ANALYSIS OF REGULATORY AND RELATED COSTS IN RED MEAT PROCESSING

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1.0 EXECUTIVE SUMMARY

This project identifies and quantifies the costs that face the red meat processing industry in Australia and compares them with key international competitors the United States, Brazil and Argentina. It also assesses the regulatory components of these costs in each country. Data collected was current as of 2015-16. Using this data and findings, the report identifies general policy directions that may serve the competitive advantage of the Australian industry on the global market.

The red meat processing sector, of which beef processing is the largest contributor, is estimated to have contributed over $21 billion in value added to the economy (1.4 per cent of Australia's gross industry value added) in 2015-16. This meant over $8 billion in household income (1.1 per cent of national household income), and more than 126,000 full-time equivalent (FTE) jobs (1.3 per cent of total FTE employment) when flow on effects were taken into account.

The project approach was to:

- Assess the significance of the red meat processing sector's contribution to the Australian economy using private data supplied by processors in conjunction with an input-output model constructed for this project;
- Identify and quantify the key costs incurred in the beef processing sector through primary data collection from processors in Australia, the United States, Brazil and Argentina; and assess the regulatory component of these costs through an extensive literature review;
- Estimate the impact of those costs on the Australian red meat processing industry and flow-on impacts from potential improvements; and
- Develop recommendations to help address the disparity between costs incurred in the Australian industry and its overseas competitors.

2.0 KEY FINDINGS

Average costs per head (excluding livestock purchases) incurred in processing beef in Australia, as illustrated in **Table 1**, are:

- 24 per cent higher than in the United States;
- Over twice the costs of Brazil; and
- 75 per cent higher than in Argentina

Of the costs incurred, it is estimated that in Australia more than 54 per cent (excluding livestock purchases) are due to some form of regulation, which is a significantly higher percentage than any of the comparison countries. Australia's regulatory burden, as shown in **Table 2**, is estimated to be:

- Over twice that of the United States and Argentina; and
- More than three times that of Brazil.

Labour-related charges are the biggest area of disparity. In Australia labour-related costs comprise over 58 per cent of total operating costs. This figure is considerably less than 50 per cent in the other

countries examined. Utilities-related costs are also substantially lower in both the US and Argentina in absolute dollar values per head of throughput. Data collected for this comparative study was for 2015-16 and Australian energy costs have risen significantly since then, so the current comparative gap is almost certainly even wider.

International certification-related costs, meanwhile, are almost negligible for the comparison countries when assessed against Australia's.

	Australia		United States[1]		Brazil		Argentina	
Cost category	Cost per head (AU$)	As % of total costs (excl. livestock purchases)	Cost per head (AU$)	As % of total costs (excl. livestock purchases)	Cost per head (AU$)	As % of total costs (excl. livestock purchases)	Cost per head (AU$)	As % of total costs (excl. livestock purchases)
Labour-related costs	$210.54	58.4%	$129.46	44.6%	$75.63	43.9%	$88.31	42.9%
Utilities-related costs	$21.62	6.0%	$12.26	4.2%	$19.93	11.6%	$13.05	6.3%
Certification-related costs	$7.29	2.0%	$1.49	0.5%	$0.52	0.3%	$2.28	1.1%
Total (excl. livestock costs)	$360.62	100.0%	$290.15	100.0%	$172.29	100.0%	$205.96	100.0%
Cost per kg HSCW	*$1.22*		*$0.80*		*$0.70*		*$0.92*	

Table 1 - Operating cost structure summary, beef processors, Australia, United States, Brazil and Argentina, 2015-16

	Australia		United States[1]		Brazil		Argentina	
Regulated cost components	Reg. cost per head (AU$)	As % of total cost component	Reg. cost per head (AU$)	As % of total cost component	Reg. cost per head (AU$)	As % of total cost component	Reg. cost per head (AU$)	As % of total cost component
Labour-related costs	$179.60	85.3%	$79.65	61.5%	$50.34	66.6%	$75.26	85.2%
Utilities-related costs	$10.51	48.6%	$8.27	67.4%	$10.96	55.0%	$13.05	100.0%
Certification-related costs	$5.10	70.0%	$1.49	100.0%	$0.00	0.0%	$1.14	50.0%
Total (excl. livestock costs)	$195.21	54.1%	$89.41	30.8%	$61.30	35.6%	$89.45	43.4%

Table 2 - Regulated cost summary, beef processors, Australia, United States, Brazil and Argentina, 2015-16

In particular, Australian government-regulated export inspection and certification costs are:

- 3.4 times higher than in the United States; and
- 4.5 times higher than in Argentina.

In Brazil these costs are fully-funded by the Federal Government and not passed onto the processor.

This report highlights that regulatory changes to labour, utilities and certification costs could transform the competitiveness of the beef processing industry and reduce its operating costs by up to 5.5 per

[1] The certification/audit costs for the United States refer only to those subject to government regulation. Unregulated (external) certification costs are, however, included in total costs.

cent. This could bring $700 million[2] back into Australia's beef processing industry – currently estimated to be worth $1.4 billion – and transform its prospects for investment, long-term income and employment.

As almost 70 per cent of Australian red meat is exported, processors are dependent on global trade for the viability of the industry, but they have restricted ability to determine the price received for their products. Cost competitiveness is the only viable option to sell their products and remain profitable.

Increasing competitive pressures from the fundamental characteristics and directions of the global beef trade are compounded by ongoing competition for economic resources in the domestic Australian economy.

Recommendations for the industry as a result of these findings are included in Section 8 of this report.

[2] Gross operating surplus – calculated before deduction of consumption of fixed capital, dividends, interest, royalties and land rent, and direct taxes payable, but after deducting the inventory valuation adjustment. It therefore does not equate to, and is significantly higher than, operating profit. It fluctuates significantly between years depending upon the average cost of livestock.

3.0 INTRODUCTION

The AMPC project *2017-1062: Analysis of regulatory and related costs and duplication in red meat processing* identified and quantified regulatory costs of operating for the Australian sector as well as the level of possible duplication, particularly in relation to certification and accreditation.

It has long been assumed that red meat processing costs in Australia are higher than those incurred by overseas competitors and this project sought to validate this assumption through direct comparison with red meat processing costs in the United States, Brazil and Argentina. Further, the regulatory burden associated with some aspects of processing costs was also assessed given that costs subject to some form of government regulation could be altered through government policy action.

This report primarily quantifies costs faced by Australian red meat processors in comparison with key international competitors the United States, Brazil and Argentina. It addresses regulated certification costs insofar as they impact on overall cost structures in Australia and the comparison countries but does not specifically deal with duplication of audits and reporting to comply with various standards.

Previous research by the consultants provided much of the primary data relating to the operating cost structure for Australian red meat processing, which was augmented with more recent information from processors. Primary data from the United States, Brazil and Argentina was obtained from processors in these countries specifically for this project and has enabled a direct comparison of costs per head of throughput. The results demonstrate that Australian processors face significant cost disadvantages compared with their competitors.

This report addresses the goals and key outcomes of the research, the methodology utilised, and the implications for the Australian red meat processing sector in the international market. Finally, the report provides recommendations for further action that could be undertaken by the industry to ameliorate the impost facing Australian processors compared with their international competitors.

4.0 PROJECT OBJECTIVES

The key objectives of AMPC Project 2017-1062, as outlined in the project agreement, are as follows:

Stage 1

- Provide an understanding of the situation in respect of the audits and certification requirements in the meat processing industry;
- Provide an understanding of the business operational and cost impacts relating to compliance with multiple audits and certification requirements;
- Identify potential means of improving the situation through reduced costs and improved effectiveness;
- Quantify the impact on industry and flow on impacts from potential improvements; and
- Report on the findings.

Stage 2

- Provide an understanding of key cost components in red meat processing both in Australia and in key international competitor countries;
- Prepare an independent compilation of processing costs and analysis thereof to improve the basis for industry policy initiatives aimed at addressing cost competitiveness hurdles;
- Construct a model that will enable potential quantification of the impact on industry and flow on impacts from potential improvements either by industry collectively through AMPC or by individual processors via access to the model;
- Report on the findings; and
- Provide to processors who supply a full data set a confidential report on their facilities' costs compared to Australian and international country averages.

This report is primarily concerned with Stage 2. While it does address issues relating to certification costs, this only relates to government-mandated certification and does not specifically address duplication of audits and certification requirements.

5.0 METHODOLOGY

The methodology used for this project is outlined below:

- Estimated the economic impact of the Australian red meat processing industry in terms of its absolute value and percentage contribution to key metrics in the national economy. Primary data was collected from a sample of processors and previously gathered information was updated to reflect the 2015-16 financial year.
- Assessed the key cost components in Australian red meat processing compared with international competitors. Initially undertaken through a literature review and interrogation of overseas publicly-available statistical databases, this was subsequently updated for the overseas markets through interviews conducted during in-country visits.
- In-country visits – during December 2017 and January 2018, the consultants visited processors in the United States, Brazil and Argentina. The visits were facilitated by contacts already known to the consultants, contacts provided by Australian processors with international connections, and Austrade.
- Assessed regulatory components of operating costs – identification and quantification of the key regulatory burden was derived from private data supplied by processors both in Australia and overseas, combined with information obtained from an extensive literature review.
- Estimated the impact potential improvements could have on the Australian sector.
- Developed recommendations to help address the cost disparities between Australia and its overseas competitors.
- Final report and project snapshot relating to Stage 2 of the project.

6.0 PROJECT OUTCOMES

Each of the key components of the project are summarised in the following sections with additional information provided where necessary in the appendices in Section 9 of this report. The key areas addressed were:

- Economic impact of the red meat processing sector in Australia;
- Audit and certification systems in the Australian red meat processing sector;
- Key cost components in red meat processing in Australia;
- Analysis of operating costs in the United States, Brazil and Argentina;
- Comparison of cost components between the four countries; and
- Implications of changes to the cost structure in Australia.

6.1 Economic impact of the red meat processing sector in Australia

In order to demonstrate the significance of the red meat processing industry to the Australian economy, an economic impact assessment was conducted for the financial year 2015-16. The economic contribution has been measured incorporating flow-on or multiplier effects which include both the direct impact of the red meat processing sector and the economic indicators across the remainder of the economy that are underpinned or supported by the sector. The total economic benefit is comprised of the direct impact and indirect impact.

- Direct impacts result from expenditures associated with constructing and operating a facility – labour, materials, supplies, capital;
- Indirect impacts result from the suppliers of the facility purchasing goods and services and hiring workers to meet demand – these "second round" impacts would not occur but for facilities' operations; and
- Induced impacts result from employees of a facility purchasing goods and services at a household level.

The overall impact of the red meat processing sector on the Australian economy is summarised below.

Measure	Economic impact	
	Value (incl. flow-on impact)	Contribution to economy (incl. flow-on impact)
Industry value added ($m)	**21,404.70**	**1.4%**
Household income ($m)	**8,650.46**	**1.1%**
Employment (FTE)	**126,299**	**1.3%**

Table 3 - Economic impact, including flow on effects, red meat processing operations, Australia, 2015-16

The red meat processing industry is estimated to contribute over $21 billion in value added to the economy and over $8 billion in household income, as well as generating more than 126,000 jobs when flow on effects are taken into account.

This accounts for 1.4 per cent of Australia's gross industry value added, 1.1 per cent of household income and 1.3 per cent of full-time equivalent (FTE) employment when flow-on effects are taken into

account.

