PUBLIC DISCLOSURE STATEMENT

HANSON AUSTRALIA PTY LTD

PRODUCT CERTIFICATION
CY2023

Australian Government

Climate Active
Public Disclosure Statement

An Australian Government Initiative

NAME OF CERTIFIED ENTITY	Hanson Australia Pty Ltd and its related companies Hanson Construction Materials Pty Ltd, Hymix Australia Pty Ltd, Alex Fraser Asphalt Pty Ltd, Recycling Industries Pty Ltd, Queensland Recycling Pty Ltd and Pioneer North Queensland Pty Ltd
REPORTING PERIOD	1 January 2023 – 31 December 2023 Arrears report and projected for 2024
DECLARATION	*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.*
	Name of signatory: Phil Schacht Position of signatory: Chief Executive Date: 24 April 2024

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

Version: August 2023

1. CERTIFICATION SUMMARY

TOTAL EMISSIONS OFFSET	8,971 tCO2-e
THE OFFSETS USED	83% VCUs, 10% ACCUs, 7% VERs
RENEWABLE ELECTRICITY	N/A
CARBON ACCOUNT	Prepared by: Hanson
TECHNICAL ASSESSMENT	22/12/2021 Emily Townsend thinkstep-anz Next technical assessment due: December 2024 (unless scope changes)
THIRD PARTY VALIDATION	**Not required – EPD Pathway used**

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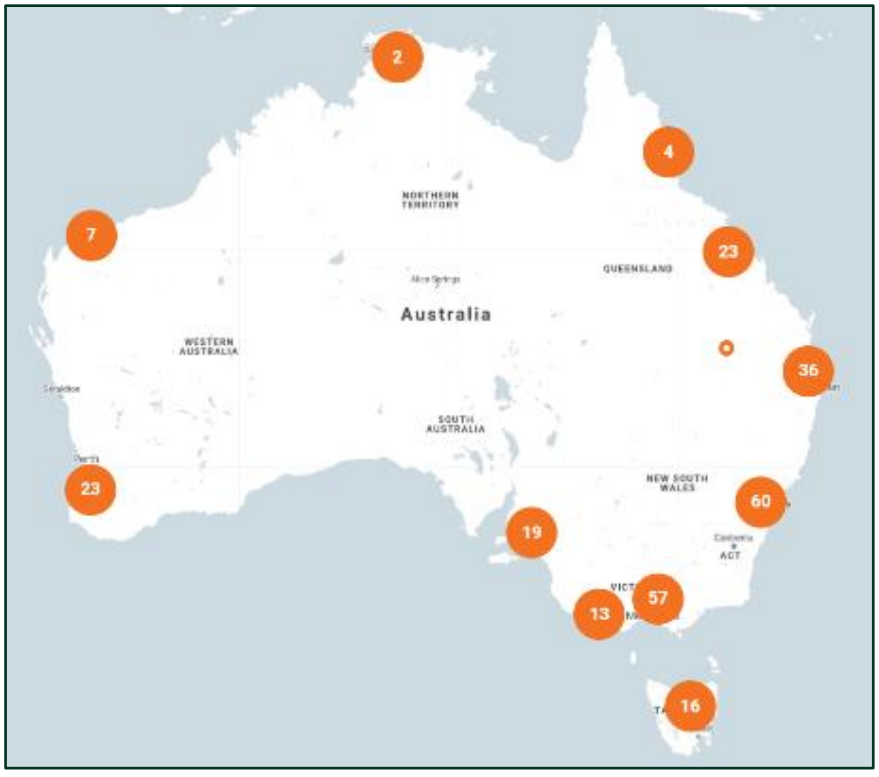
2. CARBON NEUTRAL INFORMATION

Description of certification

This certification covers ready mixed concrete (RMC) products produced and sold by Hanson in Australia. Climate Active certification is an option we provide to our customers to support the development of carbon neutral projects as part of our CO_2 reduction journey.

Hanson Australia Pty Ltd, together with its related companies Hanson Construction Materials Pty Ltd, Hymix Australia Pty Ltd, Alex Fraser Asphalt Pty Ltd, Recycling Industries Pty Ltd, Queensland Recycling Pty Ltd and Pioneer North Queensland Pty Ltd (collectively referred to as Hanson), are leaders in the Australian construction materials industry. We service local communities with aggregates, concrete, asphalt and recycled construction and demolition waste through our network of sites around the country.

Hanson is part of the global Heidelberg Materials (HM) group, one of the of the world's largest integrated manufacturers of building materials and solutions, with leading market positions in aggregates, cement and ready-mixed concrete, and with 51,000 employees at nearly 3,000 locations in over 50 countries. At the centre of actions lies the responsibility for the environment. As a front runner on the path to carbon-neutrality, Heidelberg Materials develops material solutions for the future. The strength of its global network and diverse team is leveraged to address the challenges of climate change across all business lines. Across the group, there is significant investment in product research and development, particularly in reducing CO_2 in cement and concrete, and operational investment, such as numerous carbon capture projects at various stages of implementation. Heidelberg Materials is committed to the UN Sustainable Development Goals and is working to improve sustainability outcomes for our people and the planet.



Product description

The functional unit for this certification is defined as t CO2-e/cubic meter (m^3) of ready-mix concrete.

The certification is being managed through the EPD (environmental product declaration) pathway. Hanson holds process certification to produce bespoke cradle to grave EPDs for customer projects.

With Hanson's range of low carbon RMC mixes, our project EPDs and Climate Active certification, we are supporting customers to achieve more sustainable outcomes throughout the construction process and across the product lifecycle on an opt-in basis.

