Australian Government
Department of Agriculture, Fisheries and Forestry

AUSTRALIAN Grape & Wine

TRACING CARBON EMISSIONS IN AN INTERNATIONAL WINE INDUSTRY VALUE CHAIN BETWEEN AUSTRALIA AND SINGAPORE: A PROOF OF CONCEPT

CONSORTIUM PARTNERS

Lead

- Australian Grape & Wine

Partners

- Asuene
- CSIRO
- Amazon Web Services
- Department of State Development (SA government)
- Wine Australia

Other contributors

- More than Machines
- Australian Wine Research Institute

Funding

- Department of Agriculture, Fisheries and Forestry
- Government of South Australia

PROBLEM DEFINITION

1. Growing demand from consumers and customers for transparency with regards to sustainability

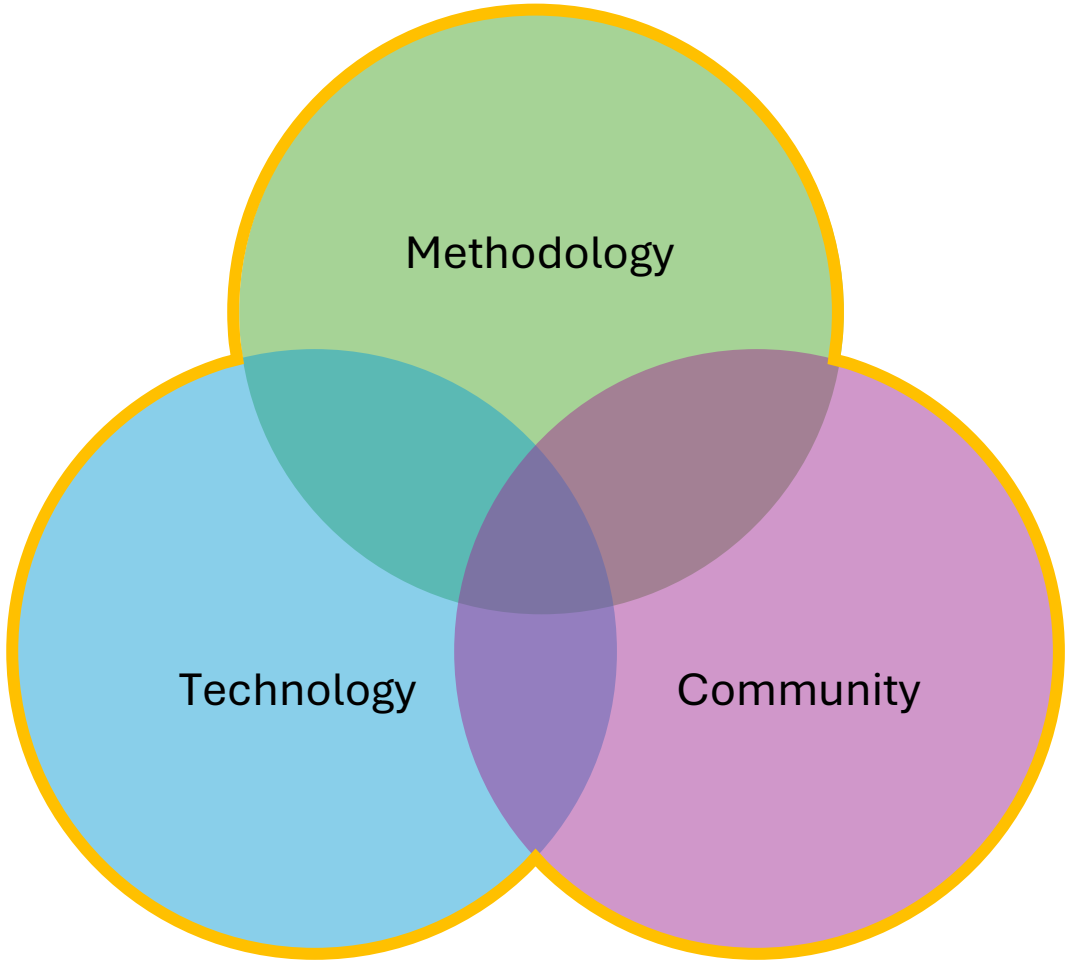
2. Investors, banks, and lenders are increasingly integrating environmental, social, and governance (ESG) factors into their risk assessments

