APPENDIX 14

Sustainability Strategy Report : Dsquared

Strategic Alliance

Southern Barossa Winery and Tourist Accommodation Precinct (SBWTAP)

Sustainability Strategy Report

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Our Vision is to think beyond the square.

Our Mission is to create spaces, places, and communities that are positive for both the environment and for people. We will do this by providing our clients with sustainable and bespoke solutions that are innovative, challenge perceived ideas, and push the boundaries of achievement and excellence.

We confirm that all work has been undertaken in accordance with our ISO 9001 accredited quality management system.

Acknowledgement of country

The dsquared team wish to acknowledge the Traditional Custodians of all country throughout Australia, and their cultural, spiritual, physical, and emotional connection with their land, waters, and community. We pay our respects to all Elders past, present, and emerging.

Contents

1 Introduction

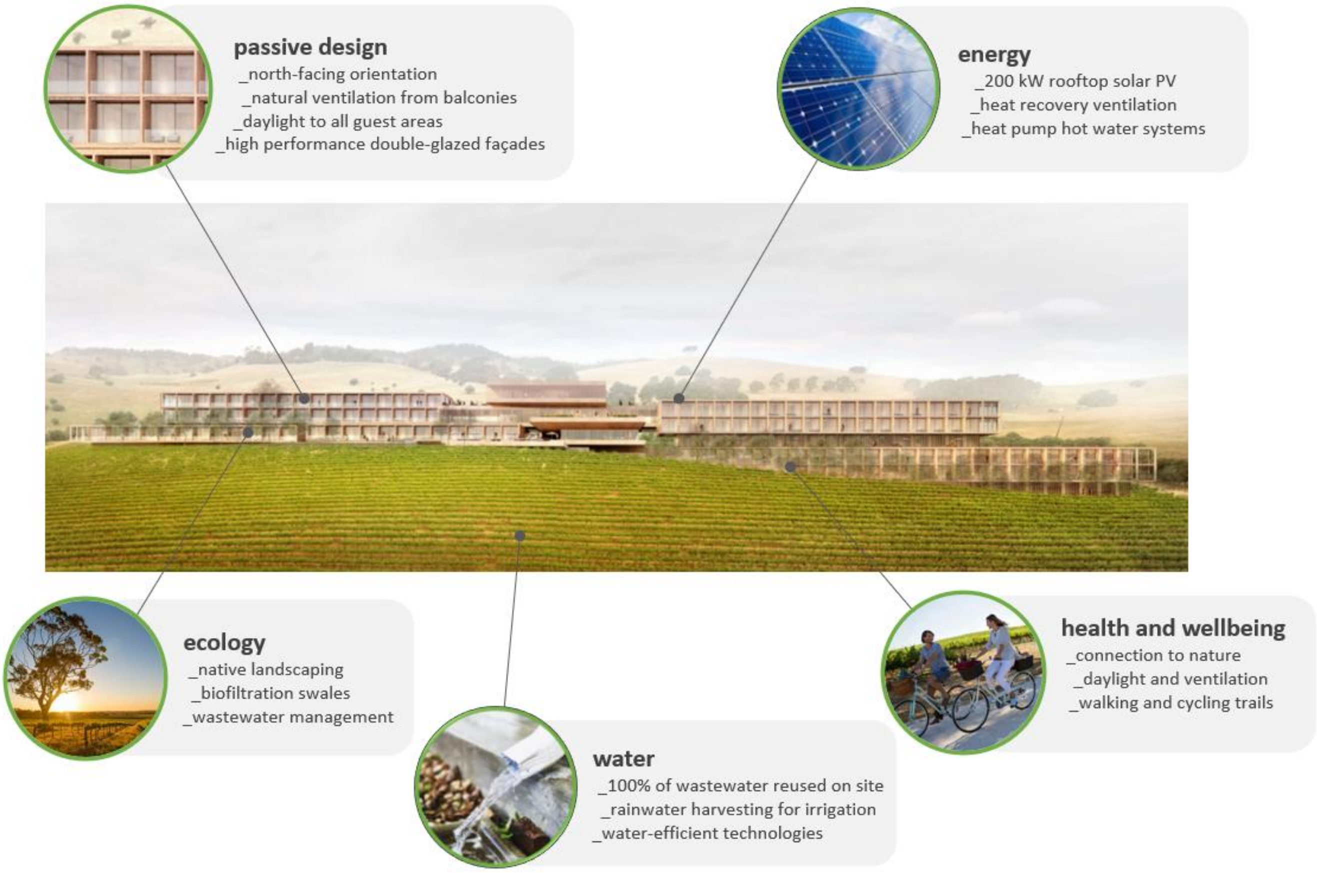
1.1 Purpose

This document summarises the Sustainability Strategies and ESD initiatives which will be applied to the new Southern Barossa Winery and Tourist Accommodation Project (SBWTAP) in order to reduce the development's impact on the environment in both construction and operation.

This report follows the development of the building design by the integrated design team lead by baukultur.

1.2 Vision

The sustainability vision and outcomes proposed are summarised as follows:



Sustainability Vision

1.3 Objectives

The overarching Sustainability objectives for the development are that it:

- is all-electric, and fossil fuel free, and therefore net-zero ready;
- reduces greenhouse gas emissions compared with standard practice;
- is energy-efficient;

- conserves water;
- preserves and enhances the site's ecology;
- prioritises occupant health and wellbeing;
- provides a connection with nature;
- reduces waste and maximises opportunities for reuse and recycling; and
- is resilient to future climate change.

The approach to achieving these objectives is described in Section 3.

1.4 Author

This report has been prepared by Jarrad Braham, an Associate at dsquared.

Jarrad has over 8 years' experience in the design and delivery of sustainable buildings and communities across Australia in both the public and private sectors.

Jarrad is a qualified engineer (Mechanical and Sustainable Energy Engineering) and is a Green Star Accredited Professional, a NABERS Accredited Assessor, and a WELL Accredited Professional.

dsquared has a 12-year history of delivering exemplar sustainability outcomes for developments across Australia.

