Submission by the
Forest Industries Association of Tasmania

to

The Renewable Energy Sub Group Secretariat
Renewables, Offsets and COAG Branch
Department of Climate Change
RET@climatechange.gov.au

on the

Design Options for the Expanded National Renewable Energy Target Scheme

30 July 2008

Forest Industries Association of Tasmania

Contents

1. Overview

FIAT congratulates the COAG Working Group on Climate Change and Water on the compilation of the *Design Options for the Expanded National Renewable Energy Target Scheme* paper.

FIAT is a member of the National Association of Forest Industries and FIAT endorses and supports the comments made by the National Association of Forest Industries in their submission on the *Design Options* paper.

FIAT strongly supports the proposal that forest biomass from both plantations and native forest be included as eligible sources, but very strongly urges amending of the existing ***Renewable Energy (Electricity) Regulations*** to allow any forest-based biomass to be eligible. Eligibility should encompass a mandated requirement that biomass is sourced under ecological sustainable forest management principals such as those enshrined in the existing Regional Forest Agreements and/or internationally recognised sustainable forestry standards such as the Australian Forestry Standard and the Forest Stewardship Council certification scheme, and that utilisation of the biomass as fuel meets criteria of maximising net benefit when compared to other options for utilising the wood.

Currently the sustainable management and harvesting of Australia's production forests is producing more than four million tonnes of woody biomass each year, wood that is not suitable for solid wood or fibre utilisation, and which is currently being burned in controlled forest-regeneration fires and/or left to decay on the floor of the regenerating forest. This material does not include the nutrient-rich fine biomass such as bark and foliage, and contributes little to the maintenance of environmental and ecological values of the forest. Worse still, this larger woody biomass produces the bulk of the smoke from regeneration burns, and thus our failure to utilise it wisely greatly increases the nuisance value of the necessary controlled forest regeneration fires.

FIAT estimates that utilisation of the currently wasted four million tonnes of woody biomass per year Australia-wide could provide around 4 million megawatt-hours of renewable, emissions neutral electricity - equivalent to around 9% of the defined 45 million megawatt-hour renewable energy target in 2020. FIAT strongly contend that in the emerging carbon-constrained world, the wasting of forest residues must not continue to be tolerated, let alone encouraged. Specifically FIAT contend that all forest biomass should be allowed to be used for generation of Renewable Energy Certificates providing that it is produced under ecological sustainable forest management practices such as are enshrined in Regional Forest Agreements and/or in internationally accredited forest certification schemes such as the Australian Forestry Standard and the Forest Stewardship Council certification scheme.

FIAT considers the target of 45 million megawatt-hours of renewable electricity generation by 2020 will be a difficult target for Australia to meet, and will require increased use of high-power-cost technologies such as solar-photovoltaic. Given that co-firing of biomass in existing coal generation facilities represents one of the cheapest renewable electricity generation options available, we should not only reduce any impediments to such developments but actively encourage them in order that the renewable (electricity) energy target can be met whilst keeping any associated increase in average electricity costs to a minimum.

FIAT also contend that since the renewable target is to be increased from 9.5 to 45 million megawatt-hours, that the non-REC-eligible baseline renewable generators (representing 16 million megawatt-hours) be included in the scheme and be eligible to generate Renewable Energy Certificates and that the target be subsequently increased to 60 million megawatt-hours per year.

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

FIAT's member businesses include all of the State's larger processors of forest products. They utilise most of the crown sawlog output as well as all of the timber 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.

Included within the FIAT membership are the State's largest industrial forestry companies that account for the vast bulk of plantation development and management enterprises on private land in Tasmania and the largest private sector native forest management enterprises in the State.

As such FIAT and its members have a significant interest in forest policy generally and the National Renewable Energy Target scheme specifically.

FIAT's objectives and role are described in our Annual Report as follows: -

Objectives:

1. To provide a focus for the formulation of forest industry policy and to present an industry perspective to community decision-makers and to the public; and

2. To develop and co-ordinate an "industry service function," notably training and education, timber marketing, research and industrial relations, and other matters which need to be addressed on an industry-wide basis.

