



ECONOMIC IMPACTS OF PROPOSED
ENERGY FROM WASTE PLANT -
PREFEASIBILITY STAGE

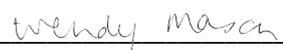
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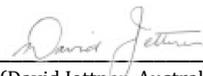
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Acknowledgement

WRI wishes to acknowledge the contribution of Australian Paper in the completion of this Final report, particularly Mr David Jettner and Mr Craig Dunn for their expert assistance and advice.

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Prepared for Australian Paper

2 August 2017

Australian Paper EfW EI Final Rel. Ver. 1.2c

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EXECUTIVE SUMMARY

Australian Paper is a vertically integrated manufacturer of pulp, paper, envelopes and stationery. The organisation is Australia’s leading manufacturer of office and printing papers, bag, sack, lightweight packaging and industrial papers, and is also a major supplier of Kraft liner board and the largest envelope manufacturer in Australia.

The Western Research Institute (WRI) was commissioned by Australian Paper to assess the economic impacts associated with the construction of a proposed Energy from Waste Plant (EfW) to be located at the company’s Maryvale Mill site, within the Latrobe Valley region of Victoria.

The economic impacts were assessed using high level estimated data provided by Australian Paper. State and regional input-output tables were developed using the GRIT technique and analysed using marginal coefficients. The impacts were measured in terms of gross state and regional product; household income; and full-time equivalent (FTE) jobs. The results of the high-level analysis are summarised in Table 1. As the EfW Plant is a proposed activity and analysis has been based on best estimates at the time, care should be taken when interpreting the results in Table 1. The data provided for the proposed operation of the EfW Plant has been estimated by Australian Paper after substantial research and engagement with a similar facility located in the United Kingdom which has recently completed construction of an EfW Plant.

Overall Impact of the proposed Energy from Waste Plant

The economic impacts of both the construction and operation phases of the proposed \$618 million Energy from Waste (EfW) Plant on the Victorian state and Latrobe Valley regional economies are shown in Table 1.

Table 1: Economic impacts of the proposed Energy from Waste Plant on Victoria and Latrobe Valley.

Overall Impacts Energy from Waste Plant	Value Added (\$m)	Household Income (\$m)	Employment (FTE Jobs)
Construction Phase			
Victoria (incl. flow-on)	\$215.2	\$111.3	1,641
% of Victoria	0.06%	0.06%	0.07%
Latrobe Valley (incl. flow-on)	\$72.8	\$40.1	696
% of Latrobe Valley	1.5%	1.5%	1.6%
Operation Phase			
Victoria (incl. flow-on)	\$134.9	\$33.2	441
% of Victoria	0.04%	0.02%	0.02%
Latrobe Valley (incl. flow-on)	\$58.9	\$22.6	306
% of Latrobe Valley	1.2%	0.9%	0.7%

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When flow on effects are taken into account it is estimated that the proposed \$618 million EfW Plant to be constructed at Australian Paper's Maryvale site will contribute \$215 million to the Victorian gross state product and more than 1,640 FTE jobs during the construction phase. Once in operation the EfW Plant is estimated to contribute just under \$135 million to gross state product and more than 440 FTE jobs.

It is estimated that the EfW Plant will also contribute just under \$73 million to gross regional product and more than 690 FTE jobs in the Latrobe Valley region during the construction phase. Once in operation the EfW Plant is estimated to contribute just under \$59 million to gross regional product and around 300 FTE jobs in the Latrobe Valley region.

The industry sectors expected to experience the largest flow-on impacts from the EfW Plant construction, in terms of FTE employment in the Victorian State, are:

- Professional, Scientific and Technical Services (136 FTE);
- Retail Trade (119 FTE);
- Accommodation and Food Services (66 FTE);
- Construction (65 FTE); and
- Finance and Insurance Services (63 FTE).

The industry sectors expected to experience the largest flow-on impacts from the EfW Plant construction, in terms of FTE employment in the Latrobe Valley region are:

- Retail Trade (68 FTE);
- Accommodation and Food Services (38 FTE);
- Agriculture, Forestry and Fishing (36 FTE);
- Transport, Postal and Warehousing (27 FTE); and
- Health Care and Social Assistance (26 FTE).

The proposed EfW Plant will provide significant benefits to both the Victorian State and Latrobe Valley regional economies through an estimated combined (operations and construction) contribution of \$350 million to gross state product and \$132 million to gross regional product. The proposed EfW Plant will also contribute 1,002 FTE jobs (through combined operations and construction) to the Latrobe Valley regional economy, helping Australian Paper improve its social and economic contribution to its employees and the communities in which it operates.