2 Strategy

2.1 Overview

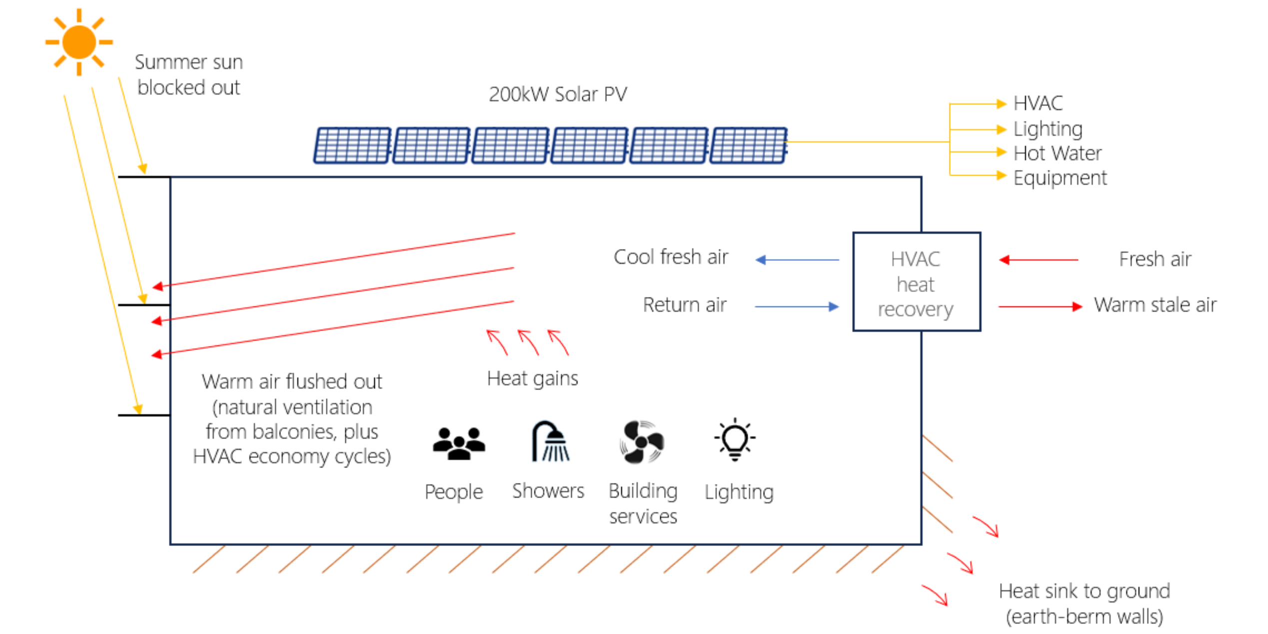
Energy and water conservation are key sustainability strategies which are illustrated below.

Further sustainability strategies and initiatives are described in Section 3.

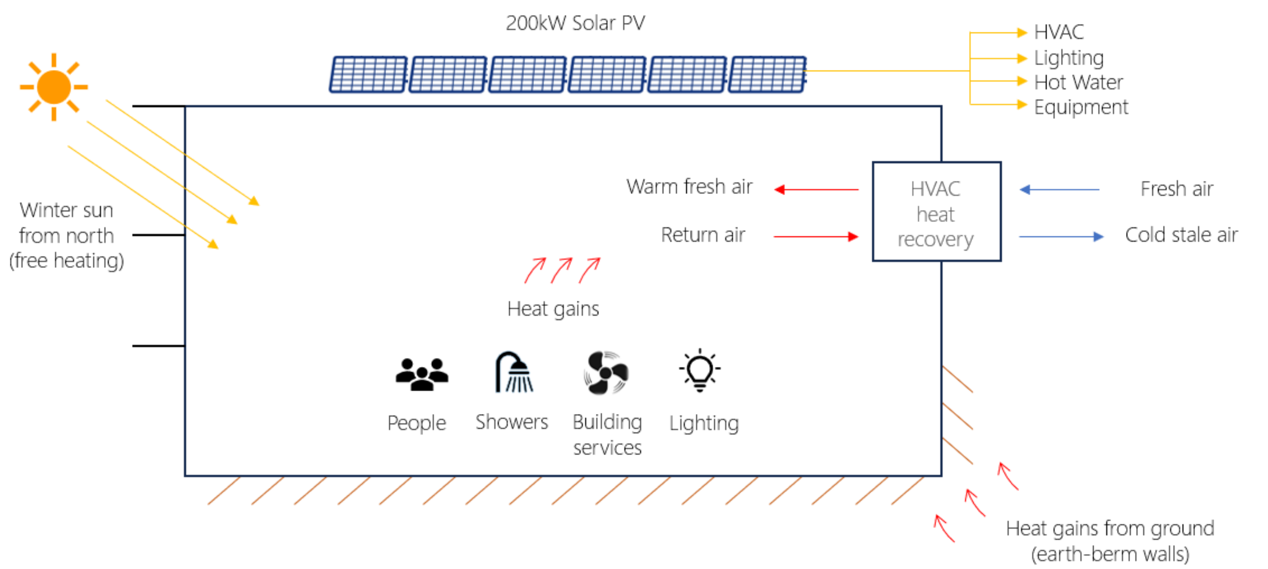
2.2 Energy

The energy strategy is to use passive design techniques which reduce thermal loads on the building, complemented by the use of efficient building systems and operating modes.

The energy strategy during both summer and winter is illustrated as follows:



