

# NON-PERMANENCE RISK REPORT: PROTECTION OF TASMANIAN NATIVE FOREST PROJECT 1- REDD FORESTS - PILOT PROJECT



Document Prepared By Forests Alive Pty Ltd

<b>Project Title</b>	Protection of a Tasmanian Native Forest (Project 1: Redd Forests' Pilot)
<b>Version</b>	1
<b>Date of Issue</b>	2 <sup>nd</sup> August 2013
<b>Project ID</b>	641
<b>Monitoring Period</b>	13-March-2012 to 12-March-2013
<b>Prepared By</b>	Forests Alive Pty Ltd
<b>Contact</b>	210 Collins Street, Hobart, Tasmania, 7000 , jarrah@forestsalive.com, <a href="http://www.forestsalive.com">www.forestsalive.com</a>

## 1 INTERNAL RISK

The supporting documentation and evidence underpinning the risk ratings developed within the Non Permanence Risk Report are provided within the validated and verified PDD, VCS Project Id: 605

Project Management		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-ecological zone(s) in which the project is located.	0
b)	Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued.	0
c)	Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required experience is not covered by at least one individual with at least 5 years experience in the area).	0
d)	Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area.	0
e)	<b>Mitigation:</b> Management team includes individuals with significant experience in AFOLU project design and implantation, carbon accounting and reporting (eg. Individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs.	-2
f)	<b>Mitigation:</b> Adaptive management plan in place.	-2
<b>Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]</b>		<b>-4</b>
Total may be less than zero.		

### Justification for the Project Management score of -4;

Forests Alive Pty Ltd is acting as implementing partner on behalf of the project proponents (legal landowners) and is responsible for the development, validation and first verification of each project activity instance. Forests Alive is a leading forestry carbon project developer in Australia. Forests Alive personnel have extensive experience in all stages of forest carbon projects as is evidenced by the existing, registered VCS projects.

Contact person: Jarrah Vercoe  
 Title: Project Manager  
 Address: 210 Collins Street, Hobart, Tasmania, 7000  
 Telephone number: +61 (0) 417 137 751

Email: [jarrah@forestsalive.com](mailto:jarrah@forestsalive.com)

Website: <http://www.forestsalive.com>

Jarrah Vercoe is the Project Manager responsible for the implementation and management of IFM projects in Tasmania. He has a Bachelor of Science (Honours) from the University of Tasmania, 2003. His honours research comprised a critique of approaches to achieving voluntary conservation on private land within Tasmania. Following graduation, Jarrah worked as an environmental consultant for 3 years with GHD. Notably, in 2008 he delivered a large Commonwealth Government 'Caring for our Country' project across Tasmania. Prior to joining Forests Alive, Jarrah was the 'biodiversity coordinator' with NRM South.

Jarrah is supported by the Forests Alive's Technical Consultant, Lawrence Rimmer. Lawrence holds a Bachelor of Science (Hons) from the University of Edinburgh. His thesis on agricultural capabilities in Scotland was awarded the James Anthony More Memorial prize (2010). His achievements with Forests Alive include:

- Developing a calculation process for IFM projects for efficient and accurate carbon calculation processing.
- Designing standardised formats for maps produced in GIS software.
- Conducting carbon sequestration modelling using FullCAM, a Full Carbon Accounting Model produced by the Australian Government.
- Provides technical expertise for all projects and has contributed towards company documentation, government submissions and promotional material.

Dr Beatriz Garcia was born in Brazil and pursued a Law degree at the University of Brasilia. She holds a Ph.D. in International Law from The Graduate Institute in Geneva. She has written a book on the legal protection of the Amazon published in 2011 by Cambridge University Press. She has worked at the Biodiversity and Climate Change Section of the United Nations Conference on Trade and Development (UNCTAD) particularly on projects aimed at promoting trade and investment in biodiversity products and services from the Amazon. She has held positions as legal advisor at government agencies in Brazil and provided counsel for institutions such as the Amazon Cooperation Treaty Organization, The Earth Council Geneva and a few UN agencies. More recently she has been associated with the Australian Centre for Climate and Environmental Law at Sydney Law School.

