Project:	42-46 Unley Road	**Date:**	05 February 2025
To:	Tiana Della Putta	**Reference**	SUADL25002
From:	Nathan Lawry		

RE: 42-46 Unley Road Place- Summary of Sustainability Initiatives

This sustainable design response for the proposed mixed-use development at 42-46 Unley Road outlines the project's commitment to embedding sustainability outcomes throughout the design and construction processes.

Project Context

Otello are committed to setting a higher standard of excellence for mixed use developments in South Australia. As part of that strategy, sustainability has been identified as a key component based on the recognition of the large impacts that real estate contributes to environmental and social outcomes. Globally, the built environment contributes almost 40% of annual carbon emissions (Figure 1).

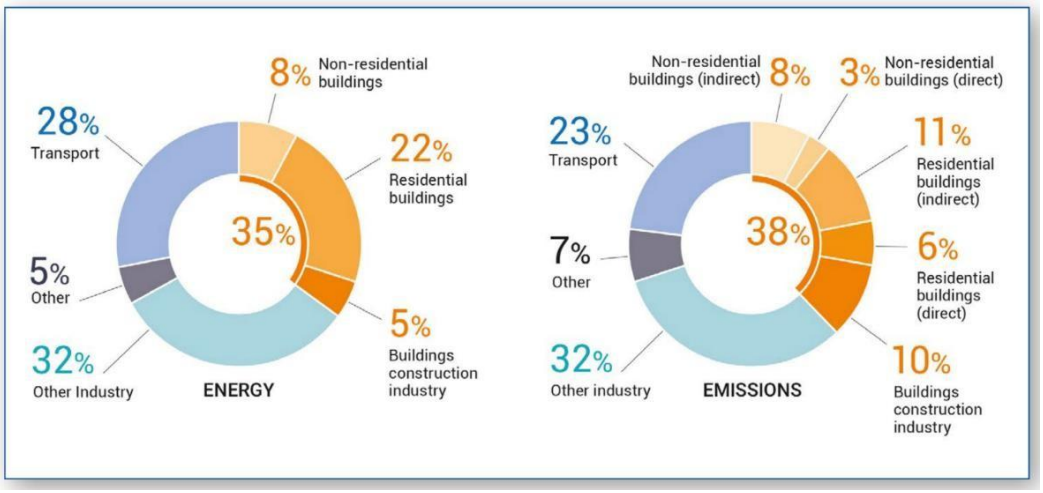


Figure 1 - Contribution of Built Environment to Global CO2 emissions

Source: https://www.weforum.org/agenda/2022/01/decarbonizing-the-built-environment/)

Throughout the planning process, a series of workshops and meetings have allowed for a comprehensive sustainability strategy to be developed. Key outcomes have been coordinated within the design team to ensure they are embedded within the design process and are summarized in subsequent sections.

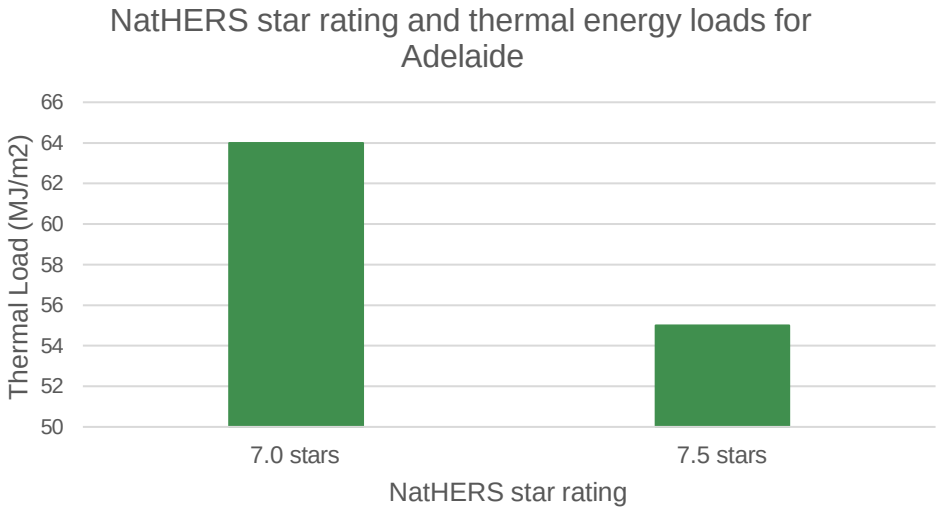
Sustainability Commitments

The Sustainability Commitments section outlines a set of commitments that have been curated for the development to provide worthwhile and real-world impact.

