Webinar Network Meeting

28-29 November 2018

About AMPC:

- AMPC is the rural research & development corporation for the Australian red meat processing industry

- Provides research, development, extension and marketing services to ensure profitability & sustainability of the industry

AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

Our Stated Purpose, Mission, Vision, Values and Strategy

Our purpose

Enable Australia to build the most sustainable red meat industry

Our mission

To lead industry-level strategy, innovation and capability development for our members, stakeholders and communities

Our vision

To become a highly regarded, world-class provider of RD&E playing a vital role in influencing and growing the Australian red meat industry
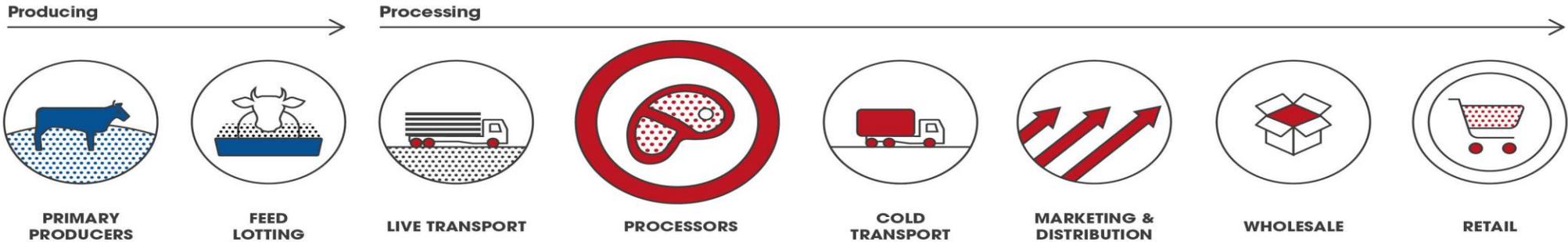
Our values

- Collaboration
- Innovation
- Creativity
- Challenge the Status Quo
- Continuous Improvement

Our strategy

1. Focuses on member needs
2. Diversifies funding sources
3. Develops collaborative networks and relationships with authoritative resources
4. Strategically invests in research, implementation of R&D and marketing initiatives by harnessing the world's best ideas and skills that deliver industry-wide benefits

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INDUSTRY SNAPSHOT

Contributes **$23 BILLION** to Australia's GDP per year including flow-on effects	Exports 74% of produce to **86 COUNTRIES**	Employs **135,000 AUSTRALIANS** including flow-on effects	Exports to the value of **$10.3 BILLION** $9 billion in processed, $1.3 billion in live exports	Meat processing is Australia's **LARGEST FOOD PRODUCT MANUFACTURING INDUSTRY**	Australia is the **WORLD'S 7TH LARGEST BEEF PRODUCER**

Producing →

Processing →

PRIMARY PRODUCERS • **FEED LOTTING** • **LIVE TRANSPORT** • **PROCESSORS** • **COLD TRANSPORT** • **MARKETING & DISTRIBUTION** • **WHOLESALE** • **RETAIL**
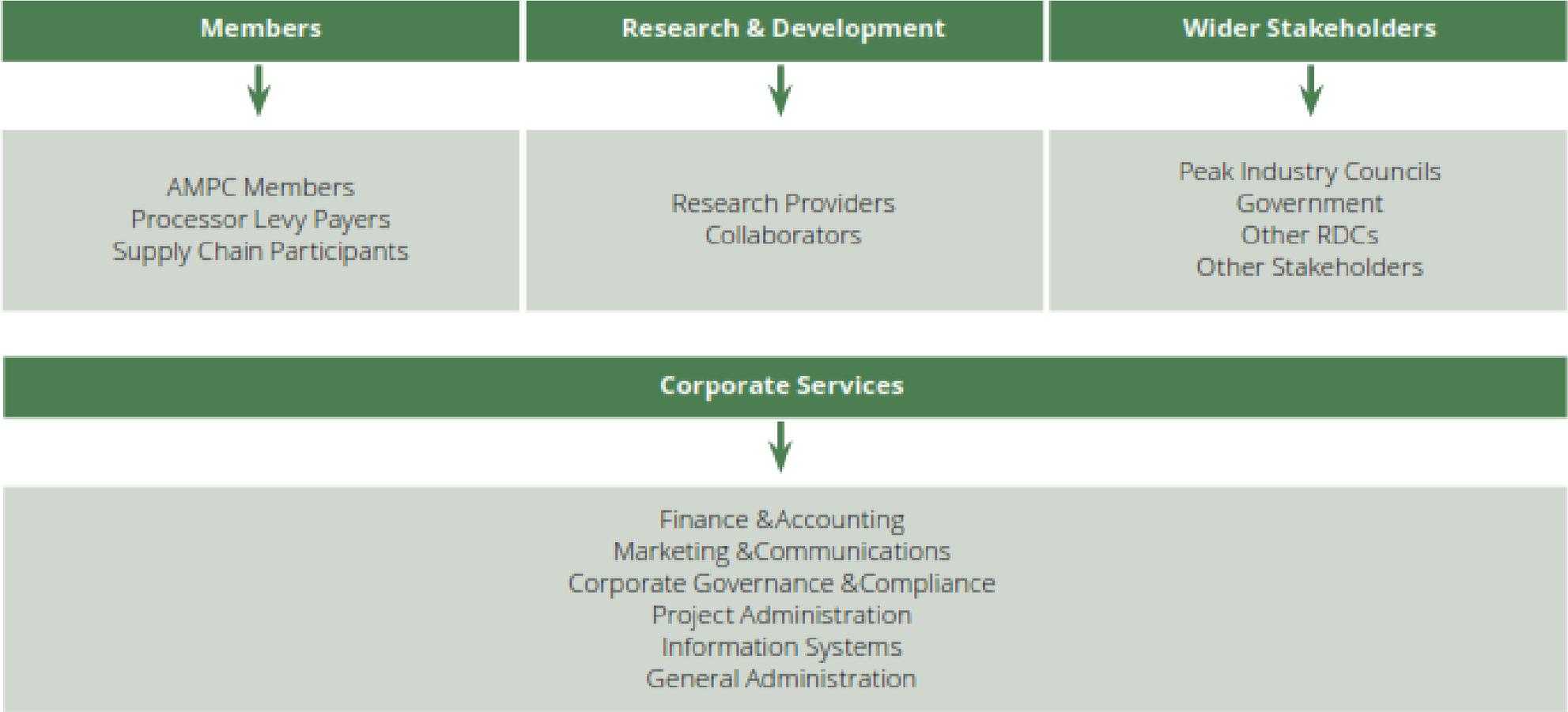
GENERATE $170,000 PER FTE*
compared with an average $152,300 in other industries

