DECARBONISATION PATHWAY

42 Macquarie Street, Barton, ACT

1. EXECUTIVE SUMMARY

EG's Real Zero Strategy is targeting zero carbon by 2030 across the Delta portfolio. A Real Zero Carbon building matches all energy demand with the supply of carbon free renewable energy in accordance with the United Nations 24/7 Carbon Free Energy Compact, of which EG is a proud member.

EG worked with built environment experts Buildings Alive to create these bespoke decarbonisation pathways for each asset and has since partnered with EGX climtech Avani to deliver these ambitious, market leading pathways.

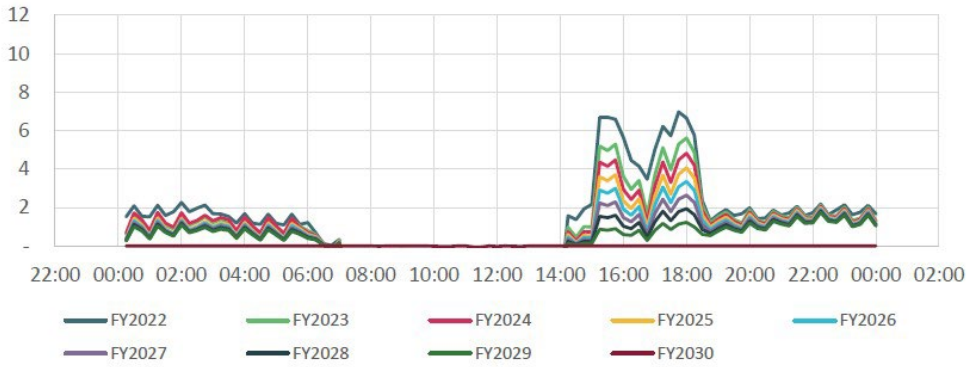
These pathways are;

- Credible - emissions reductions should be "real" and beyond question
- Accountable - progress should be measurable, measured and reported
- Commercial - maximise investment opportunity / minimise operating costs
- Future-ready - thinking ahead
- Recognised - aligned with emerging frameworks
- Practical - applied and in 'action' rather than theoretical
- Targeted - within the boundaries of organisational control
- Timely - this is the 'decisive decade' and EG can display leadership

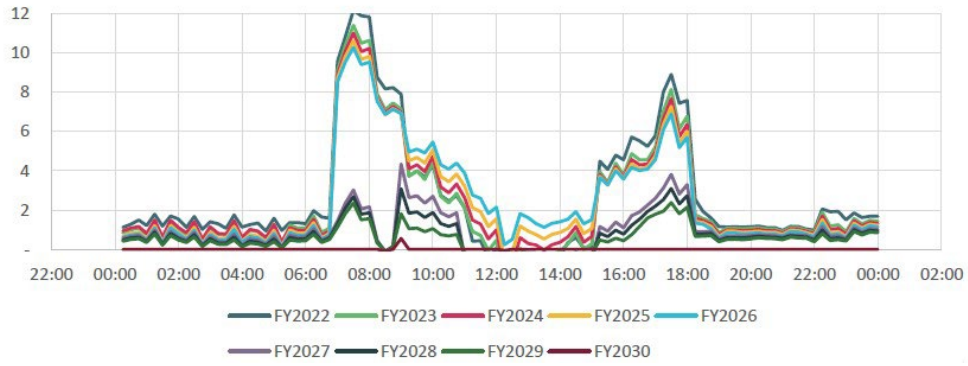
A high-level analysis was conducted to generate a potential decarbonisation pathway for 42 Macquarie St, Barton based on near real-time grid carbon intensity. The below table is a summary of a potential decarbinsation pathway targeting FY30 to achieve Real Zero for Scope 1 & 2 site energy emissions.

If measures on the following page were implemented, in FY30 only marginal emissions of less than 6% remain to be addressed through electricity procurement on a typical summer day.

