



Treasury Wine Estates

2025 Cultivating a brighter future Report Basis of Preparation for water, renewable electricity & Greenhouse Gas Emissions

October 2025

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1 INTRODUCTION

1.1 Purpose and Scope

This Basis of Preparation outlines the methodologies and data processes used by Treasury Wine Estates (TWE) to measure, report, and assure its greenhouse gas (GHG) emissions and climate-related targets for the reporting period 1 July 2024 to 30 June 2025. It supports alignment with AASB S2 – Climate-related Disclosures, ensuring consistency, transparency, and accuracy in TWE’s global sustainability reporting.

The scope includes Scope 1, Scope 2, and Scope 3 emissions and covers both actual and forecast data used for annual reporting, external assurance, and regulatory compliance. This document defines TWE’s emissions boundaries, data sources, assumptions, and internal governance practices.

The GHG inventory was developed in collaboration with independent external experts and is aligned with internationally and nationally recognised standards, including:

- GHG Protocol: A Corporate Accounting and Reporting Standard (2004 Revised Edition)
- GHG Protocol Scope 2 Guidance: An Amendment to the GHG Protocol Corporate Standard
- GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Scope 3 Standard)
- The draft Australian Sustainability Reporting Standards (ASRS), issued by the Australian Accounting Standards Board (AASB), which incorporates IFRS S2 Climate-related Disclosure
- GHG Protocol’s Land Sector and Removals Guidance (Draft)

Table 1 below provides a summary of inventory specifications.

Table 1: Summary of inventory specification

Reporting Period	1 July 2024 - 30 June 2025
Accounting Approach	Operational control approach
GHGs Covered	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃
Global Warming Potentials (GWP)	AR5 and AR6

1.2 Structure of This Document

The Basis of Preparation is structured into the following sections:

- **Boundary Definitions:** Outlining organisational and operational control approaches
- **Reported Metrics and Forecasting Methodologies:** Including key assumptions and estimation methods
- **Data Collection and Verification:** Detailing source systems, quality control processes, and audit trails
- **Supporting Annexes:** Providing technical details and relevant supporting documentation

2 BOUNDARY DEFINITIONS

To ensure consistency and comparability in GHG emissions reporting, TWE applies clear boundaries based on recognised reporting standards. This section defines how TWE determines which emissions are included in its Scope 1, 2, and 3 inventory, and the approach used to consolidate emissions data across its global operations.

2.1 Organisational Boundary – Operational Control Approach

TWE uses the **operational control approach** as defined in the **GHG Protocol Corporate Standard**. Under this approach, TWE accounts for 100% of the emissions from operations over which it (including subsidiaries within the TWE Group) has the authority to introduce and implement operating policies.

The organisational boundary includes:

- Wholly owned sites and subsidiaries
- Joint ventures where TWE has operational control
- Leased facilities and properties under TWE's control (e.g. offices, warehouses)

Exclusions from Total Energy Consumption Reporting:

- The BV Tenant entity, which occupies leased space at TWE's BV Winery, is excluded. Approximately 90% of the site's natural gas and electricity use is allocated to the BV Tenant based on estimated resource usage.
- The Graymoor Vineyard joint venture is also excluded, as it is externally managed and falls outside TWE's operational control.

TWE also includes greenhouse gas emissions from contractor activities where those activities fall under its operational control, in accordance with the GHG Protocol.

Where contractors perform key functions on TWE-owned or controlled assets, emissions associated with their operations—such as fuel use, electricity consumption, or waste generation—are accounted for within Scope 1 or Scope 2, as appropriate. This ensures comprehensive reporting of emissions from all sources under TWE's operational boundary.

The adoption of the operational control approach ensures consistency with **AASB S2 reporting requirements** and supports internal management and decision-making processes related to emissions performance.

2.2 Emissions Reporting Boundary by Scope

2.2.1 Scope 1 (Direct Emissions)

Includes emissions from sources that are owned or controlled by TWE. This comprises:

- Fuel combustion from stationary and mobile sources (e.g. boilers, vehicles)
- Refrigerant losses from HVAC systems and cooling equipment
- Emissions from on-site wastewater treatment systems
- Agricultural emissions from fertiliser application and decomposition of pruning residues on company-managed vineyards.
- Land use change emissions resulting from the clearing and conversion of land to viticulture, where applicable.
- Vehicle fleets under TWE's operational control

2.2.2 Scope 2 (Indirect Emissions from Purchased Electricity)

Includes indirect GHG emissions from the generation of purchased electricity consumed by TWE. TWE reports Scope 2 emissions using both the **location-based** and **market-based** approaches in accordance with the GHG Protocol Scope 2 Guidance.

- **Location-based approach:** Calculates emissions using average grid emission factors specific to the geographic location of electricity consumption (e.g. state or national grid averages). This method reflects the emissions intensity of the electricity supply in the area, regardless of any contractual procurement of renewable electricity. Renewable energy within the grid mix is not separately accounted for under this approach.
- **Market-based approach:** Calculates emissions based on contractual instruments that reflect TWE's electricity procurement choices. This includes Energy Attribute Certificates (EACs), green retail contracts, Power Purchase Agreements (PPAs), and supplier-specific emission factors. Where valid market-based instruments are not available, the residual mix or grid average is applied as per GHG Protocol hierarchy.

TWE does not purchase steam, district heating or cooling at any of its sites; therefore, Scope 2 emissions from these sources are not applicable.

Table 2: Overview of Scope 1 and 2 emission sources

Scope	Category	Emission sources	Boundary
1	Stationary combustion	Emissions from the combustion of fuel by backup generator sets or gas stoves	Included
	Mobile combustion	Emissions from the use of company-owned or controlled vehicles	Included
	Process emissions	Non-energy emissions released during the manufacture or processing of materials, such as emissions from wastewater treatment	Included
	Fugitive emissions from refrigeration and air conditioning systems	Emissions from the use of cooling systems and air conditioning equipment	Included
	Emissions from nitrogen fertiliser use	Direct and indirect emissions from fertiliser application on the lands owned or controlled by TWE	Included

	Emissions from pruning residue	Direct and indirect emissions from the pruning residue at TWE's vineyards	Included
	Land Use Change	Emissions resulting from carbon stock losses and other GHG emissions due to land use change	Included
2	Electricity	Purchased electricity	Included
	Steam	Purchased steam	Not Applicable
	District heating	Purchased district heating	Not Applicable
	District cooling	Purchased district cooling	Not Applicable

2.2.3 Scope 3 (Other Indirect Emissions)

Includes all relevant categories of indirect emissions not included in Scope 1 or Scope 2, in accordance with the GHG Protocol Corporate Value Chain (Scope 3) Standard. Relevant categories include:

- Category 1 - Purchased goods and services (e.g. glass, labels, cartons)
- Category 2 - Capital goods (e.g. plant, equipment)
- Category 3 - Fuel and energy related activities
- Categories 4 - Upstream transportation and distribution
- Category 5 - Waste generated in operations
- Category 6 - Business travel
- Category 7 - Employee commuting
- Category 9 - Downstream transportation and distribution
- Category 10 – Processing of sold products
- Category 11 - Use of sold products (e.g. refrigeration and energy consumption during downstream distribution and retail)
- Category 12 – End of life treatment of sold products
- Category 13 – Downstream leased assets

- Category 15 -Investment

Category-level inclusions, exclusions, data sources, and methodologies are detailed in **Appendix B**.

2.3 List of Facilities and Boundaries Covered

TWE's GHG inventory covers all material operational sites across the following regions:

- Australia
- New Zealand
- United States
- United Kingdom
- Italy
- France
- Singapore, and
- China

Each facility is reviewed annually to confirm inclusion based on changes to TWE's operational footprint. Facilities are excluded where emissions are immaterial or fall outside TWE's operational control, in accordance with the GHG Protocol and AASB S2 requirements. Office locations with fewer than 20 employees are generally excluded on the basis that their emissions are consistently immaterial; this threshold is reviewed annually.

A full list of sites included in the organisational boundary, along with their region, facility type, operational control status, and scope coverage, is provided in Appendix A.

3 REPORTED METRICS

TWE reports GHG emissions across Scopes 1, 2, and 3, in line with the **GHG Protocol Corporate Standard**, and in alignment with **AASB S2**, which mandates disclosure of absolute emissions, emissions intensity (where relevant), and progress toward GHG emissions targets.

A summary of the key sustainability metrics disclosed annually by TWE, including absolute GHG emissions, GHG intensity, energy use, water consumption, and waste metrics, is provided Table 2. The table also identifies the reporting units and specific details included in the calculation of metrics.

Table 3: TWE Sustainability Metrics for Annual Reporting *(Including metrics required under AASB S2 and additional voluntary disclosures)*

Building a resilient business		
Metric	Measure	External Assurance
Water Stewardship		
Total water consumed ¹	Gigalitre (GL)	No
Total water consumed % of regions with high or extremely high baseline water stress ²	%	No
Water efficiency ³	L/9LE	No
Fuel & Electricity Consumption		
Total energy consumed ¹	GJ x 10 ³	No
Total fleet fuel consumption ⁴	GJ x 10 ³	No
Total electricity consumed ¹	GJ x 10 ³	Limited Assurance
Renewable electricity ⁵	GJ x 10 ³	Limited Assurance
Renewable electricity	% of total energy consumed	Limited Assurance
% Energy from grid electricity ⁶	%	No
Energy efficiency ³	MJ/9LE	No
GHG Emissions Inventory (Scopes 1, 2 & 3)⁷		
Total scope 1 and 2 CO ₂ -e emissions (gross) ⁸	Kilotonnes CO ₂ -e	Pre Assurance
Total scope 1 and 2 CO ₂ -e emissions (net) ⁹	Kilotonnes CO ₂ -e	Pre Assurance
Carbon emission intensity ratio (gross) ¹⁰	kg CO ₂ -e/9LE	No
Carbon emission intensity ratio (net) ¹⁰	kg CO ₂ -e/9LE	No
Scope 1 ¹¹	Kilotonnes CO ₂ -e	Pre Assurance
Scope 2 – Location-based	Kilotonnes CO ₂ -e	Pre Assurance
Scope 2 – Market-based	Kilotonnes CO ₂ -e	Pre Assurance
Total scope 3 ¹²	Kilotonnes CO ₂ -e	Limited Assurance
Upstream emissions (category 1-8)	Kilotonnes CO ₂ -e	Limited Assurance
Downstream emissions (category 9-15)	Kilotonnes CO ₂ -e	Limited Assurance
Total scope 1, 2 and 3 (gross) ¹³	Kilotonnes CO ₂ -e	No
Scope 1 (of total scope 1, 2 and 3 - gross)	Per cent (%)	No
Scope 2 – Location-based (of total scope 1, 2 and 3 - gross)	Per cent (%)	No
Scope 3 (of total scope 1, 2 and 3 - gross)	Per cent (%)	No
Total scope 1, 2 and 3 (net) ¹⁴	Kilotonnes CO ₂ -e	No
Scope 1 (of total scope 1, 2 and 3 - net)	Per cent (%)	No
Scope 2 – Market-based (of total scope 1, 2 and 3 - net)	Per cent (%)	No
Scope 3 (of total scope 1, 2 and 3 - net)	Per cent (%)	No
Scope 3 - Biogenic CO ₂ ¹⁵	Kilotonnes CO ₂ -e	Limited Assurance
Environmental Incidents		
Incidents reportable to environmental authorities	Number	No

Producing Sustainable Wine		
Metric	Measure	External Assurance
Total solid waste generated ¹	Kilotonnes	No
Solid waste diverted from landfill	%	No
% of owned/leased Sites certified to relevant standard ¹⁶	%	No
Number of production facilities ¹⁷	Number	No

¹ Absolute figures (total water consumed, total energy consumed, total electricity consumed, solid waste diverted from landfill) include owned/leased production assets (vineyards, wineries, packaging centres), warehouses, cellar doors, joint ventures under TWE's operational control, and offices with more than 20 employees.

² We have adopted the industry-relevant metric from SASB, which uses the World Resources Institute's (WRI) Aqueduct Water Risk Atlas to classify regions with high or extremely high baseline water stress. Consistent with this methodology, we report the proportion of total water consumed in these high-stress regions as a percentage of our overall water consumption.

