



PUBLIC DISCLOSURE STATEMENT


BARANGAROO

PRECINCT CERTIFICATION

FY2022–23

Australian Government
Climate Active
Public Disclosure Statement



NAME OF CERTIFIED ENTITY	Barangaroo
REPORTING PERIOD	1 July 2022 – 30 June 2023 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>Mia Gouge A/Director Planning and Design, Infrastructure NSW 09/05/2024</p>



Australian Government
**Department of Climate Change, Energy,
the Environment and Water**

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Version August 2023.



1. CERTIFICATION SUMMARY

TOTAL EMISSIONS OFFSET	24,118 tCO ₂ -e
OFFSETS USED	The precinct uses 100% ACCUs
RENEWABLE ELECTRICITY	83.54% The precinct uses 100% renewable electricity, aside from Crown Sydney Resort whose policy is to use high-quality Australian nature-based offsets to achieve carbon neutrality.
CARBON ACCOUNT	Prepared by: Lendlease & Crown Sydney
TECHNICAL ASSESSMENT	14/12/2021 Pangolin Associates Next technical assessment due: FY24
THIRD PARTY VALIDATION	Type 2 validation 27/10/2023 Chris Wilson Pangolin Associates

Contents

1. Certification summary.....	3
2. Carbon neutral information.....	4
3. Emissions boundary.....	8
4. Emissions reductions.....	10
5. Emissions summary.....	13
6. Carbon offsets.....	16
7. Renewable Energy Certificate (REC) Summary.....	19
Appendix A: Additional Information.....	20
Appendix B: Electricity summary.....	21
Appendix C: Inside emissions boundary.....	24
Appendix D: Outside emissions boundary.....	25

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.

Organisation description

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. More recently, Marrinawi Cove, situated at the northern end of the Reserve, was opened to the public for swimming. Barangaroo Reserve also comprises the Cutaway, an expansive, underground event space, and a 300-space underground car park. Plans are underway to deliver a new cultural facility within the Cutaway, including internal alterations and fitout of the existing void to deliver a multi-level, multi-functional space capable of catering to a range of events, exhibitions and activations.

Barangaroo South is a mixed-use neighbourhood which accommodates commercial office buildings, residential apartments, shops, cafes, restaurants and a resort hotel. The precinct features generous public domain areas, including a public cove, public open space, wide pedestrian friendly walkways, trees and landscaping 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 2023 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 in 2024. At full build out Barangaroo South is expected to have a total building GFA of approximately 535,000m².

Central Barangaroo sits between 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.

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, including a 1.85ha park (Harbour Park) situated on the water's edge which is planned for construction in 2025. Until then, the NSW Government is delivering temporary community uses and activations within the Harbour Park area. Central Barangaroo 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 Government owns 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. Place Management NSW oversees the operation and management of its public spaces. In the context of Barangaroo's 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) and Sydney Crown Resort, are responsible for preparing the current carbon account, purchasing eligible offset units, and maintaining the relevant reports for the Precinct's carbon neutral claim.

Infrastructure NSW oversees the delivery of the Precinct, including the delivery and ongoing operation of precinct wide initiatives relating to sustainability. Lendlease and Crown Sydney Resort as ground lessees and developers of Barangaroo South, have 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 Barangaroo Precinct, consistent with precinct planning documents.