Summer Day – Resulting Carbon Profile (kg/interval)



Winter Day – Resulting Carbon Profile (kg/interval)



1. EXECUTIVE SUMMARY SUMMARY OF MEASURES

Summary of Measures	Timing
Baseline Year Energy Carbon Emissions (NGA)	FY22
Undertake **Real-time Grid Carbon Measurement**. Emissions reduce in line with grid decarbonisation	FY23 onwards
Energy Efficiency • Optimisation of existing systems • AHU Supply Fan upgrades • Condenser Water system decommissioning	FY23 onwards FY24 FY25
Electrification Replacement of gas boiler and domestic hot water systems with heat pumps	FY27
Demand Flexibility Implement automated demand / response strategies based on building / carbon profile forecasts	FY24 onwards
On-Site Renewable Energy 99kW System already in place	Current
On-Site Battery Storage A 30 kWh battery in 2030 could remove 52% of remaining emissions on a summer's Day	FY30 (or sooner)
Off-Site Renewable Energy Energy procurement of time matched power purchase agreement for removal of remaining emissions	FY30 (or sooner)
Resulting Real Carbon Emissions	**0 kg CO_2 –e pa**

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2. SITE OVERVIEW 42 MACQUARIE ST, SYDNEY

This report is a “Real Zero” decarbonisation pathway document for 42 Macquarie St based on Buildings Alive’s analysis conducted in Sept/Oct 2022. It assesses the potential contribution of various strategies to a FY30 Real Zero Carbon target for the building. This assessment is based on documentation provided and various assumptions as stated. It follows procedures as set out in “220913 Zero Carbon Roadmap Methodology – EG Funds”

Basic Building Details

- NLA 4,054sqm mixed use offices and retail space
- NABERS Rating of 4.5 Stars (Valid thru Dec 22)
- 100% occupied at time of report

Energy Source (Base Building)

- Grid Import (Electricity)
- Grid Import (Natural Gas)
- No diesel generator

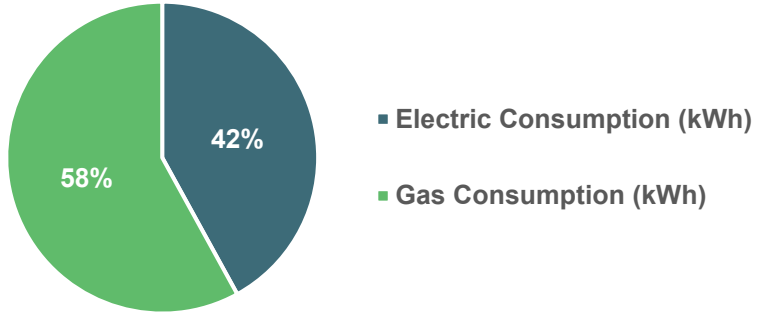
The scope of this assessment includes Scope 1 & 2 direct emissions. EG is committed to exploring collaborative opportunities with tenants to measure the carbon footprint of their energy use in real time and reduce it to Real Zero by 2030. It is EG's intent that these Scope 3 emissions (the carbon emissions resulting from tenant energy use) be included within EG's target in the future.