INTRODUCTION

Australian Paper is a vertically integrated manufacturer of pulp, paper, envelopes and stationery. The organisation is Australia's leading manufacturer of printing and writing products, Australia's only manufacturer of recycled content bag papers, and is a major supplier of Kraft liner board and the largest envelope manufacturer in Australia.

The company strives to achieve sustainable practices throughout its operations in a way that aims to minimise its impact on the environment, and improve its social and economic contribution to its employees and the communities in which it operates.

Australian Paper has indicated their vision to deliver an Energy from Waste (EfW) Plant to be situated locally at their Maryvale Mill site, within the Latrobe Valley region of Victoria.

To realise their vision of a sustainable and reliable energy source, the company has indicated the need for a high level economic impact analysis to be conducted to support the initial stages of funding. If this first stage funding is successful, a feasibility study will be carried out later in the year.

Australian Paper commissioned the Western Research Institute (WRI) to prepare an assessment of the potential economic benefits associated with the construction of the EfW Plant. Australian Paper has engaged WRI in past projects to measure the organisation's economic impacts in 2012, 2013 and 2016. The scope of the work undertaken in this study specifically covers the economic impacts on the Victorian State economy and the Latrobe Valley regional economy associated with the proposed \$618 million EfW Plant construction and future operation.

Energy from Waste Plant

Over the past few years there has been an increasing interest in Energy from Waste (EfW) facilities across Australia. EfW plants have the potential to contribute to Australia's renewable energy targets, reduce carbon emissions and divert waste away from landfill. They also have the potential to improve the energy mix in Australia by supplementing wind and solar production through base load generation¹.

The proposed EfW Plant at Maryvale will assist Australian Paper in its commitment to managing waste responsibly and ensure future sustainability and reliability in energy production. The EfW plant will promote low carbon network emissions, economic development and employment growth in the Latrobe Valley Region of Victoria.

¹ <https://www.pwc.com.au/publications/pdf/energy-from-waste-april-2017>. Accessed 27 June 2017.

METHODOLOGY

The economic impacts were assessed at state and regional levels. Modelling was undertaken through input-output analysis, which provides a detailed picture of the structure of an economy at a point in time, and can be used to estimate the contribution or impact of a sector of the economy or an individual organisation including flow-on or multiplier effects. The impacts are measured in terms of gross domestic, gross state and gross regional product, household income and full-time equivalent jobs. All impacts are expressed in either dollar terms or full-time equivalent employment terms and as a percentage of the national or relevant state or regional economy.

Constructing the Tables

The input-output table for this project was extracted from the Australian Bureau of Statistics (ABS) 2014-15 national input-output table using the Generation of Regional Input-Output Tables (GRIT) technique. The national table was adjusted to represent Victoria using detailed ABS data from the State Accounts (ABS cat no. 5220.0) and Labour Force, Australia, Detailed Quarterly (ABS cat. no. 6291.0.55.003) publications. Subsequently a regional table was built for the Latrobe Valley Region (aggregation of SA3 regions) using total employment data sourced from the 2011 ABS Census² and the proportion FTE and growth rates calculated from the ABS Labour Force Catalogue, Employed Persons by Region, Gender & Industry, using the most appropriate Labour Force Region data (ABS Cat. No. 6291.0.55.003).

The GRIT technique derives regional input-output tables from the national input-output table using location quotients and superior data, such as primary source data (in this case, information regarding the proposed construction and operation of the EfW Plant as well as regional employment and income data) at various stages in the construction of the tables. Appendix 1 provides a detailed description of the input-output methodology utilised in this analysis.

Geographical Scope

The economic impacts from the proposed EfW operations and construction were assessed at the Victorian state level and at the Latrobe Valley regional level, where the EfW Plant is to be located. For this report the Latrobe Valley region is the aggregation of SA3 (statistical area level 3) regions from the Australian Statistical Geographical Standard (ASGS). Table 1 outlines the definitions of the broader regions discussed in this report for the Latrobe Valley region.

The Latrobe Valley region has been defined by Australian Paper as the aggregation of Baw Baw, Latrobe Valley and Wellington, all SA3 areas.