Further details of the methodology used to prepare the economic impact assessment are provided in Section 9.1 of this report.

The red meat processing sector provides a significant contribution to the economy nationally, with flow on effects estimated to underpin approximately 10 per cent of FTE employment in the agriculture, forestry and fishing sector. Moreover, in some regional and rural centres, the red meat processing sector is the single biggest employer locally and contributes a significant proportion of the local industry value added, household income and employment when flow on effects are taken into account.

6.2 Key cost components associated with red meat processing in Australia

Analysis of the key cost components in Australian red meat processing has been undertaken excluding the direct costs associated with the purchase of livestock. There were several reasons for this including:

- The ability to compare with overseas data. The price paid for livestock for processing fluctuates both locally and overseas, impacted by a variety of factors including climatic changes.
- Facilities which have a significant proportion of "service kill" slaughter, where the processor is not purchasing the livestock, impact on the overall operating cost structure.

The key cost components have been assessed based on a per head of throughput ratio using a weighted average from the private data supplied from 29 processing facilities representing approximately 60 per cent of cattle and 35 per cent of sheep and lambs slaughtered nationally. Overall, excluding livestock purchases, the key cost components impacting the red meat processing sector are:

Cost component	Distribution of total operating costs (excl. livestock purchases)	
	Cattle	**Sheep / lambs**
Employee-related costs	57.7%	55.2%
Transport	15.0%	15.0%
Packaging	7.4%	9.0%
Utilities	6.0%	5.9%
Repairs & maintenance	4.1%	4.7%
Certification/licences/levy	2.0%	3.1%
Processing consumables	1.6%	4.2%
Sub-total	93.8%	97.0%
Total cost per head (excl. livestock costs)	**$360.62**	**$40.67**

Table 4 - Distribution of operating costs (excl. livestock purchases), red meat processing operations, Australia, 2015-16

The weighted average processing cost per head of cattle is just over $360 while for sheep/lambs the cost is just over $40. For cattle, this equates to a weighted average cost of $1.22 per kg HSCW while for sheep/lambs the weighted average cost per kg HSCW was calculated as $1.74. It should be noted that the average kg HSCW per head reported for cattle varied significantly depending on whether they were grass or grain fed, with a range of between 230 and 375 kg per head (weighted average of 296 kg per head). The relative differences were used, where possible, through the phases of this project to enable comparison with the wider international industry. Conversely there was little variation in the weighted average for sheep/lambs, with an average of 23 kg per head. For both species, labour-related

costs form the single biggest component when the cost of livestock purchases is excluded, accounting for more than half of total operating expenditure.

Transport costs form the second largest component at approximately 15 per cent of expenditure. Packaging costs accounted for 7.4 per cent of expenditure in cattle processing and 9.0 per cent of costs for sheep/lamb processing.

Power, water and waste disposal expenditure (including environmental management activities) represented about 6 per cent of total processing costs for both species. Annual repairs and maintenance expenses, including machinery and equipment, buildings and general yard maintenance made up 4.1 per cent and 4.7 per cent of costs in cattle and sheep/lamb processing respectively.

The various certification, accreditation, licence and slaughter levies costs were approximately 2 per cent of costs in cattle processing and 3 per cent in sheep/lamb processing. This only includes direct expenditure paid to the relevant government departments or other external organisation and does not include staff time costs.

Other costs such as processing consumables (1.6 per cent and 4.2 per cent of operating expenditure for cattle processing and sheep/lamb processing respectively), accounting and legal fees, consultancy fees and telecommunications comprise the balance of operating expenditure in the red meat processing industry.

International comparison data focussed on beef processing. Ovine processing data was not obtained given the relatively small production in the comparison countries. However, the following analysis of comparative costs incurred overseas for beef processing could reasonably be applicable to the processing of sheep/lambs.

The beef processing operating cost structure[3] has been assessed for the following:

- Weighted average for all cattle processed;
- Weighted average for grain-fed cattle processed; and
- Weighted average for grass-fed cattle processed.

It should be noted that a number of processing facilities surveyed process both grain and grass-fed cattle. Their information has been excluded from the specific analysis of the individual feed types. Further, as not all processors contributing to this study provided the same level of data, the analyses for grain and grass-fed each reflect a small proportion of the total dataset and should not be used to calculate an overall weighted average.

Excluding livestock purchases, labour costs form the single biggest component of operating costs for Australian red meat processors, and **Table 5** summarises the average cost per head. The analysis has been restricted to cattle processing to permit direct comparison with overseas cost structures.

While the estimated overall weighted average processing cost per head for all cattle is $360.62, this increases to $383.50 for grain-fed cattle but reduces to $297.71 for grass-fed cattle. Effectively this equates to a total cost per kg produced as follows:

[3] Derived from private data supplied to the consultants

- Average grain-fed cattle $1.08 per kg; and
- Average grass-fed cattle $1.10 per kg.

	Australia - average		Australia - grain-fed		Australia - grass-fed	
Average number of head per day	1,149		842		815	
Average kg per head	296		356		271	
Cost components	**Cost per head (AU$)**	**As % of total costs (excl. livestock purchases)**	**Cost per head (AU$)**	**As % of total costs (excl. livestock purchases)**	**Cost per head (AU$)**	**As % of total costs (excl. livestock purchases)**
Processing wages (incl. paid leave)	$166.91	46.3%	$180.72	47.1%	$140.58	47.2%
Salaries	$16.11	4.5%	$17.32	4.5%	$21.28	7.1%
Payroll taxes	$7.63	2.1%	$8.51	2.2%	$6.06	2.0%
Workers' Compensation premiums	$4.96	1.4%	$3.43	0.9%	$1.91	0.6%
Retirement benefits (superannuation)	$14.93	3.5%	$17.82	1.6%	$10.61	1.4%
Sub-total - Labour-related costs	**$210.54**	**58.4%**	**$227.80**	**59.4%**	**$180.44**	**60.6%**
Electricity	$9.20	2.6%	$11.58	3.0%	$9.49	3.2%
Other fuel	$5.51	1.5%	$7.44	1.9%	$8.10	2.7%
Water & sewerage	$4.51	1.3%	$2.64	0.7%	$1.13	0.4%
Waste disposal	$2.41	0.7%	$3.40	0.9%	$1.27	0.4%
Sub-total - Utilities-related costs	**$21.62**	**6.0%**	**$25.05**	**6.5%**	**$19.98**	**6.7%**
Certification/audit Cost	$7.29	2.0%	$12.35	3.2%	$7.15	2.4%
Packaging	$26.80	7.4%	$33.77	8.8%	$25.58	8.6%
Transport - finished goods	$54.01	15.0%	$43.81	11.4%	$34.21	11.5%
Repairs & maintenance	$14.76	4.1%	$14.51	3.8%	$15.40	5.2%
Processing consumables	$5.70	1.6%	N.A.	N.A.	N.A.	N.A.
Other costs	$19.90	5.5%	$26.21	6.8%	$14.94	5.0%
Total (excl. livestock costs)	**$360.62**	**100.0%**	**$383.50**	**100.0%**	**$297.71**	**100.0%**

Table 5 - Operating cost structure, beef processors, Australia, 2015-16

A brief summary of the key cost components and the regulated proportion of these is provided below.

6.2.1 Labour-related costs

On average, labour-related costs in Australia make up just over 58 per cent of total operating costs, excluding livestock purchases. A large proportion of labour-related costs in Australia are subject to either federal or state government legislation, estimated to account for approximately 85 per cent of total labour-related costs in the beef processing sector. These are broken down as follows:

- Processing wages – the *Meat Industry Award 2010* sets down minimum wage rates by level of occupation in the meat processing sector and incorporates mandatory allowances for annual and personal leave. Many processing facilities negotiate separate Enterprise Agreements where wage rates and allowances are higher than the minimum defined under the Award but which may provide the employer with more flexibility with regard to timing of annual leave and working hours. It has been assumed that Award rates are, on average, approximately 90 per cent of the rates paid under negotiated Enterprise Agreements.
- Salaries – while not subject to regulation in themselves, salaried employees are also entitled to 20 days' annual leave and 10 days' personal leave per annum (for full-time employees and

pro-rata for part-time employees) under the *Fair Work Act*. This equates to approximately 4.5 per cent of total salary costs and does not take into account mandatory public holidays.

- Payroll taxes – these rates are subject to state legislation and vary between jurisdictions. The quantum of payroll taxes has been derived from a weighted average of private data supplied and are 100 per cent regulated.
- Workers' compensation premiums – these are also subject to state legislation with the rates varying between states and influenced by historical safety records. The quantum of workers' compensation premiums has also been derived from a weighted average of private data supplied and are 100 per cent regulated.
- Superannuation – a minimum rate of 9.5 per cent is mandatory for all employees and is calculated on ordinary time earnings. Superannuation payments are not required for overtime earnings or for individuals employed on contracts.

6.2.2 Utilities-related costs

Utility costs are estimated to make up approximately 6 per cent of operating costs in beef processing in Australia, with electricity being the single biggest cost for processors.[4] It is estimated that 49 per cent of utilities-related costs are subject to regulation as described below:

- Electricity – the Australian Energy Regulator (AER) has responsibility for regulating electricity supply and distribution network costs by determining the maximum amount a network owner can charge and the maximum revenue they can earn in each regulatory period. This is estimated to comprise 45 per cent of total electricity charges in Australia. The AER does not regulate either wholesale or retail prices. The latter has been subject to some form of state government regulation but for most of Australia, retail prices have now been deregulated.
- Other fuel – the regulated component of natural gas supply relates specifically to covered gas pipelines and is subject to AER regulation on the maximum charge. The transmission and distribution component of natural gas prices varies significantly between states. An average regulated component of 25 per cent has been assumed in this analysis.
- Water and sewerage – rates for the supply and consumption of water and sewerage services are generally set by local councils. While there may be opportunities to negotiate the actual rate charged, it has been designated as 100 per cent regulated for this analysis. Generally, any proposed increase in these costs must be ratified by the relevant state government.
- Waste disposal – the regulated component of waste disposal charges has been assessed as 20 per cent of total costs. This assumes a mix of on-site disposal, use of private contractors and accessing local council waste disposal facilities.

6.2.3 Certification-related costs

Overall, the weighted average costs associated with certification and associated audits in beef processing are estimated at $7.29 per head or 2 per cent of total operating costs. Information provided by processors was used to distribute this between costs associated with meeting public standards, required under Australian legislation to process and export beef, and those required to meet private or external standards. While the latter may apply when supplying individual customers domestically

[4] It should be noted that figures collected were for the financial year 2015-2016, and since then processors have reported significant spikes in costs. Therefore it is likely that the six per cent figure for overall expenditure quoted here may have grown.

and overseas, they are not subject to government regulation. Overall, the proportion of certification-related costs subject to regulation is estimated to be 70 per cent of these costs.

6.2.4 Other costs

While no allowance has been made for a regulatory component of other costs, in reality these are impacted by legislation, particularly for labour and utilities-related costs. The regulated component of other costs is influenced by the proportion of these costs attributable to wages and salaries or utilities. The calculation of this proportion is outside the scope of this project but it should be noted that the actual component is greater than the 0 per cent assumed in the calculations.

6.2.5 Summary of operating costs in Australia

The regulated component of total operating costs (excluding livestock purchases) incurred by beef processors in Australia is estimated to be 54 per cent, as outlined in **Table 6**.