3. SITE ENERGY SOURCES / EMISSIONS

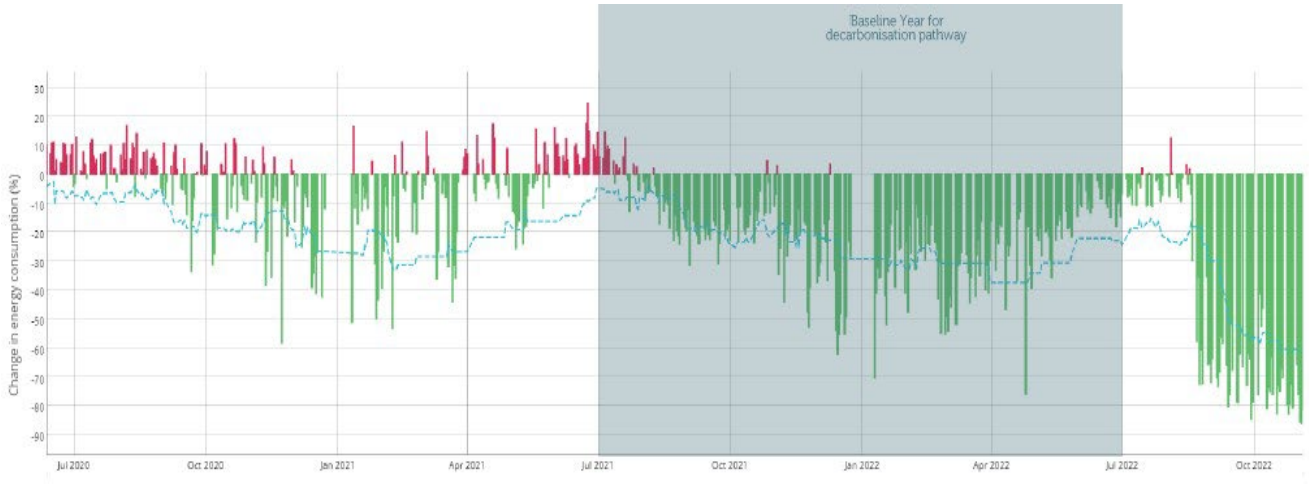
For this analysis, a baseline year of FY22 has been selected based on analysis of past several years of operation

- Baseline year energy split is 58% gas (549,500 MJ) and 42% electricity (111,661 kWh).
- Scope 1 & 2 energy emissions for the baseline year were 116,457kg as calculated using NGA factors.
- By measuring emissions utilising actual interval level carbon intensity of the electricity grid, baseline year emissions would have been 105,396kg, 9.5% lower.

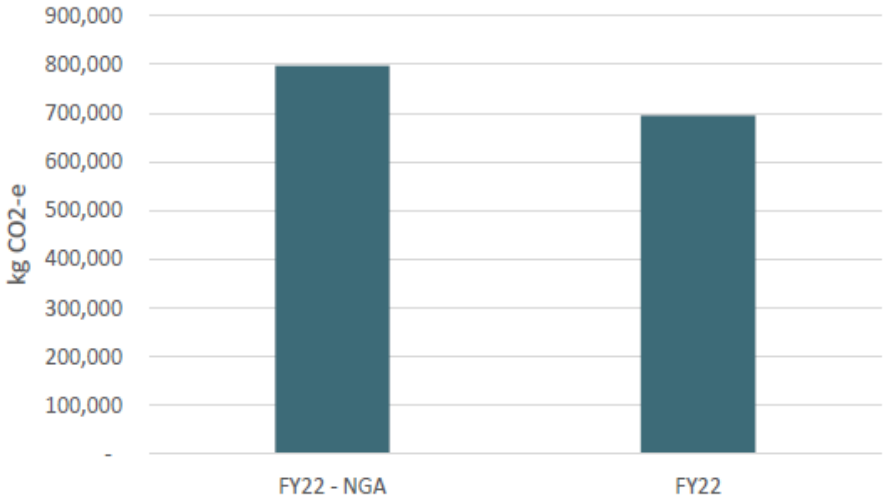
FY22 Baselline Year Energy Consumption



Buildings Alive REF Building Performance Tracker - Baseline year for study in blue, historical baseline for the building (not shown) is 2018-2019



FY22 Site Energy Emissions – NGA vs Measured



4. DECARBONISATION PATHWAY

4.1 ENERGY EFFICIENCY OPTIMISATION

Overview

Most buildings are not fully optimised based on the control systems and equipment currently in place. If these systems run at their optimum every day, significant savings can be made.