Virginia Young:

Forests Alive' Managing Director, Virginia Young, has been focused on building national and international understanding of the role of natural forests in mitigating climate change since the late 1990s.

Working for The Wilderness Society, she pioneered a continental scale approach to nature conservation in Australia, called 'Wild Country'. More recently, she has completed a significant project working for Professor Jonathan West as a Verification Advisor facilitating the assessment of conservation values in areas of Tasmanian forest proposed for reservation by ENGO's.

Her interest in big picture problems and solutions led her to start exploring the role that natural forests play in fighting climate change. She has been involved in international climate processes and campaigns since 2007. She created the Ecosystems Climate Alliance who brings good science, good

policy and nature advocacy into the UNFCCC. Virginia was awarded Wild magazine's Environmentalist of the Year in 2001, and was recognised as one of 20 'Global Wilderness Visionaries' by the World Wilderness Congress in 2010."

Andrew Ratcliffe is co-founder and Chairman of Forests Alive. He also holds the position of executive director of Incon China, established to assist SMEs to do business in China, and director of Sports Entertainment Asia and Smartframe Pty Ltd. Andrew spent almost twenty years working in the financial sector, including work with Price Waterhouse Coopers, ANZ Bank, First Pacific Limited and the stockbroker Dominguez Barry Samuel Montague (now UBS). Andrew has a combined Commerce/ Law degree from the University of NSW and is a qualified Chartered Accountant.

It is standard company practice to employ external environmental consultants to complete the fieldwork: they are provided with Forests Alive's standard operating procedures and on-site training in forest inventory techniques at the start of each week of fieldwork (as specified within the Forests Alive's standard operating procedures for fieldwork).

Each project proponent has been provided with an adaptive management plan that has been developed in consultation with project proponents. The adaptive management plan is supported by the 30 year financial plan.

The adaptive management plan identifies the project risks, outlines existing mitigation strategies and provides for ongoing updating to ensure that changing circumstances are incorporated into future monitoring and management of the project area.

A full copy of the adaptive management plan is available for review by the validator.

Financial Viability		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Project cash flow breakeven point is greater than 10 years from the current risk assessment	0
b)	Project cash flow breakeven point is between 7 and up to 10 years from the current risk assessment	0
c)	Project cash flow breakeven point between 4 and up to 7 years from the current risk assessment	0
d)	Project cash flow breakeven point is less than 4 years from the current risk assessment	0
e)	Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven	0
f)	Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven	0
g)	Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven	0
h)	Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven	0
i)	<b>Mitigation:</b> Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven.	-2

<b>Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)]</b> Total may not be less than zero.	<b>0</b>
--	----------

**Justification for the financial viability score of -2;**

The Project proponent contributed significant upfront contribution to establish the IFM project on their land. The legal contract between the landowner and Forests Alive provides evidence for this and is available for review by the project validator. This contribution represents 100 % of the total project development cost.

The proponents of project 641, have already recovered 100% of the establishment costs through the sale of credits, as evidenced by their Markit account.

With regard to the availability of callable financial resources, each project proponent has a range of other sources of revenue. Under the conditions of the contract agreement with Forests Alive, by the time that the projects have reached validation, the entirety of the project costs are already paid. Ongoing, annual costs are less than 4% of the original project costs (approximately \$3000 AU) and that 5 yearly monitoring events are less than 10% of the original projects costs (approximately \$8000 AU).

Each project proponent has other sources of income and potentially credit that provides callable financial resources. This is supported by the fact that each project forms only a relatively minor part of other, agricultural activities on land owned by the proponent. The ownership of such large areas of land and the undertaking of other activities such as grazing and cropping provides the opportunity to leverage funding to cover the very modest, ongoing project costs, without factoring in any revenue from credit sales.

It also has to be recognized that the market value of each carbon credit would need to be less than \$0.20 cents (AU) in order for the ongoing project costs to not be met through the sale credits from the project.