Cost components	Average cost per head (AU$)	Regulated proportion as % of component	Regulated cost (AU$)
Processing wages	$166.91	90.0%	$150.22
Salaries	$16.11	11.5%	$1.86
Payroll taxes	$7.63	100.0%	$7.63
Workers' Compensation premiums	$4.96	100.0%	$4.96
Retirement benefits (superannuation)	$14.93	100.0%	$14.93
Labour-related	**$210.54**	**85.3%**	**$179.60**
Electricity	$9.20	45.0%	$4.14
Other fuel	$5.51	25.0%	$1.38
Water & sewerage	$4.51	100.0%	$4.51
Waste disposal	$2.41	20.0%	$0.48
Utilities-related	**$21.62**	**48.6%**	**$10.51**
Certification/audit Cost	$7.29	70.0%	$5.10
Packaging	$26.80	0.0%	$0.00
Transport - finished goods	$54.01	0.0%	$0.00
Repairs & maintenance	$14.76	0.0%	$0.00
Processing consumables	$5.70	0.0%	$0.00
Other costs	$19.90	0.0%	$0.00
Total (excl. livestock costs)	**$360.62**	**54.1%**	**$195.21**

Table 6 - Regulated components of operating costs, beef processors, Australia, 2015-16

The regulated component of labour-related costs, at just over 85 per cent of total labour-related costs, makes that component the single biggest contributor to total regulated costs.

6.3 Analysis of red meat processing costs internationally

Data gathered from public and private sources overseas was used to provide the basis for a comparison with Australia. Overall, private data from 49 beef processing facilities across the four countries was utilised to prepare the comparative analysis. A brief summary of the key cost components in each of the United States, Brazil and Argentina is provided below.

6.3.1 United States

The majority of cattle processed in the United States are grain-fed, resulting in a higher average weight per head. The following table summarises the US operating cost structure, with costs converted to Australian dollar values for direct comparison.

	US - grain-fed			Australia - grain-fed		
Average number of head per day	2,200			842		
Average kg per head	365			356		
Cost components	**Cost per head (US$)**	***Cost per head (AU$)***	**As % of total costs (excl. livestock purchases)**	**Cost per head (AU$)**	**As % of total costs (excl. livestock purchases)**	**Australia costs as a percentage of United States costs**
Processing wages & salaries	$74.71	*$97.50*	33.6%	$198.03	51.6%	203.1%
Payroll taxes	$6.51	*$8.50*	2.9%	$8.51	2.2%	100.2%
Health care payments	$10.40	*$13.57*	4.7%	$0.00	0.0%	N.A.
Paid leave (incl. in wages & salaries)	$4.34	*$5.67*	2.0%	$0.00	0.0%	N.A.
Workers' Compensation premiums	$1.10	*$1.43*	0.5%	$3.43	0.9%	240.2%
Retirement benefits (superannuation)	$2.15	*$2.81*	1.0%	$17.82	1.6%	223.8%
Sub-total - Labour-related costs	**$99.21**	***$129.46***	**44.6%**	**$227.80**	**59.4%**	**176.0%**
Electricity	$5.42	*$7.07*	2.4%	$11.58	3.0%	163.9%
Other fuel	$2.36	*$3.08*	1.1%	$7.44	1.9%	241.5%
Water & sewerage	$0.29	*$0.37*	0.1%	$2.64	0.7%	705.2%
Waste disposal	$1.33	*$1.74*	0.6%	$3.40	0.9%	195.1%
Sub-total - Utilities-related costs	**$9.40**	***$12.26***	**4.2%**	**$25.05**	**6.5%**	**204.3%**
Certification/audit Cost	$1.14[b]	*$1.49[b]*	0.5%	$12.35	3.2%	827.9%
Packaging	$22.58	*$29.47*	10.2%	$33.77	8.8%	114.6%
Transport - finished goods	$49.73	*$64.89*	22.4%	$43.81	11.4%	67.5%
Repairs & maintenance	$11.46	*$14.95*	5.2%	$14.51	3.8%	97.0%
Processing consumables	$11.10	*$14.49*	5.0%	N.A.	N.A.	N.A.
Rent - bld/equip/vehicle/storage	$1.88	*$2.46*	0.8%	N.A.	N.A.	N.A.
Other costs[a]	$15.85	*$20.68*	7.1%	$26.21	6.8%	69.7%
Total (excl. livestock costs)	**$222.34**	***$290.15***	**100.0%**	**$383.50**	**100.0%**	**132.2%**

Table 7 - Operating cost structure, beef processors, United States compared with Australia, 2015-16

Note a: The percentage comparison for other costs between Australia and the United States includes processing consumables, rent and all other costs.

Note b: The certification/audit costs for the United States only refer to those subject to government regulation. Unregulated (external) certification costs are, however, included in "Other costs".

Based on this analysis, total operating costs associated with processing cattle in Australia are almost one-third higher than in the United States, with the major contributors to higher costs being those subject to a significant level of government regulation.

6.3.2 Brazil

Most Brazilian processed cattle are grass-fed, and on average are lighter than those processed in Australia. The following table summarises the Brazilian operating cost structure, with costs converted to Australian dollar values for direct comparison.

	Brazil - grass-fed			Australia - grass-fed		
Average number of head per day	1,000 – 1,500			815		
Average kg per head	248			271		
Cost components	**Cost per head (US$)**	***Cost per head (AUS$)***	**As % of total costs (excl. livestock purchases)**	**Cost per head (AUS$)**	**As % of total costs (excl. livestock purchases)**	**Australia costs as a percentage of Brazil costs**
Processing wages & salaries	$38.76	*$50.58*	29.4%	$161.86	54.4%	320.0%
Payroll taxes	$0.13	*$0.17*	0.1%	$6.06	2.0%	3595.7%
Health care payments	$7.75	*$10.12*	5.9%	N.A.	0.0%	N.A.
Paid leave (incl. in wages & salaries)	$4.80	*$6.26*	3.6%	N.A.	0.0%	N.A.
Workers' Compensation premiums	$1.16	*$1.52*	0.9%	$1.91	0.6%	152.1%
Retirement benefits (superannuation)	$5.35	*$6.98*	4.1%	$10.61	1.4%	59.5%
Sub-total - Labour-related costs	**$57.95**	***$75.63***	**43.9%**	**$180.44**	**60.6%**	**238.6%**
Electricity	$13.84	*$18.06*	13.9%	$9.49	3.2%	52.5%
Other fuel	$1.43	*$1.87*	1.4%	$8.10	2.7%	433.5%
Water & sewerage	N.A.	*N.A.*	N.A.	$1.13	0.4%	N.A.
Waste disposal	N.A.	*N.A.*	N.A.	$1.27	0.4%	N.A.
Sub-total - Utilities-related costs	**$15.27**	***$19.93***	**11.6%**	**$19.98**	**6.7%**	**100.2%**
Certification/audit Cost	$0.40	*$0.52*	0.4%	$7.15	2.4%	1384.0%
Packaging	$13.84	*$18.06*	13.9%	$25.58	8.6%	141.6%
Transport - finished goods	$39.78	*$51.92*	39.9%	$34.21	11.5%	65.9%
Repairs & maintenance	$3.07	*$4.01*	3.1%	$15.40	5.2%	384.2%
Processing consumables	$2.23	*$2.90*	2.2%	N.A.	N.A.	N.A.
Rent - bld/equip/vehicle/storage	0	*N.A.*	N.A.	N.A.	N.A.	N.A.
Other costs	0	*N.A.*	N.A.	$14.94	5.0%	514.3%
Total (excl. livestock costs)	**$132.02**	***$172.29***	**100.0%**	**$297.71**	**100.0%**	**172.8%**

Table 8 - Operating cost structure, beef processors, Brazil compared with Australia, 2015-16

Based on this analysis, total operating costs associated with processing cattle in Australia are almost 73 per cent higher than in Brazil, largely due to Australia's higher certification and labour-related costs.

6.3.3 Argentina

Argentinian processed cattle are largely grass-fed, and on average are lighter than those processed in Australia. The following table summarises the Argentinian operating cost structure, with costs converted to Australian dollar values for direct comparison.

	Argentina - Grass-fed			Australia - Grass-fed		
Average number of head per day	480			815		
Average kg per head	224			271		
Cost components	**Cost per head (US$)**	***Cost per head (AUS$)***	**As % of total costs (excl. livestock purchases)**	**Cost per head (AUS$)**	**As % of total costs (excl. livestock purchases)**	**Australia costs as a percentage of Argentina costs**
Processing wages & salaries	$50.00	*$65.25*	31.7%	$161.86	54.4%	248.1%
Payroll taxes	$0.00	*$0.00*	0.0%	$6.06	2.0%	N.A.
Health care payments	$0.00	*$0.00*	0.0%	N.A.	N.A.	N.A.
Paid leave (incl. in wages & salaries)	$3.00	*$3.92*	1.9%	N.A.	N.A.	N.A.
Workers'Compensation premiums	$4.17	*$5.44*	2.6%	$1.91	0.6%	N.A.
Retirement benefits (superannuation)	$10.50	*$13.70*	6.7%	$10.61	3.6%	77.5%
Sub-total - Labour-related costs	**$67.67**	***$88.31***	**42.9%**	**$180.44**	**60.6%**	**204.3%**
Electricity	$5.80	*$7.57*	3.7%	$9.49	3.2%	125.4%
Other fuel	$4.20	*$5.48*	2.7%	$8.10	2.7%	147.8%
Water & sewerage	N.A.	N.A.	N.A.	$1.13	0.4%	N.A.
Waste disposal	N.A.	N.A.	N.A.	$1.27	0.4%	N.A.
Sub-total - Utilities-related costs	**$10.00**	***$13.05***	**6.3%**	**$19.98**	**6.7%**	**153.1%**
Certification/audit Cost	$1.75	*$2.28*	1.1%	$7.15	2.4%	313.2%
Packaging	$18.00	*$23.49*	11.4%	$25.58	8.6%	108.9%
Transport - finished goods	$47.74	*$62.30*	30.2%	$34.21	11.5%	54.9%
Repairs & maintenance	$10.00	*$13.05*	6.3%	$15.40	5.2%	118.0%
Processing consumables	$2.67	*$3.48*	1.7%	N.A.	N.A.	N.A.
Rent - bld/equip/vehicle/storage	$0.00	*$0.00*	0.0%	N.A.	N.A.	N.A.
Other costs	$0.00	*$0.00*	0.0%	$14.94	5.0%	N.A.
Total (excl. livestock costs)	**$157.83**	***$205.96***	**100.0%**	**$297.71**	**100.0%**	**144.5%**

Table 9 - Operating cost structure, beef processors, Argentina compared with Australia, 2015-16

Based on the above analysis, total operating costs associated with processing cattle in Australia are almost 45 per cent higher than in Argentina, largely due to Australia's much higher regulatory costs.

6.4 Comparison of beef processing and its cost components

The following section briefly examines the beef processing industry in each of the four countries, particularly in relation to exports, and summarises the operating costs comparison.

6.4.1 Significance of exports for beef processing countries

A beef production, imports and exports summary for the four countries is provided below:

Measurement	Cattle and calves			
	2017			
	Australia	United States	Brazil	Argentina
Number slaughtered	7,665,000	33,193,000	38,160,000	12,300,000
Meat produced (tonnes)	2,125,000	12,109,000	9,450,000	2,760,000
Meat imported (tonnes)	14,000	1,341,000	55,000	0
Total supply (tonnes)[a]	2,139,000	13,800,000	9,505,000	2,760,000
Domestic consumption (tonnes)	689,000	12,191,000	7,745,000	2,480,000
Meat exported (tonnes)	1,450,000	1,285,000	1,760,000	280,000
Meat exported as % of production	68.2%	10.6%	18.6%	10.1%
Average production per head (kg)	277.2	364.8	247.6	224.4

Table 10 - Cattle and calves, slaughter numbers, meat production, imports and exports, 2017

Note a – Supply equals opening stocks from previous period plus production plus imports.

