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Assessing Direct Government Subsidies Paid to Tasmanian Industries

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Executive Summary

The aims of the study may be briefly stated as follows:

- To describe the general contributions of the following industries to the Tasmanian economy: Forestry and Timber Processing, Mining and Mineral Processing, Energy, Primary Industry (Agriculture and Fishing) and Tourism.
- Determine the value added by each of these five industries to Tasmania's Gross State Product (GSP). This provides a measure of the relative importance of each industry to the Tasmanian economy.
- Assess the Commonwealth and Tasmanian government direct subsidies paid to each of these five industries.
- Determine the relative value of industry support in each of the five sectors where the relative value is captured in the following Subsidy Intensity Index (SII_i):

$$SII_i = \frac{\text{\$ Support to Industry}_i}{\text{\$Contribution to GSP by Industry}_i}$$

The SII_i is a pure number independent of any unit of measurement and so industries can be ranked according to their SII_i.

- The bang for buck for each industry is then determined. The larger the contribution for a given level of industry value added the lower is the SII_i and the more effective is a subsidy paid to the sector. The higher is the level of industry support in the numerator for a given value added in the denominator, the higher is the SII_i index for the industry in question and the bang for buck is smaller.
- Industry rankings from low to high are provided. The lower the SII_i, the greater the bang for buck invested.

Methods employed:

- The general contributions of each sector as distinct from their value added to GSP are gauged from expenditure and revenue patterns obtained from a survey

of forestry companies in the case of forestry, from published financial accounts, and specific industry data as indicated in the text.

- Value added is calculated from individual company and sector records and the value added used is approximated by gross turnover in dollars minus intermediate sales and purchases. Industry support data, grants and subsidies are either not collected by the official statistical agencies or are not available in a form that allows comparison. This report provides the Australian Bureau of Statistics (ABS) industry breakdown of GSP for Tasmania, but for our purpose the ABS approach is deficient as it absorbs the contribution of mineral processing in manufacturing and conceals the value added of the mineral and mineral processing industries. A similar problem occurs in relation to Forestry and Timber Processing and the value added for each of these sectors is re-estimated from primary records maintained by Minerals Resources Tasmania (MRT). The value added by forestry is determined from Forestry Tasmania (FT) for public forestry and from a survey of private forestry companies. The ABS industry classification does not provide a separate tourism industry category. An estimate of tourism's value added is derived from Tourism Tasmania's annual reports.
- Direct subsidies paid to each of the five industry sectors are derived from industry sources as clearly indicated in the text. However one particular obstacle warrants an explanation. The reference period for this study is the five year period 2004–2008, but the data about industry subsidies varies. Some government support is provided on an ongoing annual basis, for example, the Freight Equalisation Scheme payments are paid on a continuing annual basis, while in other cases grants are paid on a one off basis or over a three to five year period. This lack of uniformity leads to the notion of a “representative year” in the reference period 2004–2008. The representative year is described fully in the text.

The non uniformity of the data forced the following compromise. We took a five year time span from 2003-2004 to 2007-2008 and developed the notion of a “representative year” for purposes of calculating the SII_i for each industry. The method is fully described in the text.

Results:

- General contributions: Forestry and Timber Processing paid \$55.356 million to the Tasmanian government over the period 2003–2004 to 2007–2008, and \$37.9 million in personnel expenses in 2008. Minerals and Mineral Processing sector; the Energy sector disbursed \$187 million to personnel, local suppliers \$606 million, \$42 million to government and invested \$109 million in 2008. The Energy sector distributed \$540 million to government, employees, contractors and suppliers in 2008. Agriculture and Fisheries contribute \$1.2 billion to the Tasmanian economy annually and Tourism \$1.4 billion pa to the general economy.
- SII_i Index and rankings from lowest to highest:

Industry Support	Support level \$ million	Value added \$ million	SII_i	Bang for Buck \$
Forestry and Wood Process	25.24	1,408	0.018	56
Energy	6.13	918	0.007	150
Mining and Minerals	10.94	1,892	0.006	167
Agriculture and Fishing	50.5	1190	0.042	24
Tourism (Total)	92.3	1,430 ¹	0.065	15
Tourism (Holiday)	92.3	1,005	0.09	11

- The value added by industrial sector is shown below at Table 3.2.

¹ Tourism (Total) encompasses holiday and other visitors

Table 3.2 Value added by Industry Sector \$ million 2006-2007	
Industry	Value Added \$ million 2006/2007
Forestry and Timber	1408
Energy	918
Minerals and Mining	1,892
Agriculture and Fishing	1190
Tourism: Total, including Holiday Visitors	1,430
Tourism: Holiday Visitors only	1,005

- Subsidies paid to the five sectors is shown in the text as follows:

Table 4.4 Summary Industry Support Representative Year for the period 2004-2008	
Industry	Support Level \$ million
Forestry and Wood Processing	25.24
Energy	6.13
Mining and Minerals Sector	10.94
Agriculture and Fishing	50.50
Tourism	92.30

- Industry support for a “representative year”. Forestry and Timber Processing (25.24 million), Energy (\$6.31 million), Mining and Minerals (\$10.94 million), Agriculture and Fishing (\$50.55 million), Tourism (all visitors) and Tourism (holiday visitors) is \$92.3 million for both industries.
- The best bang for a buck invested in industry support is in the Energy sector followed by the Mining and Minerals processing, Forestry and Timber Processing, Agriculture and Fishing, Tourism (all visitors) and finally Tourism (holiday visits only).

Table 5.2 Rank Order Tables (from less relatively subsidised to more relatively subsidised)			
Industry Sector	Rank	SII	BB (\$)
Mining and Minerals Processing	1	0.006	167
Energy	2	0.007	150
Forestry and Timber Processing	3	0.018	56
Agriculture/Fishing	4	0.042	24
Tourism (all visitors)	5	0.065	15
Tourism (holiday makers only)	6	0.090	11

1 Introduction

The word subsidy is commonly viewed as a derisory term and yet subsidisation has its right and proper place in the operation of modern economies. For example, the rationale for paying subsidies to move ferry passengers across Bass Strait is the contributions the ferries make to Tourism particularly along Tasmania's North West Coast. In general, subsidies endow economic benefits but the handful of studies pertaining to industry subsidisation do not weigh up the merits of a subsidy against the economic benefits it bestows. This analysis of subsidisation addresses this imbalance of matching the costs of particular subsidies against their actual economic contributions. The end point of this analysis is an index number which weighs up the costs of subsidies against the industry's contribution to total income which is proxied by value added. Five industry sectors are selected for the purpose of comparison which are labelled. The core sectors are those industry sectors that generate the demand for most of the output of other sectors particularly the Service sector and includes Agriculture/Fisheries, Mining and Minerals Processing, Forestry and Timber Processing, Energy and Tourism. Without any of the five chosen industries, the Tasmanian economy could simply not exist in its current form. Without Agriculture and Fisheries, for example there would be no domestically generated food export processing industry. Food processing would be forced to rely on imported materials and the number of jobs created by this industry must fall as a consequence. Without mining, the Mineral Processing sector is reliant on imported materials and again many fewer jobs. In an historical context, central to Tasmania's emergence as a manufacturing region was the development of a modern Energy sector based initially on hydro power and ultimately drawing on other forms of power including wind power. Hydro power remains the basic core energy source. The Energy sector generated the development of most Tasmanian manufacturing sectors. Forestry and Timber Processing are also viewed as core activities given their substantial value add contribution. Tasmania's final core activity is Tourism which is among the fastest growing industry sectors and by far the most important service industry in the State. This study involves an exhaustive analysis of Tasmanian and federal government support for these five industry sectors.

1.1 Aims of the Project

The contracting parties, namely Forest Industries Association of Tasmania (FIAT), Forestry Tasmania and IMC-Link, agreed to analyse and compare the subsidisation of five mainstream Tasmanian industries:

- Forestry and Timber Processing
- Mining and Mineral Processing
- Energy
- Primary Industry (Agriculture and Fishing)
- Tourism

The aim of this study is to assess the extent of industry subsidisation of the chosen five core Tasmanian industries. The first step in the analysis is to determine the contributions of these five core industries to the Tasmanian economy by analysing the distribution of each of the core sectors expenditure. The point made in this part of the analysis is the wide spread effects of each industry's expenditure. We label this expenditure distribution analysis the General Contribution of These Core Industries to the Tasmanian Economy. The results are included in Section 2 of the report. The general contribution analysis must be clearly distinguished from each industry's specific contributions to Value Added by each sector to Tasmania's GSP. The starting point for determining this value added contribution by each sector is found in Section 1.3 of the report. However, we note that ABS industry classifications are not suited to the aims of the project as they combine industry sectors not allow us to consider separate value added contributions for our five core industry. As such we returned to individual industry data to determine the value added contribution of the core industries. The results are contained in Section 3 of the report. Industry support payments (subsidies), their value and the methods used to derive data on these appears in Section 4 of the report.

The consultants have developed the Subsidy Intensity Index (SII_i) to measure the extent of subsidies relative to value added. This index is used to determine the relative degree of direct industry subsidisation of Tasmanian Industry, by comparing the ratio of the

amount of government assistance provided to each industry with the value added each industry contributes to the Tasmanian economy. The SII_i is the ratio of the value of direct subsidies paid to a given industry (i) to its contribution to Tasmania's Gross State Product (GSP):

$$SII_i = \frac{\text{Support to Industry}_i}{\text{Contribution from Industry}_i}$$

The rationale for this approach is that the SII_i is a measure which allows IMC-Link to place industry subsidisation into a specific context, namely, the value of the industry contribution to the Tasmanian economy. In an ideal world no industry should require direct subsidisation but in reality, the world recognises a broadening set of values, some of which can justify subsidisation. The SII_i for each industry assesses both the size and worthiness of industry subsidisation. In general a low SII_i indicates that the public is getting more bang for the bucks invested in each industry subsidies.

The bang for buck is evident also in the inverse of the SII_i . The bang for buck (BB_i) ratio provides the dollar contribution of industry i (value added) to GSP for a dollars worth of industry support as follows:

$$BB_i = \frac{\text{Value added by Industry}_i}{\$ \text{ Value of Industry Support}}$$

1.2 Support to Industry

1.2.1 The Definition of Subsidies

Central to the argument about subsidisation is the definition of the term subsidy:

“Subsidies comprise all measures that keep prices for consumers below market level or keep prices for producers above market level or reduce costs for consumers and producers by giving direct or indirect support.”²

This general definition indicates that the benefits provided by subsidies are shared by producers or consumers as both groups benefit from reduced prices and/or costs. Another essential ingredient of this definition is the notion that subsidies may be direct or indirect. The following classification of subsidies is suggested by Reidy (2001 p 4):

Direct subsidies	[√]
Favorable tax treatment	[X]
Provision of Infrastructure	[√]
Public (government) contributions to research and development	[√]
Provision of infrastructure below cost	[X]
Provision of capital at less than market rates	[X]
Trade Policies such as import and export tariffs	[X]

Legend: [√] = Identified Subsidies [X] = Subsidies Unaccounted for
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Those items in this list marked with a [√] are forms of subsidisation identified in this report. However it must be understood that not all forms of subsidisation applying in each industry sector can be identified.

