



PUBLIC DISCLOSURE STATEMENT

BARANGAROO

PRECINCT CERTIFICATION


FY2020–21

Australian Government
Climate Active
Public Disclosure Statement



An Australian Government Initiative



NAME OF CERTIFIED ENTITY	Barangaroo
REPORTING PERIOD	1 July 2020 – 30 June 2021 Arrears report
DECLARATION	<p><i>To the best of my knowledge, the information provided in this public disclosure statement is true and correct and meets the requirements of the Climate Active Carbon Neutral Standard.</i></p>  <p>Daniel Noaen Development Director 8th February 2022</p>



Australian Government
**Department of Industry, Science,
Energy and Resources**

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Version September 2021. To be used for FY20/21 reporting onwards.



1. CERTIFICATION SUMMARY

TOTAL EMISSIONS OFFSET	6,350 tCO ₂ -e
OFFSETS BOUGHT	100% ACCUs
RENEWABLE ELECTRICITY	100%
TECHNICAL ASSESSMENT	Christopher Wilson Pangolin Associates Next technical assessment due: FY2022-23 Reporting Period

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2. CARBON NEUTRAL INFORMATION

Description of certification

This carbon neutral certification accounts for the emissions resulting from the operations of the Barangaroo Precinct. The Barangaroo Precinct ('Barangaroo') comprises three main areas: Barangaroo Reserve, Barangaroo South and Central Barangaroo.

Barangaroo Reserve is a six-hectare waterfront park located at the headland of the northern end of Barangaroo. The park was delivered by the NSW State Government and opened in August 2015. In addition to expansive lawns and landscaped areas, lookouts, walking and cycle paths, and tidal rock pools, Barangaroo Reserve also comprises the Cutaway, an expansive, underground event space and a 300 space underground car park.

Barangaroo South is a mixed-use neighbourhood which accommodates commercial office buildings, residential apartments, shops, cafes, restaurants, a resort hotel and cultural facility. The precinct features wide pedestrian friendly lanes and public realm areas that interface with the harbour, city and broader Barangaroo Precinct. The site is serviced by a central basement, housing a district cooling plant (DCP) with harbour heat rejection, a recycled water treatment plant (RWTP) and other shared infrastructure including loading docks, waste and recycling transfer and storage facilities and a bicycle storage hub with end of trip facilities.

The development of Barangaroo South commenced in 2012 and currently comprises International Towers 1, 2 and 3 (Buildings C3, C4 and C5), Anadara and Alexander (Buildings R8 and R9), International House (Building C2), Daramu House (Building C1), Barangaroo House (Building R1), Exchange Place (Building R7) and Crown Sydney Resort. The total Gross Floor Area (GFA) of the operational portion as at end of Financial Year 2021 is approximately 457,000m².

The first stage of the development of Barangaroo South is complete, with buildings designed and significant infrastructure already delivered that contribute to meeting climate positive targets, carbon neutrality and achieving world class benchmarks in energy efficiency and sustainability. The delivery of stage two is well under way with the construction of the new Crown Sydney Resort completed in December 2020 and One Sydney Harbour's three high-rise residential apartments (R4A, R4B and R5) scheduled for competition by 2024. At full build out Barangaroo South is expected to have a total building GFA of approximately 535,000m².

Central Barangaroo sits between the Barangaroo Reserve and Barangaroo South and will deliver cultural, civic and community outcomes that will enrich the character and experience of the precinct, fulfill the NSW Government's commitment to delivering 50% public open space across the 22 hectare precinct, and

"Climate Active certification demonstrates that carbon abatement and carbon neutrality is possible in large scale urban renewal projects.

Carbon neutrality at Barangaroo can now be considered a model for other urban renewable projects across Australia."

complete the sweep of experiences along Sydney CBD's western waterfront. The 5.2 hectare site will contain three hectares of unparalleled public space for recreation, events and entertainment. This part of the precinct will combine community, civic and cultural spaces and attractions with residential, retail and commercial uses. Barangaroo and the broader precinct will be supported by a new Metro Station located at the north of the site, which is expected to be operational by 2024.

While Barangaroo has become part of the fabric of the broader Sydney CBD, it is of such a scale that it has become a significant community precinct in its own right, with an estimated residential and worker population of around 20,000 people, plus an estimated 18 million visitors annually.

The NSW State Government are owners of the land at Barangaroo. Infrastructure NSW is the NSW Government agency responsible for overseeing the development and management of the Precinct on behalf of the State Government. In the context of Carbon Neutral certification under the Climate Active Carbon Neutral Standard (CACNS) for Precincts, Infrastructure NSW in conjunction with Barangaroo South developer Lendlease Millers Point (LLMP) are responsible for preparing the current carbon account, purchasing eligible offset units and maintaining the relevant reports for the Precinct's carbon neutral claim.

INSW oversees the delivery of the Precinct and has responsibility for managing and maintaining the public realm and the ongoing operation of the precinct wide initiatives. Lendlease as ground lessee and developer of Barangaroo South, has responsibilities to report on both base building, central infrastructure and tenant operational emissions as these relate to the CACNS reporting boundary.