² Please note: at the time of analysis the 2016 ABS Census data had not been released so employment data from the 2011 Census was used to build the Latrobe Valley regional table

Table 2: Broader Region Definitions

Broader Regions	Statistical Area Level	State within which the Latrobe Valley region is located
Latrobe Valley	Baw Baw (SA3)	Victoria
	Latrobe Valley (SA3)	
	Wellington (SA3)	

Data collection

The national input-output table includes only one sector for all Pulp, Paper and Converted Paper Product Manufacturing. To estimate the economic contribution of the EfW construction and operations, WRI was supplied with high level information about the company’s proposed expenditure, location of expenditure, employment, and revenues. This information was used to construct a new sector in the input-output table representing the operations of the EfW. The original Pulp, Paper and Converted Paper Product Manufacturing sector was then deflated by the proportion represented by the proposed EfW’s output.

Revenue

Revenue data was supplied by Australian Paper and was allocated to the region from which it is likely to be paid, that is, within the relevant state or statistical area or from outside the local area. Any income made within the area of interest is considered ‘local’ and revenue received outside of the local area is deemed to be an export to the region.

Wages and Salaries

Estimated human resource information, including number of full-time employees (FTE) and associated wages and salaries was supplied by Australian Paper.

Other Expenditure

Australian Paper supplied high level information regarding other estimated expenditure by type and location where the purchase is likely to be made. Any expenditure made within the region being modelled is considered ‘local’ and anything made outside of this area is deemed to be an import to the region.

Capital Expenditure

Australian Paper has supplied information regarding construction costs for the proposed EfW Plant by type of expenditure and the location where the purchase is likely to be made. This one-off capital expenditure was treated as a final demand impact in the relevant tables.

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Impact Analysis

Final Demand Impacts

The final demand impact analysis calculates the impacts (measured by output, value added, household income and employment) across all sectors in response to changes in industry final demands. Specifically, expenditure was allocated to the relevant sectors to give the estimated impacts of this expenditure including both initial and flow-on effects.

Reporting

The economic impact of the proposed EfW construction and operation has been reported as the sum of:

- **Initial impacts:** defined as the value of the immediate changes in the respective region resulting from the proposed EfW operations; and
- **Flow-on impacts:** defined as the value of changes in the regional economy resulting from an additional round of spending after the initial impact occurred.

The impact of the proposed EfW Plant on each of the study areas was estimated in terms of:

- **Value added:** the amount by which the value of an article is increased at each step of its production, exclusive of its initial cost. Value added is equal to gross output minus intermediate inputs and is equivalent to the contribution to gross regional product (GRP - the local equivalent of gross domestic product). That is, value added is the difference between the costs of production (excluding the compensation of employees, gross operating surplus, taxes and imports) and the value of sales turnover. Value added sums the value added components of production through the supply chain, while initial expenditure includes multiple counting of expenditure through the supply chain. Value added is the most reliable measure of the actual value of production.
- **Income:** measuring the benefit received by regional households from economic activity. It typically refers to compensation of employees but can also include income in return for productive activity such as the gross mixed income of unincorporated enterprises, gross operating surplus on dwellings owned by persons, and property income receivable and transfers receivable such as social assistance benefits and non-life insurance claims.
- **Full-time equivalent employment:** a measure of the workload of an employed person in each location that makes workloads comparable across different types of employment (part-time, full time and casual).

ENERGY FROM WASTE PLANT (EFW)

Construction Phase

Victorian Impacts

When flow on effects are taken into account it is estimated that the proposed \$618 million EfW Plant to be constructed at Australian Paper's Maryvale site will contribute \$215 million to the Victorian gross state product and more that 1,641 FTE jobs during the construction phase. This represents a contribution of 0.06 per cent to gross state product, 0.06 per cent to household income and 0.07 per cent of FTE employment in the Victorian economy.

Table 3 summarises the economic impact of the proposed EfW Plant construction on Victoria.

Table 3: Economic Impact of proposed EfW Plant construction on Victoria

EfW Plant Construction Impacts Victoria	Value Added (\$m)	Household Income (\$m)	Employment (FTE Jobs)
Victoria (including Flow-on)	\$215.2	\$111.3	1,641
% of Victoria	0.06%	0.06%	0.07%

The main industry sectors likely to be impacted by the flow-on from the EfW Plant construction, in terms of FTE employment in the Victorian State economy, are:

- Professional, Scientific and Technical Services (136 FTE);
- Retail Trade (119 FTE);
- Accommodation and Food Services (66 FTE);
- Construction (65 FTE); and
- Finance and Insurance Services (63 FTE).

