the number of participating companies. Based on whole-of-survey totals, the direct expenditure in NSW of the companies surveyed in 2015/16 decreased by approximately \$492.7 million, or 4.4% compared to 2014/15. The total number of employees, both direct and contract workers, fell slightly by 275 FTEs, or 1.3%.

Table 2: Comparison of Survey Results

	Level 2015/16	Level 2014/15	Level 2013/14	Level 2012/13	Level 2011/12	Annual % change 2014/15- 2015/16
No. of companies surveyed	25	23	22	26	21	8.7%
DIRECT EMPLOYEES						
No. of direct employees (FTEs)	17,209	17,566	17,517	19,280	13,418	-2.0%
No. of apprenticeships and traineeships (FTEs)	261	284	227	418	241	-8.1%
Total wages/salaries paid (\$M)	2,165.4	2,254.1	2,351.6	2,567.5	1,627.8	-3.9%
BUSINESS PURCHASES						
No. of suppliers	8,078	7,694	8,202	10,547	n.a.	5.0%
OPEX						
No. of contractors (FTEs)	3,291	2,931	2,907	3,515	7,524	12.3%
Payments to contractors (\$M)	1,445.2	1,308.7	1,919.6	1,477.0	1,822.8	10.4%
Other goods and services purchases (\$M)	4,971.5	5,462.3	7,058.6	6,950.3	6,067.5	-9.0%
Total opex spend (\$M)	6,416.6	6,771.0	8,978.2	8,427.3	7,890.2	-5.2%
CAPEX						
No. of contractors (FTEs)	490	768	1,108	687	1,116	-36.2%
Payments to contractors (\$M)	252.6	464.4	537.4	351.8	227	-45.6%
Other goods and services purchases (\$M)	638.2	438.3	560.8	1,424.7	764.1	45.6%
Total capex spend (\$M)	890.8	902.6	1,098.2	1,776.5	991.2	-1.3%
Total business purchases (\$M)	7,307.4	7,673.6	10,076.0	10,204.0	8,881.0	-4.8%
COMMUNITY CONTRIBUTIONS						
No. of community organisations supported	991	1,298	1,014	912	n.a.	-23.6%
Total community contributions (\$M)	9.9	12.3	11.2	16.1	8.3	-19.8%
LOCAL COUNCIL PAYMENTS						
Total local government payments (\$M)	58.6	60.6	59.1	41.4	19.1	-3.3%
STATE GOVERNMENT PAYMENTS						
Total state government payments (\$M)	1,290.3	1,323.6	1,141.6	n.a.	n.a.	-2.5%
TOTAL SPEND (\$M)	10,831.6	11,324.3	13,639.9	12,828.8	10,536.6	-4.4%
TOTAL EMPLOYMENT (FTEs)	20,990	21,265	21,516	23,483	22,058	-1.3%

Indirect and Consumption-Induced Spending

The I-O modelling conducted for this project has estimated the direct and indirect (Type I) and consumption-induced (Type II) effects flowing from the business expenditure, community and government contributions of \$8.2 billion, and the employment expenditure of \$2.6 billion. These impacts have been modelled separately but simultaneously for each region and then aggregated to identify the level of impacts on output, incomes, employment and industry value added in New South Wales. In 2015/16, the \$10.8 billion in direct spending in New South Wales by the 25 companies surveyed supported additional combined supply chain and consumption-induced effects of **111,635 full-time equivalent jobs** and **\$22.2 billion in aggregate spending** (\$7.0 billion in wages and salaries and \$15.3 billion in purchases of goods and services).

Table 3: Economic Impact of Companies Surveyed, 2015/16

	New South Wales	Rest of Australia	Total Australia
Value Added (\$M)			
Direct	10,832	4,252	15,083
% of GSP/GDP	2.0%	0.4%	0.9%
Indirect	8,123	2,854	10,977
Total value added (Type I)	18,955	7,105	26,060
% of GSP/GDP	3.5%	0.6%	1.6%
Consumption-induced	4,518	1,693	6,211
Total value added (Type II)	23,472	8,798	32,271
% of GSP/GDP	4.4%	0.8%	2.0%
Employment (FTEs)			
Direct	20,990	2,080	23,071
% of total state/national employment	0.6%	0.0%	0.2%
Indirect	68,889	17,139	86,028
Total employment (Type I)	89,879	19,220	109,099
% of total state/national employment	2.4%	0.2%	0.9%
Consumption-induced	42,746	10,737	53,483
Total employment (Type II)	132,625	29,956	162,582
% of total state/national employment	3.6%	0.4%	1.4%
Business spend (incl. community contributions and govt payments) (\$M)			
Direct	8,187	4,031	12,218
Indirect	6,469	2,992	9,461
Total business spend (Type I)	14,656	7,023	21,679
Consumption-induced	8,813	3,183	11,996
Total business spend (Type II)	23,469	10,206	33,675
Wages & salaries (\$M)			
Direct	2,644	221	2,865
Indirect	4,391	1,472	5,863
Total wages & salaries (Type I)	7,036	1,693	8,728
Consumption-induced	2,570	779	3,349
Total wages & salaries (Type II)	9,605	2,472	12,077

Note: Consumption-induced impacts seek to measure the change in consumption for all goods and services that arise from an increase in final output from the industry in question.

The results of the I-O modelling allow predictions to be made about the total size of impacts from the surveyed companies' direct expenditure on both the New South Wales and Australian economies. For each key measure,

the total impact on the economy is the sum of the direct effects from industry, the indirect effects through the business chain, and the consumption-induced effects. The total economic impact (i.e. direct, indirect and induced, or Type II impact) from the surveyed companies to the New South Wales economy in 2015/16 amounted to:

- \$26.1 billion in output/turnover (or purchases from supplying businesses);
- \$23.5 billion in value added (contribution to gross state product);
- \$9.6 billion in income (wages and salaries); and
- 132,625 full-time equivalent jobs.

Estimates of the contribution to Gross State Product (GSP) require an estimate of the initial contribution of the industry in terms of direct value added – defined as compensation of employees plus gross operating surplus plus other taxes less subsidies on production – plus the value added effects generated through the business chain and consumption-induced effects. A precise measure of direct value added for the companies surveyed is not available from the data; an estimated value added of \$10.8 billion – equivalent to the sum of input and labour costs, or total direct spending – has instead been adopted.

When business supply and employment effects are considered, the 25 companies surveyed **generated approximately \$23.5 billion in value added** (\$10.8 billion in direct effects, and \$12.6 billion in supply chain and consumption-induced effects) in 2015/16, and **sustained approximately 132,625 jobs** (of which 20,990 were in direct employment and 111,635 in additional employment). This means that the activity generated by these companies **contributed 4.4% of Gross State Product** (\$538.5 billion) **and 3.6% of total employment** (3,727,822 persons) in New South Wales in 2015/16. Under the more conservative Type I scenario (i.e. excluding consumption-induced effects), direct spending by the companies surveyed and flow-on impacts contributed 3.5% to GSP and 2.4% of total state employment.

Over the past five years, the New South Wales minerals and energy sector, as represented through the companies participating in the NSWMC survey, has generated approximately \$122.4 billion in value added, including \$57.9 billion in direct spending, and has supported an average workforce of approximately 142,800 jobs per annum.

Regional Impact

As specified earlier, the postcode expenditure data provided by companies was aggregated using geographical concordances at the regional (SD) and local (LGA) levels. Surveyed companies' direct expenditure, split across salaries, supplier, local government and community contribution spend, varied considerably across regional areas. The level of employment, and direct expenditure on employees and business purchases in 2015/16 is summarised for the 12 major regions in New South Wales in Table 4.

The data illustrates that the largest proportion of direct expenditure from the 25 companies surveyed in New South Wales in 2015/16 was in the Hunter region (\$4.8 billion), followed by the Sydney (\$2.4 billion), Illawarra (\$705.8 million) and Central West (\$612.1 million) regions. With regard to employment, the largest share of direct full-time resident employees across New South Wales was also recorded in the Hunter region (11,218 FTEs, or 52.6%), followed by the Central West (3,484 FTEs, or 17.5%), Sydney (1,671 FTEs, or 7.5%) and Illawarra (1,505 FTEs, or 8.4%).

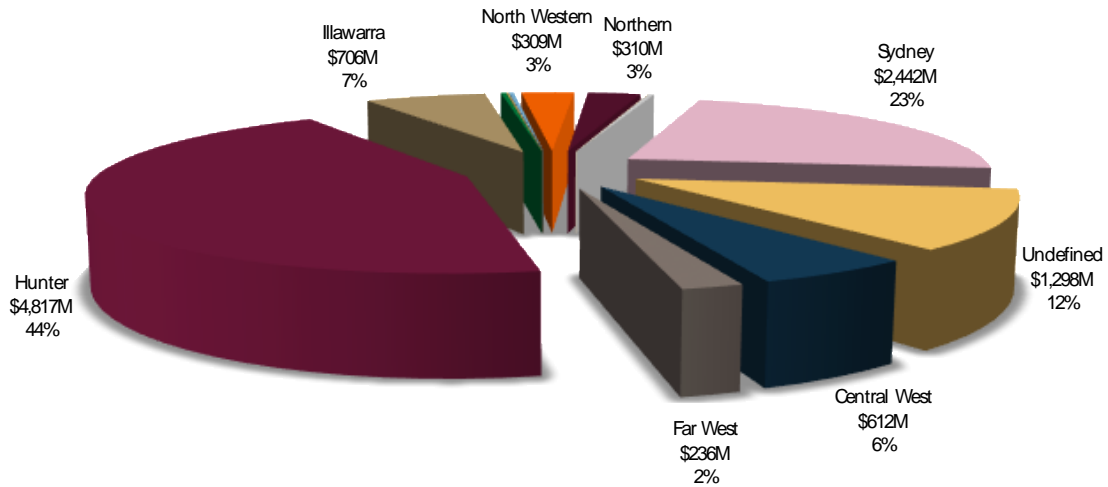
Table 4: Direct Impact of Surveyed Companies by Region, 2015/16

Region	Residing employees	Associated salaries	Business purchases & community contributions	No. of businesses	Total direct spending	% of total direct spend, NSW
	(FTEs)	(\$M)	(\$M)		(\$M)	
Central West	3,484	411.9	200.2	733	612.1	5.7%
Far West	397	47.6	187.9	168	235.5	2.2%
Hunter	11,218	1,488.9	3,328.2	3,647	4,817.1	44.5%
Illawarra	1,505	161.1	544.8	575	705.8	6.5%
Mid-North Coast	73	7.1	23.6	47	30.7	0.3%
Murray	16	1.7	6.3	51	8.1	0.1%
Murrumbidgee	44	4.5	24.1	65	28.6	0.3%
North Western	1,462	184.5	124.9	437	309.5	2.9%
Northern	1,070	111.0	198.9	650	309.8	2.9%
Richmond-Tweed	14	1.0	1.5	16	2.5	0.0%
South Eastern	25	2.4	30.0	45	32.4	0.3%
Sydney	1,671	221.4	2,220.5	2,240	2,441.9	22.5%
Unallocated ^(a)	11	1.3	5.9	-	1,297.6	12.0%
Total NSW	20,990	2,644.5	6,896.8	8,078	10,831.6	100.0%

Note: (a) Includes state government payments

Direct Stimulus by Region of Companies Surveyed

New South Wales 2015/16



The economic modelling conducted for this project has estimated the indirect and consumption-induced effects flowing from the two key direct impacts on the economy, i.e. those generated by business supply chain expenditure in each SD and those generated by consumption-induced spending in each region. These impacts have been modelled separately but simultaneously for each region and then aggregated to identify the level of impacts on output, incomes, employment and industry value added, the results of which are outlined in Table 5.