Energy Strategy – Summer



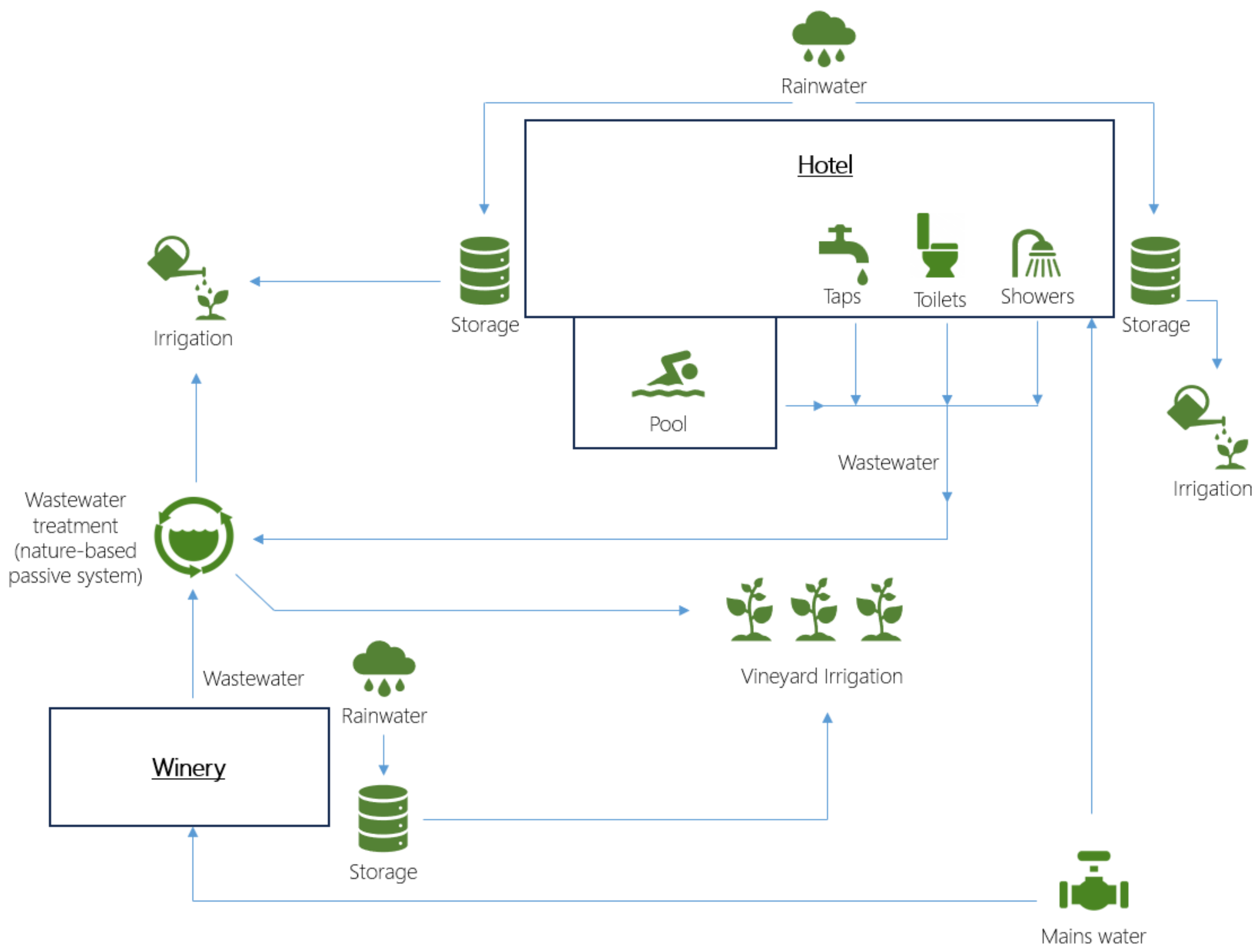
Energy Strategy – Winter

2.3 Water

The water strategy is to:

1. Apply a holistic and circular approach to capturing and reusing water on site.
2. Reduce total water demand by using water-efficient technologies and systems which do not consume water in their operation where possible.
3. Reduce potable water demand by capturing and reusing wastewater and rainwater on site.

The water strategy is illustrated as follows:



Water Strategy

3 Initiatives

3.1 Net Zero ready

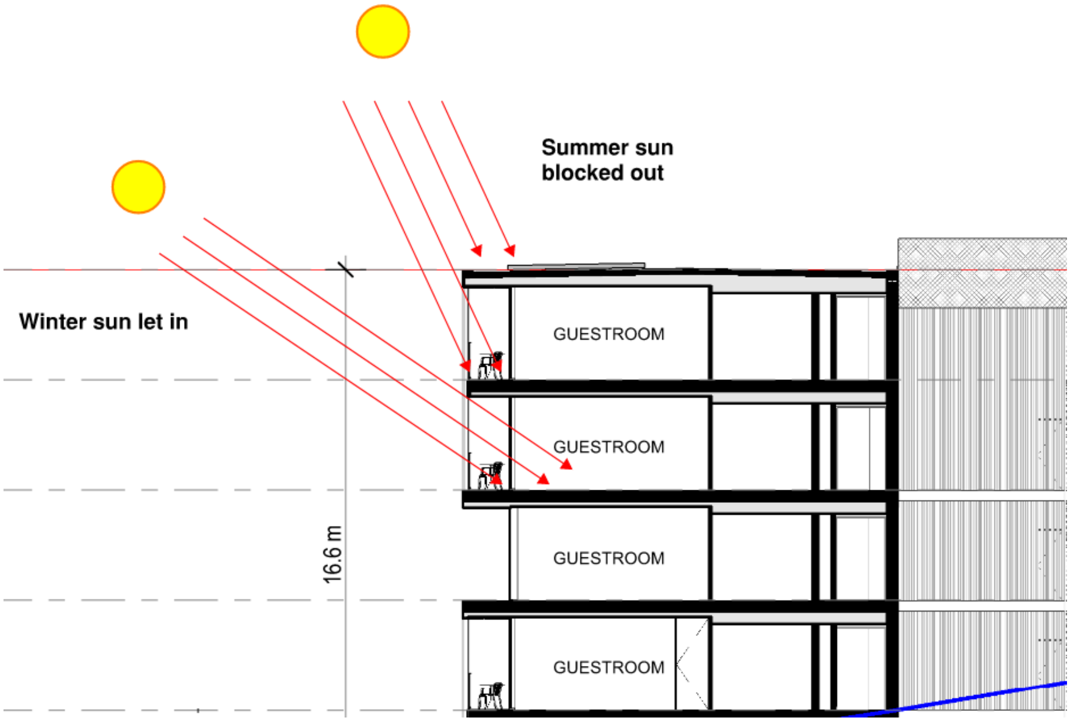
The following initiatives which result in the development being readily capable of operating as Net Zero Carbon in operations are included:

- All-electric development. No gas or fossil fuels used in the buildings for HVAC, hot water, or cooking.
- Rooftop solar PV systems on both the Hotel and Winery, maximising the available roof space for solar PV panels. A 200 kW system is proposed for the Hotel and a 175 kW system for the Winery.
- The buildings are positioned to be powered by 100% renewable energy through the operators' procurement of 100% Greenpower in operations.

3.2 Passive Design

The following passive design initiatives are included:

- North-facing hotel building with minimal east and west-facing glass.
- Winter sun access into all hotel guest rooms for passive heating in winter, whilst the summer sun is blocked out.



Passive design strategy

- The building is set into the hillside (earth-berm) which provides considerable thermal stability, reducing heat losses in winter and reducing heat gains in summer.
- Excellent daylight access is provided in all guestrooms and front-of-house areas (restaurant, function, lobby etc).
- Balconies provide natural ventilation opportunities in the guestrooms.

- High-performance double-glazed façades designed and optimised using building performance modelling analysis.