³ Water and energy efficiency for TWE's wineries, packaging centres and warehouses include non-TWE volumes packaged at our facilities under contract. TWE uses a unit of nine litre equivalent (9LE) to represent volume. Efficiency is based on production and what is bottled. It does not include water or energy used at Company-owned or leased vineyards, offices, cellar doors or 3rd party packaging facilities. Production of wine is a multi-year process (i.e. grapes crushed may not be bottled in the same year) meaning efficiency may not be reflective of what is bottled that year. Water and energy consumed on vineyards, offices and cellar doors is captured in absolute figures.

⁴ Our current fleet reporting systems accurately track absolute fuel consumption.

⁵ Energy Attribute Certificates (EACs) are an important mechanism in accounting for renewable electricity, enabling Treasury Wine Estates to claim the environmental benefits of renewable electricity, even when the physical electricity supplied to our operations may include non-renewable sources. Renewable electricity used across our operations is either generated onsite at owned or leased facilities or procured through offsite renewable sources that meet RE100's technical criteria (see: <https://www.there100.org>). This includes EACs, primarily linked to solar and hydroelectric systems, Power Purchase Agreements (PPAs) with solar providers, and retail contracts offering a blend of renewable energy sources, such as solar, wind, and hydropower. The F25 figure will be subject to RE100 verification.

⁶ The percentage of energy supplied from grid electricity is calculated as purchased grid electricity consumption divided by total energy consumption.

⁷ Includes owned/leased production assets (vineyards, wineries, packaging centres), warehouses, cellar doors, joint ventures under TWE's operational control, and offices with more than 20 employees.

⁸ Total Scope 1 and 2 CO₂-e emissions (Gross) represent the absolute greenhouse gas emissions from sources owned or controlled by the entity (Scope 1) and from the generation of purchased electricity, steam, heating or cooling consumed by TWE (Scope 2), reported using the location-based method and presented prior to the effect of any emissions reduction measures, such as the purchase of renewable electricity instruments or use of carbon offsets.

⁹ Total Scope 1 and 2 CO₂-e emissions (Net) reflect the same Scope 1 and 2 emissions but incorporate emissions reductions achieved through the use of market-based electricity emission factors, including renewable energy purchases backed by Energy Attribute Certificates (EACs), green retail contracts or similar instruments.

¹⁰ Carbon emission intensity ratio (Gross/Net) refers to gross or net Scope 1 and 2 GHG emissions associated with TWE's wineries and packaging centres, inclusive of third-party (non-TWE) volumes packaged under contract. Emissions intensity is normalised using production volume measured in nine-litre equivalents (9LE).

¹¹ F25 inventory has been refreshed to address errors identified due to system limitations and methodological inaccuracies. Updates were made to emissions associated with fertiliser application, pruning residue, refrigeration (fugitive emissions), wastewater process emissions and biogas flaring, and land use change. Baseline year (F21) has been restated to ensure comparability.

¹² In F24, TWE updated its scope 3 methodology to improve completeness and consistency. Key changes include: inclusion of T&D losses, well-to-tank emissions, updated spend-based factors (USEEIO), refined transport emissions (incl. packaging mass), and inclusion of Graymoor Vineyards under investments. Changes were backcast to F23 and F22.

¹³ Total scope 1, 2 and 3 CO₂-e emissions (gross) includes gross emissions across the value chain, combining scope 1, scope 2 (location-based), and scope 3 emissions from both upstream and downstream activities, without reflecting the impact of emissions reduction measures.

¹⁴ Total Scope 1, 2 and 3 CO₂-e emissions (Net) reflects total emissions across all scopes using the market-based approach for Scope 2 and incorporating any emissions reductions recognised under applicable standards.

¹⁵ Biogenic CO₂ emissions from Scope 3 sources are reported separately in line with the GHG Protocol. These emissions are excluded from total Scope 3 figures, as they are considered part of the natural carbon cycle and do not contribute to net atmospheric CO₂ increases. Prior-year Scope 3 inventories did not separately quantify biogenic CO₂; this was first disaggregated and reported in the F24 inventory.

¹⁶ Scope includes sustainability certifications TWE owned and leased vineyards and wineries in regions where a recognised certification scheme operates (currently Australia, New Zealand, the Americas, France, and Italy). Certification frameworks differ by region. No equivalent certification scheme currently exists for China.

¹⁷ Scope includes our globally operated packaging facilities, wineries and warehouses.

3.1 GHG Emissions

3.1.1 Scope 1, Scope 2, and Scope 3 Emissions

TWE reports annual Scope 1, Scope 2 (location- and market-based), and Scope 3 emissions in accordance with the GHG Protocol and AASB S2 disclosure requirements. These are reported as absolute tCO₂-e emissions, by region and business unit, and are included in annual external sustainability assurance.

- Scope 1 and Scope 2 emissions are based on primary energy and utility consumption data collected from all facilities under TWE's operational control. For a full list of categories and calculation methodology, refer to Appendix B.
- Scope 3 emissions are reported for all material categories, including Purchased Goods & Services, Transportation, Business Travel, Waste, and Use of Sold Products. For a full list of categories and calculation methodology, refer to Appendix C.

All reported emissions are reviewed quarterly and annually, with improvements in data accuracy and completeness integrated into the emissions inventory year-on-year.

3.1.2 GHG Intensity Metrics and Rationale

TWE discloses a single GHG intensity metric: **tCO₂-e per 9LE case of wine produced**, covering winery and bottling operations.

This metric is most representative of TWE's core business activities and enables consistent year-on-year performance tracking. It aligns with internal operational efficiency goals and external stakeholder reporting expectations.

TWE will continue to review the appropriateness of its GHG intensity metrics as its emissions inventory evolves.

3.1.3 Calculation Methodologies

GHG emissions are calculated using the standard formula:

$$\text{Emissions (tCO}_2\text{e)} = \text{Activity Data} \times \text{Emission Factor}$$

Approaches include:

- **Direct supplier engagement:** TWE collects primary GHG emissions data from suppliers through a structured annual emissions survey. Suppliers are asked to report emissions intensity for products and services supplied to TWE, specifying the relevant emission scopes and attribution methods (e.g. revenue, volume, or direct allocation). The survey is supported by guidance materials and webinars to ensure consistency and data quality.
- **Direct measurements:** Where available, activity data such as fuel consumption and electricity use (kWh) are obtained directly from suppliers or internal records.
- **Supplier-specific emission factors:** Used for materials such as glass and packaging, where suppliers provide product-level emission factors. These factors are applied to Scope 3 purchased goods and services.
- **Freight emissions modelling:** For upstream transportation and distribution (Scope 3, Category 4), TWE combines supplier-provided freight reports with distance and weight-based calculations to estimate emissions. Where supplier freight data is not available, distance and weight-based modelling is used as the primary method.
- **Proxy-based estimation:** Where direct data is unavailable, proxy methods are applied. These rely on extrapolation from similar sites, industry benchmarks, and activity-based modelling. A detailed breakdown of proxy-based estimates is provided in Appendix B.

All methodologies follow the GHG Protocol Corporate Standard and relevant guidance (e.g. Scope 2 Guidance, Scope 3 Technical Guidance). Supplier-reported data is aggregated for reporting purposes,

with individual supplier identities and sensitive information kept confidential. Proxy-based estimates are used only where direct supplier data is unavailable, and may be updated as supplier engagement improves.

3.2 Other Environmental Metrics

This section presents additional environmental performance metrics that provide context and insight into TWE's operational footprint. These include:

- **Production Volume:** Used to calculate intensity-based metrics such as tCO₂-e/9LE. Methodology and boundary considerations are outlined to prevent double-counting across regional operations.
- **Total Energy Consumption**
- **Renewable Electricity Consumption**, including breakdown of on-site solar (certified and uncertified) and Energy Attribute Certificates (EACs)
- **Total Water Consumption**, including share from regions with High or Extremely High Baseline Water Stress (per WRI Aqueduct tool)
- **Solid Waste Generated**, by disposal method (landfill, recycling, composting)

3.2.1 Production Volume

To prevent double counting of production figures between TWE regions, only the site that makes the wine will count the amount in their production figures. Movement of wine between TWE regions is to be mapped and documented to show clearly how information is calculated.

Region	Methodology
United States	US production volume includes: • Wine bottled in the US (excluding Australian or NZ origin) • Bulk wine sold, exported for bottling, or transferred via asset sales Excluded to prevent double counting: • Internal bulk transfers within our network • Wine bottled in the US from TWE's Australian or NZ wineries
Australia & New Zealand (ANZ)	Total production volume for ANZ consists of: • Bottling volumes sourced from monthly Fulfilment Reports (no adjustments) • Bulk sales include exports to the US, excluding intra-ANZ transfers
France & Italy	Total production volume based on Total Wine Cases data extracted from Greenbiz.

3.2.2 Total Water Consumed

Total water consumed based on data extracted from Greenbiz reported under “*Water – Incoming*” in the group metric and the default value is used.

3.2.3 Total water consumed % of regions with high or extremely high baseline water stress

TWE analysed all its operations for water risks and identified activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct. Total water consumed in locations with High or Extremely High Baseline Water Stress is disclosed as a percentage of the total water consumed.

Refer to Table 6 for a list of locations with High or Extremely High Baseline Water Stress.

3.2.4 Water catchment risk and smart water meters

In F22 TWE undertook a global review of our water usage and footprint at a catchment level. A catchment is a geographical area, or “System” where the hydrological connectivity within a catchment and the extent to which common water policy and regulatory frameworks apply to a particular group of sites.

The system-level water supply risk, was determined for each catchment and consists of a combination of:

- **Water supply risk:** the physical condition of the water resource, including quality, quantity and supply variability.
- **Water demand risk:** how the use of the water resource is changing over time.
- **Regulatory risk:** the conditions under which water systems are managed. It includes existing, planned or potential changes in water laws, regulations or management practices.

In the absence of a risk assessment conducted in 2022 with respect to a particular area, the system-level risk is based on the Water Risk Atlas rating of 'medium-high', 'high' or 'extremely high' for the indicator of 'Baseline water stress', consistent with the approach in Section 3.2.3.

For the Sustainability Linked Loan (SLL) smart water meter target, smart meters were installed at all high and medium-risk sites, based on system level water risk.

Refer to Appendix F for a list of site-level catchment water supply risk.

3.2.5 Total Energy Consumed

Total energy consumption is based on data extracted from Greenbiz under the “Energy – Energy Use” group metric.

As noted in Section 2.1, energy use associated with the BV Tenant entity is excluded. The BV Tenant occupies leased space at TWE's BV Winery, and

approximately 90% of the site's natural gas and electricity use is allocated to this entity based on estimated resource usage.

Energy consumption from the Graymoor Vineyard (a joint venture) is also excluded, as the site is externally managed and falls outside TWE's operational control.

3.2.6 Renewable Electricity

Renewable Electricity refers to electricity generated from renewable sources, in accordance with RE100 criteria. Eligible sources and procurement methods include:

- **Energy sources:** Wind, solar, geothermal, sustainably sourced biomass (including biogas), and sustainable hydropower.
- **Procurement/sourcing methods:**
 - Self-generation from owned facilities (e.g. rooftop solar)
 - Direct procurement through contracts with renewable energy generators
 - Procurement via electricity suppliers offering accredited renewable electricity (e.g. GreenPower)
 - Unbundled procurement of energy attribute certificates (EACs) (e.g. Large-scale Generation Certificates [LGCs] purchased from the market)

Calculation used to estimate percentage of renewable electricity consumed:

$$\% \text{ Renewable electricity} = \frac{\text{Total Certified Solar (used on-site)} + \text{Certified Green Power}}{\text{Electricity (from Grid)} + \text{Certified Solar (used on-site)} + \text{Uncertified Solar (used on-site)}} \times 100\%$$

For the avoidance of doubt, any Renewable Energy Sources sold by the Group will not be counted in % renewable electricity.

3.2.6.1 Certified and Uncertified Solar

TWE has solar systems installed across multiple regions. For most systems the REC's are retained which is reported as certified, however there are several older systems where TWE does not own the REC's hence the solar is reported as uncertified.