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 considered at both the Federal and State Level.

Industry's public image depends 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, to project the membership position in wider forums as appropriate and to encourage other bodies to participate positively in the public debate to ensure that the industry retains public support and a "social license" to operate.

3. FIAT comments

General comments

The Mandatory Renewable Energy Target (MRET) was designed to support the reduction of Australia's greenhouse gas emissions by increasing the proportion of Australia's electricity that is derived from renewable energy sources. Renewable Energy Certificates (RECs) each represent the equivalent of one megawatt hour of electricity generation from an accredited renewable energy source.

FIAT understands that the existing MRET scheme has, to-date, effectively achieved the targeted increases in the generation of renewable-based electricity over the defined baseline (Figures 1 and 2), bringing the total production of extra (above baseline) renewable electricity in Australia to around 23 million megawatt-hours by 2007 (Figure 2). FIAT note the MRET baseline, below which producers are not eligible to receive Renewable Energy Certificates, is around 16 megawatt-hours per year. FIAT note that 74% of Renewable Energy Certificates issued in 2007 were for wind, solar-hot-water and hydro-based electricity, being: wind-based electricity generation (35%), solar hot water heaters as deemed substitution of electricity consumed (22%), and hydro-electricity (17%). Wood-waste based electricity generation accounted for only 0.3% of RECs issued.

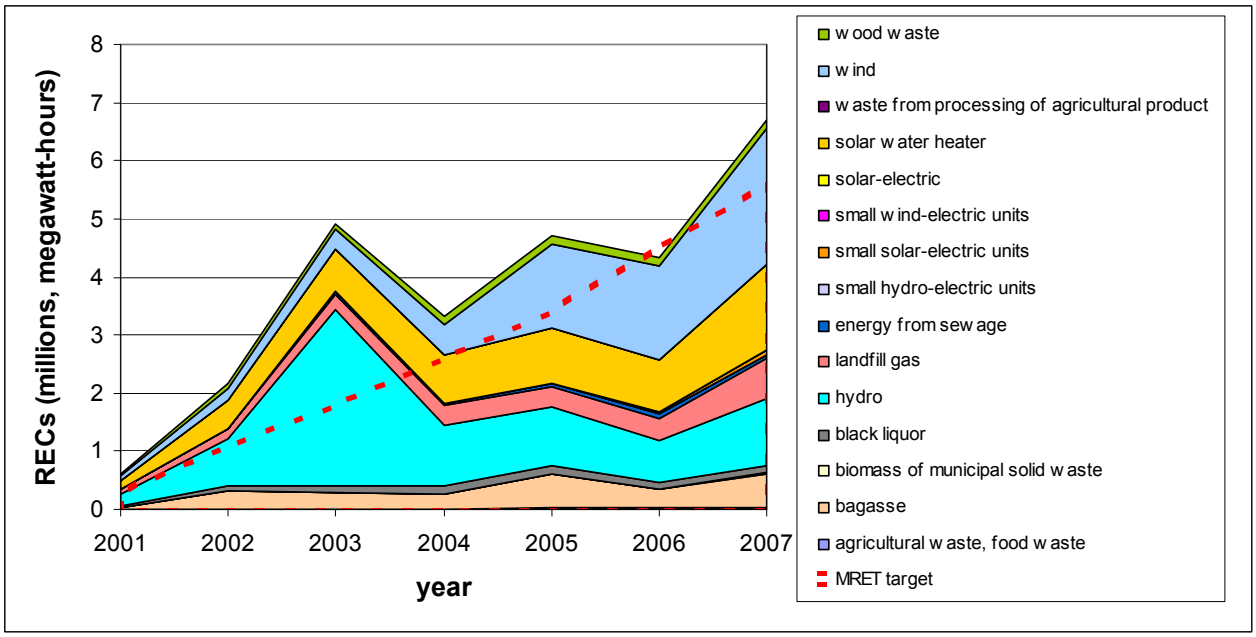

Figure 1: Renewable energy certificates issued by year and (reproduced from data contained in Annual reports of the Office of the Renewable Energy Regulator).

