



Climate change mitigation and the Emissions Reduction Fund



What is the Emissions Reduction Fund?

The Emissions Reduction Fund (ERF) is a carbon offsets scheme that aims to protect the environment by reducing greenhouse gas emissions and increasing the amount of carbon stored in the landscape. It is the centrepiece of the Australian Government's Direct Action Plan. The ERF builds on the Carbon Farming Initiative (CFI) which was targeted at emission reduction activities on the land only. The ERF provides incentives across the Australian economy for businesses, state and local governments, community organisations and individuals to adopt new practices and technologies which reduce emissions.

What are greenhouse gas emissions?

Greenhouse gases (GHGs) include carbon dioxide, methane and nitrous oxide. When these gases are produced, released or retained in the atmosphere they cause increases in the earth's surface temperature.

The level of carbon dioxide (CO₂) in the atmosphere was relatively constant around 280-290 mg/L from 0 AD until the beginning of industrialisation. In the last 250 years, the CO₂ level has increased to 395 mg/L (Bureau of Meteorology and CSIRO 2014) which has resulted in an increase in the near surface temperature of 0.7°C or an increase of 1.26°C across the world's wine regions (Jones et al. 2005).

Why is it important to decrease GHG emissions?

The earth's surface is warming and this is directly linked to GHG emissions. Mitigating GHG emissions is essential if this warming is to be slowed or reversed. All industries should consider how they are going to go about mitigating emissions, and this includes the Australian grape and wine sector.



Australia's GHG emission reduction commitment

The Australian Government has committed to the second stage of the international Kyoto protocol to reduce Australia's emissions to five per cent below the year 2000 levels by 2020. These Kyoto targets for GHG emissions aim to prevent the increase in mean annual temperature from exceeding 2°C by 2100, compared to the temperature in 1900.

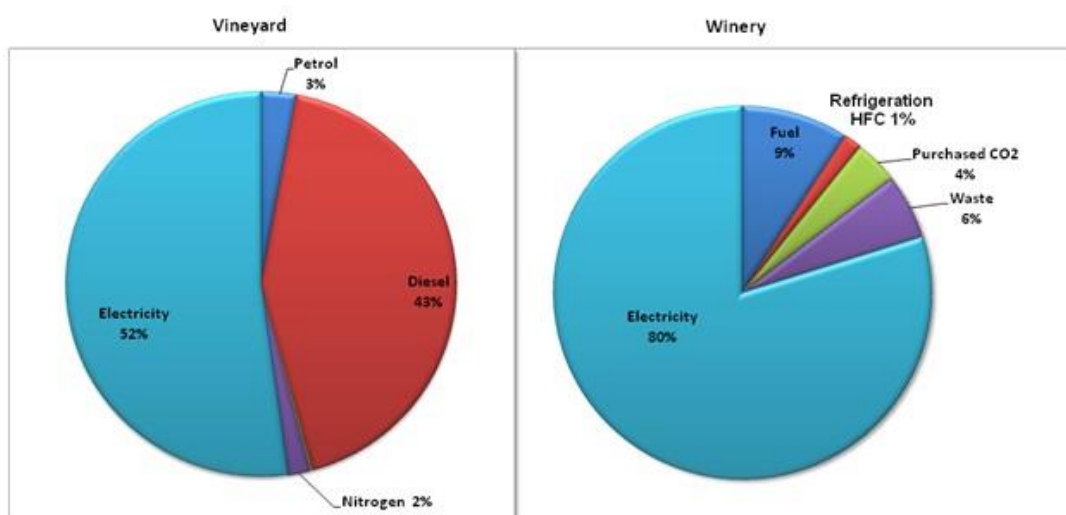
Do vineyards and wineries produce GHG emissions?

The largest proportion of emissions from vineyards are indirect emissions from the use of electricity and fuel (diesel and petrol), plus a small component of nitrous oxide (N₂O) related to fertiliser use and soil management. Nitrous oxide is naturally released from soils; however the volume released is affected by the amount and timing of any nitrogen

fertiliser applied. Because the global warming potential of N₂O is around 300 times that of CO₂ its contribution to global warming is significant, even though its volume is small. Overall however, the GHG emissions from viticulture are less than other broadacre agricultures, much less than livestock-based agriculture, where methane is produced, and considerably less than emissions from mining and fuel industries.