Summary of solar status for each site:

Country	Entity	Solar Status
Australia	Barossa Packaging (formerly known as Bilyara Packaging) ¹	Certified
Australia	Barossa Region Vineyards	Certified & Uncertified
Australia	Barossa Winery (formerly known as Bilyara Winery)	Certified
Australia	Coldstream Hills Winery	Certified
Australia	Coonawarra (Wynns) Winery	Certified
Australia	Coonawarra Region Vineyards	Certified
Australia	Eden Valley Vineyard	Certified & Uncertified
Australia	Great Western Winery	Certified
Australia	Magill (Penfolds) Winery	Certified
Australia	Markaranka Vineyard	Certified
Australia	McLaren Vale Vineyard	Certified
Australia	Padthaway Vineyard	Certified
Australia	Robe Vineyard	Certified
Australia	Saltram Estates	Certified
France	Treasury Wine Estates France (Winery)	Certified
Italy	Castello di Gabbiano Estate	Certified
Italy	Castello di Gabbiano Vineyard	Certified
Italy	Gabbiano Hospitality	Certified
United States	Beringer (St Helena) Winery	Certified
United States	Beringer Administration	Certified
United States	DAOU HMR & Auxiliary Winery ²	Certified
United States	Etude Winery	Certified
United States	Paso 360 Winery	Uncertified
United States	Stags' Leap Winery	Certified

¹ Does not have capability to return to the grid, hence total solar generated recorded is the same as solar used on site.

² Generation data is unavailable. The site is only able to report solar returned to the grid (based on invoice data).

Calculation used to determine solar used on-site:

$$\text{Solar Used on Site} = \text{Total Solar Generated} - \text{Solar Returned to Grid}$$

3.2.6.2 Energy Attribute Certificates (EACs)

To meet RE100 technical criteria, Treasury Wine Estates (TWE) has purchased unbundled Energy Attribute Certificates (EACs), primarily sourced from solar, wind, and hydroelectric systems, to cover electricity consumption at key locations. These purchases are managed in Greenbiz, where they are allocated by country rather than tied to specific sites.

Refer to Appendix D for a summary of TWE's F25 renewable electricity consumption, including the volume, country allocation, and issuing schemes of unbundled EACs procured. Recognised certification schemes include International Renewable Energy Certificate (I-REC), GreenPower (Australia), and Guarantees of Origin (Europe).

3.2.7 Solid waste

Total solid waste generated based on data extracted from Greenbiz reported under "Waste – Disposal", "Waste – General Reuse or Recycling" and "Waste – Organics to Reuse or Recycling" and the default value is used.

Calculation used to estimate the percentage of solid waste diverted from landfill:

$$\begin{aligned} &\% \text{ Solid waste diverted from landfill} = \\ &\frac{(Waste - General Reuse or Recycling) + (Waste - Organics to Reuse or Recycling)}{Total solid waste generated} \times 100\% \end{aligned}$$

3.3 Limitations, Uncertainties, and Data Quality Considerations

TWE is committed to continuous improvement in data accuracy and completeness; however, certain limitations and uncertainties remain:

- **Data Availability:** Some Scope 3 categories rely on third-party data, which may be delayed, estimated, or incomplete.
- **Forecasting Uncertainty:** For metrics using partial-year forecasts (e.g., 10 months actual + 2 months forecast), assumptions may differ from actual outcomes.
- **Emission Factors:** Default or average emission factors are used where specific data is unavailable, which may not fully reflect site- or supplier-level variations.
- **System Constraints:** Data extracted from systems like Greenbiz or Power BI may include gaps, manual inputs, or delayed updates, especially for global operations.

To address these, TWE has implemented:

- A formal data quality review process
- Use of conservative assumptions when estimating
- Continuous improvement in supplier engagement for primary data
- Documentation of all assumptions, sources, and estimation approaches

The accuracy of reported emissions is enhanced through internal review cycles, external third-party assurance, and ongoing methodology refinement.

4 DATA COLLECTION AND RECORD KEEPING

TWE has implemented a structured and consistent approach to data collection and record keeping supporting the accuracy, reliability, and auditability of reported sustainability metrics.

4.1 Data Sources and Assumptions

Data sources include meter readings, invoices, supplier reports, JDE, AgCode, Ignition, and the Wine ERP system. These datasets underpin key environmental and emissions metrics.

- **Supplier engagement is specifically used for Scope 3 Category 1 (Purchased Goods and Services) and Category 4 (Upstream Transportation and Distribution).** TWE conducts structured annual emissions surveys and targeted outreach to suppliers, requesting primary GHG emissions data and supporting documentation for relevant products and services.
- **Manual entry and bulk upload are primarily used for Scope 1 and Scope 2 data.** Site administrators or designated users enter data directly, or the Sustainability Data Analyst facilitates bulk uploads into the Greenbiz platform.

Where assumptions are applied—such as default emissions factors or estimated values for missing data—these are documented and reviewed annually.

Scope 1, Scope 2, and Scope 3 inventories are developed by independent consultants, based on data and reports provided by TWE. This ensures consistency, accuracy, and alignment with recognised standards.

4.2 Monthly and Quarterly Data Entry Procedures

Sites are required to enter or submit data on a monthly basis, with quarterly checks to ensure completeness and data quality. The Sustainability Team provides ongoing support and guidance to maintain consistency across all regions and sites.

4.3 Audit Trail and Evidence Collection

All reported data are backed by an audit trail comprising primary documentation (e.g. invoices, metering reports, supplier confirmations). Supporting evidence is stored in a central repository and is accessible for internal reviews or external assurance processes.

4.4 Data Review and Verification

The Sustainability Team conducts routine reviews to identify anomalies, verify data accuracy, and flag inconsistencies in environmental and emissions data. This process supports internal decision-making, compliance with reporting standards, and the achievement of external assurance requirements.

External business support consultants are also engaged to independently validate data entered in Greenbiz against supporting documentation such as invoices. This independent validation further strengthens the integrity of our reported data.

5 VERIFICATION AND ASSURANCE

This section outlines the internal controls and assurance mechanisms that support the credibility of reported data.

5.1 Review Timelines

TWE's GHG emissions and environmental metrics undergo multiple levels of review to ensure accuracy and transparency for both financial and sustainability disclosures:

- **Preliminary Reporting (for Sustainability Report):**
 - **Timing:** May - June
 - **Scope:** Based on **10 months of actual data** and **2 months of forecasted data**
 - **Purpose:** Supports disclosures in the **Sustainability Report**, typically released in **August** each year.
- **Final Reporting (for Cultivating a Brighter Future (CBF) Report):**
 - **Timing:** July - August
 - **Scope:** Based on **12 months of actual data**.
 - **Purpose:** Final GHG inventory and environmental metrics are included in the **Annual CBF Report**, published in **October**, providing full-year verified figures.
- **Interim Reviews:**
 - **Quarterly and Half-Year Checks** are conducted to identify anomalies, data gaps, or changes in site operations.
 - These interim reviews feed into ongoing performance tracking and help flag potential issues early for corrective action.

5.2 Internal Verification Procedures

TWE has established internal procedures to verify non-financial data prior to external assurance, including:

- **Source document verification** using utility invoices, ERP reports (e.g., JDE, Wine ERP, AgCode), and third-party reports.
- **Reconciliation checks** to ensure alignment between site-level entries in Greenbiz and the corresponding evidence files.
- **Automated dashboards and validations** (via Power BI) that flag outliers, missing data, or inconsistencies.
- **Internal review loops** involving Sustainability, Operations, and Finance teams to validate material inputs.

These processes support AASB S2's emphasis on internal controls and governance around sustainability-related financial information.

5.3 External Assurance and Standards Applied

- Assurance is progressively applied to sustainability disclosures based on a phased timeline.
- Scope 1 and 2 emissions, Scope 3 emissions, and climate-related metrics and targets are subject to TWE's pre-assurance processes in F25, with **limited assurance** introduced in F26–28 and **reasonable assurance** from F29 onwards.
- The following **Assurance Roadmap** is to be followed:

Disclosure requirement	F25	F26	F27	F28	F29	F30	F31+
Governance							
Strategy – risks and opportunities							
Climate resilience assessment / scenario analysis	**						
Transition plans							
Risk management							
Scope 1 and 2 emissions*							
Scope 3 emissions*							
Climate-related metrics and targets*							

Legend:

TWE pre assurance	Limited assurance	Reasonable assurance
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- Assurance Standards:** ASAE 3000 (Standard) is applied to ensure assurance quality.
- Assurance Statements:** Published annually alongside the Annual Financial Report and Sustainability Report, in alignment with AASB S2 requirements for disclosure of verification undertaken.

5.4 Roles and Responsibilities in Data Review

Roles are clearly defined to support accountability and meet governance expectations under AASB S2:

- Sustainability Data Analyst:** Manages system-level data collection and conducts quality control.
- Site Administrators/Designated Users:** Upload site-level data to Greenbiz and maintain relevant source documentation.
- Sustainability Manager:** Oversees data governance, ensures internal alignment, and leads the assurance coordination process.
- Global Director of Sustainability:** Provides oversight of global sustainability reporting, removes cross-functional barriers, and allocates resources to address data quality or reporting challenges.
- Chief Supply and Sustainability Officer:** Reviews and signs off on reported sustainability metrics at the executive level to ensure they meet internal and external reporting standards.
- Finance Team:** Provides financial reporting and expenditure data to support Scope 3 emissions assessment, particularly for spend-based categories such as purchased goods and services, capital goods, and business travel.
- External Assurance Provider:** Provides independent assessment and issues assurance statements aligned with applicable standards.

APPENDIX A **LIST OF SITES INCLUDED IN GHG AND ENVIRONMENTAL METRICS REPORTING**
BOUNDARY

This appendix provides a list of sites included within the reporting boundary for the disclosure of GHG emissions and other environmental metrics under AASB/ASRS Sustainability Reporting Standards. Each site is assessed based on operational control in accordance with the GHG Protocol Corporate Standard. Sites where operational control is held are included across Scope 1, Scope 2, and relevant Scope 3 categories, unless otherwise specified.

Exclusions:

- **BV Tenant:** The BV Tenant entity, which leases space at TWE's BV Winery, is excluded in Scope 1 and 2, but is included in Scope 3 Cat 13 (Downstream Leased Assets).
- **Graymoor Vineyard:** The Graymoor Vineyard joint venture is excluded in Scope 1 and 2, as it is externally managed and outside TWE's operational control.

The table below summarises the key details for each site:

Table 4: Sites Included in GHG and Environmental Metrics Reporting Boundary

Country	Site name	Facility type	F25 Status	Operational control	Scopes Included	Environmental Metrics Included	Notes
Australia	Barossa Packaging (formerly known as Bilyara Packaging)	Packaging	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Barossa Region Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Barossa Winery (formerly known as Bilyara Winery)	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Beckwith Park Penfolds Cellar Door	Cellar Door	Operational for entire F25	Yes	1, 2, 3	Yes	
Australia	Clare (Wattle Farm) Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Coldstream Hills Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Coonawarra (Wynns) Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Coonawarra Region Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Devil's Lair Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Devil's Lair Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Drumborg Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	EAC - Australia	Greenpower	Operational for entire F25	Yes	2	Yes	Unbundled EACs to cover non-renewable electricity used for the region
Australia	Eden Valley Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Fleet - ACT (Previously Transport - ACT)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles

Country	Site name	Facility type	F25 Status	Operational control	Scopes Included	Environmental Metrics Included	Notes
Australia	Fleet - NSW (Previously Transport - NSW)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Fleet - NT (Previously Transport - NT)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Fleet - QLD (Previously Transport - QLD)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Fleet - SA (Previously Transport - SA)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Fleet - TAS (Previously Transport - TAS)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Fleet - VIC (Previously Transport - VIC)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Fleet - WA (Previously Transport - WA)	Fleet	Operational for entire F25	Yes	1,3	Yes	Only fuel used for fleet vehicles
Australia	Graymoor (Joint Venture) Vineyard	Vineyard	Operational for entire F25	No	3	No	Joint Venture - 48.8% of holding
Australia	Great Western (Seppelts) Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Great Western Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Karadoc (Lindemans) Winery	Winery	Operational ceased on Oct 2024	Yes	1, 2, 3	Yes	The site was closed on 11 Oct; Solar PV on-site & Bundled Green Power
Australia	Magill (Penfolds) Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Markaranka Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	McLaren Vale Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Melbourne Corporate Head Office	Office	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	NPEC Wastewater Treatment Plant	Wastewater Treatment Plant	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Padthaway Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	QLD Sales Office	Office	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Robe Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Rural Funds Adelaide Hills Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
Australia	Rural Funds Geier Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
Australia	Rural Funds Hahn Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
Australia	Rural Funds Kleinig Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	