Hanson operates an integrated network of operations in all Australian states and territories. Through our Customer Service Centre based in Brisbane, deliveries in all metropolitan areas are optimized through a computerized algorithm. Over 20 years, this has allowed us to maximise the benefit of our network for customer service and efficiency. Subject to the product application, supplementary cementitious materials (SCMs) are employed to reduce CO_2 in cement. SCMs primarily include fly ash from coal fired power stations and slag from steel production. These materials are used to replace cement, significantly reducing the embodied carbon of the RMC product.

Hanson has a long history of employing SCMs in RMC products. While it is standard to use SCMs in most applications, the extent to which it occurs is influenced by technical and practical factors. For this reason, Hanson works with customers to design and select mixes based on their requirements, assisting them in choosing low carbon concrete options where possible. Most of the concrete operations around Australia have the capacity to incorporate SCMs to meet customer demands.

Under the Climate Active certification, customers will have the option to opt-in to carbon neutral products. EPDs will be employed to calculate the CO_2 and annually this report will be updated to reflect the mix range covered. Given the significant variation in concrete mix design, it is impractical to list all possible options.

3.EMISSIONS BOUNDARY

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 'attributable processes' of a product or service. These attributable processes are services, materials and energy flows that become the product or service, make the product or service and carry the product or service through its life cycle. These attributable emissions have been quantified in the carbon inventory.

Non-quantified emissions have been assessed as attributable 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. There are no no-quantified emissions.

Outside the emissions boundary

Non-attributable emissions have been assessed as not attributable to a product or service. They can be **optionally included** in the emissions boundary and therefore have been offset, or they can be listed as outside of the emissions boundary (and are therefore not part of the carbon neutral claim). Further detail is available at Appendix D. No non-attributable emissions outside of the emissions boundary have been assessed.

Inside emissions boundary

Quantified

Production

- Electricity
- Fuel use in mobile plant
- Fuel used in fixed plant
- Waste
- Water

Transport fuel used in

- Road fleet
- Trains
- Ships

Cement specific

- Process emissions

Use

- Carbonation

End of Life (deconstruction, recycling, transport, landfill)

- Electricity
- Fuel use in mobile plant
- Fuel used in fixed plant
- Waste
- Water
- Carbonation

Non-quantified

N/A

Optionally included

N/A

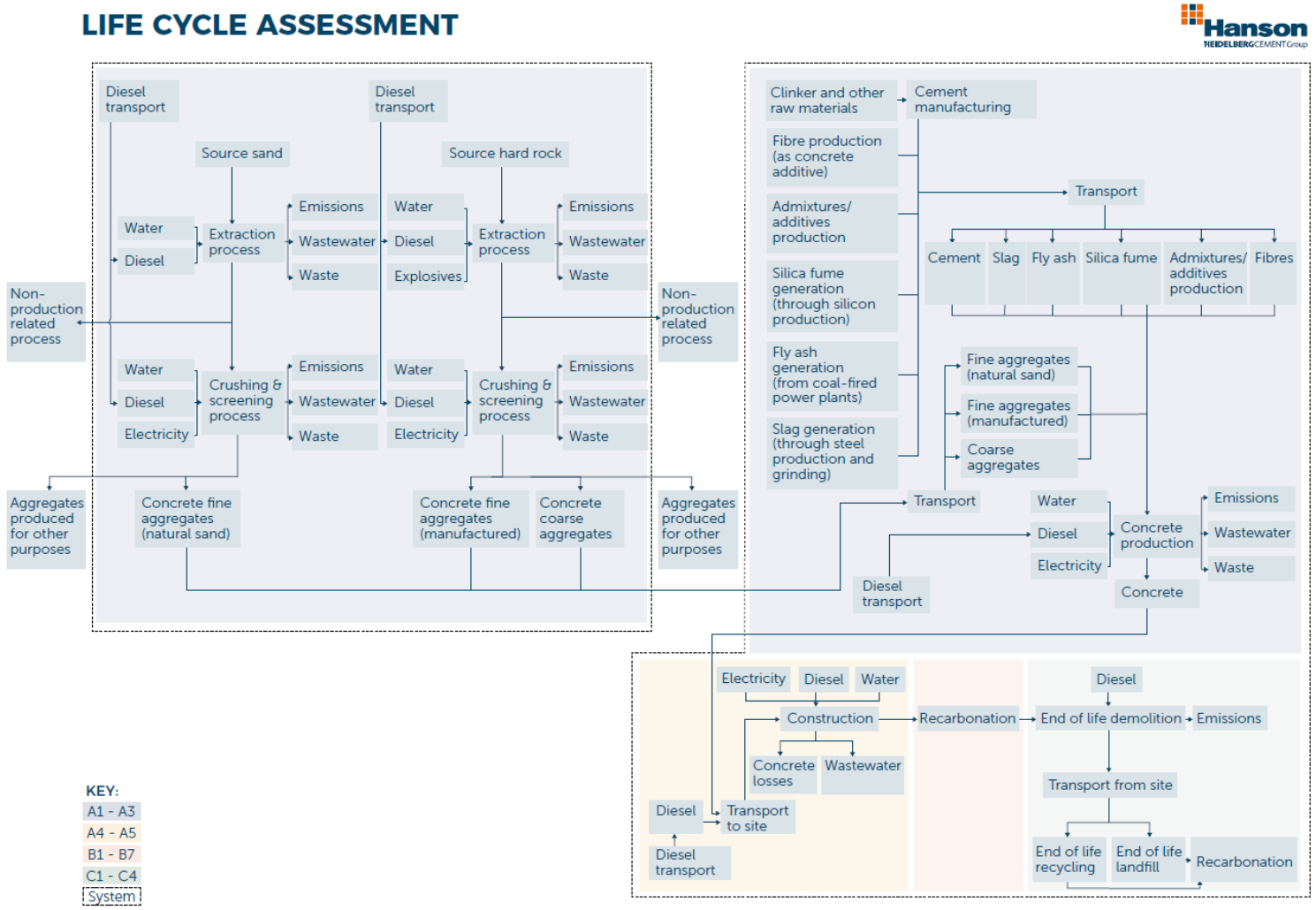
Outside emission boundary

Non-attributable

Personnel

Capital Goods

Product/service process diagram



The lifecycle analysis captures the full cradle to grave emission inventory for the RMC product. As the lifecycle stages beyond the gate are outside Hanson's control, estimates based on reliable industry and government information have been employed.