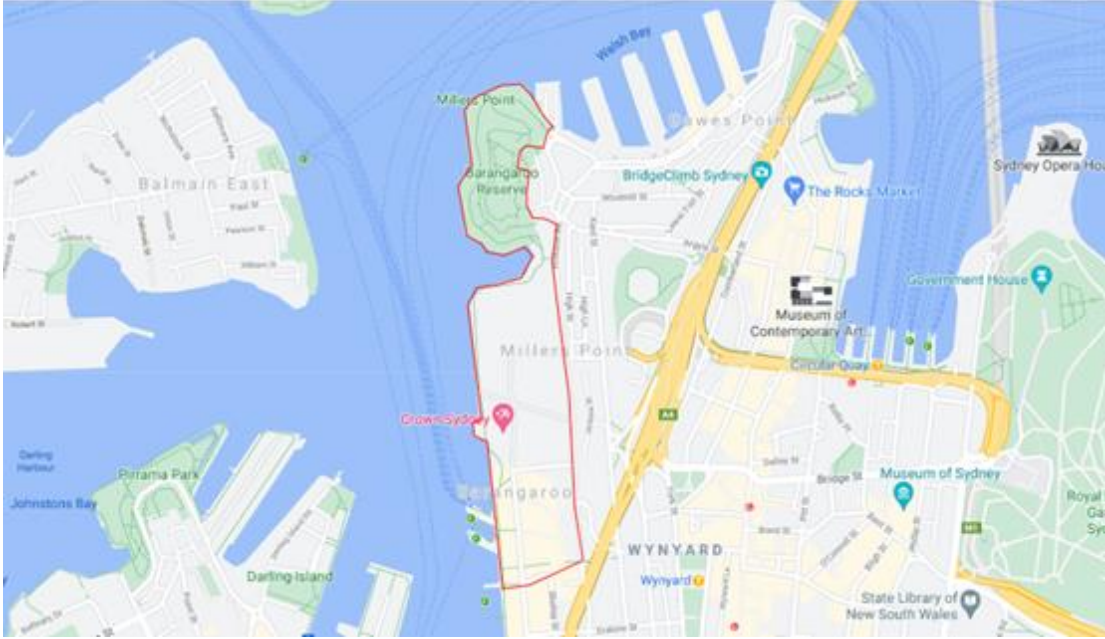


Figure 1 Barangaroo Precinct geographical boundary

Figures 2 and Table 1 below define the current operational area of Barangaroo, which reflects the built-out area considered in this Climate Active certification. Other buildings within Barangaroo are not yet complete or are immaterial.

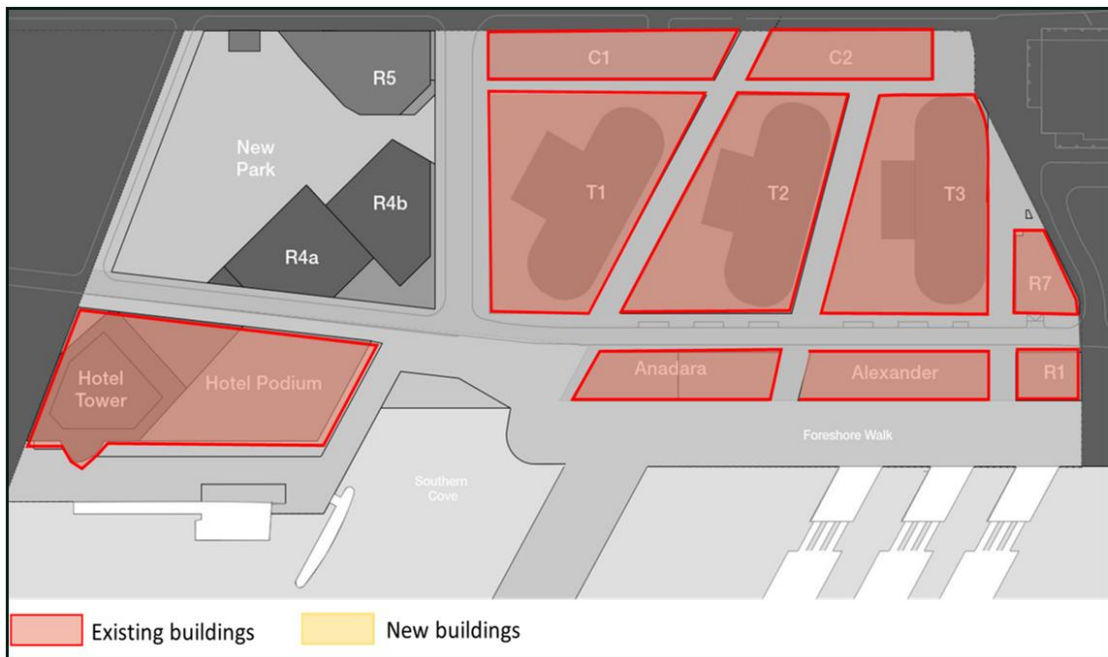


Figure 2 Highlighted areas illustrate the current operational buildings of Barangaroo.