Direct subsidies are constituted by government payments made directly to each industry sector to subvent costs. This type of subsidy can be observed in either federal or state budget papers as from industry records and are included among the list of subsidies

² De Moor 2001, p.168

paid to industry. Tax concessions or other forms of favourable tax treatment are not included because they are not necessarily paid to the industry directly or indirectly. In some cases tax havens are not designed to facilitate the operations of an industry, they are designed to attract investors to the industry. Investors and operators are not usually one and the same, so it is quite appropriate to disregard tax havens as a subsidy paid to industry when they benefit investors only. Provision of infrastructure is regarded as a relevant subsidy when it can be demonstrated that industry produces the greatest public benefit. Road and bridge construction is a leading example. It is difficult to sustain an argument that the construction of a major highway which provides access to a manufacturing site is a form of infrastructure subsidisation when the same highway carries much more private traffic. The argument that road construction is a subsidy is further confused by arrangements in Tasmania, particularly in relation to forestry operations. Forestry Tasmania builds and maintains roads some of which are accessible by motorists. In other words Forestry roads bestow benefits for both public and private industry users and the separation of these benefits is a complex task given that roads and bridges serve multiple uses. Public contributions to research are a form of direct subsidisation and augment the research activity conducted by individual industries. These services are supplied on occasions through the activities of those state government agencies which provide industry support. Included here are the following agencies: Tourism Tasmania which supports the Tourism sector, Department of Primary Industries, Water and the Environment, Mineral Resources of Tasmania (MRT), the Forest Practices Authority, Private Forests Tasmania, the Energy Regulator and the Department of Industry, Energy and Resources. Unfortunately it is not possible in all cases to isolate administrative support for each of the five core sectors. For example, it is not clear what proportion of DPIWE and DIER's supports Agriculture and although the connection is obvious in other cases, (MRT for example), the focus of administrative support is not obvious and therefore this lack of uniformity leads us to omit administrative support from the set of subsidies identified here. The exceptions are the specially created research institutions that are linked to particular industries, and are particularly clear. Included here are the Tasmanian Institute for Agricultural Research (TIAR) and the Tasmanian Agriculture and Fisheries Institute (TAFI) who receive

Tasmanian government grants, that can be included as subsidies. The measurement of these costs is discussed in detail in Section 3 of the report. The provision of capital at less than market prices is a legitimate subsidy is immeasurable as no relevant data is available. Trade policies such as import tariffs and export subsidies are not included in this analysis because the beneficiaries of international trade subsidies are import competing sectors such as textiles and motor vehicles. Few benefits of tariff protection are felt in Tasmania.

1.2.2 Limitations of the Data Relating to Industry Subsidies

Identifying industry subsidies is a major research task. Different industries receive a range of direct and indirect government support. This complexity and variation between industries means we look in vain to the usual sources of Australian industry data.

Variation between different industries makes it virtually impossible for the Australian Bureau of Statistics (ABS) to develop a consistent time series of industry subsidies for the five industry sectors featured in this study. Thus, the ABS series on the Mining and Mineral Processing sector, for example, makes no mention of direct subsidies over time.

The Australian Productivity Commission (APC) produces bi-annual reports analysing the effectiveness of financial assistance to industry. However, the emphasis of these APC studies is to assess the benefits provided for the aggregate economy flowing from the effective level of tariff protection given to Australian commodities competing with imports. The APC report does not include a cohesive set of industry subsidies.

The Australian Bureau of Agricultural and Resource Economics (ABARE) maintains a series of Agricultural, Mining and Forestry data but its emphasis is again on industry performance rather than levels of industry support and/or subsidisation. ABARE does publish some useful farm level subsidies.

Given the absence of any consistent data on industry subsidisation, the derivation of subsidy information involves a different approach for each industry. The approach used for each industry is discussed in Section 4 of the report.

The payments made under the Tasmanian Community Forest Agreement (TCFA) are shown on table 4.1 but these are not included in the total value of subsidies paid to forestry because they do not match the definition of a subsidy given in Section 1 above. These payments are to compensate the industry for the loss of the timber resource and are of a capital nature and not of the recurring kind. Even if wrongly treated as subsidies TCFA payments still leave Forestry and Timber Processing in the middle of the SII_i ranking, as developed in Section five. Forestry and Timber rank behind Tourism and Agriculture/Fishing but ahead of Energy and Minerals/Mineral Processing.

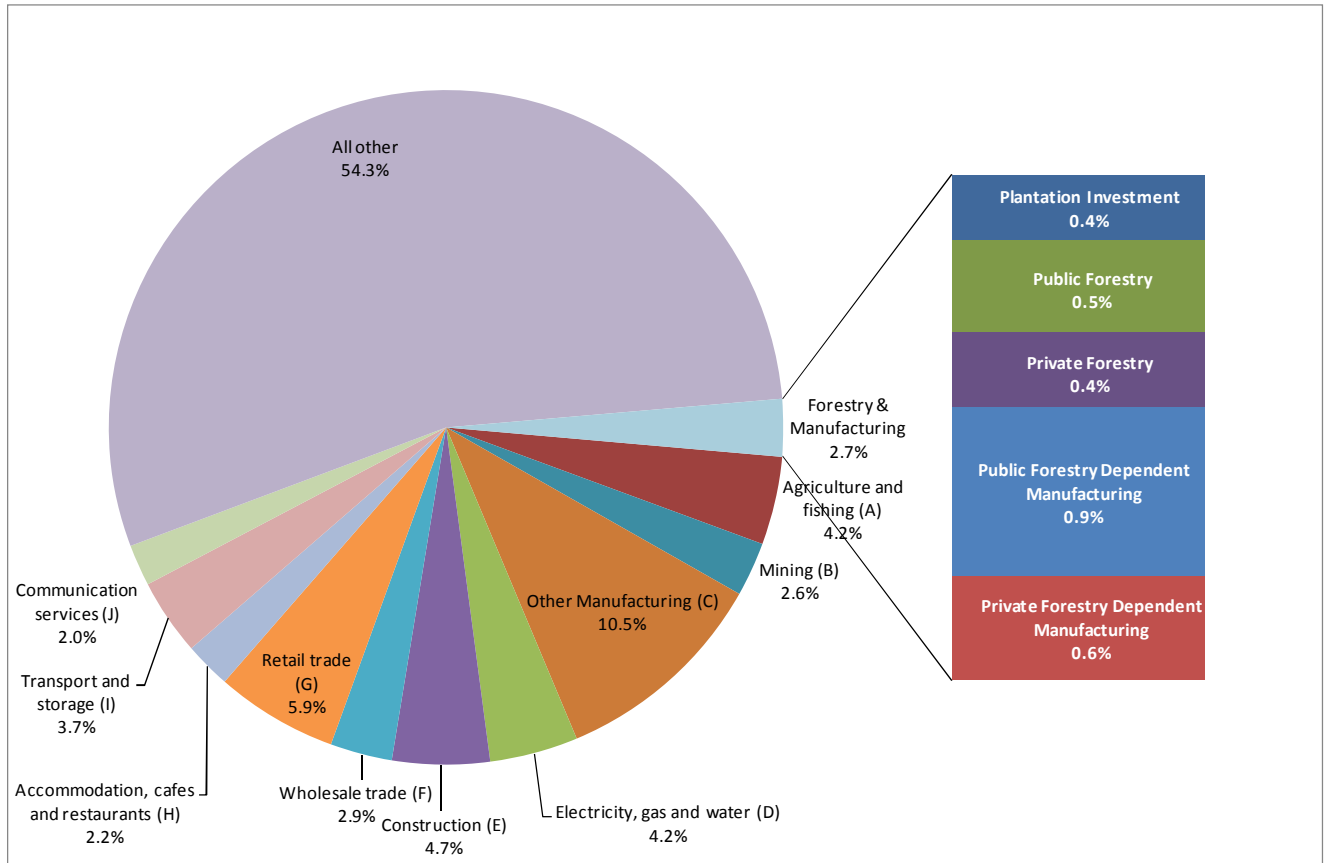
1.3 Value Added by each of the Five Industry Sectors from ABS Data

The denominator of the SII_i ratio is the contribution each industry sector makes to the Tasmanian economy and in relation to the public benefit associated with each sector.

One approach to understanding the importance of the five industry sectors under consideration is to identify their contributions to Tasmania's GSP (value added), which stood (June 2008) in value at \$18.7 billion. In considering this, we begin with the State Accounts published by ABS for Tasmania³. The following pie chart shows the industry distribution of Tasmania's income for selected ANZSIC industries relevant to our five target industries. Note that the large "Other Services" component includes a range of service industries (eg Education, Finance and Insurance Services etc).

³ Australian Bureau of Statistics 2008, Australian National Accounts: State Accounts Table 7, Cat No 5220.07, ABS Canberra

Figure 1.1 Relative Contribution of Selected Industry Groups to State GSP 2005-2006



Source: IMC-Link report “Measuring the Economic Value of Private Forest Sector to the Tasmanian Economy”, November 2008

The direct contributions of individual industry sectors shown on Figure 1.1 for 2005-2006 are expressed in rank order for 2007-2008 on Table 1.1.

Table 1.1 Ranking of Industry Contributions 2008	
Contribution to GSP	
Industry	%
Manufacturing ⁴	10.5
Retail Trade	5.9
Construction	4.9
Energy ⁵	4.2
Agriculture and Fishing	4.2
Transport and Storage	3.5
Forestry ⁶	2.8
Accommodation, Cafes and Rest	2.2
Communications Services	2.0
Other Services	60.2
Total GSP 2007-08	\$18.7 billion

The direct contributions of the ABS classified industries to Tasmania's GDP show that the manufacturing sector (predominately minerals processing in the absence of timber processing) is the largest contributor to Tasmania's GDP among the ABS classified industries. Retail and wholesale trade is the second largest contributor (5.9 percent) followed by Construction, Energy, Transport and Storage, Forestry and the Services sector.

Certain limitations of the ABS industry classifications for this reports purposes are apparent here. The flow on effects for each industry are not included. For example, Agriculture and Fishing provide a primary resource for food production, so the contribution of the Agriculture sector is underestimated. Likewise, Forestry does not include Timber Processing so that the combined impact of Forestry Harvesting and Wood Manufacturing is also underestimated if the ABS industry classification is utilised. Crucially for our purposes, there is no separate identification of a Tourism sector, nor is

⁴ Manufacturing excludes Timber Processing

⁵ Energy (Electricity, Gas and Water)

⁶ Forestry (Private, Public and Wood Processing, Source: Figure 1.1)

the unique structure of the Energy sector in Tasmania addressed in the industry categories.

To develop the numerator for the SII_i ratio for each industry under review, a considerable research agenda must be addressed. First, we look broadly at the general contributions of each industry group to Tasmania in Section 2 of the report. In Section 3, we proceed to develop the measure of each industry's contribution in the form of the Value Add component of the industry's output, and consider the relative contribution of each industry to GSP (value added).

2 General Contributions of Industry Groups to the Tasmanian Economy

The purpose in this section is to identify the general contributions made to the Tasmanian economy by each of the five core sectors. We do this by examining each industry in turn, using the best data available for each sector to comment on its general contribution. As noted above, the flow on effects of some industries are underestimated in the ABS industry classification. To capture these indirect effects, while avoiding the danger of double counting, we consider the forestry and wood processing industries and the minerals and mineral processing industries together as two combined sectors; “Forestry and Wood Processing” and “Minerals and Mineral Processing”. We also add Tourism as a separate sector of the economy. In examining the individual sectors, we also make a distinction between Public Forestry and Private Forestry and Timber Processing activities.