  Façade thermal performance values will meet or exceed the following:

Location	Glazing type	U-Value (W/m^2)	SHGC	VLT %
Hotel Guestrooms	Double-glazed	2.6	0.35	≥ 40%
Hotel Front-of-House	Double-glazed	3.0	0.30	≥ 40%
Winery	Double-glazed	3.5	0.40	≥ 40%

- Solar-reflective finishes on the roof and façades to reflect heat. The roof finishes will achieve a Solar Reflective Index >82.
- Native planting, landscaping and greenery to provide a passive cooling effect.

3.3 Energy

The following energy-efficiency initiatives are included:

- Energy recovery ventilation in all hotel guestrooms.
- Demand-control ventilation (CO_2 sensors and controls) in front-of-house areas.
- Demand-based kitchen ventilation systems with variable flow exhaust.
- Outdoor air economy cycles in function spaces will provide free cooling in shoulder seasons.
- Electric heat pump hot water systems with a Coefficient of Performance of 3.5 (i.e. 3.5 times more efficient than a typical direct-electric hot water system) provide all domestic hot water to the hotel.
- Water-efficient showerheads to reduce water usage and thereby hot water heating energy demand.
- Power and lighting to guestrooms will automatically switch off when the guests leave the room.
- Air-conditioning in guestrooms will automatically shut down when the balcony doors are left open.
- Lighting in back-of-house areas will switch off automatically when the spaces are unoccupied.
- Swimming pool energy efficiency initiatives as follows:
  - Electric heat pumps will provide the pool water heating.
  - Ultra-fine water filtration system which requires minimal backwashing, greatly reducing pool water and thereby reducing the water heating energy demand.
  - Automated retractable insulated pool cover with a minimum R-value 0.15 m^{2}K/W.
  - Heat recovery ventilation to the pool hall heating system, with a minimum 75% heat recovery efficiency.
  - Temperature set-backs for the pool water and space heating systems during periods of inactivity or off-peak.
- A comprehensive energy metering and management approach including separate metering for distinct services (e.g. HVAC, hot water, pool plant, lighting, general power, lifts). The hotel metering will be connected to a central Energy Management System allowing data interrogation and analysis of usage trends.

3.4 Water and WSUD

The following water initiatives are included:

- All wastewater from the hotel and winery buildings will be captured, treated on-site, and re-used for irrigation of the vineyards and landscaping, greatly reducing the site's potable water demand and eliminating the need for a municipal sewer connection. The on-site wastewater treatment system comprises an innovative passive nature-based treatment system made locally in South Australia, and has 50% lower operational carbon emissions compared to a conventional mechanical aerobic treatment system due to its much lower energy demand (no continuous pumping or blower fan energy) and its below-ground nature-based treatment method which reduces nitrogen losses and methane emissions.
- Rainwater will be captured from the roof and stored for irrigation.
- Landscaping comprises native drought-tolerant vegetation which requires nil or minimal irrigation.
- Irrigation will be served from the rainwater tank and use water-efficient spray technologies e.g. micro-spray or sub-surface dripper type.
- Water Sensitive Urban Design Principles are incorporated to improve stormwater quality and reduce runoff flow rates, including:
    - Soft landscaping, planting, green spaces, and permeable surfaces in lieu of hardscaping are used where possible.
    - Biofiltration swales located in and around the carparking areas will naturally filter pollutants out of the stormwater.
    - Stormwater detention basins for both the hotel and the winery will slow the water run-off and further filter out residual pollutants before releasing it to the natural creek basin.
    - Post-development stormwater run-off flow rates will not exceed pre-development rates, as a result of these WSUD initiatives.
- Water-efficient fixtures and fittings with the following minimum WELS ratings will be installed:

Item	WELS Rating
Taps	6 Star
Toilets	4 Star
Urinals	6 Star
Showers	3 Star (≤ 7.5 L/min)
Dishwashers	5 Star
Washing machines	n/a*

*Hotel laundry services will be conducted off-site.

- Filtered drinking water stations will be provided for hotel guests.
- A comprehensive water metering system will be installed and connected to a central monitoring system allowing data interrogation and analysis of usage trends. Distinct water end-uses will be separately metered including guest rooms, hotel kitchen, swimming pool, and winery.

3.5 Nature and Ecology

The following ecology-related initiatives are included:

- A site-specific ecology/flora/fauna assessment was undertaken during the early concept stage and has informed the approach to land clearing such that significant ecological species and habitats are not adversely affected, and informed the design of the proposed civil and landscaping works, including selection of new landscaping species which complement and enhance the site's natural ecology.
- Water-Sensitive Urban Design principles will ensure the post-development peak water flow rates do not exceed pre-development rates, and will filter pollutants out of the water before it reaches the natural creek and waterways below ground (see also Water).
- Careful management of wastewater from the winery production process to mitigate risk of contaminating natural water sources or groundwater, as documented in a comprehensive Operational Waste Management Plan specific to the winery.

3.6 Health and Wellbeing

The following health and wellbeing initiatives are included:

- Restorative Design is a key part of the hotel design philosophy, which includes providing a connection to nature and a calming environment for guests to relax, restore, and connect with the natural surrounds.
- Continuous background ventilation in hotel guestrooms for improved air quality.
- Balconies to hotel guestrooms provide access to natural ventilation and fresh air.
- Ventilation systems in front-of-house areas continuously monitor the air quality (CO_2 levels) and adjust the fresh air quantities to ensure a high indoor air quality is maintained (CO_2 levels < 800ppm).
- Daylight and views to the natural surrounds are provided in all hotel guestrooms and front-of-house areas in the hotel and winery.
- Double-glazed façades will provide improved thermal comfort internally.
- Walking paths around the site, bicycles for hire at the hotel, and the gym and swimming pool support physical wellbeing.
- Healthy materials that do not off-gas into the air will be used throughout, including low VOC and low formaldehyde finishes and FF&E.

