



**Submission by the
Forest Industries Association of Tasmania**

**TO
LEGISLATIVE COUNCIL**

**GOVERNMENT ADMINISTRATION
COMMITTEE "A"**

**IMPACTS OF THE PROPOSED TRANSITION OUT
OF PUBLIC NATIVE FORESTS**

APRIL 2011



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ABOUT FIAT

The Forest Industries Association of Tasmania (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 60 years. Our members' activities are diverse and include:

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

FIAT's member businesses include most of the State's larger processors of forest products. They utilise a significant proportion of the crown sawlog output as well as a significant proportion of the veneer produced in the State. FIAT Members' activities account for more than 75% of the gross value of production in the forest and wood products industry in Tasmania.

FIAT's role is described in our Annual Report as follows: -

“Role

In addressing its first objective, FIAT's role is characterised by helping to create the right external environment within which industry has to operate. This has two main dimensions

- the policy environment and
- the public image of the industry in the eyes of the community.

The policy environment centres on government legislation and regulations which determine the limits to what industry can do. The policy environment must be tackled at both the Federal and State Level.



Industry's public image rests on public opinion and the various factors which influence that opinion. This is important because public opinion has a strong bearing on the development of Government policy.

In addressing its second objective, FIAT's role is to facilitate discussion and joint action among its membership, and to project membership position in wider forums as appropriate.



EXECUTIVE SUMMARY

1. The Forest Industries Association of Tasmania (FIAT) is a signatory to the document titled “Tasmanian Forests Statement of Principles to Lead to an Agreement” (Statement of Principles) which was signed by the 10 parties to that document on 14 October 2010.
2. FIAT is actively participating in the current processes established by the Tasmanian and Australian Governments chaired by independent facilitator Bill Kelty which is exploring whether or not the Statement of Principles can be progressed into an agreement.
3. The Statement of principles is not an agreement on anything other than the establishment of a series of interdependent, often contradictory principles to guide the negotiation of any potential agreement over Tasmania’s public forests and associated matters.
4. There is no proposed transition out of public native forests albeit one of the issues raised for discussion in the Statement of principles is as follows: -

“Transition Transition the commodity (non specialty) forest industry out of public native forests into suitable plantations through a negotiated plan and timeline.”

5. Any consideration of the Terms of Reference of the Committee must be considered to be an inquiry into a hypothetical proposed transition out of public native forests.
6. The impacts of any hypothetical transition will necessarily bear a direct relationship with other aspects that might be included in any agreement arising from the Statement of Principles and therefore the analysis to be undertaken must consider a broad range of possible scenarios.



7. Any transition to achieve the support of industry must address a number of key issues as the trigger point for any such transition occurring i.e.: -
 - Sufficient plantation estate of the correct species, in the right place, of the right age class and at an economically viable price;
 - The quality of the plantation estate to substitute for the native forest sawlogs and rotary peeled veneer billets that they would be required to substitute for;
 - A sustainable rotation length that would ensure perpetual supply;
 - Sufficient suitable and available land to grow the right species of trees;
 - Mills being equipped to process the new feedstock; and
 - Markets being available for the plantation grown timber that would result from the transition
8. There is a clear and obvious conflict within the Statement of Principles over the proposed increased level of conservation and the requirement to supply the resource needs of industry;
9. Forestry Tasmania has advised the independent facilitator appointed by the State and federal Governments that they cannot meet industry resource needs and the ENGO claimed HCV area.
10. There is little or no adequate plantation grown saw and/or veneer log available in Tasmania to sustain a total transition and this would take a minimum of 25 years to create;
11. Tasmania already has a substantial forest reserve system and there is little evidence to suggest adding to those reserves will lead to a reduction or cessation in the “forest wars”;
12. The private forest estate will not be able to meet the shortfall in resource needs of the processing sector in the foreseeable future;
13. The *E nitens* plantation estate does not currently provide a suitable or viable substitute product for native forest timbers and a new species grown on a significantly changed silvicultural management system will be required to underpin any successful transition;



14. There is a significant shortfall of available cleared land for plantation establishment to meet the volume requirements of any successful transition;
15. A transition of the type espoused by ENGO's would potentially cost Tasmania between 3,500 and 5,200 jobs directly and indirectly and the taxpayer would need to foot a compensation bill in excess of \$1B.



1. The Statement of Principles

The document colloquially known as the Statement of Principles was executed by 10 organisations on 14 October 2010. The full name of the document is the “Tasmanian Forests Statement of Principles to Lead to an Agreement” which for ease of reference in this submission will be called the “Statement of Principles” or “SoP’s”

1.1 What is the Statement of Principles?

The Statement of Principles is a document which records the issues identified by its signatories as being issues that could be considered in the negotiation of any agreement that may arise from the Statement of Principles. The document in itself has no binding status on any signatory nor does it bind any signatory to ultimately accept any of the stipulated principles and only serves to outline the agenda items to be considered in the negotiation of any agreement that may result from the ongoing dialogue between the signatory parties.

The mention of any specific issue within the Statement of Principles does not of itself mean that such an outcome will ultimately be agreed by any signatory to the document and it must be borne in mind that most of the issues raised within the document are actually or potentially negated by other contradictory principles.

It would be unsafe to proceed on the basis that just because something is raised within the Statement of Principles that it will come to pass or even that there is agreement that it might come to pass.



1.2 What do the Statement of Principles Entail?

The Statement of Principles list a wide range of issues that have been agreed to provide the framework for the future negotiation of an agreement over issues affecting the forest industry in Tasmania with a particular focus on seeking to resolve the long running divisive debate about forestry within the State.

It must be borne in mind that no one Principle can be read in isolation as the principles themselves provide as follows: -

- *“Support for and delivery of all principles in full”*
- *“Note that no party (including Forestry Tasmania) shall be required to accept a Principle which would otherwise apply to it where to do so would cause a breach of an existing contract or statutory obligation.”*
- *“Durability Undertake to ensure that all elements of this agreement are fulfilled on a durable basis.”*

In his Interim report to the Australian and Tasmanian Governments delivered on Thursday 31 March 2011 Bill Kelty said “The agreement requires all aspects to be encompassed as a packaged approach. No one principle can be seen in isolation” (page 13).

It is equally true and important to keep in mind that there are obvious tensions between many of the principles which tend to be contradictory and require any reader to read down the simplistic interpretation that could be placed on any one principle by requiring that all of the principles need to be read as a whole with no one principle taking precedence over any other nor can any principle be read in isolation.



The Principle the subject of this enquiry is a classic case in point where, read in isolation appears to provide the unambiguous position that a transition out of all native forestry on public land is a “done deal”. This is not the case but a prima facie position to pursue that objective is established. That position is potentially contradicted in whole or in part by other issues within the Statement of Principles including: -

- *General Wood Supply* *Provide a sustainable resource supply profile to industry based on an agreed minimum quantity and quality required for industry. This will be underpinned by legislation.*
- *Specialty Timbers* *Provide for ongoing specialty timber supply including eucalypt for our Tasmanian high value furniture and craft industries through a negotiated plan and timeline.*

1.3 What does the Transition Principle Mean?

The Transition principle within the Statement of Principles on its face could be interpreted as simply requiring that a transition is both a foregone conclusion and imminent. FIAT do not concede that either of these interpretations are necessarily correct nor is the interpretation that straight forward.

It is apparent on the face of this principle that a transition out of the public native forests is contemplated but the words equally make clear that it is not imminent nor is it necessarily a foregone conclusion as it requires the existence of “**suitable plantations**” and a “**negotiated plan and timeline**” as preconditions to any enactment of its terms.

In simple terms FIAT say the Transition Principle should be read as meaning that a transition out of native forests is able to be negotiated as part of a package of outcomes arising from the Statement of Principles once suitable plantations that are capable for substituting for the high value logs derived from our native forests are available in sufficient quantity and quality to underpin that transition. The timeframe for that to occur



must also be negotiated and would need to take account of a variety of factors including (but not limited to): -

- Sufficient plantation estate of the correct species, in the right place, of the right age class and at an economically viable price;
- The quality of the plantation estate to substitute for the native forest sawlogs and rotary peeled veneer billets that they would be required to substitute for;
- A sustainable rotation length that would ensure perpetual supply;
- Sufficient suitable and available land to grow the right species of trees;
- Mills being equipped to process the new feedstock; and
- Markets being available for the plantation grown timber that would result from the transition.

These are not simple issues to overcome in the discussion of any transition out of native forestry and will potentially take many years to be achieved. These are issues that we will extrapolate on later in this submission.

The Committee should be cognisant of this issue in pursuing the Terms of Reference of this enquiry and particularly in interpreting the various inputs from submitters.



4. The Public Forest Estate

To properly understand the debate over the Terms of Reference of this enquiry FIAT believe that it is necessary to understand the current forest estate in Tasmania and its wood supply capacities. To fail to undertake an analysis of this component of the debate will lead to supposition and incorrect analysis. For the purposes of this analysis we will limit our input to an objective assessment of the Tasmanian public forest estate so as to remain consistent with the Terms of Reference, however it is necessary to have some outcome that may eventuate and it must be considered in the context of an alternate supply of resource.

The public forest area managed by Forestry Tasmania (State Forest) is 1.49 M hectares of which 0.51M hectares is in formal (0.22 M ha) and informal (0.29 M ha) reserves.

This leaves a total area of production forest of 0.98 M hectares which is theoretically managed by Forestry Tasmania for wood production.

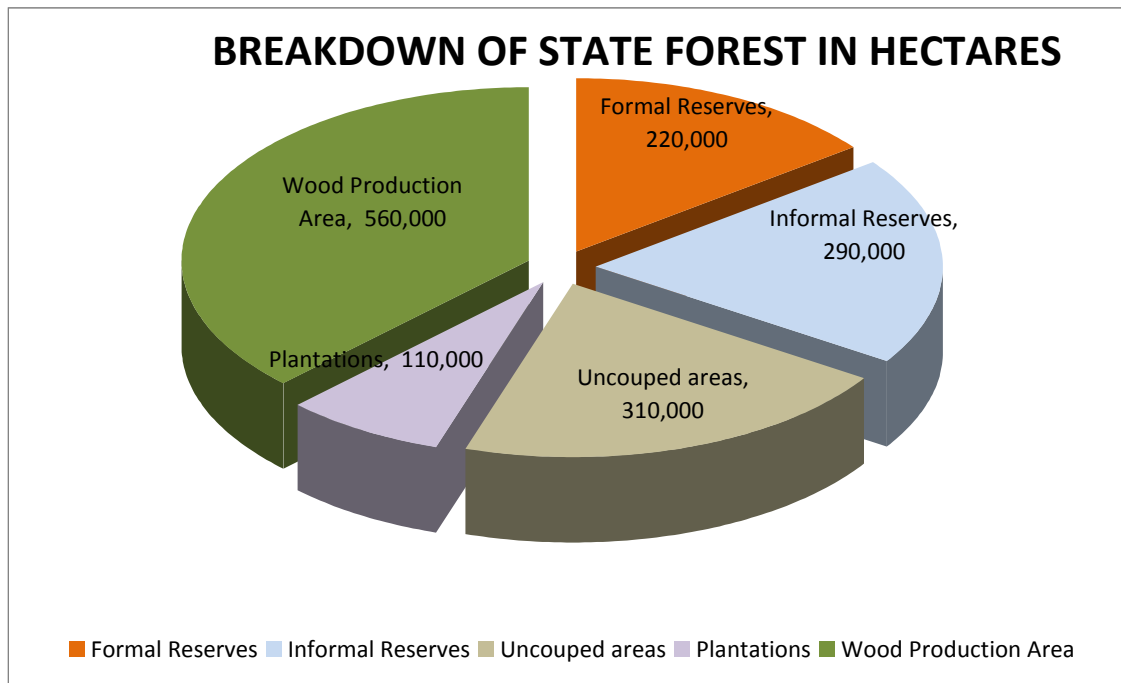
Of this wood production area 0.31 M hectares is not in wood production areas (including areas that are rainforest, steep, rocky, remote and inaccessible or non-forest) and 0.11 M hectares is plantations (0.06 M hectares hardwood plantations and 0.05 m hectares of softwood plantations).