2.1 Forestry and Timber Processing – Public Forestry

The significance of the Forestry and Timber Processing Industry is noted by the State Government Infrastructure and Resource Information Service (IRIS) (www.iris.tas.gov.au/resource_industry/forestry), which states that in 2004, wood and paper product manufacturing in Tasmania accounts for over 20 percent of total manufacturing employment and 25 percent of Tasmanian wages and salaries.

According to Schirmer *Forestry Jobs and Spending* (2005-06) report, total expenditure by the Tasmanian forest industry in 2005-2006 lay between \$1.42 and 1.6 billion. Of this, growers and processors make up \$940-1,020 million (excluding payments to contractors) and contractors, consultants and nurseries, \$480-580 million.

In a news release on the 22nd October, 2008 (www.forestrytas.com.au/news/2008/10/release-of-annual-report-figures), Forestry Tasmania Managing Director Bob Gordon states that local traders and businesses receive about 91 percent of Forestry Tasmania's total expenditure of \$201 million.

Bob Gordon claims this figure provides further evidence to support research released last year by the Cooperative Research Centre for Forestry, which shows that the industry contributed about \$1.5 billion to the Tasmanian economy annually and directly employs 6,300 Tasmanians in 2005-2006*. In 2006-2007 Tasmania's total forest estate amounted to 1,489,000 hectares of which 222,000 hectares were forest reserves (Forestry Tasmania Annual report, 2008). The extent of Forestry Tasmania's involvement in timber conservation and production is shown on Tables A-1 and A-2 in Appendix A and the following is a summary of the information provided in these tables, beginning with Plantations⁷.

2.1.1 Plantations

Plantations are becoming increasingly important to the Tasmanian industry. They are established for a variety of reasons and deliver a range of products and benefits including the following:

- Sawn timber.
- Wood fibre and other wood based products.
- Shelterbelts for animals and crops.
- The provision of multiple environmental benefits by addressing land degradation, salinity and soil erosion.
- Generation of biomass.
- Storage of carbon.

Table 2.1 – Tasmania's Plantation Forest Estate		
Total Area (hectares)	% of Total Forest Cover	% of Total Landmass
254,207	7.5	3.7

⁷ *http://www.crcforestry.com.au/publications/downloads/forest-industry-survey-report_download.pdf

2.1.2 Public Sector Forestry

Forestry Tasmania is a Government Business Enterprise (GBE). It is responsible for managing 1.5 million hectares of state forests, as shown on table 2.2.

	2005-06	2006-07	2007-08
Forest estate ('000 hectares) at 30 June	1,599	1,592	1,595
Forest areas established ('000 hectares)	15.2	13.2	16.7
Native forest area harvested ('000 hectares)	12.4	11.5	12.9
Wood production m ³	3,314,328	3,325,929	3,543,154
Roads Constructed (km)	146	180	184
Operating revenues per employee (\$'000)	321	361	353
Finance– Dividend and tax equivalents paid (\$'000)	2,447	1,297	0
Return on assets	2.27%	2.42%	1.21%

Source: Forestry Tasmania Annual Reports

Forestry Tasmania's general contribution to the Tasmanian economy may be gauged from the distribution of its expenditures as shown on Table 2.3.

	2004 \$'000	2005 \$'000	2006 \$'000	2007 \$'000	2008 \$'000
Dividend and tax equivalents paid	11737	9010	2447	1297	0
Contractors expenses	74851	73438	65,888	76,795	85356
Freight	8839	8284	5,639	8,622	4178
Fuel	1340	1532	1,709	1,784	1872
Office Expenses	2554	2710	2,451	2,551	2792
Consultancies and professional services	1368	1433	2,067	2,467	702
Property rental	1865	2067	2,189	2,419	2316
Minor equipment purchases and rentals	1357	1577	405	419	805
Local government rates	365	1902	1,892	2,039	3820

Property management	1363	1124	1,143	1,117	1435
Information technology expense	631	719	514	582	655
Operating lease rentals	579	418	493	435	344
Travel and accommodation	979	765	647	733	620
Other expenses from operations	7704	6661	4,337	8,568	7385
Salaries and wages	30612	27821	26,568	25,468	27800
Other associated expenses (employee)	Inc above	235	440	364	359
Contribution to superannuation funds	Inc above	3194	5,123	3,190	2679
Workers compensation costs	Inc above	991	991	983	1006
Redundancy payments	Inc above	47	635	44	193
Annual leave (provisions)	Inc above	1831	1,506	1,647	1598
Long service leave (provisions)	Inc above	4240	4,192	4,203	3691
Total	146144	149999	131276	145727	149606
Government grants	0	1526	754	782	604

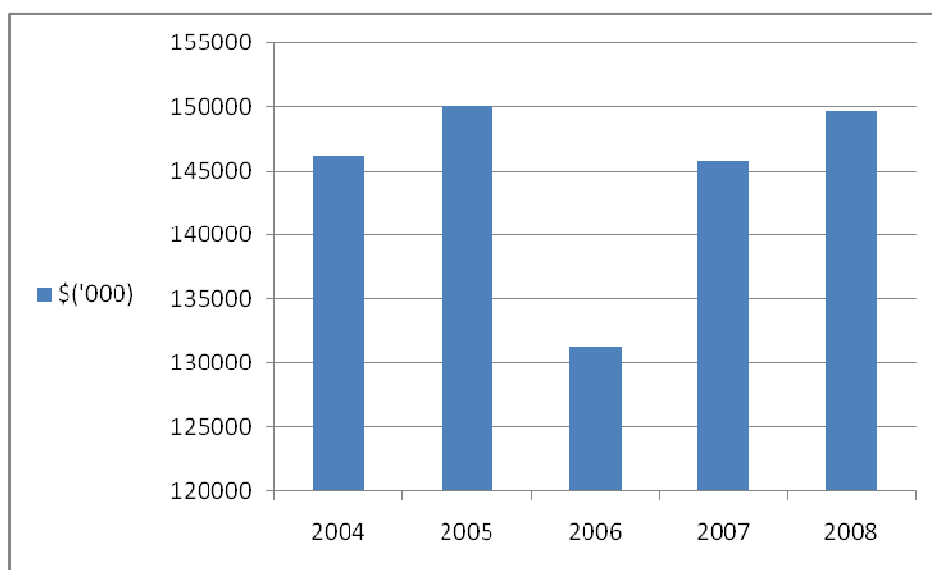
Mean proportion of grants to Forestry Tasmania's contribution to GSP

$$=733.2/144550.4*100/1=0.5072\%$$

As a GBE, Forestry Tasmania in normal economic circumstances returns a dividend to the Tasmanian government. However, in light of the global financial crisis, drought and the subsequent halving of the return on assets, Forestry Tasmania has not paid a dividend in 2007-2008 by agreement with the Tasmanian government. None the less, Forestry Tasmania has preserved its revenue basis which is evidenced on Table 2.2 by the row labelled Operating revenues per employee. This table also highlights the harvesting rate of native forest at just 15.2/1599 hectares or 0.0095 of the native forest resource in 2005-2006. In 2006-2007 this ratio was 0.0083 and in 2007-2008 it was 0.0105. These statistics show that Forestry Tasmania's average rate of native forest harvesting from 2005-2008 is less than 1 percent per annum.

Table 2.3 lists all of the contributions made by Forestry Tasmania in its stewardship of publicly owned forests in Tasmania. The spread of Forestry Tasmania's involvement is extensive and localised. Forestry Tasmania's general contribution to the economy in terms of its expenditure distribution is shown on Figure 2.1.

Figure 2.1 – Forestry Tasmania's General Contributions to the Tasmanian Economy (2004-2008)



The major items in the distribution of Forestry Tasmania's expenditure include \$85.356 million to contractors and \$37.9 million in employment expenses in 2008. On average, across the 5 year period, dividends and tax equivalents returned to government were \$4.898 million. These three items account for 83 percent of Forestry Tasmania's expenditure. Contributions by Forestry Tasmania to the Tasmanian economy in 2006 decreased by 12.5 percent. The contribution to the economy in 2007 shows that this decrease was largely recovered in the following year. An analysis of the 2006 figures shown in Table A-3 (Appendix A) indicates that the size of the organisation contracted as is indicated by the amount of money set aside for redundancies in that year. The reduction of activity is also reflected in decreases in several elements that contributed to Forestry Tasmania's contribution to the state economy. These included:

- Freight (decreased by 31 percent from 2005 to 2006).
- Contractors' expenses (decreased by 10.2 percent from 2005 to 2006).
- Other expenses from operations (decrease by 34.8 percent from 2005 to 2006).
- Salaries and wages (decreased by 4.5 percent from 2005-2006).

2.1.3 Tourism

In addition to the above contributions, Forestry Tasmania makes a considerable contribution to Tourism programs in the state.

The Forestry Tasmania Annual Report 2007 provides the following information about Tourism:

- 500,000 tourists visited state forests in 2006/7.
- 170,000 visited to the Tahune Air Walk, Tarkine Forest Adventures (Dismal Swamp) and forest eco centre.
- Maintenance of roads, walking tracks, picnic areas which are provided free to public users involved an expenditure of \$1.88 million in 2007.

These initiatives reflect Forestry Tasmania's view of the forest resource as being one which is available for multiple uses. There are both scope and scale economies in the joint production of timber and tourism services. The savings on duplicating road construction and maintenance for the Tahune Airwalk involve scope economies amounting to \$27 million dollars⁸.

2.2 Forest and Timber Processing: Private Forestry

An in-depth survey was conducted as part of this report in order to obtain data on the Private Forestry/Timber Processing sector. The major wood processing firms, namely Gunn's, Auspine, Forestry Enterprises of Australia (FEA) and Norske Skog responded to the survey and thus provided the data required for calculating value added. Together, these firms account for 75 percent of the Private Forestry/Timber Processing sector in Tasmania, The survey questionnaire is included at Appendix B. In addition to the survey

⁸ See Felmingham 2005

results, information about operating income and log purchases values were provided by these companies. It should be noted that all individual company data has been consolidated and therefore in all of the following analysis no individual company data is disclosed. On advice from the client the survey did not include Australian Paper a subsidiary of Paperlinx, nor did it include the individual sawmills. We begin the analysis by describing the activities of the sample of companies surveyed.

2.2.1 Description of Major Players in the Private Market

Gunns Ltd

Gunns Limited is Australia's largest hardwood forest products company. It owns 185,000 hectares of freehold land and manages in excess of 110,000 hectares of plantations. The company employs about 1700 people and has a turnover of approximately \$700 million.

Norske Skog

Norske Skog is a world leading producer of newsprint and magazine paper, with 24 wholly and partly owned mills in 15 countries worldwide. Norske Skog Australian operations commenced in 2000 when it acquired Fletcher Challenge Paper, which included two Australian newsprint mills at Albury, NSW, and Boyer in Tasmania.

At the Boyer Paper Mill near New Norfolk on the Derwent River, the principal focus is the manufacture of newsprint. The mill uses plantation radiata pine, regrowth eucalypt and recycled fibre, which is produced at Norske Skog Albury. Annual production is around 290,000 tonnes of newsprint and related grades. This represents about 40 percent of Australian consumption.

At Boyer, the company directly employs 470 people. The Company's total economic contribution to the Tasmanian community from wages and local expenditure on goods is approximately \$110 million annually.