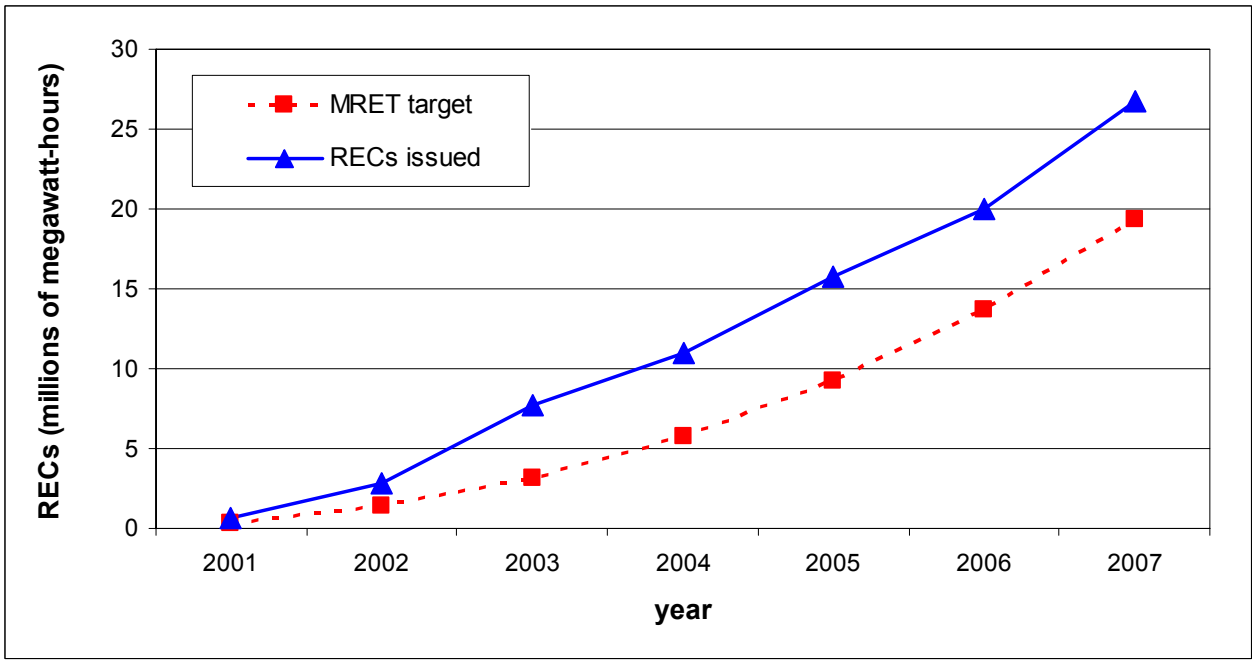

Figure 2: Total Renewable Energy Certificates (RECs) issued under the scheme since scheme start, by year, and the total target (reproduced from data contained in Annual reports of the Office of the Renewable Energy Regulator).

On Section 2.2 - Eligible sources

Wood is essentially stored atmospheric carbon held together with sunlight. If we burn wood we release the stored carbon (as carbon dioxide) and the stored solar energy - in perfect balance. We cannot keep a forest as a permanent carbon store as trees grow old, die and decay, only to grow again when the forest regenerates - forests are in a state of constant carbon flux.

When forests are harvested to extract logs for solid-wood and fibre products only the larger and reasonably shaped logs are removed. The volume of woody biomass not removed (including branches, stumps and otherwise unusable stem-wood) is in the order of 30% to 40% of the volume of logs that are currently harvested from native forests (Raison et al. 2002 for example - reproduced in Appendix 1). There is further biomass in foliage, understorey and in residual material on the forest floor. As around 10 million cubic metres of logs are harvested from Australia's native forests every year, the volume of residual material from commercial harvesting operations is in the order of 3 to 4 million cubic metres per year. There are economic issues in respect of recovering particularly small pieces of forest biomass and the feasibly recoverable volume in the current economic climate would be a lesser estimate: MBAC Consulting (2002) estimated the extractable residual biomass potential of Australia's production native forest to be 2.2 million tonnes per year without any increase in the area of forest harvested.