In summary this means that the area of native forest available to Forestry Tasmania from which to provide for wood production needs including meeting its contractual and statutory obligations is 565,000 hectares.

In a graphical terms this is depicted by the following pie chart that shows the breakdown of the State Forest area managed by Forestry Tasmania: -



Figure 1



From this land area Forestry Tasmania is required to meet its legislated requirement to provide sawlogs in accordance with Section 22AA of the Forestry Act 1920 i.e.

“22AA. Production policy

(1) Each year, from multiple use forest land, the corporation must make available for the veneer and sawmilling industries a minimum aggregate quantity of eucalypt veneer logs and eucalypt sawlogs that meet the prescribed specifications.

(2) In [subsection \(1\)](#), "minimum aggregate quantity" means –

- (a) 300 000 cubic metres; or
- (b) if another quantity is prescribed – the prescribed quantity.”

(Extract from the Forestry Act 1920)



Forestry Tasmania are required by the terms of the Regional Forest Agreement (RFA) to regularly report on its capacity to supply the minimum high quality sawlog stipulated by clause 77 of the RFA and the Forestry Act. The most recent report by Forestry Tasmania was issued in conjunction with the second five yearly review of the RFA - Sustainable High Quality Eucalypt Sawlog Supply – Review 3.

By this report Forestry Tasmania are required to analyse their forest management strategies under clause 77 of the RFA and to report to the RFA parties (the Commonwealth and Tasmanian Governments) on their capacity to deliver the minimum high quality sawlog volumes.

At page 15 of that report titled Figure 9 is the following graphical description of the high quality eucalypt sawlog volume modelled across a 90 year rotation period: -

Figure 2

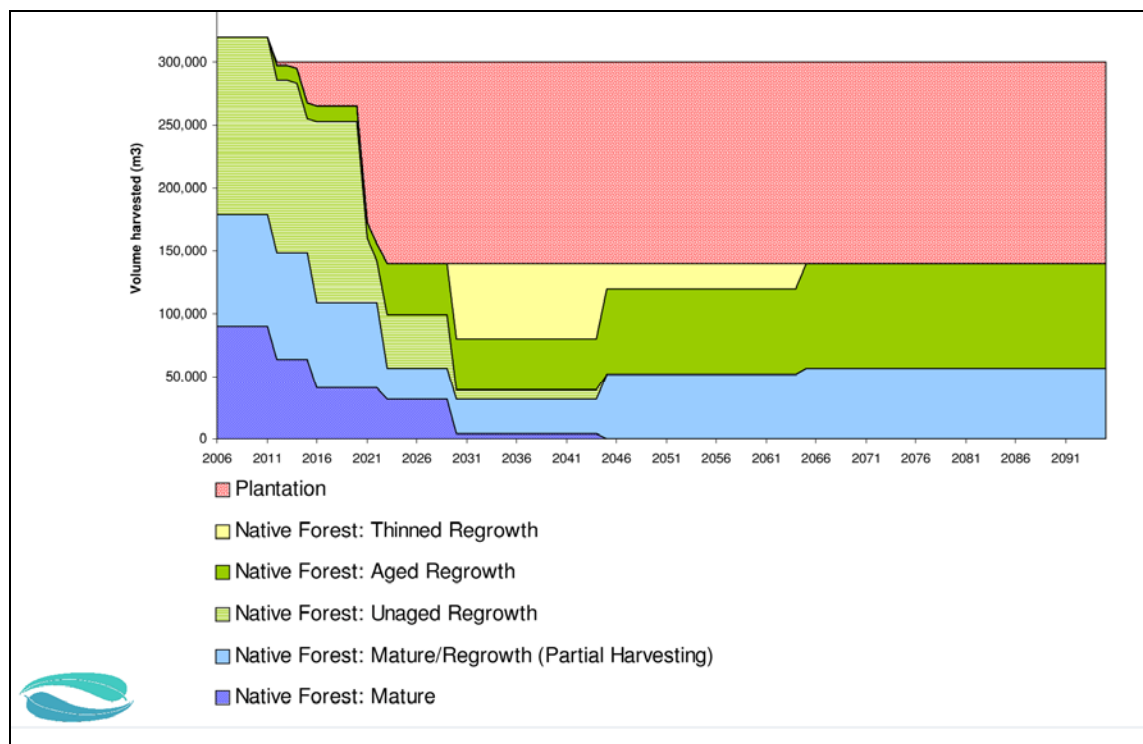




Figure 2 shows that whilst Forestry Tasmania has been able to demonstrate that it is able to provide 300,000 m³ of high quality sawlog across this time period in accordance with the Forestry Act and the RFA to do so requires them to source approximately 50% of that supply from plantations rather than from native forests from 2020.

This situation is a direct result of previous interventions in the Tasmanian forest industry by Governments through the Helsham Inquiry, the Regional Forest Agreement and the Tasmanian Community Forest Agreement all which revolved around significant additions being made to the reserve system (and reductions in the area available for production forestry) and substitution of plantations to replace the area of native forest removed from production. In broad terms the areas involved in those enactments are as follows: -

Enactment	Native Forest Area reserved	New Plantations Established
Helsham Enquiry	275,000 hectares	8000 hectares
RFA	293,300 hectares	30,000 hectares
TCFA	148,800 hectares	16,000 hectares
TOTALS	717,100 hectares	54,000 hectares

It is clear from this table that for many years there has been a progressive strategy of increasing the reserve area of Tasmania's forests for conservation with coupled with the substitution of the native forest estate with intensively managed plantations on public managed for timber production.

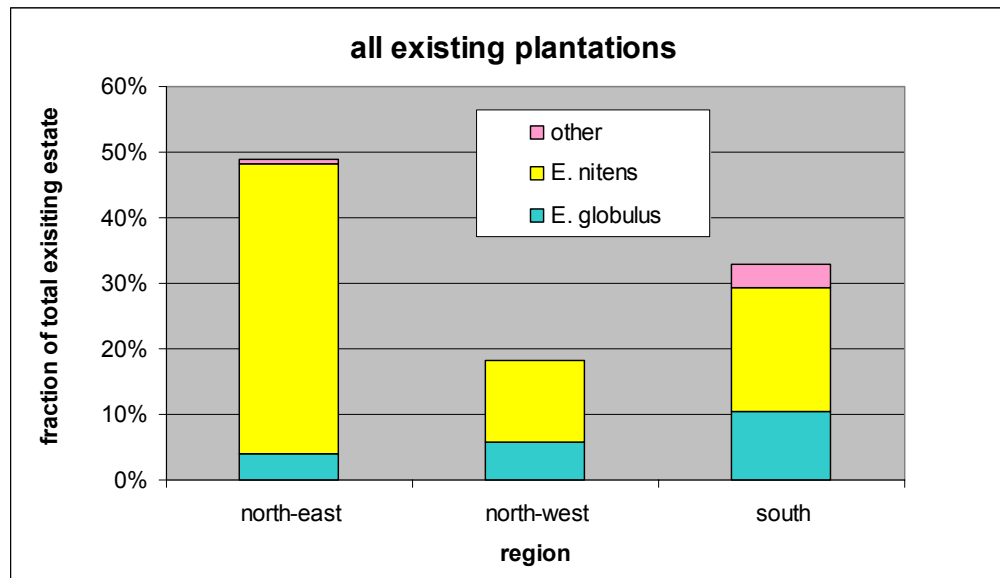
Tasmania already has a very extensive reserved forest area with 42% of our total land area reserved which constitutes 45% of the total forest area on public land. Total forest reserves total 1,442,440 hectares of public land. This reserved area includes 79 5 of old growth on public land and 97% of High Quality Wilderness. A breakdown of reserved areas is included as Annexure 2 to this submission.

Forestry Tasmania's total hardwood plantation estate on State Forest is approximately 37,000 hectares with virtually all of that area having been planted in response to the lock-ups more particularly outlined above.



The demographics of these plantations are set out below showing regional distribution, species and age profile.

Figure 3 Existing Public Plantations by Species and by region



The percentages expressed in these tables refers to the percentage each column represents of the total hardwood plantation estate on public land.

The following graphs demonstrate the regional distribution of the existing plantation estate by age class and species.