Country	Site name	Facility type	F25 Status	Operational control	Scopes Included	Environmental Metrics Included	Notes
Australia	Rural Funds Rosebank Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Saltram Estates	Cellar Door	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	St Leonards NSW Sales Office	Office	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	St. Hubert's Cellar Door	Cellar Door	Operational for entire F25	Yes	1, 2, 3	Yes	
Australia	Toll Warehouse (LEASED)	Warehouse	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	White Hills Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Wrattonbully Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Australia	Yankabilly (Parkers Field) Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Australia	Yarra Valley Combined Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
China	EAC - China	Greenpower	Operational for entire F25	Yes	2	No	Unbundled EACs to cover non-renewable electricity used for the region
China	Shanghai Office	Office	Operational for entire F25	Yes	1, 2, 3	Yes	
China	Stone & Moon (Winery & Vineyard)	Winery	Operational from March 2025	Yes	1, 2	Yes	Joint venture - 75% of holding starting March 2025
France	Cambon La Pelouse (Vineyards & Packaging)	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
France	Château Lanessan	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Joint Venture - 78.6% of holding
France	EAC - France	Greenpower	Operational for entire F25	Yes	2	Yes	Unbundled EACs to cover non-renewable electricity used for the region
France	Treasury Wine Estates France (Winery)	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site
Italy	Castello di Gabbiano Estate	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Italy	Castello di Gabbiano Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
Italy	Gabbiano Hospitality	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
New Zealand	Black Quail (Leased) Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
New Zealand	Kanuka Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Matua Marlborough Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Matua Marlborough Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Northbank (Leased) Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power

Country	Site name	Facility type	F25 Status	Operational control	Scopes Included	Environmental Metrics Included	Notes
New Zealand	Rewa Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	River Terrace Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Spence Block (formerly Shingle Peak Vineyard)	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Squealing Pig Vineyard (formerly Matua Awatere Vineyard)	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Te Puke Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
New Zealand	Weta Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
Singapore	EAC - Singapore	Greenpower	Operational for entire F25	Yes	2	No	Unbundled EACs to cover non-renewable electricity used for the region
Singapore	Singapore Office	Office	Operational for entire F25	Yes	2	Yes	
United Kingdom	Twickenham Office	Office	Operational for entire F25	Yes	2, 3	No	Bundled Green Power
United States	Asti Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Bale Lane Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Bancroft Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Bear Flats Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beaulieu Vineyard 1	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beaulieu Vineyard 10	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beaulieu Vineyard 12	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beaulieu Vineyard 2	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beaulieu Vineyard 9	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Benjamin Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beringer (St Helena) Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site & Bundled Green Power
United States	Beringer Administration	Office	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Beringer Hospitality	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Big Ranch Road	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	BV Hospitality	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	BV Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Camatta Hills	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	

Country	Site name	Facility type	F25 Status	Operational control	Scopes Included	Environmental Metrics Included	Notes
United States	Chabot Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU Downtown	Office	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU HMR & Auxiliary Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU Mountain Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU Ocean	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU Patrimony Estate	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU Peachy Canyon Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	DAOU San Luis Obispo Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Diamond Mtn Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Dos Rios	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	EAC - United States	Greenpower	Operational for entire F25	Yes	2	No	Unbundled EACs to cover non-renewable electricity used for the region
United States	Etude Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Etude Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site Bundled Green Power (from May 2025 onwards)
United States	Fleet - USA (Previously Transport - USA)	Fleet	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Foote Home Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Frank Family Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
United States	Gamble Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Grace Benoist Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Hewitt Guest House	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Hewitt Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Knights Valley	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Larsen Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Meridian Home	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Napa Corporate	Office	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
United States	Newman Family Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	

Country	Site name	Facility type	F25 Status	Operational control	Scopes Included	Environmental Metrics Included	Notes
United States	Paris Valley Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Paso 360 Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	PPA (Uncertified)
United States	Peterson Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Rosedale Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Rutherford House and Corp Housing	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	S & J Vineyards	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Sonoma Bottling Center (Buildings A, D, M)	Packaging	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	St. Helena Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Stags' Leap Hospitality	Hospitality	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Stags' Leap Vineyard	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Stags' Leap Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Solar PV on-site
United States	Stanly Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Steinhauer Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Sterling Winery	Winery	Operational for entire F25	Yes	1, 2, 3	Yes	Bundled Green Power
United States	Tamagni Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Teviot Springs	Vineyard	Operational for entire F25	Yes	1, 2, 3	Yes	
United States	Winery Lake Ranch	Vineyard	Operational for entire F25	Yes	1, 2, 3	No	Joint Venture - 69.9% of holding

APPENDIX B SCOPE 1 & 2 GHG EMISSIONS CALCULATION METHODOLOGY

Scope 1 direct operational emissions: category and methodology

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
Stationary combustion - Direct emissions from stationary fuel combustion in operations that are owned or controlled by the reporting company.	Fuels and gas used in owned machineries.	• Primary data from utility invoices and delivery records: ○ Diesel (volume metric data in GJ, litre or gallon) ○ Petrol (volume metric data in GJ or litre) ○ Natural gas (volume metric data in GJ or therm) ○ LPG (volume metric data in GJ, litre, kg or gallon) ○ Biogas (volume metric data in GJ) • Secondary data: n/a • Exclusions: None	Average-data method. All entities and sites relevant to this category provided actual volumetric consumption data for diesel, petrol, natural gas, biogas and/or LPG, reported in GJ, liters, kg, gallons or therms. Emissions were calculated based on this physical data using emission factors from relevant country-specific emission factor databases.	Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 ADEME's BASE Empreinte, version 4.1.3 UK DESNZ, 2024 Ministry for the Environment NZ, 2025 US EPA, 2025 Note: Activity data in Italy referenced the UK DESNZ 2024 emission factor database due to the lack of a publicly available Italian database, assuming that the emission factors between the two countries were not significantly different. Similarly, the biodiesel usage in France referenced the UK DESNZ 2024 emission factor database due to the lack of reliable data sources in France.
Mobile combustion - Direct emissions from fuel combustion in vehicles owned by the company	Fuels and gas used in owned fleet vehicles.	• Primary data from utility invoices and delivery records: ○ Diesel (volume metric data in GJ, litre or gallon) ○ Petrol (volume metric data in GJ or litre) ○ Natural gas (volume metric data in GJ or therm) ○ LPG (volume metric data in GJ, litre, kg or gallon) ○ Biogas (volume metric data in GJ) • Secondary data: n/a • Exclusions: None	Average-data method. All entities and sites relevant to this category provided actual volumetric consumption data for diesel, petrol, natural gas, and/or LPG, reported in GJ, liters, kg, gallons or therms. Emissions were calculated based on this physical data using emission factors from relevant country-specific emission factor databases. Note: Emission factors from the US EPA database were taken from the stationary combustion section, as the mobile combustion	Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 ADEME's BASE Empreinte, version 4.1.3 UK DESNZ, 2024 Ministry for the Environment NZ, 2025 US EPA, 2025

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
			section included only CO ₂ values and lacked data for CH ₄ and N ₂ O.	
Fugitive emissions - Direct emissions from the refill of cooling agents used by the equipment due to leakages and consumption of dry ice and imported CO ₂ for tank ullage	- Replenishment of cooling agents in owned equipment due to leakage - Consumption of dry ice and imported CO₂ for tank ullage	Primary data from invoices: - Refrigerants (volumetric data in kg) - Dry ice (volumetric data in kg) - Imported CO₂ (volumetric data in tonne) Secondary data: n/a Exclusions: None	Average-data method: All entities and sites relevant to this category provided actual volumetric consumption data for refrigerants and dry ice in kg. Note: Emissions were calculated based on this physical data using emission factors from the IPCC or UK DESNZ. At one of TWE's sites in the U.S., R-507C (an HFC refrigerant) is used. However, as no emission factor was available for this specific refrigerant, the emission factor for R-507A was applied as a substitute. R-507A and R-507C have similar compositions and physical properties, so using R-507A as a proxy is considered a reasonable assumption. No extrapolation was used in the calculation of emissions from this source. While a small proportion of imported CO₂ is used in the production of sparkling wines, this share is very small (estimated to be less than 10%). Therefore, an assumption is applied that all imported CO₂ is used for tank ullage.	IPCC (2013) WG1 AR5 report, Ch8 Table 8.A.1. UK DESNZ, 2024
Process emissions: Wastewater treatment - Non-energy emissions released during the manufacture or processing of materials, such as emissions from wastewater treatment	Wastewater treatment plant (WWTP) activity on sites TWE owns and/or has operational control over	Primary data: WWTP inflow and outflow volume, as well as BOD / COD values for influent, effluent, and outflow Exclusions: None	Average-data method The IPCC calculation equation 6.2 CH₄ emission factor for each wastewater treatment by type was applied: $EF_j = Bo \times (MCF)_j$ Where (MCF)_j Methane Conversion Factor refers to the type of treatment / discharge pathway or system, and Bo refers to the maximum CH₄ producing capacity, in kgCH₄/kgBOD. The IPCC default factor for calculating the fraction of methane produced from COD is:	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 6: Wastewater Treatment and Discharge 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands, Chapter 6: Constructed Wetlands for Wastewater Treatment

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
			Bo = 0.25 kg CH₄/kg COD). The MCFj values are: • MCF for Aerobic treatment plant = 0 (Source Table 6.8, page 6.21 IPCC) • MCF for Anerobic treatment plant with CH₄ recovery not considered = 0.8 (Source Table 6.8, page 6.21 IPCC) For Castello di Gabbiano Estate, as a constructed wetland, the MCFj value applied is 0.1 (Source Table 6.4 in IPCC report section 6.12). With no wastewater volume data and a 0 value for WWTP influent COD, the calculated emissions for Castello di Gabbiano Estate was zero, and the site was excluded from the inventory spreadsheet. The final calculated EF values were then multiplied by a 1:27 factor based on AR6 values (e.g. 1kg Methane = 27kg Carbon Dioxide), and multiplied by the activity data COD removed in tCOD/year. To estimate COD removed in tCOD/month, wastewater volume in m³/month is multiplied by COD removed in tCOD/m³, which is calculated by subtracting average wastewater effluent COD values from average wastewater influent COD values. For sites where methane is captured and flared at the wastewater treatment plant, the total flared biogas volume is subtracted from the estimated methane emission volume, which is calculated using the aforementioned IPCC methodology. Due to data granularity being at the monthly level for both wastewater volume/COD and captured biogas, several data entries became negative after subtracting the captured biogas from the	

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
			estimated methane emissions. For these instances, any remaining methane emission value is considered zero if it becomes negative. The recovered methane is flared, thus reported separately in the Stationary Combustion category.	
Emissions from nitrogen fertiliser use- Direct and indirect emissions from the fertiliser application	Fertiliser use at TWE's own vineyards	• Primary data: ○ Nitrogen content of the fertilisers used (volumetric data in tonnes) • Secondary data: n/a • Exclusions: None • Estimation: All fertilisers used were assumed to be synthetic	Average-data method The IPCC Tier 1 methodology with default values was used to calculate both direct and indirect fertiliser emissions. For direct emissions - equation 11.1 was applied from IPCC Chapter 11 N2O Emissions From Managed Soils, And CO2 Emissions From Lime And Urea Application: $= EF1 \text{ (kg N}_2\text{O-N (kg N input)-1) x annual amount of synthetic fertiliser N applied to soils (kg N yr)}$ <i>Where EF1 has a default value of 0.01, and refers to N additions from mineral fertilisers, organic amendments and crop residues, and N mineralised from mineral soil as a result of loss of soil carbon</i> Therefore, to calculate the emission factor for N2O emissions from N inputs, the value is obtained by calculating 0.01 x kg N fertiliser applied annually. Indirect emissions consist of two components: (1) leaching and runoff and (2) volatilisation. These are calculated as follows: For indirect emissions from leaching and runoff - equation 11.11 was applied from IPCC Chapter 11 N2O Emissions From Managed	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry and Other Land Use, Chapter 11: N2O Emissions from Managed Soils, and CO2 Emissions from Lime and Urea Application

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
			Soils, And CO2 Emissions From Lime And Urea Application = EF5 (kg N2O–N (kg N input)-1) x FracLEACH-(H)(kg N volatilised (kg of N applied)-1) x annual amount of synthetic fertiliser N applied to soils in regions where leaching/runoff occurs kg N yr-1 <i>Where EF5 has a default value of 0.0075, and refers to the associated Nitrogen lost through leaving and runoff</i> <i>Where FracLEACH-(H) has a default value of 0.3 for both synthetic and organic fertiliser, and refers to the fraction of Nitrogen that is added to and/or mineralised in the soil profile</i> Therefore, to calculate the emission factor for N2O emissions from N leaching and runoff, the value is obtained by calculating 0.0075 x 0.3 x kg N fertiliser applied annually For indirect emissions from volatilisation - equation 11.10 in IPCC Chapter 11 N2O Emissions From Managed Soils, And CO2 Emissions From Lime And Urea Application = EF4 (kg N2O–N (kg N input)-1) x FracGASF x annual amount of synthetic fertiliser N applied to soils, kg N yr-1 <i>Where EF4 has a default value of 0.01, and refers to the N2O emissions from atmospheric deposition of Nitrogen on soils and water surfaces Where FracGASF (synthetic) has a default value of 0.1, and refers to the fraction of synthetic fertiliser that volatilises as NH3 and NOx</i> <i>Where FracGASF (organic) has a default value of 0.2, and refers to the fraction of organic</i>	