Table 5: Type II Indirect and Consumption-Induced Impacts of Companies Surveyed by Region, 2015/16

Region	Indirect full-time employees (FTEs)	Associated salaries (\$M)	Supply of goods and services (\$M)	Total indirect value added (\$M)
Central West	8,796	333.1	732.2	708.5
Far West	3,665	158.8	331.4	294.3
Hunter	52,225	3,089.0	6,425.3	5,390.8
Illawarra	10,934	564.6	1,110.8	979.5
Mid-North Coast	578	21.0	47.1	46.3
Murray	105	4.6	9.5	8.3
Murrumbidgee	151	6.3	14.2	13.4
North Western	4,523	170.3	375.7	364.4
Northern	5,333	195.8	437.2	428.1
Richmond-Tweed	45	2.3	4.4	3.9
South Eastern	608	21.9	49.5	48.7
Sydney	16,302	1,307.6	3,571.6	2,649.9
Undefined	8,368	1,085.5	2,173.2	1,704.7
Total NSW	111,635	6,960.7	15,282.0	12,640.8

Table 6 shows that the direct expenditure of the 25 companies surveyed has the highest overall impact in the Hunter region, with estimated total value added of \$10.2 billion, meaning these companies contributed 24.0% to gross regional product (\$42.6 billion) in 2015/16. The impact in the Hunter region was significantly higher than other regional economies, the next highest of which was Sydney (\$5.1 billion in value added) and Illawarra (\$1.7 billion). The Far West region recorded the highest proportion of GRP contributed by the companies surveyed (51.0%), followed by the Hunter (24.0%), Central West (10.5%), North Western (9.6%) and Illawarra (8.0%) regions.

Table 6: Total Economic Impact of Companies Surveyed by Region, 2015/16 (Type II)

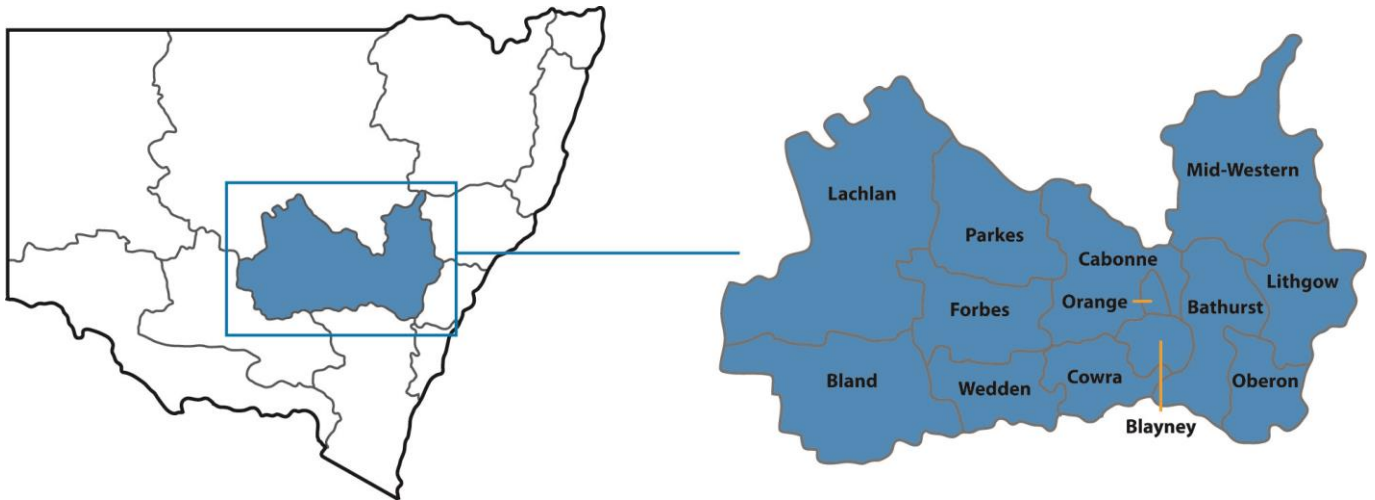
Region	Total output (\$M)	Total estimated value added (\$M)	Gross regional product (\$M)	Total value added as % of GRP
Central West	1,344.4	1,320.6	12,572.7	10.5%
Far West	566.9	529.8	1,039.0	51.0%
Hunter	11,242.4	10,207.9	42,568.2	24.0%
Illawarra	1,816.6	1,685.3	20,971.5	8.0%
Mid-North Coast	77.8	76.9	15,561.8	0.5%
Murray	17.5	16.4	5,997.8	0.3%
Murrumbidgee	42.8	42.0	9,827.3	0.4%
North Western	685.1	673.8	7,046.6	9.6%
Northern	747.0	737.9	10,405.8	7.1%
Richmond-Tweed	6.9	6.5	10,180.9	0.1%
South Eastern	81.9	81.1	10,443.9	0.8%
Sydney	6,013.5	5,091.8	391,941.7	1.3%
Undefined	3,470.7	3,002.2	-	-
Total NSW	26,113.6	23,472.4	538,513.0	4.4%

With regard to employment, the companies surveyed again had the greatest impact on jobs in the Hunter region, supporting 63,443 FTEs, comprising 20.2% of the total regional workforce. The Sydney (17,973 FTEs), Illawarra (12,439 FTEs) and Central West (12,279 FTEs) regions recorded the next highest number of employees.

Table 7: Total Employment Impact of Surveyed Companies by Region, 2015/16 (Type II Impact)

Region	Total direct, indirect and induced employees (FTEs)	Total regional employment (FTEs)	% of total employment
Central West	12,279	91,644	13.4%
Far West	4,063	8,693	46.7%
Hunter	63,443	313,533	20.2%
Illawarra	12,439	202,785	6.1%
Mid-North Coast	651	136,123	0.5%
Murray	121	47,007	0.3%
Murrumbidgee	196	78,812	0.2%
North Western	5,985	55,268	10.8%
Northern	6,403	81,228	7.9%
Richmond-Tweed	59	100,281	0.1%
South Eastern	633	109,290	0.6%
Sydney	17,973	2,503,158	0.7%
Undefined	8,380	-	-
Total NSW	132,625	3,727,822	3.6%

Central West



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$612 million in direct spending through:

- \$412 million in wages and salaries to 3,484 direct full-time employees (including contractors);
- \$185 million in purchases of goods and services from 733 local businesses (includes contractors);
- \$3.4 million in contributions to 252 community organisations; and
- \$12.0 million in local government payments.

Indirect contribution

This \$612 million in direct spending generated:

- \$732 million in additional supply chain goods and services purchases; and
- \$333 million in wages and salaries associated with 8,796 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$917 million in supplying business purchases;
- \$745 million in total wages and salaries paid to workers;
- \$1.3 billion in value added, or 10.5% of total GRP in this region (\$12.6 billion); and
- 12,279 full-time equivalent jobs, or 13.4% of the entire workforce in this region.

Far West



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$236 million in direct spending through:

- \$48 million in wages and salaries to 397 direct full-time employees (including contractors);
- \$186 million in purchases of goods and services from 168 local businesses (includes contractors) and contributions to 19 community organisations; and
- \$1.8 million in local government payments.

Indirect contribution

This \$236 million in direct spending generated:

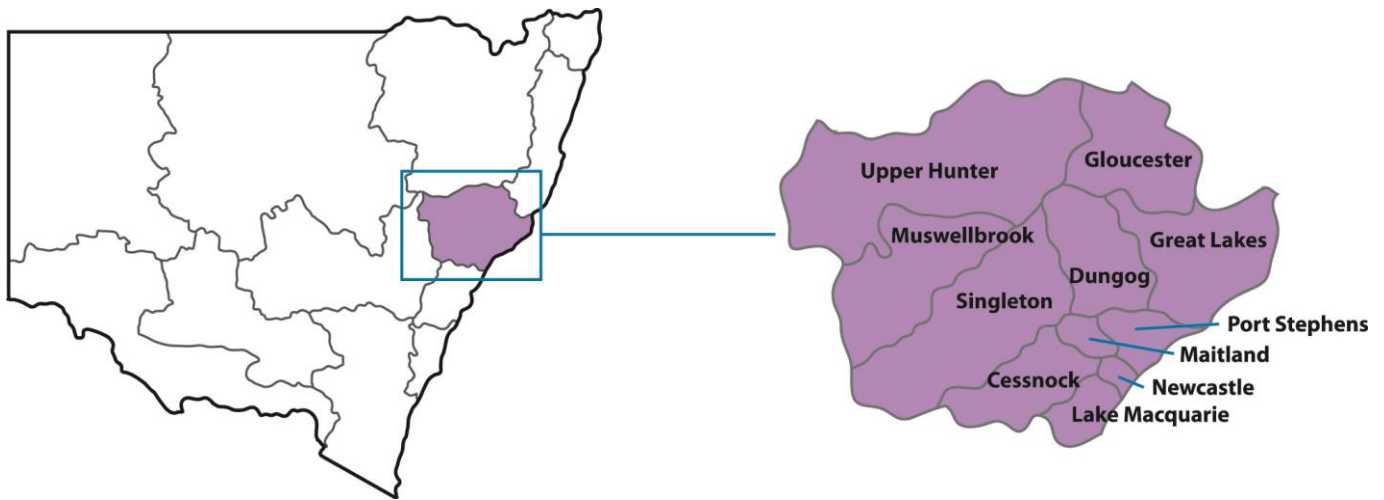
- \$331 million in additional supply chain goods and services purchases; and
- \$159 million in wages and salaries associated with 3,665 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$517 million in supplying business purchases;
- \$206 million in total wages and salaries paid to workers;
- \$530 million in value added, or 51.0% of total GRP in this region (\$1.0 billion); and
- 4,063 full-time equivalent jobs, or 46.7% of the entire workforce in this region.

Hunter



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$4.8 billion in direct spending through:

- \$1.5 billion in wages and salaries to 11,218 direct full-time employees (including contractors);
- \$3.3 billion in purchases of goods and services from 3,647 local businesses (includes contractors);
- \$3.7 million in contributions to 416 community organisations; and
- \$19.4 million in local government payments.