EMPLOY 34,000 PEOPLE
making them the 2nd largest employer by sector

AMONG THE WORLD'S LARGEST EXPORTERS OF BEEF
making it the largest trade-exposed manufacturing industry in Australia

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OUR PURPOSE
Enable Australia to build the most sustainable red meat industry

OUR VISION
To become a highly regarded, world-class provider of RD&E playing a vital role in influencing and growing the Australian red meat industry

WE WILL ACHIEVE OUR PURPOSE, MISSION AND VISION THROUGH A STRATEGY THAT:

1. Focuses on member needs
2. Diversifies funding sources
3. Develops collaborative networks and relationships with authoritative resources
4. Strategically invests in research, implementation of RD&E and marketing initiatives enabled by harnessing the world's best ideas and skills that deliver positive industry-wide benefits

106 MEMBERS REPRESENTING 97% OF AUSTRALIA'S RED MEAT PROCESSORS, LOCATED AROUND THE COUNTRY

OUR MISSION
To lead industry level strategy, innovation and capability development for our members, stakeholders and their communities

OUR VALUES
Collaboration, Innovation, Creativity, Challenge the status quo, Continuous improvement

* Full-time equivalent (FTE) employment

SERVICE DELIVERY MODEL

Members	Research & Development	Wider Stakeholders
AMPC Members Processor Levy Payers Supply Chain Participants	Research Providers Collaborators	Peak Industry Councils Government Other RDCs Other Stakeholders

Corporate Services

Finance &Accounting
Marketing &Communications
Corporate Governance &Compliance
Project Administration
Information Systems
General Administration

Research Programs

The Core Program

The Core Program, divided into five sub-programs, addresses key issues facing processors in terms of productivity, profitability, sustainability, integrity and capability. It is supported by a robust industry-wide consultation process aimed at identifying and delivering innovative outcomes. Funding comes from processor levies and matched government funding (where applicable).

The Joint Program

The Joint Program delivers supply chain improvements that support food safety, data integrity, eating quality and increased demand for red meat domestically and internationally. The program is collaboratively funded by AMPC and Meat & Livestock Australia (MLA), using both processor and producer levies, as well as matching government funds for eligible activities.

The Plant Initiated Projects (PIP) Program

The Plant Initiated Projects (PIP) Program enables processors to identify and undertake RD&E projects that generate whole-of-industry benefits by trialling and adopting new technologies at operating plants. These efforts are supported by private investment in industry RD&E as well as matching government funds for eligible activities.

AMPC Sub-programs
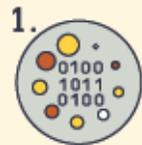
1. Processing Technologies

Improve process efficiency, reduce production costs and facilitate improved value capture through the use of technology throughout the red meat processing value chain

2. Environment & Sustainability

Improve industry sustainability through environmental, economic and social outcomes

3. Processing Hygiene, Quality & meat Science

Increase the standards of food safety, product integrity and eating quality, while delivering new insights into effective process interventions for the industry and broader community

4. Capability, Extension & Education

Translate and communicate AMPC's RD&E activities to stakeholders, including key training initiatives at both research and vocational levels

5. Industry Improvement & Economic Analysis

Understand the economic impacts and levers for the industry through economic modelling, statistical analysis, benchmarking and networked information flows.

