



Greenhouse Gas Emissions (GHG) Inventory Guidance Worksheet

GHG Inventory Protocol	World Resources Institute GHG Protocol (primary methodology), adhering to ISO 14064 process
3rd Party Auditor	Required to be audited ISO 14064 by internationally accredited third party
Total Scope	Primary production facility(ies), vineyards & all business operations Scopes 1, 2, and 3 (from the vineyard to the final disposal of the waste once the product is consumed)
Baseline Year	Determined by individual winery / approved by IWCA Founding Members
Production Unit	Chosen by the winery. The final result needs to be calculated in terms of CO ₂ equivalent/production unit

Initial Considerations about the GHG inventory:

- It must include the main winery (in case/bottle production) of the organization.
- It must include any other winery in the region so that the audit represents at least 90% of the organization's volume in the specified region. The wineries' facilities also need to be included (owned logistics warehouse, water treatment plant, hospitality centers, etc...).
- Emissions reductions must be based on own efforts (i.e., no external compensations, nor CO₂ stored in the vineyard, stoppers, barrels...)
- Own reforestation initiatives on owned land are accountable for emissions reduction.
- Green electricity purchase will only be considered as 0 emissions for providers on their own GHG footprint.
- It will not consider short cycle emissions (vineyard photosynthesis and wine fermentation).
- Purchases or sales of Renewable Energy Credits (RECs) do not satisfy criteria.
- Renewable energy purchased from the public electricity grid does not satisfy criteria (unless local grid is 100% renewable).

All the following inputs must be considered.*

Not necessarily grouped under the same packages but following the below scopes' grouping:

SCOPE 1	
Direct Emission Sources	Any/All fuel use for company business (stationary vineyard pumps, company owned vehicles & ag equipment, etc.)
	Change in land use (i.e., deforestation to plant new vineyards)
	Fugitive emissions from refrigerant gas leaks
	CO ₂ used in Winemaking or any other process
	Vineyard Soil Emissions (NO _x emissions from Nitrogen application)
	On-site waste (methane from wastewater treatment)
	Any other accountable category that represents more than 1% of annual emissions

SCOPE 2	
Market-Based Electricity	Electricity purchased from local utility grid (can use local emissions factors)
	Onsite renewable electricity generated (if REC ownership is retained)

SCOPE 3	
Emissions from non-direct (aka supply chain) sources from the vineyard to the final disposal of the waste once the product is consumed	Purchased products (purchased grapes, bulk wine, barrels, fertilizers, municipal water, etc.)
	Packaging materials (glass, cork, cartons, labels, etc.)
	Outsourced transportation (third party grape, wine and finished case goods, wine barrels, bottles...)
	Outsourced production (third party grape harvesting and production/bottling)
	Business travel (passenger car, train, air travel... relative to company business and daily commutes)
	Offsite waste / loss (solid waste to landfill, recycling, composting, etc.)
	Post-consumption (product disposal at end of life)
Any other accountable category that represents more than 1% of annual emissions	

Acceptable GHG Emissions Compensation (to be applied to the result from the above inventory)	
Reforestation	Reforestation in owned land to sequester atmospheric CO ₂

Optional Best Practice: Short Term Carbon Cycle (tracked annually but not included in Scopes 1-2-3)	
Short Term Carbon Cycle (i.e., Biogenic emissions)	Vineyard biomass photosynthesis
	Wine fermentation emissions
	Row cropping sequestration

Relevant Links for GHG Emissions Inventory Accounting & Verification	
Greenhouse Gas Protocol	https://ghgprotocol.org/
ISO 14064 Process	https://www.iso.org/standard/66453.html
GHG Inventory Consultant	https://www.sustridge.com/ <i>[Recommended IWCA vendor]</i>
ISO 14064 Accredited Auditor	https://www.lr.org/en-us/iso-14064/certification/ <i>[Recommended IWCA vendor]</i>

***Exceptions:** If a winery can demonstrate that any given emissions category is less than 1% of its total annual emissions, and ongoing data collection is determined to be overly time consuming or unreliable, it is acceptable to only perform the GHG calculation in the baseline year and reuse the calculated emissions number for future years without recalculating it, unless the production varies by more than 10% vs. the base year, wherein that case the emissions number has to be recalculated proportionally.