Indirect contribution

This \$4.8 billion in direct spending generated:

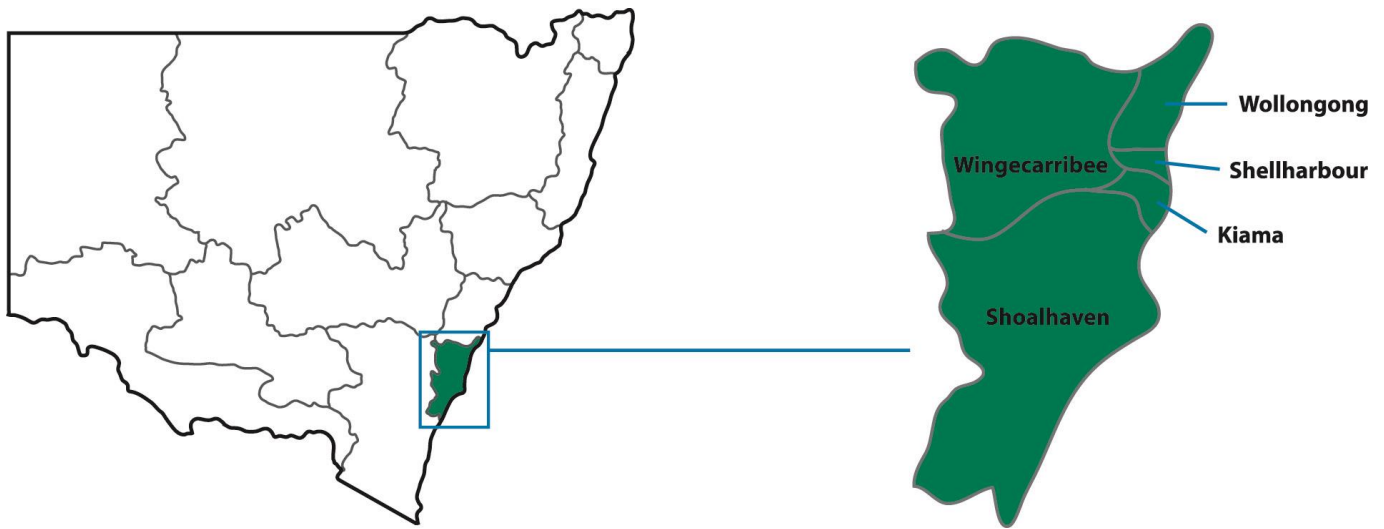
- \$6.4 billion in additional supply chain goods and services purchases; and
- \$3.1 billion in wages and salaries associated with 52,225 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 23 companies surveyed amounted to:

- \$9.7 billion in supplying business purchases;
- \$4.6 billion in total wages and salaries paid to workers;
- \$10.2 billion in value added, or 24.0% of total GRP in this region (\$42.6 billion); and
- 63,443 full-time equivalent jobs, or 20.2% of the entire workforce in this region.

Illawarra



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$706 million in direct spending through:

- \$161 million in wages and salaries to 1,505 direct full-time employees (including contractors);
- \$544 million in purchases of goods and services from 575 local businesses (includes contractors) and contributions to 35 community organisations; and
- \$0.9 million in local government payments.

Indirect contribution

This \$706 million in direct spending generated:

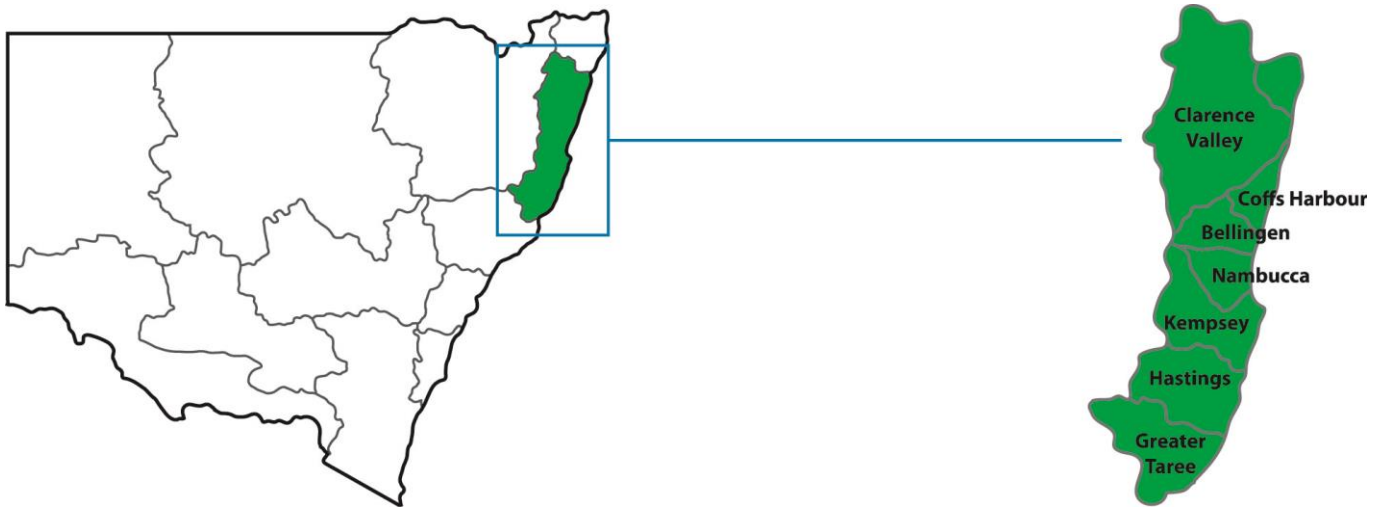
- \$1.1 billion in additional supply chain goods and services purchases; and
- \$565 million in wages and salaries associated with 10,934 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$1.7 billion in supplying business purchases;
- \$726 million in total wages and salaries paid to workers;
- \$1.7 billion in value added, or 8.0% of total GRP in this region (\$21.0 billion); and
- 12,439 full-time equivalent jobs, or 6.1% of the entire workforce in this region.

Mid-North Coast



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$31 million in direct spending through:

- \$7 million in wages and salaries to 73 direct full-time employees (including contractors); and
- \$24 million in purchases of goods and services from 47 local businesses (includes contractors), community contributions and local government payments.

Indirect contribution

This \$31 million in direct spending generated:

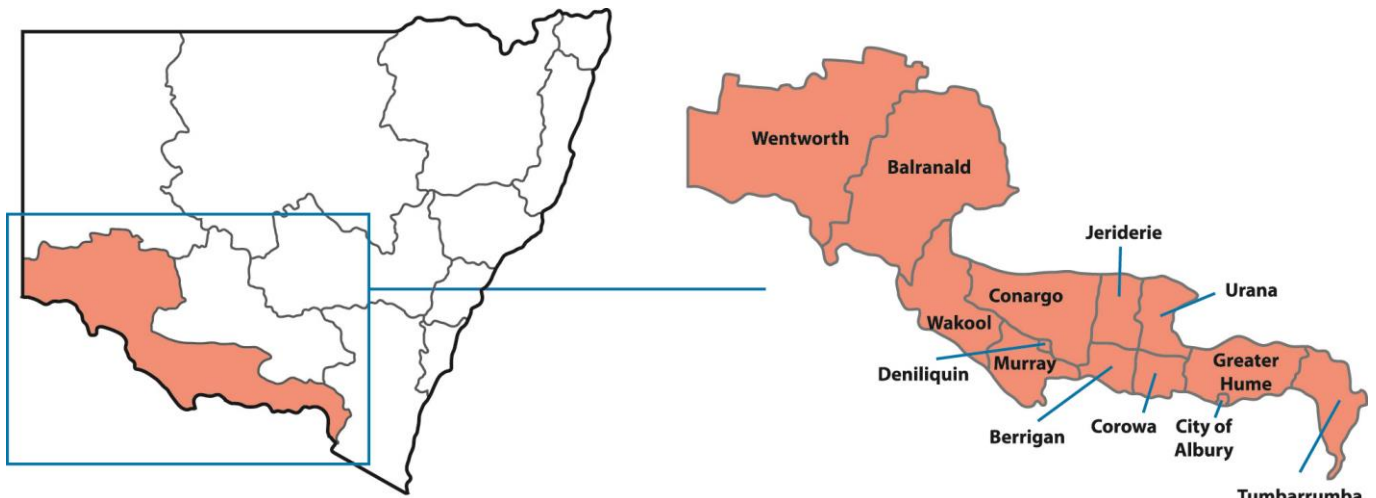
- \$47 million in additional supply chain goods and services purchases; and
- \$21 million in wages and salaries associated with 578 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$71 million in supplying business purchases;
- \$28 million in total wages and salaries paid to workers;
- \$77 million in value added, or 0.5% of total GRP in this region (\$15.6 billion); and
- 651 full-time equivalent jobs, or 0.5% of the entire workforce in this region.

Murray



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$8 million in direct spending through:

- \$2 million in wages and salaries to 16 direct full-time employees (including contractors); and
- \$6 million in purchases of goods and services from 51 local businesses (includes contractors), community contributions and local government payments.

Indirect contribution

This \$8 million in direct spending generated:

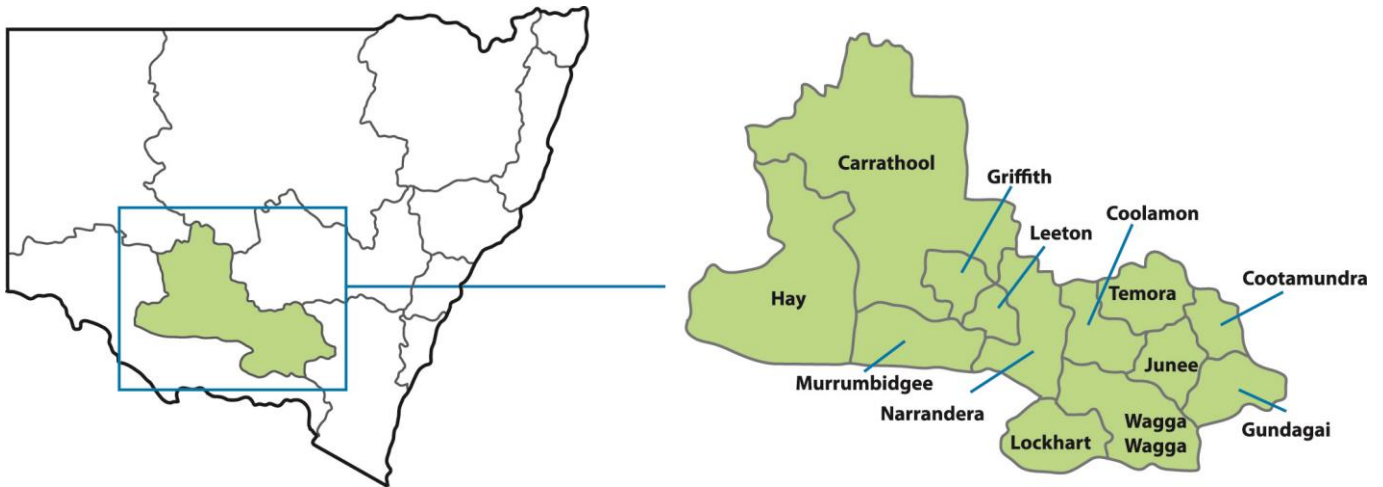
- \$9 million in additional supply chain goods and services purchases; and
- \$5 million in wages and salaries associated with 105 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$15 million in supplying business purchases;
- \$6 million in total wages and salaries paid to workers;
- \$16 million in value added, or 0.3% of total GRP in this region (\$6.0 billion); and
- 121 full-time equivalent jobs, or 0.3% of the entire workforce in this region.