Of the four countries examined, Brazil exported the highest quantity of beef in 2017 at a total of approximately 1.76 million tonnes. Australia was the second-largest exporter at approximately 1.45 million tonnes. In the same year, the United States exported 1.29 million tonnes of beef while exports from Argentina were significantly lower, at 0.28 million tonnes.

However, examining the total volume of exports in isolation does not reflect the overall importance of the beef processing industry or the beef cattle farming sector in a given country. Beef exports from Brazil represent 18.6 per cent of the country's total beef production whereas in Australia more than 68 per cent of beef produced is exported. The quantity of beef exported from the United States represents only 10.6 per cent of beef production and the country is a net importer of beef.

Australia's ability to remain cost competitive is essential to maintaining and broadening its export markets, which in turn is vital to ensure the viability of the beef processing sector, and subsequently the beef cattle industry, its associated jobs and economic contribution. The beef processing sector is estimated to directly support approximately 25,000 FTE jobs while based on the 2016 Census, more than 44,000 people were employed in beef cattle farming. The latter understates the true figure as it only reflects those employed in the category of "Beef Cattle Farming (Specialised)" and does not include the relevant proportion of those employed in other categories of "Sheep-Beef Cattle Farming" or "Grain-Sheep or Grain-Beef Cattle Farming". Any significant reduction in Australian beef exports could have a severe impact on national and individual regional economies.

6.4.2 Comparison of operating costs

A comparison of key parameters influencing operating costs in each country is given below:

	Australia		United States		Brazil		Argentina	
Cost category	Cost per head (AU$)	As % of total costs (excl. livestock purchases)	Cost per head (AU$)	As % of total costs (excl. livestock purchases)	Cost per head (AU$)	As % of total costs (excl. livestock purchases)	Cost per head (AU$)	As % of total costs (excl. livestock purchases)
Labour-related costs	$210.54	58.4%	$129.46	44.6%	$75.63	43.9%	$88.31	42.9%
Utilities-related costs	$21.62	6.0%	$12.26	4.2%	$19.93	11.6%	$13.05	6.3%
Certification-related costs	$7.29	2.0%	$1.49[a]	0.5%	$0.52	0.3%	$2.28	1.1%
Total (excl. livestock costs)	$360.62	100.0%	$290.15	100.0%	$172.29	100.0%	$205.96	100.0%
Cost per kg HSCW	*$1.22*		*$0.80*		*$0.70*		*$0.92*	

Table 11 - Operating cost structure summary, beef processors, Australia, United States, Brazil and Argentina, 2015-16

Note a: Certification-related costs in the United States only relate to those subject to government regulation. Unregulated (external) certification costs are, however, included in the total costs.

The United States is estimated to have the closest operating costs to Australia per head of cattle processed, at approximately AU$290.15 per head. However, when measured per kg HSCW of beef produced, the US's costs are approximately 65 per cent of Australia's as a result of the average weight of cattle processed. The United States mostly process grain-fed cattle with an average slaughter weight of 365 kg per head, whereas Australia processes a mix of grass and grain-fed cattle, giving an average slaughter weight of 296 kg per head.

In Argentina, the estimated average cost per head is AU$205.96, approximately 43 per cent lower than in Australia. When measured per kg HSCW of beef produced, the average cost in Argentina decreases to approximately 25 per cent of that in Australia, since Argentinian processed cattle are significantly lighter on average (224 kg per head).

Brazilian operating costs are estimated to approximate AU$172.29 per head or 48 per cent of the Australian average. Measured per kg HSCW of beef produced, comparatively Brazil's costs are approximately 57 per cent of Australia's, again a result of lighter cattle being processed in Brazil (248 kg per head).

6.4.3 Comparison of regulated operating costs

A summary of the regulated components of operating costs, measured in AU$ values, is provided in **Table 12**. The percentage of the individual component is also provided.

	Australia		United States		Brazil		Argentina	
Cost components	Regulated cost per head (AU$)	As % of total cost component	Regulated cost per head (AU$)	As % of total cost component	Regulated cost per head (AU$)	As % of total cost component	Regulated cost per head (AU$)	As % of total cost component
Labour-related costs	$179.60	85.3%	$79.65	61.5%	$50.34	66.6%	$75.26	85.2%
Utilities-related costs	$10.51	48.6%	$8.27	67.4%	$10.96	55.0%	$13.05	100.0%
Certification-related costs	$5.10	70.0%	$1.49 [a]	100.0%[a]	$0.00	0.0%	$1.14	50.0%
Total (excl. livestock costs)	$195.21	54.1%	$89.41	30.8%	$61.30	35.6%	$89.45	43.4%

Table 12 - Regulated cost summary, beef processors, Australia, United States, Brazil and Argentina, 2015-16

Note a: Certification-related costs in the United States only relate to those subject to government regulation. Unregulated (external) certification costs are, however, included in the total costs.

As illustrated above, it is estimated that more than 54 per cent of costs (excluding livestock purchases) impacting Australian beef processors are subject to some form of regulation. This is a significantly higher percentage than any of the comparison countries. It relates particularly to labour-related costs, with only Argentina being similar in percentage terms, although the absolute dollar values are substantially higher in Australia.

A detailed comparison of the factors influencing regulated costs in each country is provided in the appendix at Section 9.2 of this report.

6.5 Implications of changes in the Australian operating cost structure

The key areas of difference in Australian operating costs against the comparison countries are:

- Labour-related costs – Australian labour costs are substantially higher than in the comparison countries, primarily as a result legislated wage rates under Award agreements and the associated on-costs which are calculated as a percentage of those wage rates;
- Utilities-related costs – Australian utility costs are significantly higher than those in the United States and Argentina although the latter has a level of government subsidy on utilities supply. In the United States, however, the unit price for both electricity and natural gas is substantially lower than Australia's. Brazilian costs are comparable with Australia's overall;
- Certification-related costs – government-regulated beef certification costs, particularly for export, are significantly higher in Australia, where full cost recovery is charged to the processor. Processors in the United States only have to pay the overtime component, while in Brazil costs for federal inspection of meat and meat food products is entirely borne by the government. In Argentina, the costs recovered by the federal authorities are distributed along the supply chain rather than being imposed entirely on the processing sector.

The input-output model was used to assess the economic impact of changes in operating costs to levels consistent with international competitors. The scenarios examined included:

- Changes to labour costs to reflect those in the United States;
- Changes to utility costs to reflect those in the United States;

- Reducing government-related certification costs to reflect those in the United States; and
- Reallocation of government-related certification costs across the supply chain to reflect the practice adopted in Argentina.

The impact of each of these changes is summarised in **Table 13** below.

	Impact on beef processing GOS compared with base		Change in total contribution of beef processing sector to national economy		
Variable change	$ m	%	Industry value added ($m)	Household income ($m)	Employment (FTE)
Labour-costs adjusted to US levels	**638.8**	**44.18%**	**-654.8**	**-918.6**	**-3,640**
Electricity / gas costs adjusted to US levels	**37.3**	**2.58%**	**-14.3**	**-20.5**	**-229**
Regulated certification costs adjusted to US levels	**40.2**	**2.78%**	**-16.3**	**-31.1**	**-381**
Regulated certification costs distributed	**28.9**	**2.00%**	**-11.7**	**-22.4**	**-273**

Table 13 - Impact of analysed scenarios on beef processing operations, Australia, 2015-16

The single biggest impact is generated by reducing Australian beef processing labour costs to reflect the situation in the United States. As this means restructuring Award wages and associated on-costs, this is a longer term means to reduce beef processing operating costs. In addition, any hourly rates reduction may result in greater difficulty attracting employees, although this depends on the wages and conditions for competing sectors. Utility price reduction would assist the industry, although not to the same extent as removing certification-related costs.

Taken together, changes to labour, utilities and certification costs could transform the competitiveness of the beef processing industry, reducing its operating costs by up to 5.5 per cent and initially adding over $700 million in gross operating surplus[5] to the beef processing industry (currently estimated to approximate $1.4 billion for Australia as a whole), in turn impacting its prospects for investment, longer term income and employment.

[5] Gross operating surplus is calculated before deduction of consumption of fixed capital, dividends, interest, royalties and land rent, and direct taxes payable, but after deducting the inventory valuation adjustment. It therefore does not equate to, and is significantly higher than, operating profit. It also fluctuates significantly between years depending upon the average cost of livestock.

7.0 DISCUSSION

It's been known anecdotally that the Australian red meat industry suffers from competitive cost disadvantages relative to major international red meat industries, including the United States, Brazil and Argentina. This study documents the key costs facing the Australian industry relative to those competitors and confirms that which was previously based on anecdotal evidence.

Overall, Australian beef processing operating costs (excluding livestock purchases) are 32 per cent higher than in the United States, 73 per cent higher than in Brazil and 45 per cent higher than in Argentina. The higher costs largely relate to government regulatory costs, both locally and overseas.

What is the significance of this lack of cost competitiveness? Australian processors are fundamentally price takers, with restricted ability to determine the price received for their products. They therefore depend on cost competitiveness to sell their products and be profitable.

Australian processors have been able to compete in world export markets because the world beef market has traditionally been segmented along biosecurity lines.

There have effectively been two markets – one where imports from Foot and Mouth Disease-endemic countries have been allowed (the "Atlantic" beef market which includes South America and Europe), and one where such exports are not allowed (the "Pacific" beef market, which includes Australia and its traditional markets in North Asia and North America). As a result of these restrictions, beef exported to Pacific markets achieved a premium price over that exported to Atlantic markets. Australian processors benefitted from the restricted competition in the Pacific markets, which enabled them to be profitable despite having generally higher costs than processors supplying Atlantic markets. However, in recent times, there has been a distinct weakening of the boundary lines separating these two markets.

A key development is the opening of some key Pacific markets to beef from countries that have traditionally been in the Atlantic market. Changes in sanitary and phytosanitary (SPS) restrictions on imports (largely flowing from the implementation of the SPS Agreement under the 1994 WTO Uruguay Round) have meant the USA in particular has been opening its market to beef from South American countries. This has four implications:

1. Australia now faces competition in the US market not only from local processors but also from South American processors, all of whom have significantly lower costs to process as identified in this report. To date the South American competition is marginal as overall access is restricted and that access has been interrupted due to inadequate regulation. However, direction toward increased access seems to be largely in place in these countries, and over time competition is likely to increase.

2. China is one of Australia's fastest growing beef export markets, and China has now allowed, albeit in a highly controlled fashion, product from both South and North American processors. Australian exports to China have grown from a negligible level a half-dozen years ago to over 100,000 tonnes, making it Australia's third or fourth biggest market (depending on the year), but it is a highly price-sensitive market. As access increases, particularly for South America, the competitive pressure on relatively high cost Australian processors will increase.

3. Biosecurity restrictions in world markets have benefitted Australia even in relation to competition from the United States. When the US experienced BSE outbreaks some years ago, North Asian markets closed access for US beef and left Australia as the major supplier. SPS barriers also restrict the imports of red meat products into Australia. Any weakening of these barriers will further expose the Australian industry to pressures based on the disadvantageous cost position it currently suffers.