3.7 Circular Economy and Waste

The following circular economy and waste initiatives are included:

- A comprehensive Operational Waste Management Plan has been developed which describes the approach to separating waste on site using multi-bin system for guests and staff, maximising recycling opportunities. Separate waste bins will be provided for the following waste streams to help divert waste from landfill:
    - Commingled recycling
    - Cardboard/paper
    - 10c cans and bottles
    - Soft plastics
    - Organics (food waste, paper towels, garden/landscaping off-cuts)

   - Batteries
   - E-waste
   - Hard waste
   - Cooking oil
   - Winery process waste
- A circular water management approach whereby all wastewater from the hotel and winery buildings is captured, treated on-site, and reused on-site for irrigation of the vineyards and landscaping (see Water).
- Winery organic waste (grape marc and mulched stalks) will be collected and processed by a local business who will extract the remaining alcohol from the marc/stalks to produce spirit for resale, and convert the remaining waste product into mulch/compost.
- Design for Disassembly principles adopted throughout the hotel. This will enable partitions, joinery, flooring, wall coverings, services and equipment to be dismantled and reused/relocated, rather than demolished, when undertaking major refurbishments or fitout works in future.
- Selecting durable products and materials which have a long useable life, thereby avoiding waste from repairs and replacements.
- An in-house repair program will repair damaged furniture and fixtures in the hotel.
- Products which are manufactured using recycled materials and are readily recyclable at end of life will be given preference.
- Avoidance of composite materials which are unable to be recycled at end of life, wherever viable.
- Filtered drinking water will be available for all hotel guests and staff, to reduce the demand for single-use plastic bottles.
- Construction and demolition waste will be carefully managed with a requirement that the contractor diverts a minimum of 90% of waste from landfill.

3.8 Community and Social Sustainability

The following social sustainability initiatives are included:

- The project will provide an ongoing and sustained contribution to tourism and economic development in the Barossa and local winery regions.
- The buildings will provide equal, inclusive and dignified access to people of all abilities.
- An intuitive approach to wayfinding and signage will assist people of all abilities to navigate through the buildings.

3.9 Transport

The following initiatives to reduce transport-related environmental impacts are included:

- Secure bike storage and End of Trip facilities provided for hotel staff.
- Bicycles available for guests to hire from the hotel.
- Secure bike storage will be available for guests, including an increased temporary provision during specific peak periods such as the Tour Down Under when there is expected to be a significant peak period of guests bringing their bikes and cycling around the Barossa region.

- Electric vehicle charging provisions for guests and staff.
- Bus tours and shuttle services around the Barossa region available for booking through the hotel concierge.

3.10 Climate Change Resilience

A climate change risk review has been undertaken and the project design includes a series of design responses to mitigate the risks identified.

Please refer to Appendix A Climate Change Resiliency for a description of the risks identified and the design responses that the project has incorporated to address these risks.

4 Energy and Emissions Modelling

4.1 Introduction

Energy and greenhouse gas emissions modelling has been undertaken to estimate the energy usage and greenhouse gas emissions of the development over its operating life.

4.2 Energy

Energy modelling estimates and comparison to a code compliant reference case are presented separately for the hotel and winery as follows.

The reference case is a building of equal form and function to the proposed building but constructed to minimum building code energy efficiency standards only, per Section J of NCC 2022.

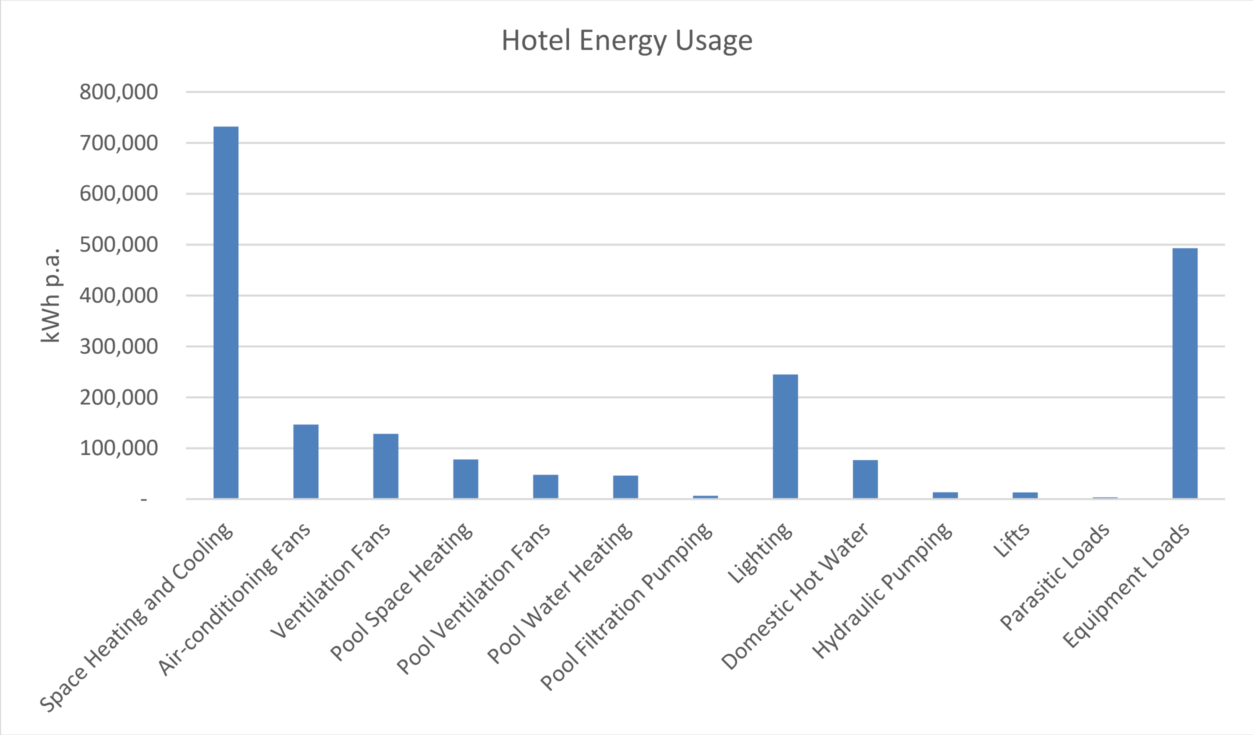
Hotel energy modelling estimates are as follows:

End Use Category	Energy usage (kWh p.a.)	
	Proposed project	Reference case (Note 1)
Space Heating and Cooling	731,778	819,591
Air-conditioning Fans	146,356	153,673
Ventilation Fans	128,152	134,559
Pool Packaged HVAC	77,945	87,299
Pool Ventilation Fans	47,804	50,194
Pool Water heating	46,241	65,663
Pool Filtration Pumping	6,570	26,937
Lighting	244,763	264,345
Domestic hot water	76,764	111,307
Hydraulic pumping	13,498	17,548
Lifts	13,124	13,124
Parasitic loads	3,416	3,416
Equipment Loads	493,045	493,045
Solar PV (200 kW)	-261,685	-
Total	**1,767,771**	**2,240,701**
Improvement	**-**	**21%**

Energy Modelling Estimates – Hotel

Note 1: The reference case is a building of equal form and function to the proposed building but constructed to minimum building code energy efficiency standards only, per Section J of NCC 2022.