Forest Enterprises Australia (FEA)

FEA is an ASX-listed company and parent of a group of companies with a net worth of \$331 million at June 2008. With its head office in Launceston, FEA employs over 200 people across three states with a forestry office located in Lismore, NSW, processing facilities at Bell Bay, Tasmania, and a marketing division in Queensland.

As the data on operating income and expenditure were provided on a confidential basis, we do not include any detailed figures on Private Forestry's general contributions here, but use the data to produce the Value add estimates.

2.3 Energy

The Energy sector comprises electricity production, distribution and retailing and gas distribution and retailing.

The electrical energy component is currently divided into three publicly owned utilities:

- Hydro Tasmania: generation (Government business enterprise)
- Transend: transmission (State-owned company)
- Aurora: distribution / retail (State-owned company)

According to the Infrastructure and Resource Information Service (IRIS) (www.iris.tas.gov.au/energy) in 2006-2007 the three entities employed 2,044 persons and provided returns to the State of over \$95 million.

Tasmania joined the National Electricity Market (NEM) in May 2005. The State now buys and sells electricity through the Basslink cable, which enables electricity to be exported during peak demand periods on the mainland and electricity to be imported in off-peak periods or to supplement Tasmania's generation.

Tasmania is also connected to the Australian natural gas network by a sub-sea transmission pipeline. A number of industrial, commercial and domestic customers are now connected and using gas.

2.3.1 Energy Production

Hydro Tasmania is responsible for the generation of electricity and the import and export of electricity through the privately owned Basslink facility. Hydro Tasmania generates electricity utilising its dams and wind power farms. Recently the drought has had a significant effect on dams with current water capacity being less than 20 percent the maximum capacity.

At 30 June 2007 the Corporation had 781 full-time equivalent employees (FTEs) including nine directors (2006: 832 FTEs).

The original concept of Basslink was to sell electricity to the mainland during periods of high mainland demand when prices are high and conversely to import power during off peak periods when prices are low. This could readily be achieved because Tasmania's hydro generation can be turned on and off at very short notice and mainland coal-fired electricity generation plants cannot.

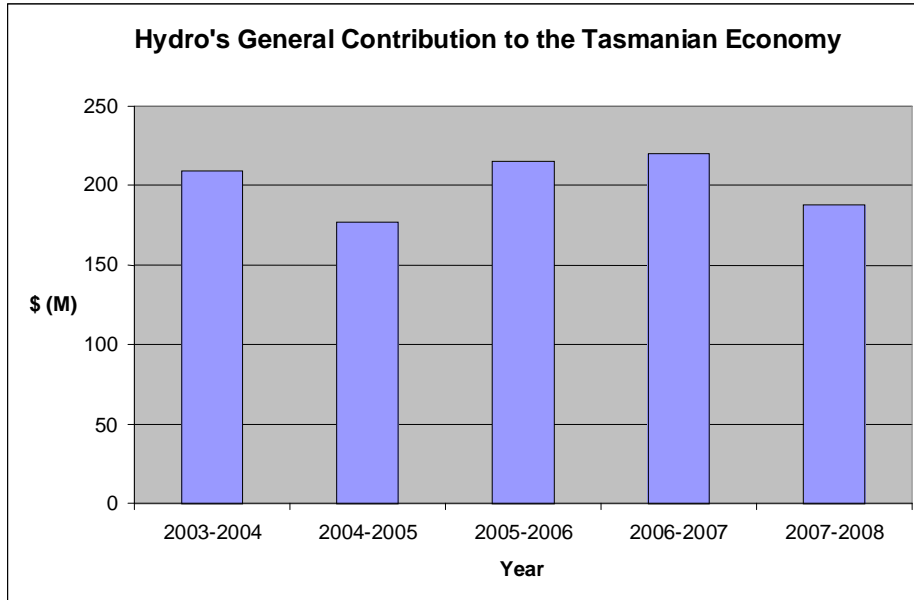
According to Hydro Tasmania's Annual Report 2007, because of the continued low rainfall, Hydro Tasmania's cash flow as measured after receipts and payments to suppliers and employees was \$87.1 million down on the previous year at \$134.5 million. Had the business not utilised its storages to assist in absorbing the impact of the low inflows the cash outcome would have been much worse. In order to accommodate our reduced cash position and provide for other expenditure, net debt increased from \$1.061 billion to \$1.141 billion"

Table 2.4 – Hydro’s General Contribution to the Tasmanian economy					
Contributions to the Tasmanian Economy	2003-2004	2004-2005	2005-2006 \$M	2006-2007 \$M	2007-2008 \$M
Income tax /rates equivalent	32.9	29.995	21.961	28.737	0
Dividend	43.6	40.0	40.0	21.2	0
Loan guarantee fee	3.795	4.019	4.1	5.1	5.579
Gross payroll	73.143	83.025	82.695	82.517	87.858
Contracted services	N/A	N/A	N/A	2.561	11.695
Procurements in Tasmania	56.9	21.3	66.0	82.1	79.1
TOTAL	209.338	177.339	214.756	219.707	188.132

Source: Hydro Tasmania Annual Report, Financial Statements

Hydro’s general contribution to the Tasmanian economy is reported on Table 2.4, in terms of its contribution to government. In 2006-2007 this amounted to \$55.037 million. Of this, \$28.737 million was equivalent income tax, \$21.2 million in the form of a dividend and \$5.1 million guaranteed fees. In addition, the Hydro made payments to labour of \$87.858 million, to contracted services of \$2.561 million while \$79.1 million was paid for local procurement. The Hydro’s general contribution to the Tasmanian economy is less in 2007-2008 thanks to severe drought conditions and the general distribution of Hydro’s income to government, labour and local supplies falls to \$188 million in 2007-2008. These general contributions to agents in the economy do not represent the calculation of value added as a contribution to Tasmania’s total income (GSP). This value added calculation is disclosed in Section 3.

Figure 2.2 – Hydro’s General Contribution to the State Economy



Source: Hydro Annual Report: Financial Statement

2.3.2 Energy Transmission – Transend

Transend Networks Pty Ltd owns and operates the electricity transmission system in Tasmania transmitting electricity from power stations to substations around the State. Transend own and are responsible for 3650 circuit kilometres of transmission lines, 47 substations and nine switching stations.

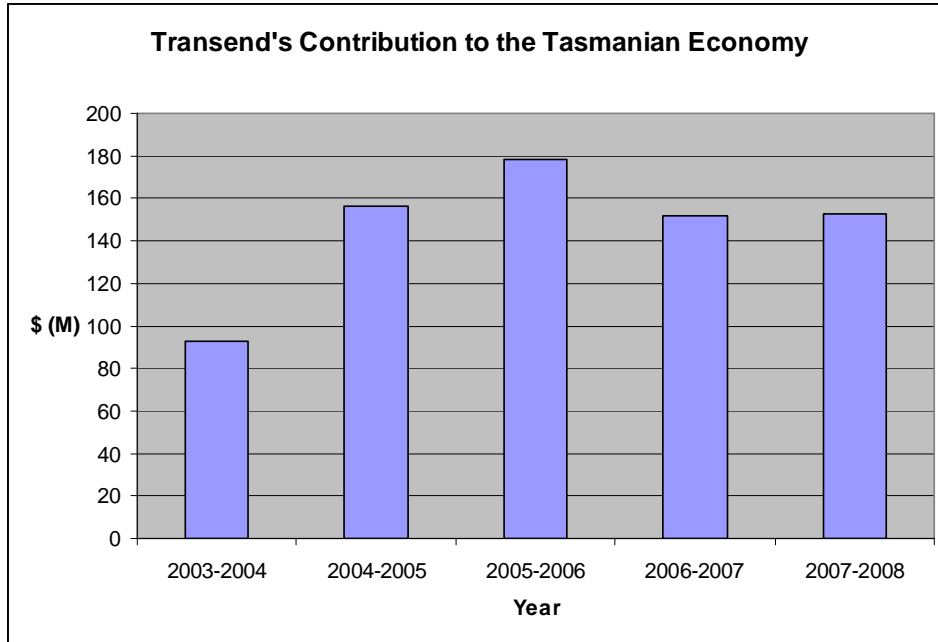
Transend is divided into functional groups. The company maintains a focus on its core business of developing, operating and maintaining the transmission network. It uses external suppliers and contractors to provide a wide range of specialised technical services.

Table 2.5 – Transend’s General Contribution to the Tasmanian Economy (Source Annual Reports Financial Statements)					
Contributions to the Tasmanian Economy	2003-2004 \$M	2004-2005 \$M	2005-2006 \$M	2006-2007 \$M	2007-2008 \$M
Income tax equivalent	12.324	15.833	18.636	18.988	19.271
Dividend		13.7	13.766	15.0	9.4
Payment to suppliers and employees	40.345	51.120	48.148	46.392	62.975
Payment for property, plant and equipment	52.494	75.735	97.337	71.199	60.666
TOTAL	92.839	156.388	177.887	151.579	152.312

Source: Transend Annual Reports

Transend’s general contribution to the Tasmanian economy in the form of payments to the Tasmanian government, suppliers, employees and for investment in property plant and equipment. The state government benefited by \$28.671 million in 2007-2008, suppliers and employees by \$62.975 million while payments for property investment and plant amounted to \$60.667 million. In summary Transend distributed \$152.312 million to others involved in the Tasmanian economy.

Figure 2.3 – Transend’s General Contribution to the State Economy



2.3.2 Local Energy Distribution and Retailing – Aurora’s General Contribution

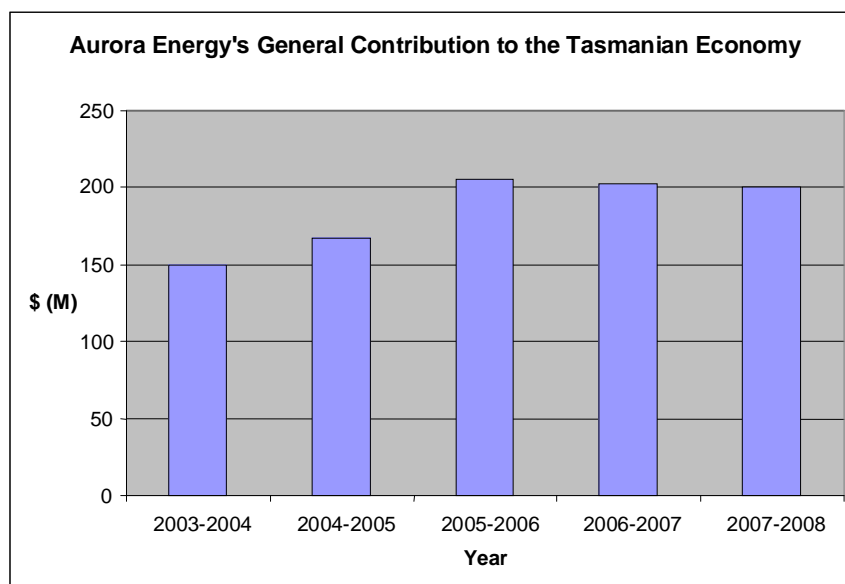
Aurora Energy is a Tasmanian Government owned electricity distribution and retail company, which was formed in July 1998 pursuant to the Electricity Companies Act and incorporated under the Corporations Law. Aurora is one of only four companies licensed to retail gas in Tasmania and the only dual energy retailer in the State. In 2008, following a Government decision to acquire the Tamar Valley Power Station, Aurora Energy became the parent company for Aurora Energy (Tamar Valley) Pty Ltd, which holds an electricity generation licence.

