

EMISSION REDUCTION PATHWAYS AND OPPORTUNITIES FOR THE AUSTRALIAN RED MEAT PROCESSING SECTOR

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Project Description

What is the situation for industry?

The red meat processing industry had an emissions intensity of 432 kg CO₂e/t HSCW and annual production of 3,071,000 tonnes in 2018. The sector's carbon emissions are estimated to be approximately 1,330,000 tCO₂e per year. About 44 per cent of emissions are scope 1 (emissions directly produced on site) and 56 per cent are scope 2 (emissions indirectly generated through the purchase and use of electricity).

Red meat processors have already taken steps to reduce their emissions, and the sector's emissions have been trending down for over a decade. However, the combination of prolonged domestic policy uncertainty, new opportunities to access low emissions technologies, and the emerging international framework of the Paris Agreement all indicate that the sector cannot simply rely on maintaining its past performance to avoid future emissions reduction pressures that could be extremely costly and disruptive.

Project Content

How did this project address this situation?

Emission pathways for three policy situations were evaluated to determine the potential impact on red meat processing plants.

- "Current Policy" – this trajectory is based on Australia's current national emission reduction target for 2030 (a headline reduction in emissions of 26-28 per cent from 2005 levels, which, by counting Kyoto Protocol carryover credits toward the target, results in an effective target of 16 per cent).
- "Paris Goals" - this is based on the 1.5-2°C temperature range referenced in the Paris Agreement ; this targets a 63 per cent reduction from 2005 levels .

- “Carbon Neutral 2030” is based on the broader industry goal of carbon neutrality by 2030 (100 per cent reduction from 2005 levels). These scenarios are discussed in more detail in section 2.

Based on this analysis, the red meat processing sector can achieve the Current Policy emissions targets mainly through energy efficiency, but this leaves the industry at risk of more disruptive emission reduction requirements after 2030. In contrast far more action is required to achieve the Paris Goals and Carbon Neutral by 2030 scenarios. The options for reducing emissions after implementing energy efficiency are limited to renewable thermal and electricity generation projects. Implementing a corporate renewable power purchase agreement with an electricity retailer, either individually or part of a buyers’ group, can also be a cost-effective option, although this involves a range of risks.

The cost of the projects needed to meet these targets shows multi-million expenditure for most AMPC members, with higher costs incurred by the larger operations. The net present value (NPV) (based on a discount rate of 7 per cent) for these projects is low, with average payback periods over 5 years for most scenarios. Using a shadow carbon price of \$25/tonne CO₂e as a proxy for future policy requirements significantly improves the NPV of an investment. For example, installing a biomass boiler in a small facility has a capital cost of around \$800,000 and saves 540 tonnes of carbon emissions each year. In the absence of a carbon price the NPV of the investment is about \$40,000, but if a carbon price of \$25 is introduced, the NPV rises significantly to \$171,000.

Project Outcome

What was the result of the project?

- Large-scale red meat processing plants have a better opportunity to reduce carbon emissions than small-scale processors where economy of scale can be applied.
- Opportunities for assisting small-scale processors could include aggregation of buying power for renewable energy sources (such as Power Purchase Agreements (PPAs))
- Thermal energy use produces a higher proportion of emissions for large processors, so assistance for large processors could focus on transitioning from natural gas, for example through bio-gas capture and reuse.
- Support and promote the inclusion of biomass in fuel replacement in energy saving schemes such as the ESC and VEET programs and provide funding to assist in the adoption of new process heat technologies, such as heat pumps.
- Policy targeting the energy “trilemma” of emissions reduction, reliability and affordability remains essential.

Benefit for Industry

What benefit to industry does this project provide?

This report provides a guide for red meat processors on how to manage carbon emissions opportunities and what path should be taken to minimize risk of high cost solutions in the future due to changes in government carbon emissions policy.

Useful resources

Paris Climate Change Agreement

https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

Australia’s Climate Change Agreement

<http://www.climatechangeauthority.gov.au/sites/prod.climatechangeauthority.gov.au/files/files/CFI/CCA-statement-on-Australias-2030-target.pdf>

Benchmark tool, available on AMPC website.

<https://www.ampc.com.au/e-learning-resources/energy-and-water-benchmarking-tool>

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