4. Changes in trade barriers have meant that international red meat processors now have increased options for accessing major markets by investing in a wider range of countries to supply the key Pacific markets and China. Australia has to compete as a place to invest with these other countries. This is especially pertinent as a result of the significant tax reforms introduced recently in the United States, and economic reforms being introduced by the current Brazilian and Argentinian governments, which will arguably increase their attractiveness for processing investment. A relevant element of the US tax reforms for meat processing is that rather than depreciating major purchases over time, nearly all capital expenditures will be written down in the first year. In the reforms, this element perhaps has the greatest potential to have an impact on jobs and wages.[6]

The increasing competitive pressures that arise from the fundamental characteristics and directions of the global beef trade are compounded by hurdles the Australian industry faces from ongoing competition for domestic economic resources. The July 2016 SG Heilbron report on competition in the beef processing industry[7] demonstrated that the Australian red meat industry is a major sector that operates in a highly competitive environment.

The sector is estimated to contribute over $21 billion of value added to the Australian economy, equivalent to 1.4 per cent of Australia's gross industry value added including flow-on impacts. It generates almost 126,000 jobs, equivalent to 1.3 per cent of FTE employment when flow-on effects are taken into account.[8]

The top five industry sectors the red meat processing sector impacts in terms of FTE employment are:

- Agriculture, forestry & fishing;
- Transport, postal & warehousing;
- Professional, scientific & technical services;
- Retail trade; and
- Wholesale trade.

When compared to the economy as a whole, the red meat sector has relatively high value-add and employment generation. The red meat processing sector, while accounting for just over 0.3 per cent of the Australian FTE workforce in 2015-16, contributed 1.4 per cent of the nation's gross industry value added when flow-on effects are taken into account. In addition, the sector underpins more than

[6] See https://www.bloomberg.com/view/articles/2017-11-03/digging-into-the-details-of-trump-s-tax-reform-plan
[7] SG Heilbron Economic and Policy Consulting, "The nature of competition in the beef processing industry", June 2016
[8] SG Heilbron Economic & Policy Consulting, *Analysis of regulatory and related costs and duplication in red meat processing,* AMPC Milestone 6 Report, July 2017

10 per cent of total FTE employment in the agriculture, forestry and fishing sector.

The red meat industry is a major contributor to regional economies, with its impact reaching more than 5 per cent of value added and in excess of 4 per cent of FTE employment in some cases. The red meat processing industry is a significant contributor to the Australian economy and, at the regional level, may serve to support a substantial proportion of the economy, including the associated social impacts.[9]

Increased competitive pressure arising from the fundamental characteristics and directions of the global beef trade are compounded by the domestic economic hurdles the industry faces. To illustrate the required resources, the industry total value of key inputs are:

- Livestock $9,580 million
- Labour $2,240 million
- Transport $1,670 million
- Energy $340 million (though note that this figure is probably now much greater given recent price rises, particularly for electricity and natural gas)

Unless the industry can effectively compete for the required resources, it will not be sustainable. Analysis indicates that cessation of Australian red meat processing would have profound social impacts, particularly in regions where a significant proportion of the population is employed by the sector. When flow-on impacts are taken into account, the impact on local unemployment rates could be of such a magnitude that it increases four-fold, in turn impacting stress-related mental health issues which already have a higher incidence in rural communities.

A major feature of the micro level impacts is the unemployment concentration among individuals with similar skills and experience which suggests they could experience difficulty in obtaining new employment locally and, in many cases, may have to leave the region. This can reasonably be expected to impact on the number of education and health care professionals that can be supported locally.

Significantly, food product manufacturing is Australia's largest manufacturing industry and meat processing is Australia's largest food product manufacturing industry. This study has shown that the key costs to industry, where it has been found to have competitive disadvantages against international processors, are those where there is significant government regulation.

The reason for pointing out the economic and social impact and significance of the industry is this: makers of government policy in relation to the key competitiveness areas identified in the report need to take into account that their decisions have a profound impact on a very significant industry. By extension it also affects the local, regional and national economic value and household income generated, as well as the employment and social wellbeing of hundreds of thousands of people.

[9] SG Heilbron Economic & Policy Consulting, *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia*, AMPC Milestone 4 Report, March 2016

8.0 CONCLUSIONS/RECOMMENDATIONS

Governments need to recognise the substantial contribution of the industry and act decisively to address barriers to its competitiveness.

The question arises therefore as to what policy directions must be taken to address the industry's cost disadvantages. This is explored specifically in relation to key areas of labour, energy and inspection charges identified in this study. The recommended directions are those of the consultants and do not necessarily reflect the views or positions of processors. Moreover, they are broad policy directions – detailed policy positions and prescriptions would need to be researched and developed by processors. In addition, flowing from the suggested general policy directions, research and development recommendations are noted which would support the industry in pursuing the policy directions.

However, it should first be noted that the current analysis needs to be regularly updated. The industry's policy development will not be effectively supported by basing it on outdated data. Regularly updating the database will also help increase its coverage and insights by encouraging additional participants to provide data, and most importantly enable monitoring of progress in addressing the cost disadvantages by both industry and governments (in the case of disadvantages resulting from regulations).

// *Recommendation 1. The international cost analysis now established should be regularly updated and the database augmented to enable monitoring of progress in addressing the cost disadvantages by both industry and governments.*

8.1 Specific areas of cost disadvantage

8.1.1 Labour costs

Overall direction

Given the significance of labour in total processing operating costs, governments and their regulatory agencies need to address policy-induced cost disadvantages faced by the red meat processing industry to ensure its economic sustainability and enable it to benefit from domestic and international red meat market trends, rather than become a victim of them.

Red meat processors in Australia suffer from significant labour cost disadvantages compared with the United States, Brazil and Argentina. While it might be understandable that developing countries like Brazil and Argentina have lower labour costs, it is difficult to come to the same conclusion in relation to the highly-developed United States.

This is not to suggest that Australia should necessarily follow the same labour policies as the US. However, the current labour disadvantage level is likely to result in increasing pressure on the future economic sustainability of the Australian industry. This is especially true in a global market where Australia is a price taker and where the SPS-based market boundaries which previously worked in Australian red meat's favour are now moving in a direction which will expose the industry to increased competitive cost pressure.

Australian red meat processors are subject to the national and state-based regulation of wages and conditions. The evolution of the labour policy regime in Australia has meant that processors have endeavoured to realise whatever potential benefits there have been from these policy developments. The tally system has given way to more flexible arrangements and enterprise-level bargaining has helped ameliorate the adverse impacts of a highly rigid, centralised system for setting wages and conditions.

However, more needs to be done. Red meat processing has a high level of variability, risk and uncertainty associated with not only the level of, and price attained for, product sales, but also the variability in the supply and price of its key inputs, including labour. As the "*Nature of competition*" report cited in Section 7.0 points out, processors have to match the availability of inputs such as labour with the demand for processed products.

Labour is a particular challenge. Processors have to attract labour when demand is firm and try to maintain it even when demand is weak since there are real constraints on the availability of skilled labour required for their facilities. However, since it is necessary to attenuate the supply of labour with demand for products, processors require flexibility in employment conditions. Within the constraints of the labour policy regime, processors have endeavoured to develop labour practices to accommodate this economic reality. In some states for example, many processors have developed so-called 'daily hire' practices.

An analysis of indicators of employment protection legislation in various countries by the OECD found that Australia had significantly higher levels of protection of permanent workers against individual and collective dismissals. Australia also had more regulation on temporary forms of employment compared with the United States, and about the same level of specific requirements for collective dismissal.[10]

Interestingly, Argentina had generally higher levels of protection and Brazil had higher levels in some cases and lower in others. An important point needs to be made about the developed country indicators: research has indicated that whatever the formal regulatory provisions, the actual enforcement of those provisions in these countries can be highly variable. For example, in Brazil it appears that enforcement reduces significantly the further away the enterprise is from the major cities. Many meat processing facilities are located in these areas.[11]

Recommendations

Against the background of the critical importance of attenuating the supply of labour with the demand for processing of meat it is recommended that:

// *Recommendation 2. The industry should undertake detailed research to develop policy positions on enhancing labour cost competitiveness, including a focus on improving labour employment flexibility.*

[10] See http://www.oecd.org/els/emp/oecdindicatorsofemploymentprotection.htm

[11] In Brazil, the distance of firms from the local office of the Ministry of Labour (where workplace inspectors are based) directly influences the likelihood of a firm being inspected. An increase of one hour in the distance from a firm to the local labour office reduces the likelihood of inspection by around 10%. Firms in areas with lower labour enforcement capacity are more likely to employ informal workers. In areas where Brazil's strict labour laws are enforced more rigorously, the labour market is less dynamic and firms' productivity may be impeded (Almeida and Carneiro, 2006) cited in Danielle Venn (2009), "Legislation, collective bargaining and enforcement: Updating the OECD employment protection indicators", www.oecd.org/els/workingpapers, page 27.

- *Recommendation 3. The outcomes of the research should be presented to governments urgently with a view to address policy outcomes.*

A further, and related, issue is that of access to skilled labour. In recent times, the industry has benefitted from the availability of skilled labour through temporary visas. The same applies in the US. However, the US industry has proposed that, given its reliance on temporary visas, a certain proportion of the total number of visas available should be specifically allocated to red meat processing.

- *Recommendation 4. The Australian industry should analyse whether a similar approach to temporary visas as is being proposed in the US is warranted in Australia and then develop an appropriate policy proposal for action by government in the immediate term.*

It should also be noted that the analysis of comparative labour costs in this study only considers wage-related costs and does not include any assessment of labour productivity. Information provided by a processing facility in Argentina suggests that the average costs associated with the components of the beef processing sector are as follows:

- Slaughter and quartering AU$42.80 per head; and
- Deboning AU$52.30 per head.

A similar analysis for Australia would indicate that the following costs apply:

- Slaughter AU$30.00 per head; and
- Deboning AU$63.00 per head.

There are a number of factors influencing this comparison including different average weight of cattle and the fact that, in Australia, quartering is not a common occurrence. However, when the two categories are combined and average wage rates compared, this would suggest that labour productivity in Australia is higher than in Argentina.

- *Recommendation 5. Research be undertaken, ideally on a collaborative basis with countries willing to co-operate, to examine the productivity differences between Australia and the other countries concerned and identify the key drivers and impacts of improved productivity in each industry. This should be done in the short term, given that at this stage the direct competition especially between Australia and South American countries is relatively restricted.*

8.1.2 Energy costs

Overall direction

Governments should support both economy-wide and industry-specific policies that underpin increased energy cost competitiveness for the red meat processing industry.

High Australian energy costs have been the subject of extraordinary attention in recent times in relation to both households and businesses. Red meat processing is energy intensive, especially for refrigeration of its highly perishable products.

It is widely acknowledged that Australia's high energy costs reflect successive policy failures. Governments and their agencies are urgently seeking solutions to these failures.

However, as the analysis of energy costs in this study indicates, there is a huge gap to be bridged. In the interim individual red meat processors have to do everything they can to maintain competitiveness, taking their own energy initiatives, including where appropriate combining with other processors, to increase their energy purchasing power.

Nevertheless there are a number of recommendations.

Recommendations

One relates to the need for the industry to bring to governments' and relevant regulatory agencies' attention the level of energy costs it faces and the need for relief. There are avenues via which such information can result in relief. For example, in some states regulatory agencies exist which are responsible for action on various elements of the energy pricing regime, such as the wholesale pricing.