Precinct geographical boundary

The geographic boundary of the precinct is the main criterion for defining the emission sources within the certification boundary. Figure 1 below illustrates the extent of the planned Barangaroo Precinct, consistent with precinct planning documents and the community's expectations of the precinct's border.

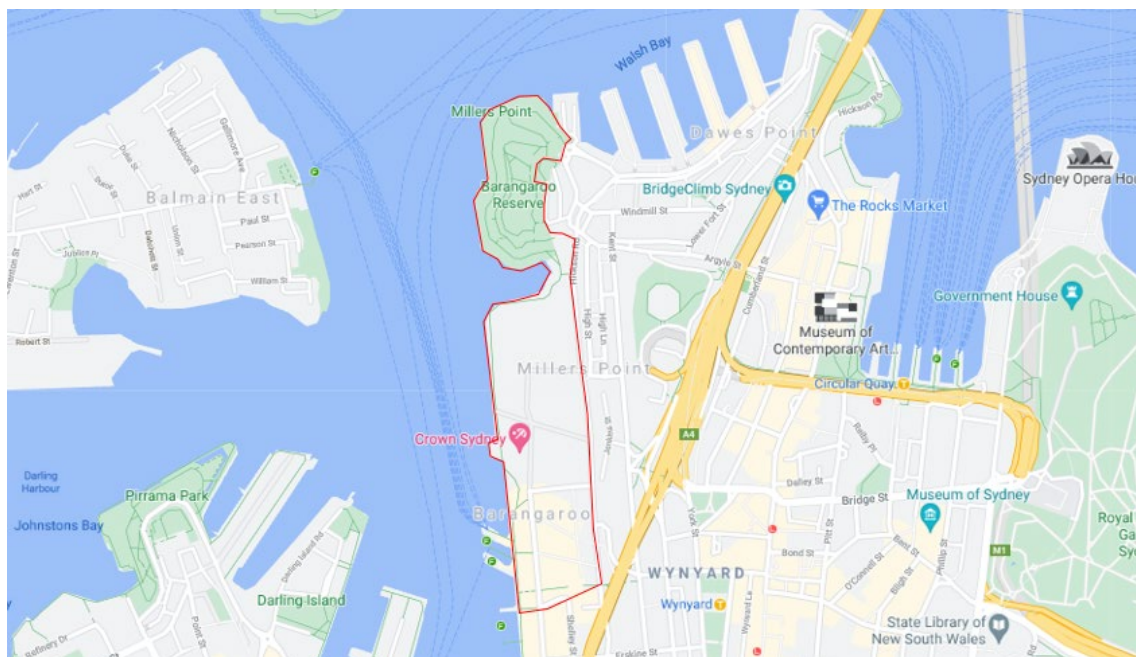


Figure 1 Barangaroo Precinct geographical boundary

Figures 2 and 3 below define the current operational area of Barangaroo South, which reflects the built-out area considered in this Climate Active certification. Crown Sydney Resort, whilst beginning operations in December 2020, is non-quantified in this report due to data being unavailable. Crown Sydney Resort's FY21 emissions will be accounted for and disclosed in the following reporting period. See Section 3 for more details.

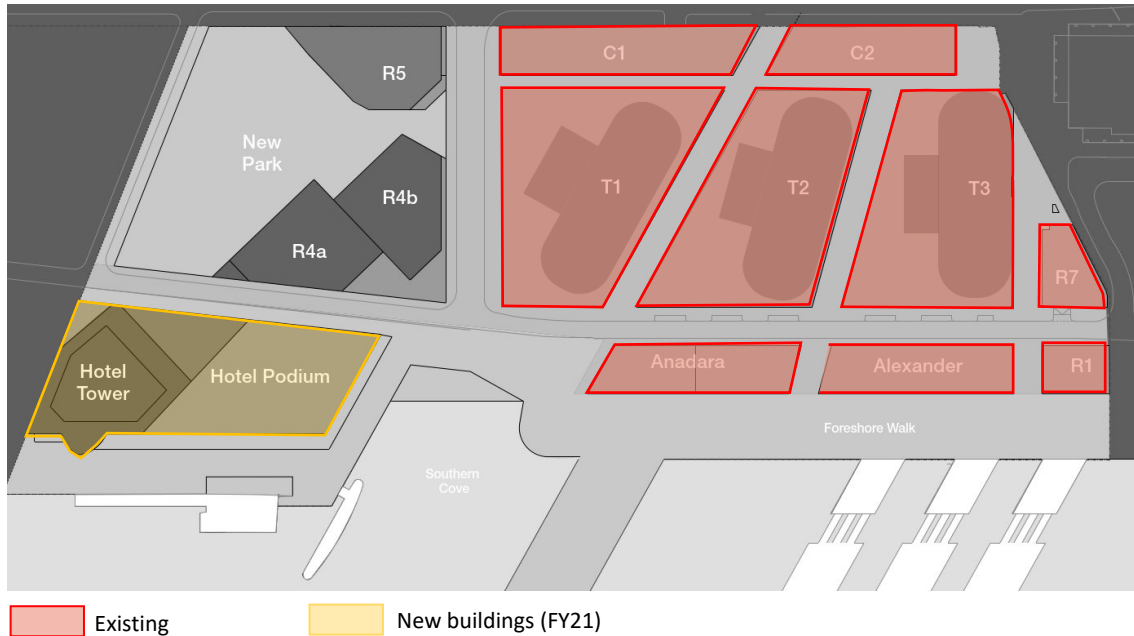


Figure 2 Highlighted areas illustrate the current operational buildings of Barangaroo South.

