
**KAIMIRA VENTURES LIMITED
GHG EMISSIONS REDUCTION
AND MANAGEMENT PLAN**

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1. Introduction

This is the inaugural Greenhouse Gases (GHG) emissions management plan for Kaimira Ventures. It is written post the preparation of the initial emissions inventory report for the year ended 31 March 2007. In the year immediately following that reporting period Kaimira Ventures completed the building of a purpose designed 500 tonnes production capacity winery and purchased and planted an additional 10.5 ha vineyard. Experience gained in the lead up to the preparation of the inventory report positively influenced the design and establishment of both new initiatives from the perspective of GHG emissions reduction and management. Details are provided in various sections of the plan.

Kaimira Ventures Limited has maintained a commitment to vineyard sustainability that the owners have followed since they planted their first vineyard in 1996. That commitment is recognised on wine labels and in marketing and promotional material and is a key element of the Kaimira “story”. In 2007 the company enrolled in the Sustainable Winery programme (SWNZ) and expects to gain accreditation in late 2008. This will enable sustainability certification of wines produced by the winery from the vineyards owned and operated by the company.

The move to recognise, manage and reduce green house gases emissions was a logical progression inasmuch as there are significant elements in common with SWNZ. It was also a response to questions about food miles and carbon footprint that were starting to be asked by UK customers and which required a credible response if customer loyalty was to be maintained.

Sustainability and CarboNZero compliance obligations are incorporated into all position descriptions and, where appropriate, are taken into consideration when hiring contractors. The company has a firm commitment to achieving the lowest level of GHG emission possible through operation decisions and practices and will offset any unavoidable emissions by purchasing credits that support the generation of electricity from wind power.

Given that the company is in the process of increasing production at least threefold over the next two to three years it will be important to recognise this growth in performance measures. The company will explore the development of production unit measures and bench marking wherever feasible to enable progress towards emissions reduction to be accurately tracked and managed through this growth period.

2. Aim of the GHG Emissions Reduction Plan

2.1. Sustainability

Kaimira Ventures aims to achieve the lowest level of GHG emissions possible from all facets of wine production from grape growing through to delivery to distributors and/or retailers. It will do this by:

- developing a keen appreciation of the current level of emissions,
- understanding the factors that influence the level of emissions,
- identifying opportunities to reduce or contain emissions at an acceptable level,
- developing, implementing and maintaining an on-going programme to monitor, manage and where possible reduce the level of emissions.

To the extent that some level of GHG emissions remains after those actions then the company will purchase PRE wind power carbon credits as an offset.

2.2. Organisational commitment

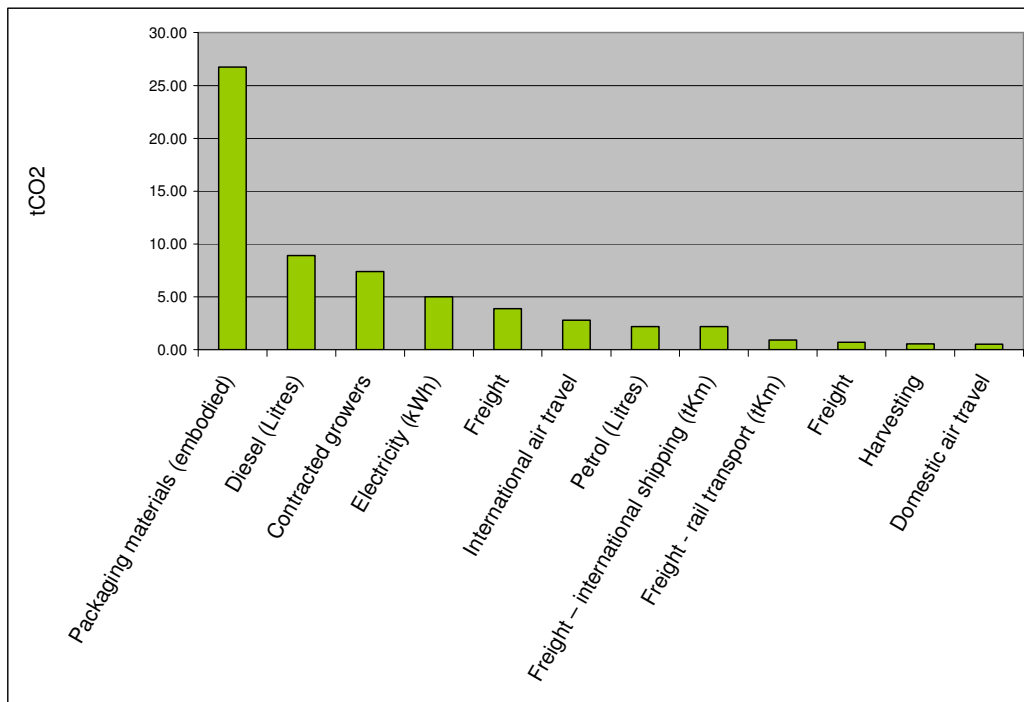
Achieving and maintaining CarboNZero accreditation will be part of the general responsibilities of all staff with accountability for specific initiatives assigned to the appropriate staff member. The positive contribution from staff will be recognised in a reward programme that starts from 1 April 2008 and provides for staff to share a percentage of company earning on the basis that maintaining SWNZ and carboNZero accreditation will be a significant influence of sales volume.