- *Recommendation 6. Undertake research and develop a plan to reduce energy costs faced by the industry and present the results to regulatory agencies where it is believed that a practical outcome of improved energy costs can be achieved for the industry.*

Another relates to the special position of the industry as being both energy-intensive and trade-exposed. Currently, government policy initiatives aim to address energy shortages and high costs at a national or state level without aiming to address the specific needs of an industry. This approach fails to recognise the highly exposed position an industry like red meat processing faces.

The special position of the industry was recognised when the carbon tax was in force. Following detailed research by the industry, funds were provided on a contestable basis to support processors in reducing their methane emissions and adjusting to the effects of the tax. Currently many processors are investigating the potential for various renewable and other energy-related measures that will reduce their energy costs.

- *Recommendation 7. Undertake research on policy options that would facilitate the adjustment of the industry through supporting various alternative energy initiatives, in the face of persistently high energy costs that hamper its international competitiveness and threaten exports, jobs and household incomes.*
- *Recommendation 8. The research on energy adjustment options should be presented to governments with a view to developing policy action that improves energy cost outcomes for the industry in the immediate term.*

8.1.3 Export inspection

Overall direction

Government export inspection costs should be based on economic efficiency principles.

Export inspection charges account for a smaller proportion of processing costs than labour and energy. They are nevertheless important, partly since the industry cannot export without use of government inspection and certification services (the charges are mandatory and only government can provide them in most cases), and also because of the history of inspection costs-related policy.

Export inspection is a mandated monopoly. Like any monopoly, prices will tend to be higher than is justified by the marginal cost of producing them (the measure of economic efficiency). The red meat processing industry in Australia has been forced to accept a policy of full cost recovery for export meat inspection services for decades. This policy is based on the premise that the 'beneficiary' or 'user' of these services should pay the full costs of the service, though industry has strenuously argued against this policy for a long time. In 2001 the federal government accepted the industry's position and while user-pays continued the costs were reduced by 40 per cent at the time.

It was claimed by some that this represented a subsidy for the industry. In economic terms this is incorrect, since the imposition of costs on enterprise by government that exceeds marginal costs is, in effect, a tax. Reducing inspection costs was thus a tax reduction, entirely justified on economic efficiency grounds. It is also worth noting that the 40 per cent figure was the same as the industry requites based on an analysis of the incremental costs of the inspection service (incremental cost being the accounting approximation of marginal costs in economics).

Notwithstanding this achievement, in 2011 the industry was persuaded by government to accept the imposition of full cost recovery in return for promised productivity gains in the provision of the service. As the industry subsequently realised, these gains never materialised,[12] and the industry is over $100 million worse off.

Internationally, the US government pays for its inspectors' ordinary time but processors pay for overtime and certain extraordinary special needs for inspection. This approximates marginal cost recovery. In Brazil, government pays for inspection costs. In Argentina, government recovers full costs but they are allocated along the supply chain, rather than solely on the processor. This approach recognises that there are beneficiaries from export market access facilitated by export inspection apart from the processors alone.

Recommendations

- *Recommendation 9. Undertake research which analyses the options of either government introducing marginal cost pricing of inspection services along the lines of the US model, or that allocates total inspection costs to beneficiaries along the supply chain, similar to the Argentinian model.*
- *Recommendation 10. The above research should be presented to the federal government with a recommendation as to the best means of introducing efficiency pricing in export inspection in the immediate term.*

[12] See SG Heilbron, op.cit., June 2016, p26.

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10.0 APPENDICES

This section includes any supporting documentation which has been referenced in the report.

10.1 Appendix 1 - Economic impact assessment

The input-output tables developed for this project were based on the national input-output table published by the Australian Bureau of Statistics[13] (ABS) for 2014-15 and subsequently updated to reflect the financial year 2015-16. The process of updating the national table incorporates the inclusion of data from the Australian System of National Accounts[14] and the Australian Labour Force survey.[15] As the analysis not only reflects revised private data from processors but also an updated reflection of the national economy, some variations in assessing the economic contribution of the red meat processing industry could be expected when compared with results from previous analysis.

The input-output model for 2015-16 was used to measure the economic contribution of the red meat processing sector in that year by assessing the data supplied by processing facilities and converting it to the categories utilised by the ABS in the base national input-output table. The data was then converted to basic prices. Expenditure data provided by processing plants is measured in purchasers' prices (i.e. what the processor actually pays). Conversion to basic prices involves the reallocation of various margins to reflect what the supplier actually receives and by convention, is the measure used in input-output tables.

The resultant aggregate data was then applied to the 2015-16 national table. This involved inserting a new row and column into the input-output table to reflect the red meat processing sector. This was then subtracted from the relevant parent sector, in this case meat and meat product manufacturing, to maintain the integrity of the table, and ensure that there is no double-counting. The table was then rebalanced and the various measures of economic activity calculated, namely employment (measured as full-time equivalent positions), household income and gross regional product. It should be noted that in calculating the economic impact on each region, marginal rather than average income coefficients were used.

Conventional input-output models are subject to some queries regarding linearity assumptions as a result of the adoption of average coefficients. Economic impact analysis using multipliers assumes households consume goods and services in exact proportions to their initial budget shares. However, the household budget share of some goods might increase as household income increases, while others remain unchanged. This equally applies to industrial consumption of intermediate inputs and factors of production.

As has been well documented, the household sector is the dominant component of multiplier effects in a regional input-output model, as consumer driven consumption and income tends to dominate local economic activity. Capturing marginal income and expenditure relationships for the household sector provides a more realistic representation of the economic system and removes the strict linearity assumption. In addition, as marginal income changes alter value added relationships by industry, effects on regional output prices as well as import proportions can also be simulated.

[13] ABS Cat. No. 5209.0.55.001
[14] ABS Cat. No. 5204.0
[15] ABS Cat. No. 6291.0.55.003

The analysis undertaken in this project incorporated empirically derived marginal, rather than average, coefficients providing a more realistic representation of the economy and removing the strict linearity assumption. The results are therefore more conservative and reasonable than those derived from conventional input-output modelling.

10.2 Appendix 2 - Comparison of regulatory cost components

In examining the individual cost components, those subject to some level of regulation have been separated from the balance of costs as the inclusion of a regulatory component suggests that, in theory, these costs could be altered through government intervention or policy. This primarily relates to:

- Labour-related costs;
- Utilities-related costs; and
- Certification-related costs.

Each of these is examined below with respect to a comparison between the four countries examined.

10.2.1 Labour-related cost comparison

It is estimated that labour-related costs in Australia approximate AU$210.54 per head of throughput, of which 85 per cent are subject to some form of regulation. By comparison:

- United States approx. AU$129.46 per head, of which 61 per cent is regulated;
- Brazil approx. AU$75.63 with two-thirds of this being subject to government regulation; and
- Argentina approx. AU$88.31 with a similar proportion being regulated as in Australia

The differences in absolute costs associated with labour in each country and the regulated component of these is associated with the following:

- Wage rates – subject to the minimum wage rate of AU$18.29 per hour (2018) but also legislated under the Award which provides for wage rates that are substantially higher than the minimum wage rate and increase with the classification of the employee under the Award. By comparison, the minimum wage rate in the United States is legislated at the federal level at AU$9.46 per hour although individual states may impose a higher minimum. Among the main red meat producing states in the United States, Colorado has the highest minimum wage at AU$13.31 per hour, approximately 73 per cent of that in Australia. Thereafter, there is no mandatory requirement for specific wage rates in the beef processing sector although these may be subject to negotiations with the relevant union bodies.

  Brazil's minimum wage rate equates to approximately AU$2.32 per hour after allowing for the statutory requirement to pay employees a bonus equivalent to one month's wages per annum. Different state jurisdictions within Brazil may impose a higher minimum wage rate than the federally mandated level. While hourly rates payable to employees in the beef processing sector are estimated to be approximately four times higher than the minimum wage rate, there remains a substantial difference between hourly rates in Australia and Brazil.

  Argentina's minimum wage rate equals approximately AU$3.81 per hour, after allowing for the statutory requirement to pay a bonus equivalent to one month's wages per annum.

- Statutory leave allowances – a full-time employee in Australia is entitled to 20 days' paid annual leave per annum which also attracts a leave loading allowance of 17.5 per cent of the normal hourly rate. In addition, the employee is entitled to 10 days' personal leave. These factors apply to all employees (except those employed on a casual basis) including salaried personnel not employed under the Award. In addition, employees are entitled to be paid for statutory public holidays if these fall on a day that they would normally have worked.

  The United States has no mandatory minimum for either annual leave or personal leave, although some states have prescribed sick leave regulations. Employers in the beef processing sector generally offer paid annual leave as part of the employment package but this is reported to be less than the 20 days applicable in Australia.

  Brazil provides more generous leave allowances than Australia with full-time employees being entitled to 30 days of paid vacation leave per annum after one year of full employment and an additional allowance of approximately 33 per cent of the normal wage is applicable to those days. Employees in Brazil are also entitled to up to 15 days' paid leave per annum for documented illnesses.

  Argentinian regulations provide for between 14 and 35 days of paid vacation leave, depending upon length of service. In addition, employees are entitled to short leaves of absence in the event of marriage, birth, death of a close relative and high school or university examinations.

- Superannuation/retirement/health insurance – Australian employers must pay a superannuation contribution for each employee, including those employed on a casual basis, of 9.5 per cent of their base salary. Superannuation is not payable for overtime hours worked.

  In the United States, total compulsory employer contributions for retirement benefits and health insurance are 7.65 per cent of total payroll of which 6.2 per cent is for social security and 1.45 per cent for Medicare.

  Brazilian employers have to pay retirement benefit contributions which equate to between 26.8 and 28.8 per cent of payroll. In addition, employers are also required to make contributions to the Federal Severance Pay Fund (FGTS), in an amount corresponding to 8 per cent of an employee's monthly compensation.

  In Argentina, the employer must pay the equivalent of 6 per cent of wages and salaries to a health provider scheme and a further 17 or 21 per cent (depending upon type of activity and level of turnover) for pensions, family allowances and an unemployment fund.

- Workers' compensation premiums – these are subject to state legislation in Australia with the costs being calculated as a percentage of total payroll. The percentage cost varies between states and is influenced by the industry type (meat processing generally attracts a significantly higher than average loading), and the history of claims from the individual facility. Overall,

workers' compensation premiums are estimated to be approximately 2.4 per cent of total payroll costs across the Australian beef processing industry.

Premiums also vary between US states but are estimated to average approximately 1.5 per cent of gross wages and salaries. In Brazil, these costs generally fall between 1 and 3 per cent of total payroll costs, influenced by perceived level of risk and historical records of claims associated with an individual facility. In percentage terms, Argentinian workers' compensation premiums are substantially higher than Australia's, equating to approximately 6 per cent of payroll costs.

- Working hours – the Australian standard working week is 38 hours, and hours worked in excess attract overtime or penalty rates. The standard working week in the United States is 40 hours and 44 hours in Brazil. In Argentina, the standard working week is 48 hours.

In combination, these factors all serve to result in significantly higher hourly wage rates in Australia when compared with the other three countries. This then translates into considerably higher costs per head of throughput in the beef processing sector. While some employer compulsory payments in the comparison countries are substantially higher in percentage terms than in Australia, as they are all calculated on actual wages and salaries paid, Australian real costs are much higher. Even allowing for potentially greater labour productivity in Australia, which appears to be the case when compared with Argentina, labour costs form a substantially higher proportion of total costs in Australia as well as being significantly higher in absolute terms.

