

# PERNOD RICARD WINEMAKERS

## Carbon Reduction Strategy

February 2017

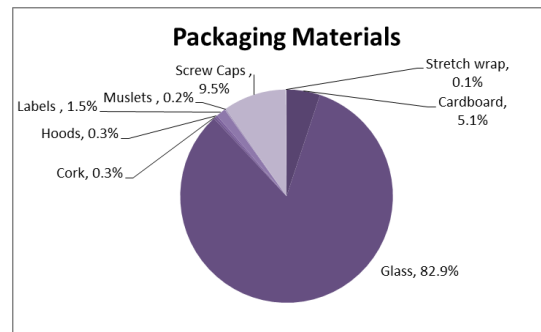
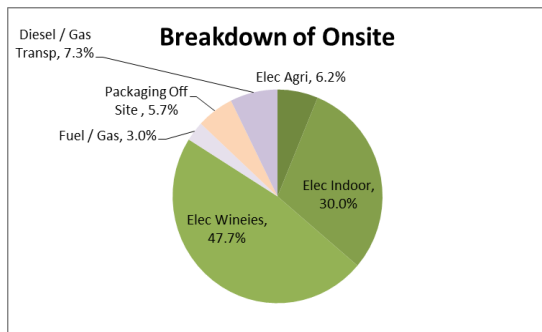
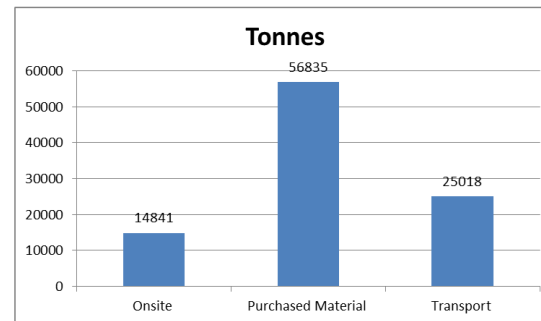
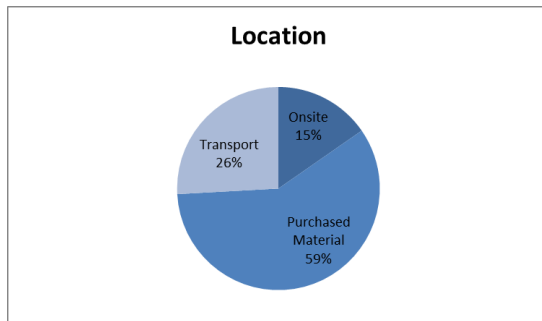
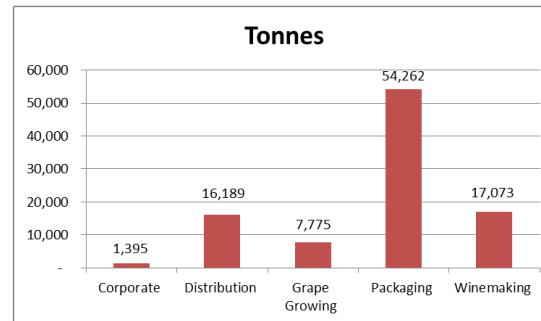
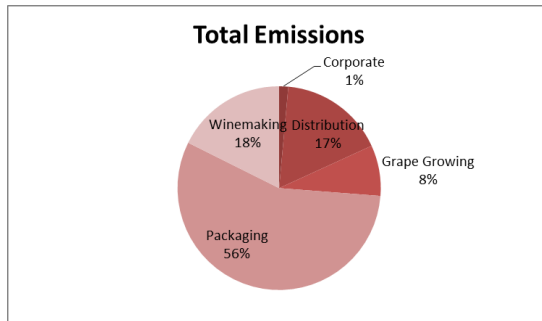