Most of Australia's harvested native forest is eucalyptus forest. Eucalyptus forests, almost without exception, are naturally regenerated by fire. As such, management of much of Australia's native production forest involves controlled regeneration fires following the harvesting operations, as integral components of the process of achieving the regeneration of the natural forest system.

The burning of the fine biomass forest components (branches smaller than 20 mm in diameter, bark and leaves) play an important part in the achievement of a successful

regeneration event: the fine fuels contribute the bulk of the intense heat and they contain almost all of the held nutrients, critically the nutrient phosphorus, which is mineralised and made available to the regenerating forest by the fire. The larger biomass elements (larger branches, stem-wood sections and stumps) contribute little to the mechanisms of forest regeneration but combust slowly following the peak of the fire producing the majority of the resulting smoke.

Elsewhere in the world forest managers are developing systems to enable the harvesting of virtually all forest biomass on a site: small branches, foliage and understorey plants are bundled into “biomass logs” using purpose-developed machines, the “logs” are then easily handled and transported. There is evidence that such complete biomass removal can reduce subsequent-rotation growth-rates and biodiversity, as removal of foliage and bark removes critical nutrition from the site. Sensible sustainable forest management, including ecologically sustainable forest management, would balance removal of biomass to meet society’s consumption needs with retention of biomass to maintain environmental attributes. The useable-biomass estimate reported above, that Australia’s production native forest could provide 2.2 million tonnes of biomass residues associated with current harvesting for solid-wood and fibre logs, does not include the removal of fine biomass components such as bark, foliage and understorey.

One green tonne of woody biomass, containing around 0.55 tonnes of “wood” and 0.45 tonnes of water, has a gross heat value of around 10 gigajoules per tonne. With current conversion technology about one third of the gross heat value can be captured as electricity: i.e. around 3.3 gigajoules, or 0.9 megawatt-hours of electricity per green tonne of woody biomass. Thus 2.2 million tonnes of native-forest harvesting-residue biomass could be used to produce around two million megawatt-hours of electricity, renewable carbon-neutral electricity.

Similarly, MBAC Consulting (2002) estimated the harvesting residues from Australia’s plantation forests to be around two million tonnes of green biomass - equivalent to a further 1.8 million RECs. Australia’s plantation forest estate is still growing, and by 2020

the harvesting residues from Australia's plantation forests with the potential to be used as biofuel is expected to be significantly greater still.

Thus Australia's production forests are in a position to relatively easily produce biofuel which could be used to generate around 3.9 million RECs - biomass that is currently being largely left to be burned in regeneration burns and/or decay, releasing the stored atmospheric carbon for no gain to anyone. Worse, because the larger biomass residues are not removed, forest regeneration burns produce much more smoke than they would otherwise have to.

The current legislated regulations applicable the MRET scheme restrict the use of forest harvesting residues for generating RECs. State legislation in Victoria and NSW prohibit the use of native forest residues for electricity generation. This is a ludicrous situation.

As stated in the IPCC Fourth Assessment Report of the IPCC (IPCC 2007):

> *"Mitigation options by the forestry sector include extending carbon retention in harvested wood products, product substitution,* ***and producing biomass for bioenergy****."* (p.543, IPCC 2007 - note that the embellishment of text is not in the original document).

Every time we burn fossil fuel instead of wood we introduce carbon into the atmosphere-biosphere cycle, carbon that has been stored out of the cycle for the last 150 million years. Conversely, when we burn wood instead of fossil fuel we temporarily release carbon from the biosphere back into the atmosphere, temporarily because when the next tree grows the carbon is reabsorbed back from the atmosphere to the biosphere. Burning fossil fuel instead of wood, whilst letting wood residues be burned in forest fires or decay, is very irresponsible and results in the emission of greenhouse gasses unnecessarily.