Feasibility research and valuation of miniaturized snake robotic for spinal cord removal prior to splitting beef carcasses

- **Project Description**: to develop an "intelligent" tool to drive up the spinal cavity of a full carcass (after head removal and evisceration) to remove the spinal cord and associated risk material. The robotic arm could also provide data to be used to improve splitting.

- **Project Outcomes**: The project has successfully constructed a feasible miniaturized snake-arm robot with live presentations of trials in an engineering environment.

- **Benefits to Industry:**
  - Potential for more accurate data splitting
  - Improved yield avoiding soft siding
  - Reduced SRM contamination
  - Improved efficiency reducing labour units

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Feasibility research and valuation of miniaturized snake robotic for spinal cord removal prior to splitting beef carcasses

https://www.youtube.com/watch?v=2o4R51f9RDA

Development of Naked Primal Cut Recognition Software

- **Project Description**: Development of preliminary software capable of learning and identifying primal cuts using dimension, fat percentage, and weight. Seven (7) different types of cuts can be correctly identified

- **Project Outcomes**: The development of a robust sensing network and software algorithm for rapid identification of 7 different primal cuts was successful. Designed to fit into small spaces including over conveyors

- **Benefits to Industry:**

  - Reduction in Manual Handling

  - Reduction in labour units

  - Real time performance feedback to boning and slicing operations

  - Further benefits for pick and packing down stream

Integrated Robotic Picking and Packing of Primal Cuts

- **Project Description**: To develop a completely integrated robotic pick and pack system capable of efficiently picking and packing vacuum sealed primal cuts into cartons. System consists of six-axis industrial robot, vacuum pad foam gripper and 3-D computer vision system.

- **Project Outcomes**: Packing was successfully completed, on all 10 different primal cuts. Primal cuts were able to be picked at any orientation and packed accurately and efficiently into carton (7.157 seconds cycle)

- **Benefits to Industry:**
  - Reduction in Manual Handling

Integrated Robotic Picking and Packing of Primal Cuts

https://www.youtube.com/watch?v=_i93fHwshq4

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Automatic Equipment for Handling the Bung in the Lamb Slaughter Process
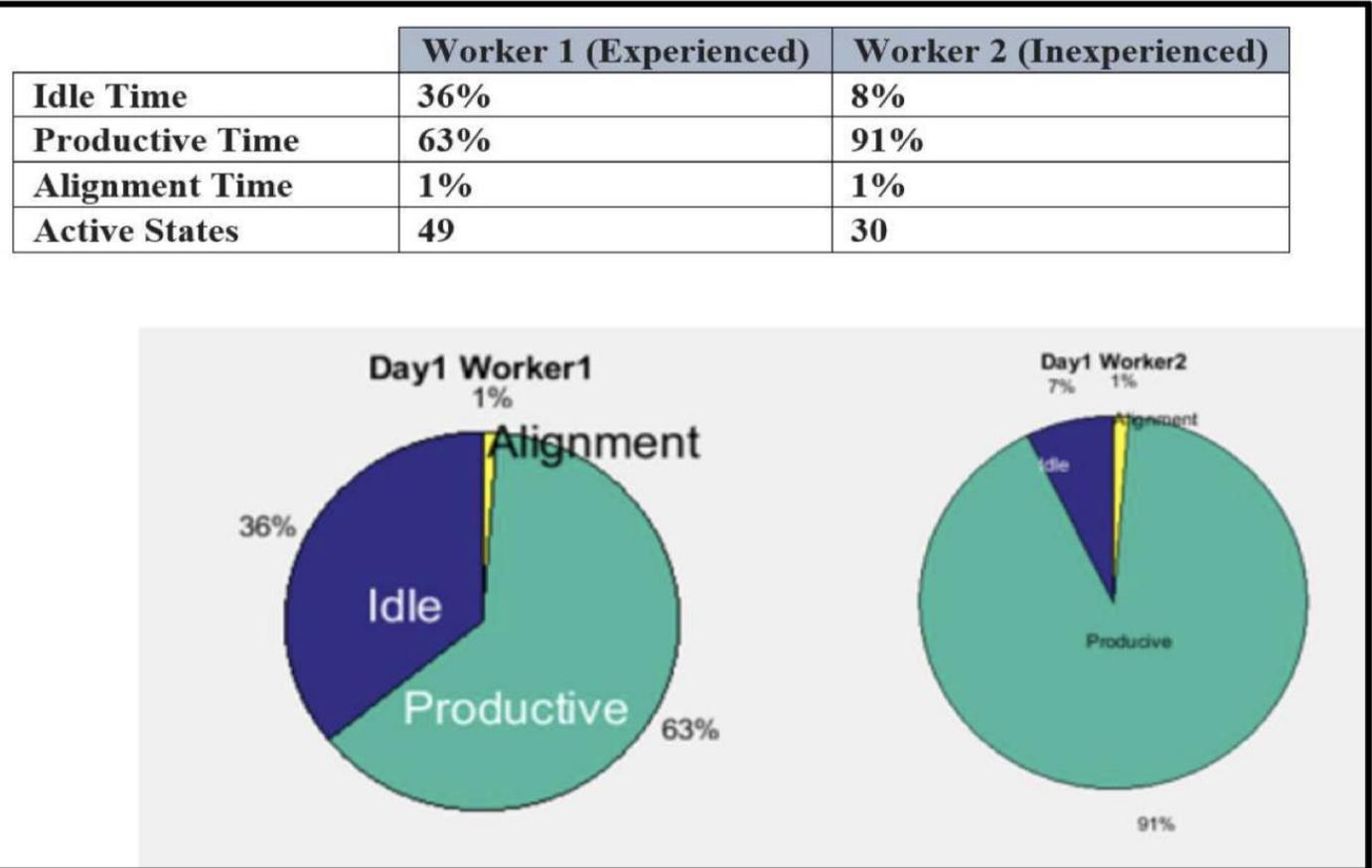
- **Project Description**: Study undertaken by DMRI to review if it was possible to modify automatic equipment to handle the bung in a lamb slaughter line, benefitting both efficiency and slaughter hygiene quality