In effect, table 2, above requires the demonstration that the proponent can access up to approximately \$3000 AU, annually during the project period with a requirement to access \$8000 AU every 5 years. It is inferred, that with such small amounts of ongoing funding required (relative to the initial cost and the cost of the other enterprises that the proponents undertake, that 'callable' financial resources are available). The use of the term 'callable' implies the need to demonstrate some form of 'financial bond' or 'security'. Again, such a financial instrument is rarely obtainable for such small volumes of required funding.

As additional evidence that such funding is available, the initial project costs and ongoing project costs are 100% income tax deductible. This actually represents a 'self supportive' funding model, given the small amounts of funding required and the fact that the reduction in tax liability provides more than enough financial resourcing in and of itself. Finally, the alternative land use is forest harvesting. This requires the outlay of significantly higher financial resources required for road construction and fees for forest practices plans.

Opportunity Cost		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are	0

	subsistence-driven, net positive community impacts are not demonstrated	
b)	NPV from the most profitable alternative land use activity is expected to be between 50% and up to 100% more than from project activities	0
c)	NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities	0
d)	NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated	0
e)	NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity	0
f)	NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity	-4
g)	<b>Mitigation:</b> Project proponent is a non-profit organization	0
h)	<b>Mitigation:</b> Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over the length of the project crediting period	-2
i)	<b>Mitigation:</b> Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over at least 100 years	0
<b>Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g or h)]</b>		<b>0</b>
Total may not be less than 0.		

The most profitable alternative land use to the IFM project is regular harvesting. Please refer to section 2.5 of the original PDD for the Pilot Project, VCS project ID:605 that explains how this score was determined. This shows that the carbon value is more than 50% profitable based upon current market values when compared to the alternative land use which represents the baseline scenario. This is the reasoning for a score of -4 in (f) above.

Since the project activity generates no financial or economic benefits other than carbon-related income, the simple cost analysis can be used.

### 2b: Option I. Apply simple cost analysis

An overview of the project costs is available for review by the validator.

The project activity only generates income from the sale of carbon credits from their native forest estate. The most significant cost involved in developing the VCS IFM project is hiring Forests Alive Pty Ltd to undertake fieldwork, technical project requirements and prepare the Project Design Documents in accordance with the Voluntary Carbon Standard.

Project Longevity		
a)	Without legal agreement or requirement to continue the management practice	18
b)	With legal agreement or requirement to continue the management practice	0
<b>Total Project Longevity (PL)</b>		<b>18</b>
May not be less than zero		

The contract between Forests Alive and the project proponent (landowner) was signed on 13 March 2010, which therefore serves as the start date of the project. The project developers began preparing the VCS Project Description Documents in June.

The project will be implemented and monitored by the project proponent, with crediting commencing with verification. The project will be verified annually, although the maximum permitted interval between monitoring events is five years.

On the 1<sup>st</sup> of February 2012, the VCS *Non Permanence Risk Assessment Tool* was implemented and requires a minimum *project longevity period* of 30 years for AFOLU projects. *Project longevity* is defined as,

*The number of years that project activities will be maintained, which may be longer than the project crediting period where projects can demonstrate that activities that maintain carbon stocks on which GHG credits have previously been issued will continue beyond the project crediting period.*

In the absence of a legally binding contract extending beyond the Project Period, the following evidence is provided to outline that the project longevity period is at least 30 years.

- The legally binding contractual agreement between the landowner (project proponent) and Forests Alive (project developer) stipulates a minimum period of 25 years. There is nothing within the contract or within the VCS standard to prevent this contract from being renewed after the 13 of March 2034.
- Additionally, not only, can the contracts be renewed but they are also highly likely to be renewed given that the carbon market will have been sufficient to ensure that monitoring is maintained to 2035, thereby indicating that there is no other, financially competitive, alternative land use and logically, the landowner would continue the project through a renewal of the contract.
- The proponent is the owner of the land,
- Each proponent has undertaken a 30 year financial assessment and this forms an integral part of the adaptive management plan for each project in which, there is a clear intention to continue the project activity (IFM) beyond a period of 30 years (renewal of the project would require the project to extend to at least an additional 30 years).