Pernod Ricard Winemakers

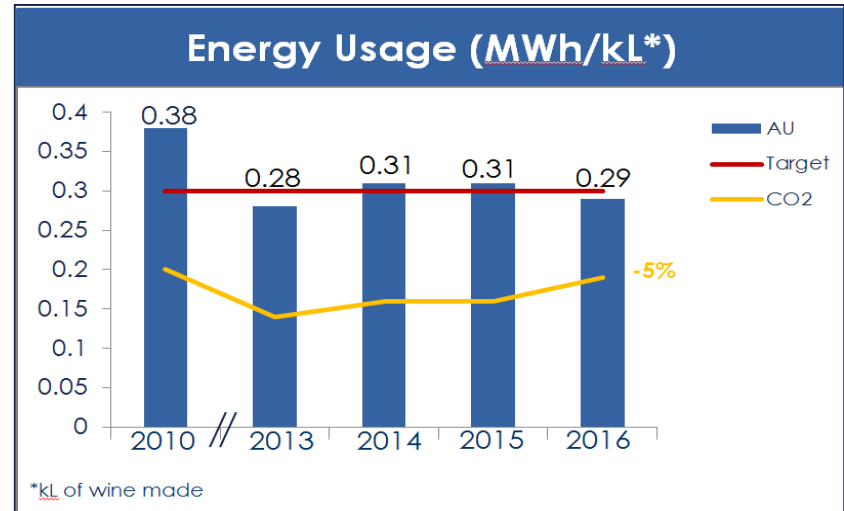
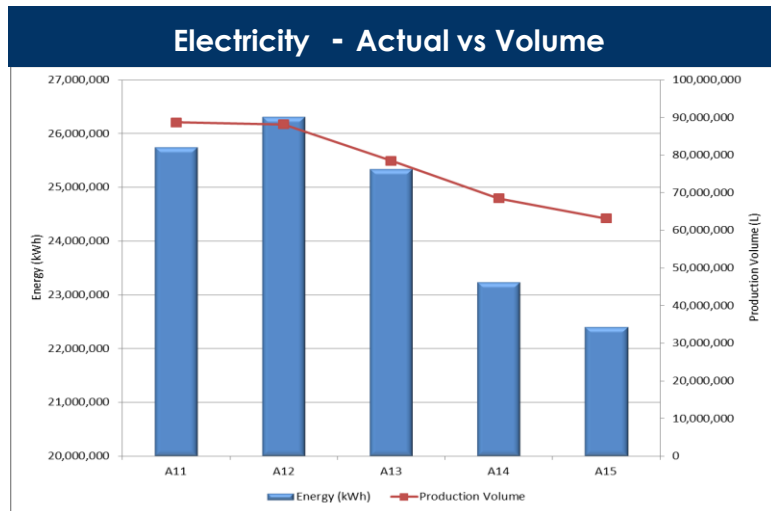
*Leading Wine Innovation*

- Pernod Ricard Winemakers are the makers of well know brands Jacob's Creek and George Wyndham (formally Wyndham Estate)
- The company has two large production sites in the Barossa Valley at Rowland Flat and Richmond Grove Winery in Tanunda.
- Total crush is ~60,000 tonnes and total storage across both sites is 230 ML
- Annual electricity usage ~20 GW p.a.
- Low carbon strategy is driven by Group ambition to reduce CO2 emissions/unit by 30% between 2010-2020.
- PR Winemakers also has an desire to reduce electricity use by 20% over the same period
- The group strategy is cascaded to individual business units and monitored by annual targets and monthly reporting against targets.

