Submission by the Forest Industries Association of Tasmania

to

The House of Representatives Standing Committee on Agriculture, Resources, Fisheries and Forestry

on the

Inquiry into the Australian Forest Industry

Forest Industries Association of Tasmania

Executive Summary

The Forest Industries Association of Tasmania (FIAT) welcomes the opportunity to provide comment on the Inquiry into the Australian Forest Industry (the inquiry).

FIAT asks that the Committee holds a hearing in Tasmania and receives representations from FIAT and its members to ensure the best consultative process has been followed and the most complete information provided to the Committee.

The Tasmanian Forest Industry has faced and continues to face a prolonged period of political and social tension which has led to great uncertainty in both the potential amount and type of timber resource that will be available and how this will change in both the short and the long term. This uncertainty is by far the greatest constraint upon innovation and production as it affords businesses no ability to invest or grow.

Regardless of any other regulatory changes or support provided to industry, opportunities for product development and manufacture will only be realised when resource security is a reality and not a hollow promise.

The Government could help create a better business environment for all forest businesses by:

- Guaranteeing ongoing access to the current or an expanded native forest estate.
- Supporting the development of downstream processing facilities for fibre logs.
- Reducing the cost of compliance through the adoption of nationally consistent and equitable legislation relevant to timber use, and forest and plantation management.
- Providing compensation or incentives to companies for regulatory activities undertaken for the public good.
- Reducing social conflict.
- Recognising all the ways forestry can help Australia transition to a low carbon economy.

Tasmania has a successful high quality appearance grade timber industry which supplies downstream processing businesses such as furniture, veneer and window makers. The development of these businesses is currently being hampered by resource security. The best way the Government could support these businesses to innovate and grow would be through providing secure

resource availability. Existing legislative tools capable of delivering this security are Regional Forest Agreements (RFAs). RFAs should be renewed and improved to include a twenty year evergreen resource security process backed by both State and Commonwealth legislation.

In the past it was believed plantations could supply this resource, and Government policy drove a process of expanded reserves of native forest and expanded areas of plantation with resulting corresponding changes in log supply. It is now known that Tasmanian plantation logs are not suitable for appearance grade products or products which need high specific density. Access to Tasmanian native forest logs from the existing native forest estate in its entirety is essential to support existing Tasmanian businesses, and this needs to be recognised in Government Policy.

There are many reasons other than timber characteristics why a timber industry based on 100% plantation timber is not a viable option for Tasmania:

- Tasmanian plantation logs must compete in difficult world timber markets against countries which have; lower costs of production, lower costs of compliance, are closer to markets and have better environmental conditions for growing trees;
- Tasmania has the highest costs of production of any Australian State;
- policy interactions in Tasmania mean it would be difficult to find the land to establish the required plantation estate; and
- Currently there is no known plantation species capable of being economically grown and processed for high quality timber, the shortest time estimates for the identification and establishment of such a plantation estate is forty years.

The most effective method of achieving growth in the high quality hardwood industry would be to provide guaranteed ongoing secure access to the existing or an expanded State native forest estate.

Tasmania currently has an expansive estate of plantation eucalypt logs suitable for fibre production. To realise the maximum value for these fibre logs Tasmania needs to develop further down stream processing facilities such as pulping, papermaking and reconstituted timber products.

Plantations are a form of agriculture and should be recognised as such by the Federal Government, as such there is no need for legislation aimed at “harmonising” plantation agriculture and other agricultural land uses. In Tasmania plantations do not compete significantly for water or land with other agricultural users and existing legislation of this type has not resulted in

changed patterns of plantation development but, has increased the cost of compliance for businesses and created extra work for local councils.

One area where plantation establishment should be expanded is on farms. Planting trees on farms and in particular along waterways has the potential to; achieve an environment that is healthier, better protected, well managed, resilient, and provides essential ecosystem services in a changing climate; while also providing a source of privately grown high quality logs for industry. Caring for our Country could be used as a tool to develop stream side plantations for saw log production through public private partnerships.

The role timber and forests have to play in reducing carbon emissions is significant. Managed or production forests sequester more carbon over time than unmanaged forests, timber products store carbon – often for centuries, and timber has much lower embodied energy than other popular building products such as concrete and steel. Reserving larger areas of native forest would not be an effective technique in reducing Australia's carbon emissions, reforestation with commercial forests for timber production would.

The Government could encourage the growth of the renewable energy sector by recognising;

- renewable ***electricity*** targets would be more appropriately labelled as renewable ***energy*** targets;
- native forest biomass is a renewable resource which should legitimately receive renewable energy credits.

The native forest industry is an essential part of the economic and social fabric of Tasmania. With no access to our native forest we would lose our icon timbers an essential resource for our crafts peoples, we would lose our high quality eucalypt logs an essential resource for our successful family owned mills, we would lose jobs, we would lose expertise, we would lose; access for fire fighting, money for management, access for beekeepers. With no native forest access Australia would become dependant on imported timbers. Clearly it is essential to ensure there is ongoing access to our existing if not an expanded native forest estate for timber production.

Preamble

The Forest Industries Association of Tasmania (FIAT) would like to thank the House of Representatives Standing Committee on Agriculture, Resources, Fisheries and Forestry (the committee) for the opportunity to comment on the *Inquiry into the Australian Forest Industry (the inquiry).*

FIAT is an industry association formed in 1983 to represent the interests of processors of Tasmanian forest products. FIAT was formed out of a predecessor Association, the Tasmanian Timber Association (TTA). FIAT and TTA collectively have provided representational services to the Tasmanian timber industry for in excess of 65 years. Our members' activities are diverse and include:

- the production of veneer and hardwood sawn timber, pulp and paper
- woodchip production and export
- plantation and native forest management.

FIAT's member businesses include many of the State's larger processors of forest products. FIAT and its members support and apply sustainable forest management.

Introduction

FIAT makes this submission in good faith providing specific feedback on the inquiry terms of reference (TOR) to help shape national forest policy. In making comment FIAT is aware of the need for policy development which ultimately does not unnecessarily add to the burden of regulation without providing demonstrable benefit to society, the environment or the economy.

From a Tasmanian perspective the TOR is broad and the time period available to make comment is reasonably brief, this has impacted on this submission in many ways:

- FIAT has been unable to provide useful information it may otherwise have been able to.
- For some TOR items instead of developing full arguments references are provided to existing literature referred to by FIAT.
- While we have tried to be precise in making comment some points discussed are relevant to multiple terms of reference.

The FIAT membership is well equipped to make verbal comment on the opportunities for and constraints upon the Tasmanian forest industry. Unfortunately due to time considerations this information is not all available in this submission. FIAT asks that the Committee holds a hearing in Tasmania and receives representations from FIAT and its members to ensure the best consultative process has been followed and the most complete information provided to the Committee.

Opportunities for and constraints upon production and Opportunities for diversification, value adding and product innovation

Two key issues that impact on the Tasmanian timber industry are resource security, and cost competitiveness. A key driver impacting upon these constraints is social conflict that inhibits investment in Tasmania, damages overseas markets, creates resource constraints and, locally drives up the cost of compliance.

Product diversification within the Tasmanian industry is somewhat limited by current log supply which has been shaped by past Government Policy as is described below, combined with the size of existing businesses and the economics of different product types.

Log supply in Tasmania is currently composed of; special species logs sourced from native forest, high quality native forest eucalypt logs suitable for appearance grade products, native forest logs suitable for structural grade products, native forest logs suitable for use as fibre, plantation eucalypt logs suitable for fibre, a small amount of plantation log suitable for structural grade timber and an insignificant volume of plantation timber suitable for appearance grade products.

