



PUBLIC DISCLOSURE STATEMENT

AUSTRAL BRICKS (TAS) PTY LTD

**PRODUCT
2019-2020**

PLEASE DO NOT CHANGE THE DESIGN OR FORMATTING OF THIS DOCUMENT

Australian Government
Climate Active
Public Disclosure Statement



NAME OF CERTIFIED ENTITY: Austral Bricks (Tas) Pty Ltd

REPORTING PERIOD: 1 July 2019 – 30 June 2020

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.

Signature 	Date 12 January 2021
Name of Signatory Andrew Barham	
Position of Signatory Business Unit Manager, Austral Bricks (Tas) Pty Ltd	



Australian Government
Department of Industry, Science,
Energy and Resources

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1. CARBON NEUTRAL INFORMATION

Description of certification

This Climate Active inventory concerns bricks and pavers manufactured at Brickworks' operation in Longford, Tasmania – Austral Bricks Tasmania (see Table 1 and 2). At this site Austral Bricks Tasmania produces a range of bricks and pavers for the Tasmanian, other Australian markets and overseas markets. This inventory has been prepared and verified based on the Climate Active, the ISO14040:2006 and ISO14044:2006 standard and emissions are offset in accordance with the Climate Active.

“Climate Active certified products are an important step in Brickworks journey towards becoming Australia’s most sustainable building materials company.”

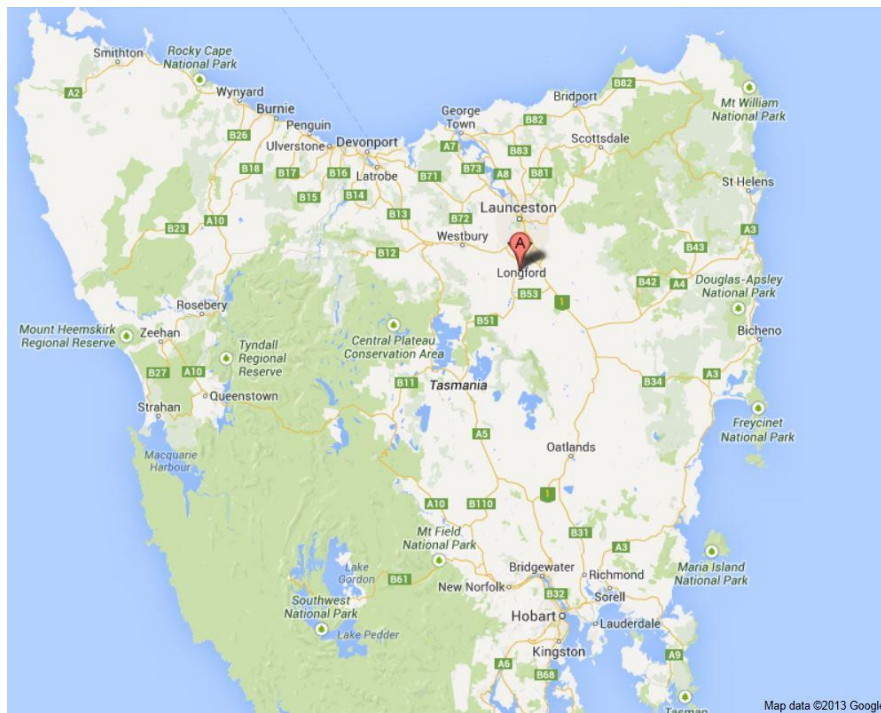


Figure 1: Plant location in Longford, Tasmania (Source: Google maps)



Figure 2: View of Longford plant storage yard (Source: Google maps)

Austral Bricks Tasmania certifies all the clay products manufactured at the Longford plant as carbon neutral under the Climate Active program. The products made at Austral Bricks Longford include bricks and pavers:

1. **Bricks.** Clay bricks are a common building material used predominantly for wall systems in residential buildings.
2. **Pavers.** Clay pavers are used for paving and landscaping in residential, commercial and industrial applications.

Bricks are used for a number of reasons:

- load-bearing capacity – this makes bricks suitable for load-bearing walls;
- aesthetics – bricks are available in a large range of colours, tones and textures;
- durability – bricks perform their function for the duration of the service life of the building; and
- bricks require relative little maintenance and cleaning.

Pavers are similar in appearance and characteristics to bricks, although they are used for paving rather than wall applications.

Table 1 and Table 2 present examples of the products studied in this LCA.