# GHG Inventory of CO2 Emissions 2015

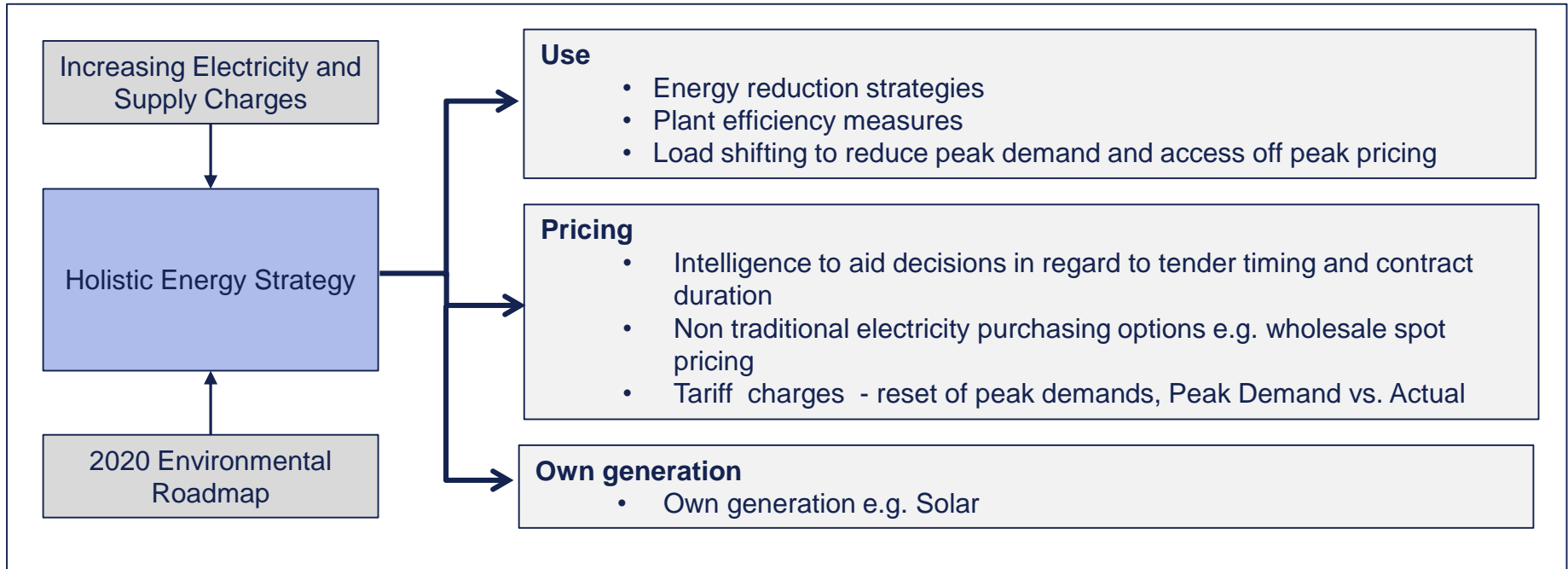


# Recent Performance



- Energy use per unit has been static over the past 4 years or slightly increasing due to volume decreases
- Additional efficiencies are required to meet 2020 Environmental Roadmap CO2 objective

# PRW Australia Energy Strategy

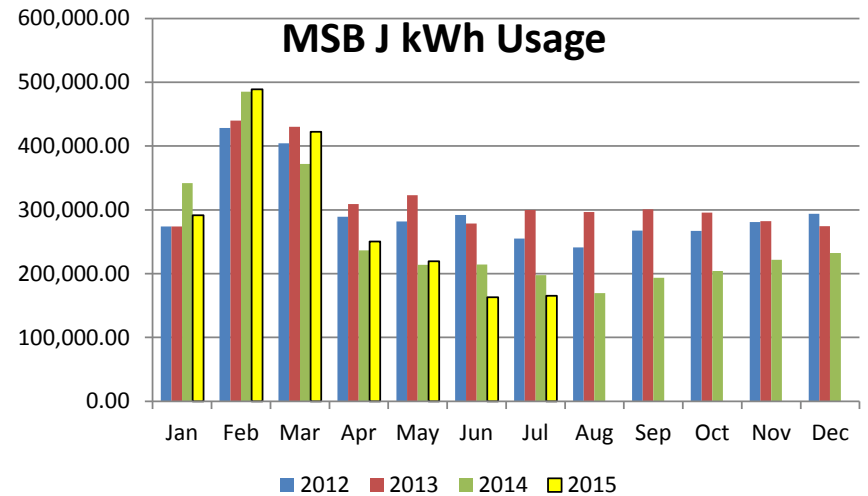
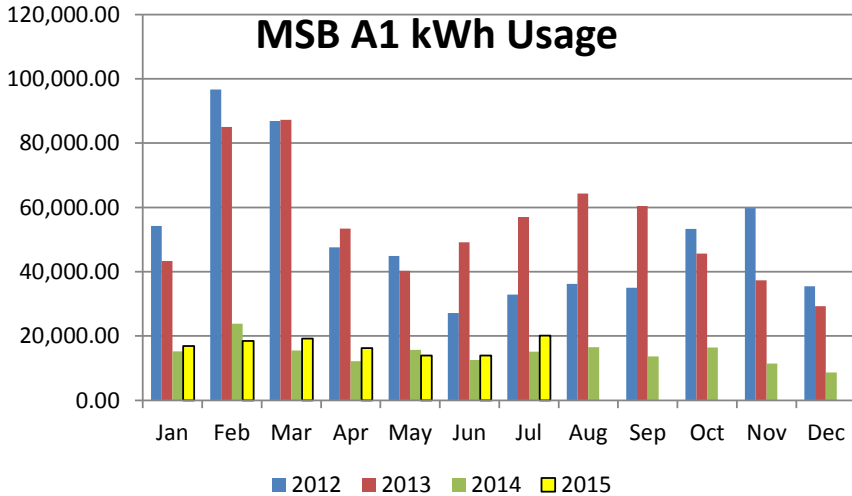