Latrobe Valley Regional Impacts

The construction impacts of the proposed EfW Plant are estimated to contribute just under \$73 million to gross regional product, \$40 million in household wages and 696 FTE jobs to the Latrobe Valley regional economy when flow-on effects are taken into account. This represents a contribution of 1.5 per cent to gross state product, 1.5 per cent to household income and 1.6 per cent of FTE employment in the Latrobe Valley economy (Table 4).

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Table 4: Economic Impact of proposed EfW Plant Construction on the Latrobe Valley Region

EfW Plant Construction Impacts Latrobe Valley	Value Added (\$m)	Household Income (\$m)	Employment (FTE Jobs)
Latrobe Valley (including Flow-on)	\$72.8	\$40.1	696
% of Latrobe Valley Economy	1.5%	1.5%	1.6%

The main industry sectors likely to be impacted by the flow-on from the EfW Plant construction, in terms of FTE employment in the Latrobe Valley region economy, are:

- Retail Trade (68 FTE);
- Accommodation and Food Services (38 FTE);
- Agriculture, Forestry and Fishing (36 FTE);
- Transport, Postal and Warehousing (27 FTE); and
- Health Care and Social Assistance (26 FTE).

Operation Phase

Victorian Impacts

The operational impacts of the proposed EfW Plant are estimated to contribute close to \$135 million in gross regional product, \$33 million in household income and 441 FTE jobs in the Victorian State when flow-on effects are considered. This represents a contribution of 0.04 per cent to gross regional product, 0.02 per cent to household income and 0.02 per cent of FTE employment in the Victorian State economy.

Table 5: Economic Impact of proposed EfW Plant Operations on Victoria

EfW Plant Operational Impacts Victoria	Value Added \$m	Household Income \$m	Employment FTE Jobs
Victoria (including Flow-on)	\$134.9	\$38.2	441
% of Victoria	0.04%	0.02%	0.02%

The main industry sectors likely to be impacted by the flow-on from the EfW Plant operations, in terms of FTE employment in the Victorian State economy, are:

- Personal and Other Services (69 FTE);
- Accommodation and Food Services (56 FTE);
- Professional, Scientific and Technical Services (30 FTE);
- Retail Trade (27 FTE); and
- Paper, Pulp and Converted Paper Product Manufacturing (24 FTE).

Latrobe Valley Regional Impacts

The operational impacts of the proposed EfW Plant are estimated to contribute close to \$59 million in gross regional product, \$23 million in household income and 306 FTE jobs in the Latrobe Valley Region when flow-on effects are considered. This represents a contribution of 1.2 per cent to gross state product, 0.9 per cent to household income and 0.7 per cent of FTE employment in the Latrobe Valley Regional economy.

Table 6 summarises the economic impact of the EfW Plant operations on the Latrobe Valley Region.

Table 6: Economic Impact of proposed EfW Plant Operations on the Latrobe Valley Region

EfW Plant Operational Impacts Latrobe Valley	Value Added (\$m)	Household Income (\$m)	Employment (FTE Jobs)
Latrobe Valley (including Flow-on)	\$58.9	\$22.6	306
% of Latrobe Valley Economy	1.2%	0.9%	0.7%

The main industry sectors likely to be impacted by the flow-on from the EfW Plant operations, in terms of FTE employment in the Latrobe Valley Regional economy, are:

- Accommodation and Food Services (42 FTE);
- Personal and Other Services (37 FTE);
- Retail Trade (35 FTE);
- Paper, Pulp and Converted Paper Product Manufacturing (27 FTE); and
- Agriculture, Forestry and Fishing (16 FTE).

CONCLUSION

The combined EfW plant operations and construction are estimated to make significant contributions to both the Victorian State and Latrobe Valley Regional economies and help Australian Paper improve its social and economic contribution to its employees and the communities in which it operates.

In the Victoria State, the combined contribution is estimated to be:

- \$350 million in gross state product;
- \$78 million in household income; and
- 2,082 full-time equivalent jobs.

In the Latrobe Valley Region, the combined contribution is estimated to be:

- \$132 million in gross state product;
- \$63 million in household income; and
- 1,002 full-time equivalent jobs.

The proposed EfW Plant has the potential to provide other social, economic and environmental benefits alongside those discussed in this report, including wider benefits to the Australian economy. It is recommended that a full Business Case be developed to gain greater insight into the full potential of the EfW Plant.

APPENDIX 1: INPUT-OUTPUT ANALYSIS

Input-output tables are part of the Australian national accounts. An input-output model provides a very detailed picture of the structure of an economy at a particular point in time. It includes all the transactions that occur during a specific period, usually one year.