- **Project Outcomes**: DMRI believe that the modified equipment can handle approx. 99% of the variability in size of the carcasses

- **Benefits to Industry:**

  - Successful modification of existing automated equipment to handle the bung in an Australian lamb slaughter line

  - Savings of labour and space (in re-inspection areas)

  - Improved slaughter hygiene across the whole processing line

  - Savings of rework (removal of faecal matter) and materials (bung plug)

  - Compliance with regulations and customer requirements

  - Useful marketing tool for obtaining and maintaining market access

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Automatic Equipment for Handling the Bung in the Lamb Slaughter Process

- https://youtu.be/T9_gQi8j-tY

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Demonstrating & Trialing of an internet of things solution for real-time computation and delivery of plant KPIS

- Project Description: This project considered opportunities for introducing Industrial Internet of Things (IIoT) solutions to the Australian red meat processing industry aiming to improving meat processing worker and plant productivity.

- Benefits to Industry:
- Improved Eficiency and profitability of the Australian red meat industry
- Increased plant throughput per FTE per time unit
- Real-time in-plant efficiency data
- Platform for more effective, automated and efficient worker training
- Improved floor supervisor effectiveness

	Worker 1 (Experienced)	Worker 2 (Inexperienced)
Idle Time	36%	8%
Productive Time	63%	91%
Alignment Time	1%	1%
Active States	49	30

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Oil and Grease Assessment tool

- **Project Description:** Oil and Grease is a valuable commodity and has been traditionally recovered from wastewater by save-alls and dissolved air flotation (DAF) plants followed by heating to purify it to second grade tallow. An alternate approach is to entrain the O&G in the wastewater and convert if to energy-rich biogas for use on-site to reduce the site's energy costs and carbon intensity.

- **Project Outcomes**: Computer model with simple user interface within Microsoft Excel
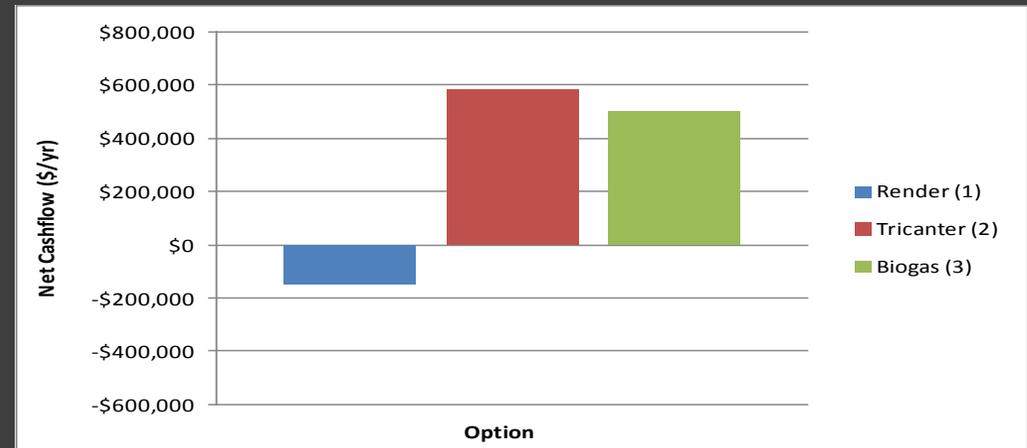
Figure 2. Net cashflow ($/yr) for each option for a processor with high temperature rendering that uses natural gas for steam generation

Oil and Grease Assessment tool

- **Benefits to Industry: With this calculator, processors have the ability to examine the sensitivity and feasibility of the various options for processing O&G with respect to a large range of site-specific variable for their facility, making it a powerful tool for informing future decisions.**

Scholarships

Cost to Operate

1. New research ("CTO" report) reinforces that Australian red meat processors face high costs to operate relative to key international competitors.

2. Australia's high costs are particularly driven by disproportionately high labour, utilities and certification costs and a disproportionately high regulatory cost burden.