Because the contracts *can* be renewed and the project longevity *can* be extended, the project is consistent with the VCS standard and the Risk Assessment tool. As such, the project longevity is the minimum 30 year period as outlined within the Risk Assessment table. This in itself is conservative given that any extension to the project would have to be until at least year 2060.

Internal Risk	
<b>Total Internal Risk (PM + FV + OC + PL)</b> Total may not be less than zero.	14

## 2 EXTERNAL RISKS

The project proponent has a legal contract in place covering the crediting period and project period (25 years) requiring them to maintain the carbon stocks within the project area. The project area is owned by the proponent as demonstrated by land title documentation that is stamped by the Tasmanian Land Titles Office.

Land Ownership and Resource Access/Use Rights		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Ownership and resource access/use rights are held by same entity(s)	0
b)	Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the project proponent holds a lease or concession)	0
c)	In more than 5% of the project area, there exist disputes over land tenure or ownership	0
d)	There exist disputes over access/use rights (or overlapping rights)	0
e)	<b>mitigation:</b> <i>Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period</i>	-2
f)	<b>Mitigation:</b> <i>Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims</i>	0
<b>Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e+ f)]</b>		<b>0</b>
Total may not be less than zero.		

The proof of ownership is available for review by the project validator. This consists of land title documentation showing the cadastral parcel boundaries, PID and the name of the legal landowner for the project area. This documentation contains evidence of approval from the Tasmanian Land Titles Office.

The contractual agreement between the landowner and the implementing partner (Forests Alive) is also available for review. This demonstrates the landowners' approval for the IFM project to be implemented on the instance for the project crediting period.

Community Engagement		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted	0
b)	Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted	0
c)	<b>Mitigation:</b> <i>The project generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area</i>	0
<b>Total Community Engagement (CE) [where applicable, (a+b+c)]</b>		<b>0</b>
Total may be less than zero.		

Community engagement is not required to be assessed because there are no 'local populations , including those living within or surrounding the project area (given as within 20km of the project boundary) that are reliant upon the project area for food, fuel, fodder, medicines or building materials and therefore the risk rating for community engagement is zero.

The project area comprises privately owned, forested land that is managed for commercial timber extraction.. Section 2.3.2.1 of the Non Permanence Risk Tool states that "*Where local populations are not reliant on the project area, the risk is not relevant to the project and the risk rating for community engagement (CE) shall be zero. Risk Analysis and Buffer Determination Evidence **may** include social assessments such as household surveys and participatory rural appraisals*". As evidence, The Torrens Land Title legislation that determines the legal ownership (and use) of land within Australia confers 100% of the land management responsibility and use to the landowner. Due to the nature of the forest within the project area, (being assigned for commercial logging, primarily for low value products) and the legal structures governing land ownership and use within Australia, there are no communities that rely on the project areas for fuel, food, fodder, medicines or building materials. As evidence, the land is also subject to private timber reserves which '*enable landowners to have their land dedicated for long-term forest management*'. As further evidence, the key feature of Torrens Land Titles, is *that it captures all interests in a property, including transfers, mortgages, leases, easements, covenants, resumptions and other rights in a single Certificate of Title which, once registered with the State by a Registrar General or Recorder of Titles, is guaranteed correct by the State*. The land titles contain no references to any uses relating to food, fuel, fodder, medicine or building materials.

Finally, Tasmanian Native Forests do not contain 'food', 'fuel' or 'medicines' and the project areas, quite clearly these forests are managed for commercial logging, not grazing. Fodder is therefore excluded. None of the project areas are relied upon by 'local populations' for building materials. This is evident when examining the logging history and projections. Almost all logging is for low value, exports (woodchips and sawn wood). No logging events have been identified historically and projected for any additions to provide building materials for 'local populations'

With regard to the generation of net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area, in the instance of Tasmanian projects, this refers to the landowner (project proponent). The financial analysis and projections for the IFM project indicate a net positive financial benefit for the landowner as a result of the project activity. With regard to local communities benefit, the retention of native forest results in a wide range of benefits including but to not limited to;

- Protection of water quality;
- Pest and disease control for nearby agricultural activities;
- Aesthetic benefits from the retention of forest;
- Broader benefit in avoiding Co2 emissions.