The rows of an input-output table show the disposal of the output of an industry to itself and to other industries as well as final demand categories (e.g. exports and household consumption); and

The columns show the origin of inputs into production, whether they are intermediate inputs (i.e. intra- and inter-industry purchases) or primary inputs (e.g. labour and capital).

The main use of input-output tables is economic impact analysis, where the tables are used to estimate the benefits generated by new initiatives on each sector of an economy. For example, if there is a change in the purchasing or sales pattern of any industry, the flow on, or multiplier, effects on upstream industries can be calculated. An input-output table is also very useful for estimating the direct and indirect contribution of final demand, as with the proposed expenditure associated with the Energy from Waste Plant operations.

One of the main attractions of input-output models is their relative ease of use and the level of detail obtained concerning the structure of the economy. The Australian Bureau of Statistics (ABS) notes the usefulness of input-output tables:

“Input-output tables provide detailed information about the supply and disposition of commodities in the Australian economy and about the structure of, and inter-relationships between, Australian industries. Detailed data on supply and use of commodities, inter-industry flows and a range of derived data, such as input-output multipliers, are provided for economic planning and analysis, and construction of models for forecasting purposes.” (ABS Introduction to Input-Output Multipliers, Cat. 5246.0)

The application of input-output analysis to estimate the economic impact of the proposed Energy from Waste Plant operations and construction on Victoria and the Latrobe Valley region involves four basic steps:

- Construction of appropriate national, state and regional input-output tables;
- Analysis of the value of expenditure by type (expenditure by visitors and by the facility) and origin (local, imported and total);
- Assessment of final demand impacts from these expenditure categories; and
- Using marginal coefficients to overcome the problem of over-estimation associated with linear coefficients.

The input-output table for this project was extracted from the Australian Bureau of Statistics (ABS) 2014-15 national input-output table using the Generation of Regional Input-Output Tables (GRIT) technique. The national table was adjusted to represent Victoria using detailed ABS data from the

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State Accounts (ABS cat no. 5220.0) and Labour Force, Australia, Detailed Quarterly (ABS cat. no. 6291.0.55.003) publications. Subsequently a regional table was built for the Latrobe Valley Region (aggregated SA3 areas of Baw Baw, Wellington and Latrobe Valley) using total employment data sourced from the 2011 ABS Census and the proportion FTE and growth rates calculated from the ABS Labour Force Catalogue, Employed Persons by Region, Gender & Industry, using the most appropriate Labour Force Region data (ABS Cat. No. 6291.0.55.003).

The GRIT technique derives regional input-output tables from the national input-output table using location quotients and superior data, such as primary survey data, at various stages in the construction of the tables. The GRIT procedure was developed by Associate Professor Guy West and Professor Rod Jensen of the University of Queensland and is the most widely used method of constructing regional input-output tables in Australia. The GRIT method is also widely used in America and Europe.

GRIT uses a series of non-survey steps to produce a prototype regional table from the national table, but provides the opportunity at various stages for the insertion of “superior data”, in this case data on proposed expenditure obtained from Australian Paper for the EfW Plant. The system is “variable interference” in that the analyst can determine the extent to which they interfere with the mechanical processes by introducing primary or other superior data.

The GRIT system is designed to produce regional tables that are:

- Consistent in accounting terms with each other and with the national table;
- Capable of calculations to a reasonable degree of holistic accuracy; and
- Capable of being updated with a minimum effort as new data becomes available.

The final input-output tables were balanced using the RAS technique. The RAS technique is a bi-proportional iterative adjustment method designed to modify a base input-output matrix to fit new row and column totals. The rows and columns are simply adjusted proportionally to the new row and column totals in turn, and the cycle repeated until the actual row and column totals converge to the specified values. After the tables are balanced they are checked to ensure that the final tables are consistent and to identify any large discrepancies.

Marginal Coefficients Model

One of the main limitations of input-output tables is the assumption of linear coefficients. To address this problem and the associated problem of overestimation, the input-output analysis undertaken for the proposed EfW Plant operations and construction incorporates the marginal coefficients model which attempts to overcome the limitations of traditional input-output analysis by removing the assumption of linear coefficients for the household sector. As is well documented in literature, the household sector is the dominant component of multiplier effects in an input-output

table so using marginal income coefficients for the household sector only provides a more accurate estimate of the multiplier effects and provides results closer to those of a computable general equilibrium (CGE) model. This provides more accurate estimates of the significance of impacts associated with the proposed EfW Plant operations and construction, than would be possible with traditional input-output analysis.