A graph breakdown of the hotel energy usage is provided on the following page.


Hotel Energy Usage
kWh p.a.
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
Space Heating and Cooling
Air-conditioning Fans
Ventilation Fans
Pool Space Heating
Pool Ventilation Fans
Pool Water Heating
Pool Filtration Pumping
Lighting
Domestic Hot Water
Hydraulic Pumping
Lifts
Parasitic Loads
Equipment Loads

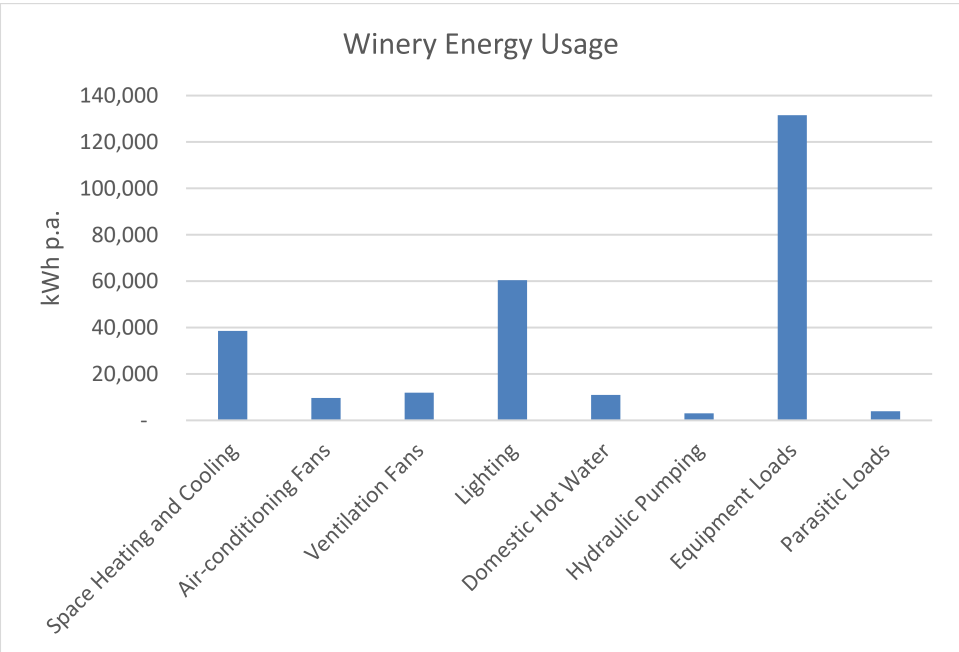
Winery energy modelling estimates are as follows:

End Use Category	Energy usage (kWh p.a.)	
	Proposed project	Reference case (Note 1)
Space Heating and Cooling	38,571	39,729
Air-conditioning Fans	9,643	9,836
Ventilation Fans	11,924	12,162
Lighting	60,407	61,616
Domestic Hot Water	10,996	11,546
Hydraulic Pumping	3,039	3,191
Equipment Loads	123,506	131,542
Parasitic Loads	3,906	3,906
Solar PV (175 kW)	-161,088	-
Total	**108,941**	**273,527**
Improvement	**-**	**60.2%**

Energy Modelling Estimates – Winery

Note 1: The reference case is a building of equal form and function to the proposed building but constructed to minimum building code energy efficiency standards only, per Section J of NCC 2022.

A graph breakdown of the winery energy usage is as follows:



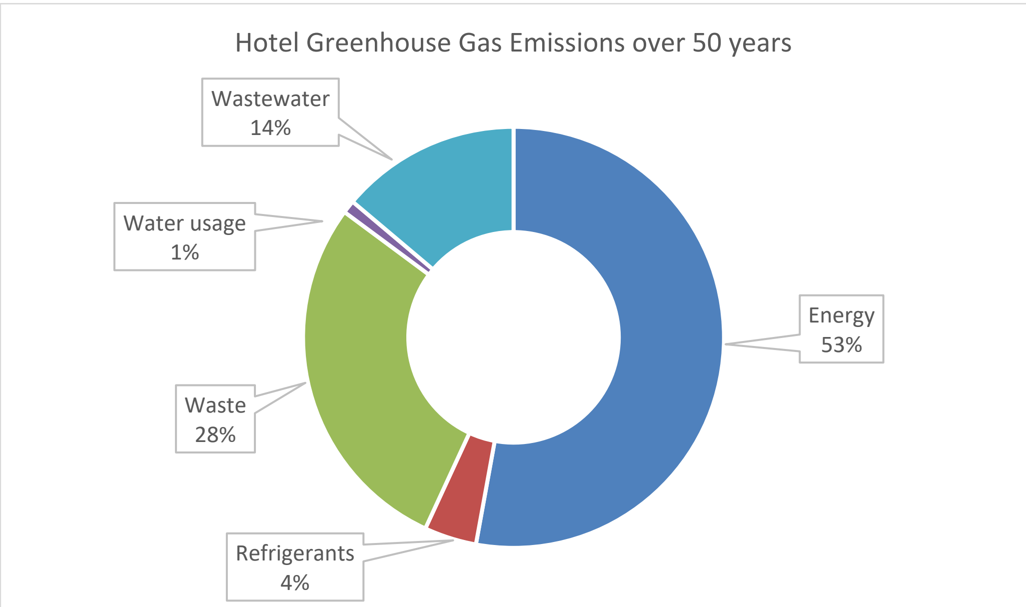
4.3 Greenhouse Gas Emissions

Hotel Greenhouse Gas emissions estimates are as follows:

Category	GHG Emissions (t CO_2e)				Notes/assumptions
	Year 1		Whole of Life (50 years)		
Energy	495	77%	7,469	53%	If 100% Greenpower is procured then the electricity emissions will be nil. Grid emissions factor accounts for gradual decline in carbon intensity over time, as per Electranet projections.
Refrigerants	21	3%	568	4%	Assumes 2% refrigerant leakage rate per annum, plus full replacement at end of plant operating life (every 15 years). Each subsequent replacement cycle is assumed to use refrigerants which have 50% lower GWP rating than the previous cycle, to account for the development of low-GWP refrigerants over time.
Waste	80	12%	3,994	28%	Assumes a consistent waste generation rate over the 50-year life cycle. In reality waste production rates are anticipated to decrease over time with improved packaging and waste-reducing behaviours and technologies.
Water usage	7	1%	100	1%	Emissions associated with water supply are due to the electrical energy required throughout the supply process. Life cycle emissions from water therefore account for the gradual decline in SA electricity grid emissions factor. (Note 1)
Wastewater	39	6%	1,957	14%	Assumes a consistent wastewater generation rate over the 50-year life cycle.
TOTAL	642	100%	14,088	100%	

