

ask the
AWRI



Emissions calculations within Sustainable Winegrowing Australia

Sustainable Winegrowing Australia is Australia's national program for grapegrowers and winemakers to demonstrate and continuously improve their sustainability. Participants report annually on a range of business metrics (e.g. electricity usage, diesel usage) and this data is used to calculate a basic carbon emissions profile for each member. Viticulturist **Dr Rochelle Schlank** answers some of the questions received each year about emissions data.

Why does Sustainable Winegrowing Australia provide greenhouse gas emissions calculations for its members?

Measurement and reporting of greenhouse gas (GHG) emissions (of which CO₂ is a major contributor) is one way that businesses can demonstrate their impact on the environment, providing a current 'state of play' and a tool to allow monitoring over time. This can be especially useful for identifying a

particular focus area to manage and for tracking progress.

What are some of the more commonly used terms when talking about carbon emissions?

To navigate the landscape of carbon emissions effectively, it helps to have an understanding of commonly used terms. A summary of some of these and how they relate to carbon accounting

can be found in a previous 'Ask the AWRI' (Longbottom 2021). A brief list is provided below:

Carbon accounting: Quantifying CO₂ emissions to calculate a carbon footprint. Emissions are grouped into:

Scope 1: Direct emissions from owned or controlled sources

Scope 2: Indirect emissions from purchased electricity ▶

Scope 3: Indirect emissions across the value chain, including suppliers and product use

Carbon footprint: Sum of GHG emissions minus GHG removals of an activity, organisation, product or sector expressed as carbon dioxide (CO₂)-equivalent units (CO₂e)

Carbon neutral: CO₂ released into the atmosphere is balanced by an equivalent amount being removed. A business can achieve carbon neutrality through reducing emissions and offsetting the remaining emissions using Australian Carbon Credits.

Australian Carbon Credit unit (ACCU): An ACCU represents one tonne of CO₂ emissions stored or avoided by a project. These units can be bought or sold and come from someone else who is sequestering carbon.

Does using renewable energy in my business offset my scope 2 electricity emissions?

Using renewable energy does offset scope 2 electricity emissions in the sense that use of renewable can reduce reliance on grid-based electricity. However, it does not directly offset the use of grid-based electricity to achieve carbon neutrality, in the way that carbon credits can.

A basic formula for calculating scope 2 electricity emissions is:

Scope 2 (kgCO₂e) = Grid electricity (kWh) × emissions factor (kgCO₂e/kWh)

Total electricity usage can originate from grid usage, green energy schemes and renewable energy sources. If total electricity usage is predominantly sourced from renewable energy, then naturally, grid electricity usage becomes less relied upon and scope 2 emissions reduce. However, if grid electricity usage remains constant (despite the introduction of renewable energy sources) and renewable energy sources (e.g. solar panels) are used to sell energy

back to the grid, then scope 2 CO₂e will remain the same.

I'm not replacing refrigerants, yet my winery emissions from refrigerants seem high. Why is this?

A couple of different methods are available to model emissions from winery refrigerants. The first is based on whether the refrigerant has been recharged or not. If the refrigerant has been recharged, the recharge weight is converted into tonnes CO₂e using known factors. The second method, which is the method used in Sustainable Winegrowing Australia's calculations, assumes a small amount of leakage occurs each year. A default leakage factor of 0.09 is then applied to the known charge size of the refrigerant (also considering the type of refrigerant used). This method was chosen for its simplicity and the ability to provide consistent reporting from year to year. This method is consistent with the National Greenhouse Accounts generated by the Department of Climate Change, Energy, the Environment and Water.

Does Sustainable Winegrowing Australia collect and report scope 3 emissions?

The emissions calculations in Sustainable Winegrowing Australia's member database are calculated from the Australian Wine Carbon Calculator. At present, only scope 1 and 2 emissions are calculated and reported back to members. However, the Calculator is being updated with the intent of being able to calculate some scope 3 emissions. Examples of some of the input data that will be required to facilitate reporting of scope 3 emissions include vineyard agrochemical use (product and volume) and winery waste to landfill (type and volume). At this stage, scope 3 emissions from transport and packaging will not be included in the updated Calculator.

Am I currently required to share my emissions data with anyone?

Members of Sustainable Winegrowing Australia own their data and can share this data at their discretion. The data

collected through the program is used in an aggregated and deidentified manner for a range of purposes including within RD&E projects, to help identify RD&E priorities, to develop regional and national reports and for marketing purposes.

Whether members choose to share their emissions data may also be influenced by recent changes in Australian legislation and trends in export markets. As of early January 2025, it is mandatory for large listed and private companies and financial institutions to publicly report scope 1, 2 and 3 emissions across their operations. These changes may affect grape and wine producers are being phased in up until July 2027. In the first stage, this requirement affects very large companies with a revenue of \$500 million or more and/or gross assets worth \$1 billion or more and/or an employee base of 500 or more. Companies have to meet two out of three of these criteria to be considered for mandatory climate reporting. In addition to the legislative requirements, specific requests for emissions data from international customers are also increasingly being reported.

Emissions reporting is very likely to become more important in the future both for Australian companies and internationally. More information about carbon accounting tools for the Australian grape and wine sector is available from the Wine Australia website.

Reference

Longbottom, M. 2021. Ask the AWRI: Carbon accounting. *Aust. N.Z. Grapegrower Winemaker* 694: 44-45. Available from: www.awri.com.au/wp-content/uploads/2022/02/s2262.pdf

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