The impacts are measured in terms of industry value added, gross regional product, household income and full-time equivalent jobs. All impacts are measured in either dollar terms or full-time equivalent employment terms and as a percentage of the regional economy.

Final Demand

The impact of operational expenditure and one-off capital expenditure was estimated as a final demand impact. Specifically, their expenditure was allocated to the relevant sectors to give the estimated impacts of this expenditure including both initial and flow-on effects.

Location quotients

Since expenditure items may not be produced locally, a location quotients matrix was applied in the model. This process effectively removes a proportion of total expenditure that represents expenditure made on imports into the relevant region.

Note: In calculating the economic impact of the proposed EfW Plant operations and construction it should be noted that the Australian Bureau of Statistics applies a confidentiality technique to its Census data tables. The technique involves small random adjustments to the data which help prevent the disclosure of any identifiable data³.

³ For further information about the confidentiality technique adopted by the Australian Bureau of Statistics please refer to the following web address:
<http://www.abs.gov.au/websitedbs/censushome.nsf/home/factsheetsccd?opendocument&navpos=450>

WESTERN RESEARCH INSTITUTE

WRI is a regional development research organisation located in Bathurst, New South Wales. WRI holds a wealth of knowledge on employment, business development and investment issues affecting regional Australia. It has worked with Commonwealth, State and Local Governments and industry groups on numerous investment and development programs in regional areas. Our credentialed team of professionals has extensive experience using a range of key research tools including surveys, input-output industry analysis and economic modelling, community surveys and more; all aimed at providing independent, accurate, reliable information to help you make successful strategic business decisions.

Ms Wendy Mason – General Manager Bachelor of Education (B.Ed.), University of Sydney

Wendy joined the WRI team as General Manager from her former position as Head of the Commonwealth Bank Foundation. Wendy has extensive management and business development experience, excellent networks, and a substantial track record in stakeholder relations across the government, financial and not-for-profit sectors; and experience as a major end-user of research to support best practice outcomes.

Bringing with her formal qualifications in education and psychology from the University of Sydney, a Graduate Certificate in Human Resource Management and Graduate Certificate in Business (Marketing), Wendy also holds an Australian Institute of Company Director's Diploma of Business (Governance).

Mr Alistair MacLennan – Senior Research Consultant BA Political Economy, First Class Honours (UNE)

Having served in a variety of parliamentary, public service and private sector roles, Alistair brings a wealth of research experience to WRI. Alistair has well developed skills in data analysis, economics and business, and has a wide understanding of government. In addition, Alistair also has experience in policy development in the energy sector, where he engaged with industry, government agencies and NGOs to inform policy. Alistair's experience in engaging with clients, stakeholders and the public assists WRI to fully understand its client's needs and provide tailored research.

Ms Wai Matthews – Research Consultant BBus (Fin/Eco) CSU

With a background in Business Administration and Bookkeeping, Wai brings to WRI strong experience and knowledge in local business operations, management and finance. Wai has

great interest in economic issues affecting regional areas which led to her attaining an internship with the NSW Department of Industry as an Economic Analyst. As an intern, Wai has gained a wealth of knowledge and experience in data analytics and reporting as well as a good understanding of government. Wai will undertake Post Graduate study in Applied Statistics to further her skills.

Ms Dale Curran - Executive Officer BA (ANU)

Dale is responsible for all administrative processes at WRI including executive support, finance, management of the Board of Directors and maintenance of policies. Dale has worked in a variety of roles at WRI, including Fieldwork Supervisor and Research Assistant, and has worked on several community and business surveys. As a result, she brings a strong understanding of research processes to her administrative role. Dale brings a high level of organisational skill and efficiency to her role as Executive Officer.

Ms Kath Behrendt – Associate Research Consultant MEcSt, Grad Dip Ag.Econ, BFA (UNE)

Kath has a professional background in agricultural economics, resource economics and financial administration. She has worked in the private, public and not-for-profit sectors and has extensive experience in agribusiness planning and development, economic and financial modelling, business case development, econometric analysis and small business management. Kath's strengths lie in bioeconomic modelling, benefit cost analysis, financial time series modelling and efficiency and productivity analysis.

Kath is currently a Director and Treasurer on the Josephite Foundation Board and has extensive experience in not-for-profit governance, policy development and administration.



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