According to the Aurora Energy 2006-2007 Annual Report, during the 2006-2007 financial year the business generated \$806 million in revenue compared to \$739 million in 2005-2006 and provided a 12.3 percent return on investment, up from 10 percent in 2005-2006. Aurora managed core assets valued at \$1019 million, up from \$937 million in the previous year and employed 1126 people, including 95 trainees and apprentices, a decrease of 43 in the total workforce since 2005-2006. They supplied electricity to 220,117 residential installations and 43,134 business installations.

Table 2.6 – Aurora’s General Contribution to the Tasmanian economy. (source financial statements of annual reports)					
Contributions to the Tasmanian Economy	2003-2004 \$M	2004-2005 \$M	2005-2006 \$M	2006/2007 \$M	2007/2008 \$M
Income tax equivalent	18.2	12.91	9.7	12.8	12.6
Dividend	13.9	12.0	9.6	10.7	9.9
Loan guarantee fee	1.3	1.4	1.5	1.8	1.5
Payroll tax	3.4	3.9	4.7	4.9	5.0
Gross payroll	52.2	59.4	70.6	73.0	78
Contracts value	60.7	77.7	109.2	98.7	93
TOTAL	149.7	167.31	205.3	201.9	200

Aurora’s general contribution to the Tasmanian economy is summarized on Table 2.6, This shows that \$200 million dollars was distributed by Tasmania’s retailer (Aurora) to the state government (\$29.0 million) to employees (\$78 million) and to contractors/suppliers \$93 million in 2007/2008.

Figure 2.4 – Aurora Energy’s General Contribution to the State Economy



Source: Table 2.7

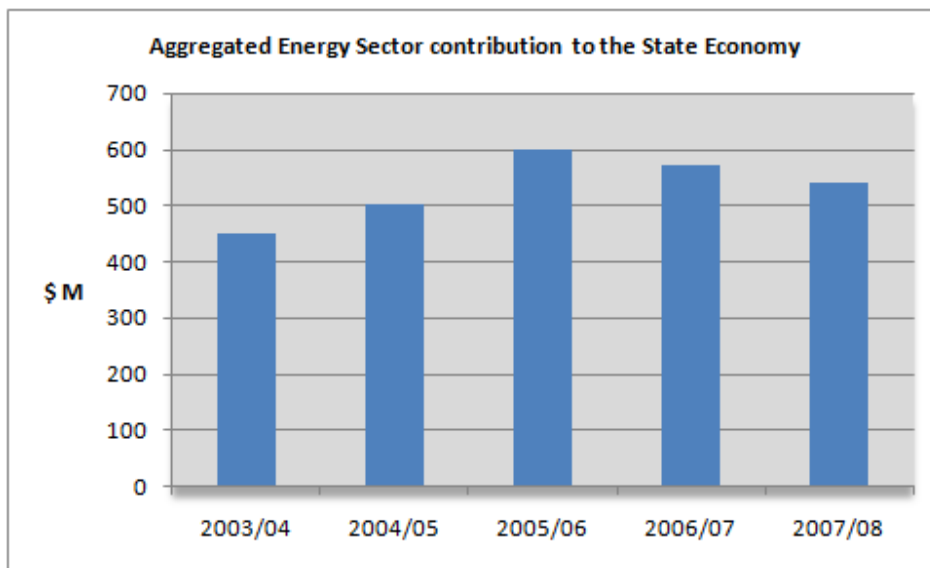
2.3.4 Aggregated Energy Sector

The importance of the Energy Sector in general terms is substantial. It regularly creates benefits for government, employees, contractors/suppliers exceeding \$500 million in the financial years 2004-2005, 2005-2006, 2006-2007 and 2007-2008.

Table 2.7 Aggregated Energy Sector General Contribution to Tasmanian Economy

Contributions to the Tasmanian Economy	2003-2004 \$mill	2004-2005 \$mill	2005-2006 \$mill	2006-2007 \$mill	2007-2008 \$mill
Hydro	209.338	177.339	214.756	219.707	188.132
Transend	92.839	156.388	177.887	151.579	152.312
Aurora	149.7	167.31	205.3	201.9	200
Total	451.877	501.037	597.943	573.186	540.444

Figure 2.5 – Aggregated Energy Sector’s General Contribution to the State Economy



Source: Tables 2.6, 2.7, 2.8, and 2.9

2.4 Mining and Minerals

The general contributions of the Mining and Mineral sectors to the Tasmanian economy for the years 2001/2002 to 2004 are shown on Table 2.10. In the latest of these years this sector paid \$51.6 million in taxes and royalties to the Tasmanian government, it

spent \$616 million on local goods and services, invested \$109 million in its own activities and is the major investing sector in the Tasmanian economy. Employees earned \$187 million in wages, salaries and supplements.

The following information was provided by the Tasmanian Minerals Council (<http://www.tasminerals.com.au>), Mineral Resources Tasmania, and the ABS.

	01/02 \$M	02/03 \$M	03/04 \$M	04/05 \$M
Gross payroll (minerals and mineral processing)	152	153	176	187
Spent on goods and services in Tasmania	503	499	581	616
Spent on capital expenditure	112	101	96	109
Royalties	4	6	13	15
Payroll Tax	11	12	10	11
Exploration	2	2	2	10
Other taxes ¹			22.5	15.6
Tasmanian Minerals Council Total	784	773	900.5	963.6

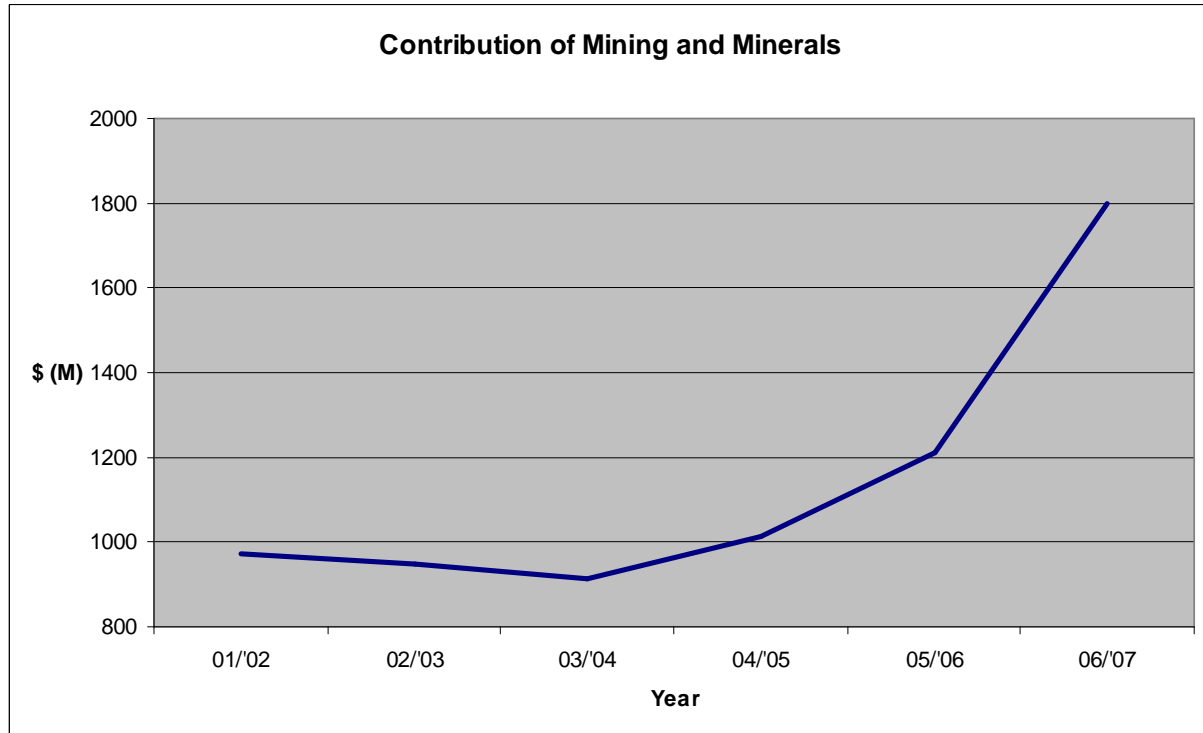
¹Estimate of company tax paid based on ABS data operating profit before tax (1307.6)

²Estimate of Industry Value Added Production on ABS data Total – Mineral Resources TASMANIA Annual Review (1307.6)200

Note that the contribution of the mining and mineral processing sector to the Tasmanian economy is influenced by a recent resources boom, but with the collapse of resource prices the contribution will need to be downgraded. We suggest that in extending this aspect of the report we smooth out the numbers and base the analysis of mining and mineral contributions to trend movements.

We will assume that the figures from Mineral Resource Tasmania provide the most comprehensive data as it appears the ABS figures do not account for the value of raw materials.

Figure 2.6 – General Contribution of Mining and Minerals to the Tasmanian Economy



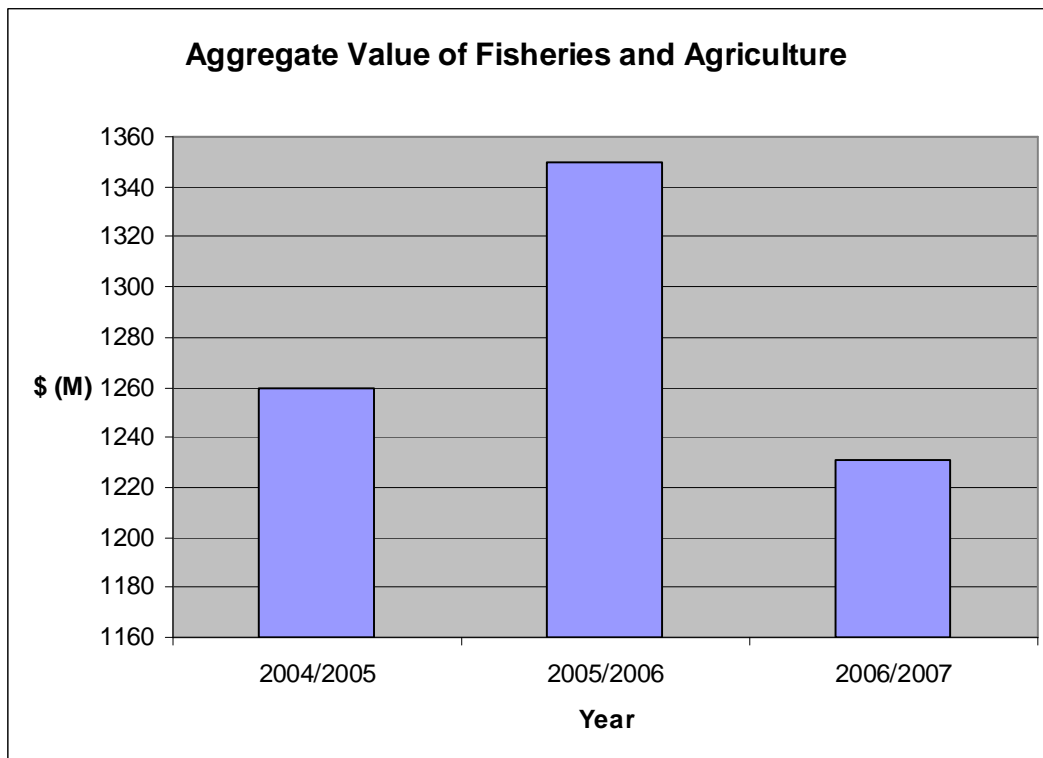
2.5 Agriculture and Fishing

According to the latest data available from the ABS No. 1307.6 and DPIWE's Tasmanian food industry scorecard (2005-2006), the value of agricultural output in Tasmania for 2005-2006 totalled \$934.4 million. Of this total \$391.9 million is contributed by crop production, livestock slaughtering \$252.3 million and livestock products \$290.1 million. We also couple Fishing with Agriculture so that we have two primary extraction sectors as one sector. This facilitates the estimation of value added for Agriculture and Fishing which appears in Section 3.