The main source of contention in Tasmania has been between the logging industry and environmental groups. Logging has historically provided a major source of employment and income, and environmental campaigns for forest conservation have arguably not recognised the socio-economic impact of banning

logging of native forests. Carbon financed IFM projects arguably provide a synthesis between these two positions, providing comparable employment to foresters and income to landowners while protecting the carbon stocks and biodiversity of Tasmania's native forests. This should help ameliorate any political and social tension associated with land use management in Tasmania.

2.3.2 (3) requires the demonstration that a participatory assessment of the;

*Positive and negative impacts of the project activities on the local communities who derive livelihoods from the project area has been completed and demonstrates net positive benefits on the social and economic well-being of these communities.*

In the instance of the Tasmanian projects, there are no *local communities* who derive livelihoods from the *project area*. As such, there can be no negative impacts in relation to communities, associated with this project.

As outlined above, the socio economic benefits for the broader community extend to those benefits associated with the retention of native forest.

This is the reasoning for how a score of -5 was developed for Community Engagement Risk.

Political Risk		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Governance score of less than -0.79	0
b)	Governance score of -0.79 to less than -0.32	0
c)	Governance score of -0.32 to less than 0.19	0
d)	Governance score of 0.19 to less than 0.82	0
e)	Governance score of 0.82 or higher	0
f)	<b>Mitigation:</b> Country is implementing REDD+ Readiness or other activities, as set out in this Section 2.3.3.	0
<b>Total Political (PC) [as applicable ((a, b, c, d or e) + f)]</b>		<b>0</b>
Total may not be less than zero.		

Australia has a long history of political and social stability. The main source of contention in Tasmania has been between the logging industry and environmental groups. Logging has historically provided a major source of employment and income, and environmental campaigns for forest conservation have arguably not recognised the socio-economic impact of banning logging of native forests. Carbon financed IFM projects arguably provide a synthesis between these two positions, providing comparable employment to foresters and income to landowners while protecting the carbon stocks and biodiversity of Tasmania's native forests. This will help ameliorate any political and social tension associated with land use management in Tasmania.

The World Bank Governance Indicators (WGI) have been reviewed to determine political risk. The following tables show the results from the WGI;

Country	AUSTRALIA				
	2007	2008	2009	2010	2011
Voice and Accountability	1.38	1.39	1.4	1.43	1.43
Political Stability, No Violence	0.93	0.95	0.75	0.79	0.87
Government Effectiveness	1.82	1.78	1.75	1.81	1.74
Regulatory Quality	1.67	1.76	1.77	1.64	1.79
Rule of Law	1.74	1.76	1.74	1.77	1.78
Control of Corruption	2.04	2.07	2.05	2.06	2.16

**AVERAGE SCORE: 1.60**

External Risk	
<b>Total External Risk (LT + CE + PC)</b>	<b>0</b>
Total may not be less than zero.	

### 3 NATURAL RISKS

Only fire is considered a natural risk to the project as detailed within the validated and verified PDD.

Natural Risk: FIRE	
<b>Significance</b>	<b>Minor (5% to less than 25% loss of carbon stocks)</b>
<b>Likelihood</b>	Every 10 to less than 25 years
<b>Score (LS)</b>	2
<b>Mitigation</b>	0.25

Fire:

While fires are an important part of the regeneration and breeding cycles for many plant species, threatened fauna and carbon stocks may be damaged. Eucalyptus forests are typically fire prone, but the Central Highlands are only susceptible to wildfire for a few months of the year due to the relatively cold and wet climate of Tasmania. The risk is further reduced on private property, such as the project area, which is not accessible to the public. In addition, the landowner has established strategic fire breaks through the roading system, conducts low scale burning off along the roads and keeps four fire trucks stationed on the farm. There is ongoing monitoring by organised recreation groups and all employees.

The effectiveness of these precautions is demonstrated by the fact that this property has experienced only one wildfire in the past fifty years, from an escaped logging fire in 1969. This burnt 50ha, but killed no mature Eucalypts.

