



# GENERAL OVERVIEW – G1

Eco-efficiency resources for the food processing industry

## *Eco-efficiency – doing more with less*

*Awareness and concern about environmental issues is increasing worldwide, with drought and climate change issues starting to influence public policy. Public concern and consumer expectations about environmental problems are impacting purchasing decisions and placing pressure on companies to demonstrate social and environmental responsibility.*

Food processing facilities are already subject to intense scrutiny over food safety and it is likely this level of scrutiny will also be applied to the management of environmental issues.

Environmental performance in food processing plants has significantly improved in response to the rising costs of water, energy and waste disposal, whilst local concern relating to drought and consequent water restrictions have necessitated further water reductions.

Eco-efficiency is a direct and immediate method of addressing these issues in a cost-effective manner. The benefits of undertaking eco-efficiency in a food processing factory can include:

- direct financial savings from reduced raw material, water, energy and other resource costs
- savings from reduced waste generation
- greater productivity through improved use of raw materials
- reduced operational and maintenance costs
- enhanced public image and consumer support for the company, leading to competitive advantage
- motivation for continuous improvement
- reduced exposure to risk and liability due to proactive management of environmental impacts
- capability to influence future decisions regarding generic levels of compliance for food processing facilities
- improved workplace health and safety.

This series of eco-efficiency fact sheets and self assessment guide provides assistance to companies who are on the journey of improved environmental and economic performance.





## WATER AND ENERGY BENEFITS INCLUDED IN CAPITAL PROJECTS

SnapFresh, a prepared meal processor, incorporates environmental benefits such as energy reduction and water savings in all project proposals.

*“It makes good business sense to investigate all environmental opportunities.”*

Mark Trundle, General Manager, SnapFresh

The *Eco-efficiency in the Queensland food processing industry* fact sheets outline opportunities to improve environmental performance at food processing facilities. Opportunities range from small changes like sweeping up waste rather than hosing into drains, to large changes requiring significant capital investment, such as installing a wastewater treatment plant for water recycling.

These fact sheets also highlight economic benefits relating to water, energy and resource savings, as well as waste reduction as a way to reduce costs and increase profit. Case studies outlining where Queensland companies have achieved environmental and economic benefits through eco-efficiency are also provided.

The fact sheets in this series are:

### General

- G1 – General overview
- G2 – Good housekeeping
- G3 – Odour control
- G4 – Current issues and future trends

### Utilities

- U1 – Utility efficiency overview
- U2 – Cooling tower efficiency
- U3 – Boiler efficiency
- U4 – Compressed air efficiency
- U5 – Refrigeration efficiency
- U6 – Motor, pump and fan efficiency
- U7 – Lighting efficiency

### Energy

- E1 – Energy efficiency overview
- E2 – Energy efficiency programs
- E3 – Greenhouse gas emissions
- E4 – Alternative energy sources
- E5 – Energy recovery

### Water

- W1 – Water efficiency overview
- W2 – Water efficient processing
- W3 – Alternative water sources
- W4 – Cleaning efficiency
- W5 – Clean-in-place systems
- W6 – Cleaning and sanitising options
- W7 – Wastewater efficiency
- W8 – Resource recovery from wastewater
- W9 – Other treatment options

### Waste

- R1 – Solid waste overview
- R2 – Reducing solid waste
- R3 – Reusing solid waste and product recovery
- R4 – Recycling solid waste
- R5 – Reducing packaging
- R6 – Reusing and recycling packaging



## Self-assessment guide

In addition to the fact sheets, a self-assessment guide has been developed, specific to the food processing industry. This guide is expected to assist processors to maximise the benefits of the eco-efficiency process. The guide consists of:

- Introduction – outlining how it fits with ecoBiz and how to undertake an eco-efficiency process
- Six step checklist – to track progress along the eco-efficiency path
- Worksheets – to assist in recording information and assessing opportunities
- Opportunities checklists – providing eco-efficiency ideas with links to further information in the fact sheets.

## Project website

The eco-efficiency website provides additional assistance to the food industry. It provides a forum for the food industry to discuss issues and develop solutions relating to eco-efficiency. Visit the website [www.ecoefficiency.com.au](http://www.ecoefficiency.com.au) to access the full suite of fact sheets and case studies and contribute to the discussion.

The eco-efficiency in the Queensland food processing industry project is an update of the earlier toolkit project for the industry. This toolkit is accessible on the website and provides national and international case studies.



## Prepared by:

The UNEP Working Group for Cleaner Production in Food  
Robert Pagan, Jane Gaffel, Nicole Price and Penny Prasad  
The University of Queensland  
UniQuest

## Project sponsors:

Queensland Department of Employment, Economic Development and Innovation  
PO Box 15168  
City East QLD 4002

Queensland Department of Environment and Resource Management  
Sustainable Industries Division  
PO Box 15155  
City East QLD 4002



## Acknowledgements

The Department of Employment, Economic Development and Innovation (DEEDI), the Department of Environment and Resource Management (DERM) and the UNEP Working Group for Cleaner Production are grateful to the following individuals for their participation in this project.