Murrumbidgee



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$29 million in direct spending through:

- \$5 million in wages and salaries to 44 direct full-time employees (including contractors); and
- \$24 million in purchases of goods and services from 65 local businesses (includes contractors), community contributions and local government payments.

Indirect contribution

This \$29 million in direct spending generated:

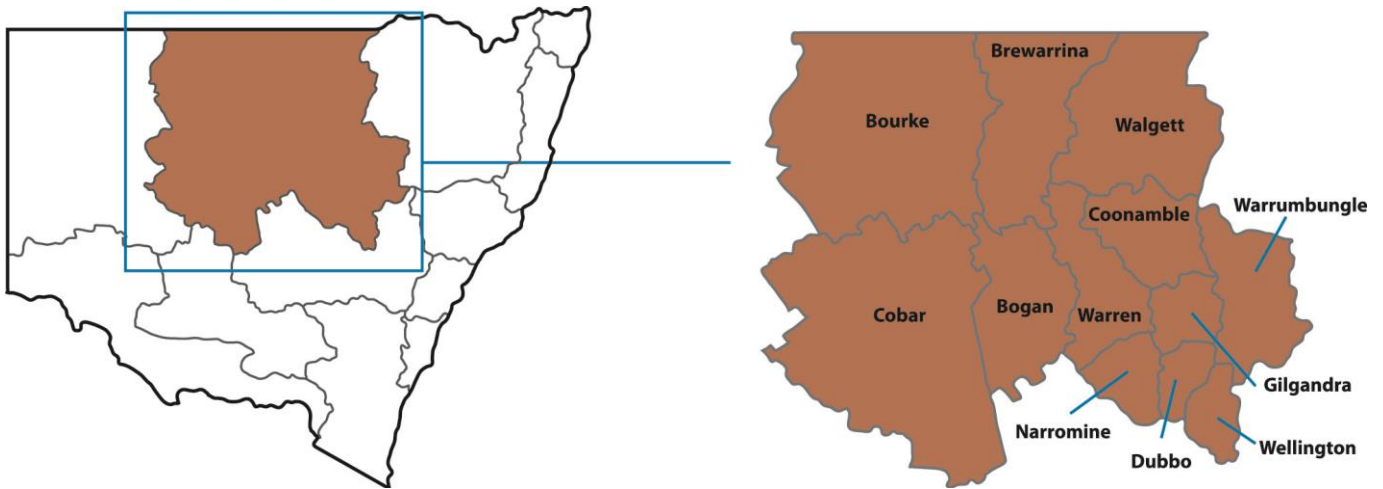
- \$14 million in additional supply chain goods and services purchases; and
- \$6 million in wages and salaries associated with 151 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$38 million in supplying business purchases;
- \$11 million in total wages and salaries paid to workers;
- \$42 million in value added, or 0.4% of total GRP in this region (\$9.8 billion); and
- 196 full-time equivalent jobs, or 0.2% of the entire workforce in this region.

North Western



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$309 million in direct spending through:

- \$185 million in wages and salaries to 1,462 direct full-time employees (including contractors);
- \$115 million in purchases of goods and services from 437 local businesses (includes contractors);
- \$0.6 million in contributions to 95 community organisations; and
- \$9.6 million in local government payments.

Indirect contribution

This \$309 million in direct spending generated:

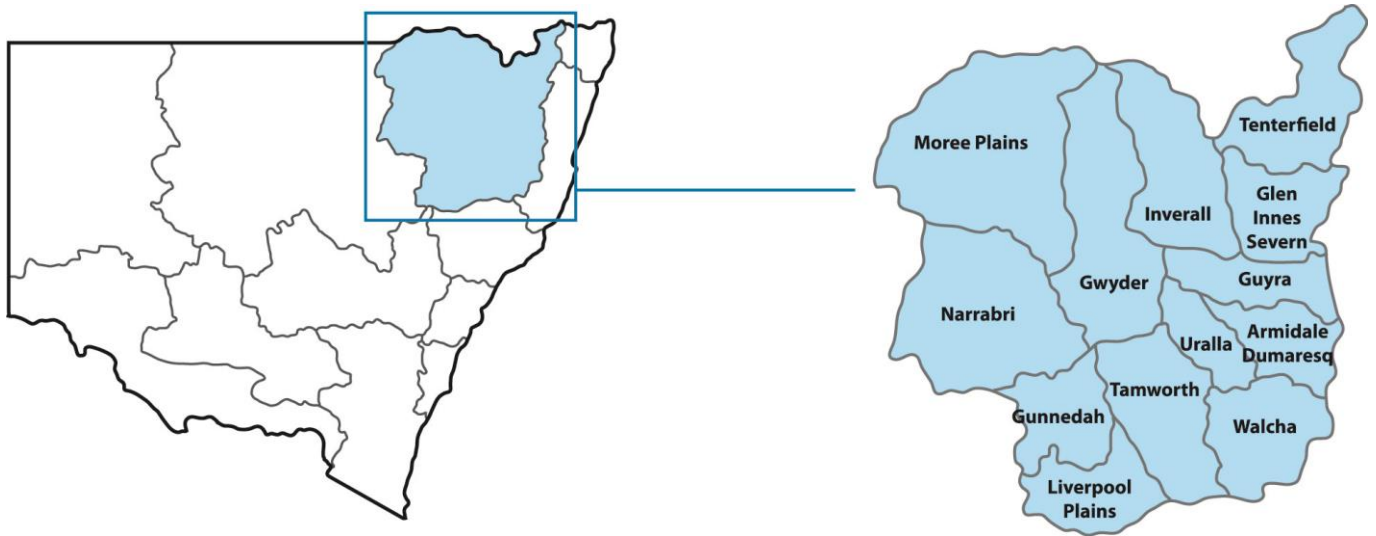
- \$376 million in additional supply chain goods and services purchases; and
- \$170 million in wages and salaries associated with 4,523 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$490 million in supplying business purchases;
- \$355 million in total wages and salaries paid to workers;
- \$674 million in value added, or 9.6% of total GRP in this region (\$7.0 billion); and
- 5,985 full-time equivalent jobs, or 10.8% of the entire workforce in this region.

Northern



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$310 million in direct spending through:

- \$111 million in wages and salaries to 1,070 direct full-time employees (including contractors);
- \$186 million in purchases of goods and services from 650 local businesses (includes contractors);
- \$0.5 million in contributions to 74 community contributions; and
- \$12.2 million in local government payments.

Indirect contribution

This \$310 million in direct spending generated:

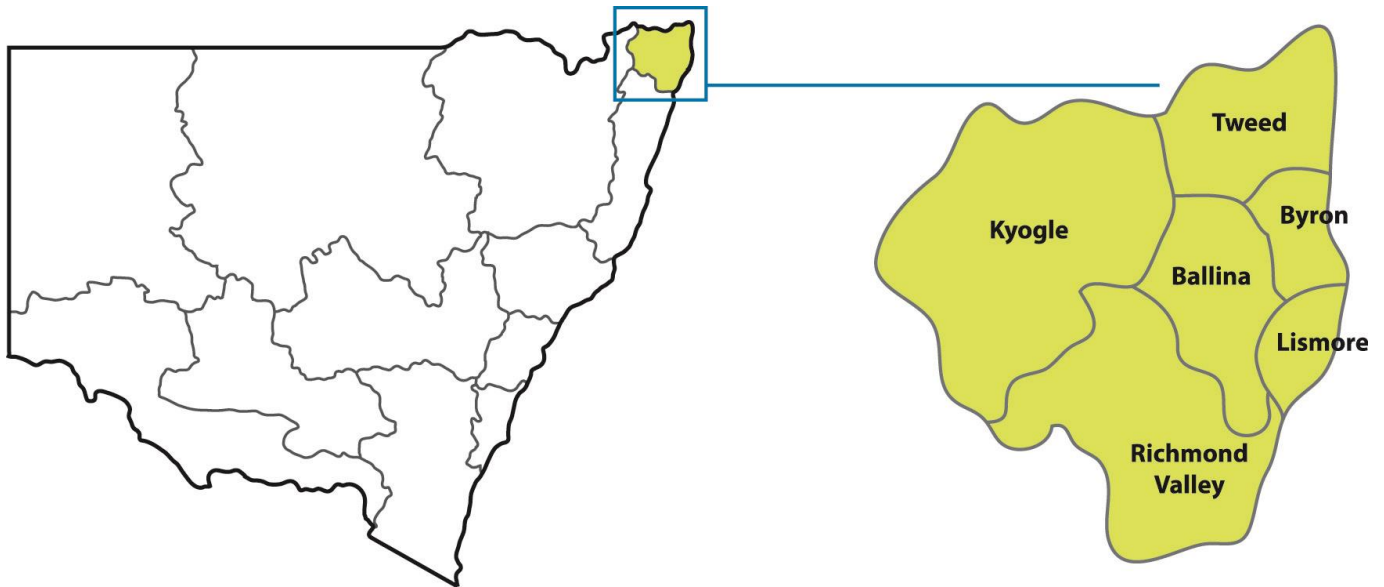
- \$437 million in additional supply chain goods and services purchases; and
- \$196 million in wages and salaries associated with 5,333 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$623 million in supplying business purchases;
- \$307 million in total wages and salaries paid to workers;
- \$738 million in value added, or 7.1% of total GRP in this region (\$10.4 billion); and
- 6,403 full-time equivalent jobs, or 7.9% of the entire workforce in this region.

Richmond-Tweed



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$3 million in direct spending through:

- \$1 million in wages and salaries to 14 direct full-time employees (including contractors);
- \$2 million in purchases of goods and services from 16 local businesses (includes contractors), community contributions and local government payments.