Table 1 Summary of buildings within Barangaroo completed and operational

Building	Reporting Period								Operational Date
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	
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

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 a 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.

Inside emissions boundary

Quantified

- Stationary energy and fuels
- Electricity
- Refrigerants
- Land and sea transport
- Waste
- Water

Non-quantified

- Barangaroo Management Office:
 - Stationary Energy
 - Electricity
 - Water
 - Waste
- Land and sea transport (intra-precinct transport)
- Stationary Energy (Liquified Petroleum Gas).
- Barangaroo Reserve and carpark

Optionally included

N/A

Outside emission boundary

Excluded

- Office equipment and supplies
- Food
- Air transport (Business-related travel)
- Land and sea transport (Visitors)
- Events temporary generation

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, Lendlease and Crown Sydney Resort have been working together to deliver on this shared commitment, which is embedded in the contract between 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; and
- Setting operational carbon budgets and targets.

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.
- **Lendlease 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.
- **Shared Services** –Barangaroo's shared services, located in the basement of Barangaroo, have two critical pieces of infrastructure related to energy and water reduction;
 - o The District Cooling Plant (DCP) delivers chilled water to each building, leveraging diversity within the precinct to maximise the efficiency of the plant, benefiting all of the buildings within the precinct. As well as this, the use of harbour heat rejection removes the need for cooling towers on the rooves of each building, freeing up space for solar panels

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

- and significantly reducing the volume of water consumption within the precinct,
- o the Recycled Water Treatment Plant (RWTP) 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.
 - o 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.
- **Crown Sydney** – Crown Sydney Resort located north of Barangaroo South precinct commenced operations in FY21. Below are the reduction initiatives implemented:
 - o Targeted building control system projects to optimise energy use from heating, cooling, and ventilation operations.
 - o Installed solar film on several levels to reduce the solar heat gain, resulting in energy savings.
 - o Engaged an external consultant to undertake a comprehensive review of the boiler operation strategy, which identified opportunities to reduce natural gas usage.
 - o Executed energy optimisation projects throughout the property using smart analytics.

Emissions reduction actions

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

- **Renewable Electricity:** The Precinct uses 100% renewable electricity, including a combination of on-site solar generation and purchase of large-scale generation certificates (LGCs) to account for all electricity consumed within the precinct, aside from Crown Sydney Resort whose policy is to use high-quality Australian nature-based offsets to achieve carbon neutrality.
- **Building Services Advanced Analytics:** During FY21 to FY22 CIM building analytics has been rolled out across all the commercial buildings within the Barangaroo precinct. This was following a successful 6-month trial on Tower 1 during FY21 which cemented the benefits of having data driven solutions to achieve energy and water efficiencies.
- **Detailed Tenant energy & Water reporting:** Energy and water reporting is provided to the tenants within the commercial buildings to reduce consumption and drive down emissions. Some tenants have been provided detailed 15-minute profile consumption in order to identify usage patterns that may not be necessary i.e. after hours energy spikes, always on loads, etc.
- **Waste re-education:** As the buildings return to a more business as usual operating rhythm the commercial towers have refocused on educating tenants on the best practices on minimising waste to landfill. Tours of the waste facilities take place once a month offering people the chance to explore Barangaroo's waste facility's and be shown first-hand where their waste is processed. Along with this, the commercial towers set up stalls in the lobby area of tower 2 to educate tenants and visitors on the correct waste disposal routines.
- **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 home 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 over time 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.

Crown Sydney Resort located in Barangaroo South commenced operations in FY21. A restatement of the FY21 emissions was made to include Crown's operational emissions in FY21.