Building	Reporting Period						Operational Date
	FY16	FY17	FY18	FY19	FY20	FY21	
Public Domain	✓	✓	✓	✓	✓	✓	June 2015
Basement	✓	✓	✓	✓	✓	✓	June 2015
International Tower 1 (T1)		✓	✓	✓	✓	✓	October 2016
International Tower 2 (T2)	✓	✓	✓	✓	✓	✓	June 2015
International Tower 3 (T3)	✓	✓	✓	✓	✓	✓	May 2016
Anadara & Alexander (R8 & R9)	✓	✓	✓	✓	✓	✓	November 2015
Exchange Place (R7)		✓	✓	✓	✓	✓	October 2016
International House (C2)		✓	✓	✓	✓	✓	May 2017
Barangaroo House (R1)			✓	✓	✓	✓	December 2017
Daramu House (C1)					✓	✓	September 2019
Crown Sydney Resort						—	December 2020

Figure 3 Summary of buildings within Barangaroo South completed and operational

3. EMISSIONS BOUNDARY

Emission sources relevant to the Barangaroo Precinct have been identified in accordance with the Climate Active Carbon Neutral Standard for Precincts. The principles of geographic boundary, precinct operations, relevance and materiality have been applied to determine whether emissions sources are to be included in the carbon account. Where emissions are considered non quantifiable or an allowable exclusion, this has been clearly stated and justified against this set of criteria.

Inside the emissions boundary

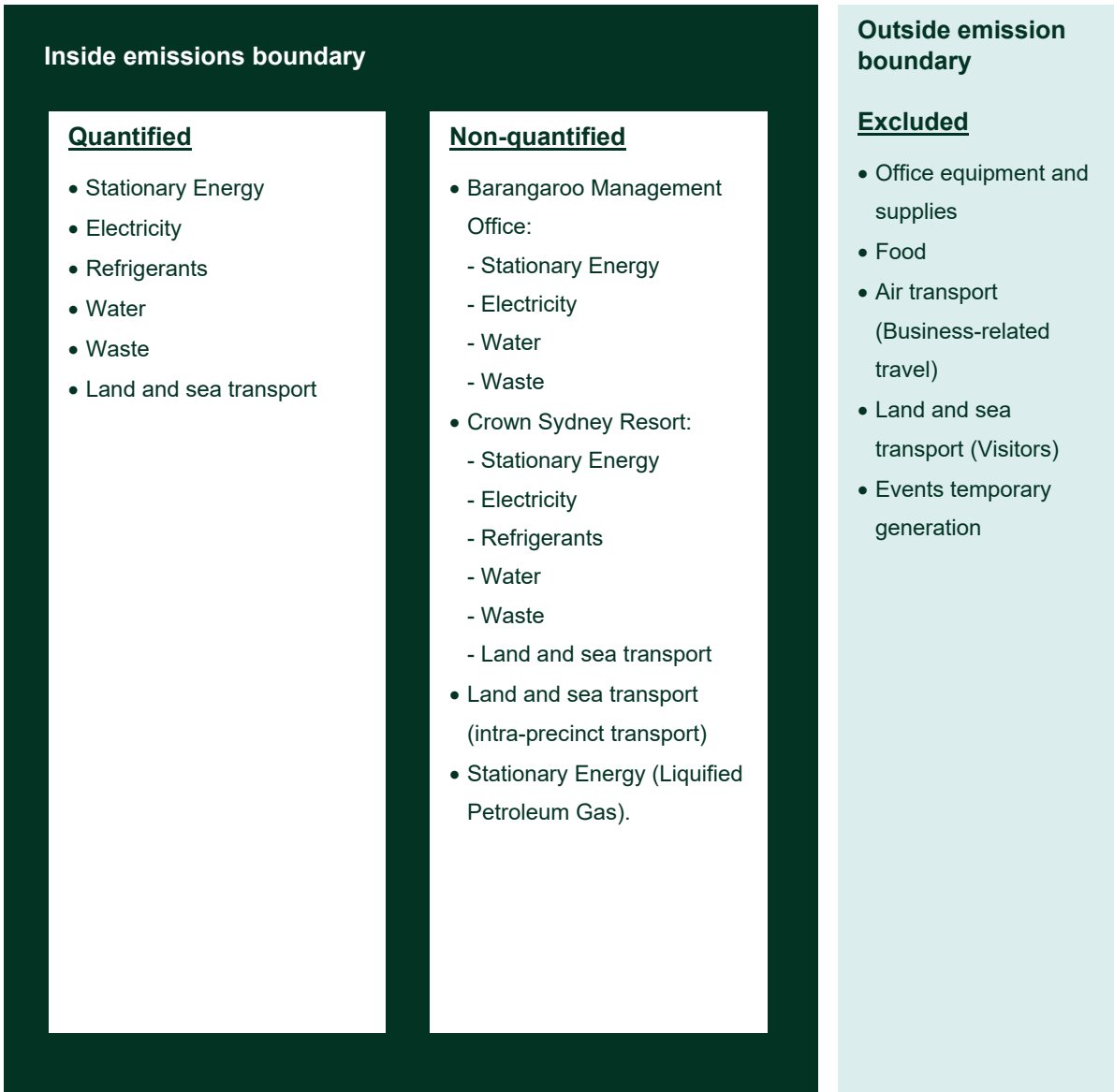
All emission sources listed in the emissions boundary are part of the carbon neutral claim.