## Reference Group

Brett Kerrison, Food Spectrum  
Caroline Kingston, Goodman Fielder  
Glenn Fairley, OneHarvest  
Michael Campbell, Australian Country Choice  
Paul Prendergast, Golden Circle  
Rob Munton, OneHarvest  
Steve Christie, Wiley and Co Ltd  
Steve Thygesen, SnapFresh / Food Industry Association Queensland  
Cameron Jackson, Brisbane City Council  
Gary Dean, Moreton Bay Regional Council  
Mary Batty, Commerce Queensland  
Mick Catchpole, Logan City Council  
Sarah Eastwood, QMI Solutions  
Sue Mackenzie-Smith, DEEDI – Processed Food Sectoral Development  
Tyler Furse, DEEDI – Office of Advanced Manufacturing  
Steve Rowson, DEEDI – Office of Advanced Manufacturing  
Lisa Smith, Queensland DERM – Sustainable Industries Branch  
Andrew Chamberlin, Queensland DERM – Sustainable Industries Branch  
Krishna Kanduri, Queensland DERM – Sustainable Industries Branch  
Jane Gaffel, UNEP Working Group for Cleaner Production  
Bob Pagan, UNEP Working Group for Cleaner Production  
Nicole Price, UNEP Working Group for Cleaner Production  
Penny Prasad, UNEP Working Group for Cleaner Production

## Site visits and case study development

Australian Country Choice  
Australian Food Corporation  
Foster's Australia  
Golden Circle  
OneHarvest  
Prepared Foods  
Priestley's Gourmet Delights  
Sirromet  
SnapFresh

Special thanks to Golden Circle for hosting the project launch.





The following are three Government programs that provide eco-efficiency resources for the food industry.

**ecoBiz Queensland – [epa.qld.gov.au/ecobiz](http://epa.qld.gov.au/ecobiz)**

ecoBiz is DERM's signature partnership program with Queensland business and industry. ecoBiz can help businesses to achieve cost savings and take advantage of the profitability of improved eco-efficiency. By taking closer account of the energy, water and materials that are used to produce goods and services, ecoBiz participants are able to demonstrate that it is possible to do more with less. Ultimately the business outcomes are resource and cost savings, competitive advantage, a stronger market position and growth.

What sets the ecoBiz program apart from other eco-efficiency tools is that it provides the user with a simple methodology and toolkit for defining resource costs in terms of units of production. This assists a business to prioritise areas for improvement, and enables accurate calculations of payback periods. Other potential benefits of the program include becoming an ecoBiz partner, promotion of eco-efficiency initiatives and access to funding.

Partner status in the ecoBiz program is achieved through completing the six steps of the ecoBiz process. Partners are permitted to use the ecoBiz logo to demonstrate improved eco-efficiency within their operations. DERM is also able to promote outstanding achievements in eco-efficiency. Rebates are an additional feature of the program. The rebate scheme assists with the capital cost of projects that demonstrate either a high level of innovation (up to \$150,000) or best practice (up to \$10,000) in terms of increased recycling, and conservation of water and energy.

**Department of Employment, Economic Development and Innovation – [food.industry.qld.gov.au](http://food.industry.qld.gov.au)**

Queensland is an emerging hub for food processing and offers a diverse range of production capabilities, from fresh seafood, meat, fruit and vegetables to value-added products including dairy foods, desserts and confectionaries, ingredients and ready-to-eat meals.

The Queensland Government, through the Queensland Processed Food Industry Action Plan:

- promotes sustainable regional development
- builds strong industry partnerships and collaboration
- focuses on industry growth around key domestic and global trends
- advocates smart food processing, world-class value-adding and market expansion.

Areas where government intervention will help the Queensland food processing sector to reach full potential include:

- regional marketing and brand building linked to tourism and wine
- skills and training
- export capability
- emerging and advanced food processing technologies
- regulatory environment
- infrastructure
- investment attraction to populate the Queensland processed food hub with additional world-class food processing companies.

**QMI Solutions – [qmisolutions.com.au](http://qmisolutions.com.au)**

QMI Solutions is a not-for-profit organisation dedicated to helping industry on the journey to manufacturing excellence through research, education, and implementation of world-class practices and technologies. Recognised as Australia's premier 'technology diffusion agency', QMI Solutions has been improving the uptake of the latest practices and technologies by industry since 1993.

ISBN: 978-0-9775169-7-1

*The eco-efficiency for the Queensland food processing industry project is an initiative of the Department of Employment, Economic Development and Innovation and the Department of Environment and Resource Management with technical information provided by UniQuest through the UNEP Working Group for Cleaner Production.*

*This series of eco-efficiency fact sheets will demonstrate the importance of water in a modern food factory and suggest areas where savings can be made. The project website [www.eco-efficiency.com.au](http://www.eco-efficiency.com.au) has more ideas and case studies on water savings across the food industry.*