3. Evidence of multiple reporting platforms and inconsistent demands from stakeholders

4. Lack of industry preparedness for future carbon taxes, regulatory requirements and the impact of climate-related disclosures (AASB S2)

5. Complexity and costs involved in data collection

OUR APPROACH: MANY-TO-MANY



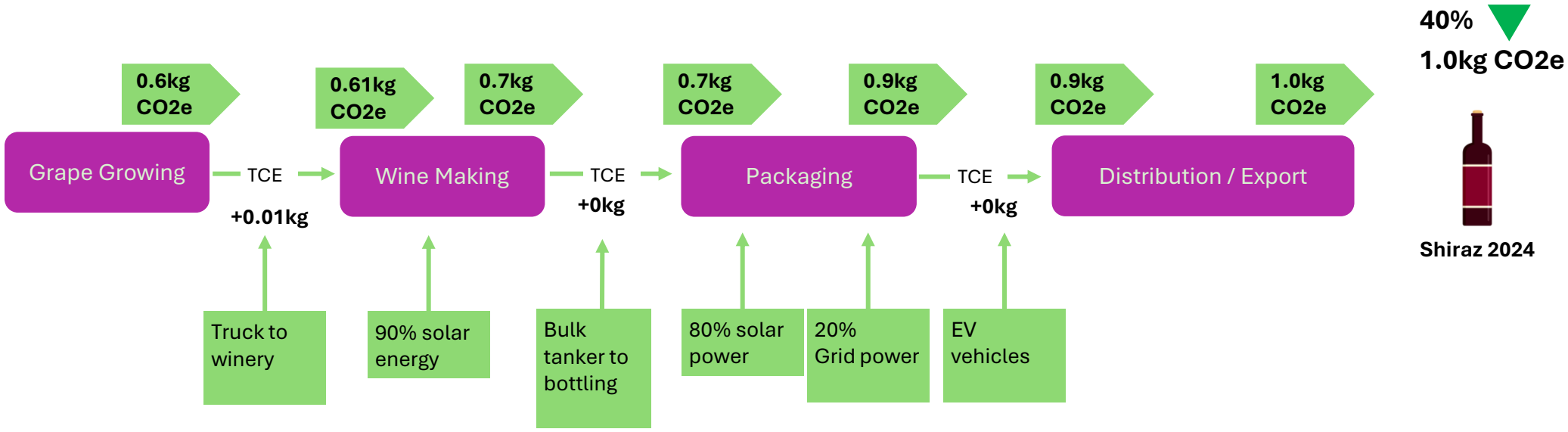
Community first, technology last

1. Community building approach
   - All members of the wine industry value chain
   - Establishing trust

2. Methodology
   - Primary data
   - Supplier specific emissions
   - E-Liability Framework: Embodied carbon emissions get transferred along with the product sold, just like activity-based cost accounting

3. Technology
   - Data management
   - Data sharing
   - PCF calculation (ability to accept external calculators)

CRADLE TO GATE APPROACH
(E-LIABILITY FRAMEWORK)



E-liability Institute

CARBON CALCULATOR

2026 A 'n A Shiraz

Product Details | Activity Amount

Activity Amount Input

Please enter the activity amount for each life cycle stage. Items that are not entered will be excluded from the calculation.