The availability of the different resource types has been determined by forest management activities driven by Government Policy. The impact on wood supply from an increasingly large reserve system was to be balanced by logs grown in intensively managed hardwood plantations.

This strategy commenced with the Helsham enquiry outcome which placed some 275,000 hectares of land into a reserve and resulted in Forestry Tasmania (FT) receiving funding under the Forest and Forest Industries

Council initiated Intensive Forest Management Programme to establish some 8,000 hectares of plantation grown sawlog. The net result was the establishment by FT of 7142 ha of eucalypt, 248 radiata pine and 793 ha of blackwood plantations to be intensively managed for sawlog production (Farmer B and Smith P Tasforests Vol. 9 Plantation establishment under the Intensive Forest Management Program 1991-96)

The Tasmanian Regional Forest Agreement (RFA) which was negotiated in furtherance of the National Forest Policy Statement placed an additional 293,300 ha of forested land into reserves. This Bi-lateral agreement between the Commonwealth and State Governments was signed on the 8th of November 1997 and permitted the establishment of plantations in compensation for the creation of the CAR reserves in accordance with Clause 74 of the RFA. FT established approximately 30,000 hectares of hardwood plantations since 1999 up to the signing of the TCFA in 2005. It is not known what proportion of this establishment has been intensively managed for the production of sawlog.

The Tasmanian Community Forest Agreement (TCFA) signed in May 2005 continued this trend by reserving some 148,400 hectares of public land with an announced intention of creating 16,000 hectares of plantation to balance that loss of resource. A FT report suggests that strategies are being progressed to complete the establishment of the 16,000 hectares.

The impact of the on-going transfer of high quality native forests into reserves has been that a significant proportion of the highest quality native forest saw and veneer logs have been made inaccessible to the forest processing sector leading to a continual diminution of the quality of product supplied to the processing sector.

The result of the 3 enactments, coupled with the ever increasing impacts of Forest Practices Code (FPC) restrictions and voluntary restrictions introduced by FT (e.g. big tree reserves), has been that the high quality saw log supply "guaranteed" through the Forests and Forest Industry Strategy, the Forestry Act 1920, the RFA and the TCFA has markedly changed to the point that the FT Third High Quality Sawlog Review (2007) demonstrates that over 50% of the high quality sawlog resource from 2020 will be sourced from plantations. It may reasonably be expected that further FPC limitations and the move to variable retention silviculture in old growth forests will further exacerbate this situation.

The strategy of seeking to supplement the remaining native forest estate with fast grown eucalypt plantations may have seemed appropriate at the time that the various incursions were taking place but in light of current difficulties in processing particularly *E nitens* but also *E globulus* for appearance grade product it may be a strategy that has not paid dividends.

The processing sector in Tasmania faces the prospect of moving rapidly towards a resource that, on the best and most recent available science is not suited to processing to appearance grade products due to significant issues associated with collapse and checking yet this material is being classified as "High Quality Saw and Veneer Log" in the FT Sustainable High Quality Eucalypt Sawlog Supply Review No 3 – 2007. This categorisation relies on grading standards that were developed to grade logs with consistent qualities and with known processing characteristics by reference predominantly to diameter and length. These grading standards cannot realistically be extended to embrace an entirely different type of log that does not possess the same qualities or characteristics.

In looking to the future and especially to the consideration of investment strategies designed to secure the long term future of processing businesses within the State processors are concerned that the "sawlog" supply may not, in large measure, be suited to sawing at all and that the promise of 300,000 m^3 of high quality saw and veneer log may, in fact not be realizable. It appears certain that the proposed feed stock based on a significant proportion of plantation grown logs will lead to lower recovery of products by volume, by appearance grade, by structural grade, by board width and by thickness which seriously calls into the question the viability of the sawmilling industry into the future.

It appears on current knowledge and existing technology that the E nitens plantation stock will be incapable of producing any or sufficient appearance grade sawn product to be economically viable for any saw mill due to the considerable degrade in the seasoning process.(See for example Washusen et al CRC for Forestry Technical Report 168 Goulds Country E nitens thinning trial May 2007 and Blakemore P and Northway R – Preliminary Report: Review of and recommendations for, internal and surface check research – FWPA Report CMSE©-20090203 - June 2009). Annex one "Plantation-grown eucalypt sawlogs" is a summary document describing the difference in characteristics between plantation and native forest timbers.

There is currently no way of producing special species timbers or economically viable volumes of appearance grade logs from plantations in Tasmania. The shortest estimated period of time for plantations to be able to provide high quality saw logs is forty years for eucalypt species, and Tasmania's special species such as Huon Pine, Myrtle, Sassafras, Celery Top Pine and King Billy Pine can not be grown in plantations at all.

Looking forward there is still potential for the Tasmanian industry to use the currently available or potentially expanded resource to increase value and product manufacturing and create wealth for Australia.

Potential product diversification and constraints upon production are discussed under the sub-headings: Resource Security- Sawlog, Resource Security- Fibrelog, and Cost Competitiveness.

Resource Security

Sawlog

The Tasmanian forest industry has faced and continues to face a prolonged period of political and social tension, this has led to great uncertainty regarding both the potential amount and type of timber and land resource that will be available, and how this will change in both the short and the long term. This uncertainty is by far the greatest constraint upon innovation and production as it affords businesses no ability to invest or grow.

Many hardwood timber businesses in Tasmania are small to medium sized mills that are dependant on high quality appearance grade timber products to ensure survival. These businesses do not have access to the appropriate quantity or quality of log resources nor do they have the financial capability to change to a radically different product types such as reconstituted wood products. However, there are many examples of innovation and diversification by these businesses for example: the establishment of laminating and finger jointing operations maximising timber recovery by Kellys Timber mill; Mc Kays Timber roof truss manufacturing plant designed to maximise value through further downstream processing and; Brittons special species appearance grade veneers plant. The growth of the high quality appearance grade sector is significantly limited by the lack of a high quality logs.

The Federal Government previously provided funding to some of these family businesses to upgrade their high quality native *Eucalypt* sawlog milling facilities, as a response to increased forest reservation, by the Tasmanian Community Forest Agreement during the Howard Government. These mills are set up to saw high quality *Eucalypt* sawlogs of a minimum small end diameter and, are unable to process lower grade or smaller diameter logs

such as those sourced from the existing plantation estate. If the Tasmanian sawmilling industry is not able to access a sufficient volume of high quality native forest saw log the previous Federal Government investment will count for nothing, the mills will have to scale down or close and, many workers will lose their jobs with little prospect of reemployment in Tasmania.

Anecdotally the uncertainty regarding future supplies of Tasmanian special species and high quality native forest *Eucalypt; timbers which can only be sourced from native forest and are unable to be grown in plantations;* has been restricting investment in down stream processing businesses such as fine furniture makers, veneer customers, crafts people, joiners and window makers. Tasmania has strong existing niche markets for its special species and high quality eucalypt products. Investment in maintaining, growing and diversifying these markets would be secure and well spent.

Relatively recent and innovative additions to the Tasmanian industry are the Ta Ann rotary veneer mills. These production facilities have enabled a low grade of native forest regrowth log to be turned into a high value eucalypt product for export to Asia; fittingly Ta Ann won the 2008 AusIndustry emerging exporter award. Resource supply and certainty is currently one of the major limiting factors to production at these mills. Future growth and indeed maintenance of the rotary peeling industry and related product diversification in Tasmania is dependant on Tasmania's ability to supply the appropriate volume and combination of low and high grade logs to these existing mills.

Linked to the supply of high quality logs to mills which produce high quality products in high demand is the production of low quality fibre or pulp logs from the forest harvest. Traditionally these low quality native forest logs have

been sold as woodchips or pulp logs, recently this market has softened. Now there is the opportunity in Tasmania to use these logs to develop industries in biomass, reconstituted wood products and or pulp and papermaking.