4. EMISSIONS REDUCTIONS

Emissions reduction strategy

Hanson is a member of the global Heidelberg Materials group (HM). Globally, HM was the first cement business to set targets with the Science Based Targets initiative (SBTi), committing to the "Business Ambition for 1.5°C" in 2021. Further, HM has been recognised for its leadership in corporate transparency and performance on climate change in the renowned ranking by global environmental non-profit organisation CDP, securing a place on the annual Climate A List. In the "Water Security" category, the company received a rating of A–. HM has joined the United Nation's "Race to Zero" campaign and, in the 2023 Sustainability Report, continued to integrate the Taskforce for Climate-Related Financial Disclosure (TCFD) reporting. A more detailed report of rating results can be found in the published 2023 Sustainability Report.

A crucial component of the work to reduce CO_2 is the global commitment from HM to produce CO_2 neutral concrete no later than 2050. This is driving significant action globally across all HM businesses. HM climate transition plan can be found here.

In pursuit of the target, the Australian key action areas:

- Targeting 50% of our revenues coming from sustainable products by 2030, being low CO_2 or high recycled content, or a combination of both.
- Reducing our Scope 2 emissions through renewable energy agreements and optimizing electricity usage with a target of 65% reduction by 2030 from a 2016 base, aligned with our science-based targets.
- Developing circular alternatives for half of our concrete products - aiming for full coverage.
- Promotion of low carbon concrete to our customers in achieving their CO_2 reduction ambitions.
- Reducing emissions from transport on a per unit per km basis through ongoing investment in more efficient fleet and investment in new technologies as they become available in Australia.

For sales and transport, internal targets have been set which are not yet publicly communicated. Our internal CO_2 reduction road maps are reported to the global senior management quarterly and contain a range of actions, most of which cannot be included here due to competitive sensitivities.

These planned actions are in the context of a long history of continually improving our business. Through ongoing investment in our fleet, we have reduced transport CO_2 per unit per km delivered by nearly 1% per year on average since 2005. Investment in innovative IT solutions has supported the reduction of CO_2 in products by leveraging algorithms to optimize mixes. Ongoing investment in plants has positioned the business to be ready to supply low carbon concrete in most operations, with plans to address operations not currently set up for SCM utilisation.

Targets are annually reviewed. As an RMC producer, about 80-85% CO_2 is in cement. We are working with our cement supplier (a Joint Venture) on progressing emissions reductions. We do not have operational control over the cement business.

Emissions reduction actions

Heidelberg Materials (HM) has recently reaffirmed and further tightened their climate targets to reduce cementitious material related emissions. The company follows a clear, science-based approach to reduce its carbon footprint and has given itself a comprehensive set of ESG targets. At the same time, HM continues to broaden the expansion of Carbon Capture projects globally and recently announced the the world's first carbon-captured net-zero cement.

Hanson, as an RMC producer, further increases the use of SCMs beyond conventional boundaries and invests in new materials technology. We are striving to increase the percentage of high SCM content mixes and are developing low carbon mixes to match most applications.

Beyond materials, Hanson is constantly investing in its fleet to reduce transport related emissions. In 2023, Hanson replaced approximately 50 trucks by models with higher EURO emission ratings The increased loading capacity of those models will reduce the overall carbon emissions per kg material and result in less truck movement.

Hanson previously signed a power purchasing agreement (PPA) for renewable energy which will be delivering renewable energy from the beginning of the 1st Jan 2024.

5.EMISSIONS SUMMARY

Emissions over time

Emissions since base year			
		Total tCO_2-e	Emissions intensity of the functional unit
Base year/Year 1:	2021	5,268	0.432
Year 2:	2022	6,531	0.396
Year 3:	2023	9,036	0.372

Significant changes in emissions

Due to the nature of the opt-in option, customer projects can be added to Hanson's Climate Active certification. Any new project will result in a significant baseline increase compared to previous years, especially if there is only a small number of projects listed. The opposite effect will be observed if a project finishes. Mix design choices, project sizes, geographical location and construction type all influence baselines and final outcomes.

Emission source name	Previous year emissions (t CO_2-e)	Current year emissions (t CO_2-e)	Detailed reason for change
Paramatta Powerhouse Museum	0	4,104	New project

Use of Climate Active carbon neutral products and services

N/A

Emissions summary

Having achieved process EPD certification, Hanson will be creating primarily bespoke EPDs on a project by project basis at the customer's request. This allows for location-based buildup of project specific mixes from specific plants and representative materials. The LCA is cradle to grave and for the purposes of the emissions summary each stage is grouped and A1-A3 (Production) is split from A4-A5 (Construction) for visibility of the cradle to gate.

The tables below show all mixes specified for each project, including the anticipated volume over the project lifespan, the impacts per life cycle stage in tCO_2e/m^3, and the total expected emissions across the project lifespan. Given that volumes of specific mixes can change over the duration of the project, some products have been allowed for with a nominal $1m^3$ in anticipation of use.

The actual volumes used will be reviewed over the course of the project and any differences in total emissions will be accounted for. The volumes delivered to the project to date are provided in the second table below. Note that total calculated emissions may not sum due to rounding in displayed data.