Building Fabrics

- Industry leading triple glazed, thermally-broken aluminium glazing suites to the Apartments.
- Optimisation of operable windows designed to maximize cross flow ventilation and reduce mechanical cooling. Achieve best practice natural ventilation criteria to AS1668.4 - 2012.
- Select a low solar absorptance roof (max SA = 0.32) to reduce both solar gain and urban heat island effect.
- Improved air tightness providing both improve energy efficiency and health benefits, with a target of <10m³/hr.m² for a minimum sample of 10% of apartments.

- External shading to reduce solar gains while maximising views and daylight.
- Increased average star rating of minimum 7.5 stars, with each individual apartments required to achieve a minimum of 6 stars, leading to a 15% minimum improvement in heating and cooling loads for the development



All Electric Development

The development will significantly reduce its carbon emissions of over its lifetime by utilising the rapidly decarbonising electricity grid (see below), which will be 100% net renewable in 2027 according to the latest state government announcement[1]. It also responds to the unique context of South Australia, which is leading the world in the transition to a 100% renewable energy supplied grid.

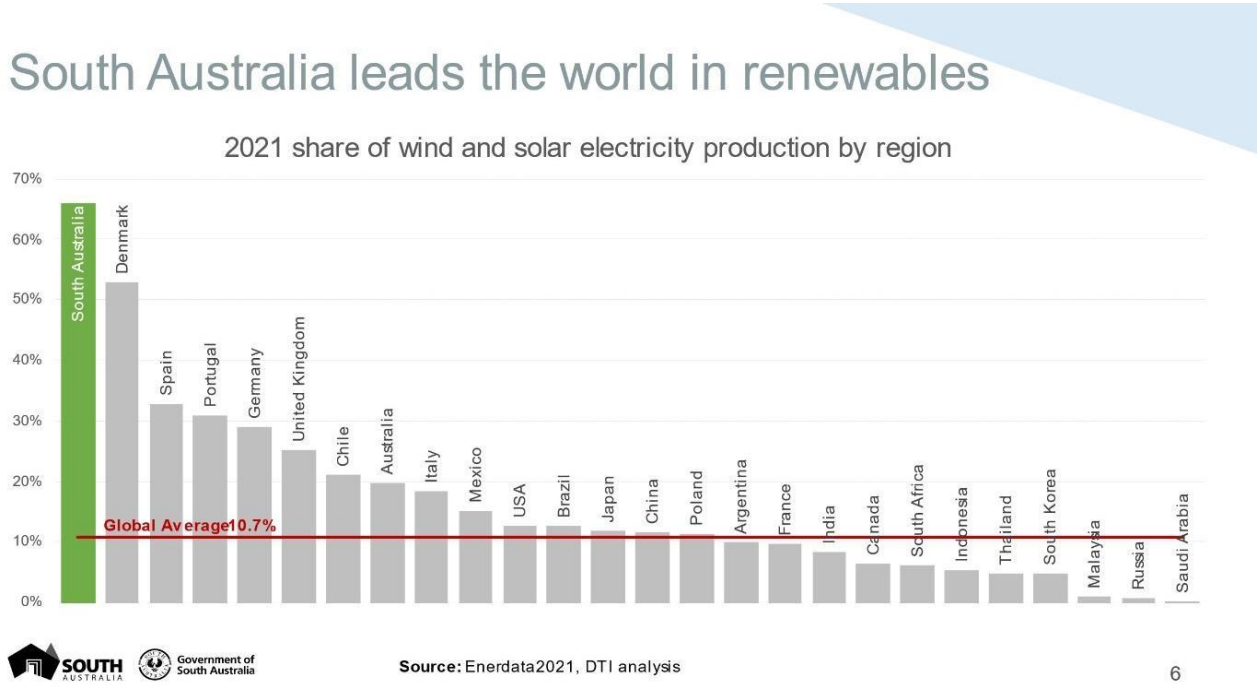


Figure 2 South Australia's World Leading Decarbonisation of Electricity.

Source: https://www.premier.sa.gov.au/media-releases/news-items/new-target-for-renewables

This commitment has the following benefits beyond decarbonisation:

- Electric cooking reduces harmful pollutants to only the particulate matter produced from the food itself,

[1] https://www.premier.sa.gov.au/media-releases/news-archive/new-target-for-renewables

compared to additional harmful pollutants produced from burning gas. One study showed that gas cooking is equivalent to the impact of passive smoking in households[2] and another showed children had a 42% higher rate of asthma[3], with gas burning and leakage in homes contributing to 12% of the national asthma burden in Australia[4]

- Using electric heat pumps (minimum nominated efficiency of 350%) instead of gas fired boilers (typical efficiency 80%).

