

## Develop your bioenergy project in an ideal environment

As part of Tasmania's transition to a more sustainable and diversified forest industry, opportunities exist for project developers and investors within the biomass and bioenergy industries.

Tasmania's abundant biomass resources, comprising forest biomass, food processing and agricultural residues, make the state an ideal location to develop opportunities, including:

- » biomass to heat projects
- » pellet production projects
- » biochar production
- » liquid biofuels.

### Key reasons for investing in Tasmania's biomass and bioenergy future

There is an abundance of suitable resources for biomass projects in Tasmania. A study by Rothe et al (2015)<sup>1</sup> has suggested that up to 3.3 million tonnes of biomass could be sourced, with the bulk coming from private plantation estates. In addition to this, there are substantial amounts of agricultural, aquaculture and municipal waste products that can be utilised for biomass and energy production.

The Tasmanian forest sector operates under well-established environmental standards, with native forest resources only harvested outside of extensive reserves systems designed to maintain environmental values. The sector produces high quality hardwood products including specialty timbers held in high regard by architects, craftspeople and artists.



Tasmania has a long-established legacy in forestry, agriculture, and food processing. These industries form an ideal basis on which to build bioenergy capabilities.

There is a skilled workforce characterised by high quality and diverse capabilities, with an excellent industrial relations record. Tasmania has the second lowest total cost of employing labour in Australia and Tasmanian training providers work with local industry to ensure their training needs are met.

Tasmania has well developed road, rail, port, communications and energy infrastructure, which can be easily linked to any biomass or bioenergy development. There are frequent freight shipping services from Tasmania's major ports, and efficient services for bulk cargo. The Tasmanian Freight Equalisation Scheme provides financial assistance to shippers of eligible freight destined for Australian markets.

A well-established engineering sector is able to provide prospective biomass and bioenergy project developers with a range of services in the manufacture, installation, and maintenance of plant and equipment.

Tasmania is world recognised for its clean energy status, with the lowest per capita greenhouse gas emissions of any Australian state. Over 90 per cent of Tasmania's electricity is derived on-island from clean, renewable sources such as hydro and wind energy.

1. Rothe, A. Rothe, Moroni Neyland and Wilnhammer "Biomass and Bioenergy" September 2015





## Growing the forest industry

The Tasmanian Government is working to ensure that future possibilities and opportunities in the forestry sector remain available to Tasmania.

In consultation with stakeholders, a strategic forest industry growth plan will be developed to address issues relating to both wood supply and future demand for native forest products.

Tasmania's forests are appreciated for their environmental, social and economic values. In order to protect these values, a rigorous forest practices system regulates all operations in native forest, plantations, and threatened non-forest vegetation communities.

Tasmania's state forests are managed by Sustainable Timber Tasmania under a sustainable forest management system that meets the Australian Forestry Standard (AFS), which is recognised by the Program for Endorsement of Forest Certification Schemes (PEFC). Forestry Tasmania is also working towards Forest Stewardship Council (FSC) Certification.

The environmental standards applied to forest harvesting operation and processing in Tasmania are higher than those required by best management standards for bioenergy production in Europe, and fulfil the requirements of many European certification systems.

Currently, more than 50 per cent of Tasmania's forests are reserved and are unavailable for harvesting.

Nevertheless Tasmania's potential future harvest of biomass for value-adding opportunities is still very high on a worldwide scale (see Figure 1, right).

## Tasmania's forest biomass potential

Tasmania has a well-established commercial forest estate and a strong history in investing in value-adding opportunities. About 70 per cent of this resource comes from private owned forest estates and 30 per cent from state owned forests. The forest biomass from wood processing is currently 0.4 million tonnes (green) per annum and it has been estimated that as much as 3.3 million tonnes (green) of biomass could be available for bioenergy projects.

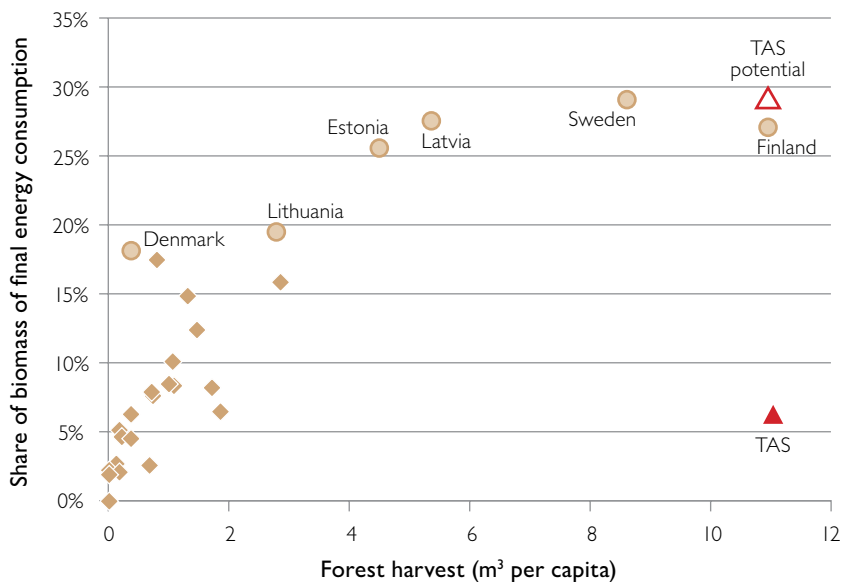
Table 1: Potential annual supply of forest biomass for energy in Tasmania.