3. Regulation contributes a disproportionate amount to Australia's costs in these areas compared to its competitors.

4. Australia is a price taker and is increasingly vulnerable to rapidly expanding exports of lower cost countries.

5. High costs to operate are a particular threat to Australia's regional economies and communities.

6. AMPC is working with all stakeholders to drive improvements in red meat processing operational costs.

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New research reinforces Australian red meat processors' high cost to operate relative to key international competitors

- AUS $361/head
- US $290/head
- BRA $172/head
- ARG $205/head

Processing costs (AS$/head)
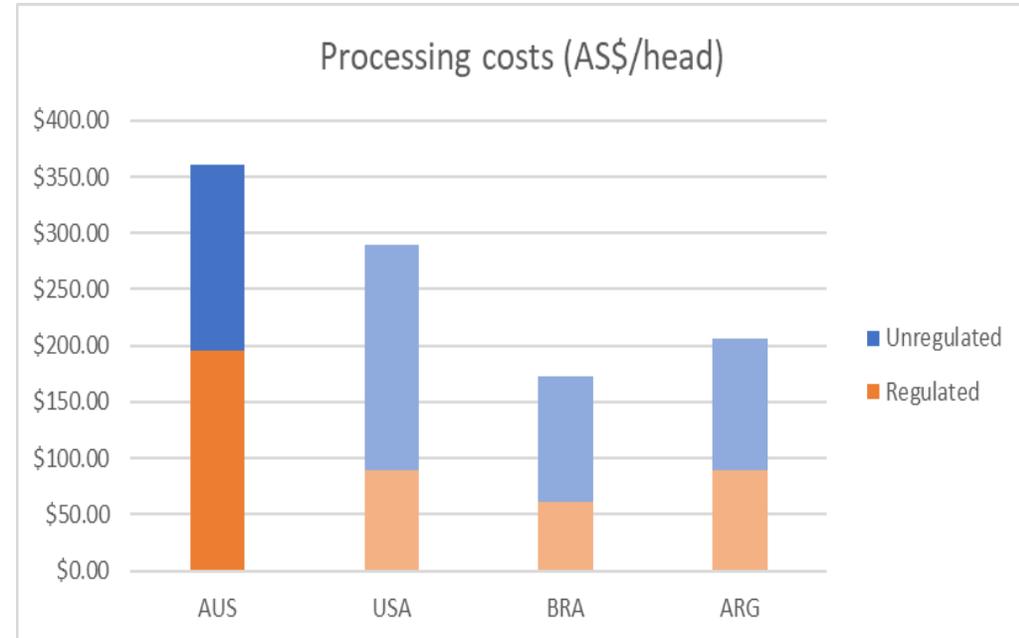
Australian costs are 1.6x the average of key export competitors.

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Australia's high costs are particularly driven by disproportionately high labour, utilities and certification costs and a disproportionately high regulatory cost burden

Labour

- At 58%, labour costs represent the largest single component of operational costs (excluding livestock).

- Australia's labour costs are primarily incurred in the boning room.

| Functional area	% of total hourly labour costs	
	Cattle	Sheep / lambs
Slaughter	20.7%	32.7%
Boning	43.8%	51.9%
Hides/by-products	4.5%	3.9%
Other	31.0%	11.5%

Labour costs (AS$/head)
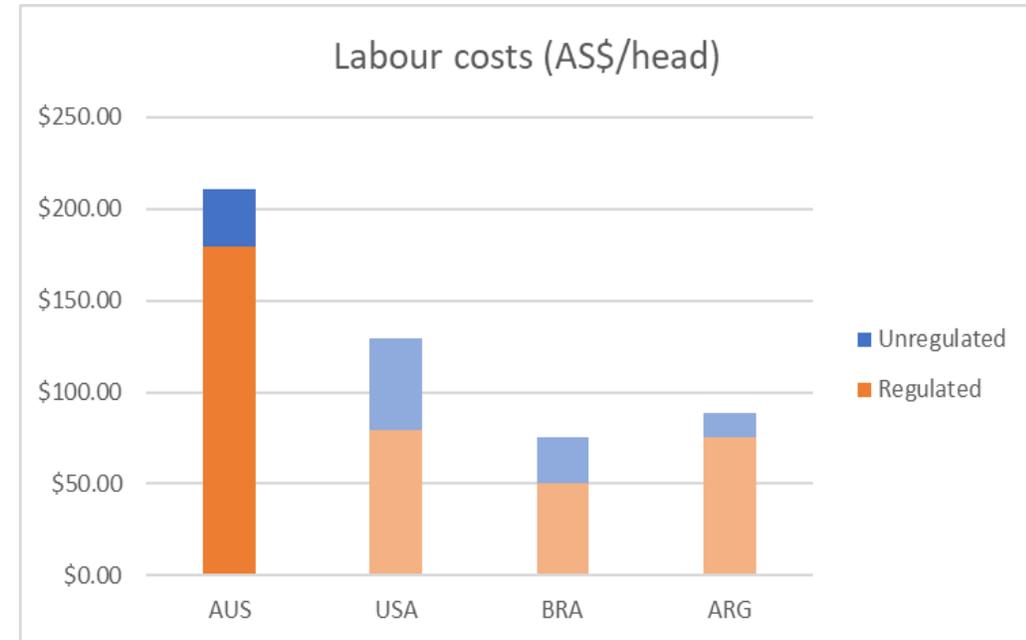
- AUS Labour ($/head): 1.8xUSA, 2.4xBRA, 2.0xARG
- AUS regulated labour ($/head): 2.4xUSA, 3.1xBRA, 2.0xARG

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Australia's high costs are particularly driven by disproportionately high labour, utilities and certification costs and a disproportionately high regulatory cost burden

Utilities

- Represent 6% of operational costs (excluding livestock).