## Projects From 2015 SAWIA Award Submission

Table 1. Calculation of Emissions

	Units	Emission Factor (kg CO2/unit)	Reduction	Total Emissions Savings p.a.(Tonnes CO2)
Consolidation of Fridge Plants	MWHr	720	650	468
Aeration of Wastewater	MWHr	720	36	26
Light Weight Glass	Tonnes	1163.9	11,000	12,800
Direct Drive Harvesters	Litres	2.698	8,000	22
Lighting upgrade	MWHr	720	Unable to quantify accurately	
Rapid Raise Doors	MWHr	720	Unable to quantify accurately	
Warehouse Refrigeration Review	MWHr	720	116	84
			<b>Total</b>	<b>13,400</b>

# Consolidation of Refrigeration Plans 4 & 7 Project Update



## kWh Comparison 2015 v. 2014

**MSB A1 Jul YTD 2015 slightly increased v. 2014 => 8,716 kWh**

**MSB J Jul YTD 2015 decreased v. 2014 => 60,654 kWh  
(maybe vintage related & seasonal + other YTD)**

	kWh Usage Comparison				kWh Variance		
	2012	2013	2014	2015	14 v. 13	15 v. 13	15 v. 14
Jun YTD							
MSB 'A	390,177	415,291	109,987	118,703	(305,304)	(296,587)	8,716
MSB 'J	2,224,108	2,354,046	2,061,313	2,000,659	(292,732)	(353,387)	(60,654)
<b>Total</b>	<b>2,614,285</b>	<b>2,769,336</b>	<b>2,171,300</b>	<b>2,119,362</b>	<b>(598,036)</b>	<b>(649,974)</b>	<b>(51,938)</b>

## Warehouse Energy Focus Projects

Number	Description	Indicative Cost (k)	Potential Savings (k p.a.)	Priority
1	Insulation of ridge cap and flashing sealing	\$30	\$22	High
2	Continuous Cooler fan operation / Min number start up	\$10	\$4.4	High
3	Cold harvesting using existing fans	\$22	\$5 (potentially higher)	Med
4	Repair of insulation lagging	\$0.5	\$0.03	Low