The value of Fishing and Aquaculture at the latest reported date (2007-2008) is contained in Appendix A. The turnover for different fishing types is shown on this table. The value of fishing production in 2007-2008 is \$505 million earned from aquaculture products (\$341 million), scalefish (\$3 million), molluscs (including abalone and scallops \$92 million) and crustaceans including rock lobster (\$69 million).

The most recent available data for agriculture is for the financial years 2004-2005, 2005-2006 and 2006-2007, so the aggregated value of Fishing and Agriculture is shown for these years in Figure 2.7 and table 2.11

Figure 2.7 – Aggregate of Fishing and Agriculture General Contributions to the Tasmanian Economy



Year	2004-2005 ¹	2005-2006 ²	2006-2007 ³
Fishing	365.900	415.700	476.1
Agriculture		934.400	754.421*
Total	1260	1350.100	1230.521

¹. Source DPIW Tasmanian food industry ScoreCard 2004-2005

². Source ABS 1307.6

3. Source *Chain volume measures, reference year is 2006-2007. Proportion of Australian Production Attributed to Tasmania.

Source: ABS, National Income, Expenditure and Product, cat. no. 5206.0, Canberra.

2.6 Tourism

As we have noted above, Tourism is not included as a separate industry in the ABS' industry classification (ANZSIC) and therefore the ABS does not produce Tourism accounts at state level. Fortunately, Tourism Tasmania, the Tasmanian agency responsible for the industry, calculates the value added by Tourism. This calculation is relatively straightforward for this industry, since intermediate sales and purchase components of value added calculations are small. In fact, the ratio of intermediate transactions indicates that intermediate transactions are less than five percent of the total value of all transactions for this industry. In any event, Tourism Tasmania does report value added by Tourism directly and it is not necessary to make any estimate of value added in this case. An indication of the general value of Tourism to the Tasmanian economy can be seen from the average expenditure of visitors to the State, as published by Tourism Tasmania.

Table 2.10 – Expenditure by Category of Visitor				
	Oct 2004 - Sept 2005	Oct 2005 - Sept 2006	Oct 2006 - Sept 2007	Oct 2007 - Sept 2008
Holiday	\$746,019	\$802,113	\$891,076	\$994,714
Honeymoon	\$0	\$0	\$0	\$0
Sporting event	\$16,890	\$18,461	\$32,962	\$18,987
School/college trip	\$0	\$0	\$0	\$0
Convention/conference/seminar	\$32,197	\$38,100	\$46,045	\$44,254
Business or employment	\$108,745	\$122,939	\$121,641	\$124,729
Visit friends or relatives	\$166,508	\$155,362	\$191,287	\$204,353
Major event/festival eg. Sydney to Hobart Yacht race	\$12,113	\$23,315	\$15,550	\$10,184
Some other	\$10,542	\$7,668	\$16,387	\$7,963
No Response	\$6,532	\$4,439	\$11,240	\$10,062
Total \$1000s	\$1,099,545	\$1,172,397	\$1,326,188	\$1,415,246

3 Value Added Contribution by Each Industry Sector

3.1 Valuation Methods

In this section, we reduce the contribution of each industry to its valued added which is used in the calculation of the SII_i. By ‘contribution’ we mean the value added by each of the five sectors to Tasmania’s total income or more formally GSP. This differs from the “General Contributions” discussed in Section 2 which did not eliminate the effect of intermediate transactions. There are three approaches to measuring GSP: the income, expenditure and value added methods. The income method is the sum of salaries, wages and emoluments (Labour income) plus indirect taxes minus subsidies (Government income) and the gross operating surpluses of corporations (Corporate income). The income of small businesses is included in household or labour income in this approach. The expenditure method yields estimates of GSP which are the sum of consumption, investment, government spending minus net imports (foreign income). These two alternative methods of measuring GSP should yield equivalent results as each values output at market prices. The third approach is to determine the value added of each industry in the economy by starting with the value of output and deducting from it the value of intermediate sales and purchases. The correct treatment of intermediate sales and purchases is a most important requirement. The failure to account for intermediate purchases leads to double counting and inflated untrue values of GSP. In the current study this intermediate transactions issue is particularly significant in two cases, Forestry and Mining, where most of the output of these two industries is sold on as input to the Wood Processing and Mineral Processing Sectors respectively.

As noted previously, in order to avoid the issue of double counting, we consider the “Forestry and Wood Processing” and “the Minerals and Mineral Processing” sectors as single industries. GSP measured from the production side of the economy, is not identical to valuation by the income and expenditure approaches. GSP measured by summing the value added by each industry is recorded in prevailing factor prices, the

wage rate for labour, the rate of interest for capital income (gross operating surplus) and the price of traded goods in relation to net imports. In summary, GSP by the value added method will differ from GSP calculated from the income and expenditure approaches which are valued at final market prices.

Why did we choose value added as the basic measure of an individual industry sector's contribution to the economy? The answer is that the production or value added approach is a direct way for valuing industry's contribution to one proxy for total income, namely, GSP. The remaining methods do not yield a precise measure of industry contributions because factor prices at which this contribution is valued differ from final market prices at which GSP is valued in the income or expenditure approaches.

The value added by each of our five industry sectors is the denominator of our SII_i index, so we can now rewrite the SII index in the following way:

$$SII_i = \frac{\$ \text{Industry Support Paid by Government}_i}{\$ \text{Value Added Created by each Industry}_i}$$

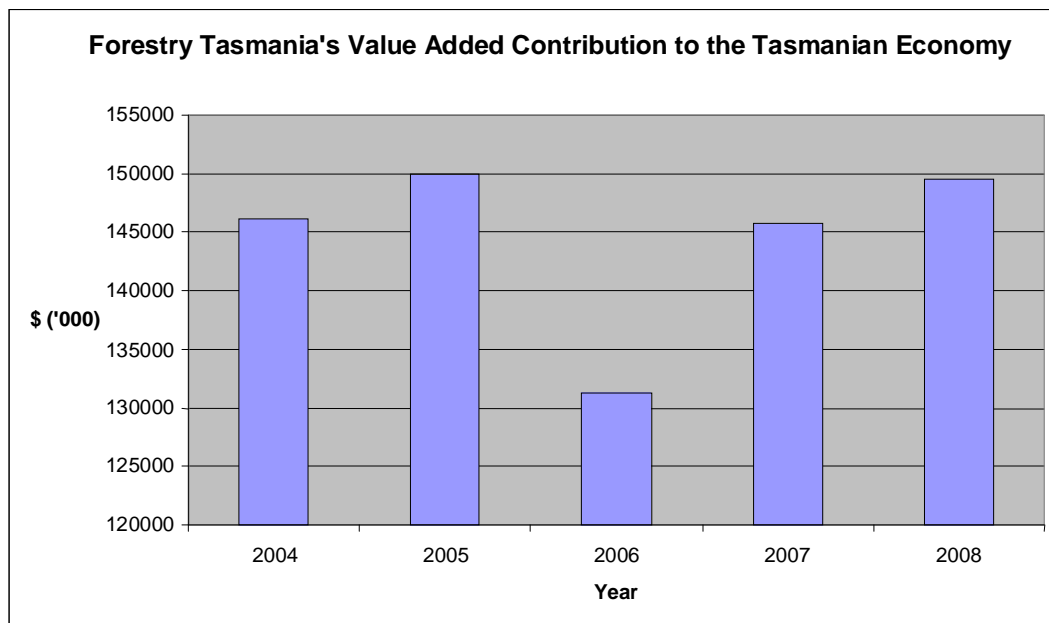
Clearly when we have calculated these value added, we can assess the level of industry support provided by state and federal governments to these five sectors which is the numerator of the above ratio. This task is completed in Section 4 of this report.

As noted previously, for Tourism, the dollar value added is published directly by Tourism Tasmania. For the remaining industries we must calculate this value from industry and related data. We define industry value added (v.a.) as sales turnover minus intermediate sales and purchases where annual turnover is sales revenue and net change in inventories. Notes on the calculations for each sector are included below, followed by the results for all sectors, and a comparison of the value added contribution of each sector to the Tasmanian Economy.

3.1.1 Forestry

The amount shown on Figure 3.1 represents Forestry Tasmania's value added contribution, after intermediate sales to the wood processing sector are taken into account. Thus the added value by Forestry is based on Forestry Tasmania's turnover in its published financial accounts, but is adjusted for intermediate sales to the wood processing sector. In order to achieve this adjustment for intermediate sales we need some primary research using the Tasmanian Input/Output model (TIRO) designed by Dr Bruce Felmingham. This model has been applied to forestry issues successfully over a number of years and provides a sound basis for what must be done here. To estimate the effect of intermediate sales on the value added by Forestry, we apply the ratio of intermediate to total sales as shown on the transactions table for TIRO, which indicates that 67 percent of Forestry Tasmania timber sales are absorbed by the wood processing sector of the economy, and a further 3.6 percent to other manufacturing industries. The effect of double counting is removed by deducting intermediate sales from industry turnover.

Figure 3.1 – Forestry Tasmania's returns to the Tasmanian Economy (2004- 2008)



To overcome bias, we treat the Forestry and Timber processing industries as a single industrial sector in which the output of the primary source industry is transformed into the output of the secondary industry Timber Processing.

The value added contributions for the timber processing sector are calculated and shown on Table 3.1.

Table 3.1 – Forestry and Timber Processing Sector: Value added (GSP) contribution to the Tasmanian Economy		
	2005/2006	2006/2007
Value added	1.283	1.408

Source: Financial statements, Survey Appendix B

From Table 3.1 the Forestry and Timber Processing sector contributions \$1.283 billion to Tasmania’s total income (GSP) in 2005-2006 and \$1.408 billion in 2006-2007.

3.1.2 Energy

The market for electricity has switched in recent years so that Hydro sells its energy output to the National Energy Market. Thus all of Hydro’s sales are considered final. By contrast, Transend sells its output to industry, an intermediate transaction, so a large part of Transend’s turnover is eliminated from the calculation of final demand for the Energy sector.

3.1.3 Minerals and Mining

We obtained the value of intermediate sales/purchases in the Minerals/Mining sector by reference to an industry player Nystar. Nystar provided data which indicated that one third of annual turnover by the minerals processing sector is in the form of raw material. Turnover figures have been reduced accordingly in obtaining value added for the sector.

3.1.4 Agriculture and Fishing

Agriculture sells 10 percent of its output to food and beverage processors while the commensurate figure for Fishing is that 50 percent of the catch is on sold to fish processors. Thus intermediate transactions are significant in this sector. The turnover value for the industry from Section 2 was adjusted to remove these intermediate sales.