#### Pests and Disease:

In relation to disease, there have been no recorded large-scale disease outbreaks within Tasmanian native forests that have resulted in significant mortality of eucalyptus trees. The two most significant diseases that occur within Native Forest ecosystems and their status is provided below;

- Myrtle Rust: Myrtle Rust has not been detected in Tasmania<sup>1</sup>.
- Phytophthora root rot (fungus): Present in Tasmania, no known outbreaks within the project areas. The disease often spreads from an area of soil disturbance such as a track or road works and for this reason; the project activity will serve to significantly reduce the risk of introducing and spreading the fungus.

Much of the literature<sup>2</sup> relating to diseases affecting Eucalypts focus upon plantations because, by their nature in comprising a monoculture of single species, they are far more susceptible to disease than native forest ecosystems.

#### Extreme Weather:

Tasmania is not located within a part of the planet that experiences cyclone / hurricane activity. The main contributing factor to cyclones is an ocean surface temperate above 26.5 degrees<sup>3</sup>. Tasmania is located at a latitude of 40 degrees south from the equator and ocean temperatures do not permit cyclonic activity.

Tasmania does experience cold winter conditions including ice and snow. Ice and snow is experienced predominantly within the mountainous, western portion of the island although snow seldom lies for more than a few weeks<sup>4</sup>. There are no records of ice storms such as those experienced within the northern hemisphere. Furthermore, the frequency of cold outbreaks with snow declined over the 40-year period to 1996, the most marked decline being during the 1980s<sup>5</sup>. The frequency of cold occurrences of the lower troposphere as measured by the above parameters also declined to 1990, but then increased again during 1992 to 1996. The decline in cold outbreaks with snow may be associated with this reduction in cold occurrences of the lower troposphere as well as reduced precipitation<sup>6</sup>.

The Tasmanian State Emergency Services recorded a detailed history of flood events from 2000 to 2009<sup>7</sup>. During this period, no floods were reported on or near the project area. Owing to the size of

<sup>1</sup> Biosecurity, Tasmanian Department of Primary Industries Water and Environment:

<http://www.dpiw.tas.gov.au/inter.nsf/WebPages/MCAS-8DV22F?open> [accessed 14/06/2013]

<sup>2</sup> I Keane, Phillip J, 2000, Eucalyptus Diseases and Pests, CSIRO publishing.

<sup>3</sup> [Atlantic Oceanographic and Meteorological Laboratory](http://www.aoml.noaa.gov/hrd/tcfaq/A15.html): Hurricane Research Division. "Frequently Asked Questions: How do tropical cyclones form?", National Oceanic and Atmospheric Administration. <<http://www.aoml.noaa.gov/hrd/tcfaq/A15.html>> [accessed 21/02/2011]

<sup>4</sup> Parks and Wildlife Service, Tasmania, <<http://www.parks.tas.gov.au/index.aspx?base=3216>> [accessed 21/02/2011]

<sup>5</sup> M. C. Jones (2003) Climatology of cold with outbreaks of snow over Tasmania *Australian Meteorological Magazine* **9** Tasmania and Antarctica Region, Bureau of Meteorology, Australia Antarctic Cooperative Research Centre, University of Tasmania, Australia

<sup>6</sup> M. C. Jones (2003) Climatology of cold with outbreaks of snow over Tasmania, *Australian Meteorological Magazine* **9** Tasmania and Antarctica Region, Bureau of Meteorology, Australia Antarctic Cooperative Research Centre, University of Tasmania, Australia

<sup>7</sup> Tasmanian State Emergency Services (2009) [Floods and You](http://www.ses.tas.gov.au/.../Floods%20and%20You%20-Final%20Report.pdf) <[www.ses.tas.gov.au/.../Floods%20and%20You%20-Final%20Report.pdf](http://www.ses.tas.gov.au/.../Floods%20and%20You%20-Final%20Report.pdf)> [accessed 21/02/2011]

Tasmania and the topography, flood events within Tasmania are typically short in duration and low in intensity. The documented flooding history below supports this, with almost of the historical references referring to *minor* flooding events. Moreover, flooding typically occurs in floodplains, which are largely cleared of forests for agricultural use.