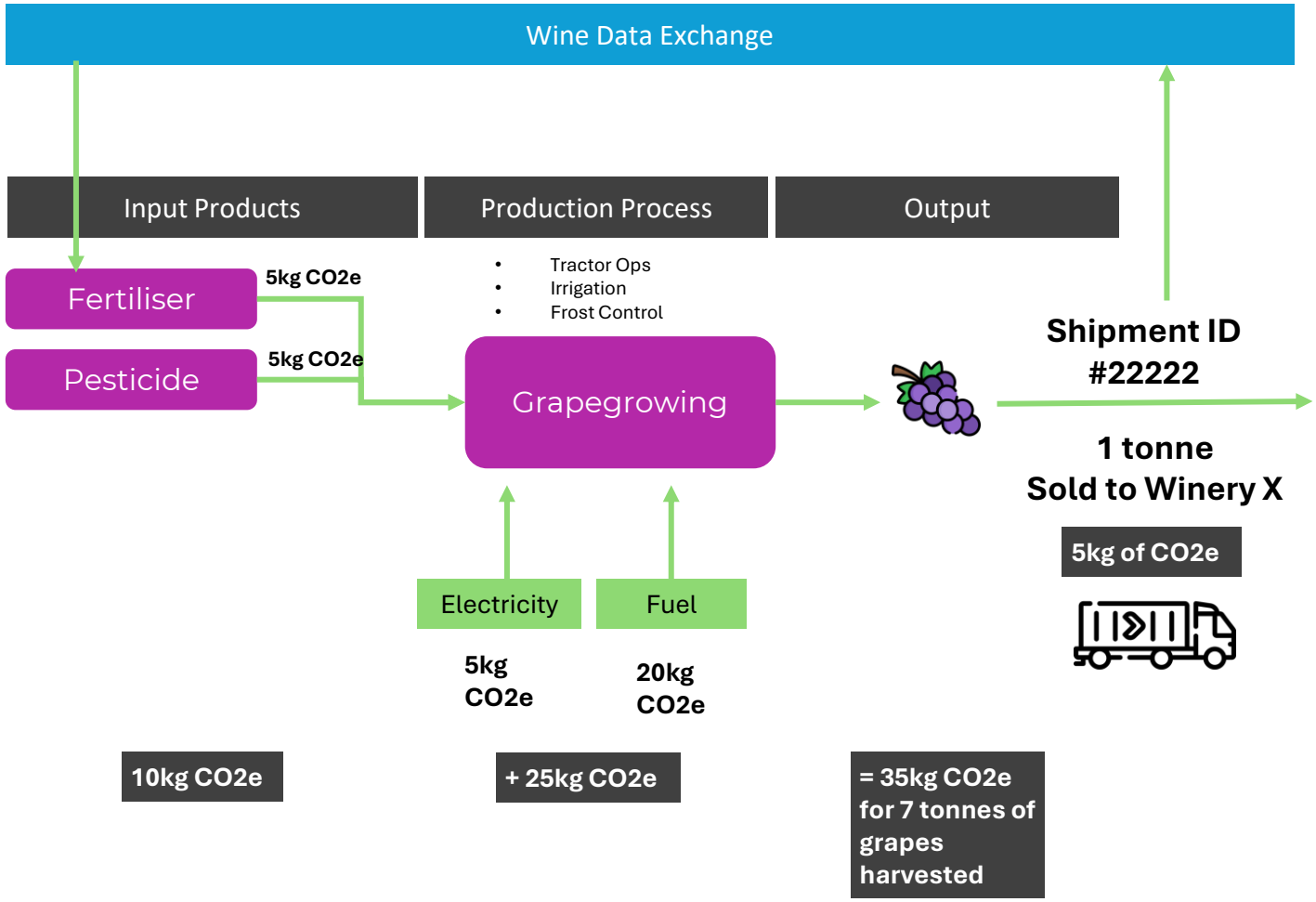
Category	Name	Life Cycle Stage	Database	Emission Factor Name	Activity Amount 1	Activity Amount 2	Date	Action
Vineyard Vehicle ...	Vineyard Vehicle an	Raw Material Sou...	Partner Products (WineCarbonExchange)	tor	Enter value (e.g. 10, 5.5)		YY	
Packaging	Packaging	Processing	DEFRA 2024				YY	
Bottling	Bottling	Processing	Australia NGAF 2024				YY	
Packaging	Packaging	Processing					YY	
Transport	Transport	Distribution & Sto...					YY	