Figure 4 *Plantations in the North East Region by Species and Age Class*

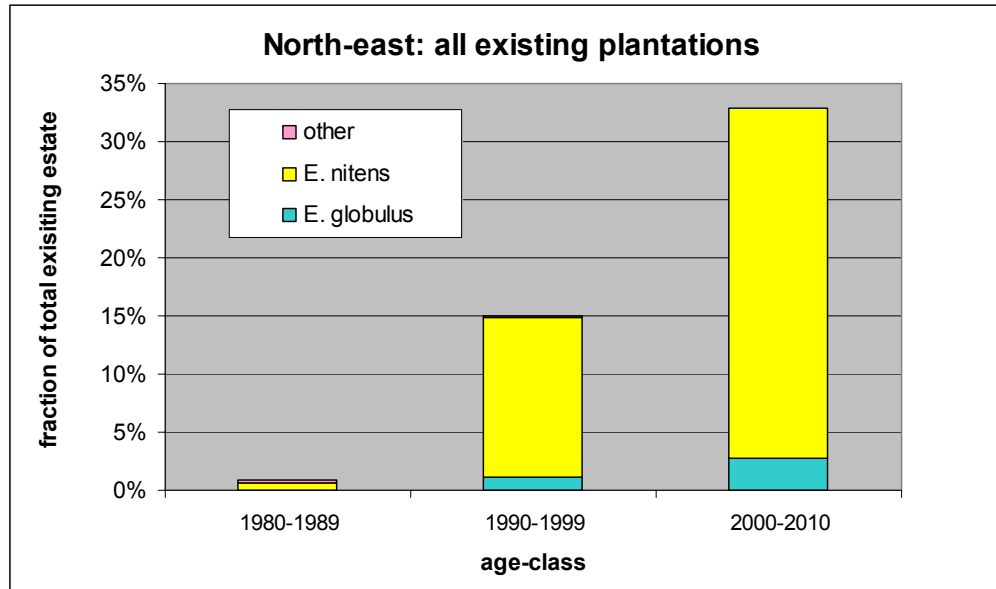


Figure 5 *Plantations in the North West Region by Species and Age Class*

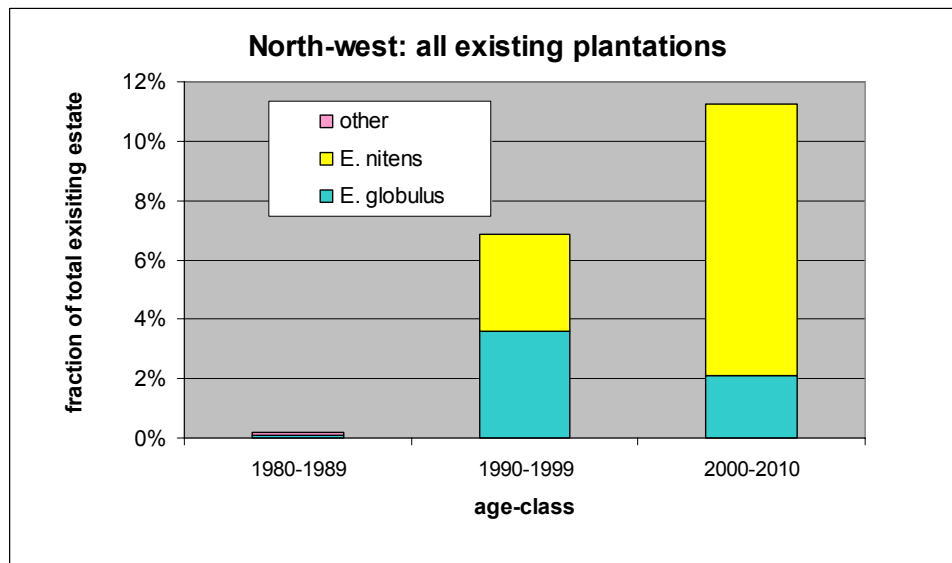
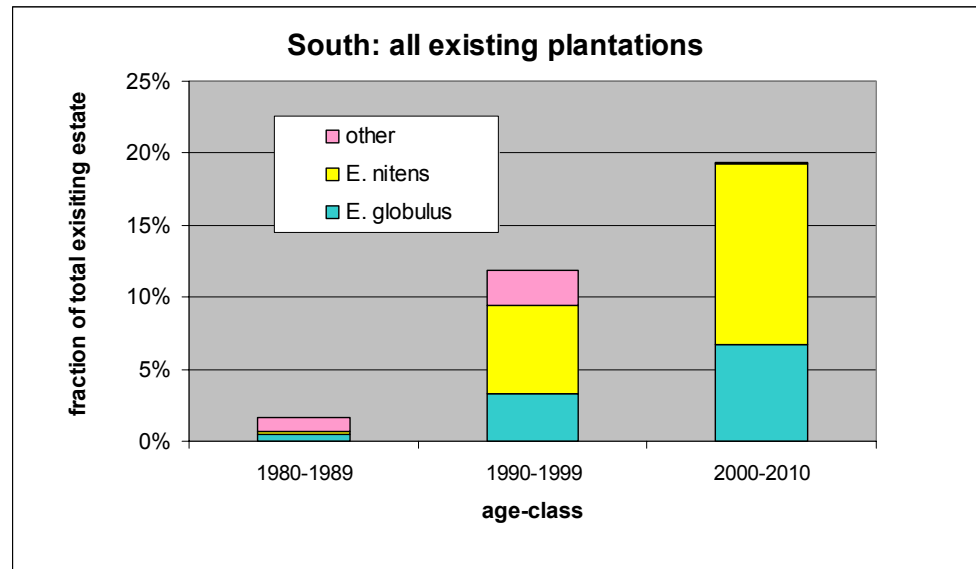




Figure 6 *Plantations in the Southern Region by Species and Age Class*



It is clear from the above graphs that almost 64% of the total estate has been established since 2000. It is generally accepted that a full rotation length for a hardwood plantation for the production of sawlog is in the order of 30 years

The suitability of this estate to sustain any transition will be analysed further at Section 6 of this submission.

It is discernable from *Figure 2* that Forestry Tasmania are now only able to provide on a sustainable basis approximately 150,000 m³ of high quality sawlogs from native forests under their control.

In addition to the sawlog volumes required to be produced by Forestry Tasmania contracts exist with a number of other business for the supply of other products from the forest estate including 265,000 m³ of rotary peeled veneer billets, 12,500 m³ of special species timbers and 70,000 to 80,000 m³ of lower grade sawlogs.

The above synopsis is taken prior to the removal from the State forest areas shown of any claimed areas that the ENGO's may claim to have removed as part of their "High Conservation Value Forests" under the SoP's.



Current analysis undertaken by Forestry Tasmania suggests that the ENGO HCV claim of 572,000 hectares will reduce the existing production forest area of 560,000 hectares by approximately 370,000 hectares which would leave approximately 195,000 hectares for wood production activities.

Clearly if this result were to eventuate there would be insufficient public native forest available to sustain the existing contracted obligations Forestry Tasmania have to saw and veneer mills using normal sustainable forest management principles.

As an obvious demonstration of this point Figure 2 shows that Forestry Tasmania expect that over the long term they can produce 150,000 m³ of high quality sawlog from their current production estate of 565,000 hectares, should that area be significantly reduced to approximately 200,000 hectares clearly the saw log yield will be substantially less.

This analysis demonstrates the inherent incompatibility of the various Principles, in this case that providing for the ENGO identified HCV forest whilst requiring a continued supply of wood to the processing sector and requiring the fulfilment of contractual obligations.

In an input to the current round of negotiations being conducted by Independent Facilitator, Bill Kelty Forestry Tasmania make the following conclusion: -

FT has been asked and has agreed to model various scenarios for both ENGOs and for the processing sector. This modelling is progressing but not completed. It is apparent however that it will not be possible to meet industry expectations (ex-Gunns) for ongoing sawlog and peeler supply while withdrawing from production all the areas apparently claimed for protection by ENGOs.

Source: Tasmanian Forest – Interim report for Consideration – Bill Kelty –page 62

This statement by the State Forest manager clearly demonstrates the complexity of this issue and the clear tensions that exist between the positions of signatories to the SoP's.



5 The Private Forest Estate

As earlier stated the current round of negotiations between the signatories to the SoP's are specifically limited to public forest areas and exclude private forests.

It is important however to understand the extent of the potential alternative source for the supply of wood to the processing sector and to permit an evaluation of the potential impacts of any change in wood supply in the public forest estate on private landowners.

The following table has been extracted from the Private Forests Tasmania website (http://www.privateforests.tas.gov.au/forestry_facts/forest_cover) as a reliable source for data on the private forest estate in Tasmania.

Forest Cover

Tasmania has a landmass of 6,852,000 hectares[1], of which approximately 3,389,200 hectares (49.5% of the state's landmass) is covered by forest. The forest estate can be broadly split into two categories – native forest and plantation forest.

Tasmania's native forest estate totals 3,135,000 hectares and the plantation estate 217,407 hectares.

Tasmania's forest estate can be classified into the following broad categories:

Figure 7

Table 1 – Tasmania's Forest Estate			
Forest Category	Total area (hectares)	% of total forest cover	% of total landmass
Publicly owned multiple-use forests	1,128,000	33.3	16.5
Publicly owned native forests in reserves	1,122,000	33.1	16.4
Privately owned native forest	885,000	26.1	12.9
Plantation forests on state forest	102,000	3.0	1.5
Plantations on other public land	1,800	0.1	0.0
Plantation forests on private land	150,407	4.4	2.2
Total	3,389,207	100	49.5



Sources: Australia's forests at a glance 2007 (Bureau of Rural Sciences, 2007) and Sustainability Indicators for Tasmanian Forests 2001 – 2006 (www.dpac.tas.gov.au) except the figure for plantation forests on private land which is produced by Private Forests Tasmania based on area update information from industrial plantation companies and GIS analysis of the plantations on private property undertaken in the period March - May 2007.

[1] The actual figure derived from Private Forests Tasmania's own modified municipality data set is 6,851,969 hectares, utilising an accurate cadastral coastline excluding all cadastre units which included estuarine water bodies. The Australian Government Geoscience Australia website gives a figure of 6,840,100 hectares based on 1993 data. (Website checked on 23 May 2007 and information was last updated on 31 August 2005).

It can be readily deduced from the above table that the private forest estate is approximately 1.04 M hectares made up of 885,000 hectares of native forest and 150,407 hectares of plantation forest. It not possible to provide the same level of breakdown of the private estate as it is for the public estate as there are many more variables to consider such as landowner intent etc. It is possible however to collate various data to arrive at a reasonably comparable methodology to that used on public land.

Under the Regional Forest Agreement and the Tasmanian Community Forest Agreement private land conservation programmes were established to encourage the voluntary reservation of forest on private land to assist in the conservation of species under represented on public land for contribution to the Comprehensive, Adequate and Representative reserve system set up under the RFA. Under these two programmes approximately 65,000 hectares have been established by permanent covenant as reserved forest areas on private land. This establishes a private native forest estate of approximately 820,000 hectares.

Private Forests Tasmania are required by virtue of Section 6.1(f) of the Private Forests Act 1994 to produce five yearly reviews of private forest areas and potential woodflows from that land. In the PFT report *Tasmanian Private Property Wood Flow Estimates 2002 to 2031* PFT discuss the relevant discounts to be applied to the total forest area for the purpose of assessing potential wood flows.



The two types of discount used by PFT to define the area of forest available for production are “Environmental Discount” and “Owners Intent”.

The following tables are found at page 8 of the PFT publication: -

Figure 8

Table 2 **Summary of the % Environmental Area Discounts**

	North West	North East	East Coast	Central Highlands	South
Slope	0.8	2.4	2.2	4.6	11.2
Streams	7	7	7	7	7
Forest Practices	5	5	5	5	5
Totals	12.8	14.4	14.2	16.6	23.2

The statewide environmental area discount when weighted by the area of the relevant private forest in each PFT region is 15%.

Figure 9

Table 3 **Summary of % Owners Intent Survey Area Discounts**

	North West	North East	East Coast	Central Highlands	South
Current Review Discounts	26	38	29	21	43

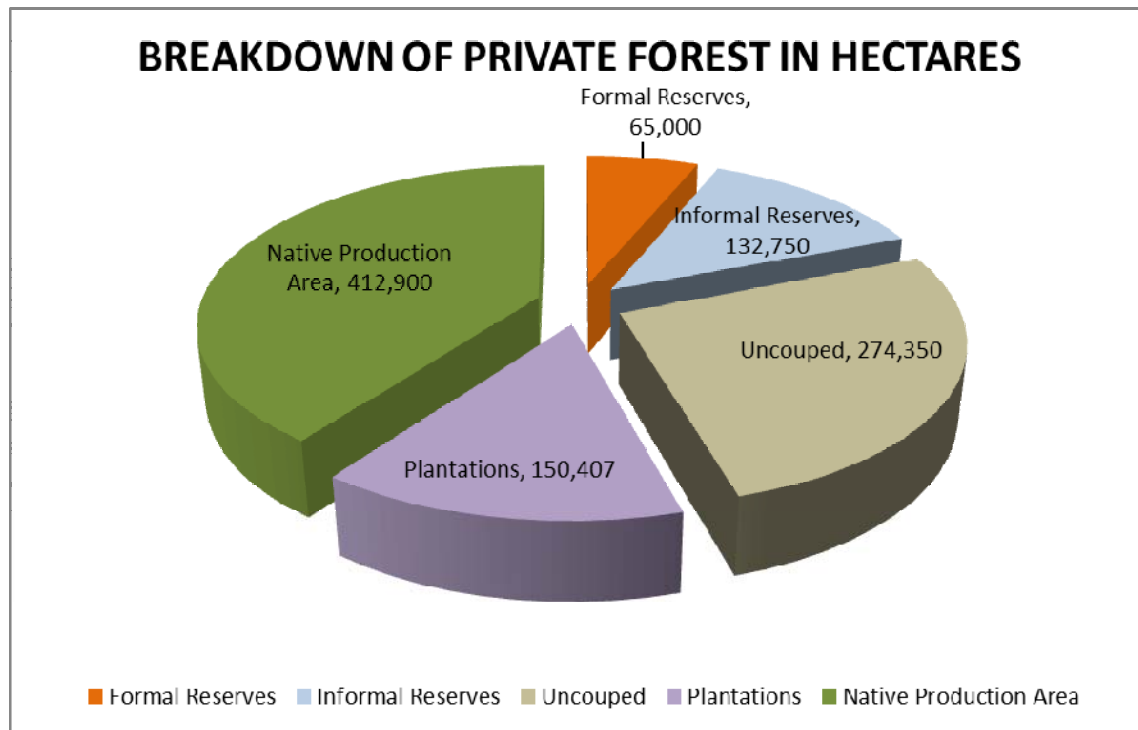
These discounts were added to the Environmental discounts for each region. The statewide Owners Intent Survey discount weighted by the relevant private forest in each PFT region is 31%.

Source; http://www.privateforests.tas.gov.au/publications/sustainability_report

The Environmental Discounts are similar in nature to the Uncouped Areas on State Forest and the Landowner Intent which is established by survey of private landowners is broadly similar to the Informal Reserves on State Forest with the permanently covenanted land areas being broadly consistent with the Formal Reserves.