Indirect contribution

This \$3 million in direct spending generated:

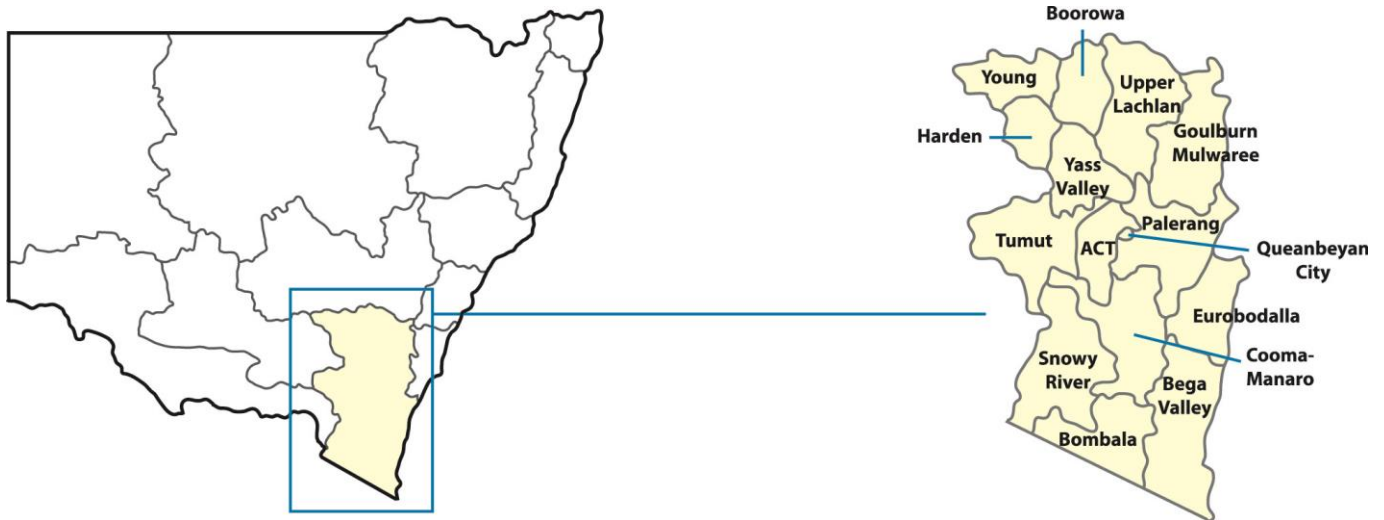
- \$4 million in additional supply chain goods and services purchases; and
- \$2 million in wages and salaries associated with 45 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$6 million in supplying business purchases;
- \$3 million in total wages and salaries paid to workers;
- \$6 million in value added, or 0.1% of total GRP in this region (\$10.2 billion); and
- 59 full-time equivalent jobs, or 0.1% of the entire workforce in this region.

South Eastern



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$32 million in direct spending through:

- \$2 million in wages and salaries to 25 direct full-time employees (including contractors);
- \$30 million in purchases of goods and services from 45 local businesses (includes contractors), community contributions and local government payments.

Indirect contribution

This \$32 million in direct spending generated:

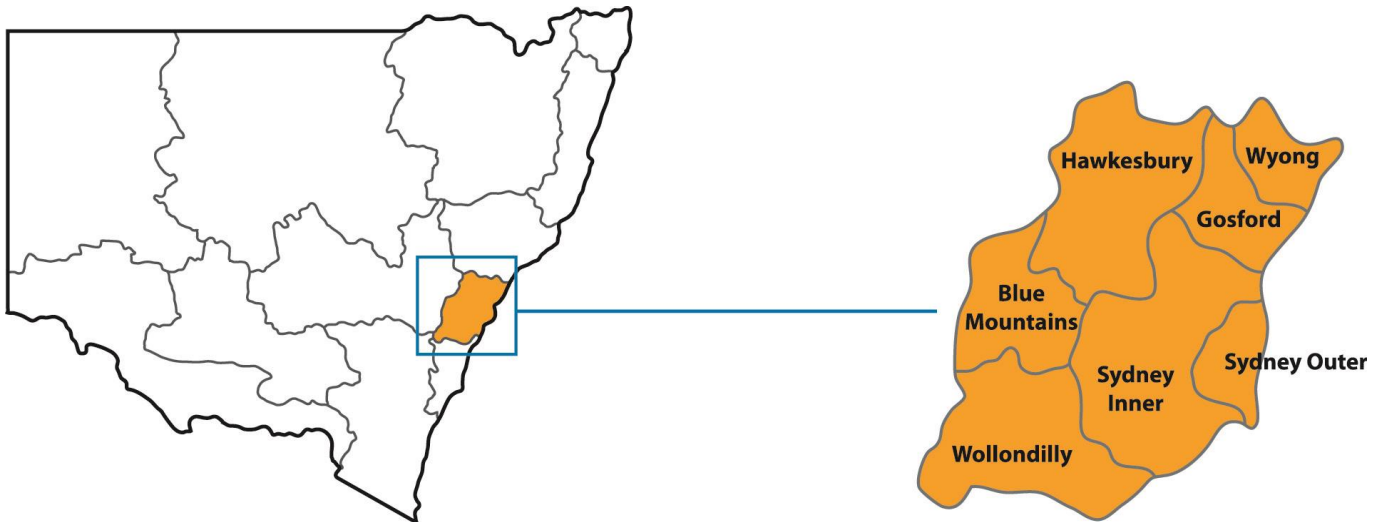
- \$49 million in additional supply chain goods and services purchases; and
- \$22 million in wages and salaries associated with 608 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$80 million in supplying business purchases;
- \$24 million in total wages and salaries paid to workers;
- \$81 million in value added, or 0.8% of total GRP in this region (\$10.4 billion); and
- 633 full-time equivalent jobs, or 0.6% of the entire workforce in this region.

Sydney



Direct contribution

In this region during 2015/16, the 25 companies surveyed contributed \$2.4 billion in direct spending through:

- \$221 million in wages and salaries to 1,671 direct full-time employees (including contractors);
- \$2.2 billion in purchases of goods and services from 2,240 local businesses (includes contractors);
- \$1.1 million in contributions to 95 community organisations; and
- \$1.7 million in local government payments.

Indirect contribution

This \$2.4 billion in direct spending generated:

- \$3.5 billion in additional supply chain goods and services purchases; and
- \$1.3 billion in wages and salaries associated with 16,302 additional jobs supported in this region.

Total contribution

The total economic contribution in this region (direct, indirect and induced) during 2015/16 from the 25 companies surveyed amounted to:

- \$5.8 billion in supplying business purchases;
- \$1.5 billion in total wages and salaries paid to workers;
- \$5.1 billion in value added, or 1.3% of total GRP in this region (\$391.9 billion); and
- 17,973 full-time equivalent jobs, or 0.7% of the entire workforce in this region.

Local Impact

Direct Spending

Similar to SDs or regions, the expenditure data provided by the 25 companies surveyed was aggregated using geographical concordances at the local government area (LGA) level. As expected, companies' expenditures, split across salaries supplier and community contribution expenditure, varied considerably across LGAs. The level of employment, direct expenditure on employees and business supply chain purchases and community and local government contributions is summarised for the 152 LGAs in New South Wales in Appendix A.

Table 8 shows the distribution of total direct spending (i.e. salaries, business purchases, local council and community contributions) from the surveyed companies across New South Wales to the top 20 expenditure LGAs. Newcastle LGA recorded the largest share of direct expenditure in 2015/16 (\$1,489 million), followed by Sydney (\$922 million), Singleton (\$814 million), Maitland (\$790 million) and Cessnock (\$591 million).

Direct resident employment and associated salary expenditures were greatest in the Hunter Valley region, specifically Singleton LGA (\$300 million and 2,144 FTEs), followed by the Maitland (\$266 million and 1,915 FTEs), Lake Macquarie (\$223 million and 1,735 FTEs), Cessnock (\$200 million and 1,560 FTEs) and Muswellbrook (\$200 million and 1,512 FTEs) LGAs.

Table 8: Direct Impact of Surveyed Companies, Top 20 LGAs by Expenditure, 2015/16

Local government area	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)
Newcastle	1,175	151.9	1,337.2	1,489.1
Sydney	97	18.4	903.6	922.0
Singleton	2,144	299.9	514.4	814.4
Maitland	1,915	266.2	524.2	790.4
Cessnock	1,560	199.5	391.1	590.6
Muswellbrook	1,512	199.5	272.3	471.8
Lake Macquarie	1,735	222.5	220.8	443.3
Wollongong	1,042	113.0	320.5	433.6
Parramatta	274	31.2	330.4	361.6
Mid-Western Regional	1,391	182.0	121.2	303.2
Broken Hill	397	47.6	187.9	235.5
Orange	1,092	123.8	80.5	204.3
Wingecarribee	73	8.8	193.1	201.9
Gunnedah	482	57.6	106.0	163.6
Lithgow	837	103.6	51.0	154.7
Camden	119	14.5	103.0	117.5
Gosford	79	9.0	90.4	99.4
Fairfield	31	3.8	85.3	89.1
Ku-ring-gai	81	13.4	69.8	83.2
Narrabri	211	22.5	60.4	82.9

Indirect and Consumption-Induced Spending

The I-O modelling estimated the indirect and consumption-induced effects flowing from business supply chain expenditure and consumption spending in each LGA. These impacts have been modelled separately and then aggregated to identify the level of Type II impacts on output, incomes, employment and industry value added for each region. The I-O model allowed for spending leakages to imports in both the first and subsequent rounds of economic activity.

Modelling consumption-induced impacts is problematic for smaller shires with limited economic structures because only a subset of goods and services are available. Smaller and specialised mining LGAs tend to have larger expenditure leakages, typically to the nearest large regional centre. To incorporate this into the modelling, a further correction factor based on extensive research of retail expenditure patterns in regional areas conducted by Lawrence Consulting has been applied for LGAs, as shown in Table 9.

The rates were further reduced for the mining-focused Singleton and Muswellbrook LGAs to account for the tendency of residents of this community to travel to major centres for consumption spending, the increased level of contract workers in associated industry in each region and to alleviate any constrained consumption capacity.

Table 9: Rates of Adjustment for Local Consumption Expenditure by LGA Population Size

Population of LGA	Rate of consumption expenditure in LGA
0 – 2,000	40%
2,000 – 5,000	46.7%
5,000 – 10,000	53.3%
10,000 – 30,000	73.3%
30,000 – 50,000	80%
50,000 – 100,000	86.7%
Over 100,000	100%

The total economic impact (i.e. both Type I and Type II model scenarios) of the 25 companies' direct spending for each LGA across New South Wales in 2015/16 is contained in Appendix B, with a summary of the top 20 LGAs by Type II value added provided in Table 10. The results show that the 25 surveyed companies' expenditure again has the highest overall impact in the Newcastle LGA, with total estimated value added of \$3.1 billion, followed by Sydney (\$1.9 billion), Singleton (\$1.7 billion), Maitland (\$1.7 billion) and Cessnock (\$1.3 billion).

With regard to employment, the surveyed companies again had the greatest impact on jobs in the Newcastle LGA, with 16,269 FTEs, followed by the Singleton (11,146 FTEs) and Maitland (10,502 FTEs) LGAs, whilst the regions where the impact of the 25 companies' direct spending accounted for the largest share of employment were Singleton (91.5%), Muswellbrook (68.4%) and Gunnedah (59.8%).