Greenhouse Gas Emissions Assessment - Hotel

A breakdown of emissions across the whole of life of the hotel (50-year lifespan assumed) is as follows:

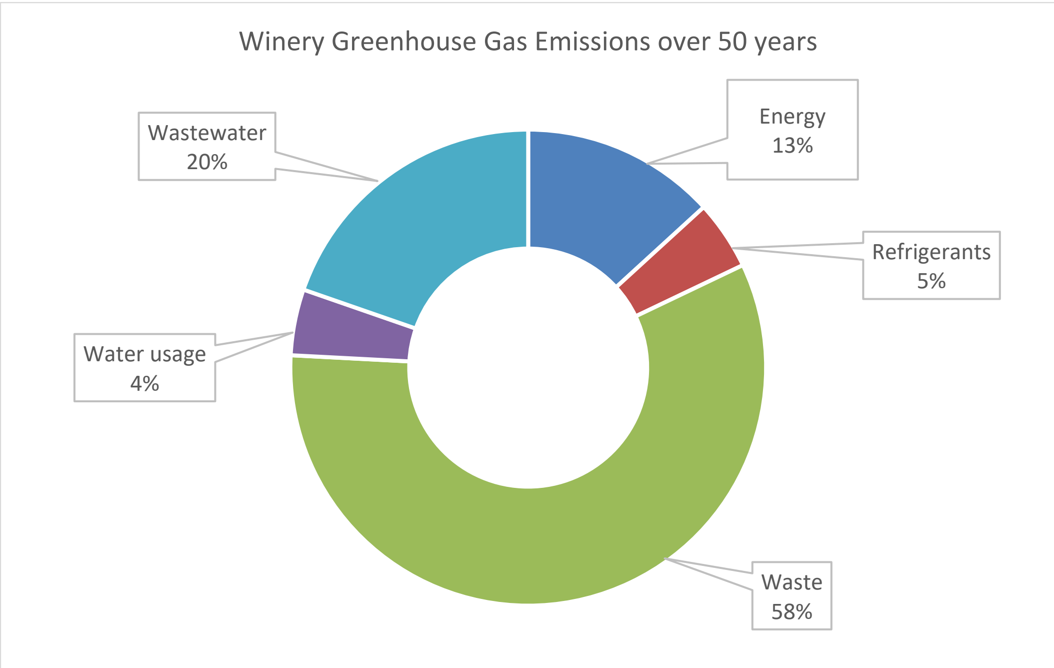


Winery Greenhouse Gas emissions estimates are as follows:

Category	GHG Emissions (t CO_2e)				Notes/assumptions
	Year 1		Whole of Life (50 years)		
Energy	31	30%	460	13%	If 100% Greenpower is procured then the electricity emissions will be nil. Grid emissions factor accounts for gradual decline in carbon intensity over time, as per Electranet projections.
Refrigerants	6	6%	164	5%	Assumes 2% refrigerant leakage rate per annum, plus full replacement at end of plant operating life (every 15 years). Each subsequent replacement cycle is assumed to use refrigerants which have 50% lower GWP rating than the previous cycle, to account for the development of low-GWP refrigerants over time.
Waste	40	40%	2,017	58%	Assumes consistent waste production over the 50 year life cycle.
Water usage	10	10%	156	4%	Emissions associated with water supply are due to the electrical energy required throughout the supply process. Life cycle emissions from water therefore account for the gradual decline in SA electricity grid emissions factor. (Note 1)
Wastewater	14	14%	686	20%	Assumes consistent wastewater production over the 50 year life cycle.
TOTAL	98	100%	3,401	100%	

Greenhouse Gas Emissions Assessment - Winery

A breakdown of emissions across the whole of life of the winery (50-year lifespan assumed) is as follows:



4.4 Uncertainty assessment

As the project is in its early design development stages and the assessment timeframe is over 50 years, there is inherent uncertainty in some aspects of the assessment.

The intent of the assessment is to reduce uncertainties where possible, make reasoned and informed assumptions, and produce an estimate which provides a representative indication of which are the main sources of energy usage and greenhouse gas emissions, to inform future design development and the operational practices of the end users such that they can manage and reduce their energy and greenhouse gas emissions over the course of operations.

An uncertainty assessment is as follows:

Item	Uncertainty	Mitigation
Electricity grid emissions	Electricity-related emissions represent a significant proportion of the development's overall greenhouse gas emissions, and are directly dependent on the electricity grid emissions intensity.	The latest grid emissions intensity projections from Electranet have been applied in the analysis (Note 1). This accounts for a gradual decline in emissions intensity over time, in line with the State Government renewable energy targets.
Energy management in operations	Energy performance is dependent on the operating practices of the operator and patrons. This type of uncertainty is inherent to all modelling estimates made at design stage.	Conservative assumptions have been applied regarding occupancy and operating profiles.
Waste diversion from landfill	Waste estimates assume the occupants appropriately separate their waste into the various recyclable waste streams.	A comprehensive Operational Waste Management Plan has been prepared and will be provided to the operators such that they understand the intended waste separation approach and can manage their operations accordingly.
Wastewater emissions management	Emissions from the wastewater treatment system are dependent on the system being appropriately maintained in operation.	The proposed wastewater system is a passive nature-based system which requires minimal maintenance compared to a typical wastewater treatment plant. Comprehensive operating and maintenance information will be provided to the operators, including recommended routine maintenance frequency to ensure the system operates as intended and without creating additional greenhouse gas emissions compared with the design estimates.

Uncertainty Assessment – Greenhouse Gas Emissions modelling

Notes:

1. Source: Electranet Transmission Annual Planning Report, June 2025.

4.5 Opportunities

Initiatives included in the project which will reduce greenhouse gas emissions during operation are described in Section 3, specifically 3.1 Net Zero Ready, 3.2 Passive Design, 3.3 Energy, 3.4 Water and WSUD, and 3.7 Circular Economy and Waste.

Further opportunities to reduce greenhouse gas emissions over the life of the development which will be explored include:

- Procuring 100% Greenpower for the site's electricity supplies.
- Investigating the use of battery energy storage to store and use excess solar PV energy, particularly for the winery which has a highly variable energy demand across the year.
- Use of centralised heat pump HVAC plant in lieu of VRF-type systems, which have lower refrigerant emissions and have a lower risk exposure to the ongoing HFC refrigerant phasedowns by the Australian government.
- Working with the hotel and winery operators to develop energy management plans and policies which encourage and support efficient operation of the buildings and services by the operating staff and patrons.