Initiative

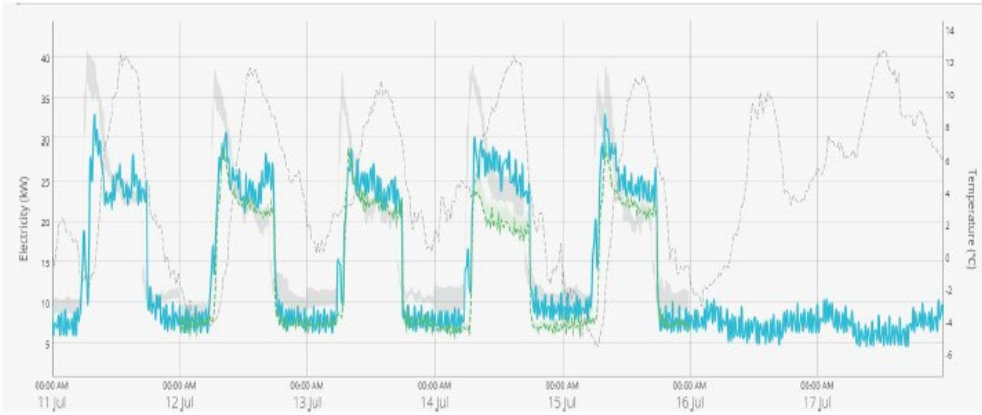
The Rapid Efficiency Feedback (REF) service provided on site by Buildings Alive provides estimated potential savings made from operating the building at its best every day and calculates a "Target" profile that the building should be striving to achieve. This feedback is utilised by the building operators to tune and optimise the existing control strategies on site.

EG continues to investigate further energy efficiency opportunities across the asset, striving to reach peak performance.

Results

Energy Savings of 21% on summer's day and 16% on Winters day are possible.

This figure shows an example week for this building where potential performance ("Best Ever") is compared to actual consumption



4.1 ENERGY CONSERVATION MEASURES

Overview

The review has found several Energy Conservation Measures (ECMs) which can be implemented to save further energy beyond the optimization of existing systems.

With real-time carbon intensity measurements, Energy Conservation Measures (ECM) will have different decarbonisation impacts at different times.

Note: The building has undergone recent mechanical and control upgrades to target a 4.5 NABERS Energy rating. As such most major energy-saving initiatives have already been addressed.

AHU Supply Fans Upgrade (FY24)

Existing x8 AHU supply air fans are as originally installed and near the end of life and inefficient. Opportunity to replace centrifugal motors with an EC fan array.

Decommissioning of the tenant condenser water system (FY25)

There are only a handful of units using base building-supplied tenant condenser water which is cooled by the chiller. These units can be replaced with air-cooled PAC units and the existing condenser water system decommissioned.

This figure shows a summary of Energy Conservations measures assessed using traditional energy / cost methods.

ECM Description	1. AHU Supply Fans Upgrade	2. Decommissioning of tenant condenser water system	3. LED lighting Upgrades – External Lighting
Electricity Saving PA (kWh)	6,000	1,000	1,365
Energy Cost Savings PA ($)	$1,920	$320	$436
Implementation Cost ($)	$50,000	$40,000	$6,000
Simple Payback (Years)	26	125	13.8
Simple ROI (%)	4%	1%	7%
Annual Energy Savings (%)	1%	<1%	<1%

4.2 ELECTRIFICATION

In order to remove all Scope 1 emissions from site, all gas end uses need to be electrified.

As interval gas meter data was not readily available, an average daily usage value was obtained from the gas bills and a 15-minute day interval profile was generated based on similar-sized building in ACT using central heating.

Natural Gas Boilers

- Used to produce heating hot water distributed to the perimeter AHU units (1 per floor, 4 total)
- 2 x 300 kW heating capacity
- Installed recently (in 2021)

Consideration was given to existing equipment condition, current control strategy, occupancy rates and thermal comfort levels. A feasible pathway to eliminate gas is to continue utilising the newly installed condensing gas boilers until around FY27 and then to reassess the feasibility of replacing these with heat pumps and thermal storage.