Summary of Projects delivered for CY2023 Detailed below	DELIVERED VOLUME (m^3)	Total emissions tCO2-e
R2 Barangaroo	5,922	2,814
R3 Barangaroo	6,520	2,119
Paramatta Powerhouse Museum	14,379	4,104
	26,821	**9,037**

No	ALL ANTICIPATED MIXES AND EMISSIONS FOR R2 BARANGAROO PROJECT	VOLUME (m^3)	LIFE CYCLE STAGES				Total Lifecycle Unit tCO_2-e/m^3	Total emissions tCO_2-e (estimate)
			A1-A3 Production	A4-A5 Transport & Construction	B1-B7 Use	C1-C4 End of Life		
1	Tower Columns & Wall 100 MPa 32% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	34	617	15.3	-10.6	16.5	0.638	21.7
2	Tower Columns & Wall 100 MPa 53% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	2135	459	13.8	-7.07	20.0	0.486	1,037.1
3	Post Tension 40 MPa 26% Indicative Cement Replacement – GGBFS	7000	370	12.9	-6.05	21.1	0.398	2,785.5
4	Level 2 Podium 40 MPa 27% Indicative Cement Replacement - Fly Ash	1	332	12.5	-5.68	21.4	0.360	0.4
5	Post Tension 50 MPa 25% Indicative Cement Replacement – GGBFS	5000	399	13.2	-6.63	20.5	0.426	2,130.3
6	Tower Columns & Wall 50 MPa 50% Indicative Cement Replacement - Fly Ash/GGBFS Blend	1	287	12.1	-4.28	22.9	0.318	0.3

7	Tower Columns & Wall 50 MPa 28% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	180	402	13.2	-6.63	20.6	0.430	77.3
8	Post Tension 65 MPa 44% Indicative Cement Replacement - GGBFS/Silica Fume Blend	252	418	13.4	-6.46	21.0	0.446	112.4
9	Tower Jumpform - Core 65 MPa 33% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	4650	392	13.1	-6.51	20.5	0.419	1,948.8
10	Tower Jumpform - Core 80 MPa 36% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	5600	424	13.4	-6.98	20.1	0.450	2,522.7
11	Transfer Slab 80 MPa 62% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	354	318	12.4	-4.30	23.1	0.349	123.6
12	Tower Columns & Wall 80 MPa 39% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	800	415	13.3	-6.64	20.7	0.442	353.8
13	Puddle Pour 80 MPa 15% Indicative Cement Replacement - GGBFS/Silica Fume Blend	1	657	15.7	-11.8	15.1	0.676	0.7
14	Puddle Pour 65 MPa 50% Indicative Cement Replacement - GGBFS/Silica Fume Blend	1	403	13.2	-5.96	21.7	0.432	0.4
15	Basement Slabs (RC) 40 MPa 25% Indicative Cement Replacement - Fly Ash/GGBFS Blend	1	324	12.5	-5.17	22.1	0.353	0.4
16	Stairs 40 MPa 25% Indicative Cement Replacement - Fly Ash/GGBFS Blend	1	331	12.5	-5.34	21.8	0.360	0.4

17	Tower Columns & Wall 40 MPa 25% Indicative Cement Replacement – GGBFS	1	343	12.6	-5.57	21.4	0.371	0.4
18	Blockwork Core Infill 25 MPa 50% Indicative Cement Replacement – GGBFS	1	282	12.1	-1.33	22.9	0.316	0.3
19	Puddle Pour 100 MPa 19% Indicative Cement Replacement - GGBFS/Silica Fume Blend	1	710	16.2	-12.7	14.0	0.727	0.7
20	Tower Jumpform - Core 50 MPa 28% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	2740	397	13.2	-6.63	20.6	0.424	1,162.2
21	Tower Columns & Wall 65 MPa 33% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	110	397	13.2	-6.51	20.5	0.424	46.7
22	Tower Columns & Wall 40 MPa 50% Indicative Cement Replacement – GGBFS	200	282	12.1	-1.33	22.9	0.316	63.1
23	Stairs 40 MPa 50% Indicative Cement Replacement - Fly Ash/GGBFS Blend	600	256	11.8	-3.74	23.4	0.287	172.4
24	Basement Slabs (RC) 40 MPa 50% Indicative Cement Replacement - Fly Ash/GGBFS Blend	2637	254	11.8	-3.63	23.8	0.286	753.4
25	Puddle Pour 80 MPa 43% Indicative Cement Replacement - GGBFS/Silica Fume Blend	1	496	14.1	-7.93	19.3	0.521	0.5
		TOTAL VOLUME (m^3)					**Average CO2-e/m^3**	**Total Project CO_2-e**
		32,302					**0.412**	**13,315**

Of the total project volume, the following has been delivered to date:

No	DELIVERED MIXES AND EMISSIONS FOR R2 BARANGAROO PROJECT CY 2023	DELIVERED VOLUME (m^3)	Total Lifecycle Unit tCO_2-e/m^3	Total emissions tCO_2-e
1	Tower Columns & Wall 100 MPa 32% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	492.9	0.638	314.6
2	Tower Columns & Wall 100 MPa 53% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	2477.6	0.486	1203.5
3	Post Tension 40 MPa 26% Indicative Cement Replacement – GGBFS	2493.7	0.398	992.3
4	Level 2 Podium 40 MPa 27% Indicative Cement Replacement - Fly Ash	2336.8	0.360	841.6
5	Post Tension 50 MPa 25% Indicative Cement Replacement – GGBFS	5980.1	0.426	2547.8
6	Tower Columns & Wall 50 MPa 50% Indicative Cement Replacement - Fly Ash/GGBFS Blend	19.0	0.318	6.0
7	Tower Columns & Wall 50 MPa 28% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	0.0	0.430	0.0
8	Post Tension 65 MPa 44% Indicative Cement Replacement - GGBFS/Silica Fume Blend	469.8	0.446	209.5
9	Tower Jumpform - Core 65 MPa 33% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	4547.1	0.419	1905.6
10	Tower Jumpform - Core 80 MPa 36% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	3487.9	0.450	1571.2
11	Transfer Slab 80 MPa 62% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	320.0	0.349	111.8
12	Tower Columns & Wall 80 MPa 39% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	2501.4	0.442	1106.4
13	Puddle Pour 80 MPa 15% Indicative Cement Replacement - GGBFS/Silica Fume Blend	26.4	0.676	17.8
14	Puddle Pour 65 MPa 50% Indicative Cement Replacement - GGBFS/Silica Fume Blend	211.0	0.432	91.1
15	Basement Slabs (RC) 40 MPa 25% Indicative Cement Replacement - Fly Ash/GGBFS Blend	91.3	0.353	32.3
16	Stairs 40 MPa 25% Indicative Cement Replacement - Fly Ash/GGBFS Blend	1214.8	0.360	437.2
17	Tower Columns & Wall 40 MPa 25% Indicative Cement Replacement – GGBFS	665.2	0.371	247.1
18	Blockwork Core Infill 25 MPa 50% Indicative Cement Replacement – GGBFS	146.5	0.316	46.2
19	Puddle Pour 100 MPa 19% Indicative Cement Replacement - GGBFS/Silica Fume Blend	76.0	0.727	55.3
20	Tower Jumpform - Core 50 MPa 28% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	2290.7	0.424	971.6
21	Tower Columns & Wall 65 MPa 33% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume Blend	0.0	0.424	0.0
22	Tower Columns & Wall 40 MPa 50% Indicative Cement Replacement – GGBFS	0.0	0.316	0.0
23	Stairs 40 MPa 50% Indicative Cement Replacement - Fly Ash/GGBFS Blend	4.0	0.287	1.1

24	Basement Slabs (RC) 40 MPa 50% Indicative Cement Replacement - Fly Ash/GGBFS Blend	1056.7	0.286	301.9
25	Puddle Pour 80 MPa 43% Indicative Cement Replacement - GGBFS/Silica Fume Blend	95.0	0.521	49.5
		DELIVERED VOLUME (m^3)	**Average CO2-e/m3**	**DELIVERED VOLUME CO_2-e**
		31,004	**0.426**	**13,062**

No	ALL ANTICIPATED MIXES AND EMISSIONS FOR R3 BARANGAROO PROJECT	VOLUME (m^3)	LIFE CYCLE STAGES				Total Lifecycle Unit tCO_2-e/m^3	Total emissions tCO_2-e (estimate)
			A1-A3 Production	A4-A5 Transport & Construction	B1-B7 Use	C1-C4 End of Life		
1	Reduced Liner 25 MPa - 60% Indicative Cement Replacement - Fly Ash/GGBFS	1	167	10.9	-3.7	22.2	0.197	0.20
2	Column & Wall 50 MPa - 50% Indicative Cement Replacement - Fly Ash/GGBFS	49	280	12.0	-4.3	21.6	0.309	15.15
3	Post Tension 40 MPa - 44% Indicative Cement Replacement - Fly Ash/GGBFS	4412	293	12.1	-4.6	21.4	0.322	1,420.64
4	Post Tension 50 MPa - 43% Indicative Cement Replacement - Fly Ash/GGBFS	1148	288	12.1	-5.1	22.1	0.317	363.58
5	Pump 40 MPa - 25% Indicative Cement Replacement - Fly Ash	508	276	12.0	-5.3	21.5	0.304	154.46
6	Column & Wall 40 MPa - 25% Indicative Cement Replacement - Fly Ash	9	288	12.1	-5.6	21.2	0.316	2.85
7	Pump 65 MPa - 50% Indicative Cement Replacement - GGBFSF/Silica Fume	1	339	12.6	-5.7	22.0	0.368	0.37
8	Pump 50 MPa - 25% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	2485	381	13.0	-6.5	20.5	0.408	1,013.90
9	Pump 80 MPa - 39% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	1641	408	13.3	-6.6	20.7	0.435	713.57
10	Pump 100 MPa - 53% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	328	449	13.6	-7.1	18.8	0.474	155.52
11	Pump 100 MPa - 32% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	1	607	15.2	-10.6	16.5	0.628	0.63
12	Pump 80 MPa - 24% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	1	570	14.8	-11.7	15.4	0.588	0.59
13	Pump 100 MPa - 19% Indicative Cement Replacement - GGBFS/Silica Fume	1	702	16.1	-12.7	14.0	0.719	0.72
		TOTAL VOLUME (m^3)					**Average CO2-e/m^3**	**Total Project CO_2-e**
		10,585					**0.363**	**3,842**

Of the total project volume, the following has been delivered to date:

No.	DELIVERED MIXES AND EMISSIONS FOR R3 BARANGAROO PROJECT CY 2023	DELIVERED VOLUME (m^3)	Total Lifecycle Unit tCO_2-e/m^3	Total emissions tCO_2-e
1	Reduced Liner 25 MPa - 60% Indicative Cement Replacement - Fly Ash/GGBFS	0.0	0.197	0.0
2	Column & Wall 50 MPa - 50% Indicative Cement Replacement - Fly Ash/GGBFS	67.5	0.309	20.9
3	Post Tension 40 MPa - 44% Indicative Cement Replacement - Fly Ash/GGBFS	3023.6	0.322	973.6
4	Post Tension 50 MPa - 43% Indicative Cement Replacement - Fly Ash/GGBFS	4447.5	0.317	1,408.6
5	Pump 40 MPa - 25% Indicative Cement Replacement - Fly Ash	317.3	0.304	96.5
6	Column & Wall 40 MPa - 25% Indicative Cement Replacement - Fly Ash	80.6	0.316	25.5
7	Pump 65 MPa - 50% Indicative Cement Replacement - GGBFSF/Silica Fume	361.7	0.368	133.1
8	Pump 50 MPa - 25% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	840.8	0.408	343.1
9	Pump 80 MPa - 39% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	267.6	0.435	116.4
10	Pump 100 MPa - 53% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	288.3	0.474	136.7
11	Pump 100 MPa - 32% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	0.0	0.628	0.0
12	Pump 80 MPa - 24% Indicative Cement Replacement - Fly Ash/GGBFS/Silica Fume	388.5	0.588	228.4
13	Pump 100 MPa - 19% Indicative Cement Replacement - GGBFS/Silica Fume	13.0	0.719	9.4
		DELIVERED VOLUME (m^3)	**Average CO2-e/m3**	**DELIVERED VOLUME CO_2-e**
		10,096	**0.346**	**3,492**