- Costs are 49% regulated.

- Australia's utilities costs primarily relate to electricity.

| Utility type	Distribution of costs	
	Cattle	Sheep/lamb
Electricity	39.9%	29.8%
Natural gas	18.9%	6.4%
Coal and other fuel	5.0%	14.6%
Water	20.1%	10.2%
Waste disposal and Env management	16.1%	38.9%
Sub-total - Utilities-related costs	100%	100%

Utilities costs (AS$/head)
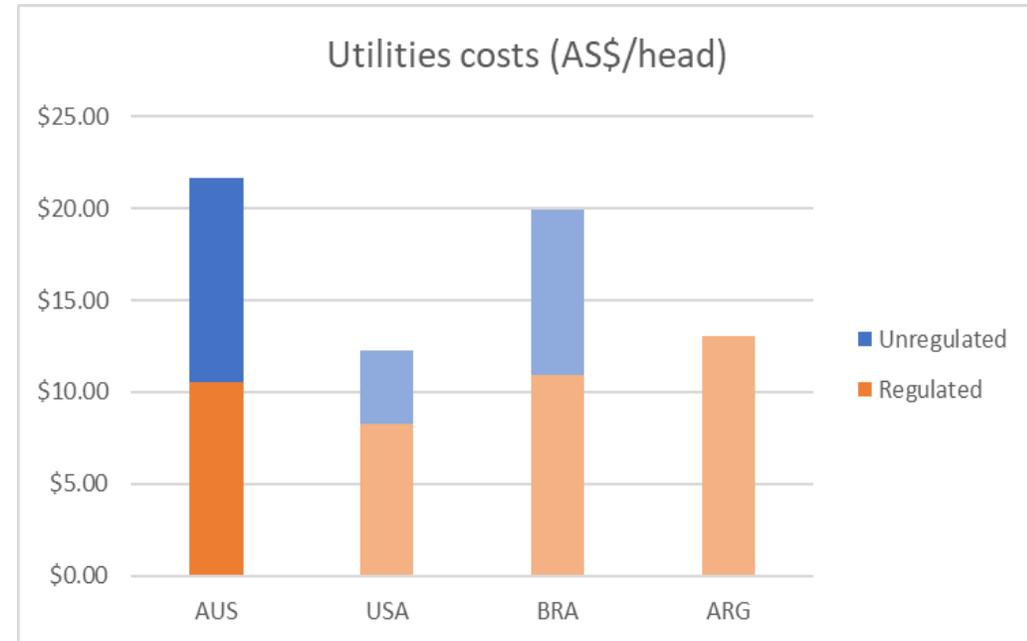
- AUS Utilities ($/head): 2.0xUSA, 1.0xBRA, 1.5xARG
- AUS regulated utilities ($/head): 1.5xUSA, 0.9xBRA, 0.7xARG

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Australia's high costs are particularly driven by disproportionately high labour, utilities and certification costs and a disproportionately high regulatory cost burden

Certification and audit costs

- Represent 2% of Australia's operational costs (excluding livestock).

- Costs are 70% regulated.

- Primarily relate to the Approved Arrangement Certificate.

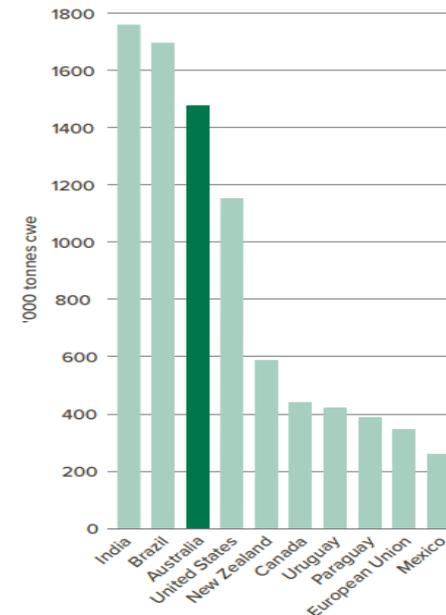| Certification type	Distribution of costs
Approved Arrangement Certificate (incl. DAWR Certificate of Registration)	54%
AUS-Meat Certificate of Accreditation	15%
Relevant state government accreditation	3%
External Standards (BRC, SQF, MSA)	20%
Private Standards (W'worths, Coles, McDonalds)	8%
Sub-total – certification-related costs	100%