The restrictions on the use of native forest residue for energy generation derive from concerns that removal of forest biomass will negatively impact on the forest environment

and its ecology. The environmental protection of our production native forest environments is enshrined in Regional Forest Agreements, and ***Regulation 8 (2) (c)*** of the ***Renewable Energy (Electricity) Regulations 2001 (amended 2007)*** clearly requires native forest biomass for RECs to come from such ecologically sustainably managed forests, appropriately recognising Regional Forest Agreements as protecting and maintaining ecologically sustainability:

> (c) either:
>
> (i) if it is from an area where a regional forest agreement is in force — produced in accordance with any ecologically sustainable forest management principles required by the agreement; or
>
> (ii) if it is from an area where no regional forest agreement is in force — produced from harvesting that is carried out in accordance with ecologically sustainable forest management principles that the Minister is satisfied are consistent with those required by a regional forest agreement.

FIAT contend that the ***Renewable Energy (Electricity) Regulations*** requirements for maintenance of the environmental and ecological characteristics of forests could be reinforced by requiring forest biomass sources to be derived from forests certified under internationally recognised sustainable forestry standards such as the Australian Forestry Standard and the Forest Stewardship Council certification scheme. It is not appropriate for the ***Renewable Energy (Electricity) Regulations*** to themselves attempt to be a proxy process of certifying forest management to be environmentally and ecologically sustainable - these processes already exist and merely require recognition.

Currently the requirement that native forest harvesting residues meet the high-value-process criteria (***Regulation 8: (2) (b) (i)***, ***(3)*** and ***(4)***) is restrictive towards the sensible sustainable management of Australia's production native-forest estate. This clause states that '*the primary purpose of a harvesting operation is taken to be a high-value process only if the total financial value of the products of the high-value process is higher than the financial value of other products of the harvesting operation*.'

In practice the high-value-process test will drastically reduce, and in many cases completely prevent, the potential for wood waste from harvesting operations to be used as a source of renewable energy. It is not uncommon for native forest harvesting operations to yield a high proportion of waste products and the utilisation of these products is fundamental to the commercial viability of such operations. In particular, some native forest areas have been "picked-over" in times past to remove only the best trees - in many cases the best management of these forests is the removal of at least 85% of the standing forest to bring about the regeneration of a healthy stand. Applying the high-value-process test would result in the waste of much of the residual biomass, whilst we go on burning fossil fuels instead - wastage tantamount to criminal.

Further, the requirement that plantation-grown biomass cannot be used as a fuel to generate RECs if the plantation was established on land cleared of native forest after 1989 (***Regulation 9 (1) (c)***), whilst making no biological, environmental or economic sense, will similarly result in the wastage of significant quantities of renewable, carbon-neutral biomass fuel. This clause creates an unwarranted restriction on growers who have established plantations on land where some form of native vegetation clearing was permitted, for example in Tasmania, where a large proportion of plantations have been legally established on areas that were converted from native forests since 1990. This clause specifically places a condition on plantations that is not applicable to other energy crops or crop wastes. For example, bagasse from sugarcane crops planted on land cleared after 31 December 1989 are eligible sources under the Regulations.

FIAT strongly contend that in the emerging carbon-constrained world, the wasting of forest residues must not continue to be tolerated, let alone encouraged. Specifically FIAT contend that ***all*** forest biomass should be allowed to be used for generation of Renewable Energy Certificates ***providing*** that it is produced under ecological sustainable forest management practices such as are enshrined in Regional Forest Agreements and internationally accredited forest certification schemes.

As described above, if all the estimated biomass residues from sustainable harvesting of Australia's production forests are utilised for the production of renewable electricity, 3.9 million megawatt-hours could be produced - this is equivalent to 9% of the defined 45 million megawatt-hour renewable energy target in 2020.

Whilst it has been possible for Australia to thus far meet the renewable energy targets under the existing scheme, which cap at 9.5 million megawatt-hours in 2010, FIAT contends that achieving the 2020 target of 45 million megawatt-hours will be considerably harder.