The situation for forests on private land when converted as best as practicable to align with the situation already outlined for public land is as follows: -

Figure 10 – Composition of the Private Forest Estate



Source: Private Forests Tasmania http://www.privateforests.tas.gov.au/publications/sustainability_report

The wood flow analysis deriving from this land area shows a clear and easily identified pattern of declining native forest yields in saw and veneer log and pulpwood with a significant growth of pulpwood logs derived from hardwood plantations: -

Figure 11 - Private forests harvest volumes 2003–04 to 2008–09 (tonnes)

	2004-05	2005-06	2006-07	2007-08	2008-09
NATIVE HARDWOOD					
Hardwood Sawlogs, Veneer & Ply	96,816	69,837	48,765	51,980	39,435
Hardwood Pulpwood	1,628,739	944,096	955,879	1,134,118	891,641
Minor Log Products	446	5,412	470	416	912
Fuelwood	no measure	no measure	no measure	no measure	no measure
Total (tonnes)	1,726,001	1,019,345	1,005,114	1,186,514	931,988*
PLANTATION HARDWOOD					
Plantation Hardwood Sawlogs,	3,408	11,695	11,957	16,800	4,977



Veneer and Ply Logs

Plantation Hardwood Pulpwood	799,280	973,209	921,679	1,103,366	998,512
Minor Log Products	–	–	–	–	–
Total (tonnes)	802,688	984,904	933,636	1,120,166	1,003,489
PLANTATION SOFTWOOD					
Softwood Sawlogs, Veneer and Ply logs	133,422	121,381	198,665	201,571	46,164
Softwood Pulpwood	170,701	217,935	128,984	354,080	192,878
Minor Log Products	415	38	1,181	3,671	3
Total (tonnes)	304,538	339,354	328,830	559,322	239,045
GRAND TOTAL (tonnes)	2,833,227	2,343,603	2,267,580	2,866,002	2,174,522**

* please note that this total was originally published as 931,998 in both this table and the 2009 annual report. This total is now correct, also correcting the GRAND TOTAL**.

The total harvest from private forests in 2008–09 was 2,174,532 tonnes, a drop of 24.1% from the previous year. This production level represents 38.9% of the State's total forest production which again is a drop compared to last year when the private forest harvest contributed 42.5% to the total. This drop in contribution represents an aberration in the historical trend that was revealing the private forest harvest progressively approaching the production level from the State's public forests.

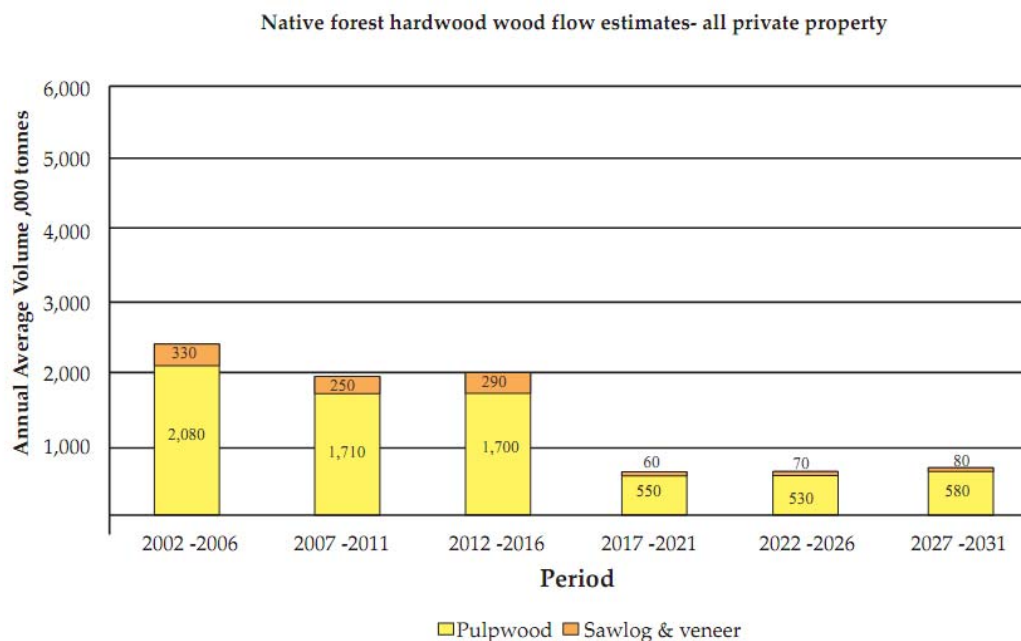
As the expanding private hardwood plantation estates become fully productive, and market conditions improve, it is expected that the trend of increasing private contribution will be re-established. Production from all forest types (native forests, hardwood and softwood plantations) have dropped from the previous year – 21.4% drop for native forests; 10.4% drop for hardwood plantation; and a massive 57.2% drop for softwood plantation.

Source http://www.privateforests.tas.gov.au/forestry_facts/annual_timber_harvest



These actual volumes harvested tend to provide a degree of validation to the projections provided by Private Forests Tasmania in their Tasmanian Private Property Wood Flow Analysis 2002 to 2031 which has predicted a significant reduction in native forest production volumes as demonstrated from the following table: -

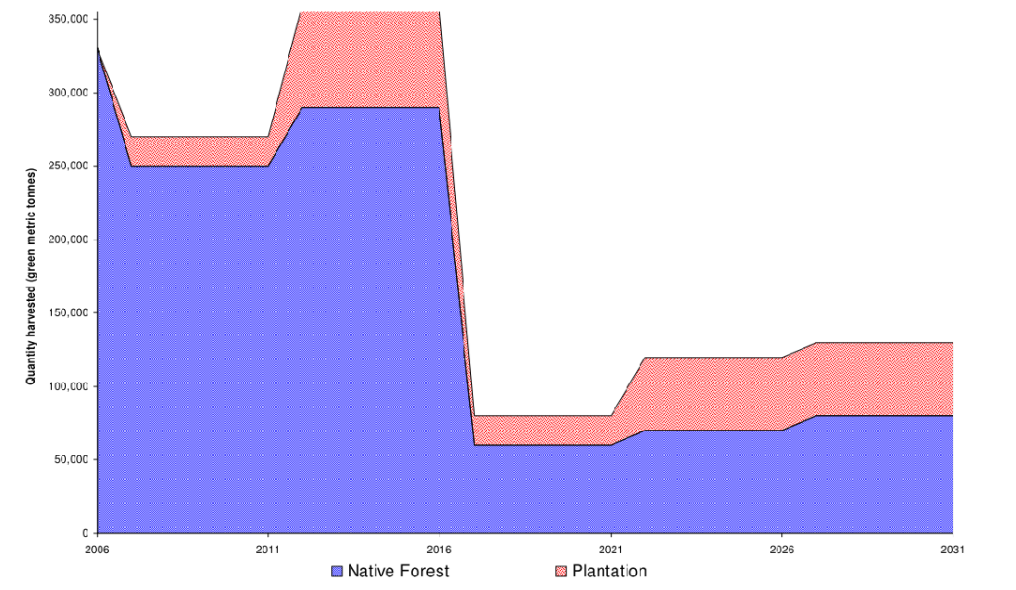
Figure 12



Source: http://www.privateforests.tas.gov.au/publications/sustainability_report

The volumes of sawlog from private property and plantation sources on public land are shown in the following graph: -

Figure 13 *Saw Log projections from Private Land 2002 to 2031*



It is clear from the above analysis that the private property resource will be insufficient to close the shortfall between supply and demand for public native forest saw and veneer logs in the foreseeable future in the event the ENGO HCV claimed area on public land were to be removed from production.



6. Plantations for High Value Appearance Grade products

It is clear given our relatively small land mass and the absence of significant tracts for additional plantation establishment that our future must lay in the development of high value niche markets as we will never have the economy of scale to compete in high volume undifferentiated commodity markets.

Any discussion, therefore of a transition from the supply of resource from public native forest to plantations requires an analysis of the available plantation estate and its capacity to provide logs that can be used to produce high value appearance grade sawn timber. It is in this area that Tasmania has already established an international brand for excellence using our high quality signature Tasmanian timbers (including eucalypt) to produce highly sought after sawn timbers and veneers that have received world acclaim. It is imperative that any discussion of a transition proceeds from the base that it would be illogical and highly prejudicial to destroy this market identity with a hasty and illconceived politically driven cessation of native forest production without the identification of a suitable replacement resource.

The consideration of a transition is not new nor is it confined to the current discussions arising from the SoP's. The RFA (and the TCFA) is significantly premised on an increased reliance on younger , smaller logs and particularly a move towards an as yet untried plantation-grown hardwood resource. To a significant extent this has been a leap of faith and FIAT have advocated that it is incumbent on the RFA parties to closely monitor changing log quantity and quality to ensure that the processing sector remains viable.



Current projections provided by Forestry Tasmania as part of their third review of High Quality Eucalypt Sawlog production (*Figure 2*) indicate that the Tasmanian sawmill and veneer sectors will be required to accept plantation-grown eucalyptus sawlogs as a significant component of the legislated “high quality” eucalypt sawlog supply of 300,000 cubic metres per year. That is, from 2020, 150,000 m³ of the legislated 300,000 m³ of high quality sawlogs (50%) will be sourced from plantations. Whilst these logs might meet the necessary minimum size criteria for “high quality” sawlogs, they will represent a significantly lower quality resource:

- the logs will be smaller in diameter;
- the logs will be shorter in length;
- the logs will have higher-shrinkage wood; and
- sawn timber cut from the logs will suffer greater defect on drying (particularly internal and surface checking - the occurrence of which immediately down-grades a sawn board to the lowest grade).

For this reason FIAT is of the view that the Transition Principle should be read as meaning that a transition out of native forests is able to be negotiated as part of a package of outcomes arising from the Statement of Principles once suitable plantations that are capable for substituting for the high value logs derived from our native forests are available in sufficient quantity and quality and in the right locations and at a viable cost to underpin that transition. The timeframe for that to occur must also be negotiated and would need to take account of a variety of factors including (but not limited to): -

- Sufficient plantation estate in the right place, of the right age class and at an economically viable price;
- The quality of the plantation estate to substitute for the category 1 and 3 native forest sawlogs that they would be required to substitute for;
- The diameter of plantation logs being sufficient to permit viable recoveries of sawn product;
- A sustainable rotation length that would ensure perpetual supply;



- Sufficient suitable and available land to grow the right species of trees using best practice silviculture;
- Mills being equipped to process the new feedstock; and
- Markets being available for the plantation grown sawn timber that would result from the transition.

These are not simple issues to overcome in any discussion of any transition out of native forestry and will potentially take many years to be achieved.

In previous sections we have identified the size of the existing plantation estate in Tasmania but that is only one aspect of the picture that needs to be understood in determining the potential for any transition away from the tried and proven native forest resource. In very simple terms a 'log is not a log' as all species have different processing characteristics and this is considerably magnified when silvicultural management, faster growth rates etc are overlayed with these differences.