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
			<i>fertiliser that volatilises, and includes dung and urine deposited by grazing animals</i> Therefore, to calculate the emission factor for N₂O emissions from atmospheric deposition of N on soils and water surfaces, the value is obtained by calculating 0.01 x 0.1 (for synthetic fertiliser) or 0.2 (for organic fertiliser) x kg N fertiliser applied annually The final calculated EF values are then multiplied by 44/28 to convert N₂O-N to N₂O, and to convert these emissions to CO₂-e, a 1:273 factor based on AR6 values (e.g. 1kg Nitrous Oxide = 273kg Carbon Dioxide) was applied to the converted EF values.	
Emissions from pruning residue – Direct and indirect emissions from pruning residue	Pruning residue at TWE's vineyard	• Primary data: ○ Harvested grape volume (volumetric data in tonnes) • Secondary data: ○ Yield-to-pruning weight ratio ○ Nitrogen content of grapevine prunings • Exclusions: None • Estimation: Pruning volume was estimated from harvested grape volume using the yield-to-pruning weight ratio, and nitrogen content was applied to calculate the total nitrogen in the residues.	Average-data method GHG emissions from pruning residue were estimated by first calculating the nitrogen content in the residue. This was achieved by multiplying site-specific grape harvest volumes by a yield-to-pruning weight ratio (3.97), followed by the application of an average nitrogen content value (2.135%). The nitrogen content of grapevine prunings was derived from average values reported by Hickey et al. (2021) in The Fundamentals of Grapevine Tissue Sampling for Nutrient Analysis (Penn State Extension). The resulting nitrogen amount was then multiplied by the default emission factors provided by the IPCC to calculate the associated GHG emissions.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry and Other Land Use, Chapter 11: N ₂ O Emissions from Managed Soils, and CO ₂ Emissions from Lime and Urea Application
Land use change emissions- Biogenic CO ₂ emissions resulting from carbon stock losses and other GHG emissions due to land use change	Estimated emissions from clearing and conversion of land to viticulture (e.g. deforestation,	• Primary data: geospatial data in the form of polygons, and land purchase and land use records available to TWE	LUC calculations are based on geospatial data in the form of polygons of TWE's assets. LUC emissions over the past 20 years were assessed on Global Forest Watch, an open-source web application developed by the	N/A

Scope 1 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
	afforestation, wetland conversion, etc.)	Secondary data applied to Stone & Moon winery in China: since no polygons were provided for this site but the address was supplied, geospatial data was estimated based on the location from the listed address Exclusions: None	World Resources Institute (WRI) to monitor global forests in near real-time. The 20-year discounting period was based on Intergovernmental Panel on Climate change (IPCC) guidelines. Total 20-year LUC emissions are amortised using the linear discounting approach to obtain emissions for F25. Emissions include all relevant ecosystem carbon pools (aboveground biomass, belowground biomass, dead wood, litter, soil organic carbon) and greenhouse gases (CO₂, CH₄, N₂O). A limitation of this approach is that Global Forest Watch focuses on land use change emissions due to deforestation only. Since Global Forest Watch captures conversion from Forestlands to Croplands, in the absence of direct carbon stock and GHG fluxes from vegetation measurements, the GIS approach is an appropriate calculation methodology for LUC emissions. For sites where geospatial data was unavailable, confirmation of land use change based on historical records was used (e.g. France and Italy sites).	

Scope 2 indirect operational emissions: category and methodology

Scope 2 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
Purchased electricity emissions (location-based approach)	Electricity purchased and used, including GreenPower and onsite solar	• Primary data from utility invoices: ○ GreenPower (in kWh and % use) ○ Electricity from the grid (in kWh) ○ Certified & Uncertified solar generated / used on site (in GJ or kWh) • Secondary data: n/a • Exclusions: Biogenic emissions within Scope 2 electricity are not calculated	Average-data method For Certified Solar used on site: these were assumed to be generated on site, so emission factor was zero. For Uncertified Solar used on site: since no certificates were acquired for this category, country-specific grid emission factors were applied. Country-specific grid emission factors are applied to both Grid and GreenPower electricity in the location-based approach.	Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 UK DESNZ, 2024 Ministry for the Environment NZ, 2025 US EPA, 2025 CAN Emission factors and reference values 2024 CHN NCSC Database of National Greenhouse Gas Emission Factor 2024 EU CoM Joint Research Centre 2024 SINSEFR 2024
Purchased electricity emissions (market-based approach)	Electricity purchased and used, including Grid, Certified GreenPower, EACs, and onsite solar (certified and uncertified)	• Primary data for market-based approach: ○ Certified GreenPower purchases (in kWh) ○ Electricity from the grid (in kWh) ○ Certified & Uncertified solar generated / used on site (in GJ or kWh) ○ TWE's planned purchase of EACs • Secondary data: N/A	Average-data method For Certified Solar used on site: these were assumed to be generated on site, so emission factor was zero. For Uncertified Solar used on site: since no certificates were acquired for this category, country-specific grid emission factors were applied. At each site, where Certified GreenPower purchases were	Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 UK DESNZ, 2024 Ministry for the Environment NZ, 2025 US EPA, 2025 CAN Emission factors and reference values 2024

Scope 2 Category	TWE's Activities	Activity Data	Emissions calculation methodology	Emission Factor Source
		Exclusions: Biogenic emissions within Scope 2 electricity are not calculated	equal to Grid Electricity consumption, the emission factor was zero. EACs purchased were incorporated into calculations in the market-based approach. All remaining non-renewable Grid electricity consumption in 2025 is covered with EAC purchased in each country. Based on this assumption, the emission factor used for all remaining Grid electricity consumption is zero in the market-based approach. Note: BV Tenant and Graymoor (Joint Venture) Vineyard were not considered for EACs.	CHN NCSC Database of National Greenhouse Gas Emission Factor 2024 EU CoM Joint Research Centre 2024 SINSEFR 2024

APPENDIX C F24 SCOPE 3 GHG EMISSIONS CALCULATION METHODOLOGY

Scope 3 Categories & Boundaries

The emissions boundary defines which activities and emissions sources within TWE's value chain are included within the greenhouse gas inventory. The below table presents the 15 categories, their relevance to F24 TWE's Scope 3 footprint, inclusions and exclusions.

Scope 3 category	Evaluation status	F24 emissions, tCO ₂ -e/year	Biogenic emissions ¹ , tCO ₂ -e/year	Inclusions	Exclusions	Explanation
Upstream						
01 - Purchased goods and services	Relevant, calculated	233,250	8,783	1. Purchased raw materials (grapes, bulk wine, additives) 2. Purchased packaging (glass bottles, corks, capsules, cardboard, pallets, other packaging materials) 3. Vineyard: Viticulture (contracted processing, management, harvesting, etc) and purchased fertiliser, herbicide and fungicide 4. Plant and equipment: Repair and maintenance 5. Professional services: Accounting and audit, legal, sales and marketing, business services, travel management, engineering services, entertainment, conference function and catering, cleaning services, and security services 6. IT and communication: Purchased software, repair and maintenance services 7. Office operation: Purchase of office consumables, printing, stationery and consumables, and couriers and postage	1. Office consumable expenditure via corporate credit cards and petty cash. 2. Freight (ocean, road and air freight) expenditure excluded from Category 1 as emissions from logistics for all mode of transports are captured under Category 4.	Office consumable expenditure is expected to be immaterial and that the majority of expenditure is captured centrally

¹ Biogenic CO₂ emissions are reported separately in accordance with the GHG Protocol. These emissions are excluded from total Scope 3 figures, as they are considered part of the natural carbon cycle and do not contribute to net atmospheric CO₂ increases. Segregation of biogenic emissions commenced in F24. Prior-year Scope 3 inventories did not separately quantify biogenic CO₂; this was first disaggregated and reported in the F24 inventory.

Scope 3 category	Evaluation status	F24 emissions, tCO ₂ -e/year	Biogenic emissions ¹ , tCO ₂ -e/year	Inclusions	Exclusions	Explanation
				8. Warehousing 9. Water consumption [Where spend-based emission factors are used to estimate the emissions for purchased goods under Category 1, these typically include transportation (i.e. cradle-to-gate emission factors).]		
02 - Capital goods	Relevant, calculated	29,027	266	1. Purchased oak barrels 2. Purchased IT hardware 3. Purchased communication equipment 4. Purchased equipment and machinery for vineyard, winery, plant and warehouses (construction and upgrading projects) [Where spend-based emission factors are used to estimate the emissions for purchased capital goods under Category 2, these typically include transportation (i.e. cradle-to-gate emission factors).]	Embodied emissions in buildings owned or leased	Expected to be immaterial as TWE can have limited opportunities to influence these emissions. Potential methods of influence would be to operate their offices in green-certified buildings.
03 - Fuel and energy related activities	Relevant, calculated	5,059	12	1. Extraction, production, and transportation of diesel, ULP, LPG and natural gas. 2. Electricity*: a. extraction, production and transport of fuel burnt at generation b. transmission and distribution losses. * Electricity emissions are included using a market based approach, whereby consumption from GreenPower has been subtracted from the grid electricity	N/A	No exclusion of emission sources.

Scope 3 category	Evaluation status	F24 emissions, tCO ₂ -e/year	Biogenic emissions ¹ , tCO ₂ -e/year	Inclusions	Exclusions	Explanation
04 - Upstream transportation and distribution	Relevant, calculated	51,975	11	The following logistic services are expected to be paid for by TWE and are therefore reported under Category 4: 1. Transport of grapes from vineyards to wineries - all grapes from Tasmanian vineyards owned by TWE are transported by 3rd party logistics and paid for by TWE, including those sold to external parties. Therefore, these emissions are included in TWE's Scope 3 inventory. 2. Transport of bulk wine from wineries to bottling sites/ports 3. Transport of bottled wine from bottling sites to ports/customers 4. Transport of wine from port to port 5. Transport of wine from port to bottling sites/customers 6. Transport of glass bottles from suppliers to bottling site.	1. Where spend-based emission factors are used to estimate the emissions for purchased goods and capital goods under Category 1 & 2, these typically include transportation (i.e. cradle-to-gate emission factors). 2. Where TWE sold grapes to 3rd parties, the freight is organised and paid by the external parties and therefore the associated emissions are excluded from TWE's Scope 3 emissions. 3. The transport of grapes from Grower's vineyard (not owned by TWE) is paid by the growers. Therefore, this is excluded from TWE's Scope 3 emissions. 4. For grape transportation some of the trucks are owned by TWE and therefore fuel consumption is accounted for in TWE's Scope 1 emission (excluded from Scope 3).	Any emissions for purchased goods and capital goods are considered in Categories 1 and 2.
05 - Waste generated in operations	Relevant, calculated	1,254	4	Emissions generated during the waste disposal treatment processes as well as the transportation of the following waste types: 1. Waste from operations sent to landfill 2. Waste from operations sent to recycling 3. Organic waste sent to reuse	N/A	No exclusion of emission sources

Scope 3 category	Evaluation status	F24 emissions, tCO ₂ -e/year	Biogenic emissions ¹ , tCO ₂ -e/year	Inclusions	Exclusions	Explanation
				4. Wastewater from operations sent to sewage.		
06 - Business travel	Relevant, calculated	5,810	34	1. Domestic and international flights 2. Hotels stays 3. Train 4. Employees using their own cars for business travel purpose 5. Uber and taxi rides 6. Hired cars	N/A	No exclusion of emission sources
07 - Employee commuting	Relevant, calculated	5,423	1	1. Employee commuting 2. Employee working from home	Ride share/carpool	Employee commuting inclusions (i.e. public transportation, passenger car, light-duty truck and working from home) represent 1.1% of the total TWE Scope 3 inventory. As such, emissions for rideshare/carpool use are expected to be immaterial
08 - Upstream leased assets	Not relevant, explanation provided	N/A	N/A	N/A	N/A	Leased assets under TWE operational control are incorporated into the relevant Scope 1 and 2 calculation
Downstream						
09 - Downstream transportation and distribution	Relevant, calculated	9,819	2	1. Transportation of products from customer distribution centre to retail stores 2. Transportation of products from retail stores to end customers	Refrigerants leakage from the cooling of sold products at hospitality venues, supermarkets, customer homes, etc.	Refrigerant leakage from the cooling of sold products (e.g. at pubs, supermarkets, or in customer homes) is excluded from Scope 3 Category 9 as it is