Government funded education and research programs through support for organisations such as the Cooperative Research Centre for Forestry, the Centre for Sustainable Architecture with Wood or the Forest Education Foundation could help alleviate some resource supply issues by:

- Decreasing the rate of lyctus attack of sapwood in hardwood logs.
- Drying plantation grown *E. nitens* to minimise internal checking to economically acceptable levels.
- Developing new plantation species and silvicultural regimes which yield high rates of high quality saw logs.
- Investigating high pruning of plantations to ensure sufficient clear wood.
- Investigating the use of genetics to improve plantation species.
- Increasing the social acceptability of native forestry.
- Developing intensive forest management silviculture such as thinning in native forests.
- Developing innovative timber products.

To encourage investment, innovation and productivity in the saw log processing sector there must be secure access to a high quality resource. Existing legislative tools capable of delivering this security are Regional Forest Agreements (RFAs). RFAs should be renewed and improved to include a twenty year evergreen resource security process backed by both State and Commonwealth legislation.

To change to a plantation based high quality sawlog industry is currently not a viable option in Tasmania for a variety of reasons. Tasmania is a very high cost of production state which subsequently produces expensive plantation logs; a plantation species capable of growing across all Tasmanian conditions and producing sawlog economically has not yet been and may never be identified; if a species is identified, it will be at least forty years before the saw logs are available to mills, and; any increase in the area of plantation used for growing long rotation sawlogs will result in a decreased amount of plantation fibre logs. Even though plantations theoretically have the advantage of being more accessible and being able to produce more of the target product per cubic metre, in the Tasmanian context, the disadvantages outweigh any advantage.

The most effective method of achieving security for the high quality hardwood industry would be guaranteed ongoing access to the existing or an expanded State native forest estate. It is worth pondering the idea that through natural selection in native forests the species on a site are the best suited species to that site.

Fibre logs

In contrast to the lack of supply of high grade logs Tasmania currently has an expansive estate of plantation eucalypt logs suitable for fibre production. There are currently successful fibre exporting companies in Tasmania, however Australia and Tasmania in particular are high cost of production regions, this makes it difficult for our low grade fibre products to compete on global markets. To realise the maximum value for these fibre logs Tasmania needs to develop further down stream processing facilities such as pulping, papermaking and reconstituted timber products. A strong market for fibre

logs will encourage investment to re-establish the existing plantation estate once the current growing cycle has ended.

Tasmania has a history of paper production and currently produces paper from softwood used in a variety of applications. The potential to further develop this product is significant.

Cost Competitiveness

A key limiting factor to all business growth is the price sensitive nature of the Australian timber market and the high cost of production in Australia. Australia is the only country in the world with sustainably managed natural eucalypt forests, this is our one competitive advantage in world markets, in comparison our plantation industry must compete with large eucalypt plantation businesses in low cost of production countries, that are closer to market, with better growing conditions, such as Vietnam, Brazil, Chile, China, South Africa and India. These factors have worked together to create difficult market conditions for Tasmanian plantation timbers.

Tasmania is the State with the highest costs for plantation production in what is a high cost of production country. For companies specialising in downstream processing it is often more economically viable to buy plantation hardwood from overseas than it is to buy Australian product for this reason, softwood logs are equally impacted. Government must radically reduce the cost of compliance or Australian and in particular Tasmanian plantation logs will continue to be uncompetitive compared with overseas material.

In addressing the high cost of compliance the Government should consider the adoption of, nationally consistent, stable and equitable legislation in areas such as; timber procurement, energy efficient building requirements,

chemical use, regional forestry agreements, agricultural land management, local government planning schemes and bio-energy. FIAT notes that the intent of the National Forest Policy Statement 1992 was supportive of many of these goals but unfortunately the spirit of the Statement has not been embraced by State or Local Governments when creating legislation nor by Government departments in the development of corresponding regulations. Specific Tasmanian examples include the inclusion of forest practices in local government planning schemes and the revised State Government Policy on the Protection of Agricultural Land Policy which was implemented in 2009. The PAL policy applies additional restrictions to the establishment of plantations on previously cleared agricultural land and especially to prevent such establishment on classes 1-3 “prime agricultural land”.

These additional restrictions do not provide the confidence necessary for the growth in plantation estates as embodied in the RFA. We further note that these restrictions constitute a direct repudiation of three separate intergovernmental agreements ie:-

- The Regional Forest Agreement
- The National Forest Policy Statement
- The Plantations 2020 Strategy

Many hours of work are being expended unnecessarily in seeking amendment to draft planning schemes and appearances before the RPDC simply to ensure the State wide consistent application of the PAL Policy and the Forest Practices Code. This goes directly to the confidence of industry to invest without unnecessary impediments through the various tiers of Government.

Another option available in managing the high cost of compliance would be the provision of incentives to businesses who undertake compliance activities

for the public good. Currently forest industry businesses absorb the ever increasing costs of legislated activities undertaken for the public good such as forest reservation for threatened species, and areas excluded from plantation establishment for aesthetic and other values. It could be argued for both hardwood and softwood plantations and native forests that landowners should be compensated by the public purse for their private loss in complying with such regulations for the public good.

Environmental impacts of Plantations – Land availability for agriculture

The National Forest Policy and the State Policy for the Protection of Agricultural Land both recognise plantations as a form of agriculture, not a land use separate from and potentially in conflict with agriculture. For ease of reading FIAT has used the terms plantation to describe plantation agriculture and agriculture to describe other agricultural land uses. However FIAT is mindful of the fact that plantations are a form of agriculture and should be viewed as such in policy development and not subject to rules not applied to other agricultural pursuits.

Plantations do not compete significantly for prime agricultural land with other agricultural users in Tasmania. The free market effectively determines the allocation of land between agriculture and plantations. In Tasmania in 2008 when there was active plantation establishment occurring prime agricultural land was selling for between $20,000 to $30,000 per hectare.The most a plantation investment company could realistically pay for a hectare of land was between $6,500 and $9,000. The market was already acting to ensure that plantations were not established on prime agricultural land which given extant commodity prices is more valuable for food production. This is supported by the fact that only 4.9% of prime agricultural land had

plantations (NB this definition includes woodlots, shelterbelts etc) as at the 31st of December 2006 (PFT 2007). An example of market forces in action can be found in New Zealand where rising food prices have resulted in a boom in the dairy industry resulting in the conversion of plantation areas into dairying properties (Smith 2008). The same trends of slowing plantation establishment can also be seen in Australia due to lack of suitable land available, financial constraints and rising world food prices (Smith 2008).

Plantation establishment is not a threat to food production on prime agricultural land, but, land is a limited resource. It would not be possible to have a 100% plantation based industry simply for the fact that there is not enough room to grow all the trees. Tasmania's State forest estate is roughly 1.5million hectares, 48% of this is suitable for wood production. The area of native forest actually available for harvest ends up at around 720,000 hectares. Roughly 30% of this area will end up in informal reserves, however that figure applies equally to any area on which forestry operations are planned. Assuming plantations have an efficiency gain of 400% over native forest for sawlog per unit area you would still need to find some 180,000 hectares of land to establish plantation on in order to supply a similar volume of sawlog to that currently being produced. This would mean more than doubling our existing private plantation estate or converting 5% of the currently non-forest area to plantations. Given the current political environment with thresholds for the permanent native forest estate policy almost reached, the Protection of Agricultural Land policy restricting plantation development and many negative social attitudes to plantation development the likelihood of such an expansion of plantation occurring is nil. It is not possible to source high quality sawlogs from plantation alone, industry needs access to the current or expanded area of native forest to remain viable.