Certification costs (AS$/head)
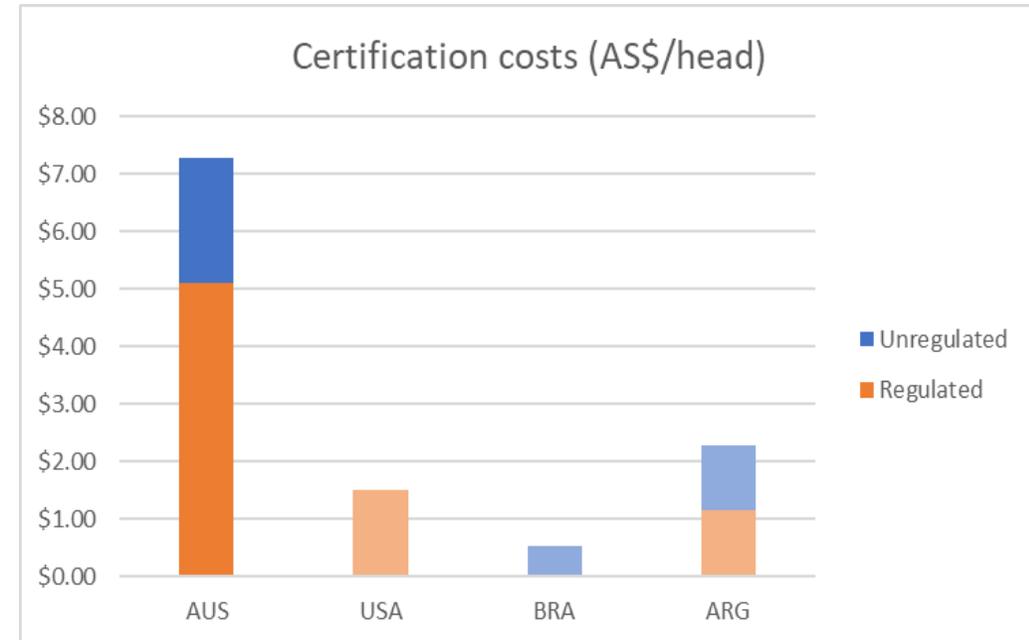
- AUS certification and audits ($/head): 8.3xUSA*, 13.8xBRA, 3.1ARG
- AUS regulated certification ($/head) 5.8xUSA, BRA=0, 4.4xARG

Why does this matter?

- Red meat processing is highly reliant on export markets.
  - Over 80% of Australia's combined red meat and co-products is exported.
  - While Australia has a relative large share of global exports, Australia is only a small producer in relative terms.
  - Particularly with beef, Australia is a price taker and is increasingly vulnerable to rapidly expanding exports of lower cost countries (see graph).
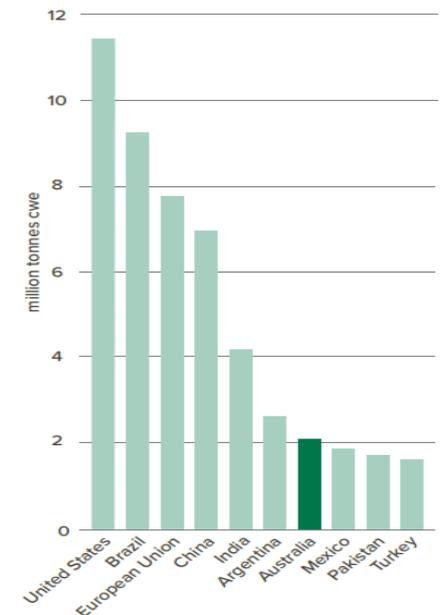

Top ten world beef exporters* (2016)

'000 tonnes cwe

India, Brazil, Australia, United States, New Zealand, Canada, Uruguay, Paraguay, European Union, Mexico

* includes buffalo meat   Source: USDA

Top ten beef producing countries* (2016)

million tonnes cwe

United States, Brazil, European Union, China, India, Argentina, Australia, Mexico, Pakistan, Turkey