+ ADD ACTIVITY AMOUNT

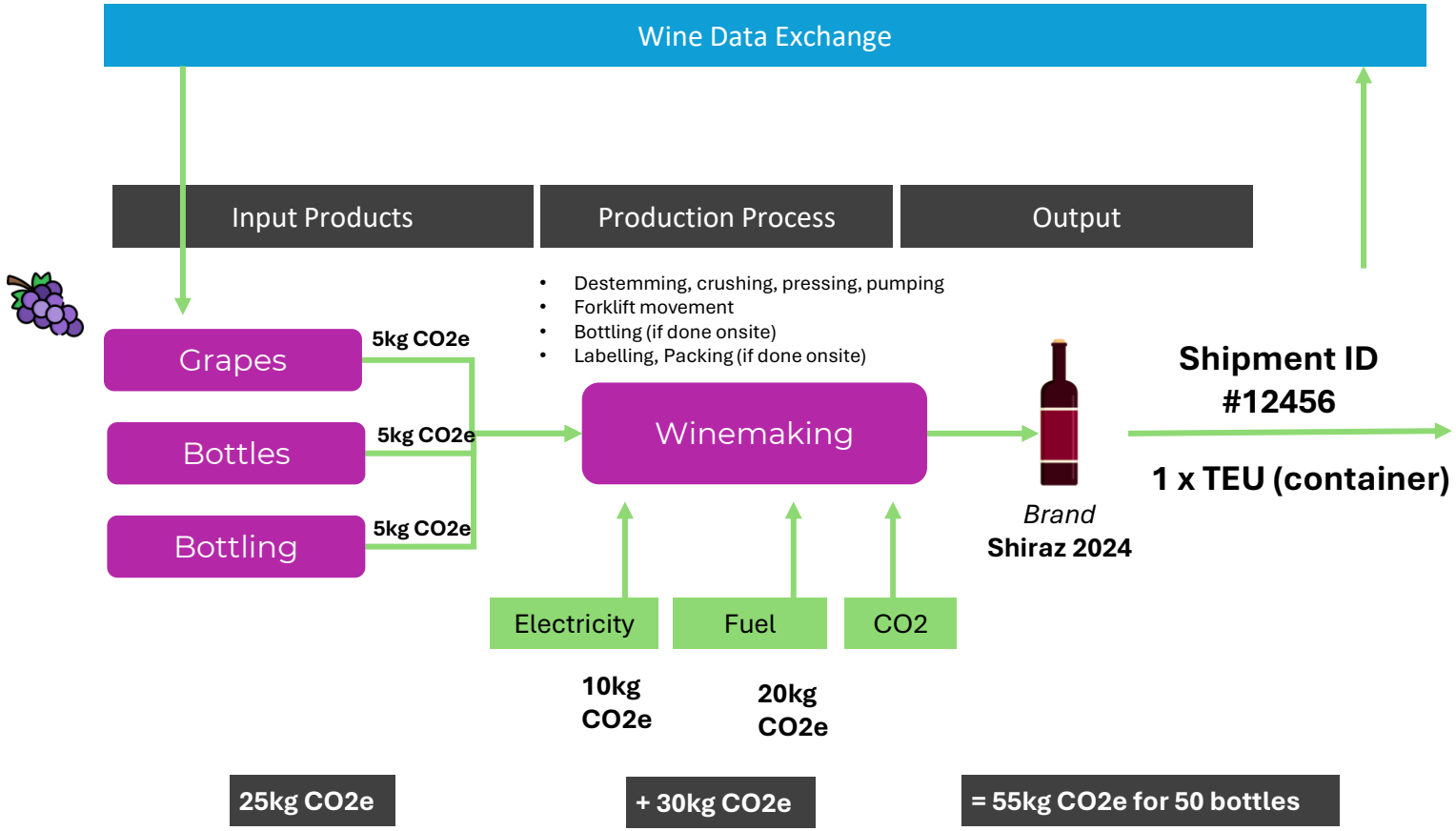
DATA SHARING

Name	Unit	Emissions per unit kg-CO2e	Visibility	Created Date	Source	Action
2026 A 'n A Shiraz 26AASHZ	L	3.87	PRIVATE	2025/08/25	ASUENE LCA	Share