3. Significant GHG Emissions Sources

3.1. The Main Sources of GHG Emissions

The top ten emissions sources identified in the GHG inventory report account for 97.25% (60.68 tonnes) of the total assessed level of GHG emissions (62.39 tonnes)

The following graph charts the level of emission by process or activity. It shows that the largest contributor to the level of emissions is packaging at 42.84% of the total. Fuel, freight, energy and travel along with a pro-rated assessment of the contribution from the only third party grape supplier to the winery make up the top sources.



3.2. Relationship Between Emissions and Production Processes

The production and sale of wine involves a number of interrelated activities all of which generate a level of GHG emission. The following overview describes these activities as they relate to Kaimira Ventures.

Grape production

At the time the inventory report was prepared Kaimira Ventures owned and operated two vineyards with a combined productive area of 15 ha. The winery also purchases grapes from a 10 ha vineyard which operates under an exclusive supply agreement. Kaimira Ventures was responsible for the design and establishment of that vineyard and now oversees contract management and compliance with the SVNZ protocols.

The principle GHG emission sources associated with grape production are related to tractor use, electricity to run the irrigation system and the operation of trucks and quad bikes. There will also be embedded emissions in agrichemicals and fertilisers used, although in the inventory period soil tests showed only a minute amount of fertiliser was required to support the establishment of new vines.

Tractors are used for mowing, mulching, spraying, trimming, leaf plucking, netting and movement of harvest bins. All such activities are dictated by the vineyard management and SVNZ protocols e.g. spraying is carried out according to need as determined by regular structured monitoring within the vineyards as opposed to a calendar timetable that has no regard for need.

The trucks are used to move equipment between the vineyards and to bring hand harvested grapes to the winery. The quad bikes are used to tow the trailered electric motor driven weed sprayer and to move material such as posts and wire within the vineyard.

Fertilisers are applied on the basis of soil and petiole test results. The agrichemical programme is based around a field observation programme with the actual products used dictated by the SVNZ protocols.

Irrigation is managed on the basis of information from soil probes located in the vineyards. The company consistently uses far less than the permitted allocation limits as a result of this approach.

Contactors are engaged to machine harvest approximately 20% of the crop and are also called upon to assist with activities such as leaf plucking during the peak growth period.

The contract vineyard emission allocation has been based on the equivalent per hectare figures for the Kaimira Ventures vineyards in the inventory period. Discussions have been held with the owner of the property with the view to starting the collection of the relevant data directly from the property. The owner is happy to support such an initiative.

Wine making

The main source of GHG emission in the winery is electricity usage, as shown in the following chart covering the April to March cycle which usually coincides with the start and finish of vintage. Note that the 2006-07 vintage started approximately three weeks early.



The level of use varies throughout the year depending on what is happening in the winery but the profile is relatively constant and dictated by winery activities. There are essentially four peak periods.

Vintage (1-3) From late March through until mid May the winery is receiving and processing grapes. This involves the use of a receival hopper, crusher/destemmer, press, pumps, filters, cooling system, lighting and forktrucks.

Early bottling (6) The winery aims to bottle over 50% of the production in late July to mid August (Sauvignon Blanc, Riesling, Pinot Gris). The lead up to bottling involves the cooling system, pumps, filters and lighting system. During bottling the mobile bottling plant is also connected to the winery power supply and the forklift is used to move pallets to storage.