		Emissions since base year	
		Total tCO ₂ -e (without uplift)	Total tCO ₂ -e (with uplift)
Base year/Year 1:	FY2019–2020	9,083	N/A
Base year/Year 1 (restated):	FY2019–2020	8,985	N/A
Year 2 (restated):	FY2020–2021	10,730	N/A
Year 3	FY2021–2022	13,302	N/A
Year 4	FY2022–2023	24,118	N/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	Previous year emissions (t CO ₂ -e)	Current year emissions (t CO ₂ -e)	Detailed reason for change
Natural Gas (NSW/ACT) metro	7,984.80	9,601.44	Fluctuations in operations as a result of the precinct returning to a more business as usual level post covid.
Refrigerant	986.79	25.35	No R134a top up for the district cooling plant during FY22 followed by top-ups in FY23 resulting in a large increase in emissions.
Train	1,844.30	986.15	Increase due to increased operations within the commercial buildings as occupancy increases post covid as well as a revision in reporting boundary by Crown Sydney Resort in FY23 compared to FY22.
Bus	1,519.97	759.30	Increase due to increased operations within the commercial buildings as occupancy increases post covid and changes in the climate active calculation methodologies and emissions factors.
Medium Car	842.78	740.12	Increase due to increased operations within the commercial buildings as occupancy increases post covid. and changes in the climate active calculation methodologies and emissions factors.

Use of Climate Active carbon neutral products, services, buildings or precincts

N/A.

Emissions summary

The electricity summary is available in 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 (t CO ₂ -e)
Electricity	0.00	8249.38	1091.83	9341.21
Refrigerants	986.79	0.00	0.00	986.79
Stationary energy (gaseous fuels)	6366.34	0.00	1618.46	7984.8
Transport (land and sea)	0.00	0.00	4888.18	4888.18
Waste	0.00	0.00	0.00	0.00
Water	0.00	0.00	289.16	648.41
Working from home	359.25	0.00	214.62	214.62
Stationary energy (liquid fuels)	42.30	0.00	10.86	53.16
Total emissions	7754.68	8249.38	8113.10	24117.16

Note: The precinct uses 100% renewable electricity, aside from Crown Sydney Resort whose policy is to use high-quality Australian nature-based offsets to achieve carbon neutrality. The precinct residual electricity emissions are shown in the table above. Please refer to Appendix B for Electricity Summary.

Uplift factors

N/A

6. CARBON OFFSETS

Offsets retirement approach

This certification has taken an in-arrears offsetting approach. The total emission to offset is 24,118 t CO₂-e. The total number of eligible offsets used in this report is 33,465. Of the total eligible offsets used, 7,460 were previously banked and 26,000 were newly purchased and retired. 7650 are remaining and have been banked for future use.

Co-benefits

Infrastructure NSW and the building owners in the Barangaroo precinct 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 FY23, aside from Crown Sydney Resort whose policy is to use high-quality Australian nature-based offsets to achieve carbon neutrality.

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

1. Poon Boon Regeneration Project, New South Wales.

This project establishes permanent native forests through assisted regeneration from in-situ seed sources (including rootstock and lignotubers) on land that was cleared of vegetation and where growth was suppressed for at least 10 years prior to the project having commenced.

The Project enables grazing management at a sustainable level, allowing regeneration of the land and soils. By contrast, previous activity on the property led to a suppression of vegetation growth. This project also strives to achieve additional quantifiable benefits to the environment and community. A focus on sustainable livestock production through long-term soil and vegetation regeneration will increase the capacity of the land to support biodiversity as a result of establishing permanent native forests. In turn, delivering consistent permanent sequestration and abatement into the future.

2. Curraweena Regeneration Project, New South Wales.

This project establishes permanent native forests on land that previously has been cleared and regrowth had been suppressed for at least 10 years. The project assists regeneration through altering land management practices to relieve grazing, mechanical and chemical pressure often exerted on regenerating vegetation under typical farming practices.

The project is located next to a regional National Park which increases the habitat area for native flora and fauna.

3. Kenilworth Regrowth Project, New South Wales

This project establishes permanent native forests through assisted regeneration from in-situ seed sources on land that was cleared of vegetation and where regrowth was suppressed for at least 10 years prior to the project having commenced.