One area where plantation establishment should be expanded is on farms. Integration of plantations as part of a farms product mix can achieve improved environmental outcomes and productivity gains. Agroforestry is discussed further in the section “opportunities for farm forestry”.

Environmental impacts of Plantations – Water availability for agriculture

There has been extensive research by the State and Federal Governments into the impacts of plantations on water availability in Tasmania. This research successfully dispels the myth that the current or realistically sized plantation estate has or would have a significant impact on water availability in Tasmania for agriculture.

The Water Availability and Forest Land use Planning Tool (DPIW 2008) found:

- The application of the Water Availability and Forest Landuse Tool in the Ringarooma catchment showed that, where changes in yield occur, the upper catchment is generally more impacted because forestry activities occur predominantly in this part of the catchment in areas of higher rainfall. The impact on yield is reduced as the level of forestry activity reduces moving down the catchment.

- The model results showed that if the current area of plantation coverage is increased by 25% (from the present 10%) there is a slight decrease in yields when compared to the reference condition. More significant differences in yield compared with reference conditions were only observed when the current area of plantations is increased by 50%.

The CSIRO Tasmanian Sustainable (water) yields project (2009) found:

- An expected increase in commercial forest area of 5 percent leads to a decrease in runoff of 0.3 percent and consequently a reduction of 16 GL/year (3 percent) in currently licensed surface water extractions.

- Demand for water can be met in full in all years for 10 of 24 proposed irrigation schemes examined by this project. Another five schemes can be supplied with their full demand for water in more than 80 percent of years, four in 50 to 80 percent of years and the other five in less than 50 percent of years.

- The combined impact of increased commercial forest area and additional irrigation extractions decreases non-extracted water by between 230 and 355 GL/year (median reduction of 283 GL/year). This equates to a reduction of 1 percent

Plantations in Tasmania do not need legislation regarding water use.

Environmental impacts of Forestry – the development of win-win outcomes in balancing environmental costs with economic opportunities

This TOR statement is exceptionally broad and it is not possible to comprehensively address it in this submission. Instead a broad summary of relevant concepts has been provided and FIAT requests that time be made for a hearing with our membership on the topic. Broadly speaking:

- The weight of scientific research recognises that native forestry is environmentally benign, can improve biodiversity and create economic opportunities;

- plantations are a less intensive and therefore more environmentally sound land use than other forms of agriculture;

- environmental gains can be achieved through the establishment of trees on farms; and,

- timber is a more environmentally friendly choice than alternate building materials (VAFI 2006, TTPB 2010 – attached as annex two)

Creating a better business environment for forest industries

As previously discussed a better business environment for forest industries could be achieved by:

- Guaranteeing ongoing access to the current or an expanded native forest estate, .
- Supporting the development of downstream processing facilities for fibre logs.
- Reducing the cost of compliance through the adoption of nationally consistent and equitable legislation relevant to timber use, and forest and plantation management.
- Providing compensation or incentives to companies for regulatory activities undertaken for the public good.
- Reducing social conflict.

Creating a better business environment for forest industries, including: Investment models for saw log production; New business and investment models for plantation production and Superannuation investment in plantations

The most economically and environmentally sound manner of producing sawlogs is growing them as native trees in native forests. This process could be accelerated through the implementation of intensive forest management including native forest thinning. These silvicultural regimes would need to be supported through the state forest practices systems and funded accordingly.

It is not in Tasmania's interest to invest in expanded plantation development. The current industry in Tasmania is made up of a suite of family businesses producing high value appearance grade products from a high quality native forest resource. These businesses are mainly supported by local and national sales and are not dependant on international markets. Further

developing plantations will not help these businesses in the short term, the continuing support of a native forest industry will.

It may become attractive to Tasmania to invest in plantation establishment further when there is more local processing capacity for the type of logs plantations can produce. The Government could facilitate this development through the removal of legislation which discriminates against plantation agriculture.

Plantations will never entirely be able to replace the wood resource that is currently sourced from native forest, the species mix and resulting wood characteristics would differ as would the size and shape of the logs, the land area available for plantation development is also limited.

Environmental conditions in Tasmania limit the potential for competitive plantation development. Tasmania has a short growing season, much of the forest growing area is subject to frosts and we have old relatively infertile soils. Compared to the rest of Australia Tasmania has the advantage of reasonably regular adequate rainfall. However, our competitors in the tropics have more rainfall, younger more fertile soils, a longer growing season and fewer browsing mammals that like to eat *Eucalyptus sp*. Plantation agriculture can not viably replace native forestry in Tasmania.

Forest and Wood Products Australia have recently published a well timed research report, *Review of Policies and Investment Models to support continued Plantation Investment in Australia* (2011 Fegely, Stephens and Hansard). FIAT commends this publication to the committee for information relevant to these TOR items.

Social and economic benefits of forestry production

Dr Jacki Schirmer's 2008 study "Forestry, jobs and spending: forest industry employment and expenditure in Tasmania, 2005-2006" clearly shows the social and economic benefits that forestry brings to Tasmania. One significant finding to come from the report is the amount of expenditure by the industry that stays within the State. This industry generates between $1.4 and $1.6 billion dollars annually of which $1.1 to $1.3 billion is expended within Tasmania. In a State where over 34% of households receive greater than 50% of their household income from government subsidies (Tasmanian Together benchmark 1.1.2) and 60% of the State budget relies on federal funding this income and expenditure is exceptionally important and would have a multiplier effect in the greater community, meaning it is worth even more to the Tasmanian economy.

The report also shows that of the 6300 people directly employed, the forest industry provides a high percentage of full time employment compared to the rest of the Tasmanian workforce, demonstrating the industries commitment to secure and stable employment. It should be noted that this report is conservative in its assessment of the total number of employees in the industry as it has excluded some important industry sectors due to difficulty in obtaining data. The actual employment data and financial contribution of the industry would be significantly higher if this data could be included.

It is relevant to note the vast majority, 68.3 per cent, of employment in the industry is in the native forest sector which demonstrates the importance of ongoing access to our native forests for employment and economic security.

In 2010 Jackie updated the 2008 benchmark study titled "Tasmania's forest industry – Trends in forest industry employment and turnover 2006 to 2010. This report found that between 2006-2008 there was growth in the industry

driven by investment in timber processing and an expansion of the plantation estate, but from 2008-2010 there was a downturn resulting in a 33.3% decrease in the workforce and approximately 100 businesses ceasing to exist. Despite the large decrease in business numbers most of the job losses were attributable to just four sites Gunns softwood mills in Tonganah and Scottsdale, and Tasmanian Paper Burnie and Wesley Vale.

Importantly Jackie identifies the drivers for this downturn as;

- reduced demand for wood and paper products as a result of the global financial crisis
- a strong Australian dollar reducing competitiveness of exported wood and paper products
- successful campaigns by environmental non-government organisations to reduce demand for native forest woodchips
- reduced investment in plantations
- closure of older processing facilities that had become uncompetitive.

The Government has the ability to manage some of these factors for example by; reducing the cost of compliance to ensure Australian timber products are more competitive; supporting “trees on farms” programs; and, revoking the not for profit status of organisations who participate in illegal activities and cause emotional and financial harm to other bodies.

Jackie Schirmers figures reflect the main stream forest industry, the figures are equally supportive for the important social and economic role played by the native forest special species timber industry. Farley *et al*. (2009) found that over 2,000 people are employed in Tasmania’s Special Species Timber and woodcraft sector while a further 8,500 participate in woodcraft activity as a hobby or on a limited commercial level. The cultural

significance of woodcraft to Tasmania is reflected in the participation rate, which at 26 per thousand people is higher than the national average of 19 per thousand people. Additionally any Tasmanian would be aware that our icon special timbers form the basis of many a popular tourist souvenir. This industry will not exist without continuing secure access to the current native forest estate.