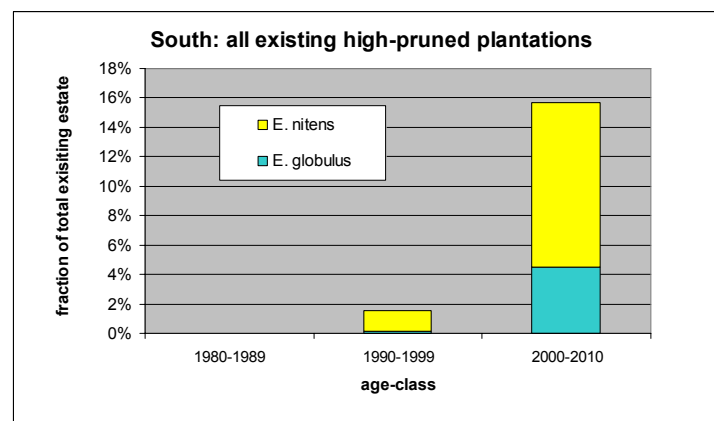
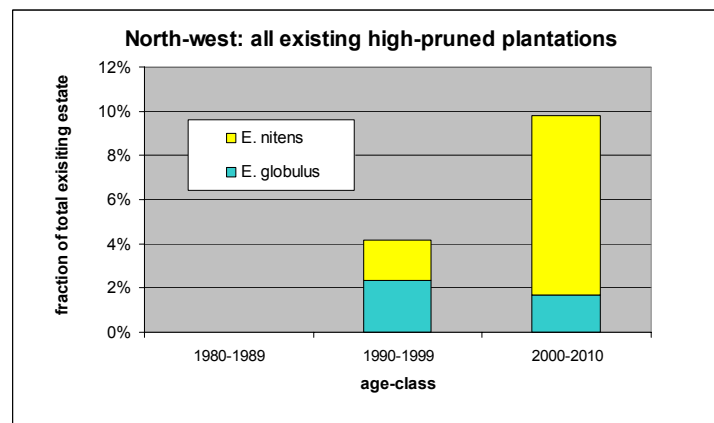
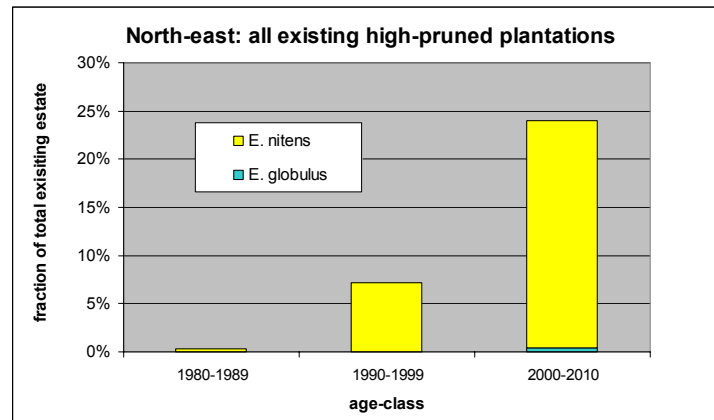
The high pruned component of the plantation estate is being managed for the production of sawlog quality material with the pruning designed to increase the amount of clearwood within the log to maximise the yield of sawn timber from each log.

The report by Forestry Tasmania on high quality sawlog supply (Figure 2) referred to earlier shows plantations sawlogs beginning to become part of the mix from approximately 2020. It is this resource that would have to sustain any rapid transition from native forest processing to plantations.

A more detailed analysis of the high pruned proportion of the public forest hardwood plantations is presented in the following graphs: -



Figure 14 High Pruned Plantations by Region, Age Class and Species



Note: “High pruned” regimes provide for either 2 or 3 pruning lifts to a height of 5.2 – 6.4 metres by age 5 years.



These table show that 80% of the high pruned estate has been planted since 2000 therefore the bulk of the proposed sawlog quality harvest will not be coming on stream until at least 2030.

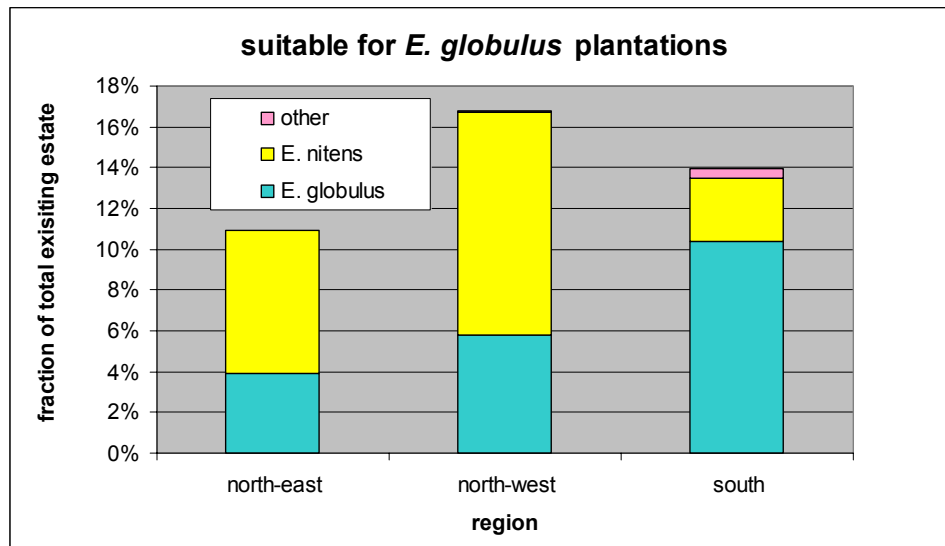
It is also vitally important to have a detailed understanding of the properties of those species being grown as the replacement sawlog resource it not as simple as simply taking away the native forest species and replacing that resource with a plantation resource that grows successfully it must also be suited to being sawn and seasoned successfully to make high value appearance grade boards at a sufficient yield to make that production viable.

The Tasmanian forest industry has been intimately involved in intensive research work in respect to processing plantation grown material for high value appearance grade products with only moderate success.

The primary hardwood plantation species grown in Tasmania are *Eucalyptus nitens* (Shining Gum) and *Eucalyptus globulus* (Blue Gum). Each of these species produces some challenges when analysed for their processing properties and their viability for processing into high value appearance grade products. As noted earlier the breakdown of species being grown by Forestry Tasmania on public land is very heavily weighted in favour of *E nitens* in a ratio of approximately 75:25 and whilst more recently Forestry Tasmania have announced their intention to try to reduce this ratio to 50:50 this will by definition take many years to accomplish.

An analysis of the Forestry Tasmania plantation estate demonstrates that only approximately 43% of the existing non-*globulus* estate is capable of being converted, over time to, *E globulus*. In broad terms this will provide a total *E globulus* estate equivalent to about 42% of the current total plantation estate.

Figure 15 – E globulus Suitable Plantation Sites by region



It has been clearly and unequivocally established by research that *E nitens* cannot at this stage be considered to represent a viable alternative for the production of high value appearance grade sawn products due to a number of inherent difficulties encountered in the processing of this species.

The Co-operative Research Centre for Forestry located within the University of Tasmania campus has conducted a number of research trials on *E nitens* over many years and these are well summarised in a recent publication by Dr Chris Harwood which is annexed to this submission (Annexure 1).

Dr Harwood's Bulletin accurately summarizes the existing state of research into processing *E nitens* into appearance grade products and it is evident that there are a number of serious issues that have not yet been resolved that would permit a transition into this resource without seriously imperilling the viability of the Tasmanian forest industry.

It would be possible to process *E nitens* into structural products but it also apparent that this would have a significant effect on the viability of processing establishments as it would be competing directly in that market with *Pinus radiata* which can be produced at a considerably cheaper price and would not allow any access to the niche markets that



Tasmania will require for long term sustainability through product differentiation and lack of economies of scale.

As a result of the considerable uncertainty over the viable utilization of plantation grown *E nitens* for the production of high value appearance grade products and given that it is projected to constitute 50% of the public forest sawlog resource a group of Tasmanian processors in conjunction with Forestry Tasmania went on an overseas mission to view the use of plantation grown eucalypts for solid wood and veneer applications. The group consisted of Glenn and Shawn Britton (Britton Timbers), Tony Jaeger (McKays Timber) and Dr Peter Volker (Forestry Tasmania). The trip was paid for by the individual firms.

The purpose of the trip was: -

1. The sawmillers had questions about the intended sawlog supply from plantations on Tasmania's State Forest as to its suitability for downstream processing.
2. What are the experiences of established industries overseas with utilising plantation eucalypt sawlogs for appearance and seasoning qualities destined for high value-added products (eg furniture, joinery, flooring)?
3. What silviculture regimes are required to produce these sawlogs?
4. What are the knowledge gaps we need to address in Australia?

The overseas mission went to Spain, Chile, Uruguay and Argentina with a view to obtaining a best practice understanding of the growing and processing research associated with plantation grown eucalypts to determine the potential for successfully utilising the current plantation estate that exists in Tasmania.

In a written report completed following the mission the participants documented their findings. The Executive Summary and recommendations for the Tasmanian industry provide an adequate overall summary of their findings viz: -



Eucalypt plantation sawlog study tour

Executive summary

During April 25 to May 17, a party of Tasmanians embarked on a mission to view the use of plantation grown eucalypts for solid wood and veneer applications. The party was led by Dr Peter Volker (Forestry Tasmania), Glenn and Shawn Britton (Britton Timbers) and Tony Jaeger (McKays Timber). The itinerary included visits to Galicia region of Spain, Concepcion to Osorno in Chile, Rivera in Uruguay and Concordia in Argentina.

Evan Shield (Forestry Consultant) has been an advocate for intensive early thinning, combined with high pruning, to produce high quality logs free of growth stresses for the sawmilling and veneer industry. This is based on sound scientific principles identified by Jacobs (1955) in "Growth Habits of the Eucalypts" and confirmed by silvicultural trials in South Africa (CCT Trial at Langebaan) and more recent trials in Australia and South America. Evan is often heard to say, "A lonely tree is a happy tree." We were interested to explore how this concept had been applied to eucalypt plantations, where there was also some progress in manufacturing and marketing of timber products.

The purpose of the trip was as follows:

1. The sawmillers had questions about the intended sawlog supply from plantations on Tasmania's State Forest as to its suitability for downstream processing.
2. What are the experiences of established industries overseas with utilising plantation eucalypt sawlogs for appearance and seasoning qualities destined for high value-added products (eg furniture, joinery, flooring)?
3. What silviculture regimes are required to produce these sawlogs?
4. What are the knowledge gaps we need to address in Australia?

Overall the conclusions from the mission:

- Plantation eucalypts present challenges for sawn timber and veneer manufacture due to need for high control of sawing, peeling and drying processes.
- Eucalypt plantations in the countries visited are generally free of pests and diseases which aids their exceptional growth.
- Low labour costs makes intensive silviculture more affordable.
- Competitive markets for logs and timber including export markets improves returns for growers and processors.
- There is strong support for industry development by government in all countries visited including investment in infrastructure (industrial parks, road and rail).
- Intensive silviculture is essential to produce defect free logs although, in Spain it was observed that good timber could be produced from *E. globulus* final crop trees which had been left after a number of thinning in mixed species stands grown to about 40 years.
- Attention to marketing and quality control was essential to gaining high value markets.
- High throughput sawmills require logs of uniform quality and the ability to backsaw some species is an advantage in these mills.
- There is still some doubt as to suitability of species such as *globulus*, *nitens* and ash eucalypts for back sawing, even using plantation grown trees.



- New industries are being developed with strong input from highly qualified researchers working closely with entrepreneurs, industry and customers.
- Reliance on a single market is dangerous for growers.
- Growers require a range of markets to achieve competitive pricing for their logs and to ensure investments in silviculture are realised.
- High value logs need to be treated with utmost care during harvesting, transport and log handling in factories.
- Market work and promotion needs to emphasize subtle changes in product due to use of eucalypts (eg higher strength in panel products, replace tropical timber etc).
- *E. nitens* poses significant problems for not only for the sawn solid wood industry but also the peeling industry through:
 - The inherent internal check problem (no matter what the growing regime)
 - Lack of strength, toughness and hardness
- Certification was seen as important for market reasons. Every enterprise had experienced difficulty with FSC and some ongoing issues with some FSC stakeholders. There was general consensus that the PEFC approach seemed give growers more certainty as to the consistency of standards, especially where these were combined with a robust national standard. Most larger enterprises we visited in South America and Spain had FSC certification. FSC certification was also being pursued under a group scheme in Spain, for smaller growers and processors.
- Plantations are seen as an agricultural crop and valuable resource leading to:
 - Development of processing facilities.
 - Increased regional employment.
 - More integration of agriculture and tree crops at farm and landscape level.
 - Governments see agriculture and forestry working together.
 - Private forestry evident and successful.
 - Greater community acceptance of forestry as part of the local economic activity.
- Entrepreneurial approach
 - Observed processing facilities that had developed using resources developed by the owners.
 - Strong support for industry development at local and government levels.
 - Use of researchers to work with operational staff to fine-tune processes.
- Products
 - Pruned log
 - Joinery, flooring, furniture, LVL
 - Sliced and rotary veneer for appearance and/or face in flooring (depends on wood properties)
 - Seasoned appearance grades – 25 to 50mm thick dried and finished boards
 - Quarter sawn at 75 to 200mm width
 - Strip flooring, 19 to 25mm thick
 - Engineered flooring
 - Laminated beams and panels for joinery



- Unpruned log
 - Rotary peeled veneer for cores in construction grade panels
 - Sawn timber for low value uses?
 - OSB
 - MDF
 - Pulp
- Strong desire from many places visited for collaboration on research and market development for eucalypt products (especially globulus, nitens and regnans).
- There is strong demand for high quality eucalypt products in sophisticated and high value markets in Europe, north and central America and Asia.