4. Kilcowera and Zenonie Forest Regeneration Project, Queensland.

This project establishes permanent native forests through assisted regeneration from in-situ seed sources (including rootstock and lignotubers) on land that was cleared of vegetation and where regrowth was suppressed for at least 10 years prior to the project having commenced.

5. Yuin Station, Murchison HIR Aggregation, Western Australia

This project establishes permanent native forests through assisted regeneration from in-situ seed sources (including rootstock and lignotubers) on land that was cleared of vegetation and where regrowth was suppressed for at least 10 years prior to the project having commenced.

6. Hillview Station Regeneration Project, Western Australia

This project establishes permanent native forests through assisted regeneration from in-situ seed sources (including rootstock and lignotubers) on land that was cleared of vegetation and where regrowth was suppressed for at least 10 years prior to the project having commenced.

Eligible offsets retirement summary

Offsets retired for Climate Active carbon neutral certification											
Project description	Type of offset units	Registry	Date retired	Serial number (and hyperlink to registry transaction record)	Vintage	Stapled quantity	Eligible quantity retired (tCO ₂ -e)	Eligible quantity used for previous reporting periods	Eligible quantity banked for future reporting periods	Eligible quantity used for this reporting period	Percentage of total (%)
Curraweena Regeneration Project	ACCU	ANREU	31 October 2022	8,347,455,121 - 8,347,459,485	2022-23	-	4,365	1697	0	2668	11%
Kenilworth Regrowth Project	ACCU	ANREU	14 November 2022	8,351,285,076 – 8,351,288,175	2022-23	-	3,100	0	0	3,100	13%
Yuin Station, Murchison HIR Aggregation	ACCU	ANREU	5 December 2023	8,342,660,144 - 8,342,665,923	2021-22	-	5,780	0	0	5,780	24%
Hillview Station Regeneration Project	ACCU	ANREU	5 December 2023	8,337,360,954 - 8,337,369,173	2021-22	-	8,220	0	0	8,220	34%
Kilcowera and Zenonie Forest Regeneration Project	ACCU	ANREU	24 August 2023	8,351,948,667 - 8,351,960,666	2022-23	-	12,000	0	7,650	4,350	18%
Total eligible offsets retired and used for this report										24,118	
Total eligible offsets retired this report and banked for use in future reports									7,650		
Type of offset units		Eligible quantity (used for this reporting period)					Percentage of total				
Australian Carbon Credit Units (ACCU)		24,118					100%				

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)*	37,922
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* 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	Project location	Eligible unit type	Registry	Surrender date	Accreditation code	Certificate serial number	Generation year	Fuel source	Quantity (MWh)
Bango Wind Farm	NSW	LGC	REC Registry	1 Sep 2023	WD00NS19	46168-72574	2023	Wind	28,871
Collector Wind Farm	NSW	LGC	REC Registry	1 Sep 2023	WD00NS17	28432-30322	2023	Wind	1,891
Gullen Range Farm	NSW	LGC	REC Registry	1 Sep 2023	WD00NS09	103320-104222	2023	Wind	903
Hampton Wind Park	NSW	LGC	REC Registry	1 Sep 2023	WD00NS04	290-594	2023	Wind	305
Cullerin Range Window Farm	NSW	LGC	REC Registry	11 Sep 2023	WD00NS05	9904-11991	2023	Wind	2,088
White Rock Solar Farm	NSW	LGC	REC Registry	8 Dec 2023	WD00NS12	237925 – 239579	2022	Solar	1,655
White Rock Solar Farm	NSW	LGC	REC Registry	8 Dec 2023	WD00NS12	310073 – 312202	2022	Solar	2,130
White Rock Solar Farm	NSW	LGC	REC Registry	8 Dec 2023	WD00NS12	349399 - 349477	2022	Solar	79
Total LGCs surrendered this report and used in this report									37,922

APPENDIX A: ADDITIONAL INFORMATION

Retirement evidence for any offsets and LGCs used is attached in Appendix A.