The private forest industry also contributes significantly to the Tasmanian economy, a 2008 report by Dr Bruce Felmingham and Mr Alexis Wadsley found that;

- The private forestry sector contributes $450 to $650 million to Tasmanian Gross State Product (GSP).
- The private forestry sector contributes $225 to $290 million annually to wages income.
- The private forestry sector is responsible for the creation of 5,171 to 5,400 full time equivalent jobs directly and indirectly to all Tasmanian industries.

Other benefits of a commercial forest industry to the community include increased access to forest areas, the maintenance of people trained in fire fighting, and the supply of beautiful locally produced timber products.

The private, public, native forest and plantation agriculture industries are clearly very important to both the economic and social fabric of Tasmania.

Potential energy production from the forestry sector, including Biofuels, Biomass, Biochar, Cogeneration and Carbon sequestration

The role timber and forests have to play in reducing carbon emissions is significant. Native forestry and plantation agriculture are carbon positive industries which should be embraced and expanded as part of Australias transition to a low carbon economy. Significantly, managed or production forests sequester more carbon over time than unmanaged forests, timber products store carbon – often for centuries, and timber has much lower embodied energy than other popular building products such as concrete and steel. Reserving larger areas of native forest would not be an effective technique in reducing Australia's carbon emissions, reforestation with commercial forests for timber production would.

The CRC for Greenhouse Accounting and the Australian Government Forest and Wood Products Research and Development Corporation booklet "Forests, Wood and Australia's Carbon Balance" describes the extent to which plantations and other commercial forests contribute to Australia's carbon balance; a copy of this publication can be found at http://www.plantations2020.com.au/assets/acrobat/Forests,Wood&CarbonBalance.pdf.

In Tasmania currently there are small scale examples of energy production from forest residues at mills. This method of energy generation could easily be expanded at a larger scale for public benefit. The Government could encourage the growth of this renewable energy sector by simply recognising;

- renewable ***electricity*** targets would be more appropriately labelled as renewable ***energy*** targets;

- native forest biomass is a renewable resource which should legitimately receive renewable energy credits.

Bio-energy utilising native forest residue is an expanding field already established in Europe and making significant inroads in the United States of America. A seminar will soon be held in Hobart looking at one such program, the “Fuels for Schools and Beyond” initiative co-ordinates the use of forest biomass for heat, electricity and cooling in small to medium scale facilities. The goals of the program include replacing fossil fuels with a renewable energy source, reducing green house gas emissions, fostering local economic activity, lowering energy costs, reducing emissions from local burning and utilising residue material. More than 16 of these projects have been implemented in public institutions around America since 2003 (more details are provided in Annex four). With its widespread population of small urban centres Tasmania would be a prime candidate for this type of program.

Carbon bio-sequestration forest projects producing joint carbon and wood production outcomes could be encouraged through revision of the Carbon Farming Initiative (CFI) to:

- Ensure CFI credits from forestry activities have full recognition in any carbon pricing or trading system.
- Reduce overall CFI scheme compliance and transaction costs.
- Recognise carbon stored in timber products.

These small steps by the Government could enable the forest industry to contribute significantly to Australia’s transition to a low carbon economy.

Land use competition between the forestry and agriculture sectors. Implications of competing land uses for the cost and availability of timber, food and fibre

This TOR item is addressed under “Environmental impacts of Plantations – Land availability for agriculture”

Harmonising competing interests

As previously discussed, in Tasmania the free market efficiently allocates land, and there is enough water for agriculture and forestry to exist together comfortably. Neighbour issues such as fencing, shading and game management and others are addressed in Tasmania through the “Good Neighbour Charter” (attached as annex three) a document signed by all large forest management companies and the Tasmanian Farmers and Graziers Association, it can be found online at www.fiatas.com.au. There are minimal other competing interests between two such similar land uses.

In Tasmania the adoption of the State Policy for the Protection of Agricultural Land has led to many problems for plantation establishment companies dealing with local councils and once again increased the cost of compliance. The two key issues amongst many are: the inconsistency with which the policy has been applied between councils; and, the lack of direction provided as to who is responsible for critical tasks such as the identification of prime land. As previously discussed prior to the policy under a free market plantations were not competing with agriculture for prime agricultural land. The attempt by the State government to control plantation development through the PAL policy has resulted in no significant change to patterns of plantation establishment in Tasmania, while increasing the costs of running a business and creating more work for local councils. It is likely similar policy development in other states would be as ineffective.

Opportunities for farm forestry

There is massive potential for farm forestry in Tasmania. It has long been acknowledged that planting trees in deforested areas leads to significant conservation gains. Trees on farms are used as shelterbelts for stock shade and wind breaks, to prevent and remediate soil erosion, to outcompete weeds, to manage salinity problems and as a secondary source of income. Where farmers establish trees along waterways there is the added benefit of shading, reduced stock movement, and much improved stream habitat and water quality as a result. Having trees on farms improves the productivity of surrounding paddocks. Well managed agroforestry plantings have the potential to become an important source of high quality logs for the timber processing sector. Planting trees on farms and in particular along waterways has the potential to achieve an environment that is healthier, better protected, well managed, resilient, and provides essential ecosystem services in a changing climate.

A novel way for the Government to encourage the establishment of saw log driven agroforestry along waterways could be through “Caring for Our Country” grants. Through these grants the Government could provide the seed funding for the first rotation of trees, subsequent plantings would be funded by the income from the first harvest. In this way a public/private partnership would be formed which had significant environmental and economic benefits. Organisations such as Private Forests Tasmania currently facilitate the development of trees on farms and could be relied upon to help farmers manage the establishment process and access grants.

In contrast to the current situation waterway restoration would become highly attractive to farmers as there would be an economic advantage.

One hurdle to overcome in implementing this system is the current Tasmanian forest practices system requirement regarding plantation development along waterways; it is prohibited due to concerns regarding water quality. However, recent work by the landscape logic research hub has found: streamside management zones including plantations and excluding cattle reduced the delivery of sediment, phosphorous and bacteria to a headwater stream (Petrone, Smethurst *et al.* 2010); and, at least at some sites, forest plantations can be harvested to the water's edge without adversely affecting turbidity (Neary, Smethurst *et al.* 2010). Considering the time frame in which the plantings would be actively improving water quality and the short period in which there may be potential for a decrease in water quality it is easy to rationalise that it is a better situation than many streams are in currently with constant water quality issues due to erosion and stock movements.

Caring for our Country could be used as a tool to develop stream side plantations for saw log production through public private partnerships.

If you would like more information about this submission please contact petra.strich@fiatas.com.au.

This submission was approved by the Board of Directors and Chief Executive Officer

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Plantation-grown eucalypt sawlogs

FIAT – 16 July 2010

Compared to the native-forest Tasmanian hardwood sawlog resource, plantation sawlogs are:

- **a different species** (Tasmanian plantations are predominantly *E. nitens*, a native to Victoria and N.S.W., which is preferred as a plantation species for its rapid growth and frost tolerance)
- **younger** (plantation sawlog trees will be 10-30 years at harvest compared with 60-90 years for regrowth native forest and 80-250 years for old-growth native forest)
- **smaller**: diameter of plantation sawlogs will range from 30 to 55cm compared to native forest sawlogs which currently range from 30 to 100 cm
- **wood is less dense**: wood density of *E. nitens* is lower than either *E. globulus* or native-forest eucalypts marketed as Tasmanian Oak
- **wood has lower hardness**: hardness quantifies the ability of wood to withstand damage from applied pressure, such as a stiletto heel on a wooden floor.
- **wood has higher shrinkage**: shrinkage being the dimensional change occurring due to changing moisture content during drying, and if timber is used in an application where humidity is not stable
- **wood has lower stability with changing moisture content**: plantation grown timbers are more likely to bend, change shape, and generally distort with changing humidity than older, natural forest timbers
- **recovery of high-quality sawn product is lower than for native forest logs**: as depicted in the summary table below, plantation-grown *E. nitens* logs yield lower recovery of select and standard grade boards, and sawn boards have more internal checks (see also picture over-page).