10.2.2 Utilities-related cost comparison

Utilities-related costs in Australia are estimated to average AU$21.62 per head of throughput, of which almost 49 per cent is subject to regulation.

In the United States, utilities-related costs were estimated to approximate AU$12.26 or approximately 57 per cent of that applicable across the average for all cattle processed in Australia. However, when compared with the processing of only grain-fed cattle in Australia, the figure for the United States approximates only 49 per cent of that found in Australia.

Utilities-related costs in Brazil are estimated to approximate AU$19.93 per head or just over 92 per cent of costs incurred in Australia, while in Argentina, the average cost per head equates to AU$13.05 per head or approximately 60 per cent of that in Australia. It should be noted that for the latter two countries, there is limited information for costs associated with water supply, sewerage and waste disposal. For this reason, the analysis of differences concentrates on electricity supply and other fuel usage (primarily natural gas). The key variations are described below.

- Electricity supply – in Australia it is estimated that, on average, the cost of electricity supplied approximates AU$9.20 per head of throughput. This reflects the amount paid to electricity suppliers and does not include any electricity generated on site through cogeneration. It should also be noted that this cost estimate may underestimate the current costs given recent price rises in the wholesale cost of electricity. Australian states vary considerably on electricity pricing and much of the data is subject to commercial-in-confidence contract negotiations

between an individual facility and the electricity provider. However, the following publicly-available information for 2017-18 serves to illustrate the price variations.

- Queensland[16] - large businesses with 11kV line - $0.184 per kWh; and
- New South Wales[17] – large businesses adopting Controlled Load 2 (availability 10 to 18 hours per day on weekdays) - $0.185 to $0.2257 per kWh depending upon supplier.

It should be noted that these prices do not necessarily reflect total electricity charges – they exclude daily supply charges and usage outside regulated hours. However, they do provide an indication of retail prices paid by large business consumers in Australia to permit comparison with those found in the United States in particular.

As noted in Section 6.2.2, the Australian Energy Regulator (AER) regulates electricity supply and distribution network costs, estimated to comprise approximately 45 per cent of total electricity charges in Australia, but does not regulate either wholesale or retail prices. Retail prices have been subject to various forms of relevant state government regulation but are now deregulated through most of Australia.

In the United States, electricity costs per head of throughput are approximately AU$7.07 or around 77 per cent of those in Australia. However, when a direct comparison is made using only processing of grain-fed cattle, average electricity expenditure per head in the US is around 61 per cent of Australia's. Given that most electric power consumed in a beef processing plant is for refrigeration, linked in turn to beef production volumes, this may be a more realistic comparison.

In the top 10 meat producing states in the United States, the average price per kWh for electricity supply to industry was AU$0.088, less than half that outlined above for Queensland and New South Wales. The regulated component of electricity costs in the United States varies between states making it difficult to provide a definitive proportion applicable across the country. However, with the exception of Texas and Iowa, none of the major meat producing states have a deregulated electricity market and it has been assumed that 90 per cent of costs associated with electricity consumption in the United States are subject to regulation.

In Brazil, the cost of electricity per head of throughput is estimated to equate to AU$13.84 per head, which is substantially higher than Australia. The regulated utility costs in Brazil are estimated to be approximately 55 per cent of total utilities costs. The costs associated with electricity consumption in Argentina are estimated to equate to AU$7.57 per head. Historically, governments in Argentina have subsidised power costs but the current government has embarked on a policy of reducing the level of subsidy in stages. The cost of utilities in Argentina is effectively 100 per cent regulated.

- Other fuel – in Australia, costs for consumption of other fuels (predominantly natural gas or coal) approximate AU$5.51 per head of throughput. There have been substantial increases in the wholesale price for natural gas in Australia over the past five years with prices in New

[16] https://www.energex.com.au/home/our-services/pricing-And-tariffs/business-customers/large-business-tariffs-and-prices
[17] NSW-electricity-schedule-of-charges-2017-18.pdf

South Wales more than doubling while South Australian prices rose by 65 per cent. Queensland has experienced a more modest increase with prices rising by 16 per cent over the period. As at September 2017, the wholesale price for natural gas in Queensland was AU$9.03 per gigajoule.

The regulated component of natural gas supply relates specifically to covered gas pipelines and is subject to AER regulation on the maximum charge. The transmission and distribution component of natural gas prices varies significantly between states. An average regulated component of 25 per cent has been assumed in this analysis.

In the United States, estimated costs for fuel sources other than electricity equate to AU$3.08 per head of throughput or 56 per cent of those found in Australia. However, when a direct comparison is made using only processing of grain-fed cattle, the average expenditure in the United States equates to approximately 41 per cent of Australia's.

The average price charged in the US for natural gas delivered to an industrial establishment[18] in the year ending September 2017 was approximately AU$4.62 per gigajoule with prices actually falling in nominal terms over the past four years. It is estimated that wholesale prices for natural gas in the US are approximately 37.5 per cent of the delivered price for industrial establishments, suggesting that a direct comparison between retail prices in Australia and the US would result in a significantly greater differential than outlined above.

There is little information currently available relating to other fuel consumption in either Brazil or Argentina by type.

Overall, unit costs of energy supplied in the United States are significantly lower than in Australia, impacting on the differential in operating costs by at least AU$10 per head.

10.2.3 Certification-related cost comparison

It is estimated that costs associated with government-regulated certification in Australia equate to $AU5.10 per head compared with AU$1.49[19] in the United States, AU$1.14 in Argentina and no cost in Brazil. All costs associated with government-regulated certification in Australia are recovered from the beef processor whereas in the United States only costs associated with overtime payments are recouped. The Argentinian system allows for recovery of these costs but this is not limited to the beef processing sector. Rather, they are distributed across the supply chain including livestock producers. In Brazil, the cost of federally-regulated inspection and certification charge is entirely borne by the federal government.

10.3 Appendix 3 - Audit and certification systems in the Australian red meat processing sector

On average, the number of individual audits for plants was 22.7 per annum, based on the sample used for this project; however, several were carried out in conjunction with other audits as outlined below. The number was also impacted by the audit requirements for an individual facility for an Approved

[18] http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm

[19] As noted through the report, the certification/audit costs for the United States only refer those subject to government regulation. Unregulated (external) certification costs are, however, included in "Other costs".

Arrangement Certificate, mandatory for any facility seeking to export meat and meat products.

10.3.1 Government related standards, audits, accreditation and certification

Australian red meat processors that seek to supply the export market must hold a range of certifications, which may be viewed as being inter-linked. The following are compulsory requirements for export abattoirs, boning rooms and further processing facilities:

- AUS-MEAT accreditation - the principal objectives of AUS-MEAT relevant to this accreditation are the management of industry standards for trade description through the *Australian Meat Industry Classification System* ("AUS-MEAT Language"), and the AUS-MEAT National Accreditation Standards for AUS-MEAT Accredited Enterprises. The National Accreditation Standards are designed to protect the integrity of the AUS-MEAT Language and the interests of the Australian industry in relation to the sale, distribution and export of Australian meat and the reputation of AUS-MEAT. Audits associated with maintaining AUS-MEAT accreditation are conducted quarterly at a minimum, with each audit having an average duration of eight hours.
- Approved Arrangement Certificate - The *Export Control (Meat and Meat Products) Orders* require that the occupier of an establishment engaged in the preparation of meat and meat products for export has an approved arrangement. The purpose of the approved arrangement is to clearly describe those processes and practices which will underpin the relevant federal department's certification of meat and meat products for export. The mandatory requirements for an Approved Arrangement Certificate vary depending upon the nature of the establishment's operations as outlined in **Table 14**.

Activity Centre	Slaughter	Boning	Processing	Cold storage
System support				
Policy objectives and commitment	☑	☑	☑	☑
Organisational structure	☑	☑	☑	☑
Management review	☑	☑	☑	☑
Internal audit	☑	☑	☑	☑
Corrective action	☑	☑	☑	☑
Training	☑	☑	☑	☑
Process control: Sanitation standard procedure				
Pre-operational sanitation	☑	☑	☑	☑
Operational sanitation	☑	☑	☑	☑
Personal hygiene	☑	☑	☑	☑

Activity Centre	Slaughter	Boning	Processing	Cold storage
Process control: Standard operating procedure				
Waste	☑	☑	☑	
Vermin control	☑	☑	☑	☑
Water	☑	☑	☑	☑
Hazardous substances	☑	☑	☑	☑
Structure and maintenance	☑	☑	☑	☑
Calibration	☑	☑	☑	☑
Sourcing of livestock (vendor declaration)	☑			
Slaughter	☑			
Inspection	☑			
Boning		☑		
Processing			☑	
Refrigeration	☑	☑	☑	☑
Sampling programs	☑	☑	☑	
Animal welfare	☑			
Process control: HACCP				
HACCP	☑	☑	☑	☑
Product integrity/certification				
Traceability and recall	☑	☑	☑	☑
Trade description	☑	☑	☑	
Halal *	☑	☑	☑	☑
Security/integrity (Meat Transfer Certificate)	☑	☑	☑	☑
Control of official marks	☑	☑	☑	☑

Activity Centre	Slaughter	Boning	Processing	Cold storage
Importing country requirements	☑	☑	☑	☑
Export documentation (Request for Permit)	☑	☑	☑	☑

Table 14 - Requirements for Approved Arrangement Certificate, Department of Agriculture and Water Resources

* Halal Standard operating procedures only applicable if the facility is producing or storing Halal meat and meat products.

Approved Arrangement Certificate audits are conducted monthly for the first six months after a processor's entry into the Tier 2 export sector (i.e. the establishment has access to all eligible export markets and has the daily presence of department officers [e.g. on-plant veterinarians and food safety auditors] on site). Upon successful completion of the induction phase, the processor may opt for one of two ongoing audit requirements:

- A twice-yearly systems audit with the on-plant veterinarian or food safety auditor preparing a monthly periodic audit report in accordance with the *Meat Establishment Verification System Operational Policy* as defined by the department; or
- Periodic audits where an audit is conducted either monthly or quarterly for those establishments that have elected to opt out of the systems audit.

It should be noted that the difference between the department-related man-hours required to conduct these audits is not great. The systems audit generally requires two auditors each spending approximately 2.5 days on site, equating to 10 man-days per annum. A monthly periodic audit incurs one auditor spending one day per month on site, equating to 12 man-days per annum. The majority of red meat processing establishments responding to this survey had opted to be subject to a systems audit, requiring two audits per annum. However, one facility had recently entered the Tier 2 export sector and was subject to monthly audits.

The Approved Arrangement Certificate then enables the processor to obtain an Export Licence. However, the facility is also required to be registered with the department.

- Department of Agriculture and Water Resources Certificate of Registration – meat processing plants must be registered with the department to be eligible to export products. The fees associated with this include:
  - Application fee $600;
  - Levy per establishment $588 per month; and
  - Throughput levy calculated based on the number of head of throughput at $0.70 for cattle and $0.18 for sheep.

While these costs are clearly significant, they have not been included in the overall audit costs calculation as they do not directly relate to audit requirements and are strongly influenced by the level of throughput.