APPENDIX B: ELECTRICITY SUMMARY

There are two international best-practice methods for calculating electricity emissions – the location-based method and the market-based method. Reporting electricity emissions under both methods is called dual reporting.

Dual reporting of electricity emissions is useful, as it provides different perspectives of the emissions associated with a business's electricity usage.

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.

For this certification, electricity emissions have been set by using the **market-based approach**.

Market-based approach summary			
Market-based approach	Activity Data (kWh)	Emissions (kg CO ₂ -e)	Renewable percentage of total
	688,213		
Behind the meter consumption of electricity generated		0	1%
Total non-grid electricity	688,213	0	1%
LGC Purchased and retired (kWh) (including PPAs)	37,922,000	0	64%
GreenPower	0	0	0%
Climate Active precinct/building (voluntary renewables)	0	0	0%
Precinct/Building (LRET)	0	0	0%
Precinct/Building jurisdictional renewables (LGCS surrendered)	0	0	0%
Electricity products (voluntary renewables)	0	0	0%
Electricity products (LRET)	0	0	0%
Electricity products jurisdictional renewables (LGCs surrendered)	0	0	0%
Jurisdictional renewables (LGCs surrendered)	0	0	0%
Jurisdictional renewables (LRET) (applied to ACT grid electricity)	0	0	0%
Large Scale Renewable Energy Target (applied to grid electricity only)	11,044,622	0	19%
Residual Electricity	9,781,369	9,341,207	0%
Total renewable electricity (grid + non grid)	49,064,836	0	83%
Total grid electricity	58,747,991	9,904,657	81%
Total electricity (grid + non grid)	59,436,204	9,904,657	83%
Percentage of residual electricity consumption under operational control	100%		
Residual electricity consumption under operational control	9,781,369	9,341,207	
Scope 2	8,638,092	8,249,378	
Scope 3 (includes T&D emissions from consumption under operational control)	1,143,277	1,091,829	
Residual electricity consumption not under operational control	0	0	
Scope 3	0	0	

Total renewables (grid and non-grid)	83.54%
Mandatory	18.58%
Voluntary	63.80%
Behind the meter	1.16%
Residual scope 2 emissions (t CO₂-e)	8,249.38
Residual scope 3 emissions (t CO₂-e)	1,091.83
Scope 2 emissions liability (adjusted for already offset carbon neutral electricity) (t CO₂-e)	8,249.38
Scope 3 emissions liability (adjusted for already offset carbon neutral electricity) (t CO₂-e)	1,091.83
Total emissions liability (t CO₂-e)	9,341.21

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

Location-based approach summary						
Location-based approach	Activity Data (kWh) total	Under operational control			Not under operational control	
Percentage of grid electricity consumption under operational control	100%	(kWh)	Scope 2 Emissions (kgCO ₂ -e)	Scope 3 Emissions (kgCO ₂ -e)	(kWh)	Scope 3 Emissions (kgCO ₂ -e)
NSW	58,747,991	58,747,991	42,886,033	3,524,879	0	0
Grid electricity (scope 2 and 3)	58,747,991	58,747,991	42,886,033	3,524,879	0	0
NSW	688,213	688,213	0	0		
Non-grid electricity (behind the meter)	688,213	688,213	0	0		
Total electricity (grid + non grid)	59,436,204					

Residual scope 2 emissions (t CO ₂ -e)	42,886.03
Residual scope 3 emissions (t CO ₂ -e)	3,524.88
Scope 2 emissions liability (adjusted for already offset carbon neutral electricity) (t CO ₂ -e)	42,886.03
Scope 3 emissions liability (adjusted for already offset carbon neutral electricity) (t CO ₂ -e)	3,524.88
Total emissions liability	46,410.91

APPENDIX C: INSIDE EMISSIONS BOUNDARY

Non-quantified emission sources

The following emissions sources have been assessed as relevant, are captured within the emissions boundary, but are not measured (quantified) in the carbon inventory. 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	Justification reason
Barangaroo Management Office activities including: - Stationary Energy - Electricity - Water - Waste	Immaterial
Land and sea transport (intra-precinct transport)	Immaterial
Stationary Energy (Liquified Petroleum Gas).	Immaterial
Barangaroo Reserve and carpark	Immaterial

Data management plan for non-quantified sources

There are no non-quantified sources in the emission boundary that require a data management plan.