Table 1: Typical brick product configurations (Source: Austral Bricks)





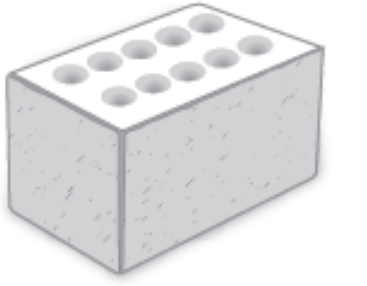

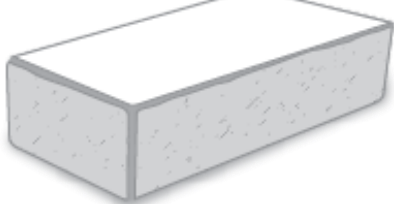

Brick shape & core hole configuration	Examples – bricks in wall application
<p data-bbox="248 533 279 795">Standard brick with 10 core holes</p> 	
<p data-bbox="248 824 279 1086">Standard brick with 3 core holes</p> 	
<p data-bbox="248 1115 279 1400">Twin brick</p> 	

Table 2: Typical paver product configuration (Source: Austral Bricks)

Paver shape	Example – pavers in paving application
<p data-bbox="245 1854 316 2056">Classic paver (no core holes)</p> 	

The functional unit for this study is 1,000 Standard Brick Equivalents (SBEs) of bricks or pavers manufactured in Longford and used in various applications throughout Tasmania, interstate and overseas.

Standard Brick Equivalent is a common unit of measurement across the clay brick industry for a brick. An SBE refers to the fired product and has the dimensions of 230x110x76mm. The products covered in this study come in a range of different sizes, which have been converted to SBEs for the purpose of this LCA. The functional unit of SBE's has been built into the sites carbon calculator, to understand the amount of carbon associated with the lifecycle of each brick. The functional unit is not applicable to the carbon inventory as all products produced at Longford are offset.

Clay bricks are used in (residential) construction; typically walling systems, planter boxes, etc. Clay pavers are used in paving and landscaping applications.

The functional unit covers the whole life cycle of the products, including cradle-to-gate manufacturing (including packaging), delivery to site, application, cleaning and maintenance and disposal at end-of-life.

Note: Mortar and/or other materials used to bond bricks in their application are excluded from the carbon footprint assessment. The reasons for this exclusion are:

- Brickworks does not supply the mortar to clients, and therefore has no control over the composition and quantity of mortar used.
- Furthermore, the bricks and pavers are used in a range of applications that have varying requirements regarding ancillary materials. Any attempt to capture these requirements within the scope of this study would introduce additional uncertainty.

Organisation description

Brickworks Limited (Brickworks) is one of the world's leading providers of building products, employing 1181 full time equivalent employees across its Australian operations and 777 employees in North America. Austral Bricks, a subsidiary of Brickworks has been transformed from originally a New South Wales state based operation to a national organisation with manufacturing operations in NSW, Victoria, Tasmania, South Australia, Western Australia and Queensland. Austral Bricks manufactures and markets clay products such as bricks and pavers. The manufacturing process involves mining clay and shale and mechanically processing it prior to shaping and firing the bricks in kilns fuelled predominately by natural gas.

Austral Bricks Longford, Tasmania operates a low carbon operation whereby the kiln is predominately fired by sawdust. It has manufactured carbon neutral bricks since 2013/4 under the Climate Active Standards (formal known as NCOS). This public disclosure statement concerns all bricks manufactured at Austral Bricks Longford which are certified carbon neutral.

Product process diagram

The system boundary (key processes and flows shown in Figure 3) describes which processes are included and excluded in the LCA. This LCA for Austral Bricks Longford covers the full life cycle of clay bricks and pavers manufactured by Austral Bricks in Longford, Tasmania. The diagram depicts attributable upstream processes, processes within the operational control of Austral Bricks Longford (brick manufacturing) and attributable downstream processes. The excluded emission sources (land use and land use change emissions, business ground travel (e.g. taxis and rental cars used by corporate staff), head office energy use emissions, demolition of the structure in which bricks are used) are not attributable or not relevant to the product.

The following figure is Austral Bricks life cycle diagram - cradle to grave.