Quantified emissions have been assessed as relevant and are quantified in the carbon inventory. This may include emissions that are not identified as arising due to the operations of the certified entity, however are **optionally included**.

Non-quantified emissions have been assessed as relevant and are captured within the emissions boundary, but are not measured (quantified) in the carbon inventory. All material emissions are accounted for through an uplift factor. Further detail is available at Appendix C.

Outside the emissions boundary

Excluded emissions are those that have been assessed as not relevant to the precinct's operations and are outside of its emissions boundary or are outside of the scope of the certification. These emissions are not part of the carbon neutral claim. Further detail is available at Appendix D.



Data management plan for non-quantified sources

The data management plan below outlines how more rigorous quantification can be achieved for material (greater than 1%) non-quantified emission sources.

- **Crown Sydney Resort** - Crown Sydney Resort is a new addition to the Barangaroo precinct with the hotel and retail components becoming operational in December 2020 and residential component in April 2021. Crown Sydney Resort are establishing data collection processes for all emission sources required by the Climate Active Carbon Neutral Standard for Precincts. FY21 emissions resulting from Crown Sydney Resort's operations are non-quantified in this report due to data being unavailable, however Crown Sydney Resorts FY21 emissions will be accounted for and disclosed in the following reporting period (FY22).

4. EMISSIONS REDUCTIONS

Emissions reduction strategy

The NSW Government has a long-standing commitment for the Barangaroo Precinct to be a world-class sustainable and Climate Positive Development. NSW Government and Lendlease have been working together since 2009 to deliver on this shared commitment, which is embedded in the contract between both parties, and involves initiatives to being carbon neutral, water positive, working towards zero waste in operation, and providing community wellbeing now and in the long term. To date this commitment has required a holistic approach by:

- Maximising energy efficiency within the buildings and associated infrastructure;
- Maximising the use of onsite renewables;
- Allocating monies for the establishment of a community carbon fund;
- Setting operational carbon budgets and targets; and

Through the collaborative efforts of the NSW Government, the precinct developers, suppliers and tenants, we continue to invest in our precinct-wide sustainability infrastructure programs and develop new technologies and education campaigns to reach our energy, waste, water and carbon emission targets. A number of strategies to reduce emissions within the precinct are outlined below.

- **Barangaroo Metro Station** – Barangaroo Metro Station forms part of Transport for NSW's (TfNSW) Sydney Metro City and Southwest rapid transit scheme. The Metro station is scheduled to open in 2024 and will provide an additional mode of public transport connecting Barangaroo to the Greater Sydney region.
- **Mission Zero** – In August 2020, Lendlease set a target to be a '1.5°C aligned company'¹, committing to Net Zero Carbon for Scope 1 and 2 by 2025 and Absolute Zero Carbon by 2040. The Absolute Zero target requires eliminating all emissions from Lendlease operations, including Scope 3 emissions generated indirectly from Lendlease's activities, without the use of carbon offsets. Feasibility studies and roadmaps are being developed to phase out the fossil-fuel based plant and equipment within the buildings managed by Lendlease within Barangaroo South precinct by 2040.
- **Tenant Engagement** – Tenant energy and water analysis reports have been developed for commercial and retail tenants of Barangaroo to provide insights to facilitate efficiency improvements.
- **Recycled Water Treatment Plant** – A critical piece to Barangaroo's infrastructure network, the recycled water treatment plant is capable of capturing, storing, treating and processing all water used on site. Volumes of wastewater treated will continue to increase as other buildings within the Barangaroo precinct become operational. At full capacity the plant will be capable of treating up to 1 million litres per day which is more water than the precinct uses.