3.1.5 Tourism

As noted above, Tourism Tasmania publishes value added amounts for the industry in Tasmania. The limitation applying here is that all categories of visitors are included in the Tourism Tasmania calculations. To overcome a potential distortion we present two estimates of value added by tourism, one for total visitors and the second for holiday makers only.

Tourism (total visitors) produces a value added estimate of \$1,430 million, which falls to \$1,005 million if the calculation is confined to holiday makers alone.

3.2 Value Added Contributions of the 5 sectors

The results of our calculations are shown in Table 3.2 below

Industry	Value Added \$ million 2006-2007
Forestry and Timber	1,408
Energy	981
Minerals and Mining	1,892
Agriculture and Fishing	1190
Tourism: Total	1,430
Tourism: Holiday Makers	1,005

We have taken great pains to redefine these five sectors so that a more accurate picture of their role is obtained. The analysis to this point indicates that these five sectors are truly the drivers of the Tasmanian economy and that most of the growth in the service industries is driven by the totality of this core contribution. Although the preceding

analysis does reveal this important outcome, now that we have a common basis, a closer analysis of the sectors' relative contributions to the economy is possible.

In table 3.3 below, we consider the relative contributions of each of our 5 sectors to the economy. The value for "Other Tasmanian Industry Sectors" is estimated simply as the difference between the value added by our five sectors less the total GSP 2007-2008 \$18.7 billion.

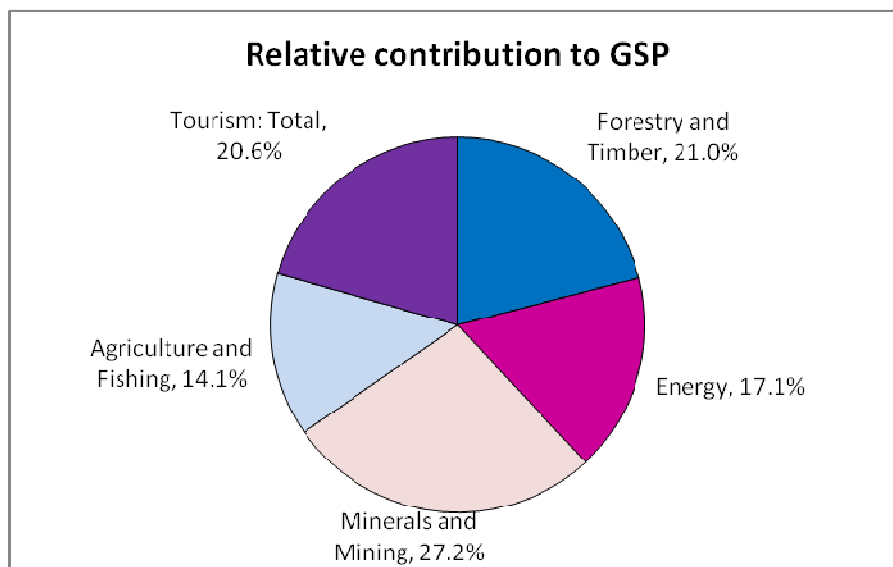
Industry Sector	Value Added \$ million	Proportion of GDP %	Value Added (holiday makers only \$ million)	Proportion GDP
Forestry & Forestry Processing	1408	7.53	1408	7.53
Energy	918	4.91	918	4.91
Minerals & Mining	1892	10.12	1892	10.12
Agriculture & Fishing	1190	6.36	1190	6.36
Tourism (all visitors included)	1430	7.65		
Tourism (holiday makers only)			1005	5.37

GDP = \$18,900

The amount of each industry's value added contribution is shown in Tables 3.2 and 3.3. The Forestry/Wood Processing Sector adds \$1.408 billion to Tasmania's GSP representing 7.53 percent of GSP. Mining and Mineral Processing is the most significant industry among the five selected value adding \$1.9 billion to GSP which is 10.1 percent of the state's GSP. Tourism adds \$1.4 billion to GSP and the Energy Sector adds \$1.2 billion to the value of the state's GSP. The story emerging from Table 3.2 is consistent with the experiences of most developed economies in that approximately one third of the value added by industry is provided by the production sector of the economy and two thirds balance is contributed by the services sector.

Another perspective of the five industry sectors examined here emerges if we view these five sectors as a group, eliminating all other industries apart from the five selected ones. The pie chart, Figure 3.2 shows the proportional contribution of each of the five sectors to the core group total. Forestry and Timber Processing, and Tourism sectors making a similar sized contribution to the economy while the Minerals and Mining sector contributes slightly more, and Energy slightly and Agriculture / Fishing markedly less.

Figure 3.2 Value Added Contribution of each of the Five Core Sectors to GSP



The fastest growing sector is Tourism, its contribution to GSP growing from 16 percent in 1995 while the contribution of the Energy sector has declined in recent years thanks to prolonged drought. The contributions of the three remaining sectors have remained steady at their current levels since 1995.

4. The Value of Government Support for Five Tasmanian Industry Sectors

The value added contributions of the five industry sectors under review were calculated in Section 2. These become the denominators of the SII_i index described in Section 1. The numerator of the index is now assessed for each sector prior to completing the analysis in the final section. This study is limited by several issues so it is appropriate to define such limitations first.

First, industry support is confined to two tiers of government, namely, federal and state. Local government support is not considered because its contribution is small in the total picture of government support for industry and it takes a variety of forms. There is no uniformity in the nature of these local support packages. So, for these reasons local support is not analysed. Secondly, the analysis is confined to the following forms of government support: grants to industry which are not tied to specific industry purposes and direct subsidies which are hypothecated to a specific purpose. Indirect subsidies such as price discounting, and producer subsidies such as tax concessions, which rely upon knowledge of the optimal level of a tax or charge levied by government on industry for assessment purposes. An example of the former case is the supported power subsidies paid to Tasmania's manufacturers. These beg the question of the true value of the industry input, in this case, power charges. Without this information, it is impossible to determine the value of an indirect subsidy. Players in the manufacturing sector assume they are not. A second form of indirect subsidy may arise in the resource extraction industries where royalties are charged for the use of input material which is publicly owned. Before declaring that industry is indirectly subsidised because the royalties paid by industry are below the socially optimal level, knowledge of what constitutes the optimal level is required. Optimality when determined needs to be more than an informed guess. In any event, details of loyalty payments are commercial in confidence and not accessible to the consultants.

The quest for appropriate data is exhaustive and involves detailed checking and rechecking. The major cause of this problem is in the way the industry data presents. Many of the specific subsidies paid to individual sectors are set over specific time periods which are not common to other sectors. For example, some funds allocated to the forest industries are payable over a five year period, while subsidies granted to the TT Line for ferry services across Bass Straight were payable over a three year period, and annual allocations are made for payments made under the auspices of the Tasmanian Freight Equalisation Scheme. This complexity leads to the following approach. The consultants constructed industry support for each sector in a typical or representative year. According to this approach a grant or subsidy paid over say five years appears in the representative year as 1/5 of the subsidy payable over five years. Similarly, a subsidy or grant payable over three years will appear as a subsidy in the representative year amounting to 1/3 of the subsidy allocated, and a continuing annual grant appears as its full yearly value in the representative year. Industry support in the representative year is now calculated for each sector, noting that the representative year represents the typical pattern of industry support in the period 2003-2004 to 2007-2008 because the primary data used in the calculation was collected for these five years.

4.1 Support for Forestry and Wood Processing in the Representative Year

Type of Industry Support	\$ million
Grants from Governments	2.840
Payments under the Freight Equalisation Scheme and Tariff Concession	12.400
Infrastructure Support	10.00
Total	25.24

Source: Grants from governments State and Federal sourced from Annual Reports of Forestry Tasmania and from surveys of private forest companies shown in Appendix B, Freight Equalisation Scheme Annual Reports 2004–2008, the industry survey at Appendix B and payments under the Community Forestry Agreement.

Grants from State and federal government includes individual grants to forest companies such as support for North Eastern sawmillers and also includes grants to Forestry Tasmania in the following years: \$1.526 million (2005), \$0.754 million (2006), \$0.782 million (2007) and \$0.604 million in 2008. Payments under the Tasmanian Freight Equalisation Scheme represent the bulk of the federal government support for the industry. In addition to these freight equalisation payments, certain Private Forestry concerns benefited from tariff concessions. These are worth \$1 million approximately each year of the period 2004–2008. There will always be debate about the nature of this industry support. This debate is engendered by industry's dislike of the term subsidy particularly in relation to the Commonwealth/Tasmanian Community Forest Agreement. Payments made under the Commonwealth Tasmanian Community Forest Agreements are not classified as subsidies for it was agreed by the federal and Tasmanian governments that these payments were compensation for the loss of timber resource created by the removal of logging in parts of the Styx Valley. See the more detailed discussion in Section 1.

Subsidies paid to heavy vehicles involved in forestry operations were removed in 2004 when road user charges were increased on heavy vehicles to bring these charges closer to covering the damage to vehicles on road. This effectively removed any indirect subsidy which may have previously been paid to heavy vehicle users in general industry or those involved in forestry.

4.2 Energy Sector

The Energy Sector of the economy includes the three government owned utilities the Hydro Electric Corporation, Transend and Aurora. The Hydro is the major energy producer in the state, while Transend is the transmission agency and Aurora sells energy in the retail market. None of these agencies appear to be heavily dependent on direct and State government support. The grants paid by the Tasmanian government to this sector are shown on Table 4.2.

Table 4.2 Government Grants to the Energy Agencies 2004 – 2008 inclusive					
Year	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
Grant \$ million	9.525	6.762	6.472	6.03	1.869
\$ million average 2003-2008	6.132				

Sources: Annual reports from Hydro, Transend and Aurora 2004 – 2008

4.3 Subsidies Paid to the Mining and Mineral Processing Sector

In the absence of any official published data, we turned to the research literature on the calculation of subsidies to Mining and Mineral processing. Reidy (2005) estimates that the total value of subsidies for Australia's Mineral Processing Sector and Mining Sectors is \$8.9 billion in 2005 prices. When this is converted to current 2008 prices using the Consumer Price Index (ABS 6401.0), we have a total subsidy of \$9.8 billion. Some 93 percent of this total subsidisation supports production or consumption of oil as petroleum products. At the time of writing, the coal industry attracts only 4 percent of the value of subsidies while natural gas attracts only 3 percent of the total. The emphasis of the current analysis is placed on the benefits of subsidies to producers and not consumers. According to Reidy's research, consumer subsidies make up 94 percent of the total subsidies. It is the 0.06 balance of production subsidies which is relevant here, because it is subsidisation of production activities which is of direct interest to this sector. So the value (in current) prices of production subsidies for this industry sector for Australia as a whole is calculated as follows: $0.06 * \$9.8 \text{ billion} = \588 million .

The report next calculated Tasmania's share of the total production subsidies. ABS 8415.0 Mining Industry statistics for June 2008 show that Tasmania's share of selected mining source output is 0.7 percent, suggesting that the Tasmanian Mining and Mineral Processing Sector receives $0.007 \times (\$588 \text{ million})$ or \$4.116 million. To this must be added \$6.824 million received from the Tasmanian Freight Equalisation Scheme giving a total subsidy of \$10.94 million in the representative year.