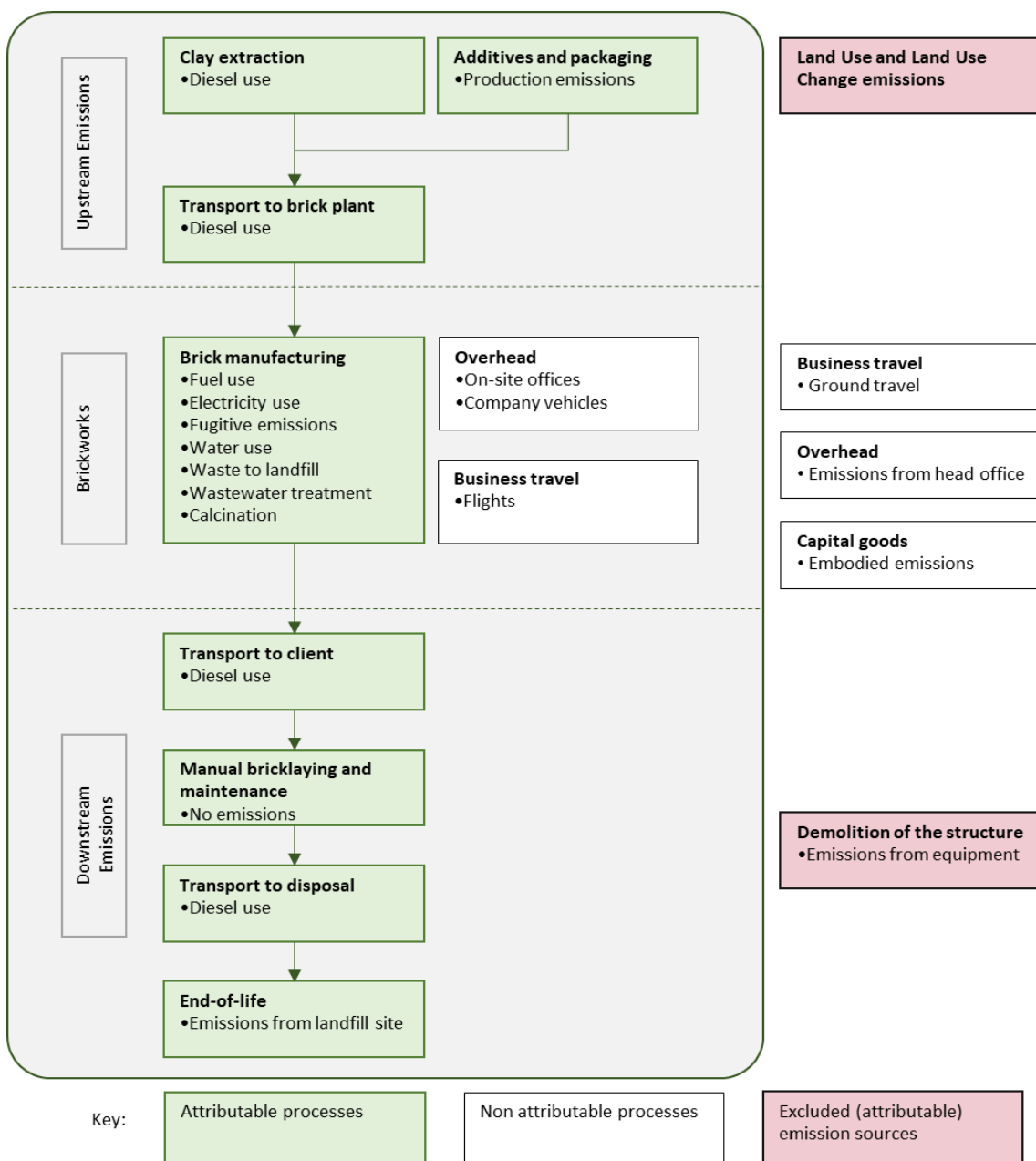


Figure 3. Life cycle diagram – cradle to grave.

2. EMISSION BOUNDARY

Diagram of the certification boundary

For each life cycle stage, attempts have been made to identify and quantify material flows, energy flows and emission sources. The inputs include materials, fuels and energy while the outputs include products, emissions and waste.

For the purposes of this study, the embodied energy incorporated in the infrastructure (buildings, plant, equipment, roads, vehicles, etc.) associated with manufacturing bricks and pavers is excluded from the product system. Other capital goods (e.g. power lines) are excluded as well. This is due to the long lifetime of capital goods in the brick lifecycle and the expected impact of this exclusion on the footprint is small. Austral Bricks has applied a cut-off limit for flows smaller than 1% of expected greenhouse gas emissions. This means we have estimated emissions based on past data, instead of collecting detailed information for these smaller emission sources for the current period. These are listed as non-quantified sources in the diagram hereafter.