¹ <https://www.lendlease.com/missionzero/>

Emissions reduction actions

This section outlines the key actions that have reduced emissions in this reporting period:

- **Renewable Electricity:** All electricity used at Barangaroo is sourced from 100% renewable energy sources, including a combination of on-site solar generation and purchase of large-scale generation certificates (LGCs) to account for all remaining electricity consumed within the precinct.
- **Organic Waste Management:** In October 2020, Goterra commissioned the first commercial Modular Infrastructure for Biological Services (MIB) in Barangaroo. The MIB unit is located in the precinct basement and utilises black soldier fly larvae to convert food waste into high quality, sustainable insect protein and soil enhancer. The decentralized MIB eliminates the need for organic waste management logistics. The unit currently processes over 10 tonnes of food waste per month, producing 2 tonnes of insect larvae and 500kg of soil conditioner, whilst also preventing over 20tCO₂-e from food waste per month. Volumes of waste treated will continue to increase as other parts of the precinct become operational. At full capacity, the MIB can process up to 150 tonnes of organic waste per month.
- **Education and Awareness:** The International Towers management team introduced a Greenius Quiz via the partners portal to promote waste management and recycling and to continue engagement with occupiers, many of whom are not back in the office. The Greenius Quiz is a custom-designed program focusing on the International Towers community and waste is segregated and managed. The Greenius Quiz challenged occupier's knowledge while also providing interesting facts around the processes that take place once your waste is collected and removed from the Precinct. As a thank you for successfully completing the Greenius Quiz, sustainably-sourced cotton tote bags, featuring images of endangered Australian marine animals were available.
- **Work from home:** In response to COVID-19, many organisations residing in the Barangaroo precinct established work from home arrangements with their employees. The introduction of work from arrangements resulted in a significant decline in the number of employees travelling to the precinct for work leading to emission reductions arising from staff commute, waste generation, electricity, gas and water usage.

5. EMISSIONS SUMMARY

Emissions over time

This section compares emissions overtime between the base year and current year. In accordance with the Standard, the base year will be revised as subsequent parts of the Barangaroo precinct commence operation and become occupied. The base year has been revised to FY20, which reflects the same built-out area considered in this year's report.

Emissions since base year		Total tCO ₂ -e
Base year:	FY20	9,083
Base year (restated)*:	FY20	8,985
Year 2:	FY21	6,350

*FY20 emissions have been restated due to an issue with an electricity meter and previously estimated gas data being replaced by actual meter data. The restated inventory is detailed in Appendix A.

Significant changes in emissions

The table below summarises the significant changes in emissions observed in the current reporting period. Significant changes are defined by a +/- 5% change in an emission source category that contributes to more than 5% of the total emissions.

Emission source name	Current year (tCO ₂ -e)	Previous year (tCO ₂ -e)	Detailed reason for change
Natural Gas (NSW/ACT) metro	2,550 tCO ₂ -e	2,806 tCO ₂ -e	Natural gas consumption within the precinct declined in this reporting period due to COVID-19 impacts and the resulting decline in retail trade and office closures. Many commercial and retail kitchens which utilise natural gas for cooking were closed or operating at reduced capacity.
Waste	1,305 tCO ₂ -e	1,763 tCO ₂ -e	Due to COVID-19 impacts and the resulting decline in retail trade and office closures, waste generated within the precinct and associated emissions fell by 26% compared to the previous year. The installation of the on-site organic waste processing unit also contributed to the emission reductions observed.
Staff Commute: Train	1,146 tCO ₂ -e	1,954 tCO ₂ -e	Staff commute emissions have significantly declined due to temporary office closures and/or social distanced occupancy requirements. Many organisations within the precinct transitioned to working from home arrangements, resulting in a decline of staff travelling into the precinct for work.
Staff Commute: Bus	707 tCO ₂ -e	1,314 tCO ₂ -e	

Use of Climate Active carbon neutral products and services

N/A.

Precinct emissions summary

The electricity summary is available in the Appendix B. Electricity emissions were calculated using a market-based approach.

Emission category	Sum of Scope 1 (tCO ₂ -e)	Sum of Scope 2 (tCO ₂ -e)	Sum of Scope 3 (tCO ₂ -e)	Sum of total emissions (tCO ₂ -e)
Accommodation and facilities	0	0	0	0
Air transport (fuel)	0	0	0	0
Air transport (km)	0	0	0	0
Bespoke	0	0	0	0
Carbon neutral products and services	0	0	0	0
Cleaning and chemicals	0	0	0	0
Construction materials and services	0	0	0	0
Electricity	0	0	0	0
Food	0	0	0	0
Horticulture and agriculture	0	0	0	0
ICT services and equipment	0	0	0	0
Land and sea transport (fuel)	0	0	0	0
Land and sea transport (km)	0	0	2195	2195
Machinery and vehicles	0	0	0	0
Office equipment & supplies	0	0	0	0
Postage, courier and freight	0	0	0	0
Products	0	0	0	0
Professional services	0	0	0	0
Refrigerants	0	0	0	0
Roads and landscape	0	0	0	0
Stationary energy	2086	0	520	2606
Waste	0	0	1305	1305
Water	0	0	244	244
Working from home	0	0	0	0
Total	2086	0	4264	6350

6. CARBON OFFSETS

Offsets strategy

Offset purchasing strategy: In arrears	
1. Total offsets previously forward purchased and banked for this report	0
2. Total emissions liability to offset for this report	6,350
3. Net offset balance for this reporting period	6,350
4. Total offsets to be forward purchased to offset the next reporting period	0
5. Total offsets required for this report	6,350

Co-benefits

Both Infrastructure NSW and Lendlease have aspirations to support local NSW renewable energy projects through the purchase and retirement of large-scale generation certificates (LGCs) for purchased electricity emissions. LGCs have been used to account for 100% of Barangaroo Precinct's grid supplied electricity in FY21.