4.4 Industry Support for Agriculture and Fishing

Government support for Australian Agriculture and Fishing is small in comparison with the subsidies enjoyed by European and North America farmers and fishermen. Australian assistance to agriculture is only 4 percent of farm receipts, markedly below the OECD average of 32 percent. An estimate of the subsidies to agriculture in particular is provided by the Australian Bureau of Agriculture and Resource Economics (ABARE) Rural Outlook 2006-2007, puts the total subsidies paid by the two tiers of government to Australian agriculture at \$1.6 billion per annum in 2006-2007.

The publication ABS 7121.0 Agriculture Commodities 2005-2006 reveals that for the year 2005-2006 agricultural production in Tasmania is \$934.4 million while for Australia as a whole the value of agricultural output for 2005-2006 was \$35 billion (rounded). Thus the proportion of Australian production produced in Tasmania is \$0.93434 billion/\$36 billion or 2.6 percent. Farm subsidies which were valued at 1.6 billion in 2005-2006 are related to farm output so Tasmania's share of the value of agriculture subsidies is 0.026×1.6 billion or \$41.6 million. Subsidies paid to the fishing industry include fuel rebates and the preponderance of these are paid to offshore fisheries. Tasmania does not host a pelagic fishery and so subsidies paid to the Tasmanian industry are negligible.

The ABARE calculation of agricultural subsidies (\$1.6 billion pa) does not include some support provided by the state and territory governments. In Tasmania these include Construction of Irrigation Schemes loan charge government contribution (\$2.763 million pa), the Tasmanian governments contribution to Commonwealth, state and industry organisations (\$0.470 million) and grants to inland fisheries (\$1.179 million). This data was sourced from the Tasmanian Budget Papers Volume 2, Table 12.22 and these grants/subsidies sum to \$4.412 within which is added to the ABARE subsidy of \$41.6 million to give an estimate of agriculture/fishing subsidies of \$46.0 million appearing on Table 4.4. Note that we have excluded the two Tasmanian research institutes TAFI and TIAR following our general principle that administration support expenditures are not

included for the reasons stated above; these payments being TAFI \$2.588 million and TIAR \$1.179 million. Total support for Agriculture/Fisheries amounts to \$50.5 million.

4.5 Industry Support for Tourism

Tourism activity in Tasmania is subsidised by both Federal and Tasmanian governments. The federal government allocates from its annual budget an annual amount of \$35 million averaged over the years 2003-2004 to 2007-2008. This Passenger Freight Equalisation Scheme is the result of years of lobbying by Peter Brohier and his associates who eventually convinced the Commonwealth Government that the transport sea route should be treated in the same way as the other major truck routes in mainland Australia. The Tasmanian government also funds the TT Line operation and in 2006 committed \$115 million over three years to secure the Bass Strait ferry System's future. Thus the average payment per year is $115/3 = \$38$ million. This sum is included in the representative year for tourism.

Tourism promotion grants by government are not regarded to be subsidies.

There are also a number of smaller amounts committed by the Tasmanian government for Tourism Distribution development (\$5.5 million annually), to support Tourism distribution services (\$10.8 million per annum) support for major events averaging \$1 million annually, conservation/heritage grants for the Port Arthur site amounting to \$2 million over the period 2004-2008. The level of Tourism industry support for a representative year in the period 2004-2008 is shown on Table 4.3.

Industry Support	\$ million
Passenger Fare Equalisation Scheme	35
Payments to TT Line	38
Tourism – Destination Development	5.5
Tourism Distribution Services	10.8
Major Events	1.0
Conservation Grants to Port Arthur Site	2.0
Total	92.3

Source: Commonwealth Budget Paper 2004-2008, Tourism Tasmania Annual reports from Port Arthur Site Management Authority Annual Reports, Tasmanian Budget Papers 2004-2008.

4.6 In Summary

The levels of industrial support in a representative year for the period 2004-2008 is summarised in Table 4.4.

Subsidies paid to the five sectors is shown in the text as follows:

Industry	Support Level \$ million
Forestry and Wood Processing	25.24
Energy	6.13
Mining and Minerals Sector	10.94
Agriculture and Fishing	50.5
Tourism	92.30

In absolute terms the subsidies paid to Tourism are more than twice the value of industry support for Agriculture and Fishing and three times greater than the support provided for the Timber and Forestry Sector.

5. The SII_i Index

The extent of industry subsidisation in absolute terms as reported in Table 4.4 is not by any means the final word about relative degrees of subsidisation, it is also important to take into account an industry's capacity to add value to the economy. The SII_i index discussed in Chapter 1 indicates the degree of industry support relative to its value added in the following ratio:

$$SII_i = \frac{\text{Industry Support}_i}{\text{Value added}_i}$$

Industry Support	Support level \$ million	Value added \$ million	SII_i	Bang for Buck \$
Forestry and Wood Process	25.24	1,408	0.018	56
Energy	6.13	918	0.007	150
Mining and Minerals	10.94	1,892	0.006	167
Agriculture and Fishing	50.5	1190	0.042	24
Tourism (Total)	92.3	1,430 ⁹	0.065	15
Tourism (Holiday)	92.3	1,005	0.09	11

If these five industries are ranked according to their relative degree of industry support then the Minerals Sector is the least subsidised (0.006 = SII_i) followed closely by the Energy Sector (SII_i = 0.007). The Forestry/Timber Sector is the third least supported (0.018), while Agriculture and Fishing (0.052) more subsidised than Forestry/Timber. Finally, Tourism is clearly the most subsidised sector with an SII_i score of 0.065 when tourism is measured in terms of all visitors and an even higher 0.09 when visitors are defined as holiday makers only.

⁹ Tourism (Total) encompasses holiday and other visitors

Note that the value of the SII index for each industry (i) falls as its contribution to GDP (value added) rises and is higher the lower is its value added contribution.

The SII_i index is the value of industry subsidies relative to their value added contribution. We have constructed it with the value of subsidies in the numerator of the ratio because this was the emphasis of the study. The inverse of this ratio measures the bang for buck associated with subsidisation:

$$BII_i = \frac{\text{Value added}}{\$ \text{ Subsidy Value}}$$

These calculations are shown in the last column of Table 5.1. Mining and Minerals adds value of \$173 for each dollar of subsidy, the energy sector adds value of \$194 for every \$1 subsidy, Forestry and Timber Processing (\$56 value added/dollar subsidy Agriculture and Fisheries, \$19 for value added per \$1 subsidy and Tourism which generates either \$11 or \$15 value added per dollar subsidy).

These calculations of SII and BB do not have any causal property. We cannot argue that by subsidising one of the five core industries the economy benefits by X dollars. The appropriate way to view each ratio is as a measure of association between subsidisation and value added, although these indices provide some clear guidance for policy making pertaining to industry support.

Industry Sector	Rank	SII	BB (\$)
Mining and Minerals Processing	1	0.006	167
Energy	2	0.007	150
Forestry and Timber Processing	3	0.018	56
Agriculture/Fishing	4	0.042	24
Tourism (all visitors)	5	0.065	15
Tourism (holiday makers only)	6	0.090	11

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Appendix A

Forest Category	Total area (hectares)	% of total plantation area	% of total forest cover	% of total landmass
Plantations on state forest	102,000	40.1	3.0	1.5
Plantations on other public land	1,800	0.7	0.1	0.0
Hardwood plantations on private land	129,853	51.1	3.8	1.9
Softwood plantations on private land	20,554	8.1	0.6	0.3
Total	254,207	100.0	7.5	3.7

	2007-2008	2006-2007	2005-2006
Forest estate ('000 hectares) at 30 June			
Total state forest (incl. forest reserves)	1,489	1,489	1,500
Total forest reserves	222	222	175
Total plantations ¹	106	103	99
Area certified to Australian Forestry Standard ³	1,437	1,441	1,456
Forest areas established ('000 hectares)²			
Native forest regenerated	11.2	8.0	10.9
Hardwood plantations established (incl. replanting)	3.8	3.5	2.1
Softwood plantations established (incl. replanting)	1.7	1.7	2.2
Native forest area harvested ('000 hectares)			
Clearfell, selective harvesting and thinning ⁴	12.9	11.5	12.4
Wood production			
Hardwood – sawlog, veneer and peeler (m ³)	622,334	585,406	579,530
Hardwood – pulpwood (tonnes)	2,230,874	2,136,687	2,191,132
Hardwood – plantation pulpwood	176,703	126,163	89,619

(tonnes)			
Softwood – sawlog (m3)	269,680	223,597	224,675
Softwood – pulpwood (tonnes)	243,563	254,076	229,372
Fire management services			
Number of fires attended	83	110	56
Area of state forest burnt (hectares)	8,500	34,000	860
Cost of suppression (current values \$'000)	2,251	2,885	858
Roads			
Constructed (km)	184	180	146
Employment			
Lost time injury frequency rate	11.36	10.87	10.7
Operating revenues per employee (\$'000)	353	361	321
Earnings before interest and tax per employee (\$'000)	215	40	36
Wood production per employee (tonnes)	6,775	6,091	6,048
Finance (\$'000)			
Operating revenue, grants and reimbursements	184,6985	197,297	175,675
Operating expenditure	173,474	176,605	156,861
Earnings before interest and tax (EBIT) ⁶	10,9775	21,898	19,887
Dividend and tax equivalents paid	0	1,297	2,447
Dividends recommended as % of operating profits after tax	0%	0%	70%
Return on assets	1.21% ⁵	2.42%	2.27%

	2004	2005	2006	2007	2008
Organisation	\$'000	\$'000	\$'000	\$'000	\$'000
Forestry Tasmania	146144	149999	131276	145727	149606
Private Forestry	582071	806277	815319	913329	709371
Total	728215	956276	946595	1059056	858977

Table A-4 – Direct Government grants received by Forestry Tasmania (Source - Forestry Tasmania Annual Reports)				
	2005	2006	2007	2008
Government grants (\$)	1526000	754000	782000	604000

Appendix B



INDUSTRY SURVEY

Assessing direct government subsidies paid to Tasmanian Industries

Dr. Bruce Felmingham
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December 2008

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Definition of financial year

Date	Month	Year

to

Date	Month	Year

Contributions to the Tasmanian Economy					
	2004 \$'000	2005 \$'000	2006 \$'000	2007 \$'000	2008 \$'000
Stumpage (Royalties)					
Other payments for logs, woodchips,					

EXPENDITURE BY YOUR BUSINESS IN TASMANIA

	2004 \$'000	2005 \$'000	2006 \$'000	2007 \$'000	2008 \$'000
Property rental					
Minor equipment purchases and rentals					
Local government rates					
Property management					
Information technology expense					
Operating lease rentals					
Travel and accommodation					
Other expenses from operations (including maintenance)					
Salaries and wages					
Other associated expenses (employee)					
Contribution to superannuation funds					
Workers compensation costs (including Employee Insurance)					
Redundancy payments					
Other Insurance Payments					
Financing Costs					
Cost of Membership to Industry Bodies					
Total					

Government grants (Please specify if any, see examples in note below)	2004 \$'000	2005 \$'000	2006 \$'000	2007 \$'000	2008 \$'000

Note: for example: Grants received under the Community Forest Agreement;
Trainee/apprenticeship subsidies; freight subsidies

Thank you for completing the survey – the time you have spent is greatly appreciated. Please return the completed survey to stuart.poate@bigpond.com or alternatively fax it to (61 3) 6225 2156 (c/o Bruce Felmingham). You will be posted a summary of the study results once the data has been analysed.