The strategy should be reviewed as the grid decarbonises, planning for a FY27 replacement of gas boiler approaches.

Natural Gas Domestic Hot Water Heater

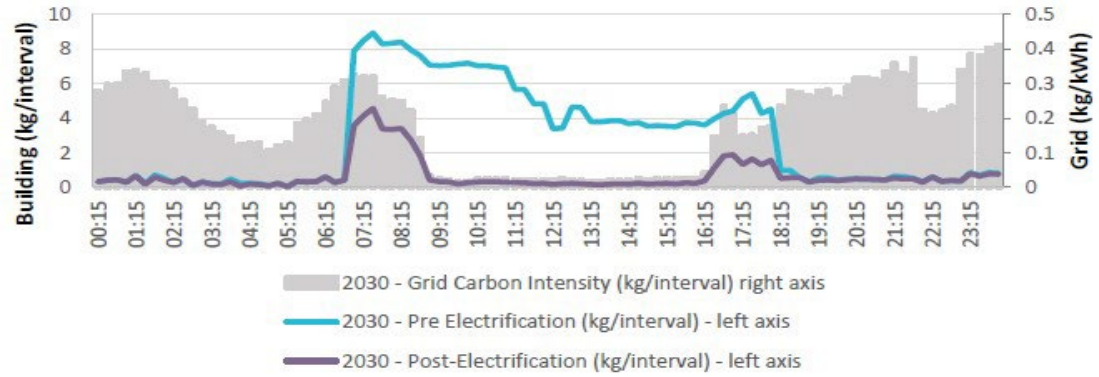
Used to produce domestic hot water distributed to restrooms throughout the building.

- Opportunity to replace this with end-of-point use electric hot water tanks installed locally on each floor. This is a more efficient setup which removes unnecessary pumping losses from a central tank location.

Domestic Hot Water Gas Heater

4.2 ELECTRIFICATION INSIGHTS

Winter Day – Electrification Impact - 2030



The emissions Impact of replacing the gas boilers with a comparable capacity heat pump by 2030

Option #1: Main boilers replacement with heat pump (FY27)

Replacing the gas boilers with a 150 kW heat pump would add around 267 kWh to the example Winter day. In FY27, this would result in a real carbon reduction of around 149 kg of emissions daily. In FY30, due to continued grid decarbonisation, this saving is likely to increase to 203 kg.

The grid's carbon intensity drops significantly at 9AM and as seen in the figure to the left, an opportunity exists to shift heating load between 7AM-9AM further into the day when the grid is cleaner by utilising an electric thermal storage tank in conjunction with the heat pump (Option 1). This will also reduce the required electrical battery storage size.

Option #1: Main boilers replacement with heat pump (FY27)

The estimated electrical heating requirement between 7AM - 9AM is 64 kWh of electricity assuming a heat pump has been installed. If this load from 7AM-9AM is offset completely by the hot water storage tanks and shifted to 9AM-11AM then this will provide an emissions saving of 15 kg of carbon in 2030.

The estimated tank capacity required to allow for thermal shifting over 2 hours would be close to 8,400 litres.

The tank would be charged during periods of low grid-intensity carbon and excess solar during the morning. There is currently close to 179 kWh of excess PV energy being generated between the hours of 9AM-3PM. In 2030, after the grid decarbonisation is taken into account and assuming the heat pumps have been installed the solar excess will be close to 70 kWh.

Thermal storage is also expected to reduce the required electrical battery size by up to 50 kWh (worth approximately $50,000).

4.3 DEMAND RESPONSE WINTER EXAMPLE

The impact of shifting load using the previously identified strategies has been simulated for 42 Macquarie and emissions savings compared across current and future decarbonized grid intensity profiles.