No	ALL ANTICIPATED MIXES AND EMISSIONS FOR PARAMATTA POWERHOUSE MUSEUM	VOLUME (m^3)	LIFE CYCLE STAGES				Total Lifecycle Unit tCO_2-e/m^3	Total emissions tCO_2-e (estimate)
			A1-A3 Production	A4-A5 Transport & Construction	B1-B7 Use	C1-C4 End of Life		
1	HySustain – High Performance/Low Carbon - 65 MPa	1723	344.4	13.3	-2.9	19.9	0.375	645.6
2	Pump - 65 MPa	1044	228.6	12.2	-1.3	24.5	0.264	275.6
3	Pump - 65 Mpa	1	275.9	12.6	-2.3	21.6	0.308	0.3
4	Pump - 65 MPa	2630	274.6	12.6	-2.3	21.7	0.307	806.4
5	HySustain – High Performance/Low Carbon - 50 MPa	5101	263.8	12.5	-2.2	22.0	0.296	1510.2
6	Pump - 50 MPa	1	250.0	12.4	-2.0	22.5	0.283	0.3
7	Pump - 50 MPa	1	246.1	12.3	-1.9	22.5	0.279	0.3
8	Pump - 50 MPa	2296	237.7	12.3	-1.9	22.8	0.271	622.2
9	Pump - 40 MPa	1	279.4	12.7	-2.5	21.4	0.311	0.3
10	Pump - 40 MPa	1	340.8	13.3	-3.2	19.8	0.371	0.4
11	Pump - 40 MPa	2174	278.7	12.7	-2.5	21.4	0.310	674.5
12	Pump - 40 MPa	10666	244.4	12.3	-1.9	22.6	0.277	2958.9
13	Pump - 40 MPa	1	220.1	12.1	-1.6	23.4	0.254	0.3
14	Pump - 40 MPa	1	357.5	13.4	-3.4	18.8	0.386	0.4

15	Pump - 40 MPa	1255	326.5	13.1	-3.0	19.6	0.356	446.9
16	HySustain – High Performance/Low Carbon - 25 MPa	1	180.3	11.6	-1.9	21.7	0.212	0.2
17	Reduced Line - 25 MPa	1	183.7	11.6	-1.9	21.3	0.215	0.2
18	Reduced Line - 20 MPa	1	175.4	11.5	-3.2	19.2	0.203	0.2
19	Reduced Line - 20 MPa	1	168.7	11.5	-1.7	21.8	0.200	0.2
20	Reduced Line - 32 MPa	1	213.3	11.9	-1.6	22.2	0.246	0.2
		TOTAL VOLUME (m^3)					**Average CO_2-e/m^3**	**Total Project CO_2-e**
		26,901					**0.295**	**7,944**

Of the total project volume, the following has been delivered to date:

No.	DELIVERED MIXES AND EMISSIONS FOR PARAMATTA POWERHOUSE MUSEUM CY 2023	DELIVERED VOLUME (m^3)	Total Lifecycle Unit tCO_2-e/m^3	Total emissions tCO_2-e
1	HySustain – High Performance/Low Carbon - 65 MPa	791	0.375	296.2
2	Pump - 65 MPa	399	0.264	105.4
3	Pump - 65 Mpa	868	0.264	229.1
4	Pump - 65 MPa	2333	0.264	615.9
5	HySustain – High Performance/Low Carbon - 50 MPa	2274	0.296	673.2
6	Pump - 50 MPa	453	0.283	128.2
7	Pump - 50 MPa	119	0.283	33.7
8	Pump - 50 MPa	1934	0.283	547.2
9	Pump - 40 MPa	1432	0.311	445.4
10	Pump - 40 MPa	1360	0.311	422.9
11	Pump - 40 MPa	304	0.311	94.7
12	Pump - 40 MPa	182	0.311	56.5
13	Pump - 40 MPa	4	0.311	1.3
14	Pump - 40 MPa	178	0.311	55.4
15	Pump - 40 MPa	374	0.311	116.3
16	HySustain – High Performance/Low Carbon - 25 MPa	17	0.212	3.6
17	Reduced Line - 25 MPa	318	0.215	68.2
18	Reduced Line - 20 MPa	988	0.203	200.4
19	Reduced Line - 20 MPa	53	0.203	10.7
20	Reduced Line - 32 MPa	0	0.246	0.0
		DELIVERED VOLUME (m^3)	**Average CO2-e/m3**	**DELIVERED VOLUME CO_2-e**
		14,379	**0.285**	**4,104**

6. CARBON OFFSETS

Offsets retirement approach

This certification has taken an in-arrears offsetting approach for CY23 and forward offsetting approach for the duration of a project. The total emission to offset is 9,037 t CO_2-e. The total number of eligible offsets used in this report is 8,860 units. This difference can be explained by a correction of previously reported emissions. Of the total eligible offsets used, 5,401 units were previously banked and 8,000 units were newly purchased and retired. 4,541 units are remaining and have been banked for future use.

Co-benefits

Project details and co-benefits can be accessed via the provided links below.