APPENDIX D: OUTSIDE EMISSIONS BOUNDARY

Excluded emission sources

The below emission sources have been assessed as not relevant to this 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 precinct'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. INSW, as landlord of the Precinct, exerts influence through the ground leases for the buildings at Barangaroo and can influence the reduction of emissions from the buildings and the direct emissions of the tenants of those buildings. However, INSW does not have a direct relation with the tenants of those buildings or the managers of the public domain, so it is unable to influence their scope 3 emissions.
3. **Risk** The emissions from a particular source contribute to the precinct'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 precinct's boundary, or from outsourced activities typically undertaken within the boundary for comparable precincts.

Excluded emissions sources summary

Emission sources tested for relevance	Size	Influence	Risk	Stakeholders	Outsourcing	Justification
Office equipment and supplies	N	N	N	N	N	<p>Size: The emissions source is likely to be immaterial compared to the total emissions from the precinct.</p> <p>Influence: INSW does not have the potential to influence the emissions from this source.</p> <p>Risk: There are no relevant laws or regulations that apply to limit emissions specifically from this source, the source does not create supply chain risks, and it is unlikely to be of significant public interest.</p> <p>Stakeholders: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for the precinct.</p> <p>Outsourcing: INSW has not previously undertaken this activity within our emissions boundary and comparable organisations do not typically undertake this activity within their boundary.</p>
Food and beverage	N	N	N	N	N	<p>Size: The emissions source is likely to be immaterial compared to the total emissions from the precinct.</p> <p>Influence: INSW does not have the potential to influence the emissions from this source.</p> <p>Risk: There are no relevant laws or regulations that apply to limit emissions specifically from this source, the source does not create supply chain risks, and it is unlikely to be of significant public interest.</p> <p>Stakeholders: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for the precinct.</p> <p>Outsourcing: INSW have not previously undertaken this activity within our emissions boundary and comparable organisations do not typically undertake this activity within their boundary.</p>
Events temporary generation	N	N	N	N	N	<p>Size: The emissions source is likely to be immaterial compared to the total emissions from the precinct.</p> <p>Influence: INSW has limited indirect influence over the emissions from this source.</p> <p>Risk: There are no relevant laws or regulations that apply to limit emissions specifically from this source, the source does not create supply chain risks, and it is unlikely to be of significant public interest.</p> <p>Stakeholders: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for the precinct.</p>

Emission sources tested for relevance	Size	Influence	Risk	Stakeholders	Outsourcing	Justification
Business-related Travel	N	N	N	N	N	<p>Outsourcing: INSW has not previously undertaken this activity within our emissions boundary and comparable organisations do not typically undertake this activity within their boundary.</p> <p>Size: The emissions source is likely to be immaterial compared to the total emissions from the precinct.</p> <p>Influence: INSW do not have the potential to influence the emissions from this source.</p> <p>Risk: There are no relevant laws or regulations that apply to limit emissions specifically from this source, the source does not create supply chain risks, and it is unlikely to be of significant public interest.</p> <p>Stakeholders: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for the precinct.</p> <p>Outsourcing: INSW has not previously undertaken this activity within our emissions boundary and comparable organisations do not typically undertake this activity within their boundary.</p>
Visitor Commute	N	N	N	N	N	<p>Size: The emissions source is likely to be immaterial compared to the total emissions from the precinct.</p> <p>Influence: INSW do not have the potential to influence the emissions from this source.</p> <p>Risk: There are no relevant laws or regulations that apply to limit emissions specifically from this source, the source does not create supply chain risks, and it is unlikely to be of significant public interest.</p> <p>Stakeholders: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for the precinct.</p> <p>Outsourcing: INSW has not previously undertaken this activity within our emissions boundary and comparable organisations do not typically undertake this activity within their boundary.</p>



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