Furthermore, Infrastructure NSW and Lendlease will seek to support offset projects that provide additional social and environmental outcomes. There is a preference to procure Australian Carbon Credit Units (ACCUs) for Scope 1 and 3 residual emissions, and support projects that benefit Aboriginal and Farming Communities.

1. Rose Isle Human-Induced Regeneration (HIR), New South Wales

Widespread land clearing in New South Wales has significantly impacted local ecosystems. This degradation and loss of plant species threatens the food and habitat on which other native species rely. Clearing allows weeds and invasive animals to spread, affects greenhouse gas emissions and leads to soil erosion and salinity.

Located in New South Wales, these projects work with land holders to regenerate and protect native vegetation. The areas harbor a number of indigenous plant species which provide important habitat and nutrients for native wildlife. By erecting fencing and actively managing invasive species, the project avoids emissions caused by clearing and achieves key environmental and biodiversity benefits.

2. Darling River Eco-Corridor Projects

The suite of Darling River Eco-Corridor carbon projects covers over 150,000 hectares of rural land throughout North-Western New South Wales and Southwest Queensland. The projects aim to protect and regenerate forest on properties in the upper catchments of the Darling River which supports a unique and fragile ecosystem. GreenCollar (through its subsidiary, Terra Carbon) is working with local landholders and graziers to implement changes to land management practices which promote regeneration of the natural environment while improving productivity within the region. Forests are encouraged to regenerate from in-situ seed sources and are assisted by changes in management activities including managing stocking

rates, removal or reduction of forest suppression activities and controlling feral animal populations.

Through regeneration of natural forests and woodlands these projects promote biodiversity and ecosystem connectivity. The region is home to many vulnerable and threatened species of flora and fauna whose populations benefit from forest regeneration.

The flow-on effects of carbon projects in the Darling River Eco-Corridor provide far reaching economic and social value to landholders and rural communities. Income from carbon projects helps to support the local economy, providing jobs and security to towns and businesses often adversely affected by drought conditions.

Offsets summary

Proof of cancellation of offset units

Offsets cancelled for Climate Active Carbon Neutral Certification												
Project description	Type of offset units	Registry	Date retired	Project ID	Serial number (and hyperlink to registry transaction record)*	Vintage	Eligible quantity (tCO ₂ -e)	Quantity used for previous reporting periods	Quantity banked for future reporting periods	Quantity used for this reporting period claim	Percentage of total (%)	Location
KACCU-AUS-Darling River Eco Corridor 16	ACCU	ANREU	16/11/2021	ERF101698	3,808,191,206 - 3,808,193,355	2020-21	2,150	0	0	2,150	34%	NSW, Australia
KACCU-AUS-Yarrowonga Willara HIR	ACCU	ANREU	16/11/2021	ERF101535	3,809,837,134 - 3,809,838,259	2020-21	1,126	0	0	1,126	18%	NSW, Australia
KACCU-AUS-Darling River Conservation 9	ACCU	ANREU	16/11/2021	ERF132688	3,807,632,139 - 3,807,633,907	2020-21	1,769	0	0	1,769	28%	NSW, Australia
KACCU-AUS-Buckambool HIR	ACCU	ANREU	16/11/2021	EOP101263	8,323,844,161 - 8,323,845,005	2020-21	845	0	0	845	13%	NSW, Australia
KACCU-AUS-Longdowns HIR	ACCU	ANREU	16/11/2021	ERF101812	3,797,773,329 - 3,797,773,751	2020-21	423	0	0	423	7%	NSW, Australia
KACCU-AUS-Yarrowonga Willara HIR	ACCU	ANREU	29/11/2021	ERF101535	3,809,838,280 - 3,809,838,316	2020-21	37	0	0	37	1%	NSW, Australia
<i>Total offsets retired this report and used in this report</i>										6,350		
<i>Total offsets retired this report and banked for future reports</i>									0			

Type of offset units	Quantity (used for this reporting period claim)	Percentage of total
Australian Carbon Credit Units (ACCUs)	6,350	100%

**A hyperlink to the ANREU transaction records is not available. Evidence of carbon offset retirements have been provided to Climate Active for verification.*

7. RENEWABLE ENERGY CERTIFICATE (REC) SUMMARY

Renewable Energy Certificate (REC) summary

The following RECs have been surrendered to reduce electricity emissions under the market-based reporting method.

1. Large-scale Generation certificates (LGCs)*	30,775
2. Other RECs	0

* LGCs in this table only include those surrendered voluntarily (including through PPA arrangements) and does not include those surrendered in relation to the LRET, GreenPower, and jurisdictional renewables.