As a result of the study tour:

1. The group/delegation is firmly convinced that plantation grown eucalypt sawlogs can be grown and produced to a very satisfactory size and quality to produce select grade white eucalypt sawn timber providing the following basic criteria are strictly adhered to.
 - a. Appropriate site selection/topography/soil quality/rainfall with species matched to site.
 - b. Strict silviculture regime from site preparation to harvesting as per the Evan Shields/Corfusa model, which has been financially successful over the past twenty years in Uruguay. In other words the “lonely happy tree” regime with absolutely no comprises at all, which results in stress free trees and high recoveries of good quality sawn timber
 - c. Issues to be avoided are:
 - i. lack of management and investment over the life cycle of the plantation, in other words we cannot afford to just put trees in the ground and pay scant attention to the necessary strict silvicultural requirements such as pruning and thinning,
 - ii. old habits of overstocking to produce “suspect” commercial thinnings at various intervals during the growth cycle,
 - iii. however there may be the opportunity for one commercial harvest for pruned peeler logs at approximately twelve years of age leaving one hundred trees per hectare for the final sawlog crop.
 - d. The successful Corfusa/Urofor operation in Uruguay is a stark example of all of the above
 - e. Broad based example of possible outcomes relating to the above

10,000 m3 logs @ 30% recovery= 3,000 m3 sawn timber @ \$1.000/m3	\$3,000,000
less 10,000m3 logs @ <u>\$40/m3</u> stumpage	\$400,000
	<hr/> \$2,600,000
10,000m3 logs@ 40% recovery = 4,000 m3 sawn timber@ \$1000/m3	\$4,000,000
less 10,000 m3 logs @ <u>\$140/m3</u> stumpage	\$1,200,000
	<hr/> \$2,600,000

- f. At the expense of repetition the above will only be achieved by investment in strict silvicultural management as is the case for any successful agricultural crop.



2. *E. nitens*

Unfortunately our findings pertaining to plantation *E. nitens*, primarily in Chile, which is five to six years ahead of Tasmania with this species only mirrors our experience to date, that is good trees in terms of form, growth rates and suitability for green sawn timber. However huge problems of severe internal checking during the seasoning processes render some 80% of the material useless for high value products, therefore making this species currently unviable. Obviously more scientific work needs to be done in the future to determine if there may be any answers to overcome current seasoning problems. Backsawing does not seem to provide a solution to this problem. More work does need to be done, but at this stage, we are not confident in the suitability of the species for high value appearance grade products while there is still propensity to severe internal and surface checking.

3. *E. globulus* and *E. regnans*

Both these species are currently being successfully grown, processed and marketed from Spain (*globulus*) and Chile (*regnans*) and should be used for a blueprint for us in Tasmania albeit this current success could be vastly improved with closer adherence to the “lonely tree” silviculture regime outlined in point 1 above.

Source: Overseas Plantation Sawlog Fact Finding Study Tour – Spain Chile Uruguay Argentina – 24 April to 17 May 2010

It is quite apparent from this extract from the overseas experience with the two eucalypt species currently being grown in Tasmania that *E nitens* has almost fatal difficulties in being utilized for high value appearance grade products and is unlikely to see these issues solved in the short to medium term.

It is equally clear that there is considerable potential for utilising *E globulus* for high value appearance grade products but not on the basis of the existing silvicultural regime but only after the establishment of an entirely new plantation estate in accordance with the “Lonely Happy Tree” silviculture. It is only when there is sufficient of this quality of resource available that any consideration of a transition away from native forests should occur.

In respect to the supply of plantation grown resource for the rotary peeled veneer sector Ta Ann Tasmania have commented in a submission for the The House of Representatives Standing Committee on Agriculture, Resources, Fisheries and Forestry that whilst they support in general terms a transition strategy: -



“ (their) investment is based on the properties of regrowth billets but suitable plantation timber could also be used if and when it is available” however they believe that the utilization of *E nitens* remains an unknown quantity.

Plantation Eucalypt has been trialled by TAT at the Smithton RPV mill and indicates further tree breeding and targeted planting/silvicultural work is required to meet location, volume, quality, and production requirements – such as pruned logs to give green knots, avoid dead knots, provide a small knotty core, and yield particular grades of veneer. Plantations are yet to be proven as a viable substitute for regrowth from native forests for either mill.

Site specific silviculture (designer plantations) on public and private forests is required. For current operations and future growth, plantation billets need to have the right properties and be at the right location, at the right time, at the right quality, at the right volume, at the right size and at the right price for both the Smithton & Huon RPV mill to be viable.”

Source: Ta Ann Tasmania submission to the House of Representatives

As stated earlier in this submission FIAT are strongly of the view that contemplation of any transition cannot occur until there is sufficient quantity and quality of plantation resource for the industry to transition into.

A further issue that will need to be satisfactorily resolved prior to any commitment to transition out of native forest sourced logs for saw and veneer mills is the recovery of select grade material that can be expected from each log.

Sawn product recovery is critical to the profitability of sawmills. It essentially costs the same to a sawmill to saw up a log no matter what the final value of the sawn product is, but the income that a miller can receive is totally dependent upon the quantity and quality of recovered product(s).

This is not just the overall recovery of sawn timber, but the grade distribution.

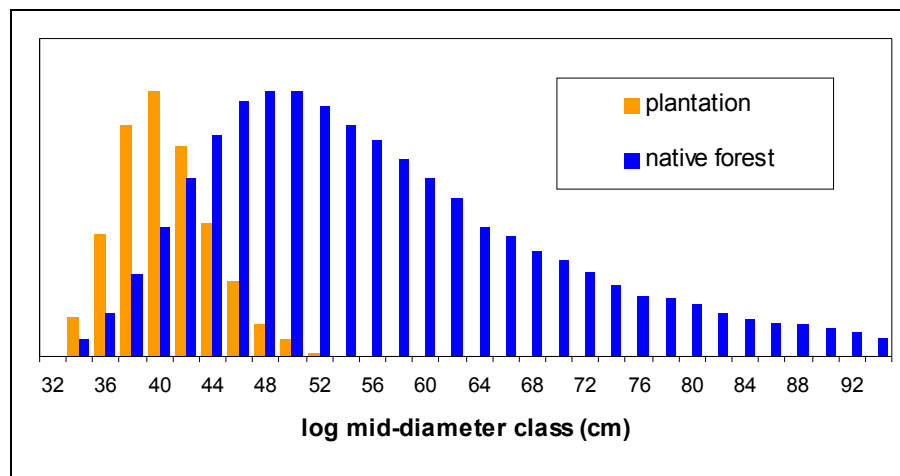


The quantity of product recovered by grade, is critical. For example, if a saw mill produces four grades of sawn product, in all likelihood the lower two grades sell for less than the average cost of production: if log quality declines and a the grade distribution shifts towards the poorer grades, a sawmill can become non-viable just as if it lost overall recovery.

Conversely, if overall recovery, and more importantly grade recovery improves, a sawmiller is able to pay more for a saw log of a given size, sawing costs will not have changed but overall sawmill income will be increased.

Plantation-grown hardwood logs, and to a lesser extent regrowth native forest logs, are smaller than the traditional high quality sawlogs historically sourced from mature native forest: The following chart (reproduced from Forestry Tasmania 2007) shows high quality native forest sawlogs average 57cm (mid-diameter) ranging from 33 cm to greater than a metre, whilst plantation sawlogs will average 40.5 cm and range from 33 to 52cm (mid-diameter).

Figure 16 – Log Size Distribution of “High Quality Sawlogs from State Forest



Log size distribution of “high quality” sawlogs sourced from hardwood plantation and native forest (reproduced from FT 2007).



As earlier demonstrated plantation-grown logs also show high levels of inherent growth stress, and subsequent sawn boards appear to be more prone to degrade when dried than boards from mature native forest logs this reduces the yield that can be achieved from a given quantity of logs and reduces the grade recovery through defective boards being degraded to lower grades.

The recovery of high grade sawn timber from trees is a vital component of the price or stumpage that can be paid to the grower. In turn this will drive the extent to which the grower can justify the level of active management (silviculture) of the plantation. The simple equation is that the higher the recovery of high quality sawn product the higher the stumpage that can be viably paid to the grower.



7. Land Availability for Plantations

A significant issue that will need to be resolved if a full transition can ever be seriously contemplated is the area of land that is available for the establishment of plantations being grown on very long rotations for the production of sawlog grade products.

We have already discussed the plantation estate that is available on public land and the reality is that this area is not likely to expand beyond its current level due to a number of confounding policy positions including the Protection of Agricultural Land Policy (PAL), and the impact of the Permanent Native Forest Estate Policy (PNFEP). Both of these enactments contain an express bias against plantation establishment.

In addition voluntary environmental certification schemes prohibit any new conversion of native forest for the establishment of plantations, or indeed for any other purpose. In this context both the Australian Forestry Standard and the Forest Stewardship Council certification schemes expressly prohibit the practice of conversion of native forest to other land uses. One or both of these certification schemes apply to all major plantation growers in Tasmania.

In reality these factors in combination will act to seriously limit the amount of land that will be available to industry to create a viable extent of plantation forestry to permit the consideration of a total transition from native forest to plantation forestry.

Estimates of the total land area of plantations managed on the “Lonely Happy Tree” silviculture considered necessary to meet the international best practice approach as observed in the recent mission suggest that the following areas will be required: -



Figure 17 – Area required for “Lonely Happy Tree” Silviculture – Peeler Logs

		management regime	
		200sph P6m	200sph P11m
clearfall age	(years)	25	25
peeler MAI	(m ³ /ha/yr)	5.9	9.8
size fraction (SED, cm)	>45	61%	48%
	30-45	39%	50%
	20-30	0%	2%
log volume required	(m ³ /year)	265,000	265,000
area of trees required	(ha)	44,613	27,163
land-use-efficiency		80%	80%
total estate area required	(ha)	55,766	33,953

Greaves, Bruce (2010). "Growth model analysis: the estate area required to sustainably produce 265,000 m³ of pruned eucalypt plantation peeler logs per year". Strategic Forestry Research Pty Ltd Client Report for Forest Industries Association of Tasmania. 16 July 2010. p.18.

Figure 18 – Area required for “Lonely Happy Tree” Silviculture – Peeler Logs

		management regime	
		100sph P6m	100sph P11m
clearfall age	(years)	25	25
pruned sawlog MAI	(m ³ /ha/yr)	5.7	9.0
size fraction (SED, cm)	>45	98%	94%
	40-45	1%	4%
	35-40	0%	1%
	30-35	0%	0%
log volume required	(m ³ /year)	150,000	150,000
area of trees required	(ha)	26,151	16,696
land-use-efficiency		80%	80%
total estate area required	(ha)	32,688	20,870

Greaves, Bruce (2010). "Growth model analysis: the estate area required to sustainably produce 150,000 m³ of pruned plantation eucalypt sawlogs per year". Strategic Forestry Research Pty Ltd Client Report for Forest Industries Association of Tasmania. 16 July 2010. p.16.