Embedded Network

An embedded network allows for greater operational savings for residents, reduced capex costs for the developer by offloading costs associated with meters, hot water system and solar PV. It also maximises the self-utilisation of behind the meter generated renewable energy, amplifying the economic benefit to all residents.

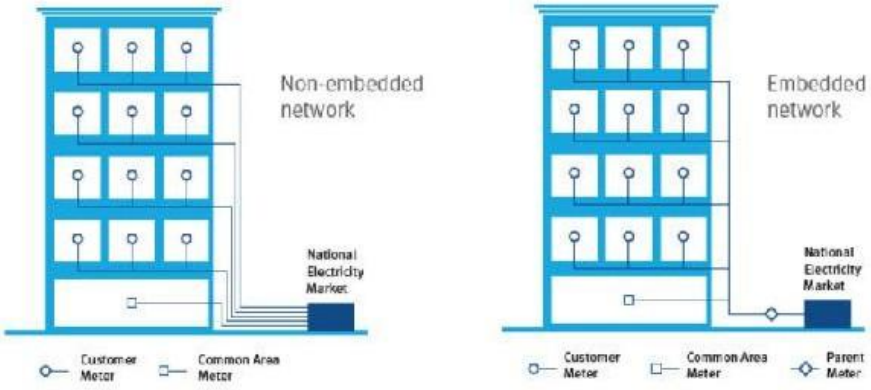
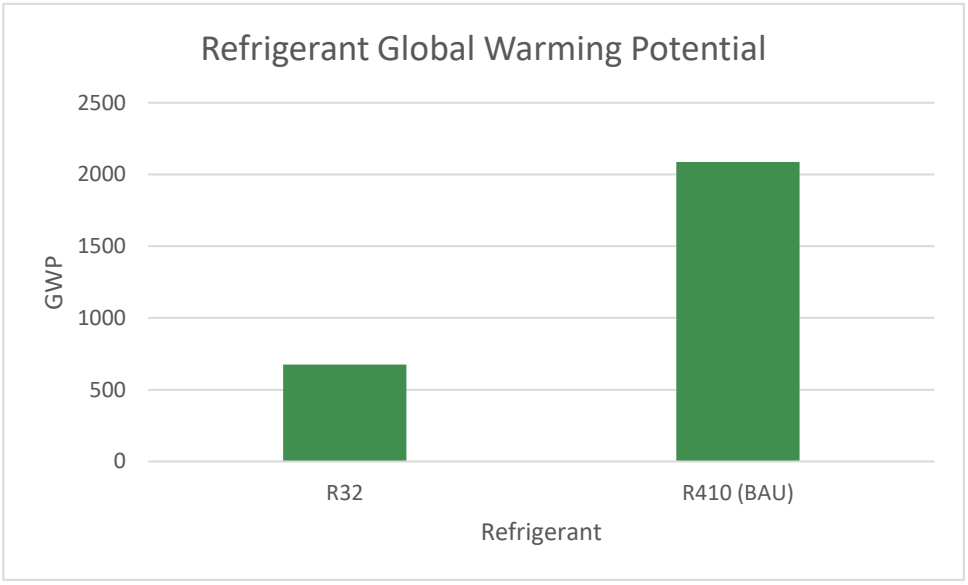


Figure 3 Embedded Network versus Traditional Metering

Services

- HVAC: High efficiency DX units throughout with low GWP R32 refrigerant, a reduction of approximately 70% global warming potential compared to industry typical R410a



- Lighting: Install LED lighting throughout. At a minimum, install occupancy sensors in all intermittently occupied zones, ensure light switches are suitably frequent to allow for optimal control, achieve a 20% reduction in Lighting

[2] https://www.climatecouncil.org.au/resources/invisible-danger-gas-asthma-children/
[3] https://academic.oup.com/ije/article/42/6/1724/737113?login=false
[4] https://www.abc.net.au/news/2021-05-23/can-gas-stovetops-give-you-asthma/100157786

Power Density (W/m2).