## Gaps in Roof Equate to 70 m<sup>2</sup> - or 3 Roller Doors Open Permanently



- Penthouse ridge uninsulated, 300 mm wide and 112 m long

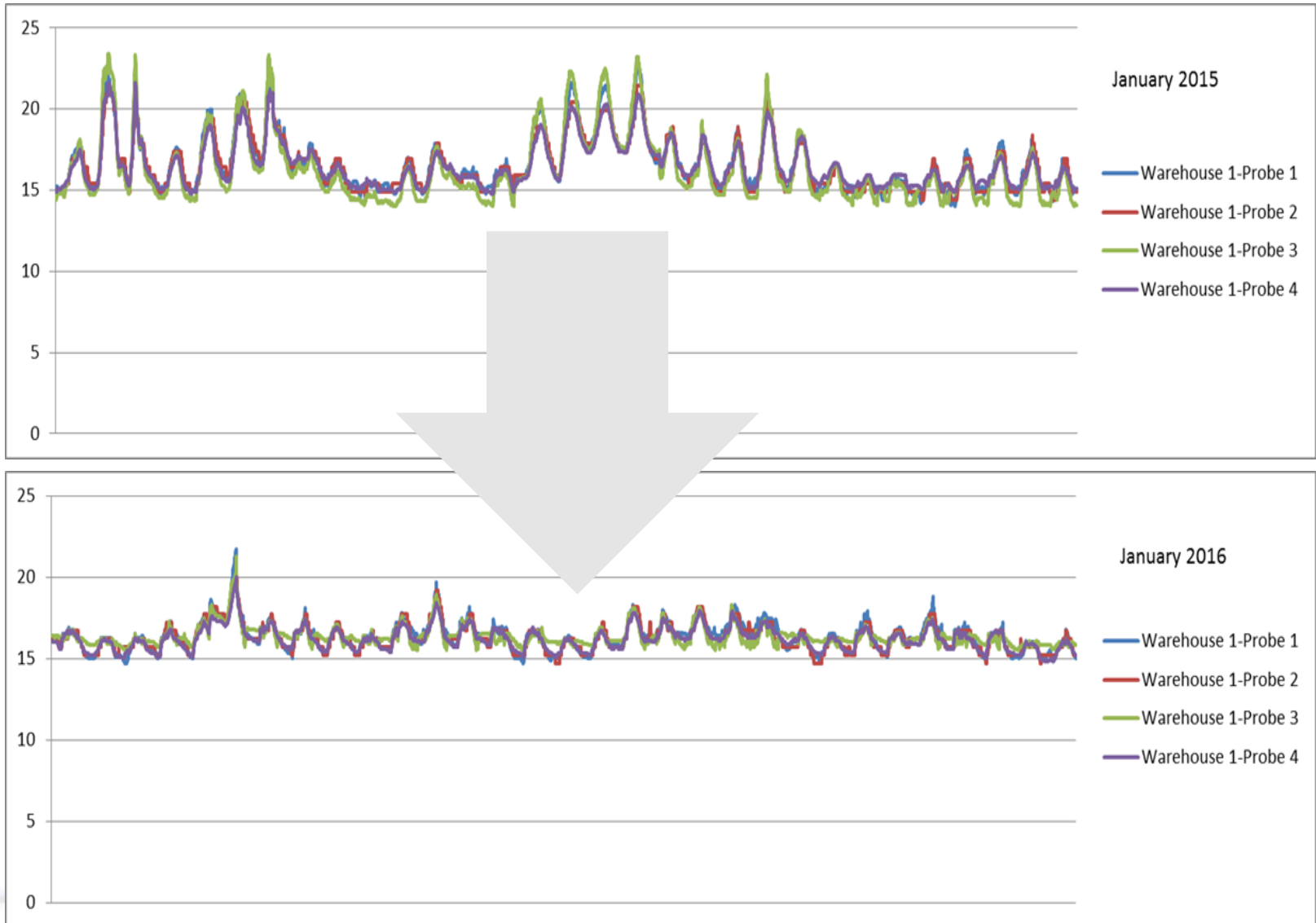


- Underside of ridge open for ventilation, 100 mm wide on both sides and 112 m long