Tasmania enjoys for the most part a "temperate maritime" climate with the sea, never more than 115 km distant, suppressing temperature extremes. The prevailing westerly airstream leads to a West Coast and highlands that are cool, wet and cloudy and an East Coast and lowlands that are milder, drier and sunnier. Annual rainfall varies markedly across the state, averaging less than 600 mm in the Midlands but over 3500 mm in some part of the mountainous west. Therefore, droughts have not plagued Tasmania to the same degree or severity as the mainland states of Australia<sup>8</sup>. Drought in Tasmania is generally not widespread: it is not unknown for one part of the state to be suffering very low rainfall, while in another the rainfall is considerably above normal<sup>9</sup>.

#### Geological Risk:

The last recorded volcanic activity within Australia was over 5000 years ago<sup>10</sup>. There are no active volcanoes in Tasmania, or indeed on the Australian continent<sup>11</sup>. There was one earthquake of significant size recorded in Tasmania in the late 1800s, which caused some damage to buildings in Launceston.

With the last recorded quake occurring more than 100 years ago, the probability of another such quake is considered possible but unlikely<sup>12</sup>.

#### Other Natural Risk (ON):

In accordance with the Non Permanence Risk Tool V3.2, the project risk has assessed natural risks associated with Fire, Pest and Disease, Extreme Weather and Geological Risk. There are no other natural risks that have been omitted from the assessment that could result in the loss of carbon stock within the project area.

Score for each natural risk applicable to the project (Determined by (LS x M))	
Fire (F)	0.5
Pest and Disease Outbreaks (PD)	0
Extreme Weather (W)	0
Geological Risk (G)	0
Other natural risk (ON)	0
<b>Total Natural Risk (as applicable, F + PD + W + G + ON)</b>	<b>0.5</b>

<sup>8</sup> Australian Bureau of meteorology (2010) Services for Agriculture in Tasmania. <<http://www.bom.gov.au/lam/agment/agtas.shtml>> [accessed 21/02/2011]

<sup>9</sup> Australian Bureau of Statistics (2008) Droughts in Tasmania 1384.6 - Statistics - Tasmania <[www.abs.gov.au](http://www.abs.gov.au)> [accessed 21/02/2011>

<sup>10</sup> Volcanoes of Australia, Mount Shank Eruption [http://volcano.oregonstate.edu/vwdocs/volc\\_images/australia/schank/schank.html](http://volcano.oregonstate.edu/vwdocs/volc_images/australia/schank/schank.html)

<sup>11</sup> Australian Bureau of Agricultural and Resource Economics (2010) Australian Energy Resource Assessment: Geothermal Energy, Australia. Available from <[http://www.abare.gov.au/publications\\_html/energy/energy\\_10/ch\\_7.pdf](http://www.abare.gov.au/publications_html/energy/energy_10/ch_7.pdf)> [viewed 18/02/2011]

<sup>12</sup> Tasmanian Department of Infrastructure, Energy and Resources: Mineral Resources Tasmania (2010) Earthquakes, Australia. Available from <[http://www.mrt.tas.gov.au/portal/page?\\_pageid=35,869828&\\_dad=portal&\\_schema=PORTAL](http://www.mrt.tas.gov.au/portal/page?_pageid=35,869828&_dad=portal&_schema=PORTAL)> [viewed 18/02/2011]

## 4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

### 4.1 Overall Risk Rating

Risk Category	Rating
a) Internal Risk	14
b) External Risk	0
c) Natural Risk	0.5
<b>Overall Risk Rating (a + b + c)</b>	<b>14.5</b>

### 4.2 Calculation of Total VCUs

Avoided greenhouse gas emissions associated with the implementation of IFM activities (tCO2-e), Annual:	VCS buffer (14.5%) (tCO2- e), Annual:	Voluntary carbon units (VCUs/Annual):	Voluntary carbon units over the project's lifetime (25 years):
6,063	879.14	5,184	129,597