Appendix A Climate Change Resiliency

A climate change risk review has been undertaken and the project design includes a series of design responses to mitigate the risks identified.

A description of the risks identified and the design responses that the project has incorporated to address these risks is appended on the following pages.

Southern Barossa Winery and Tourist Accommodation Precinct

Strategic Alliance

Climate change impact summary

4th July 2025

Introduction

The following provides a summary of the climate change risks which are anticipated to affect the development over the long term, and the proposed mitigation strategies for the project to implement to mitigate these risks.

Climate change impacts

The following climate change risks are anticipated to affect the development over the long term to 2070:

Climate parameter	Near future (2030)	Far future (2070)	Impact to Project	Proposed design responses	Responsibility
Temperature	**+1.1°C**	**+3.2°C**	Annual minimum and maximum temperatures are projected to increase across all seasons with the largest impact in summer. Impacts include increased building cooling demand, reduced thermal comfort of occupants, and health and wellbeing impacts, particularly for vulnerable people and those with medical conditions which may be impacted by heat.	Air conditioning systems to include a minimum 5% design contingency on their peak cooling capacity. The systems will therefore have capacity to accommodate a 5% increase in peak summer thermal load as is projected to occur towards the end of the plant's expected operating life (circa 2050). External sunshading to be provided on building facades to protect glazing from direct sun exposure in summer.	Lucid Baulkultur
Hot days >40°C	**+2 days per annum**	**+10 days per annum**	Increased hot days are projected with impacts on building cooling requirements, increased heat island effect and may also impact upon health and wellbeing of building occupants.	Use light coloured roof surfaces and façade materials. Roof finishes will be specified with a high Solar Reflective Index SRI rating > 82. Provide sun-shading and trees around the perimeters of the building to offer respite from the sun. Provide sun shelter above the external walkways and on balconies and terraces. Landscaping to comprise native and drought-resistant planting species. Provide drinking water stations for hotel guests.	Baulkultur Baulkultur Landskap Baulkultur
Temperatures + Hot Days	**As above**		Increased temperatures and hot days are expected to increase the likelihood and frequency of power disruptions, including grid power outages.	Provide backup power generation to support critical building operations in the event of a grid power outage. Provide a rooftop solar PV system to reduce the building's peak electrical demand from the grid network during peak summer conditions.	Lucid Lucid

Climate parameter	Near future (2030)	Far future (2070)	Impact to Project	Proposed design responses	Responsibility
Change in rainfall	**Minor increase in peak rainfall intensity** **2% reduction in annual rainfall**	**Significant increase in peak rainfall intensity** **23% reduction in annual rainfall**	Rainfall intensity is expected to increase over the longer-term with 1 in 50-year heavy rainfall events potentially becoming 1 in 20-year events. Potential impacts include increased flooding around the building and site. Annual rainfall is also estimated to reduce as the climate becomes hotter and drier (refer to 'Time in drought' below).	Stormwater catchment systems to include a minimum 10% design contingency above a historic 1 in 100-year rainfall event, to account for future increased rainfall intensity.	MLEI (civil)
Time in drought	**Increased likelihood of drought**		Drought conditions are expected to increase in frequency and length, with impacts on water supplies and landscaping/vegetation.	Landscaping to comprise native and drought-resistant planting species. Conserve water within the development by selecting water-efficient fixtures and fittings with high WELS star ratings, using a high-efficiency pool water filtration system (ultra-fine filtration type), and recapturing wastewater for reuse on-site.	Landskap Baulkultur/ MLEI (aquatic)/ Fluid Enviro
Air quality	**Increased air pollution projected across metropolitan areas**		Increasing temperatures and pollutants (vehicles, industry, etc.) are projected to increase air pollution including particulates and CO_2 levels, with potential adverse impacts on health and wellbeing.	Provide increased mechanical ventilation supplies generally +20% greater than code minimum requirements to help flush out polluted air from the building. Use high quality outdoor air filtration in all ventilation systems, including M6 grade filters to hotel guest rooms, function rooms, restaurant/bar areas, offices, and fitness rooms. This is equivalent to MERV 12 grade filtration which exceeds building code requirements.	Lucid Lucid
High fire danger days (FFDI)	**+0.5 days p.a.**	**+2.7 days p.a.**	Increased fire danger conditions in bushfire prone areas will increase the likelihood and frequency of bushfires occurring near the site.	The project team has engaged a specialist bushfire consultant and will prepare a bushfire response plan which describes how the development will remain resilient to current and future bushfire risks. The response plan will account for the increased number of fire danger days as stated in this climate change impacts summary.	SA Bushfire Solutions / ADP Consulting
Sea level rise	**0.8m sea level rise by 2090**		No direct impacts to the project are anticipated, as the site is not subject to inundation due to sea level rise when considering long-term projections to 2090.	No specific design response proposed. No significant risk to the project anticipated.	

Sources of Information

The anticipated climate change risks are referenced in the following information sources:

- Climate Change in Australia Technical Report 2015, published by the NRM and CSIRO
- CSIRO Climate Change In Australia (CCIA) Website, Climate Change Calculator and Data Set Viewers. (www.climatechangeinaustralia.gov.au)
- Guide to Climate Projections for Risk Assessment and Planning in South Australia November 2022, published by the Department for Environment & Water
- CSIRO State of the Climate 2022 (www.csiro.au)
- SA Bureau of Meteorology (BOM) Database
- New Climate Projections for South Australia 2022 - Maps and Key Findings (www.environment.sa.gov.au)
- Water Connect SA Flood Mapping Viewer, Government of South Australia (www.waterconnect.sa.gov.au)
- Data SA Bushfire Risk area Mapping Viewer, Government of South Australia (www.data.sa.gov.au)
- South Australian Environmental Protection Authority air quality data (www.epa.sa.gov.au)
- Enviro Data SA Urban Heat and Tree Mapping of Adelaide Metropolitan Area (www.data.environment.sa.gov.au)
- AIRAH Forum 09-14-Eco 003, determining future summer design temperature.

Document control

Issue	Date	Change	Checked	Approved
01	02/06/2025	First issue	JB	DD
02	04/07/2025	Minor update to bushfire risk response (SA Bushfire Solutions added)	JB	DD