	Pulp grade total	Pulp grade for energy*	Residues for energy	Total energy wood		Energy equivalent
	M t (green)	M t (green)	M t (green)	M t (green)	M t (bone dry)	PJ
Native forests	1.1	0.5	0.5	1.0	0.5	9
Plantation hardwood	3.1	1.5	0.4	1.9	1.0	18
Plantation softwood	0.7	0.0	0.1	0.1	0.1	1
Wood processing			0.4	0.4	0.2	4
<b>Total</b>	<b>4.8</b>	<b>2.0</b>	<b>1.3</b>	<b>3.3</b>	<b>1.8</b>	<b>33</b>

\* 50% of hardwood pulpgrade was assumed to be available for energy use, softwood pulpgrade was assumed to be used for procession only. 1 petajoule = 1 000 000 gigajoules.

Figure 1: Share of biomass energy of final energy consumption in the 27 countries of the European Union (EU27).

Red triangles show the current situation in Tasmania and the potential supply as estimated in this study. Data is sourced from the 2012 annual statistical report by the European Biomass Association.





## Biomass resource audit

Tasmania has a substantial volume of waste biomass that forms a suitable feedstock for bioenergy production, including animal, agriculture and horticulture biomass, food processing, sewerage treatment waste, green waste, and other organic wastes.

Potential feedstocks have been mapped by the Department of State Growth and Private Forests Tasmania to support developers explore bioenergy production opportunities in Tasmania. The map provides details on the volumes and locations of potential feedstocks and can be viewed using the Australian Renewable Energy Infrastructure database <https://nationalmap.gov.au/renewables/>. The map was part funded with a grant from the Australian Renewable Energy Agency via the Australian Biomass to Bioenergy Assessment Program.

## The current biomass sector in Tasmania

At present there are no operating biomass plants in Tasmania for the production of electricity using forest biomass. Tasmania currently has three wood pellet manufacturing facilities. Although these wood pellets are primarily used for domestic heating at a small scale, studies are underway to significantly expand production, with commercial users of heat energy being targeted.

Overseas' markets are also emerging where large volumes of wood pellets are being used for power generation. At a local scale, sawmill residues have traditionally been used to provide steam and heat for kiln drying sawn lumber.

Additionally, Tasmania has a number of bioenergy projects which are under evaluation and bioenergy hubs are being developed. These hubs involve a cluster of businesses that generate biomass waste streams to be used as bioenergy feedstocks by adjacent industries.

## Research capabilities

Tasmania has access to a range of national and global research and development organisations, through the presence of international corporations with operations in the state and links to national research facilities.

The ARC funded Centre for Forest Value, through the University of Tasmania and a number of forest industry corporates is conducting research, development, innovation, extension and training for future forest products and industries. Its research activities range from plantation management systems and productivity through to sustainable forestry, cleaner technology and new forest economies including carbon and environmental services.





## Investing in Tasmania

Office of the Coordinator-General is the Tasmanian Government's investment promotion and facilitation arm, which provides free confidential services and professional advice to investors, including:

- » dedicated project teams and case management
- » planning pre-audits to support approval processes
- » connections with local industry and government departments
- » information on business opportunities, investment regulations and government assistance
- » insights on business costs, skills availability, taxation and research opportunities
- » expert advice in Tasmania's industry capabilities and strengths
- » site visits to identify suitable locations for your business
- » links with potential partners
- » connections with infrastructure and service providers
- » information on industry strategies.

## An ideal investment environment

Tasmania's size, natural resources and environment deliver a business opportunity and lifestyle that other locations aspire to. Tasmania's industries are supported with well-developed transport systems, secure and reliable energy options, modern telecommunications and industrial land developments.

Tasmania has:

- » five major deep water ports
- » a railway network connecting all major ports, cities and some major resource areas
- » four major regional airports
- » renewable energy and natural gas networks
- » new industrial land developments
- » large-scale water projects.

## Useful contacts

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