- Vertical Transport: Select lifts with standby power modes and regenerative drives.
- Consolidate roof plant to maximise common Solar PV system (minimum 15kW) which will be distributed across all building users via the embedded network.
    - Expected to generate 23,000kWh annually, or the equivalent power consumption of approximately 5 homes in SA[5]
- Where Appliances are installed, nominate energy efficiency options, including:
    - Dishwashers: 4 star
    - Washing Machines: 4.5 star
    - Dryers: 5.0 star
    - Fridge/Freezers: 4 star

Indoor Environment Quality & Amenity

- Specify glass with a minimum VLT of 40% for improved daylight.
- Select and use low VOC products internally for adhesives, sealants, carpets, and paints as per Green Star requirements provided by the Green Building Council of Australia
- Specify engineered timber products to meet formaldehyde limits as per Green Star requirements provided by the Green Building Council of Australia

Water & Landscaping

- Hose cocks on all balconies and carpark roof to sustain landscaping growth and longevity
- Drought tolerant low water requiring native species (min 50%) selections for all landscaping
- Water efficient fixtures and fittings, with the following minimum WELS ratings:
    - 5 star Taps
    - 4 star Toilets
    - 3 star Showers (Maximum flowrate of 7.5L/min)
    - 4.5 star Washing Machine (where installed)
    - 5 star Dishwasher (where installed)
- Reduce Urban Heat Island Effect through:
    - Low Solar Absorptance roof as per ‘Buildings Fabrics’ section.
    - Maximising Vegetated landscaping

Waste

- Minimum 3 streams of waste collection for reduced landfill in operation
    - Organics
    - Commingled Recycle
    - General Waste
    - Include additional waste stream for one of the following: e-Waste, Bulky goods or Batteries.
- 90% diversion of Construction and Demolition Waste

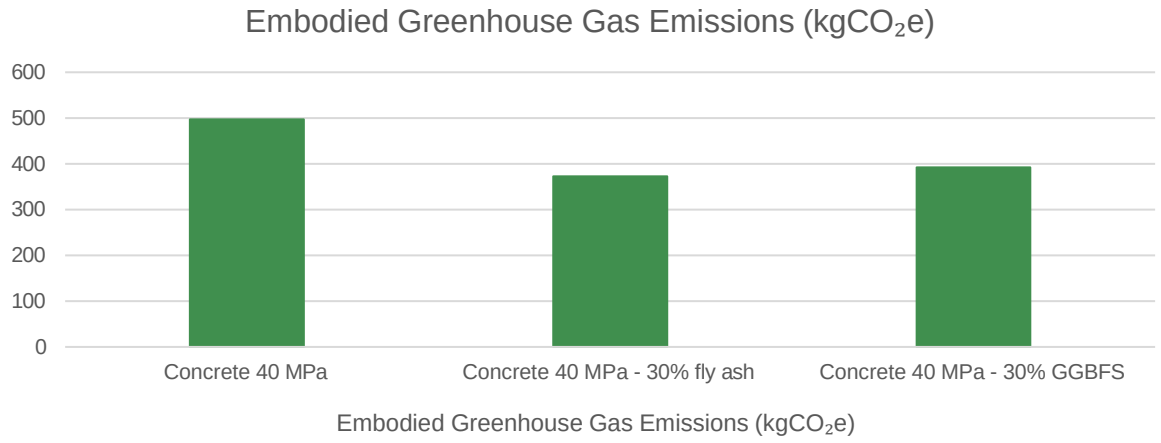
Materials

- Reduce embodied carbon impact of the building through:
    - Nominating concrete with a 30% reduction in Portland cement content for at minimum all footings, slab, piles and other on- grade applications (typical concrete mixes and resultant improvement shown below[6])

[5] https://ahd.csiro.au/other-data/typical-house-energy-use/

[6] https://msd.unimelb.edu.au/research/projects/current/environmental-performance-in-construction

- Design with Post tensioned slabs/planks where possible to reduce volume of concrete and reinforcing steel.



- Sustainable Procurement of Materials: Many products have certifications or accreditations that provide transparency around their environmental impact such as GECA, EPD, GreenRate and ECS (carpets only). The project will preference these materials where cost comparable via sourcing from the following databases:
    - EPD Australasia: https://epd-australasia.com/epd-search/
    - Green Tag: https://www.globalgreentag.com/service-greenrate.html
    - GECA: https://geca.eco/gecas-services/sustainable-products-database/ ‘
    - Product Aware: https://www.productaware.au/

Sustainable Transport

- Site is in close proximity to public transport and bike paths, reducing carbon emissions associated with transport and promoting healthier lifestyles
- Bike storage/hoops to be included for visitors and storage for residents to be provided to maximise potential for active transport modes

Conclusion

The proposed development at 42-46 Unley Road, Adelaide will present a significant increase in sustainable design and energy efficiency against minimum practice. Associated carbon emissions from energy use will be significantly reduced and further eliminated through the consideration of low-carbon construction elements. Water consumption will be carefully managed and wellbeing and health outcomes improved through a range of design decisions. The commitments outlined within this report will continue to be coordinated and embedded into subsequent design and construction phases to ensure the potential benefits are realized through to occupation.