Eligible offsets retirement summary

Offsets cancelled for Climate Active Carbon Neutral Certification – R2 Barangaroo (see below)											
Project description	**Type of offset units**	**Registry**	**Date retired**	**Serial number (and hyperlink to registry transaction record)**	**Vintage**	**Stapled quantity**	**Eligible quantity (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 (%)**
REDD Project Brazil Nut Concessions in Madre de Dios, Peru,	VCU	Verra	20/12/2021	11011-267313067-267313766-VCS-VCU-263-VER-PE-14-868-01012013-31122014-0	2014	0	700	425	0	275	3.10%
Fortaleza Ituxi REDD Project, Brazil	VCU	Verra	20/12/2021	8184-437840-447839-VCS-VCU-1519-VER-BR-14-1654-15122013-14122015-0	2015	0	10,000	10,000	0	0	-
REDD Project Brazil Nut Concessions in Madre de Dios, Peru,	VCU	Verra	20/12/2021	11011-267309767-267313066-VCS-VCU-263-VER-PE-14-868-01012013-31122014-0	2014	0	3,007	0	645	2362	26.7%
Offsets cancelled for Climate Active Carbon Neutral Certification – R3 Barangaroo (see below)											
REDD Project Brazil Nut Concessions in Madre de Dios, Peru,	VCU	Verra	20/12/2021	11011-267309767-267313066-VCS-VCU-263-VER-PE-14-868-01012013-31122014-0	2014	0	293	0	0	293	3.3%
KACCU-AUS-Quimby Forest HIR	ACCU	ANREU	12/10/2022	8,323,959,343 8,323,959,484 ANREU Registry	2021	0	142	0	0	142	1.6%
KACCU-AUS-Quimby Forest HIR	ACCU	ANREU	12/10/2022	8,323,959,485 8,323,959,656 ANREU Registry	2021	0	172	0	0	172	1.9%

KACCU-AUS-Quimby Forest HIR	ACCU	ANREU	12/10/2022	8,323,958,312 8,323,958,637 ANREU Registry	2021	0	326	0	0	326	3.6%
Promoting Clean Cooking Solutions for the Disadvantaged Households	VER		14/10/2022	GS1-1-NP-GS6212-16-2020-21408 241 880	2020	0	640	0	0	640	7.2%
Grid connected bundled wind power project in Gujarat managed by Enercon (India) Limited	VCU	Verra	14/10/2022	9123-VCS-VCU-997-VER-IN-1-370-01012020-31032020-0 69892939 69894858	2020	0	1920	1374	0	546	6.1%
Offsets cancelled for Climate Active Carbon Neutral Certification – Paramatta Powerhouse Museum (see below)											
Hong Phong 4 Solar 48 MW Project	VCU	Verra	21/03/2023	14565-609283193-609283216-VCS-VCU-1289-VER-VN-1-1975-01092020-31122020-0	2020	0	24	0	24	0	-
Hong Phong 4 Solar 48 MW Project	VCU	Verra	21/03/2023	14350-580011507-580011569-VCS-VCU-842-VER-VN-1-1975-04062019-31122019-0	2019	0	63	0	0	63	0.7%
Hong Phong 4 Solar 48 MW Project	VCU	Verra	21/03/2023	14872-632184752-632188871-VCS-VCU-1289-VER-VN-1-1975-01012021-31122021-0	2021	0	4120	0	3872	248	2.8%
Quang Minh Solar Power Project	VCU	Verra	21/03/2023	14330-578532083-578535874-VCS-VCU-842-VER-VN-1-1964-01012020-31082020-0	2020	0	3792	0	0	3792	43%
Quang Minh Solar Power Project	VCU	Verra	21/03/2023	14563-609212466-609212466-VCS-VCU-842-VER-VN-1-1964-01012021-31122021-0	2021	0	1	0	0	1	-
									Total offsets retired this report and used in this report	8,860	
									Total offsets retired this report and banked for future reports	4,541	

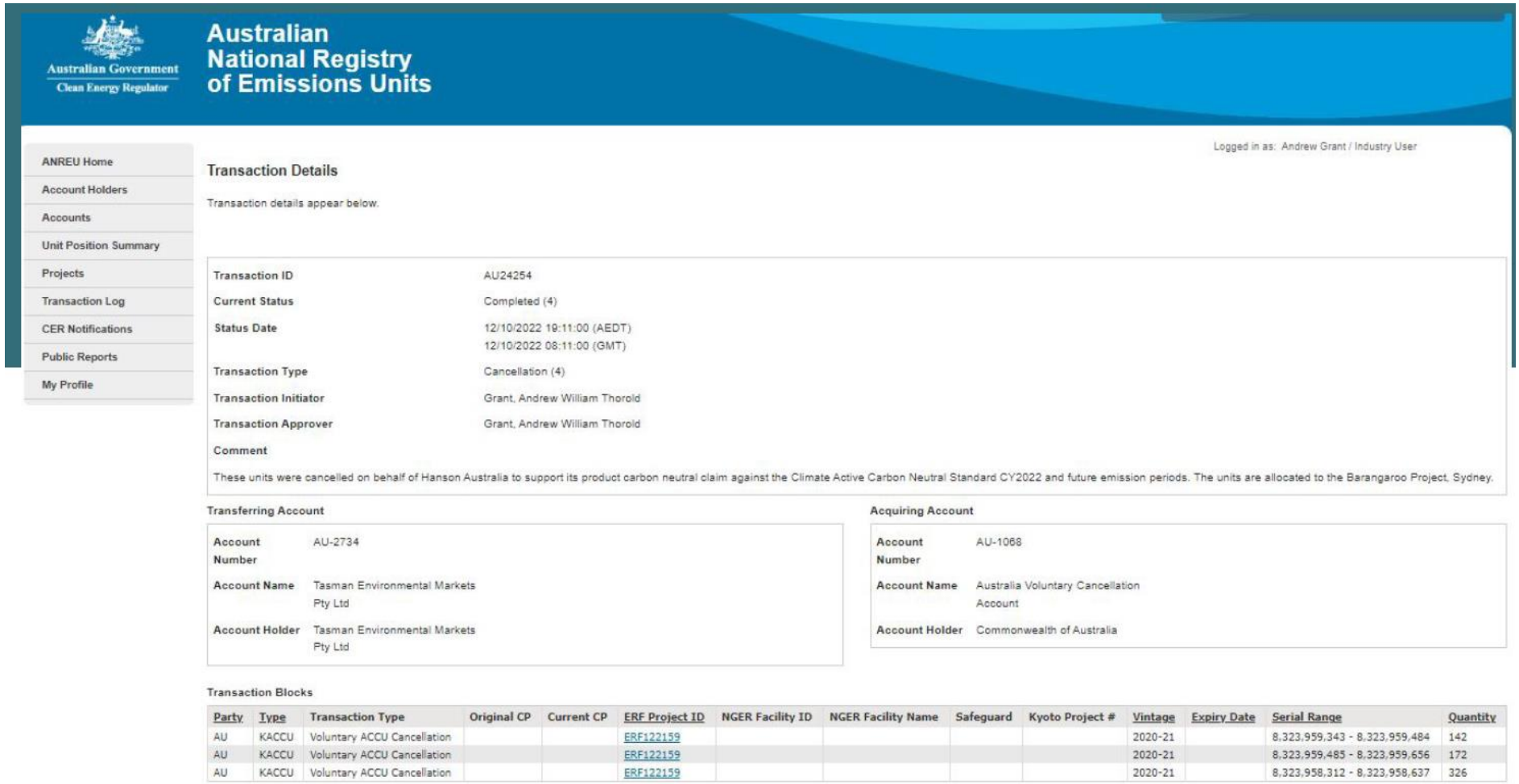
Type of offset units	Eligible quantity (used for this reporting period)	Percentage of total
Australian Carbon Credit Units (ACCUs)	640	7%
Verified Emissions Reductions (VERs)	640	7%
Verified Carbon Units (VCUs)	7,580	86%