Scope 3 category	Evaluation status	F24 emissions, tCO ₂ -e/year	Biogenic emissions ¹ , tCO ₂ -e/year	Inclusions	Exclusions	Explanation
				3. Transportation of end-consumer waste (packaging materials purchased by TWE (i.e. glass, paper, cardboard, plastics and aluminium), to nearest landfill or recycling facility. 4. Refrigeration of the product in venues and retail outlets prior to being purchased by the end consumer.		considered immaterial. Industry guidance and LCA studies show that electricity use for refrigeration is the dominant emission source, while refrigerant losses contribute less than 0.005% of total cooling-related GHG emissions due to improved system efficiency and a shift to low-impact refrigerants.
10 - Processing of sold products	Not relevant, explanation provided	502	56	1. Grapes sold by TWE to third parties for processing 2. Bulk wine sold by TWE to third parties for bottling.	N/A	No exclusion of emission sources
11 - Use of sold products	Not relevant, explanation provided	4,592	1	1. Electricity consumption for refrigeration of sold products (home refrigeration).	N/A	No exclusion of emission sources
12 - End of life treatment of sold products	Relevant, calculated	3,276	76	1. End of life treatment of packaging materials; i.e. glass bottles, screwcaps, corks, wooden box & lid, carton and composite 2. In accordance with the GHG Protocol Corporate Value Chain (Scope 3) Standard (Category 5 - Box [5.6] (page 46)), to avoid double counting of emissions from recycling processes by the same company, companies should account for upstream	N/A	No exclusion of emission sources

Scope 3 category	Evaluation status	F24 emissions, tCO ₂ -e/year	Biogenic emissions ¹ , tCO ₂ -e/year	Inclusions	Exclusions	Explanation
				emissions from recycling processes in Category 1 and Category 2 when the company purchases goods or materials with recycled content.		
13 - Downstream leased assets	Relevant, calculated	947	0	Scope 1 & 2 emissions for TWE's tenant BV Winery in the United States (i.e. 90% of fuel and electricity consumption paid by BV Winery).	N/A	No exclusion of emission sources.
14 - Franchises	Not relevant, explanation provided	N/A	0	N/A	N/A	An emissions figure is not calculated for this category as TWE does not have franchised operations.
15 - Investment	Not relevant, explanation provided	35	0	Equity share of scope 1 & 2 emissions for TWE's Graymoor investment	N/A	
Total Scope 3 Emissions – F24		350,969	9,248			

Scope 3 Emissions Calculation Methodology

In F24, Treasury Wine Estates (TWE) implemented several methodological improvements to enhance the accuracy and completeness of its Scope 3 greenhouse gas emissions inventory. These updates have also been retrospectively applied to the F23 and F22 inventories to ensure consistency and comparability across reporting years. Key updates include:

- **Inclusion of transmission and distribution losses from electricity consumption** in relevant categories (Category 2 and Category 11), in line with updated guidance.
- **Inclusion of well-to-tank emissions** associated with fuel use across upstream and downstream transport and business travel (Category 4, Category 6, and Category 7)
- **Adoption of the publicly available USEEIO dataset** for spend-based emission factors, replacing the previous IELab dataset.
- **Refinement of transport emissions calculations** for sold products by including packaging mass in addition to wine mass (Category 9).
- **Inclusion of emissions from TWE's equity share in Graymoor Vineyards**, reported under Category 15 (Investments), reflecting updated boundaries and ownership interests.

Segregation of biogenic emissions commenced in F24. Prior-year Scope 3 inventories did not separately quantify biogenic CO₂; this was first disaggregated and reported in the F24 inventory.

Specific adjustments are detailed under the relevant Scope 3 categories below.

Scope 3 category	Evaluation status	Metric tons CO ₂ -e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
Upstream							
01 - Purchased goods and services	Relevant, calculated	233,250	204,864 (Previously reported 272,039) ¹	288,073 (Previously reported 352,218) ¹	Supplier-Specific and Hybrid methods: Emissions associated with this category are estimated based on operational expenditure data (Opex) as well as mass-based data for glass bottles, grapes purchased, water supply, bulk wine purchased, fertilisers and bottling and packaging. All other emissions from operational expenses are estimated based on spend. All actual supplier data has been separated from the respective aggregated emission activity data to	5.7%	TWE's F22, F23 and F24 scope 1 and scope 2 emissions data – Bulk wine purchases NZ Ministry - Table 67 (Water supply emissions factors), 2024 UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 USEEIO Supply Chain Factors Dataset v1.3

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
					avoid double counting. This includes category 1 (bottling and packaging & professional services) as well as category 4 (sea freight logistics & warehousing). Opex data is extracted from JDE for all regions except France and DAOU entities. For DAOU, opex data is sourced from Dynamics 365. For France, opex data is sourced from Primus (for Treasury France and Cambon) and Isagri (for Lanessan). Spend data is limited to purchase orders invoiced within the financial year, with tax-related payments and internal transfers excluded. Methodology change: • In F24, supplier data was only included in TWE's scope 3 emissions calculations if the scope 3 emissions were included. • Spend-based emission factors were updated from IELab to a publicly available database (USEEIO) in F24. The 18% increase in Category 1 emissions due to an increase in OPEX spend data (6%), grapes purchased (37%) and water consumption (10%).		SimaPro v9.6.0.1 for the following materials: • Grape • Fertiliser • Chemicals inc. Fertiliser, Pesticides • Packaging Glass, white/brown/green • Aluminium Can • Carton • Corks • Gift Boxes/wooden box • Kegs • Kegs-Caps • Labels • Metal Gift Tag • Miscellaneous – Booklet/card • Plastic Sleeves/Plastic slipsheet • Screwcaps • Stickers • Tin capsules • Tissue Papers • Wax

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
					¹ The emissions decreased primarily because change in emission factor to USEEIO factors.		
02 - Capital goods	Relevant, calculated	29,027	21,969 (Previously reported 29,602) ²	27,286 (Previously reported 24,632) ²	Hybrid method: Emissions mainly estimated based on capital expenditure data including winemaking facility and vineyard development, and IT hardware using spend-based emission factors. Oak barrel emissions are calculated using the total board foot of timber used. Relevant Emission Factor Source as listed are used to convert spend into emission estimates. Methodology change: a. Spend-based emission factors were updated from IELab to a publicly available database (USEEIO) in F24. Year-on-year activity data changes include: - An increase in CAPEX spend for items with associated emissions. Additionally, note that taxes were included in F24 spend data, contributing to the magnitude of the increase compared to F23. - Inclusion of DAOU. The decrease in emissions is largely due to the change in source of emission factors to USEEIO Supply Chain Factors Dataset	0%	USEEIO Supply Chain Factors Dataset v1.3 2025 AUS IWCA GHG Calculator v2025.01

Scope 3 category	Evaluation status	Metric tons CO ₂ -e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
					² The emissions decreased primarily because change in emission factor to USEEIO factors.		
03 - Fuel and energy related activities	Relevant, calculated	5,059	6,540 (Previously reported 9,607) ³	5,780 (Previously reported 10,784) ³	Average data method: Scope 3 emissions are associated with the extraction, production and transportation of fuel, and electricity transmission and distribution (T&D) losses (upstream emissions). In F24, electricity use increased in the United States, primarily due to the acquisition of DAOU Vineyards. However, overall emissions in this category decreased by 22% compared to the revised F23 inventory. This reduction was driven by two main factors: • A shift to 80% renewable electricity across TWE operations in F24 • Methodology change: regional T&D emission factors were applied for greater accuracy, replacing previous factors that included both generation and T&D emissions. ³ To ensure consistency, the revised methodology was retrospectively applied to the F23 and F22 inventories, resulting in a reallocation of emissions solely to upstream components (i.e., excluding Scope 2 electricity generation emissions, which are reported separately).	0%	Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 Table 12, NZ Ministry, 2024 Carbon Database Initiative (T&D + WTT of T&D + WTT of generation)

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
04 - Upstream transportation and distribution	Relevant, calculated	51,975	82,602 (Previously reported 70,071) ⁴	100,950 (Previously reported 81,819) ⁴	Supplier-Specific and Distance-based method: TWE obtained global logistics data including bulk wine, finished goods, packaging materials by road and rail, international shipping of bulk wine and finished goods (i.e. sold wine bottles). Noting that it was assumed that all these logistics services are paid for by TWE, where not stated otherwise, and therefore included as part of category 4. Internal logistics are included in Scope 1 and downstream logistics paid for by a third party is included in Category 9. For the second consecutive year, emissions have significantly decreased due to increasing accuracy of logistics data. Methodology change: Inclusion of well-to-tank emissions associated with fuel use across upstream transport. ⁴ The inclusion of well-to-tank emissions associated with fuel use across upstream transport was retrospectively applied to the F23 and F22 inventories.	19.1%	UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 USEEIO Supply Chain Factors Dataset v1.3
05 - Waste generated in operations	Relevant, calculated	1,254	1,219 (Previously	1,379 (Previously	Waste-type-specific Method: The emissions generated during the waste disposal treatment processes as well as the transportation of waste	0%	UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
			reported 1,310) ⁵	reported 1,585) ⁵	sent to landfill and recycled, and wastewater sent to sewage. Key changes in activity data between F23 and F24: - Total landfill waste increased by 25% - Total recycled waste decreased by 21% - Total incinerated waste increased by 1,450% - Total wastewater volume decreased by 35%. Methodology change: - In F24 the Recycled Content Method was adopted. The Recycled Content Method, as outlined by the Greenhouse Gas Protocol, treats all downstream emissions related to recycling as zero. This approach prevents double-counting of emissions associated with upstream recycled content material. ⁵ The use of the Recycled Content Method was retrospectively applied to the F23 and F22 inventories.		NZ Ministry - Table 68 & 69, 2024 Table 9, US EPA – Hub, Jun 2024 GHG Protocol - Product Life Cycle Accounting and Reporting Standard
06 - Business travel	Relevant, calculated	5,810	2,527 (Previously reported 1,238) ⁶	1,310 (Previously reported 977) ⁶	Spend-based method and Distance-based method were used for F24 emission calculation, covering domestic and international air travel, hotel stays, hired cars, taxis, Ubers and train travel.	100%	UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 USEEIO Supply Chain Factors Dataset v1.3

Scope 3 category	Evaluation status	Metric tons CO ₂ -e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
					The significant increase in emissions for F24 is due to the use of well-to-tank (WTT) and tank to wheel (TTW) emission factors. ⁶ The use of well-to-tank (WTT) and tank to wheel (TTW) emission factors were retrospectively applied to the F23 and F22 inventories.		
07 - Employee commuting	Relevant, calculated	5,423	5,283 (Previously reported 5,172) ⁷	4,966 (Previously reported 4,892) ⁷	Distance-based method: Emission sources considered include staff commuting to and from TWE sites and remote work, based on actual data gathered from TWE's F23 employee survey. There is a slight increase in person count due to addition of DAOU employees. Methodology change: - In F24, regional-specific electricity emission factors were used. - well-to-tank (WTT) and tank to wheel (TTW) emission factors were used. ⁷ The use of well-to-tank (WTT) and tank to wheel (TTW) emission factors were retrospectively applied to the F23 and F22 inventories.	14.2% (393 responses collected from Employee Commuting Survey – total employees of 2770)	Table 1, 5 & 6, Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 Table, 18, 20 & 27, NZ Ministry, 2024 Table 6, 8 & 10, US EPA – Hub, Jun 2024 Carbon Database Initiative (T&D + WTT of T&D + WTT of generation)
08 - Upstream leased assets	Not relevant,	N/A	N/A	N/A	N/A	N/A	