Table 10: Total Economic Impact of Surveyed Companies, Top 20 LGAs by Value Added, 2015/16 (Type II Impact)

Local government area	Total estimated value added (\$M)	% of gross regional product (GRP)	Total employees (FTEs)	% of total employment
Newcastle	3,135	21.6%	16,269	20.8%
Sydney	1,901	1.7%	6,047	4.7%
Singleton	1,730	37.9%	11,146	91.5%
Maitland	1,665	48.2%	10,502	30.1%
Cessnock	1,258	59.2%	8,038	36.3%
Wollongong	1,069	9.1%	8,180	8.8%
Lake Macquarie	946	10.9%	6,830	7.4%
Muswellbrook	873	31.2%	5,508	68.4%
Parramatta	757	3.6%	2,685	2.9%
Mid-Western Regional	660	37.4%	5,825	53.8%
Broken Hill	530	57.9%	4,063	52.7%
Orange	436	15.6%	3,968	19.7%
Wingecarribee	435	19.3%	2,582	12.0%
Gunnedah	390	52.6%	3,298	59.8%
Lithgow	341	21.2%	3,153	34.9%
Camden	248	8.2%	917	2.6%

Table 10: Total Economic Impact of Surveyed Companies, Top 20 LGAs by Value Added, 2015/16 (Type II Impact)

Local government area	Total estimated value added (\$M)	% of gross regional product (GRP)	Total employees (FTEs)	% of total employment
Gosford	201	2.4%	743	0.9%
Narrabri	200	20.3%	1,666	26.6%
Fairfield	183	2.4%	613	0.8%
Ku-ring-gai	177	3.4%	655	1.1%

CONCLUSION

This report contains the outcomes of two key pieces of analysis. The first is the collection of primary data by the NSW Minerals Council (NSWMC) that identifies the direct impact of 25 exploration and mining companies by local and regional areas in New South Wales. The second is the conduct of I-O modelling that identifies the flow-on effects through the economy at a State, Regional, Local Government Authority and State and Federal electoral boundary levels.

The results of the analysis demonstrate that incomes and expenditures from the 25 companies surveyed are widely distributed across the state generating significant flow-on effects, and that traditional economic techniques understate the true contribution of the mining sector as they do not attribute the output from related sectors such as construction, rail transport, utilities, professional services, manufacturing and contract workers.

The analysis identifies that the 25 companies surveyed contributed an estimated \$10.8 billion in direct spending to the state economy in 2015/16, comprised of:

- \$2.6 billion in wages and salaries to approximately 20,990 full-time equivalent residing employees (including contractors);
- \$6.9 billion in purchases of goods and services from approximately 8,078 local businesses, community contributions and payments to local government (including rates, developer contributions and other payments); and
- \$1.3 billion in state government payments (including royalties, stamp duty, payroll tax and land tax).

Of the major energy regions across New South Wales, there was a significant increase in direct spending in the Northern (up 40.2%) and Far West (up 27.4%) regions and smaller rises in the North Western (up 5.4%) and Hunter (up 0.8%), which combined off-set the decrease in expenditure in the Sydney region (down 14.0%). There was a decrease in operating expenditure of 5.2% across the resources sector, despite an increase in payments to contractors of over 10%, whilst there was also a slight drop in the level of capex (down 1.3%).

The economic stimulus provided by the 25 mining companies in 2015/16 also extended to other states, with an additional \$4.3 billion in direct spending, which combined with the impact in New South Wales for a total impact of \$15.1 billion for the whole of Australia, comprised of:

- \$2.9 billion in wages and salaries to approximately 23,071 full-time residing employees; and
- \$12.2 billion in purchases of goods and services from local businesses, government (state and local) and community contributions.

The total impact of the \$10.8 billion in direct spending by companies surveyed, measured through supply chain and consumption spending effects, amounted to an estimated 4.4% of Gross State Product and 3.6% of employment in New South Wales in 2015/16. If a more conservative approach excluding consumption-induced effects is adopted, direct spending by the companies surveyed and flow-on impacts would still contribute 3.5% to GSP and 2.4% of total state employment.

Over the past five years during which the annual NSWMC survey of member companies has been conducted, the New South Wales minerals and energy sector has generated approximately \$122.4 billion in value added,

including \$57.9 billion in direct spending, and has supported an average workforce of approximately 142,800 jobs per annum.

Expenditure from the mining industry in New South Wales has indirect benefits on the business environment in many areas, and generates substantial levels of production in the Sydney, Hunter, Illawarra and Central West regions in particular.

REFERENCES

- Bangsund, D.A. and Leistriz, F.L. (2007) Economic Contribution of the Petroleum Industry to North Dakota, Agribusiness and Applied Economics Report No. 599, Department of Agribusiness and Applied Economics, North Dakota State University, Fargo, North Dakota 58105.
- Fannin, J.M., Hughes, D.W., Keithly, W.R., Olatubi, W.O. and Guo, J. (2008) Deepwater energy industry impacts on economic growth and public service provision in Lafourche Parish, Louisiana, *Socio-Economic Planning Sciences*, 42: 190-205.
- Flegg T.A. & Webber C.D. (2000) Regional size, regional specialization and the FLQ formula, *Regional Studies*, 34 (6) pp. 563-569.
- Jensen R. C., Mandeville T.D. & Karunarante N.D. (1979) *Regional Economic Planning: Generation of Regional Input-Output Analysis* (Croom Helm, London).
- Jensen, R.C. and West, G. (2002) *Community Economic Analysis*, Department of Primary Industries, QLD Government, Brisbane.
- Leaming, G. (2010) *The economic impact of the Arizona copper industry 2009*. Report prepared for Western Economic Analysis Center.
- Loveridge, S. (2004) A typology and assessment of Multi-sector Regional Economic Impact Models, *Regional Studies*, 38(3): 305-317.
- Queensland Government (Department of Mines and Energy) (2007) *Queensland Industries: The economic significance of mining and mineral processing to Queensland*, Summary Report, Department of Mines and Energy, Brisbane.
- Rayner, V. and Bishop, J. (2013) *Industry Dimensions of the Resources Boom: An Input-Output Analysis*, Research Discussion Paper RDP 2013-02, Reserve Bank of Australia.
- Rubin, B.M. and Solomon, B.D. (1983) Economic and Fiscal Impact Analysis of Energy Development Projects: Coal Liquefaction in the Illinois Basin, *Socio-Economic Planning Sciences*, 17(1): 11-20
- Stilwell, L., Minnitt, R., Monson, T., Kuhn, G. (2000) An input-output analysis of the impact of mining on the South African economy. *Resources Policy* 26, 17-30.

APPENDIX A: DIRECT IMPACTS BY LGA

Table A1: Direct Impacts of Spending by Companies Surveyed by LGA, 2015/16

Local government area	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Albury	3	0.3	0.1	0.4	6
Armidale Dumaresq	101	6.3	3.5	9.8	131
Ashfield	2	0.4	0.1	0.5	4
Auburn	10	0.9	35.2	36.1	78
Ballina	2	0.2	0.7	0.9	3
Balranald	0	0.0	0.6	0.6	22
Bankstown	10	1.2	57.0	58.1	62
Bathurst Regional	293	32.7	12.6	45.3	58
Bega Valley	2	0.2	0.3	0.5	2
Bellingen	2	0.3	0.0	0.3	1
Berrigan	0	0.0	0.0	0.0	0
Blacktown	20	1.4	64.2	65.6	137
Bland	155	16.9	9.7	26.6	77
Blayney	132	16.1	12.8	28.9	19
Blue Mountains	77	11.3	1.5	12.8	29
Bogan	2	0.1	0.0	0.2	0
Bombala	0	0.0	0.0	0.0	0
Boorowa	2	0.2	0.0	0.2	1
Botany Bay	16	1.6	48.5	50.2	49
Bourke	0	0.0	0.0	0.0	2
Brewarrina	0	0.0	0.0	0.0	0
Broken Hill	397	47.6	187.9	235.5	166
Burwood	2	0.4	0.6	1.0	8
Byron	2	0.3	0.2	0.6	2
Cabonne	136	15.2	13.6	28.8	27
Camden	119	14.5	103.0	117.5	34
Campbelltown	85	8.2	47.4	55.6	67
Canada Bay	2	0.0	3.3	3.3	12
Canterbury	4	0.3	0.6	0.9	10
Carrathool	2	0.2	0.1	0.3	0
Central Darling	0	0.0	0.0	0.0	2
Cessnock	1,560	199.5	391.1	590.6	174
Clarence Valley	2	0.4	0.1	0.5	7
Cobar	4	0.4	3.0	3.4	22
Coffs Harbour	10	0.3	4.9	5.3	9
Conargo	0	0.0	0.1	0.1	0
Coolamon	8	0.8	0.0	0.9	3
Cooma-Monaro	1	0.2	0.4	0.6	1
Coonamble	0	0.0	0.0	0.0	0
Cootamundra	2	0.2	0.0	0.2	4
Corowa Shire	0	0.0	0.0	0.0	0
Cowra	7	0.8	0.3	1.1	6
Deniliquin	0	0.0	0.6	0.6	1

Table A1: Direct Impacts of Spending by Companies Surveyed by LGA, 2015/16

Local government area	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Dubbo	132	10.2	13.1	23.3	115
Dungog	134	17.6	7.1	24.7	27
Eurobodalla	3	0.3	0.4	0.7	2
Fairfield	31	3.8	85.3	89.1	98
Forbes	94	8.8	3.3	12.2	34
Gilgandra	1	0.1	0.0	0.1	0
Glen Innes Severn	1	0.2	0.0	0.2	0
Gloucester	74	8.5	3.1	11.6	51
Gosford	79	9.0	90.4	99.4	53
Goulburn Mulwaree	4	0.4	4.5	4.9	20
Great Lakes	74	8.2	12.9	21.1	35
Greater Hume Shire	0	0.0	0.0	0.1	0
Greater Taree	38	3.9	1.4	5.3	15
Griffith	6	0.4	1.2	1.7	7
Gundagai	0	0.0	0.0	0.0	0
Gunnedah	482	57.6	106.0	163.6	195
Guyra	4	0.3	0.0	0.4	1
Gwydir	5	0.6	0.2	0.8	2
Harden	1	0.1	0.0	0.1	0
Hawkesbury	8	0.9	3.4	4.3	17
Hay	0	0.0	0.0	0.0	0
Holroyd	12	1.5	16.5	18.0	29
Hornsby	13	2.3	4.3	6.6	55
Hunters Hill	2	2.5	1.1	3.6	4
Hurstville	3	0.2	2.4	2.6	13
Inverell	10	0.7	1.4	2.1	5
Jerilderie	0	0.0	0.0	0.0	0
Junee	0	0.0	0.2	0.2	3
Kempsey	3	0.4	1.6	1.9	3
Kiama	80	8.2	2.2	10.4	11
Kogarah	4	0.4	0.8	1.2	6
Ku-ring-gai	81	13.4	69.8	83.2	27
Kyogle	0	0.0	0.0	0.0	0
Lachlan	24	2.0	3.1	5.1	15
Lake Macquarie	1,735	222.5	220.8	443.3	505
Lane Cove	5	1.9	11.5	13.4	27
Leeton	2	0.2	3.5	3.7	8
Leichhardt	5	1.1	0.8	1.9	12
Lismore	1	0.0	0.2	0.2	3
Lithgow	837	103.6	51.0	154.7	164
Liverpool	15	1.6	25.9	27.5	40
Liverpool Plains	67	6.1	3.3	9.4	38
Lockhart	0	0.0	0.0	0.0	0
Maitland	1,915	266.2	524.2	790.4	472
Manly	5	0.6	0.2	0.8	4
Marrickville	5	0.3	15.4	15.7	23
Mid-Western Regional	1,391	182.0	121.2	303.2	313