Spring bottling (9-10) In late October/early November the winery bottles the early release Pinot Noir, Pinot Gris, Rosé, Gewurztraminer and Unoaked Chardonnay wines. The process is the same as for the early Bottling.

Autumn bottling (12) This is the last bottling in the annual vintage cycle and includes the reserve Pinot Noir and Chardonnay wines as well as the main Chardonnay. The process is as for the Spring bottling.

Outside these events there is little activity within the winery apart from monitoring the wines. It is not uncommon for there to be no lighting or equipment use in these “quiet” periods.

Bottling, storage and distribution

These activities are the source of most GHG emissions. While the bottling process makes a minor contribution to emissions from electricity and LPG use the packaging – bottles, capsules and cartons – generate by far and away the majority of emissions. While the creation of such emissions is outside of the control of the winery this is clearly an area where wineries will need to work to influence suppliers to be more GHG aware and work towards reducing emissions.

During the inventory period the lack of storage capacity at the winery meant some 80% of the bottled wine had to be stored in a warehouse 22 km away in Nelson which increased the freight related emissions. The storage site itself made limited contribution to emissions, being a passive venue with limited lighting and no temperature control system but the movement of pallets to and from the warehouse to meet orders was a significant freight emissions impost.

The actual distribution related emissions were relatively modest given that most wine is moved in large consignments. No wines are delivered by air.

Administration, sales and marketing

During the inventory there administration was a part time activity and there was relatively little sales and marketing activity, however such activity was responsible for all the travel related emissions.

3.3. Rationale for Targeting Emission Sources for Reduction Action

In the year following the inventory report the following areas have been targeted for reduction activity.

Grape production

Fuel efficiency Baseline data will be gathered on the individual tractor/litre/hour use of diesel and on the average time to complete standard tasks such as mowing or spraying. This data will then be used to monitor such activities in the future with the view to achieving a net reduction in emission levels through changes in work practices.

Biofuel Expert advice will be sought on the potential to switch the current vehicles to biodiesel when a reliable source of supply is established in the region.

Spray application efficiency The opportunity will be taken to purchase an over row sprayer allowing two rows to be sprayed at the same time. This will enable most of the current vineyards and all the new vineyard to be sprayed with twice the energy efficiency of the 3 point linkage single row sprayer previously used.

Winemaking

The new winery incorporates a number of energy efficient features.

Thermal mass The winery has a two metre tilt slab concrete hip wall which in combination with the concrete slab wall will assist maintain a relatively stable temperature and should reduce the demands on the cooling system.

Solar water heating All the hot water is supplied via a 640 litre capacity boiler supported by three solar panels. In winter a powered booster unit may be used to ensure minimum temperature levels are maintained.

Energy efficient lighting All light bulbs in offices and the winery are rated energy efficient. In addition the press pad area has inbuilt skylights to limit the need for artificial lighting during vintage.

Insulation The walls and ceiling in the office area have thermal insulation installed to help maintain an acceptable temperature range. The barrel room is also fully insulated to provide a stable temperature environment.

Bottling, storage and distribution

The opening of the new winery offers a number of areas for emission reduction:

Finished goods storage All finished goods will be stored on site thereby removing the emissions created by the movements to and from secondary storage.

Delivery of dry goods for bottling The new winery is of a size that it can receive and store far more bottling stock at bottling time which will allow the freight company to use larger more load efficient trucks. This should reduce the number of delivery runs

by around 20% although the impact of volume growth might obscure this figure initially.

Packaging The winery will initiate a review of the potential sources for lower emission impact bottles, and cartons with the objective of ultimately moving to a carboNZero or equivalently certified supplier or to a supplier that can demonstrate their products produce lower GHG emissions than the figures used in the inventory report.

Administration, sales and marketing

During the post inventory year a Sales and Administration Officer has been appointed Part of their responsibilities will be the coordination of SWNZ and carboNZero related activities.

Information management The key activity in the current year will be to formalise the collection and use of data which enables staff to better understand the current levels of energy use and to identify opportunities to be more efficient. The aim will be to develop measures that are relevant over time such as emissions/per litre of wine or emissions/per tonne of grapes and which facilitate the use of bench marks from which further efficiency measures can be developed.