Sawlog product recoveries

28-June-2010

sawlog type		projected available log volumes in 2020 (m^3)	product recovery from log (fraction of log volume)						fraction of boards without internal check	note
			chips	green sawdust	dry-mill waste	select & standard sawn boards	structural sawn boards	utility sawn boards		
native forests sawlogs	old-growth	50,000	**37%**	**18%**	**10%**	**20%**	**8%**	**2%**	**85%**	***1***
	regrowth	100,000	**37%**	**18%**	**10%**	**20%**	**8%**	**2%**	**78%**	***2***
	lower quality sawlogs and peelers	390,000	**40%**	**18%**	**10%**	**12%**	**10%**	**5%**	**80%**	***3***
plantation sawlogs	*E. nitens* : thinned, pruned sawlog-managed	150,000	**40%**	**18%**	**9%**	**15%**	**-**	**15%**	**70%**	***4***
	E. globulus : thinned, pruned sawlog-managed	0	**36%**	**18%**	**6%**	**25%**	**-**	**10%**	**90%**	***5***
	E. nitens : "solid-wood" unpruned sawlogs and peelers	380,000	**40%**	**18%**	**10%**	**4%**	**-**	**23%**	**70%**	***6***
	E. nitens : low quality sawlogs / fibre logs	1,000,000	**45%**	**11%**	**9%**	**-**	**26%**	**4%**	**70%**	***7***

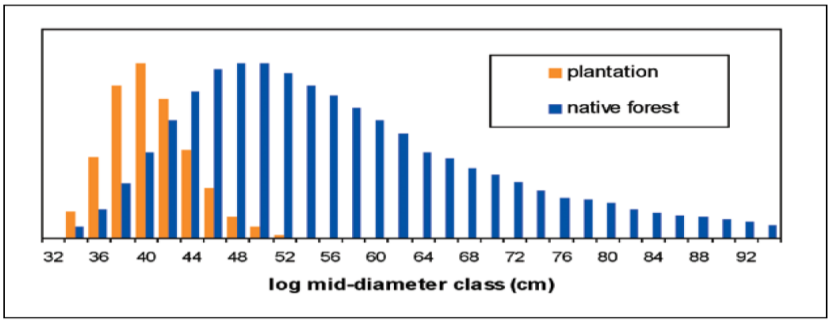
notes	
1	based upon information from industry sources, and Waugh and Yang (1994)
2	based upon information from industry sources and Washusen et al. (2007): Thinned E. regnans regrowth in southern Tasmania
3	based upon information from industry sources
4	Innes at al. (2008) FWPRDC report, Washusen et al. (2009) FWPRDC report, Washusen et al. (2009) NZJFS paper, Blakemore et al. (2010)
5	after Washusen et al. (2004) and Innes at al. (2008)
6	based upon information from industry sources, Innes et al. (2008), Waugh and Yang (1994), and Yang and Waugh (1996)
7	based upon information from industry sources and Waugh and Yang (1994), and Yang and Waugh (1996)

Generalisations:

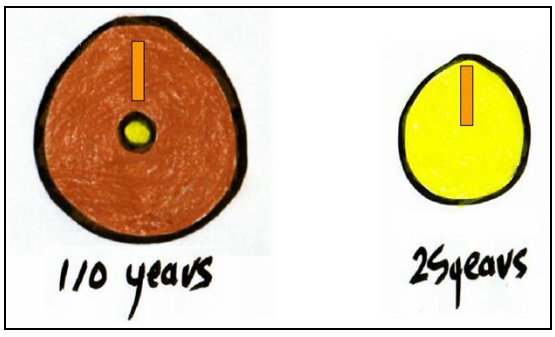
- Plantation-grown *E. nitens* shows more internal checking than plantation-grown *E. globulus*, whereas *E. globulus* shows more distortion on drying than *E. nitens*.
- With *E. nitens* the lower logs show more internal checking than the upper logs, yet the lower logs are the larger pruned logs which would otherwise be more valuable.
- Plantation-grown *E. nitens* can be successfully sawn into structural sawn timber, however the wood is no better than radiata pine but it costs significantly more to produce.
- Back-sawing gives greater board volume recovery than quarter-sawing but cupping and surface checking of back-sawn boards is greater and which rules out back-sawing as an economically viable sawing strategy for plantation-grown *E. nitens* [but probably not plantation globulus] .

Board distortion, Stress and drying induced end split in sawn plantation-grown *E. regnans* – plantation *E. globulus* behaves similarly

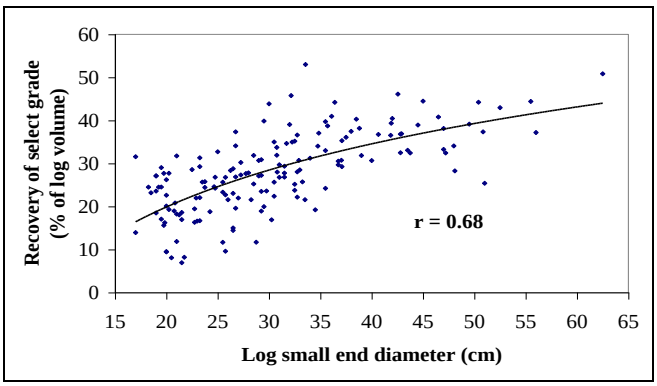
Internal check in dry 11 year old plantation *E. nitens* – not a problem for structural wood but will cause void or pick problems with fine finishing



Diameter class distribution of "high quality" eucalypt sawlogs from thinned plantation stands compared with eucalypt sawlogs from regrowth native forests (reproduced from Forestry Tasmania 2007)



Generalised depiction of the zone of wood property change (yellow) and the zone of uniformity of properties (brown) in the cross-sections of a 110 year-old native forest log and a 25 year-old plantation-grown log, and the location of a quarter-sawn board (orange): the wood properties of a quarter-sawn board cut from a 25-year-old plantation log will change from one edge of the board to the other.



Sawn board recovery increases with log diameter (reproduced from Washusen and McCormick 2002) – plantation logs are smaller than native forest sawlogs. It would be better to grow plantation sawlogs for longer but generally the cost of finance precludes it: the expensive establishment cost is compounded over the life of the plantation.

Reducing the carbon footprint and environmental impacts of new buildings

The Tasmanian Government and community can economically reduce the carbon footprint and environmental impacts of buildings by using more timber and wood products in their design, construction and operation.

TASMANIAN TIMBER

centre for sustainable architecture with wood

CSAW

Buildings consume great quantities of materials, energy and other resources and generate significant greenhouse gas emissions and other environmental impacts during their life-cycle.

The use of renewable materials and energy sources in sustainable building design can reduce these emissions and impacts significantly.

Tasmania produces large amounts of renewable timber products and these can be used more extensively in the State's public housing and other building types. This will deliver benefits as:

1. **Timber has lower carbon and environmental impacts than comparable building materials.**
2. **Timber production is a low energy and low impact process.**
3. **Timber provides simple solutions that meet regulatory requirements.**
4. **Timber buildings are attractive, comfortable, and high performance.**
5. **Timber construction is efficient, economical, and locally supported.**
6. **Local industry supports increased timber use.**

Wood products can displace more fossil-fuel intensive construction materials such as concrete, steel, aluminium, and plastics, which can result in significant emission reductions (Petersen and Solberg, 2002).