Table A1: Direct Impacts of Spending by Companies Surveyed by LGA, 2015/16

Local government area	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Moree Plains	4	0.3	0.3	0.7	4
Mosman	2	0.0	1.3	1.3	11
Murray	0	0.0	0.1	0.1	0
Murrumbidgee	0	0.0	0.0	0.0	0
Muswellbrook	1,512	199.5	272.3	471.8	304
Nambucca	3	0.2	0.0	0.2	0
Narrabri	211	22.5	60.4	82.9	126
Narrandera	6	0.7	0.1	0.8	1
Narromine	24	1.8	0.8	2.6	12
Newcastle	1,175	151.9	1,337.2	1,489.1	789
North Sydney	14	5.3	47.8	53.1	101
Oberon	30	4.0	2.3	6.3	5
Orange	1,092	123.8	80.5	204.3	177
Palerang	0	0.0	6.4	6.4	3
Parkes	549	45.7	23.3	69.0	113
Parramatta	274	31.2	330.4	361.6	112
Penrith	17	2.3	24.5	26.8	49
Pittwater	11	1.2	2.4	3.6	29
Port Macquarie-Hastings	14	1.2	15.9	17.2	12
Port Stephens	336	42.3	37.3	79.6	80
Queanbeyan	2	0.1	15.1	15.2	7
Randwick	14	2.7	15.9	18.6	16
Richmond Valley	0	0.0	0.2	0.2	5
Rockdale	3	0.3	0.6	0.9	12
Ryde	20	3.7	53.7	57.4	106
Shellharbour	285	28.6	8.3	36.8	33
Shoalhaven	25	2.5	20.6	23.1	25
Singleton	2,144	299.9	514.4	814.4	1163
Snowy River	2	0.1	0.1	0.2	1
Strathfield	10	0.4	6.7	7.1	15
Sutherland Shire	39	4.4	42.1	46.5	73
Sydney	97	18.4	903.6	922.0	447
Tamworth Regional	171	15.5	22.2	37.7	136
Temora	11	1.1	0.3	1.4	6
Tenterfield	2	0.3	0.0	0.3	0
The Hills Shire	17	5.1	12.5	17.7	75
Tumbarumba	0	0.0	0.0	0.0	0
Tumut Shire	1	0.1	0.1	0.2	1
Tweed	8	0.5	0.2	0.7	3
Upper Hunter Shire	560	71.7	8.8	80.5	47
Upper Lachlan Shire	1	0.1	0.3	0.5	1
Uralla	7	0.5	0.6	1.1	11
Urana	0	0.0	0.0	0.0	1
Wagga Wagga	5	0.7	18.7	19.3	31
Wakool	0	0.0	0.1	0.1	2
Walcha	3	0.3	0.6	0.9	2

Table A1: Direct Impacts of Spending by Companies Surveyed by LGA, 2015/16

Local government area	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Walgett	6	0.7	0.0	0.7	0
Warren	2	0.2	0.0	0.2	0
Warringah	38	3.1	7.4	10.5	58
Warrumbungle Shire	23	2.5	1.1	3.6	4
Waverley	5	1.1	0.4	1.6	6
Weddin	4	0.3	0.0	0.3	0
Wellington	7	0.6	0.8	1.4	5
Wentworth	13	1.4	4.7	6.1	19
Willoughby	36	3.5	37.0	40.5	74
Wingecarribee	73	8.8	193.1	201.9	125
Wollondilly	223	27.6	26.5	54.1	87
Wollongong	1,042	113.0	320.5	433.6	379
Woollahra	5	0.4	0.3	0.7	5
Wyong	233	25.6	23.3	49.0	66
Yass Valley	2	0.1	0.9	1.0	0
Young	5	0.4	1.6	1.9	6

APPENDIX B: TOTAL ECONOMIC IMPACTS BY LGA

Table B1: Estimated Total Economic Impacts of Spending by Companies Surveyed by LGA (Type II Impact)

Local government area	Total estimated value added (\$M)	% of gross regional product (GRP)	Total employees (FTEs)	% of total regional employment
Albury	1.5	0.1%	16	0.1%
Armidale Dumaresq	22.0	1.5%	253	2.3%
Ashfield	1.1	0.0%	6	0.0%
Auburn	74.4	0.5%	244	0.7%
Ballina	2.2	0.1%	17	0.1%
Balranald	0.7	0.6%	1	0.1%
Bankstown	119.1	1.1%	385	0.5%
Bathurst Regional	95.3	3.4%	913	4.4%
Bega Valley	1.3	0.1%	12	0.1%
Bellingen	0.6	0.1%	6	0.1%
Berrigan	0.0	0.0%	0	0.0%
Blacktown	134.0	0.9%	444	0.3%
Bland	60.0	14.6%	571	19.8%
Blayney	63.9	13.4%	566	16.0%
Blue Mountains	31.5	1.3%	195	0.5%
Bogan	0.4	0.2%	4	0.3%
Bombala	0.0	0.0%	0	0.0%
Boorowa	0.4	0.4%	5	0.4%
Botany Bay	103.6	0.6%	342	1.6%
Bourke	0.0	0.0%	0	0.0%
Brewarrina	0.0	0.0%	0	0.0%
Broken Hill	529.8	57.9%	4,063	52.7%
Burwood	2.1	0.1%	9	0.0%
Byron	1.5	0.1%	13	0.1%
Cabonne	62.2	6.2%	549	7.9%
Camden	247.5	8.2%	917	2.6%
Campbelltown	116.1	1.8%	466	0.6%
Canada Bay	6.8	0.1%	23	0.0%
Canterbury	2.0	0.0%	11	0.0%
Carrathool	0.5	0.3%	5	0.3%
Central Darling	0.0	0.0%	0	0.0%
Cessnock	1,257.7	59.2%	8,038	36.3%
Clarence Valley	1.1	0.0%	10	0.0%
Cobar	9.2	2.2%	76	2.9%
Coffs Harbour	14.2	0.3%	123	0.3%
Conargo	0.1	0.1%	0	0.0%
Coolamon	1.9	0.8%	20	0.9%
Cooma-Monaro	1.5	0.3%	12	0.2%
Coonamble	0.0	0.0%	0	0.0%
Cootamundra	0.4	0.1%	4	0.1%
Corowa Shire	0.0	0.0%	0	0.0%
Cowra	2.4	0.4%	23	0.4%
Deniliquin	0.6	0.2%	1	0.0%
Dubbo	54.7	2.2%	524	2.5%
Dungog	53.1	13.3%	436	10.6%

Table B1: Estimated Total Economic Impacts of Spending by Companies Surveyed by LGA (Type II Impact)

Local government area	Total estimated value added (\$M)	% of gross regional product (GRP)	Total employees (FTEs)	% of total regional employment
Eurobodalla	1.5	0.1%	12	0.1%
Fairfield	183.1	2.4%	613	0.8%
Forbes	26.5	4.4%	271	6.1%
Gilgandra	0.2	0.1%	2	0.1%
Glen Innes Severn	0.3	0.1%	3	0.1%
Gloucester	25.2	8.3%	218	10.3%
Gosford	201.4	2.4%	743	0.9%
Goulburn Mulwaree	7.6	0.5%	35	0.3%
Great Lakes	44.5	3.0%	308	2.4%
Greater Hume Shire	0.1	0.0%	1	0.0%
Greater Taree	11.6	0.5%	116	0.6%
Griffith	2.7	0.1%	17	0.1%
Gundagai	0.0	0.0%	0	0.0%
Gunnedah	389.6	52.6%	3,298	59.8%
Guyra	0.8	0.3%	9	0.5%
Gwydir	1.8	0.8%	17	0.8%
Harden	0.3	0.1%	3	0.2%
Hawkesbury	9.2	0.3%	38	0.1%
Hay	0.0	0.0%	0	0.0%
Holroyd	37.4	0.6%	132	0.3%
Hornsby	14.5	0.2%	63	0.1%
Hunters Hill	8.5	1.1%	33	0.5%
Hurstville	5.4	0.1%	21	0.0%
Inverell	5.3	0.6%	50	0.8%
Jerilderie	0.0	0.0%	0	0.0%
Junee	0.3	0.1%	1	0.1%
Kempsey	4.6	0.3%	36	0.3%
Kiama	28.9	3.6%	299	2.9%
Kogarah	2.6	0.1%	12	0.0%
Ku-ring-gai	177.2	3.4%	655	1.1%
Kyogle	0.0	0.0%	0	0.0%
Lachlan	12.4	3.0%	116	3.7%
Lake Macquarie	946.2	10.9%	6,830	7.4%
Lane Cove	27.6	0.9%	97	0.5%
Leeton	5.7	0.9%	24	0.4%
Leichhardt	4.3	0.1%	21	0.1%
Lismore	0.6	0.0%	5	0.0%
Lithgow	341.0	21.2%	3,153	34.9%
Liverpool	57.1	0.7%	196	0.2%
Liverpool Plains	21.0	4.7%	211	6.7%
Lockhart	0.0	0.0%	0	0.0%
Maitland	1,665.0	48.2%	10,502	30.1%
Manly	2.0	0.1%	12	0.0%
Marrickville	31.4	0.8%	106	0.2%
Mid-Western Regional	660.4	37.4%	5,825	53.8%
Moree Plains	1.5	0.2%	15	0.2%
Mosman	2.7	0.2%	10	0.1%
Murray	0.1	0.0%	0	0.0%
Murrumbidgee	0.0	0.0%	0	0.0%

Table B1: Estimated Total Economic Impacts of Spending by Companies Surveyed by LGA (Type II Impact)

