

## Industrial Biotechnology Brief

### ***What is Industrial Biotechnology?***

Industrial biotechnology, often referred to as “white biotechnology”, is a collection of scientific techniques and technologies used to improve both the efficiency and environmental foot print of modern industrial production, alternative energy (or "bioenergy"), and development of novel biomaterials. Industrial Biotechnology enables reductions of material and energy consumption, as well as pollution and waste generation, for the same level of industrial production<sup>i</sup>. Technologies include the use of plants and enzymes to generate industrial products. An example is the use of enzymes in laundry detergents, which help to break down stains<sup>ii</sup>.

### ***What are the Benefits of Industrial Biotechnology?***

There are numerous applications of industrial biotechnology in food processing and agriculture, environment, mining, and forestry. Industrial biotechnology has major applications in waste management by reducing waste volumes, creating value from waste, and converting waste streams into energy. One of the most exciting applications of this technology is in the application to bioenergy production from agricultural waste streams, adding value to farm production and income. Other applications include the development of novel algal based energy sources harnessing the sun's energy and converting salt affected agricultural land into energy producing zones<sup>iii</sup>. Industrial Biotechnology offers Australia opportunities to<sup>ii</sup>:

- develop new products;
- improve industrial processes;
- replace of petroleum-based feedstocks;
- improve product quality;
- provide energy and water savings; and
- waste reductions.

### ***How does Australia manage the risks of Industrial Biotechnology?***

The *Gene Technology Act 2000* (the Act)<sup>iv</sup> came into force on 21 June 2001 as the Commonwealth component of a national biosafety regulatory scheme. The object of the Gene Technology Act 2000 is to protect the health and safety of people, and to protect the environment, by identifying risks posed by or as a result of gene technology, and by managing those risks through regulating certain dealings with genetically modified organisms (GMOs). The OGTR assess, mitigates and manages risks through its comprehensive risk management strategy.

### ***Links***

Australia's Biotechnology Organization [www.AusBiotech.org](http://www.AusBiotech.org)

BioEnergy Australia [www.bioenergyaustralia.org](http://www.bioenergyaustralia.org)

Office of the Gene Technology Regulator [www.ogtr.gov.au](http://www.ogtr.gov.au)

Department of Industry Tourism and Resources [www.industry.gov.au](http://www.industry.gov.au)

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<sup>i</sup> OECD. 1998. Biotechnology for Clean Industrial Products and Processes. Organisation for Economic Co-operation and Development. Paris France.

<sup>ii</sup> Department of Industry Tourism and Resources

<sup>iii</sup> SARDI, South Australian Research and Development Institute.

<sup>iv</sup> Office of the Gene Technology Regulator.