Potential exists to increase timber's use in:

- **Timber floors and floor systems in houses and other buildings,**
- **Timber framed structures in school halls and assembly buildings, and**
- **Fire and sound resistant timber walls, lining and cladding.**

Timber has lower carbon and environmental impacts than comparable building materials.

Timber in building reduces carbon emissions in three ways:

- **the carbon stored in growing trees is retained and stored in the timber for at least the life of the building;**
- **using wood instead of energy intensive materials avoids the emissions associated with producing those materials; and**
- **increased timber use supports the economic expansion of forests through the landscape. Forests are significant carbon sinks.**

Total life cycle greenhouse gas emission savings gained from preferring timber in building can be as high as 28%.

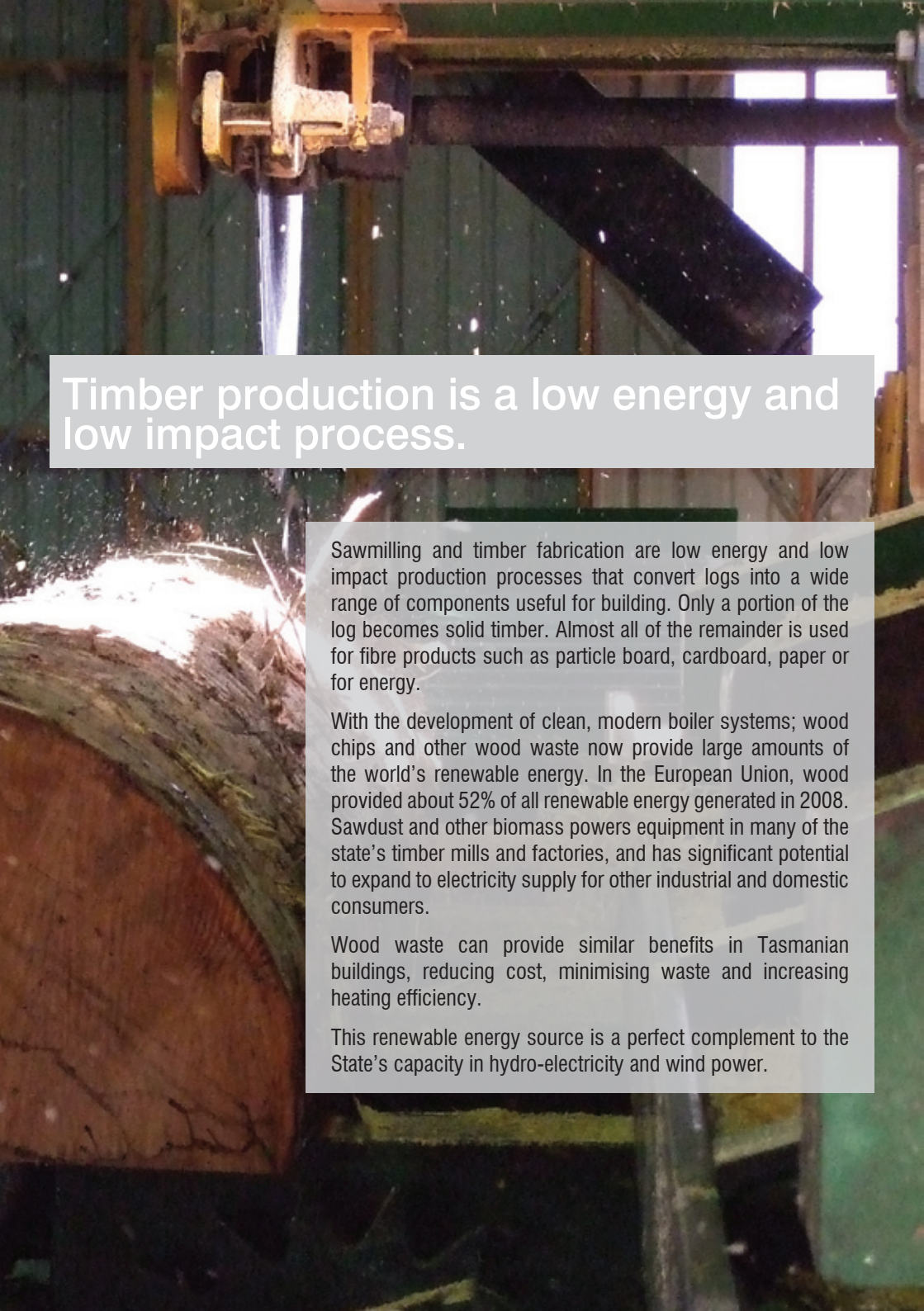
Timber is largely made from atmospheric carbon. Each cubic metre of timber in a building sequesters between 250 and 300 kg of atmospheric carbon. This is equivalent to 0.9 to 1 tonne of CO2. On the basis of European studies, using one metre of timber also avoids another 1.1 tonnes of CO2 emissions.

Timber production encourages forestry, and forestry has significantly less environmental impacts than other resource acquisition processes. Major wood processing companies can also offer chain-of-custody certification.

GLOBAL WARMING POTENTIAL
embodied in the materials of similar commericial buildings.

* In addition to timber structural components, the Timber+ used timber in architectural features such as exterior cladding, windows and ceilings.

Source: Johns S., Nebel B., Perez N., Buchanan A. 2009, Environmental Impacts of Multi-Storey Buildings Using Different Construction Materials, Research report 2008-02, University of Canterbury Christchurch, May



Timber production is a low energy and low impact process.

Sawmilling and timber fabrication are low energy and low impact production processes that convert logs into a wide range of components useful for building. Only a portion of the log becomes solid timber. Almost all of the remainder is used for fibre products such as particle board, cardboard, paper or for energy.

With the development of clean, modern boiler systems; wood chips and other wood waste now provide large amounts of the world's renewable energy. In the European Union, wood provided about 52% of all renewable energy generated in 2008. Sawdust and other biomass powers equipment in many of the state's timber mills and factories, and has significant potential to expand to electricity supply for other industrial and domestic consumers.

Wood waste can provide similar benefits in Tasmanian buildings, reducing cost, minimising waste and increasing heating efficiency.

This renewable energy source is a perfect complement to the State's capacity in hydro-electricity and wind power.

Timber provides simple solutions that meet regulatory requirements.