There is no significant carbon emissions reductions to be made from shifting of cooling loads throughout the day on a summer day. More significant emissions savings will be achieved through utilizing the thermal hot water storage to offset the heating load in the morning in a process such as the one below:

Thermal Storage Tank Control Sequence

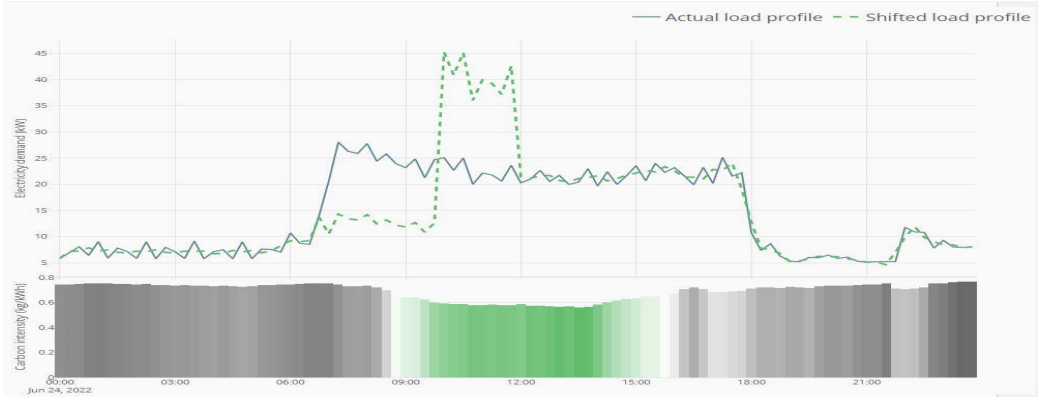
Between 7AM-9AM

- Switch to Discharge mode.
- Operate pump in recirculating mode only utilizing stored hot water.

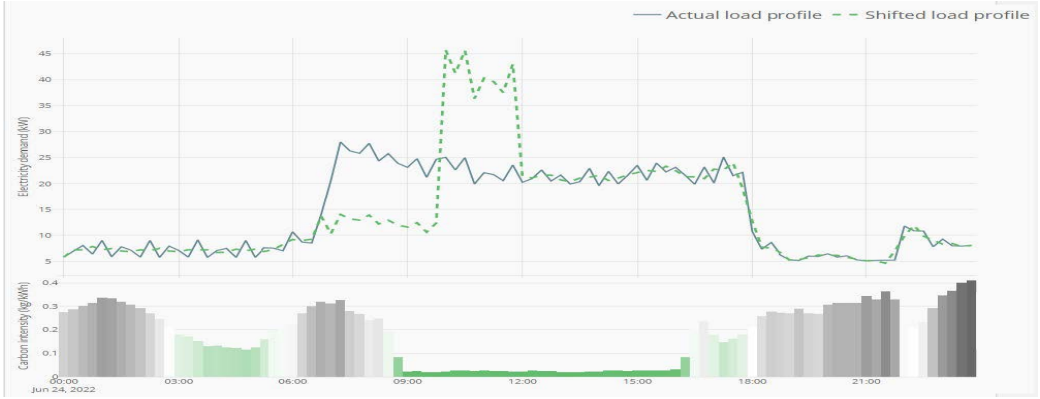
9AM - End of day

- Switch to Charge mode.
- Fully engage the heat pump to satisfy the heating requirement.

Demand shifting under the existing grid carbon intensity profile results in a 1.6% daily emissions saving



Demand shifting under the future decarbonized grid results in a 11.4% daily emissions saving



4.4 ON-SITE RENEWABLE ENERGY SOLAR PV

Overview

42 Macquarie utilises a 99 kW solar PV array which has been installed in Q3 2022. On-site Solar PV is currently a very cost-effective form of energy.