2026 Pinot Rose Wine 26PRO	L	2.49	PRIVATE	2025/08/21	ASUENE LCA	Share
2026 Pinot Noir 26PIN	t	1,59	PRIVATE	2025/08/21	ASUENE LCA	Share

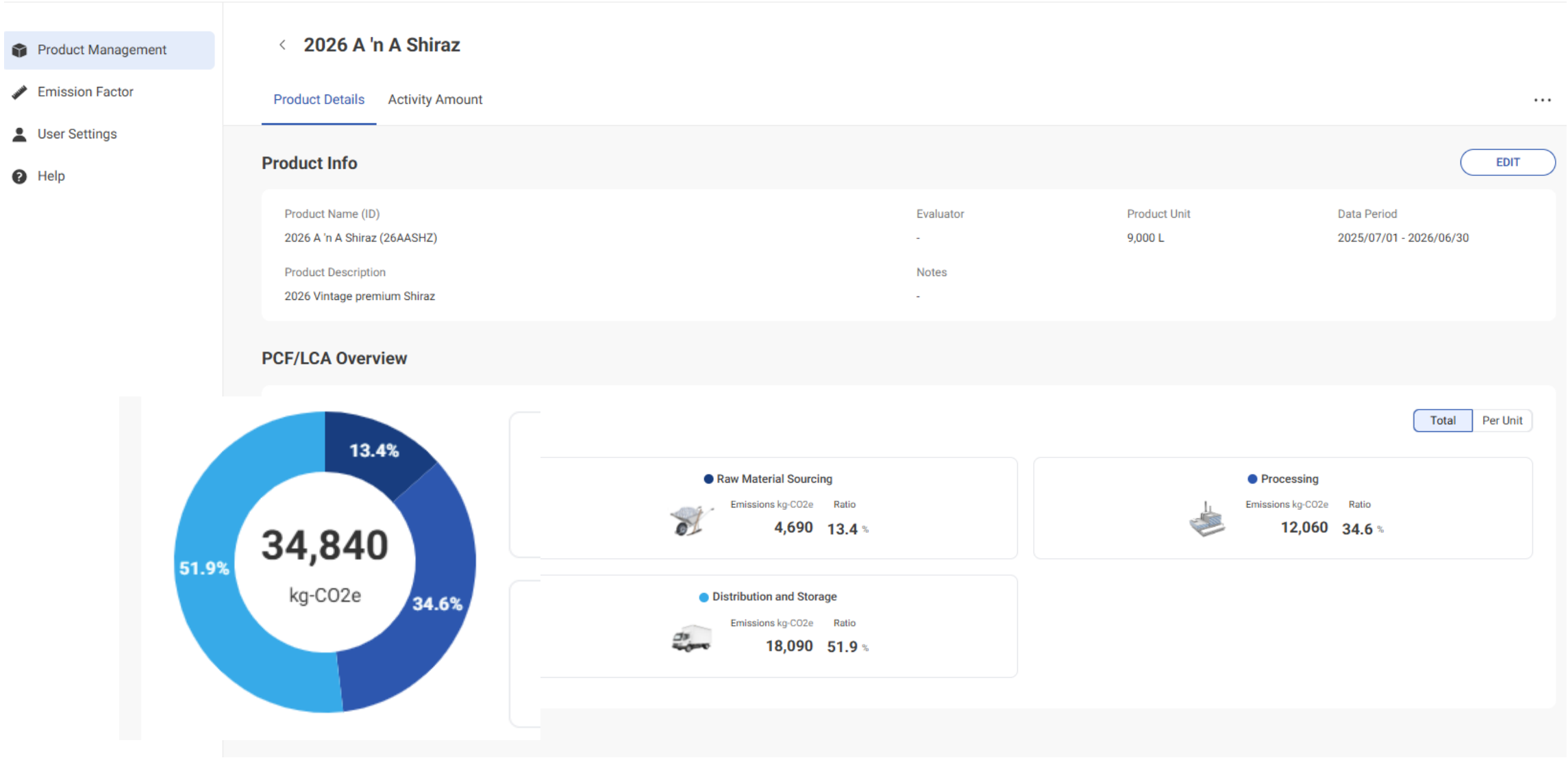
AS A GRAPE GROWER...