10.3.2 Private standards, audits, accreditation and certification

All facilities examined in this project were accredited with either the *BRC Global Standard for Food Safety* (BRC) or the *Safe Quality Food Code* (SQF). These generally required one audit per annum to

maintain compliance and were frequently undertaken as composite audits that would also provide compliance with other private standards such as those set down by ALDI, Coles, Costco, McDonalds (in part) and various North American customers. These generally also cover the requirements for the *Australian Animal Welfare Certification System* (AAWCS), commonly a prerequisite for supplying individual customers. These audit costs are impacted by the number of additional standards addressed over and above meeting the requirements to satisfy either BRC or SQF accreditation and certification. It was indicated that the amount paid for either BRC or SQF certification ranged from approximately $14,000 to $20,000, depending upon the level of additional private standard compliance sought.

While audits associated with either BRC or SQF certification may incorporate the additional requirements to be able to supply McDonalds in terms of food safety and animal welfare, they do not include the *McDonalds Supplier Code of Conduct*. This is a separate assessment that must be adhered to by all McDonalds suppliers and relates to human rights, the workplace environment, environmental management and business integrity. The facility must complete a self-assessment using the *Supplier Workplace Accountability Guidelines*, undergo an on-site baseline audit and participate in follow-up audits as required. Data from processors participating in this project indicates that these audits are generally conducted annually, with an average cost per audit (excluding time spent by employees in the facility) of approximately $3,500.

Meat Standards Australia (MSA) was introduced in 2007. MSA is the result of industry-funded research which has identified the factors behind the eating quality of red meat. This is a voluntary program, but required for a number of accredited products sold in Australia. MSA-accredited graders are employed by the processors and determine the MSA grading of the individual cuts.

MSA-accredited beef processing facilities are required to pay an annual licence fee, which is calculated by throughput graded under the scheme:

- Less than 100 head per week put forward for grading $1,500;
- 101 to 500 head per week put forward for grading $3,000; and
- 501 or more head per week put forward for grading $5,000.

At the outset, to obtain approval to participate in MSA Beef Grading or MSA Sheepmeat, the facility must undergo an initial systems audit to demonstrate compliance with the MSA program requirements. Following initial approval, unannounced procedural audits are conducted at a minimum frequency of once per calendar month for an initial qualifying period of six months (assuming all audits are deemed satisfactory). On satisfactory completion of the initial qualifying period, audit frequency can be varied.

The majority of MSA-accredited facilities assessed in this project were audited quarterly, although one facility noted two audits per annum and another indicated that it was subject to six audits per year.

Not all facilities assessed during this project held Halal Capacity certification; however, for those that did an average of four audits per annum was reported. One facility reported holding ISO 9000 accreditation which required an audit every six months.

10.3.3 Expenditure on auditors and time incurred by plant employees

On average, the plants contributing to this project recorded that approximately 335 man-days per annum were spent in activities associated with audits, although there was considerable variation. The average audit preparation time was 95 man-days (28% of total time spent). Time incurred during the audit process equated to an average of 161 man-days or 48% of the total time spent whilst audit follow-up time reported averaged approximately 78 man-days (24% of total time).

After adjusting for the number of audits per annum, the single biggest contributor to time spent by employees in-plant was audits associated with the Approved Arrangement Certificate. Time spent on either BRC or SQF audits was the second most significant after allowing for the multiple audits generally covered during this process. For those establishments holding the MSA licence, this was generally the next most significant contributor to time spent, followed by audits associated with AUS-MEAT accreditation.

When examined in terms of costs (i.e. expenditure on auditors), the Approved Arrangement Certificate audits were reported as the most significant. AUS-MEAT accreditation audits followed, and payments made for either BRC or SQF audits and MSA audits were almost equivalent.

10.3.4 Customer audits

The processors contributing to this project covered a wide range of individual customers that included but were not limited to:

- A&W
- Aldi
- Burger King
- CAAB
- Cargills
- Coles
- Costco
- MARS
- McDonalds (and/or McAngus)
- North American customers
- Organic
- Saizeriya
- Thermo Fisher
- US Defence Force
- Whole Foods
- Woolworths

Each of the above was reported to have their own specific requirements in terms of the following:

- Product specifications
- Animal welfare
- Traceability and identification
- HACCP
- Pest control
- Sanitation
- Biosecurity
- Environmental issues
- WHS issues
- Social accountability
- Good management practices
- Transport-related issues
- Product recall processes

The differences in individual customers' standards were not necessarily significant in terms of content but did require the completion of additional checklists for each customer. This can be a time-consuming and costly exercise, both in terms of the auditor and the relevant employees at the processing facility.

10.3.5 Changes in number of audits

Processors who responded to the survey were asked to comment on whether the number of audits had increased, stayed the same or decreased over the past two years. For those facilities that had already managed to consolidate audits, there had generally been no change in the number of audits conducted per annum. These facilities generally appeared to use AUS-MEAT or AUS-QUAL to conduct composite audits which cover the requirement for BRC accreditation and additional requirements for major individual customers e.g. McDonalds, Woolworths Quality Assurance, Aldi, Costco and a range of North American customers.

For processors who indicated that the number of audits had decreased, this was seen to be a result of consolidating audits as above. Facilities that reported increased audit numbers over the past two years cited a number of factors including:

- A company decision to get more certification, generally to meet requirements of specific overseas customers; and
- An increase in individual customers being supplied, both domestically and overseas.

10.3.6 Costs associated with audits in red meat processing

Based on data provided by processors providing input into this project, the average estimated cost of external auditors for both government-regulated and private standards and associated certification is approximately $0.56 per head of throughput for cattle and $0.17 per head of throughput for sheep and lambs. Assuming that 90 per cent of all cattle are slaughtered in export-accredited facilities, this converts to a cost of almost $4.1 million for beef processors, regardless of whether they export or not. Similarly, assuming that 80 per cent of all sheep and lambs are slaughtered in export-accredited facilities this equates to a cost of approximately $4.2 million for sheep and lamb processors.

Based on the weighted average time employees spend in plant in preparing for, conducting and following up audits it is estimated[20] that beef processors across Australia incur audit-related wage costs of approximately $3.0 million. For sheep and lamb processors, this cost is estimated at $4.6 million.

Overall, across the national red meat processing sector these costs total almost $16 million, comprising $7.1 million for beef processors and $8.8 million for sheepmeat processors – approximately 0.48% of total expenditure by processors (excluding livestock purchases). It should be noted that these costs do not include any allowance for the Department of Agriculture and Water Resources Certificate of Registration which, while not a direct audit cost, is a government requirement to export red meat

[20] The costs associated with time incurred by employees in the processing facilities has been calculated based on average rates for personnel employed in Quality Assurance roles in a number of processing facilities, obtained during an earlier project conducted by the consultants (*AMPC 2013-1029 – Benchmarking labour application in plant, May 2015, SG Heilbron Economic and Policy Consulting*). These costs have been inflated to reflect 2015-16 using data from the Australian Bureau of Statistics (ABS) for the manufacturing sector (ABS Cat. No. 6302.0, Average Weekly Earnings, Australia). On-costs relating to superannuation, annual and personal leave, payroll tax and workers' compensation premiums have been included.

products from Australia. It also does not include employment costs for meat inspectors which, while being a regulatory requirement, is again not directly associated with audit-related costs.

10.3.7 Commentary regarding multiple audits

An export establishment must achieve certain standards which are verified through audits to achieve the relevant level of accreditation. That accreditation enables the processor to apply for the relevant certification which in turn provides market access.

The government-regulated audits ensure that the processor meets the requirements to be an export facility, adhering to standards set down for importing countries in terms of food safety, hygiene, trade description and animal welfare. While the accreditation and associated certification provides access to particular export markets – defined as countries – the countries themselves are not necessarily the actual customer. In many cases, the government standards are the minimum required, with individual customers seeking extra assurance through compliance with additional standards which, in turn, are verified through audit processes.

As an example, the animal welfare requirements for an Approved Arrangement Certificate do not meet the more stringent levels applicable under AAWCS which are required for the facility to be able to supply a wide range of customers, particularly those from North America but also locally.

Government-related audits are conducted by departmental officers to determine compliance with the standards set for an Approved Arrangement Certificate. However, it was noted during discussions with processors that some of this can be fairly subjective e.g. the definition of “wholesomeness” and “suitable”. It was also noted that interpretation of the more subjective, qualitative components of the audit can vary between individual auditors i.e. the person conducting the audit. Where the systems audit is conducted by two auditors, one (as prescribed by the department) being the Area Technical Manager, the second auditor is attempted to be sourced from outside the local area to minimise bias.

It was also noted that while audits undertaken for private standards can reward the processor by reducing the number and frequency of audits provided that compliance is maintained and there are no non-conformity issues, this does not apply to government-related audits. In other words, audit costs could be the same for both the poorest and best performing plants.

Private standards required by individual customers may be based on government standards but, as they incorporate their own critical control points and addendums to the standard audit, the majority of respondents indicated that they sought BRC or SQF accreditation which can be undertaken as composite audits with the addendums required by individual customers.

The main benefits, participants noted, of consolidating audits are time and cost savings at the facility, though consolidation may be limited by the capability of the individual auditor to assess all aspects of the process. For example, one processor cited that it was unlikely to have an auditor with the capability to audit both rendering and organics. Opportunities to improve the audit process are nonetheless addressed below, however the potential risk associated with audit consolidation is that a single audit failure could impact all markets supplied.

10.3.8 Potential for future improvements

The main drivers for audits with regard to number and duration of audit include:

- The risk profile/type of standard – this influences the number and frequency of audits;
- Who commissions the audit and who does the audit – not all auditors or auditing companies are acceptable to all customers;
- The nature of the standard – this influences the time spent on the audit and activity;
- Who is the licensing/trading partner (i.e. who does the plant supply); and
- Alignment with customer requirements/standards.

There are three key options for consolidation which could serve to minimise the number of audits, namely:

- Consolidation of standards;
- Consolidation of auditors; and
- Consolidation of audits.

Processors viewed the consolidation of standards as the preferred option, but this is dependent upon federal government acceptance of compliance with e.g. BRC standards for the purposes of meeting government requirements. The *Global Food Safety Initiative* (GFSI) recognises both BRC and SQF among others as meeting the requirements for processing of animal perishable products. Government acceptance of these standards could minimise duplication of effort with the department only being required to audit for specific components required for market access to individual countries. However, government recognition depends on its ability to secure agreement from overseas governments.

Within a consolidation of standards, adherence to key performance indicators which are measurable and meaningful to the customer could strengthen the acceptance of these standards. There is also the opportunity for consolidation of individual customer private standards, although it should be noted that these are, at least in part, used to differentiate a customer from its competitors. The individual standards are utilised to develop a competitive advantage, they are not necessarily "better" standards i.e. they do not necessarily result in a more economically efficient outcome for the industry or the economy as a whole. The same applies to the development of individual standards by processors.

Consolidation of auditors has, to a certain extent, already happened. AUS-MEAT and/or AUS QUAL are accepted as auditors for a range of private standards, as well as AUS-MEAT accreditation. However, currently the Approved Arrangement certification is audited by departmental officers. Government acceptance for the GFSI private standard certification would enable these organisations to conduct the main portion of audits, with departmental intervention only being required to verify compliance with standards required for market access to importing countries.

Audit consolidation has occurred in terms of composite audits being conducted as per the discussion above. When standards consolidate, in most circumstances, audits will follow. However, acceptance by the federal government of third-party certification such as GFSI could further enhance this.

Without some active intervention, the future is likely to see a continuation of recent trends with no consolidation between government and private standards and no consolidation within private standards. This is likely to lead to a further proliferation of audits and the associated transaction costs.