Project supported by LGC purchase	Eligible units	Registry	Surrender date	Accreditation code (LGCs)	Certificate serial number	Generation year	Quantity (MWh)	Fuel source	Location
Barangaroo Solar	LGC	REC Registry	22 July 2021	SRPVNS58	315-351, 352-409, 410-479, 480-543	2021	229	Solar	NSW, Australia
Lucas Heights I & II LFG Power Plant	LGC	REC Registry	29/11/2021	BEBGNS01	81880 - 87222	2019	5,343	Landfill Gas	NSW Australia
Coomealla Memorial Sporting Club Solar	LGC	REC Registry	29/11/2021	SRPVNSI8	191 - 194	2020	4	Solar	NSW Australia
Dangrove Art Storage Facility Solar	LGC	REC Registry	29/11/2021	SRPVNSA0	127 - 143	2020	17	Solar	NSW Australia
White Rock Wind Farm	LGC	REC Registry	29/11/2021	WD00NS12	15196 - 20195	2021	5,000	Wind	NSW Australia
Costco Crossroads	LGC	REC Registry	29/11/2021	SRPVNSY9	378 - 429	2021	52	Solar	NSW Australia

Costco Crossroads	LGC	REC Registry	29/11/2021	SRPVNSX9	274 - 334	2021	61	Solar	NSW Australia
Costco Crossroads	LGC	REC Registry	29/11/2021	SRPVNSW9	24018 - 25995	2021	1,978	Solar	NSW Australia
Costco Crossroads	LGC	REC Registry	29/11/2021	SRPVNSW9	21870 - 21954	2021	85	Solar	NSW Australia
State Archives and Records	LGC	REC Registry	29/11/2021	SRPVNST4	1 - 121	2021	121	Solar	NSW Australia
Goonumbla Solar Farm	LGC	REC Registry	29/11/2021	SRPVNSS8	35870 - 40869	2021	5,000	Solar	NSW Australia
Rynever Kings Park Solar	LGC	REC Registry	29/11/2021	SRPVNSR1	1 - 103	2021	103	Solar	NSW Australia
Nevertire Solar Farm	LGC	REC Registry	29/11/2021	SRPVNSM7	63182 - 68914	2021	5,733	Solar	NSW Australia
Nevertire Solar Farm	LGC	REC Registry	29/11/2021	SRPVNSM7	53013 - 55512	2021	2,500	Solar	NSW Australia
Nevertire Solar Farm	LGC	REC Registry	29/11/2021	SRPVNSM7	10001 - 13260	2021	3,260	Solar	NSW Australia
G James Smithfield - Solar wSGU	LGC	REC Registry	29/11/2021	SRPVNSJ3	218 - 485	2021	268	Solar	NSW Australia
Midwest Foods Dubbo Solar	LGC	REC Registry	29/11/2021	SRPVNSE4	1 - 131	2021	131	Solar	NSW Australia
South Keswick Solar Farm	LGC	REC Registry	29/11/2021	SRPVNSB0	9871 - 10554	2021	684	Solar	NSW Australia

Greystanes WIS Solar	LGC	REC Registry	29/11/2021	SRPVNS92	212 - 258	2021	47	Solar	NSW Australia
Bakers Maison Solar	LGC	REC Registry	29/11/2021	SRPVNS76	1 - 98	2021	98	Solar	NSW Australia
Soldiers Point - Solar w SGU	LGC	REC Registry	29/11/2021	SRPVNS30	1 - 61	2021	61	Solar	NSW Australia
<i>Total LGCs surrendered this report and used in this report</i>							30,775		

*LGCs are created for the on-site renewable electricity generated and consumed at Barangaroo. An equivalent number of LGCs (586 MWh) have been retired and evidenced in Section 7 of this report, bringing the total number of LGCs retired in this reporting period to 30,775 MWh (30,189MWh + 586MWh).

APPENDIX A: ADDITIONAL INFORMATION

Barangaroo – FY20 Carbon Inventory (Restated)

Emission source category	FY20 tonnes CO ₂ -e	FY20 (restated) tonnes CO ₂ -e
Stationary energy*	3,046	2,929
Electricity (market-based) ^	0	19
Refrigerants	37	37
Water	320	320
Waste	1,763	1,763
Land and sea transport	3,917	3,917
<i>Total Net Emissions</i>	9,083	8,985

* Changes to FY20 stationary energy emissions are due to estimated gas data being replaced by actual meter data. Following the correction, natural gas consumption decreased from 1,210,194m³ to 1,161,902m³ (-4% change)

^ Changes to FY20 electricity emissions are due to an issue with an electricity meter. Following the correction, grid electricity consumption increased from 34,991,188kWh to 35,010,983kWh (+0.06% change)

APPENDIX B: ELECTRICITY SUMMARY

Electricity emissions are calculated using a market-based approach.

Location-based method

The location-based method provides a picture of a business's electricity emissions in the context of its location, and the emissions intensity of the electricity grid it relies on. It reflects the average emissions intensity of the electricity grid in the location (State) in which energy consumption occurs. The location-based method does not allow for any claims of renewable electricity from grid-imported electricity usage.

Market-based method

The market-based method provides a picture of a business's electricity emissions in the context of its renewable energy investments. It reflects the emissions intensity of different electricity products, markets and investments. It uses a residual mix factor (RMF) to allow for unique claims on the zero emissions attribute of renewables without double-counting.