7. RENEWABLE ENERGY CERTIFICATE (REC) SUMMARY

Renewable Energy Certificate (REC) Summary

N/A

APPENDIX A: ADDITIONAL INFORMATION



Australian Government
Clean Energy Regulator

Australian National Registry of Emissions Units

Logged in as: Andrew Grant / Industry User

- ANREU Home
- Account Holders
- Accounts
- Unit Position Summary
- Projects
- Transaction Log
- CER Notifications
- Public Reports
- My Profile

Transaction Details

Transaction details appear below.

Transaction ID	AU24254
Current Status	Completed (4)
Status Date	12/10/2022 19:11:00 (AEDT) 12/10/2022 08:11:00 (GMT)
Transaction Type	Cancellation (4)
Transaction Initiator	Grant, Andrew William Thorold
Transaction Approver	Grant, Andrew William Thorold
Comment	

These units were cancelled on behalf of Hanson Australia to support its product carbon neutral claim against the Climate Active Carbon Neutral Standard CY2022 and future emission periods. The units are allocated to the Barangaroo Project, Sydney.

Transferring Account

Account Number	AU-2734
Account Name	Tasman Environmental Markets Pty Ltd
Account Holder	Tasman Environmental Markets Pty Ltd

Acquiring Account

Account Number	AU-1068
Account Name	Australia Voluntary Cancellation Account
Account Holder	Commonwealth of Australia

Transaction Blocks

Party	Type	Transaction Type	Original CP	Current CP	ERF Project ID	NGER Facility ID	NGER Facility Name	Safeguard	Kyoto Project #	Vintage	Expiry Date	Serial Range	Quantity
AU	KACCU	Voluntary ACCU Cancellation			ERF122159					2020-21		8,323,959,343 - 8,323,959,484	142
AU	KACCU	Voluntary ACCU Cancellation			ERF122159					2020-21		8,323,959,485 - 8,323,959,656	172
AU	KACCU	Voluntary ACCU Cancellation			ERF122159					2020-21		8,323,958,312 - 8,323,958,637	326

APPENDIX B: ELECTRICITY SUMMARY

N/A

APPENDIX C: INSIDE EMISSIONS BOUNDARY

Non-quantified emission sources

N/A

Excluded emission sources

N/A

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 EMISSION BOUNDARY

Non-attributable emissions have been assessed as not attributable to a product or service (do not carry, make or become the product/service) and are therefore not part of the carbon neutral claim. To be deemed attributable, an emission must meet two of the five relevance criteria. Emissions which only meet one condition of the relevance test can be assessed as non-attributable and therefore are outside the carbon neutral claim. Non-attributable emissions are detailed below.

1. **Size** The emissions from a particular source are likely to be large relative to other attributable emissions.
2. **Influence** The responsible entity could influence emissions reduction from a particular source.
3. **Risk** The emissions from a particular source contribute to the responsible entity's greenhouse gas risk exposure.
4. **Stakeholders** The emissions from a particular source are deemed relevant by key stakeholders.
5. **Outsourcing** The emissions are from outsourced activities that were previously undertaken by the responsible entity or from outsourced activities that are typically undertaken within the boundary for comparable products or services.

Non-attributable emissions sources summary

Emission sources tested for relevance	Size	Influence	Risk	Stakeholders	Outsourcing	Justification
Personnel	N	N	N	N	N	**Size:** The emissions are neglectable compared to other attributable emissions. **Influence:** The influence of the emissions from this source are neglectable compared to the product. **Risk:** The source is unlikely to be of significant public interest. **Stakeholders:** Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for the product. **Outsourcing:** Not applicable to the EPD pathway .
Capital good	N	N	N	N	N	**Size:** The emissions are neglectable compared to other attributable emissions. **Influence:** Not applicable to the EPD pathway. **Risk:** The source is unlikely to be of significant public interest. **Stakeholders:** Key stakeholders are unlikely to consider this a relevant source of emissions for the product. **Outsourcing;** Not applicable to the EPD pathway .

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