AS A WINEMAKER...



PRODUCT CARBON FOOTPRINT



DESIGNING FOR SUCCESS

1. We thought deeply about why these projects **fail** and designed our project to consider common missteps.

2. We have a strong, vocal project steering group made up of supply chain organisations

TOLL coles F·A·B·A·L ORORA HILL-SMITH FAMILY ESTATES TREASURY WINE ESTATES

3. We leveraged **international experience**

ASUENE SYSTEM BOLAGET E-liability Institute Catena-X Your Automotive Network

4. We mapped existing technologies, supply chain processes and industry infrastructure.

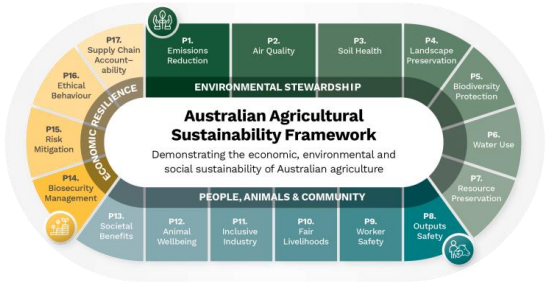
SUSTAINABLE WINEGROWING AUSTRALIA

5. We considered **existing research, standards, governance and initiatives** wherever possible. The wine carbon exchange is group of parts, not tightly coupled.

AGRICULTURAL INNOVATION AUSTRALIA AADX AgTrace NATIONAL FARMERS FEDERATION Data Code Certified 0000

6. We **designed for operationalisation, commercialisation and future change.**

7. **We considered our place in the AASF** and are providing industry leadership by providing an artefact to provide industry direction.



DOES IT SOLVE THE PROBLEM?

1. Contributes to consumer, customer and other stakeholder demands for transparency and granularity when it comes to their Scope 3 emissions
2. Leading from the bottom up (one industry-led method accepted by many), along with single rather than multiple entry points from different stakeholders
3. Getting ahead of the curve, avoiding being caught off guard by future requirements
4. Additional Benefits
    - Assists businesses in managing and reducing a carbon footprint at the product level
    - Potential to allow higher performing businesses to demonstrate superior performance
    - Provides emissions factors to assist with calculations
    - Potential to automate data collection
    - Mechanism for using industry product emissions factors
    - Potential to share other types of data
5. Future considerations
    - Multiple supply chain partners (growers) in any one wine product
    - Building trust
    - Accuracy and transparency
    - Cost – who pays?
    - Do we need this yet?

KEY STAKEHOLDERS

Winemakers (and their own grape growers)

- Treasury Wine Estates
- Hill-Smith Family Estates

Transport Logistics

- Toll Logistics
- Pallet and Barrel

Bottle Maker

- Orora

Independent Grape Grower

- FABAL

Retailers

- Coles Liquorland (Australia)
- Monopole (Singapore) – Distributor and Retailer
- Systembolaget

Government

- Department of Agriculture, Fisheries and Forestry
- Government of South Australia

Industry

- Australia Grape & Wine
- Wine Australia
- Australia Wine Research Institute
- Sustainable Winegrowing Australia