AWRI energy audits have shown that heating and refrigeration account for very high percentages of a winery's energy consumption; the main contributors of GHG emissions from wineries are the indirect emissions associated with electricity generation.

The two charts below summarise typical sources of emissions from Australian vineyards and wineries (www.wfa.org.au)





What level of emissions do grapegrowers and winemakers produce?

Agricultural and forestry producers, which include grapegrowers and wineries, account for 21% of Australia's net greenhouse gas emissions (National Inventory Report 2012, Volume 1). A wine industry-specific calculator has been developed for grapegrowers and winemakers to estimate their own emissions. Access the calculator at http://www.awri.com.au/industry_support/entwine/carbon-calculator/

How does the ERF work?

The ERF will operate through three mechanisms:

1. Crediting emission reductions

Carbon dioxide, methane and nitrous oxide emissions reductions are measured as tonnes of carbon dioxide equivalents (CO₂-e). One tonne of emissions reduction equates to one Australian Carbon Credit Unit (ACCU). ACCUs can be generated by activities that use an approved ERF method. The activity must either reduce greenhouse gas emissions or sequester carbon in vegetation or soils.

2. Purchasing emission reductions

The Government has allocated \$2.55 billion dollars to purchase emissions reductions or ACCUs. ACCUs will be purchased by the Government through four annual auctions. Participants will submit a bid specifying a price per ACCU, with the lowest cost ACCUs or projects being selected.

3. Safeguarding emission reductions

To ensure emissions reductions purchased do not result in rise in emissions elsewhere in the economy, facilities with large emissions will be subject to emission reduction baselines.

Can vineyards or wineries participate in the ERF?

Approved methods applicable for vineyards include:

1. Environmental tree plantings

This is generally only viable on large land areas (>200 ha) with low land price and low production value and thus is generally not suitable for vineyard land

2. Sequestering carbon in the soil

Several practices for sequestering carbon are detailed in the related AWRI factsheet 'Managing greenhouse gas emissions in viticulture'; however due to the low emissions produced by vineyards these are unlikely to be viable for generation of ACCUs but are still opportunities to reduce overall vineyard emissions

Approved method applicable for wineries include:

1. Commercial building energy efficiency

Activities to reduce emissions associated with fuel combustion and electricity consumption in buildings, or to improve the energy efficiency of a commercial building could include modifying, removing or replacing energy-consuming equipment in the building, changing energy use within the building, or changing the components or shell of the building to influence energy consumption. The National Australian Built Environment Rating System (NABERS)



energy ratings and tools for commercial buildings are used to quantify emissions reductions and energy savings from energy efficiency activities. Participants can evaluate whether the potential return from a project outweighs the cost of implementing the project using the feasibility tool on the Clean Energy Regulator site:

<http://www.cleanenergyregulator.gov.au/Emissions-Reduction-Fund/Want-to-participate-in-the-Emissions-Reduction-Fund/Planning-a-project/Feasibility-and-project-planning>

While there are currently few methods that allow the grape and wine sector to participate and viably generate ACCUs our sector still has a role to play in reducing Australian and global emissions.

Another indirect use of the ERF is as a mechanism to quantify and demonstrate environmental and green credentials. With export of more than 70% of Australian wine to overseas markets, and large supermarket chains increasingly demanding green products, expectation of green credentials is expected to increase.

Relevant websites for CFI and ERF

<http://www.myCarbonFarming.com.au>

This site aims to assist farmers, land managers and other stakeholders to learn about the ERF, discover how to commence and manage a project, see what projects are already happening and get in touch with people and organisations that can help.

<http://www.environment.gov.au/climate-change/emissions-reduction-fund>

This site provides up-to-date information on the ERF.

<http://www.cleanenergyregulator.gov.au/Emissions-Reduction-Fund>

The Clean Energy Regulator is the Government body responsible for administering legislation to reduce carbon emissions and increase the use of clean energy.

Project aims

This AWRI project *Building resilience and sustainability in the grape and wine sector* aims to collate and deliver up-to-date technical information about greenhouse gas emissions, carbon sequestration and opportunities that the Emissions Reduction Fund can provide. Project extension officers will offer grapegrowers and winemakers support to reduce their emissions and consider opportunities to benefit financially from participation in the Emissions Reduction Fund.

Acknowledgement

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References and further reading

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