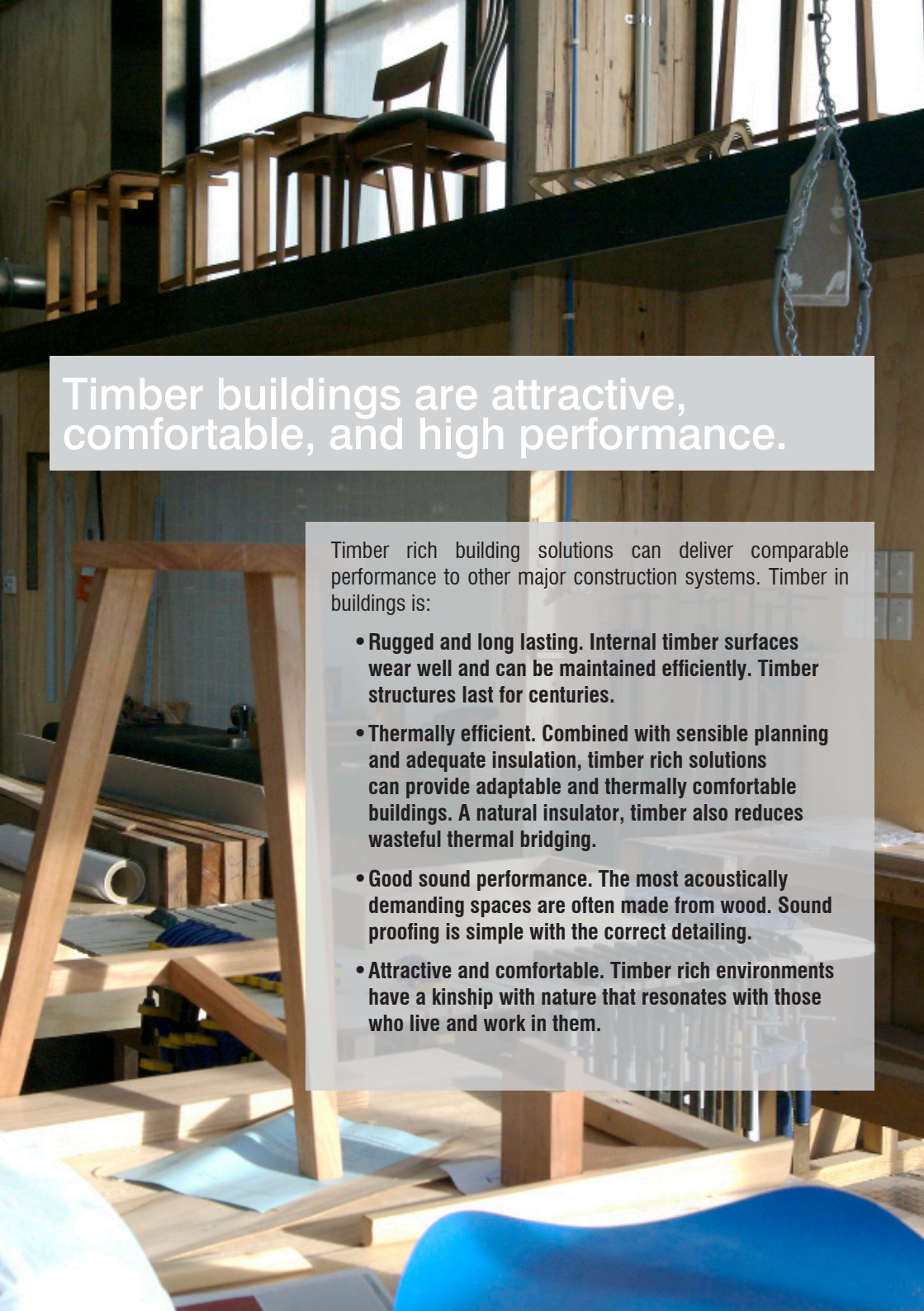
Timber framed and lined buildings can satisfy the regulatory requirements of the Building Code of Australia (BCA) for most building types to three storeys simply and efficiently, and can go beyond this with careful design. Two key requirements are for fire-resistance and structural stability.

Fire resistance

Timber elements can achieve a predictable performance in fire due to wood's natural charring behaviour. Combined with sprinklers and other features, three storey timber framed educational buildings satisfying the BCA's most demanding conditions have been built in the state recently.

Structural performance

Light and easy to work, timber is a strong and versatile material, with proven performance in structures both large and small. A range of structural options are available that can be optimised for economy, workability or visual appeal.



Timber buildings are attractive, comfortable, and high performance.

Timber rich building solutions can deliver comparable performance to other major construction systems. Timber in buildings is:

- **Rugged and long lasting. Internal timber surfaces wear well and can be maintained efficiently. Timber structures last for centuries.**
- **Thermally efficient. Combined with sensible planning and adequate insulation, timber rich solutions can provide adaptable and thermally comfortable buildings. A natural insulator, timber also reduces wasteful thermal bridging.**
- **Good sound performance. The most acoustically demanding spaces are often made from wood. Sound proofing is simple with the correct detailing.**
- **Attractive and comfortable. Timber rich environments have a kinship with nature that resonates with those who live and work in them.**

Timber construction is efficient, economical, and locally supported.

Timber is light, strong, easy to work and available in a wide range of complementary products. This allows for flexibility and efficiency in design.

As timber is light, construction is simpler and prefabrication is more effective.

Timber construction is cleaner and requires simpler tools than its major competitors. This leads to fewer pollutants and less noise on site.

Local prefabricators can supply construction sites around the state competitively. They provide a responsive local service and generate local employment.

Timber solutions for comparable designs are generally cheaper, especially with the rising cost of steel. Industry sources report that saving on some elements or systems can be as high as 20%.

Building codes and other government policies that, where appropriate, can promote substitution of use of sustainably harvested forest products wood for more energy-intensive construction materials may have substantial potential to reduce net emissions

(Murphy, 2004, in IPCC report)

Local industry is committed to reducing the carbon footprint and environmental impacts of new buildings.

The Tasmanian wood products industry is committed to supporting the inclusion of more timber in building.

AE MC & BC MCCONNON
BRITTON TIMBERS
FERNMANIA
FOREST ENTERPRISES AUSTRALIA
G J PAGE
GL & VN BARBER P/L
GUNNS TIMBER PRODUCTS
I & J KELLY & SONS PTY LTD
ISLAND SPECIALITY TIMBERS TASMANIA
ITC TIMBER TASMANIA PTY LTD
JOHNSON SAWMILLERS PTY LTD
McKAY INVESTMENTS PTY LTD
MORGAN TIMBERS (TAS) PTY LTD
PHILLIPS SAWMILL PTY LTD
PORTA TAS PTY LTD
ROGER JOHN LINNELL
TASMANIAN SPECIAL TIMBERS
TORENIUS TIMBER PTY LTD

TASMANIAN TIMBER

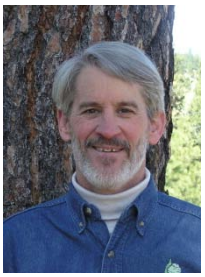
For detailed information and references visit www.tastimber.tas.gov.au

SEMINAR INVITATION
Fuel supply planning for small-scale biomass heating systems

Dave Atkins
State and Private Forestry branch, US Forest Service

Although proven technology exists for woody biomass heat and energy systems, such systems are uncommon in the United States outside the industrial wood products sector. Most of the small-scale systems in place have historically relied on waste from wood products manufacturers for fuel. The use of forest harvest residue and other underutilised wood as fuel requires building a new energy sector, including local fuel production and distribution infrastructure.

The "Fuels for Schools and Beyond" initiative promotes and facilitates the use of forest biomass for heat, electricity, and cooling in small- to medium-scale facilities. The goals of the program include replacing fossil fuels with renewable biomass, reducing greenhouse gas emissions, fostering local economic activity, lowering energy costs, reducing dependence on foreign fuels, reducing emissions from open burning, and using material that is often wasted. The program is using wood thinning and mill and urban wood residues to fuel biomass boilers in schools, universities, hospitals and other public institutions. More than 16 projects replacing fossil fuel systems have been commissioned since 2003.



Dave Atkins works for the State and Private Forestry branch of the United States Forest Service. He is the regional Woody Biomass Utilization Program Manager in six of the western states, with a focus on adding value to small diameter trees and forest harvest residue. He is also the program manager of the Fuels for Schools and Beyond initiative. Dave has a B.S. in Forest Science from Humboldt State University and an M.S. in Forest Ecology from the University of Montana.

Seminar details

Hobart:
Date: Monday 11 April
Time: 3.30 – 4.30 pm
Venue: CRC for Forestry conference room , CSIRO building, University of Tasmania (Sandy Bay campus download a campus map here)

You do not need to RSVP
For more information, contact Samantha Meyer:
samantha.meyer@crcforestry.com.au or 0438 210 468