Market-based approach summary

Market-based approach	Activity data (kWh)	Emissions (kgCO ₂ -e)	Renewable % of total
Behind the meter consumption of electricity generated	585,256	0	2%
Total non-grid electricity*	585,256	0	2%
LGC purchased and retired (kWh) (including PPAs & Precinct LGCs)	30,189,000	0	80%
GreenPower	0	0	0%
Jurisdictional renewables (LGCs retired)	0	0	0%
Jurisdictional renewables (LRET) (applied to ACT grid electricity)	0	0	0%
Large Scale Renewable Energy Target (applied to grid electricity only)	7,046,763	0	19%
Residual electricity	-557	-597	0%
Total grid electricity	37,235,206	-597	98%
Total electricity consumed (grid + non grid)	37,820,462	-597	100%
Electricity renewables	37,821,019	0	
Residual electricity	-557	-597	
Exported on-site generated electricity	0	0	
Emission footprint (kgCO ₂ -e)		0	

*LGCs are created for the on-site renewable electricity generated and consumed at Barangaroo. An equivalent number of LGCs (586 MWh) have been retired and evidenced in Section 7 of this report, bringing the total number of LGCs retired in this reporting period to 30,775 MWh (30,189MWh + 586MWh).

Total renewables (grid and non-grid)	100.00%
Mandatory	18.63%
Voluntary	79.82%
Behind the meter	1.55%
Residual electricity emission footprint (tCO₂-e)	0

Figures may not sum due to rounding. Renewable percentage can be above 100%

Location-based approach summary

Location-based approach	Activity data (kWh)	Emissions (kgCO ₂ -e)
ACT	0	0
NSW	37,235,206	33,511,685
SA	0	0
Vic	0	0
Qld	0	0
NT	0	0
WA	0	0
Tas	0	0
Grid electricity (scope 2 and 3)	37,235,206	33,511,685
ACT	0	0
NSW	585,256	0
SA	0	0
Vic	0	0
Qld	0	0
NT	0	0
WA	0	0
Tas	0	0
Non-grid electricity (behind the meter)	585,256	0
Total electricity consumed	37,820,462	33,511,685
Emission footprint (tCO₂-e)	33,512	

APPENDIX C: INSIDE EMISSIONS BOUNDARY

Non-quantified emission sources

The following sources emissions have been assessed as relevant, are captured within the emissions boundary, but are not measured (quantified) in the carbon inventory. These emissions are accounted for through an uplift factor. They have been non-quantified due to one of the following reasons:

1. **Immaterial** <1% for individual items and no more than 5% collectively
2. **Cost effective** Quantification is not cost effective relative to the size of the emission but uplift applied.
3. **Data unavailable** Data is unavailable but uplift applied. A data management plan must be put in place to provide data within 5 years.
4. **Maintenance** Initial emissions non-quantified but repairs and replacements quantified.

Relevant-non-quantified emission sources	(1) Immaterial	(2) Cost effective (but uplift applied)	(3) Data unavailable (but uplift applied & data plan in place)	(4) Maintenance
Barangaroo Management Office activities including: - Electricity - Natural Gas - Water & Wastewater - Waste	Yes	No	No	No
Crown Sydney Resort Activities (FY21) - Refrigerants - Natural Gas - Stationary Fuels - Water & Wastewater - Waste - Staff Commute	No	No	No*	No
Intra-Precinct Transport	Yes	Yes	No	No
Liquified Petroleum Gas (LPG)	Yes	No	No	No

*Non-quantified, no uplift applied. It has been agreed with Climate Active that Crown Sydney Resort FY21 emissions will be accounted for in the following reporting period.

APPENDIX D: OUTSIDE EMISSIONS BOUNDARY

Excluded emission sources

The below emission sources have been assessed as not relevant to the precinct's operations and are outside of its emissions boundary. These emissions are not part of the carbon neutral claim. Emission sources considered for relevance must be included within the certification boundary if they meet two of the five relevance criteria. Those which only meet one condition of the relevance test can be excluded from the certification boundary.

Emissions tested for relevance are detailed below against each of the following criteria:

1. **Size** The emissions from a particular source are likely to be large relative to the organisation's electricity, stationary energy and fuel emissions
2. **Influence** The responsible entity has the potential to influence the reduction of emissions from a particular source.
3. **Risk** The emissions from a particular source contribute to the organisation's greenhouse gas risk exposure.
4. **Stakeholders** Key stakeholders deem the emissions from a particular source are relevant.
5. **Outsourcing** The emissions are from outsourced activities previously undertaken within the organisation's boundary, or from outsourced activities typically undertaken within the boundary for comparable organisations.

Emission sources tested for relevance	(1) Size	(2) Influence	(3) Risk	(4) Stakeholders	(5) Outsourcing	Included in boundary?
Office equipment and supplies	No	No	No	No	No	No
Food and beverage	No	No	No	No	No	No
Events temporary generation	No	Yes	No	No	No	No
Business-related Travel	No	No	No	No	No	No
Visitor Commute	No	No	No	No	No	No



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