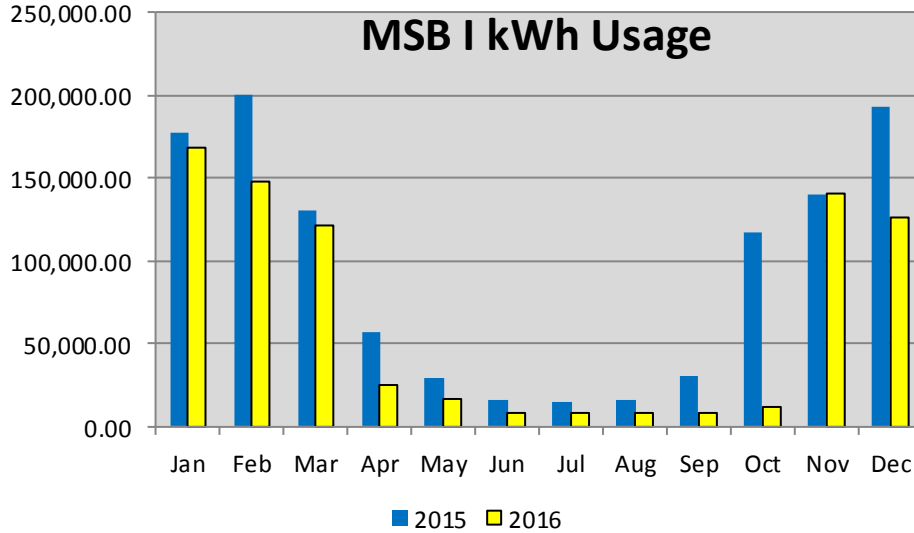


- Gaps exist in staggered roof overlaps, 100 mm wide and 112 m long

# WH1 Cooling Performance Post Insulation



## Warehouse MSB I Meter 2016 v. 2015 Comparison



	Variance		Mean Maximum Temp		Lease
	Usage kWh	\$'s	2015	2016	
Jan	(9,080)	(2,085)	27.4	30.4 ↑	
Feb	(52,139)	(8,069)	32.3	29.1 ↓	
Mar	(8,821)	(1,309)	24.8	27.5 ↑	\$ 2,246
Apr	(32,316)	(3,974)	22.7	23.4 ↑	\$ 2,246
May	(12,344)	(1,761)	16.3	18.2 ↑	\$ 2,246
Jun	(8,127)	(1,017)	13.9	13.7 ↓	\$ 2,246
Jul	(7,348)	(1,170)	12.9	13.3 ↑	\$ 2,246
Aug	(7,729)	(1,292)	15.0	15.5 ↑	\$ 2,246
Sep	(22,166)	(3,371)	19.1	15.2 ↓	\$ 2,246
Oct	(106,313)	(15,470)	25.6	19.1 ↓	\$ 2,246
Nov	331	(12,860)	26.1	24.2 ↓	\$ 2,246
Dec	(67,004)	(9,473)	27.1	27.8 ↑	\$ 2,246
<b>Total</b>	<b>(333,056)</b>	<b>(61,852)</b>			

\*\$'s applied at current (Jan - Mar 2016) Supplier Charges for both Usage Years

\*\$'s applied at current (Apr 2016) Supplier Charges for both Usage Years

as per Nurioopta Viticultural (BOM)

<b>Mar - Dec YTD</b>	<b>(51,698)</b>	<b>29,241</b>	<b>\$ 22,457</b>
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Net Saving after Lease

## Current and Future Projects

Project	Business Benefit	Area	Responsible	Priority	Annual Electricity p.a.	CO2 Redn
Tri Generation opportunities – access to natural gas	Improved efficiencies and reduced energy use	RF & RG	Steven Scott	3- progress	TBA	
Start up and Shut down procedures – lines, boilers etc.	Reduced energy use	RF & RG	Specific BU Managers	1 -	TBA	
Electricity, water and gas supply and processing equipment sub-meter installations	Visibility of actual usage in resource intensive areas. Valuable source of information for continuous improvement in energy/carbon footprint	RF & RG	Steven Scott	1	No direct Savings	
Large scale PV installation to supplement electrical supply	Onsite renewable energy supply to offset existing mains use. Reduced peak load.	RF Site	Steven Scott	1	Stage 1 150 MWh p.a. Stage 2 2000 MWh p.a. Stage 3	90 T  1300 T  1640 T
Heating of Hot Boxes	Reduced energy use	Packaging	Robert Taddeo	2 – Ambient Fillers		

## Current And Future Projects

Project	Business Benefit	Area	Responsible	Priority	Annual Electricity p.a.	CO2 Redn
Winery Site Lighting upgrades	Reduced energy use Lower maintenance costs	RF Winery	Steven Scott	1 As required	TBA	
Installation of pilot and/or main Anaerobic Digester for production wastewater processing	Reduce aeration energy requirement with improved quality/pre-processing of wastewater Help prevent need for further wastewater aeration capacity/space in limited space available (capital avoidance)	RF Winery - Wastewater	Steven Scott	1	Pilot – Negligible  Long term potential 1,500 MWhr	930 T Plus physical emissions from breakdown
Own vineyard Native Vegetation Plantings	CO2 mitigation and biodiversity consistent with 2020 Objectives. Particularly relevant with repatriation of	Own Barossa Vineyard	Stephen Cook	1	NA	600
Land Partnership with NRM	CO2 mitigation and biodiversity High profile purchase to leverage companies green credentials	TBA	Brett McKinnon	1	NA	1500
Partnership plantings	CO2 mitigation and biodiversity Potential to create relationships with growers and nearby land owners	Areas to be identified	Stephen Cook	2	NA	~ 4,800

# Major Focus on Integrated Solar Solution that will Supply ~20% of Operational Requirement



- Project comprises of
  - Solar PV installation
  - Power Factor Correction
  - Ring-Main / HV supply
  - Battery Technology
  - Control solutions
- Target commissioning date Nov/Dec 2017

	System size
<b>Stage 2 (Base Case)</b>	1.5 MW
<b>Stage 2 and 3 Base Case</b>	2.9 MW

- Electricity focused projects will continue
- Packaging and particularly glass has a significant impact on overall CO2 footprint
- CO2 inventory finding to drive strategy – Carbon Neutral ??
- Packaging LCA currently in progress and intended to drive strategies to reduce total footprint