Electricity supply Consideration will be given to moving to a different electricity supplier if the unit cost of electricity, including any carbon offset, is equal to, or cheaper, than the current supplier cost plus cost of related carbon offsets.

4. Targets for Emissions Reduction

4.1. Objective of Emissions Management Targets

The key objective of the management targets selected is to embed a process of monitoring potential sources of GHG emissions and using that data to identify and address opportunities to reduce the level of emissions or operate at a level that is consistent with best practice guidelines or appropriate bench marks.

4.2. Target baseline

In the short term the results of the initial inventory report have been used to develop a base line target. This will show relative efficiency in the management of emissions over time. However it is acknowledged that a more relevant measure would be a comparison with the efficiency of comparable size wineries as this would enable better understanding of the factors that influence the level of emissions. The winery will work with New Zealand Winegrowers and other wineries to assist develop such measures and will also seek benchmark data from offshore.

4.3. Measurement Metrics and Indicators

There are a number of measurement metrics which will be collected, reviewed and responded to on a monthly basis. These include:

- the number of electricity units consumed,
- vehicle mileage or operating hours,
- freight by weight, volume and distance.

In the short term these metrics will be compared with past years comparable results with the aim of identifying and understanding any changes that might influence emissions levels and enable reductions to be maintained or increases reduced.

As mentioned earlier in the plan over time the indicators are likely to involved external comparators and bench marks and the metrics may change accordingly.

5. Specific Emissions Reductions Projects

5.1. Inaugural Projects

The following projects have been identified to initiate the process of implementing the management plan. New projects will be identified and implemented as the data collected improves the collective understanding of emission sources and potential efficiency improvements.

Target	Actions	Responsibility	Completion date
Develop and implement electricity usage metrics	<ul style="list-style-type: none"> Identify relevant target indicators Establish data capture process Implement management protocol 	Sales and Admin	31 December 2008
Reduce electricity related emissions	<ul style="list-style-type: none"> Install energy efficient lighting in new winery Install solar water system for new winery Install thermal insulation throughout winery office area Install computer controller for new vineyard irrigation management Install tank cooling system controller in new winery 	Director	31 March 2008
Reduce freight related emissions	<ul style="list-style-type: none"> Store all finished goods on site 	Director	31 December 2007
Reduce emissions from vehicles	<ul style="list-style-type: none"> Use Twin Row sprayer wherever possible Ensure headlands in new vineyard facilitate easy turning Document fuel efficiency targets for standard tractor operations 	Vineyard manager	30 September 2008
Identify low emission packaging options	<ul style="list-style-type: none"> Identify potential suppliers and seek emission related data from them. Review data and determine whether there is scope to source more efficient products 	Sales and Admin	30 June 2008

5.2. Measurement Metrics and Indicators

In the short term it is proposed to adopt a simple comparative measure to track performance. This will be the amount of GHG emissions per litre of wine produced. Over time more targeted measures will be developed as a result of the projects which are identified in the plan and takes into consideration the impact of the move to a new winery and the addition of a new 10.5 hectare vineyard, both of which are likely to have a short term distortionary impact on the level of GHG emissions by comparison with a “business as usual” period.

The initial measure will be the ratio of tonnes of grapes processed to the level of emissions generated. This high level indicator does have some shortcomings that need to be recognised:

- The grape tonnage includes fruit processed on contract that is moved to the third party for sale and distribution,
- Vineyard areas that are not in production yet create emissions but not fruit.

Subject to these considerations, the comparative measure for 2007-08 will be .545 tonnes of emissions per tonne of grapes processed. (2006-08 110.978 tonnes of grapes/60.58 tonnes GHG emissions)

6. Monitoring and reporting Emissions Reduction

6.1. Monitoring and Reporting

Oversight of the management plan will be coordinated by the Sales and Administration Officer. Individual staff members will be assigned responsibility for the completion of agreed projects and for the collection of data from their respective area of activity. Key data such as electricity usage will be maintained in a share network directory accessible to all staff.

The winemaker, Vineyard Manager and Sales and Administration Officer will meet quarterly to review progress with the projects and to assess the data which has been collected with the view to identifying further projects. A record of key matters arising will be maintained. The company directors will meet with the staff every six months to review progress and agree any adjustment to the plan.

The management and reduction plan will be revised and updated annually with a copy available to all staff.