* includes buffalo meat   Source: USDA

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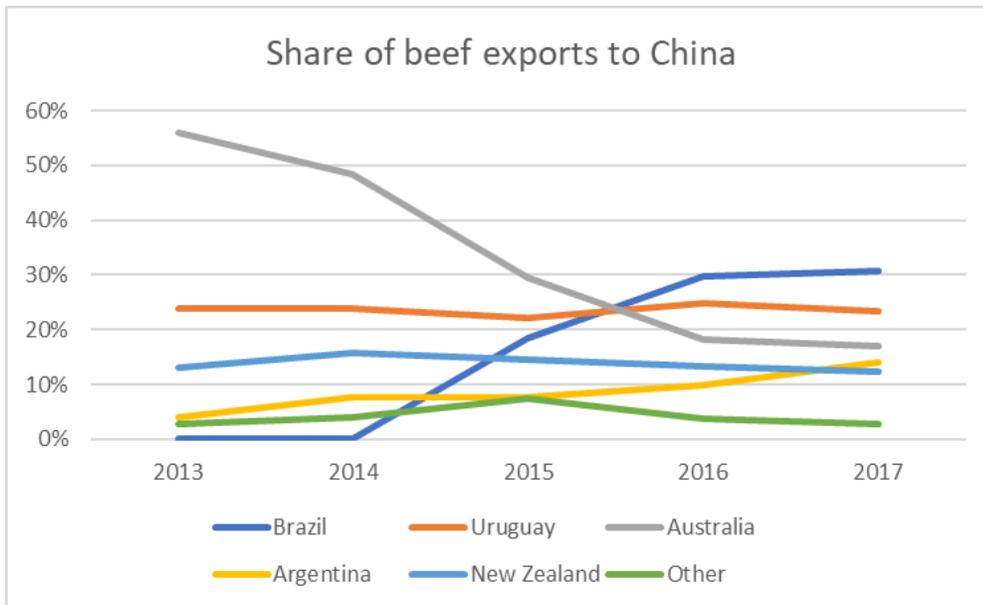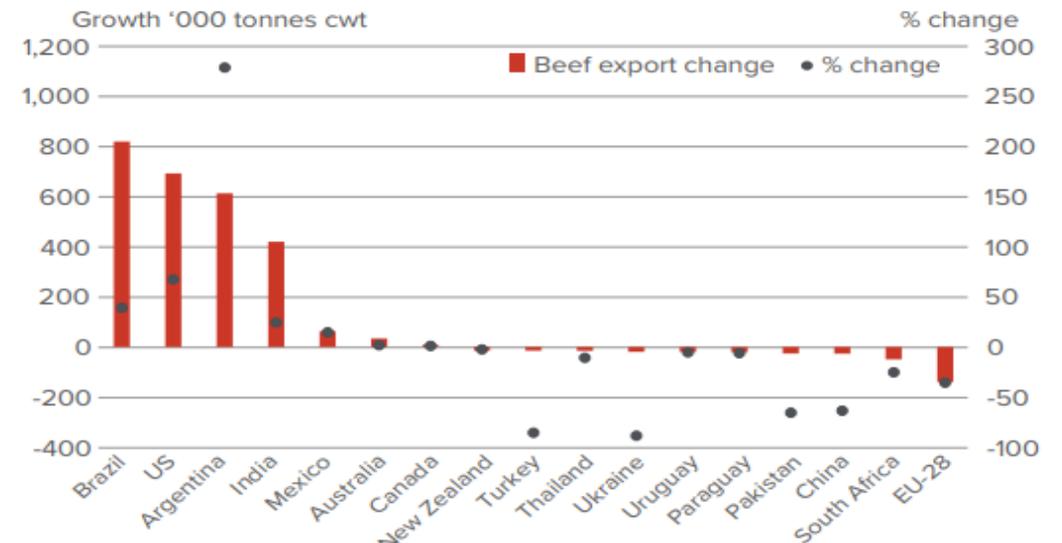
Why does this matter?

- Australian exports have traditionally been protected in key export markets by sanitary and phytosanitary (SPS) barriers.

- This is no longer the case as rapidly expanding and lower cost producers improve their red meat quality and expand into Australia's key export markets.

Share of beef exports to China

Forecast growth in beef exports 2015 to 2026

Source: OECD-FAO Agricultural Outlook Database 2016-2025

- From 2014-2017 Brazil's share of the Chinese beef market increased from 0% to 30% largely at the expense of Australia.

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Why does this matter?

- High costs to operate are a particular threat to Australia's regional economies and communities.

  - **The red meat processing sector is a significant contributor to the national economy.** Including flow on impacts, the red meat industry contributes **$21 billion** (1.4%) in **value add to the national economy**, $8.7 billion (1.1%) in household income.

  - **Red meat processing is a significant employer, particularly focused in regional areas.** In 2015-16 red meat processors directly employed 34,000 (0.3%), and supported a total of **126,000 jobs** (1.3%) (2.7 indirect jobs for every direct). Processors are predominantly **located in small to medium sized communities** with an LHA population of less than 50,000. On average, AMPC member plants account for 2% of their LGA employment. To put this in the context of the large east coast cities, this would be equivalent to a single city based company employing over 6,000 people.

  - **High processing costs impact the whole supply chain, from livestock producers to meat consumers.** A failure to reduce operational costs threatens international competitiveness, with flow on implications across the supply chain. **Reduced red meat processing costs benefit the whole supply chain from livestock producers to consumers.** Producers benefit from **increased livestock demand and prices**, while consumers also benefit from **reduced domestic red meat prices** .

So what are we doing about it?

- AMPC will work with all stakeholders to drive improvements in red meat processing operational costs:
  - **Support industry representation** to:
    - Address policy-induced cost disadvantages to ensure the economic sustainability of the industry.
  - **Continue a strong investment pipeline** including follow on work from 2017-1062, and related R&D opportunities.
    - Labour
      - Options for labour employment flexibility
      - US temporary visas proposal.
      - Local labour Options
    - Utilities
      - Energy cost analysis
      - Alternative energy initiatives
      - Energy adjustment options.
    - Certification
      - Options for reduced duplication of regulatory and related costs
      - Export inspection efficiency.
  - **Support stakeholder buy-in and a unified approach** across processors, producers, government, and service providers

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