As estimated by Short and Dickson (2003) (Table reproduced in Appendix 2) - co-firing biomass with coal in existing facilities represents the second cheapest electricity cost, of the options evaluated, after existing large hydro-electric facilities (see Figure 3 below). Dedicated biomass electricity-generation is dearer than wind or landfill gas, but considerably cheaper than dedicated energy crops, energy from crop waste and solar photovoltaic electricity generation. Given that biomass-based generation represents a relatively cheap renewable-electricity-generation option, we should not only reduce any impediments to such developments but actively encourage them in order that the renewable (electricity) energy target can be met whilst keeping any associated increase in average electricity costs to a minimum.

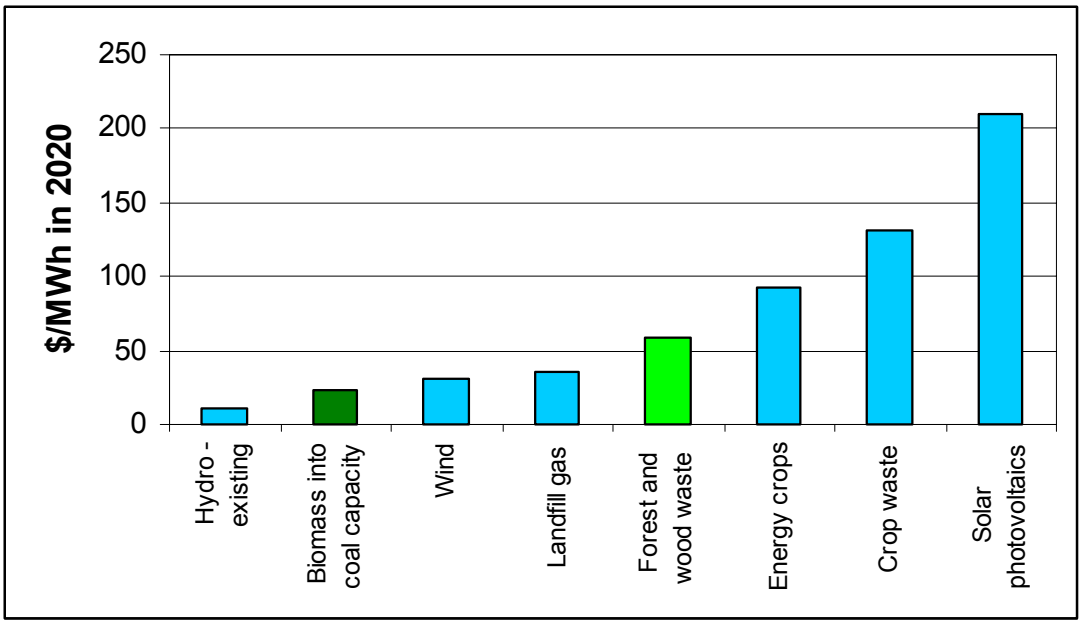

Figure 3: Predicted electricity cost ($/MWh) in 2020 by renewable energy option - after Short and Dickson (2003), Table 10 (reproduced in Appendix 2 of this document).

On other scheme design issues (Section 2)

FIAT believe:

- Unlimited banking of RECs should be allowed (Section 2.3 Banking)
- The eligibility period should not be restricted but should be the duration of the scheme (Section 2.4 Project eligibility periods)
- The scheme baseline should be dropped (Section 2.5 Existing generators), that no distinction should be made for pre- and post-1997 renewable generation capacity in the new scheme. FIAT contend that as the scheme target is proposed to be expanded to 45,000,000 RECs, that the baseline generators (equivalent to around 16,000,000 RECs) should also be included and RECs should be issued for all renewable electricity generation, i.e. that the REC target be 60,000,000 megawatt-hours.

On the scheme design approaches (Section 3)

FIAT supports Approach 1, in that it gives the greatest incentive to early investment in new renewable energy generation. In particular, FIAT contends, this will provide the greatest incentive to enable Tasmanian forest managers to respond to ongoing community concern about the impact on air quality of forestry regeneration burns.