The above calculations demonstrate that to get the required offtakes of sawlog and peeler log to meet the requirements for a total transition from native forests into designer plantations will require a plantation estate of approximately 55,700 hectares or 78700 hectares depending on the achievability of peeler outputs and pruning capability.



As earlier stated the current Forestry Tasmania hardwood plantation estate on public land is approximately 37,000 hectares of which only 42% will be suitable to be utilised for *E globulus* plantations (15,500). This leaves a significant shortfall of available area that will need to be filled by encroaching further on previously cleared agricultural land subject to the limitations of the PAL policy.

This creates a significant conundrum for any transition strategy.

The absence of sufficient available public land for the establishment of new designer plantations for saw and peeler log production creates opportunity for private landowners either by the establishment of their own freehold plantations or through joint venture partnerships with Forestry Tasmania.

For this opportunity to be in any way realistic given the long rotation period required for any return on investment a process of incentives for landowners to create and manage such a plantation estate will be required to fund the significant investment required for the intensive silvicultural management of the estate.

Plantations in this context need not necessarily be viewed as broad acre estates as many opportunities exist to utilise other planting regimes to pursue wood production including shelter belt plantings, use of riparian zones by way of revegetation plans, reforestation of degraded land and/or for the redress of salinity issues.

Until and unless a mechanism is developed to address the shortage of available land for the establishment of designer plantations managed on a “lonely happy tree” silviculture the prospects of a successful transition are bleak.



8. Potential Transition Costs

As stated earlier in this submission it is difficult to be precise in terms of the imputed costs of any particular transition strategy because no such strategy has been properly articulated nor agreed.

FIAT has undertaken a degree of modelling of the potential impacts of the implementation of the ENGO's stated policy position as set out in <http://www.et.org.au/system/files/userfiles/Tasmanian%20Forests%20for%20the%20Future%20web.pdf> at page 30 which requires the immediate reservation of the ENGO identified High Conservation Value Forests (572,000 hectares) and the transition of the entire industry (other than some small specialised niche special species producers) out of native forests within 10 years.

Given the difficulties with this strategy identified within this submission FIAT do not accept that this is either rational or possible however it is a transition proposal that is on the table and needs to be assessed for its impacts in responding to the Terms of Reference of this Committee.

This modelled scenario demonstrates that the ENGO proposal would lead to a loss in the order of 1720 jobs in the forest industry and if one were to accept a very conservative multiplier of 1:1 an equal number of indirect jobs in the State. This would mean total job losses of approximately 3457. Many economic commentators suggest that a more appropriate multiplier would be 1:2 which would equate to total job losses of 5177. It would also require compensation payments in excess of \$1.1B.

FIAT contend that these modelled impacts are reasonably indicative of what might be expected in the event that the ENGO proposed transition were to occur in the manner it is suggested.

This is not a transition model that FIAT would be prepared to subscribe to but it is the one that is currently on the table.

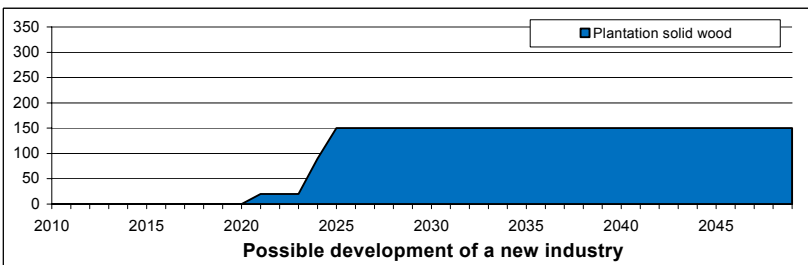
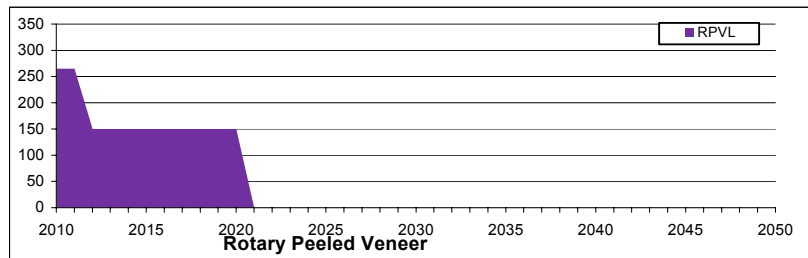
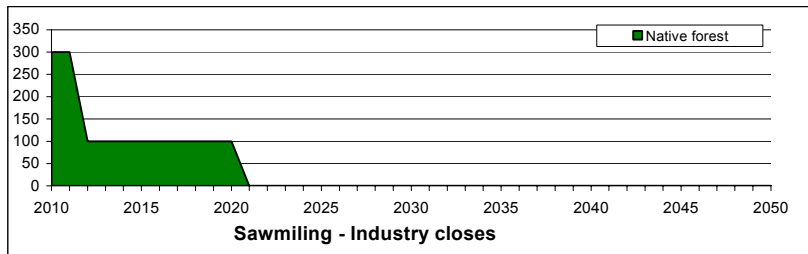


FIAT believes that it is appropriate to consider a transition strategy as part of the current round of negotiations but is firmly of the belief that any transition strategy that is considered for implementation must first solve the serious issues that have been identified within this submission, to do otherwise will be to create a train wreck of significant proportions.



Figure 19 – FIAT Assessment of Transition Costs

Public Forest Scenario 1 ENGO ('000 m³)



Additional Reservation	600,000	ha
Immediate Resource loss		
HQSL	200,000	m3
SST up to	12,500	m3
Rotary Peeled Veneer	265,000	m3
Lower Quality Sawlog Loss	57,305	m3
Pulp wood Arising	1,467,917	tonnes
Plantation expansion	nil	
Transition from Native forest	2020	
Loss annual sales	286	\$m
Continuing industry	3 HQSL mills remain for 10 years	
[Best case]	Ta Ann close	
	Southwood close	
	Country Sawmills	
Possible new industry	LVL, OSB, Biofuel	
based on existing Plantation	A pulp mill	

Immediate Costs	Existing	Loss
Jobs direct	2514	1729
Job indirect	2514	1729
Total jobs lost	5028	3457
Contractor (HH)	75	50 units
Cost of lost jobs		
Mills		128 \$ m
FT		37 \$ m
Contractors (\$m)		95 \$m
Capital value		
Standing value & roads	292	195 \$ m
Mills	530	380 \$ m
Contractor (HH) Equip	289	192 \$ m
New Plantations		
		1,026 \$ m



ENGO Scenario Impacts

HQSL Volumes

to 2011	Current harvest
2011 to 2020	100,000 native (less reserved) 0 New HQSL plantations

Immediate Impacts

	HQSL m ³	Source
Mills		
Gunns	141,000	FIAT
Other Sawmills	59,000	FIAT
Loss	<u>200,000</u>	m ³

Losses in State Native forest Sector

Jobs		
loss in growing (FT staff)	244	FIAT
loss in harvesting	518	FIAT
loss in trucks	113	FIAT
loss in mills	515	FIAT
loss in RPV	160	FIAT
loss in SST	107	FIAT
loss in chipmills	73	FIAT

Direct

multiplier	1729	
job loss in communities	1729	CHWC report
total people	<u>3457</u>	

Contractors

(harvesting & haul units)	50	TFCA
haulage only unit	13	TFCA

Capital Value

	\$m	
Saw mills	300	FIAT
Ta Ann	80	FIAT
Harvest Haul	192	FIAT
roads & structures	77	FIAT
standing timber	118	FIAT
	<u>767</u>	

\$ payments

\$million

Contractor exit capital	192
Contractor worker exit	95 at \$150,000 per worker
Mill worker exit	128 at \$150,000 per worker
Sawmill exit	380
FT reduction	37
Restructuring	to be determined
New Plantation	
managing reserves	to be determined
	<u>832</u>
loss of roads & structures	77
loss standing value of timber	118
	<u>1026</u>

Value of Mill Sales

\$ lost output	286 \$ million
----------------	----------------

Comment:

Industry Growth	solid wood plan from existing plantations \$680m new investment, \$510m income, 595 jobs
	Pulp Mill plantation based \$2.4 Billion investment, 300 direct jobs, 1617 total jobs
	\$m sales 820

Capital value of existing saw mill enterprises

1500 \$ per hqsl m3

other relevant matters

Access to SST



High-value wood resources



CRC for Forestry Bulletin 13: November 2010

Sawn timber from native forests and plantations in Tasmania

Chris Harwood ^{1,2}

¹ CRC for Forestry

² CSIRO Ecosystem Sciences

Introduction

Sawlogs are logs that can be processed into sawn timber boards. Native forests currently provide almost all eucalypt sawlogs, and all sawlogs of speciality timbers (Huon pine, blackwood, myrtle, celery-top pine and sassafras) currently processed by the Tasmanian industry.

Tasmania has approximately 220 000 hectares of eucalypt plantations. Most of this estate is shining gum (*Eucalyptus nitens*), which grows naturally in Victoria and NSW but is not native to Tasmania. There is a smaller area of blue gum (*Eucalyptus globulus*), which is native to Tasmania. Blue gum plantations are restricted to low-elevation, warmer sites as this species is less cold-tolerant than shining gum. Research carried out over several decades has established that other eucalypt species, including those commonly harvested from native forest, are not commercially suitable for sawlog production from plantations in Tasmania.

Tasmania also has approximately 75 000 hectares of softwood plantations. The only softwood species planted is radiata pine (*Pinus radiata*).

There are important differences in the eucalypt sawn timber produced from native forests and plantations, in part related to species and in part to silviculture (i.e. how the trees are managed). These differences affect the potential uses of plantation eucalypts for sawn timber. This must be acknowledged as Tasmania considers a transition away from the use of native forests towards plantations.

Native forest sawlogs and sawn timber

Eucalypt trees in native forests typically regenerate in dense stands. Intense competition for light between trees during the early part of the growth cycle shades the branches on the lower part of the stem, which die and are shed before the trees reach a large diameter (Figure 1). This shedding minimises knots in the wood that grows in later years. Because of this, most boards cut from a good sawlog have few knots or other defects. However, major wood defects due to fire, wind, decay or other damage may develop over decades of tree growth, making some trees unsuitable for sawing.

Defect-free sawn boards are marketed as 'select' grade. Boards with knots, gum veins, holes, discolouration, insect damage or other defects are marketed as 'standard' grade, or—if defects are very prevalent—as 'high feature' grade, which cannot be sold at prices that recover the cost of production.¹

The three most commonly-used native forest eucalypt sawlog species, *E. obliqua* (stringybark or messmate), *E. delegatensis* (gum-topped stringybark or alpine ash), and *E. regnans* (mountain ash), are all marketed as Tasmanian oak.

¹ Grading rules are provided in Australian Standard AS2796 Timber – Hardwood – Sawn and milled products (1999).



Figure 1.

Eucalyptus obliqua (Tasmanian oak) regrowth at 24 years of age, at Warra in southern Tasmania (photograph: Forestry Tasmania)

Plantations, plantation sawlogs and sawn timber from plantations

Eucalyptus

Eucalypt pulpwood plantations

More than 80% of Tasmania's eucalypt plantations have been established with the intention of producing pulpwood. At the relatively wide (compared to native forest regeneration) initial tree spacing used in plantations, shining gum and blue gum trees develop large branches on the lower stem and hold onto them after the branches die (Figure 2). Without pruning and thinning (see below), such plantation trees neither produce knot-free wood nor attain sufficient log diameter to produce wide sawn boards.



Figure 2.

Dead branches retained in a 13-year-old shining gum plantation

Eucalypt sawlog plantations

About 40 000 hectares (less than 20%) of Tasmania's eucalypt plantations are being grown under 'sawlog' regimes that include pruning and thinning, with the aim of producing large-diameter pruned, knot-free sawlogs (Figure 3).