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
	explanation provided						
Downstream							
09 - Downstream transportation and distribution	Relevant, calculated	9,819	9,241 (Previously reported 8,127) ⁸	11,544 (Previously reported 9,547) ⁸	Average data method and Distance-based method: Emission includes: a. Electricity consumption from refrigeration of wine at hospitality venues and supermarkets. b. Transportation of products from customer distribution centres to retail stores and from retail stores to end customers based on distance travelled assumptions. c. Transportation of end-consumer waste (packaging materials purchased by TWE (i.e. glass, carton, wood boxes, cork) to the nearest landfill and recycling facilities based on an assumed distance. The increase in emissions is due to: a. The addition of packaging mass to transport of wine, grape deliveries and transport of products from retail stores to end customers b. The addition of grape deliveries activity data c. Transition from the International Energy Agency (IEA) emission factors to the Carbon Disclosure Initiative (CDI) emission factors source for electricity emission factors. Methodology change:	0%	Table 1, Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 Carbon Database Initiative (T&D + WTT of T&D + WTT of generation)

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
					Refinement of transport emissions calculations for sold products by including packaging mass in addition to wine mass. ⁸ Addition of packaging tonnes to transport of end products was retrospectively applied to the F23 and F22 inventories.		
10 - Processing of sold products	Relevant, calculated	502	168	223	Average-data method: Emissions from grapes, bulk wine and permeate produced by TWE but sold to and processed by third parties were added to the inventory, under category 10. The significant increase between F23 and F24 is due to a 92% increase in bulk wine sold, and a 101% increase in grapes sold.	0%	Based on TWE's F22, F23 and F24 scope 1 and 2 emissions data
11 - Use of sold products	Relevant, calculated	4,592	4,407 (previously reported 4,009) ⁹	5,304 (Previously reported 4,628) ⁹	Average-data method: Direct used phase emissions is calculated based on electricity consumption due to wine refrigeration at consumer's homes. The increase is due to a change in emission factors to Carbon Disclosure Initiative (as IEA factors were no longer available). ⁹ The electricity emissions factor included T&D were retrospectively applied to the F23 and F22 inventories.	0%	Carbon Database Initiative (T&D + WTT of T&D + WTT of generation) Table 1, Australian National Greenhouse Accounts Factors (NGAF), Aug 2024 Table 6, US EPA – Hub, Jun 2024

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
12 - End of life treatment of sold products	Relevant, calculated	3,276	2,560	3,938	Waste-type-specific method: Emission sources includes end of life treatment of packaging materials; i.e. glass, carton/paper, plastics, metals, etc. The increase in emissions is due to an increase in glass purchased and sold: - A&NZ: Decrease of 11.46% - Asia: Increase of 2838.89% - EMEA: Increase of 190%	0%	GHG Protocol - Product Life Cycle Accounting and Reporting Standard UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024
13 - Downstream leased assets	Relevant, calculated	947	873	811	Average data method: Emissions from TWE United States tenants' annual electricity and natural gas consumption. YoY increase due to increased consumption of electricity (by 12%) and natural gas (by 7%)	0%	Table 1 & 6, US EPA – Hub , Jun 2024
14 - Franchises	Not relevant, explanation provided	N/A	N/A	N/A	N/A	N/A	
15 - Investment	Relevant, calculated	35	42 (Previously reported N/A)	29 (Previously reported N/A)	Average data method: Emissions from the equity share in Graymoor Vineyard's annual electricity and fuel consumption. Methodology change: Previously, TWE's joint venture (Graymoor Vineyard) was not included in the inventory.	100%	UK Government GHG Conversion Factors for Company Reporting (DEFRA), 2024 Table 1, Australian National Greenhouse Accounts Factors (NGAF), Aug 2024

Scope 3 category	Evaluation status	Metric tons CO2-e			Emissions calculation methodology & Explanation on Variations	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Emission Factor Source
		F24	F23	F22			
Total Scope 3 Emissions		350,969	342,294 (Previously 404,775)	451,593 (Previously reported 496,054)			
Scope 3 – biogenic emissions		9,248	-	-			

Below is a summary of the changes made in different emission categories. The improvements implemented in the F23 inventory have also been applied to the F22 inventory.

- **Supplier selection:** 46 suppliers were selected for the F24 emissions survey, representing the highest contributors to Scope 3 emissions. Of these, 25 responded, with 10 providing Scope 1, 2, and 3 data attributable to TWE, covering 6.6% of total Scope 3 emissions.
- **Category 1 - Purchased goods and services:** Emissions increased by 18%, primarily driven by higher operational expenditure (+6%), increased grape purchases (+37%), and higher water consumption (+10%). Methodology updates included use of USEEIO emission factors and inclusion of supplier data only where Scope 3 emissions were reported.
- **Category 2 – Capital goods:** Emissions reflect increased capital expenditure and inclusion of DAOU. F24 data also captured applicable taxes. Despite these factors, emissions decreased overall due to the shift to USEEIO emission factors.
- **Category 3 – Fuel- and energy-related activities:** Emissions decreased by 22%, largely due to the transition to 80% renewable electricity and adoption of regional transmission and distribution (T&D) emission factors.
- **Category 4 – Upstream transportation and distribution:** Emissions declined for a second consecutive year, reflecting improved logistics data accuracy and inclusion of well-to-tank emissions.
- **Category 5 – Waste generated in operations:** The Recycled Content Method was adopted, aligning with the GHG Protocol. Activity data changes included increased landfill and incinerated waste, and reduced recycled waste and wastewater volumes.
- **Category 6 – Business travel:** Emissions increased due to adoption of well-to-tank and tank-to-wheel emission factors.
- **Category 7 – Employee commuting:** A slight increase reflects DAOU integration and updates to emission factors, including regional electricity, well-to-tank (WTT) and tank-to-wheel (TTW).

- **Category 9 – Downstream transportation and distribution:** Emissions increased due to inclusion of packaging mass, grape deliveries, and updated emission factors (transition from IEA to Carbon Disclosure Initiative (CDI)).
- **Category 10 – Processing of sold products:** Emissions rose following a 92% increase in bulk wine sold and a 101% increase in grapes sold.
- **Category 11 – Use of sold products:** The increase is attributable to a change in emission factor source from IEA to CDI.
- **Category 12 – End-of-life treatment of sold products:** Emissions rose, largely due to regional increases in glass packaging sold, particularly in Asia and EMEA.
- **Category 13 – Downstream leased assets:** Increased emissions reflect higher electricity (+12%) and natural gas (+7%) use.
- **Category 15 – Investments:** In F24, Category 15 was added to the inventory to account for emissions from TWE's equity share in Graymoor Vineyards.
- **Other categories:** No changes.
- **Segregation of biogenic emissions commenced in F24.** Prior-year Scope 3 inventories did not separately quantify biogenic CO₂; this was first disaggregated and reported in the F24 inventory.

These refinements leverage improved data sources, updated emission factors, and refined methodologies to provide a more precise and comprehensive calculation of Scope 3 emissions across various categories. As accuracy improves, we anticipate our Scope 3 emissions inventory and categories will evolve over time. We aim to be transparent in progress, measurement and disclosure.

APPENDIX D CONSUMPTION OF PURCHASED RENEWABLE ELECTRICITY BY COUNTRY

Table 5: Summary of F25 Consumption of Purchased Renewable Electricity by Country

Country /are of consumption	Procurement type recognised by RE100 technical criteria	Renewable electricity technology	Renewable electricity consumed by TWE through this procurement type in the reporting year (MWh)	Tracking Instrument used	Country/a rea of generation	Commissioning or repowering date of the project	Vintage of renewable electricity generation	Supply arrangement start year (operational commencement date)	Voluntary, additional label on renewable electricity	Comments
Australia	3.2 Retail supply contract with electricity supplier	Mix of technologies (unknown)	23160.2	Contracts	Australia	Not applicable	2024		Green Power	Information on commissioning year not available due to purchase of GreenPower Certified electricity via Retail contract.
Australia	4. Unbundled procurement of energy attribute certificates (EACs)	Solar (photovoltaic)	2040.88	LGC (Australia)	Australia	1/12/2022	2024	2024	Voluntary	Purchased 12000 LGCs which were generated in 2024 by Edenvale Solar Park, Queensland. Allocated 1260 LGCs to cover Jan - Jun 24 & 1789 LGCs to cover Jul - Dec 24.
China	4. Unbundled procurement of energy attribute certificates (EACs)	Solar (photovoltaic)	85	GEC (China)	China	1/12/2023	2024	2024	Voluntary	Purchased 110 GEC in advanced to cover Stone & Moon F25 electricity usage: 85 EACs allocated to Mar 25 to Jun 25 (Stone & Moon Winery - Acquired in Mar 25)
China	4. Unbundled procurement of energy attribute certificates (EACs)	Solar (photovoltaic)	100	GEC (China)	China	30/06/2023	2024	2024	Voluntary	Purchased 100 GEC in advanced to cover full F25 electricity usage based on forecast: 100 EACs allocated to Jul 24 to Jun 25 (Shanghai Office)
China	4. Unbundled procurement of energy attribute certificates (EACs)	Solar (photovoltaic)	9	GEC (China)	China	27/05/2023	2023	2023	Voluntary	Purchased 120 GEC in advanced to cover Shanghai Office full F24 electricity usage based on forecast: 105 EACs allocated to F24; allocated 9 EACs to F25 using the remaining EACs
Italy	3.2 Retail supply contract with electricity supplier	Mix of technologies (unknown)	323	Contracts	Italy	Not applicable	2024			As per EU Directive 2018/2021, Repower provides electricity from renewable sources through "Guarantee of Origin" (GO) certificates, committing to purchase and cancel, by March 31 of the year following the supply year, an amount of GO equal to the electricity sold as renewable.
New Zealand	3.2 Retail supply contract with electricity supplier	Wind	1511	NZREC	New Zealand	1/05/2009	2024	2022	Voluntary	Bundled EACs from West Wind Park A covering Jul-24 to Dec-24
New Zealand	3.2 Retail supply contract with electricity supplier	Wind	1032	NZREC	New Zealand	10/05/2014	2024	2022	Voluntary	Bundled EACs from Mill Creek covering Jan-25 to Mar-25
New Zealand	3.2 Retail supply contract with electricity supplier	Wind	1048	NZREC	New Zealand	8/11/2010	2024	2022	Voluntary	Bundled EACs from Te Uku covering Apr-25 to Jun-25

Country /are of consumption	Procurement type recognised by RE100 technical criteria	Renewable electricity technology	Renewable electricity consumed by TWE through this procurement type in the reporting year (MWh)	Tracking Instrument used	Country/a rea of generation	Commissioning or repowering date of the project	Vintage of renewable electricity generation	Supply arrangement start year (operational commencement date)	Voluntary, additional label on renewable electricity	Comments
New Zealand	4. Unbundled procurement of energy attribute certificates (EACs)	Wind	2	NZREC	New Zealand	2/01/2009	2024	2022	Voluntary	Covering Black Quail Vineyard (Leased Vineyard) - Electricity usage estimated by Contractor
United Kingdom	4. Unbundled procurement of energy attribute certificates (EACs)	Wind	151	REGO (UK)	United Kingdom	1/05/2015	2024	2024	Voluntary	EACs from Westmore Rough Wind Farm, England
United States of America	4. Unbundled procurement of energy attribute certificates (EACs)	Solar (photovoltaic)	11635	US-REC	United States of America	7/08/2019	2024	2024	Voluntary	Total of 12000 EACs procured to cover Jul 24 - Jan 25 electricity usage. Allocated 11635 EACs. Facility ID 1454 - Retirement confirmed by ERCOT
United States of America	4. Unbundled procurement of energy attribute certificates (EACs)	Wind	7381	US-REC	United States of America	Seiling Wind II, LLC - 1/12/2014 Kingfisher Wind, LLC - 1/3/2016	2023	2024	Voluntary	Total of 7496 EACs covering electricity usage between Feb - Jun 25: Total of 6177 RECs from Seiling Wind II; 1319 RECs from Kingfisher Wind - certificates submitted to NAR by APX
United States of America	3.2 Retail supply contract with electricity supplier	Mix of technologies (unknown)	2833	Contracts	United States of America	Not applicable	2024		MCE's Deep Green	Deep Green service is a green tariff. MCE retires RECs on behalf of our customers through WREGIS as part of the CEC's California Power Source Disclosure Program. Information on commissioning year not available due to purchase through Green Tariff program.
France	4. Unbundled procurement of energy attribute certificates (EACs)	Wind	428	GO (Europe)	France	MSE LES DUNES 4 (Operation date: 2019-12-11); VALLEE DE L'AA 2 - 3 (Operation date: 2018-12-13)	2024	2024	Voluntary	Cancellation number:CA-075773; Total 833 GO purchased to cover Jan - Dec 24 electricity usage. 428 GO allocated to Jul - Dec 24 electricity usage.
France	4. Unbundled procurement of energy attribute certificates (EACs)	Wind	59	GO (Europe)	France	Centrale éolienne Les Egrouettes (Operation Date: 2019-11-14)	2024	2024	Voluntary	Cancellation Date: CA-083472 (Total EACs procured 320 MWh - allocated 59 MWh to cover CY2024 usage; remaining will be covering CY2025 usage)
Singapore	4. Unbundled procurement of energy attribute certificates (EACs)	Solar (photovoltaic)	112	I-REC	Singapore	Combine of 27 Devices: commissioning date ranging from 8/9/2020 to 15/8/2024	2024	2024	Voluntary	Purchased 172 i-REC to cover Jan 24 - Jun 25 electricity usage. 112 i-REC allocated to Jul 24 - Jun 2025

APPENDIX E LOCATIONS WITH HIGH OR EXTREMELY HIGH BASELINE WATER STRESS

This appendix lists the sites that are located in areas identified as having *high* or *extremely high* baseline water stress according to internationally recognised water risk assessments (e.g., World Resources Institute's Aqueeduct Water Risk Atlas).