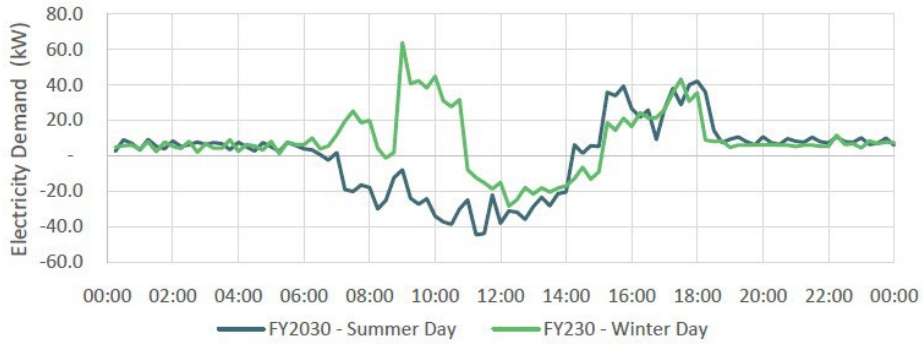
Current System

- The current PV array covers >90% of the available roof space so expansion of the current system through added panels is not practical.

Results

- Solar generation is approximately 510 kWh on a typical summer day and 355 kWh on a typical winter day.
- This equates to 205 kg of emissions reduction on a summer day in FY22.
- Note that on many days there is excess electricity which is feeding into the grid (170 kWh on average). This is carbon and cost-free energy that can be utilised on site (e.g. to charge thermal storage as noted in 4.2 Electrification - Insights).

Resulting Building Electricity Demand Profile - 2030



42 Macquarie Roof-mounted PV array

4.5 ON-SITE ELECTRICAL ENERGY

Overview

A basic assessment of the potential for electric storage on site was conducted Note that the ultimate mix between site-battery / electricity procurement / EV will be determined later in the decarbonisation process.

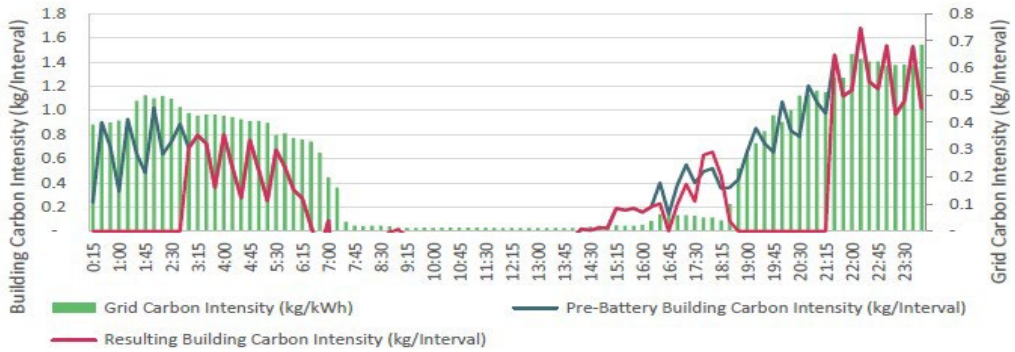
Battery Storage

- There is potential to integrate a sufficient battery system to enable greater demand flexibility include electrical peak demand reduction and load shifting for carbon optimisation.
- If a 30 kWh battery was installed, in FY30 it would likely be able to save 50% of the remaining emissions on the summer day. This would be in the order of $29,000 at current battery prices.

Electric Vehicles (EVs)

- Over coming years increasing amounts of EVs will be increasingly common. EVs will eventually be a potential resource to assist with decarbonisation if they are managed intelligently. Specific modelling of EV charging / discharging has not been included in this report, but eventually they may help reduce the size of on-site battery storage / offsite renewable energy procurement required.
- Consideration for charging infrastructure should be incorporated into building CapEx planning.