Pruning: the best 300 or so trees per hectare have their lower branches pruned in three successive 'lifts' to a height of 6.4 m above ground during the first five years of the plantation's life, in order to provide a future sawlog. Pruning requires investment of more than \$1000 per hectare early in the life of the plantation. It is not possible to produce knot-free sawlogs by pruning at a later age; once the branches have died, the stem grows around the dead branch-wood.

Thinning: harvesting the smaller and poorly-formed trees early in the life of a plantation enables the retained, pruned trees to grow more rapidly to produce knot-free 'clearwood' and reach the target sawlog diameter of at least 40 cm in 20–25 years. This log diameter is required for quarter-sawing, which reduces defect levels in sawn boards relative to back-sawing, which must be used on smaller logs.



Figure 3.

Taking a wood sample from a pruned tree in a thinned plot 22-year-old research plantation of shining gum in north-east Tasmania. Note the large log diameter and absence of branches in comparison to Figure 2

Sawn timber from unpruned shining gum and blue gum plantations

EcoAsh®, a structural timber product sawn from 9- to 16-year-old shining gum logs from unpruned plantations, has been marketed by FEA Ltd (<http://forestenterprise.com/ecoash/index.php>). This product contains knots and small cracks that do not affect its utility in construction applications. EcoAsh is slightly stiffer and stronger than machine-graded pine (MGP10), and is sold at a similar price. A specialised multi-saw mill is required to saw these small-diameter plantation eucalypt logs: the sawmills used to mill native-forest eucalypt sawlogs cannot be used.

Logs from unpruned shining gum and blue gum plantations yield very low recoveries of knot-free boards. Most boards from unpruned logs contain dead knots, which are often loose and associated with wood decay and cracking around the knot (Figure 4). This level of knot-related defects reduces the grade of sawn boards to 'high feature' or 'pallet' grade, which are not usable for high-value 'appearance' applications such as furniture, flooring, mouldings or window-frames, for which native forest 'select' grade boards are used.



Figure 4.

Boards of plantation-grown *Eucalyptus nitens* from an unpruned log (above) and a pruned log (below)

Appearance-grade timber from pruned shining gum and blue gum plantations

The supply of pruned shining gum and blue gum sawlogs is not yet sufficient to develop commercial processing and sales or to establish prices for sawn boards. A significant supply will not become available until the 2020s.

Processing trials have been carried out on logs from the first pruned plantations of these species established in Tasmania, Western Australia and Victoria in the 1980s, enabling us to get some idea of processing performance, board quality and limitations of the sawn boards. The properties of plantation-grown boards differ significantly from those of boards cut from Tasmanian native forest eucalypt sawlogs. These differences make plantation boards less suitable for some end-uses, as explained below (see page 5).



Radiata pine

Tasmanian pine plantations yield sawlogs that are processed for both structural and decorative (appearance-grade) applications. They also supply large volumes of logs for paper pulp production. Most of the radiata pine plantations in Tasmania are not pruned.

Structural pine timber

MGP10 (machine-graded pine) structural timber is typically sold as 90 × 35 mm cross-sections for house framing. MGP10 refers to the stiffness: MGP10 boards must have an average batch stiffness of at least 10 GigaPascals. MGP12 pine structural timber is stronger than MGP10, and is about 30% more expensive.

Appearance-grade pine timber

Most boards from unpruned radiata pine logs will have knots every metre or so, but knots are usually sound—that is, they are part of the board rather than being loose, decayed and falling out.

Important differences in sawn wood properties of timber from native forest, plantation eucalypt and plantation pine

Checking

Plantation-grown shining gum is prone to checking, which is expressed as small cracks where the wood tears itself apart because of stresses that occur during drying. In many of the processing trials on shining gum, surface checking and checking inside the boards (internal checking) limited product value by lowering the board grade and the likely selling price of boards for appearance applications.

Recent trials carried out by the CRC for Forestry showed that levels of checking in shining gum could be reduced by using appropriate sawing, drying and reconditioning techniques. Following carefully managed steam reconditioning, which is carried out after drying of boards to recover some of the shrinkage, 80–90% of the boards had no surface checking, and 60–70% were free of visible internal checking. However, internal checks had formed during drying, and while the great majority had closed up completely after reconditioning and were not visible, they were still present as hairline cracks inside the board (Figure 5). Closed internal checks may affect re-processing into final manufactured products and product use. For example, if checks are exposed during re-sawing and the wood is then exposed to varying humidity, they may open up and appear as cracks on furniture surfaces. This may limit the range of appearance applications for plantation-grown shining gum. Note that some checking can also occur in boards from native forest eucalypts.

Checking in shining gum can be effectively eliminated by cutting very thin boards, but this would increase processing costs, and there are limited markets for such thin boards.

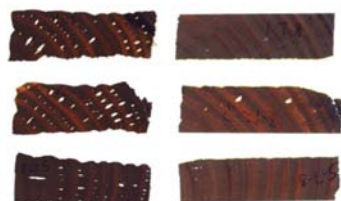


Figure 5.

Matched cross-sections of three shining gum boards before (left) and after steam reconditioning (right)

Tension wood

Research trials with plantation-grown blue gum show it to be less prone to checking than shining gum. Blue gum is, however, more prone to the formation of tension wood. Bands of tension wood in blue gum cause excessive shrinkage and distortion of boards during drying. This increases processing costs and reduces recovery of saleable boards. Tension wood in blue gum plantations can be reduced to acceptable levels with appropriate silviculture; this is the subject of ongoing research.



Wood stiffness and hardness

Stiffness (degree of bending when under load) of plantation-grown shining gum timber is about 12 GPa, which is slightly stiffer than MGP10 structural pine, but substantially less than Tasmanian native-forest eucalypt boards, which have stiffness levels typically exceeding 16 GPa. Plantation-grown blue gum is slightly stiffer than shining gum. Timber from plantation-grown shining gum has sufficient stiffness and strength to be used for some structural applications such as house framing.

Hardness describes the resistance of the wood to surface denting (critical for applications such as exposed flooring), and is measured in kiloNewtons (kN). 20-year-old plantation-grown shining gum has a hardness of about 4.5–5 kN after drying, which is similar to that of native forest *Eucalyptus regnans* and *Eucalyptus delegatensis*. Radiata pine boards have a lower hardness of about 3.3 kN, while plantation-grown blue gum has slightly greater hardness than shining gum. The most widely-sawn Tasmanian native forest timber, *Eucalyptus obliqua*, has a greater hardness (about 7 kN), making it more suitable for flooring than plantation-grown timber. Greater density and hardness make slow-grown native forest wood more durable and more suitable for uses where it is exposed to outdoor conditions, such as window frames.

Appearance

Because plantation-grown logs are grown much faster than native forest logs, the annual growth rings are further apart. This gives the sawn boards a different appearance to boards cut from slower-grown native forest logs.

Pricing comparison of native-forest eucalypt, plantation eucalypt and radiata pine boards*

Table 1 summarises Hobart retail prices (June 2010) for some of the boards discussed above.

Table 1. Retail prices of sawn boards from Tasmanian native forests and plantations

	Cross-section dimensions	Price per lineal metre	Price per cubic metre of sawn product
Native forest eucalypt			
Select-grade boards ²	110 x 19 mm	\$7–8	\$3500–4000
High feature or utility-grade boards			Not sold retail
Radiata pine plantation			
MGP10 structural	90 x 35 mm	\$3.00	\$940
Standard pine boards	120 x 19 mm	\$3.30	\$1450
Shining gum plantation*			
EcoAsh structural boards from unpruned 9–16 year-old logs	90 x 35 mm	\$3.00	\$940
Select-grade boards from 20–25 year-old pruned logs			Price not yet established

*Plantation-grown blue gum has not yet been commercially marketed in Australia

Select-grade native-forest eucalypt boards fetch about four times the price (per cubic metre of sawn product) of structural boards from unpruned plantations of shining gum and radiata pine.

² Standard-grade boards sell at a discount of 20–25% relative to select grade boards.



Annexure 2

Tasmania's Forest Facts May 2005

	Area (Hectares)	Comment	Source
Area of Tasmania	6,840,000		RPDC Background Report RFA review
Reserved Land			
Land reserved prior to Regional Forest Agreement (RFA)	2,255,000		RPDC Background Report RFA review
New Land Reserves achieved by RFA 1997	458,000		RPDC Background Report RFA review
New Land Reserves achieved by Tasmanian Community Forest Agreement 2005	148,400		Tasmanian Community Forest Agreement Fact Sheet No 3
<u>Total land reserves after Tasmanian Community Forest Agreement</u>	2,861,400	42% of land	Tasmanian Community Forest Agreement Fact Sheet No 3, Note this reference states nearly 2.9 million ha. The area stated is the sum of the existing and additional reserves
Forest Cover			
Pre 1750 Estimate	4,822,210		Table 3.2 Options for the Tasmania - Commonwealth Regional Forest Agreement 1997
Existing forest cover (all age types)	3,207,250	66.5% of original	Supplementary Tasmanian Regional Forest Agreement dated 13 May 05, Table 1
Forest Reservation			
Public Forest reserved prior to Tasmanian Community Forest Agreement 2005	1,306,990		Supplementary Tasmanian regional forest Agreement dated 13 May 05, Table 1
Additional public forest reserved by Tasmanian Community Forest Agreement 2005	135,450		Supplementary Tasmanian Regional Forest Agreement dated 13 May 05, Table 1
<u>Total Public Forest Reserves</u>	1,442,440	45% of forest	Supplementary Tasmanian regional forest Agreement dated 13 May 05, Table 1 Note this reference states the % the area shown is the sum of the existing and additional reserves
Old Growth			
Area of old growth assessed in the Regional Forest Agreement 1997	1,246,280		Supplementary Tasmanian Regional Forest Agreement dated 13 May 05, Table 1
Public Old Growth reserved prior to the Tasmanian Community Forest Agreement 2005	856,990		Supplementary Tasmanian Regional Forest Agreement dated 13 May 05, Table 1
Additional public old growth forest reserved by Tasmanian Community Forest Agreement 2005	120,490		Supplementary Tasmanian Regional Forest Agreement dated 13 May 05, Table 1
<u>Public Old Growth reserved</u>	977,480	78% reserved, see Note 1	Supplementary Tasmanian regional forest Agreement dated 13 May 05, Table 1 Note this reference states the % the area shown is the sum of the existing and additional reserves
Old Growth on Private Land reserved to 30 Jun 2004	5,000		Tasmanian Community Forest Agreement Fact Sheet No 8
Old Growth on Private Land to be reserved by Tasmanian community Forest Agreement (minimum)	25,000		Tasmanian Community Forest Agreement Fact Sheet No 1
Total public & private Old Growth to be reserved by the Tasmanian Community Forest Agreement	1,007,480	81%	Addition of Public and Private Reserves, % reserved of OG assessed in the 1997 RFA
High Quality Wilderness (NWI >12)			NWI is the National Wilderness Index published by the Australian Heritage Commission
Area of high quality wilderness assessed in the RFA	1,943,570		Table 3.7 Options for the Tasmania - Commonwealth Regional Forest Agreement 1997
High quality wilderness reserved before the Tasmanian Community Forest Agreement 2005	1,836,300		RPDC Background Report RFA review
<u>High quality wilderness now reserved</u>	1,885,300	97% of high quality wilderness	Tasmanian Community Forest Agreement Fact Sheet No 3, Note this reference states the %, the area used is a calculation of that % of total HQ Wilderness
Note 1: These figures relate to public land only . The Tasmanian Community Forest Agreement reserves a million hectares of old growth by targeting another 25,000 ha on private land in addition to the estimated 5,000 ha of old growth already reserved on private land, through the Private Forests Reserve Program that has reserved a total of 34,600 ha of forest on private land as at May 2005.			