4. Further information

FIAT thanks the COAG Working Group on Climate Change and Water for the opportunity to submit comments on the *Design Options for the Expanded National Renewable Energy Target Scheme* paper and we look forward to further constructive dialogue in the future. Please do not hesitate to contact FIAT for clarification or further information at:

Forest Industries Association of Tasmania
GPO Box 1682, Hobart, Tasmania, 7001
Telephone (03) 6224 1033, Fax (03) 6224 1030
Email fiat@fiatas.com.au

Terry Edwards
CEO - Forest Industries Association of Tasmania

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Appendix 1: Estimates of residual biomass in native forest

Estimates of biomass partitioning in native forests in southern Tasmania - reproduced from Raison et al. (2002), p. 2 and 3.

Table 1(a) Commercial and residue components assessed for fuelwood utilisation in coupes in the Southwood Catchment (m3 / ha, green or wet)

Components	Mature	Multi Aged	Regrowth	Source
Standing Non Merchantable Volume (Green)	324	259	174	FI - Sum of branch, stem, stumps, non merchantable timber.
Dead Standing	12	35	42	CFI (1)
Understorey (4)	38	12	16	FI
Downers (Fuel)	256	191	183 (3)	FI, CFI (2), ML less dead standing estimate
Downers (Residual)	94	75(3)	75(3)	FI, CFI (2) ,ML
Merchant Volume Sawlog (5)	80	74	67	W
Merchant Volume Pulpwood (5)	392	376	333	W
Total Biomass	1196	1022	890	

Notes

FI = Fuelwood Inventory 2002 – Report on potential post harvest residue levels following clearfelling in Tasmanian native forests (Forestry Tasmania, unpubl.) (Huon & Derwent, excluding Murchison data)
ML = Biomass assessment by Murray Lawrence
CFI = (1) CFI plot analysis 1999
= (2) CFI plot analysis April 2002
W = Strategic volumes from Woodstock model used for 2002 wood review.

(3) Derived from a combination of sources.
(4) Stems > 10 cm
(5) For 100% clearfall areas only

Appendix 2: Electricity cost of renewable energy alternatives

Table reproduced from Short and Dickson (2003), Table 10, page 24.

	2000		2010		2020	
	Rank	**$/MWh**	**Rank**	**$/MWh**	**Rank**	**$/MWh**
Technology						
Hydro – large, existing	1	10.95	1	10.95	1	10.95
Biomass into coal capacity	2	23.14	2	23.14	2	23.14
Bagasse, new (with wood waste)	3	32.93	3	29.71	4	29.71
Landfill gas	4	35.59	5	35.59	7	35.59
Municipal waste water	5	36.31	6	36.31	5	34.17
Wet waste	6	37.28	7	37.28	8	37.28
Hydro – large (Qld)	7	39.87	8	39.87	9	39.87
Hydro – small, various states	8	40.11	13	48.25	13	48.25
Bagasse, new	9	42.17	10	42.17	11	42.17
Municipal solid waste	10	43.60	11	43.60	10	41.03
Hydro – large (Tas)	11	48.23	12	48.23	12	48.23
Wind (Tasmania)	12	51.88	4	33.40	3	28.12
Wind (other states)	13	64.85	9	41.75	6	35.15
Forest residue and wood waste	14	74.49	14	63.62	14	58.51
Hydo – large (NSW)	15	77.79	15	77.79	15	77.79
Hydo – large (Vic)	16	81.52	16	81.52	16	81.52
Energy crops	17	98.91	17	95.02	17	92.30
Bagasse, existing	18	112.46	19	112.46	19	112.46
Black liquor	19	138.67	21	138.67	21	138.67
Crop waste	20	141.08	20	133.30	20	130.58
Solar thermal	21	169.54	18	101.06	18	97.41
Photovoltaics, remote areas	22	641.73	22	244.55	23	219.90
Photovoltaics, grid connected	23	784.34	23	254.26	22	206.27