Local government area	Total estimated value added (\$M)	% of gross regional product (GRP)	Total employees (FTEs)	% of total regional employment
Muswellbrook	873.0	31.2%	5,508	68.4%
Nambucca	0.4	0.1%	6	0.1%
Narrabri	199.8	20.3%	1,666	26.6%
Narrandera	1.6	0.4%	15	0.5%
Narromine	5.5	1.7%	60	1.9%
Newcastle	3,135.0	21.6%	16,269	20.8%
North Sydney	108.9	0.7%	370	0.8%
Oberon	13.8	4.1%	124	4.8%
Orange	436.2	15.6%	3,968	19.7%
Palerang	17.5	3.7%	140	1.6%
Parkes	149.3	15.5%	1,546	22.8%
Parramatta	756.7	3.6%	2,685	2.9%
Penrith	56.0	0.6%	196	0.2%
Pittwater	7.9	0.2%	38	0.1%
Port Macquarie-Hastings	44.7	1.2%	358	1.1%
Port Stephens	169.7	5.0%	1,257	4.3%
Queanbeyan	41.9	2.4%	336	1.4%
Randwick	39.4	0.6%	141	0.2%
Richmond Valley	0.4	0.0%	2	0.0%
Rockdale	2.0	0.1%	10	0.0%
Ryde	119.1	0.9%	398	0.7%
Shellharbour	100.8	4.9%	1,041	3.4%
Shoalhaven	51.8	1.3%	338	0.9%
Singleton	1,729.9	37.9%	11,146	91.5%
Snowy River	0.4	0.1%	4	0.1%
Strathfield	14.3	0.4%	56	0.3%
Sutherland Shire	97.4	1.1%	350	0.3%
Sydney	1,901.1	1.7%	6,047	4.7%
Tamworth Regional	90.2	2.5%	826	3.1%
Temora	2.8	0.7%	27	1.0%
Tenterfield	0.6	0.2%	6	0.2%
The Hills Shire	38.3	0.4%	146	0.1%
Tumbarumba	0.1	0.0%	1	0.0%
Tumut Shire	0.3	0.0%	3	0.0%
Tweed	1.8	0.1%	22	0.1%
Upper Hunter Shire	174.8	21.0%	1,596	22.8%
Upper Lachlan Shire	0.9	0.3%	7	0.2%
Uralla	2.5	1.3%	25	0.8%
Urana	0.1	0.1%	0	0.1%
Wagga Wagga	25.8	0.6%	77	0.2%
Wakool	0.1	0.0%	0	0.0%
Walcha	2.2	1.3%	20	1.4%
Walgett	1.3	0.4%	14	0.6%
Warren	0.5	0.3%	5	0.4%
Warringah	22.7	0.3%	114	0.1%
Warrumbungle Shire	8.1	1.7%	79	2.0%
Waverley	3.8	0.1%	19	0.0%
Weddin	0.7	0.4%	8	0.5%
Wellington	3.2	0.9%	29	0.9%

Table B1: Estimated Total Economic Impacts of Spending by Companies Surveyed by LGA (Type II Impact)

Local government area	Total estimated value added (\$M)	% of gross regional product (GRP)	Total employees (FTEs)	% of total regional employment
Wentworth	13.1	3.0%	101	4.1%
Willoughby	83.8	0.8%	306	0.8%
Wingecarribee	434.5	19.3%	2,582	12.0%
Wollondilly	121.5	7.5%	650	2.6%
Wollongong	1,069.4	9.1%	8,180	8.8%
Woollahra	1.5	0.0%	10	0.0%
Wyong	112.0	1.8%	626	0.9%
Yass Valley	2.8	0.5%	24	0.3%
Young	5.1	0.7%	44	0.8%

APPENDIX C: DIRECT IMPACTS BY STATE ELECTORATE

Table C1: Direct Impacts of Spending by Companies Surveyed by SED (Type II Impact)

State electoral division	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Albury	20	2.4	8.3	10.7	15
Auburn	23	2.2	50.2	52.3	77
Ballina	5	0.5	1.0	1.5	5
Balmain	12	2.6	49.2	51.7	37
Bankstown	5	0.6	35.4	36.0	27
Barwon	334	38.0	98.1	136.1	173
Bathurst	1,397	171.2	89.6	260.8	281
Baulkham Hills	9	1.4	8.4	9.9	41
Bega	5	0.5	0.9	1.4	4
Blacktown	4	0.5	35.3	35.7	51
Blue Mountains	77	11.3	2.0	13.3	27
Cabramatta	5	0.6	8.5	9.1	16
Camden	96	11.6	78.8	90.3	32
Campbelltown	150	17.9	44.5	62.4	70
Canterbury	2	0.3	1.3	1.6	7
Castle Hill	6	1.4	3.4	4.9	22
Cessnock	1,828	235.0	507.1	742.1	330
Charlestown	560	69.2	129.7	198.8	195
Clarence	3	0.4	0.3	0.7	12
Coffs Harbour	11	0.7	4.4	5.1	8
Coogee	8	1.3	4.9	6.2	14
Cootamundra	105	11.2	8.6	19.8	58
Cronulla	12	1.3	3.5	4.9	30
Davidson	48	7.6	31.7	39.4	25
Drummoyne	5	0.2	6.0	6.2	16
Dubbo	1,387	164.2	86.5	250.7	347
East Hills	8	0.8	21.5	22.3	34
Epping	7	1.3	2.4	3.7	24
Fairfield	11	1.2	40.7	42.0	35
Gosford	33	3.1	46.1	49.2	26
Goulburn	67	7.6	106.2	113.8	93
Granville	94	7.3	119.5	126.8	37
Hawkesbury	6	1.2	3.4	4.6	15
Heathcote	151	16.6	32.9	49.5	44
Heffron	20	2.5	33.9	36.5	64
Holsworthy	9	0.8	10.1	11.0	18
Hornsby	6	1.0	2.0	3.0	28
Keira	439	47.7	55.6	103.3	104
Kiama	185	18.8	51.7	70.5	47
Kogarah	4	0.4	0.9	1.4	9
Ku-ring-gai	45	7.5	40.4	47.9	19
Lake Macquarie	720	92.9	87.7	180.6	192
Lakemba	3	0.2	14.2	14.4	17

Table C1: Direct Impacts of Spending by Companies Surveyed by SED (Type II Impact)

State electoral division	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Lane Cove	19	9.1	31.8	40.9	71
Lismore	11	0.7	0.6	1.3	13
Liverpool	5	0.5	8.3	8.8	15
Londonderry	6	0.7	4.8	5.5	17
Macquarie Fields	44	4.8	35.0	39.8	38
Maitland	1,825	253.1	482.5	735.6	445
Manly	10	1.2	0.6	1.8	11
Maroubra	10	2.2	51.2	53.4	28
Miranda	10	1.3	4.4	5.7	22
Monaro	5	0.4	21.9	22.3	12
Mount Druitt	8	0.2	5.7	5.9	21
Mulgoa	7	0.7	11.0	11.7	27
Murray	382	44.3	136.2	180.4	203
Myall Lakes	60	6.1	9.0	15.1	28
Newcastle	605	83.0	799.9	882.8	478
Newtown	17	2.1	115.0	117.1	68
North Shore	14	5.0	47.0	52.1	105
Northern Tablelands	163	13.1	13.0	26.0	156
Oatley	3	0.2	1.5	1.7	9
Orange	1,856	230.5	125.2	355.7	405
Oxley	12	1.2	13.2	14.3	6
Parramatta	147	16.4	179.2	195.7	64
Penrith	9	1.2	16.9	18.1	27
Pittwater	11	1.3	2.6	3.9	35
Port Macquarie	18	1.4	4.4	5.8	11
Port Stephens	449	57.8	255.7	313.5	166
Prospect	15	1.7	31.4	33.1	64
Riverstone	3	0.3	2.9	3.2	11
Rockdale	2	0.3	0.7	1.0	11
Ryde	16	2.0	40.2	42.1	78
Seven Hills	32	3.3	43.8	47.1	62
Shellharbour	335	33.9	25.5	59.4	39
South Coast	12	1.3	1.6	2.9	9
Strathfield	8	1.0	3.6	4.6	18
Summer Hill	6	0.7	6.1	6.8	13
Swansea	373	49.0	14.0	63.0	60
Sydney	71	16.3	721.9	738.2	334
Tamworth	701	76.6	155.1	231.7	393
Terrigal	30	3.9	12.2	16.0	13
The Entrance	65	7.1	41.2	48.2	31
Tweed	8	0.5	0.2	0.7	3
Upper Hunter	4,404	590.6	801.1	1,391.7	1,607
Vaucluse	5	0.6	0.4	1.0	5
Wagga Wagga	6	0.8	18.8	19.5	32
Wakehurst	22	1.6	4.9	6.5	34
Wallsend	564	70.8	248.8	319.6	207
Willoughby	29	4.3	29.1	33.5	69

Table C1: Direct Impacts of Spending by Companies Surveyed by SED (Type II Impact)

State electoral division	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Wollondilly	168	20.4	83.1	103.5	103
Wollongong	320	35.6	252.2	287.9	236
Wyong	165	18.8	14.0	32.8	42

APPENDIX D: DIRECT IMPACTS BY FEDERAL ELECTORATE

Table D1: Direct Impacts of Spending by Companies Surveyed by CED (Type II Impact)

Commonwealth electoral division	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Banks	12	1.1	17.7	18.8	32
Barton	6	0.7	3.5	4.3	21
Bennelong	30	5.3	91.6	96.9	140
Berowra	16	4.1	7.5	11.5	56
Blaxland	10	1.1	51.9	53.0	66
Bradfield	85	14.0	74.8	88.8	51
Calare	3,097	374.3	203.7	577.9	646
Chifley	11	0.2	27.5	27.7	52
Cook	17	2.1	6.1	8.2	43
Cowper	61	6.3	12.2	18.5	39
Cunningham	829	90.9	264.9	355.9	325
Dobell	230	26.8	49.9	76.6	75
Eden-Monaro	61	7.0	27.6	34.6	46
Farrer	411	48.5	174.9	223.4	228
Fowler	14	1.4	32.1	33.5	41
Gilmore	170	17.3	27.8	45.1	44
Grayndler	25	3.6	177.9	181.4	104
Greenway	9	1.0	34.4	35.4	81
Hughes	74	8.0	48.8	56.9	66
Hume	228	27.1	82.6	109.7	108
Hunter	4,344	577.5	840.7	1,418.2	1,228
Kingsford Smith	29	5.1	63.7	68.7	64
Lindsay	16	2.1	23.8	26.0	46
Lyne	594	76.9	72.4	149.3	162
Macarthur	132	15.0	91.7	106.7	62
Mackellar	38	3.4	7.7	11.1	64
Macquarie	85	12.3	5.0	17.3	47
McMahon	46	5.5	99.1	104.6	98
Mitchell	23	2.6	23.3	25.9	72
Newcastle	1,341	173.9	1,363.0	1,536.9	864
New England	1,494	175.8	266.1	441.9	674
North Sydney	50	13.5	88.5	102.0	188
Page	9	0.8	2.1	3.0	18
Parkes	1,523	185.4	196.1	381.5	550
Parramatta	247	20.0	315.3	335.3	95
Paterson	3,336	446.3	796.1	1,242.4	967
Reid	18	1.5	25.2	26.7	72
Richmond	11	0.9	0.8	1.6	8
Riverina	715	83.9	67.4	151.3	224
Robertson	64	7.1	66.2	73.3	41
Shortland	910	115.6	114.1	229.7	231
Sydney	81	15.9	737.0	752.9	367
Warringah	18	2.5	3.3	5.8	39
Watson	5	0.6	3.3	3.9	19

Table D1: Direct Impacts of Spending by Companies Surveyed by CED (Type II Impact)

Commonwealth electoral division	Residing employees (FTEs)	Associated salaries (\$M)	Business purchases and community contributions (\$M)	Total direct spending (\$M)	No. of businesses directly supported
Wentworth	12	2.0	2.1	4.1	22
Werriwa	18	2.0	23.7	25.7	42
Whitlam	439	45.5	227.4	272.9	166