Resulting Building Electricity Demand Profile - 2030



Example SOkWh battery installation

(https://www.teslaratj.com/tesla-largest-powerwallinstallatjon-goes-Hve/)

4.6 OFF-SITE RENEWABLE ENERGY

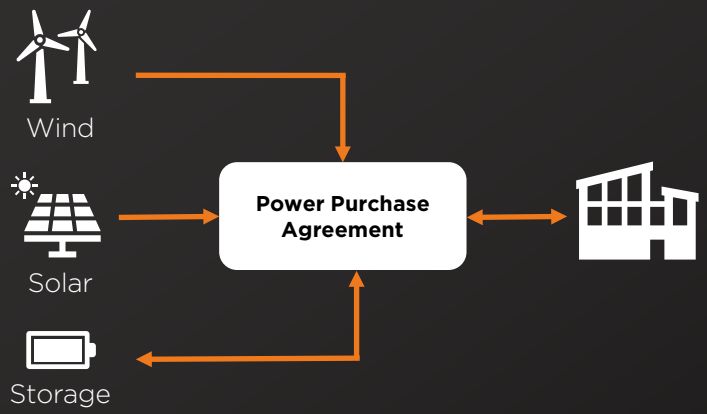
Remaining Scope 2 emissions which are not eliminated through any of the previous measures need to be removed through procurement of time-matched renewable energy.

The ultimate mix between on-site storage and time-matched renewable energy procurement will be determined later in the pathway as the full impact of other decarbonisation measures are measured.

Power Purchase Agreements (PPAs) have been a common form of procuring renewable energy on a non-time matched basis. Increasingly, time-matched PPAs are available and there are new purchasing models being rapidly developed to serve this emerging market[1].

Another potential approach is to measure I share excess energy (renewables / batteries) between sites within the fund and use this to help reduce overall emissions.

Power Purchase Agreement (PPA) representation needs to be time-matched



Peer-to-peer granular energy sharing

1 https://cloud.google.com/blog/topics/sustainability/a-new-clean-energy-purchasing-model-to-drive-decarbonization

4.7 OTHER SCOPE 1 EMISSIONS

Additional emission sources considered part of Scope 1 emissions.

Refrigeration Equipment

- Minimal - a small amount of packaged HVAC units usually supply areas such as computer rooms.
- It is recommended that any existing standalone systems are replaced with lower Global Warming Potential (GWP) alternatives as they reach end of life.

Chiller Refrigerant

- Air-cooled chiller producing chilled water for cooling.
- Refrigerant type could not be identified.
- There may be the opportunity to retrofit the chiller with a low GWP refrigerant alternative subject to manufacturers' recommendations.

5. CAPEX AND ADDITIONAL CONSIDERATIONS

For cost-effective decarbonisation, key building lifecycle milestones have been considered and these have been aligned with decarbonisation interventions where possible.

Decommissioning of the domestic hot water tank

- This upgrade should include the addition of point-of-use heaters on the individual floors and the decommissioning of the central gas heater serving the domestic hot water requirement.
- This will eliminate the additional gas usage and realise marginal energy savings.
- Recommended to be included as part of the bathroom upgrades scheduled for FY23.

AHU Supply Fans Upgrade

- To be approached separately or during a major floor fit out in future.

Decommissioning of the tenant condenser water system

- To be approached separately or during a major floor fit out in future.

LED Lighting Upgrades

- Already in CAPEX plan.

Initiative	Included in Existing CapEx plan	Identified under ECMs/electrification	Planned works period
1. Decommissioning of domestic hot water gas tank	No	Yes	FY23
2. AHU Supply Fan Upgrades	No	Yes	FY24
3. Decommissioning of the tenant condenser water system	No	Yes	FY25
3. LED Lighting Upgrades	Yes	Yes	FY23

6. CONCLUSION

EG's Real Zero Strategy is an ambitious, market leading approach to realise real zero carbon across EG's Delta Portfolio

EG is proud to have worked with industry experts Buildings Alive and Avani along this pathway, and will report on progress in EG's annual ESG Report, as well as in Delta Fund Quarterly Reports.

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