High or extremely high water stress indicates that water withdrawals represent a significant portion of available water resources, increasing the risk of water scarcity impacts on operations. These sites are prioritised for water stewardship initiatives, monitoring, and efficiency projects as part of Treasury Wine Estates' (TWE) broader water management strategy.

Table 6: Sites Located in Areas of High or Extremely High Baseline Water Stress

Name	Country	Province	WRI Stress
Castello di Gabbiano Estate	Italy	Toscana	Extremely High (>80%)
Castello di Gabbiano Vineyard	Italy	Toscana	Extremely High (>80%)
Padthaway Vineyard	Australia	South Australia	Extremely High (>80%)
Yarra Valley Combined Vineyards	Australia	Victoria	High (40-80%)
Coldstream Hills Winery	Australia	Victoria	High (40-80%)
Clare (Wattle Farm) Vineyard	Australia	South Australia	Extremely High (>80%)
Rural Funds Adelaide Hills Vineyard	Australia	South Australia	Extremely High (>80%)
Rural Funds Kleinig Vineyard	Australia	South Australia	Extremely High (>80%)
Rural Funds Geier Vineyard	Australia	South Australia	Extremely High (>80%)
McLaren Vale Vineyard	Australia	South Australia	Extremely High (>80%)
Barossa Region Vineyards	Australia	South Australia	Extremely High (>80%)
Barossa Winery (formerly known as Bilyara Winery)	Australia	South Australia	Extremely High (>80%)
Magill (Penfolds) Winery	Australia	South Australia	Extremely High (>80%)
Barossa Packaging (formerly known as Bilyara Packaging)	Australia	South Australia	Extremely High (>80%)
Neill Vineyard	Australia	South Australia	Extremely High (>80%)
DAOU Patrimony Estate	United States	California	Extremely High (>80%)
DAOU Peachy Canyon	United States	California	Extremely High (>80%)
DAOU Mountain Vineyard	United States	California	Extremely High (>80%)
Paso 360 Winery	United States	California	Extremely High (>80%)
Meridian Home	United States	California	Extremely High (>80%)
Camatta Hills	United States	California	Extremely High (>80%)
Paris Valley Ranch	United States	California	Extremely High (>80%)

APPENDIX F CATCHMENT WATER SUPPLY RISK

This appendix includes a summary of the catchments, risk and a summary of the number of vineyards, wineries and packaging centres in each, are summarised in the table below.

Country	Catchment	Risk	Risk basis	Site name	Type	Country	Catchment	Risk	Risk basis	Site name	Type
America	Napa Sonoma Valley	HIGH	TWE	S&J Vineyard	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Benjamin Vineyard	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Asti Vineyards	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Big Ranch Road	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Foote Home Vineyard	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Dos Rios	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Knights Valley (Int)	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Gamble Ranch	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Newman Ranch Vineyards	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Hewitt Vineyard	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Sonoma Packaging Centre	Packaging	America	Napa Sonoma Valley	HIGH	TWE	Stags Leap Vineyard	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Teviot Springs	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Stags Leap Winery	Winery
America	Napa Sonoma Valley	HIGH	TWE	Bancroft Ranch	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Bale Lane Vineyards	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Diamond Mountain Ranch 11	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Bear Flats Ranch	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Diamond Mountain Ranch 12	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Beringer (St Helena) Winery	Winery
America	Napa Sonoma Valley	HIGH	TWE	Diamond Mountain Ranch 13	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Chabot Ranch	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Peterson Ranch	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Frank Family Winery	Winery
America	Napa Sonoma Valley	HIGH	TWE	Steinhauer Ranch	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Larsen Ranch	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Winery Lake Ranch	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Rosedale Ranch	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Etude Vineyard	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	St. Helena Vineyard	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Etude Winery	Winery	America	Napa Sonoma Valley	HIGH	TWE	Sterling Winery	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Grace Benoist Ranch	Vineyard	America	Napa Sonoma Valley	HIGH	TWE	Tamagni Ranch	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Stanley Ranch	Vineyard	America	Paso Robles	HIGH	TWE	Camatta Hills	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Beaulieu Vineyard 1	Vineyard	America	Paso Robles	HIGH	TWE	Meridian Home	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Beaulieu Vineyard 2	Vineyard	America	Paso Robles	HIGH	TWE	Paso 360 Winery	Winery
America	Napa Sonoma Valley	HIGH	TWE	Beaulieu Vineyard 9	Vineyard	America	Paso Robles	HIGH	WRI	DAOU Mountain Vineyard	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Beaulieu Vineyard 10	Vineyard	America	Paso Robles	HIGH	WRI	DAOU Peachy Canyon	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Beaulieu Vineyard 12	Vineyard	America	Paso Robles	HIGH	WRI	DAOU Patrimony Estate	Vineyard
America	Napa Sonoma Valley	HIGH	TWE	Beaulieu Winery	Winery	America	Paso Robles	HIGH	WRI	DAOU San Luis Obispo (SLO) Vineyard	Vineyard

Country	Catchment	Risk	Risk basis	Site name	Type	Country	Catchment	Risk	Risk basis	Site name	Type
America	Paso Robles	HIGH	WRI	DAOU San Luis Obispo Winery	Winery	Australia	Lower Limestone Coast	Moderate	TWE	Wetherall	Vineyard
America	Upper Salinas Valley	Moderate	TWE	Paris Valley	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Adamsons, Hayes, V & A & Woods	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Barossa Packaging	Packaging	Australia	Lower Limestone Coast	Moderate	TWE	Alexander	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Barossa Winery	Winery	Australia	Lower Limestone Coast	Moderate	TWE	Ward	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Golf Course block (Kalimna)	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Block 3-8	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Hopelands	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Block 10-12	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Kalimna	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Block 14-21	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Koonunga Hill	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Cleveland	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Medlands	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Cluny	Vineyard
Australia	Eden Valley	HIGH	TWE	Rogers	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Ey	Vineyard
Australia	Eden Valley	HIGH	TWE	Woodbury	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Glengyle	Vineyard
Australia	Eden Valley	HIGH	TWE	Moculta	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Messenger	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	RFM - Geier	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Mulligans	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	RFM - Kleinig	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Giles	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	RFM -Hahn	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Rocky Castle	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Saltrams	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Munns	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Stonewell	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Abbey	Vineyard
Australia	Clare Valley	HIGH	TWE	Wattle Farm	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Limestone Ridge	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Treasury Mickans	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Michelle	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Treasury Zilm	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Binbilla	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Waltons	Vineyard						
Australia	Adelaide Hills	HIGH	TWE	RFM - Mundy & Murphy	Vineyard						

Country	Catchment	Risk	Risk basis	Site name	Type	Country	Catchment	Risk	Risk basis	Site name	Type
Australia	Lower Limestone Coast	Moderate	TWE	Skinner	Vineyard	Australia	McLaren Vale	Low	TWE	Harnett	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Johnsons	Vineyard	Australia	McLaren Vale	Low	TWE	Logan's Legacy	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	O'Deas	Vineyard	Australia	McLaren Vale	Low	TWE	Magill	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Mackillop	Vineyard	Australia	McLaren Vale	Low	TWE	Seaview	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	McBains	Vineyard	Australia	McLaren Vale	Low	TWE	Vine Vale	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Nursery	Vineyard	Australia	McLaren Vale	Low	TWE	Willunga	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Penley	Vineyard	Australia	McLaren Vale	Low	TWE	Bethany	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Railway	Vineyard	Australia	McLaren Vale	Low	TWE	Neill	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Redman	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Penfolds (Padthaway)	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Richardsons	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Seppelt (Padthaway)	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Robinsons	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Robe	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Sharam	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Kelly's Flat	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Snelling	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Koppa Ridge	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	South Block	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Schultz	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	St George	Vineyard	Australia	Lower Limestone Coast	Moderate	TWE	Lights Vineyard	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Terra Rossa	Vineyard	Australia	North Esk Basin	Low	TWE	Rotherwood	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Coonawarra (Wynns) Winery	Winery	Australia	North Esk Basin	Low	TWE	White Hills	Vineyard
Australia	Lower Limestone Coast	Moderate	TWE	Alexander	Vineyard	Australia	Western Districts	Low	TWE	Drumborg	Vineyard
Australia	Southern Murray-Darling Basin	HIGH	TWE	Markaranka	Vineyard	Australia	Western Districts	Low	TWE	Great Western Winery	Winery
Australia	McLaren Vale	Low	TWE	Binney Road	Vineyard	Australia	Western Districts	Low	TWE	Great Western	Vineyard
Australia	McLaren Vale	Low	TWE	Booths	Vineyard	Australia	Western Districts	Low	TWE	Imperial & St Peters	Vineyard
						Australia	Grampians	Low	TWE	RFM -Rosebank	Vineyard
						Australia	Yarra Valley	Moderate	TWE	Briarston	Vineyard
						Australia	Yarra Valley	Moderate	TWE	Coldstream Hills	Vineyard
						Australia	Yarra Valley	Moderate	TWE	Deer Farm	Vineyard

Country	Catchment	Risk	Risk basis	Site name	Type	Country	Catchment	Risk	Risk basis	Site name	Type
Australia	Yarra Valley	Moderate	TWE	Hazeldene	Vineyard	New Zealand	Wairau River Valley	HIGH	TWE	River Terrace Vineyard	Vineyard
Australia	Yarra Valley	Moderate	TWE	Beenak	Vineyard	New Zealand	Wairau River Valley	HIGH	TWE	Spence Block	Vineyard
Australia	Yarra Valley	Moderate	TWE	Coldstream Hills Winery	Winery	New Zealand	Wairau River Valley	HIGH	TWE	Te Puke	Vineyard
Australia	Margaret River	Moderate	TWE	Devil's Lair Vineyard	Vineyard	New Zealand	Wairau River Valley	HIGH	TWE	Weta	Vineyard
Australia	Margaret River	Moderate	TWE	Devil's Lair Winery	Winery	France	Gironde	Moderate	TWE	Chateau Lanessan Winery	Winery
New Zealand	Awatere River	Moderate	TWE	Squealing Pig Vineyard	Vineyard	France	Gironde	Moderate	TWE	Chateau Chambon La Pelouse (TWE France Winery)	Winery
New Zealand	Clutha River Valley	HIGH	TWE	Black Quail Vineyard	Vineyard	Italy	Chianti Classico	Moderate	TWE	Castello di Gabbiano Estate	Winery
New Zealand	Wairau River Valley	HIGH	TWE	Kanuka Vineyard	Vineyard	Italy	Chianti Classico	Moderate	TWE	Castello di Gabbiano Vineyard	Vineyard
New Zealand	Wairau River Valley	HIGH	TWE	Matua Marlborough Vineyard	Vineyard	China		Low	WRI	Stone and Moon Vineyard	Vineyard
New Zealand	Wairau River Valley	HIGH	TWE	Matua Marlborough Winery	Winery	China		Low	WRI	Stone and Moon Winery	Winery
New Zealand	Wairau River Valley	HIGH	TWE	Northbank (Leased) Vineyard	Vineyard						
New Zealand	Wairau River Valley	HIGH	TWE	Rewa Vineyard	Vineyard						