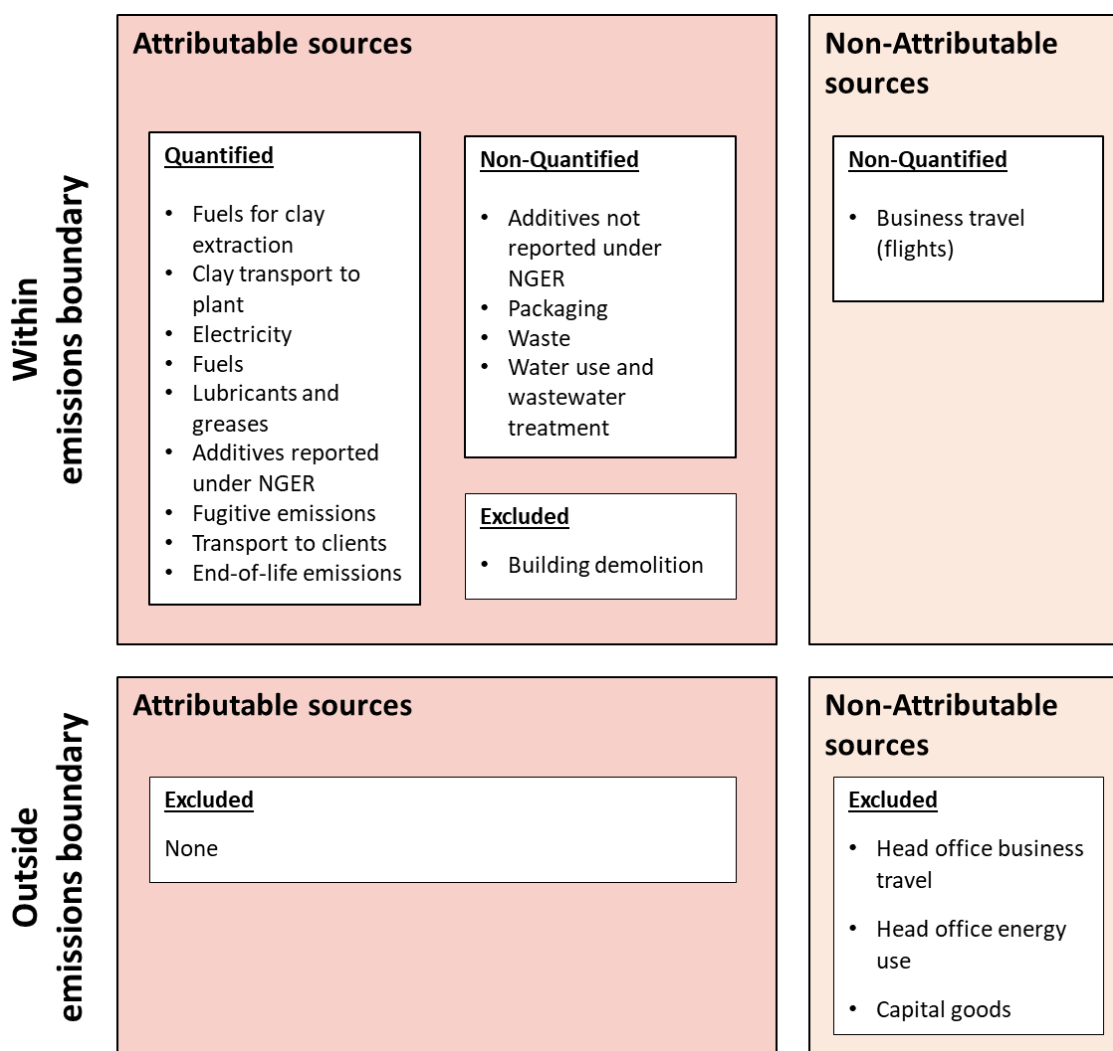


Figure 4: Attributable and non-attributable emission sources included and excluded in the LCA

Attributable non-quantified sources

The following items meet the condition of 'attributable', but are below the cut-off and are considered non-quantified. We have applied uplift factors based on the previous LCA for bricks manufactured in Longford.

- Additives not reported under National Greenhouse and Energy Reporting (NGER) Act 2007: We use a large range of additives to give each brick its unique properties (colour, glaze, etc.). Additives that are energy carriers (e.g. char, sawdust, vegetable oils, starch-based additives) are reported under our NGER obligations and have been included based on actual use and emission factors. The remaining additives are mainly minerals (e.g. iron oxide, manganese oxide) or frits (glass containing colorant). Using conservative literature data applicable to additives used at Longford (Tas), based on Brickworks' NCOS LCA FY19, the weighted average emission factor was established as 214 kg CO₂e/t of additives not already reported under NGER. This equates to 1.4 kg CO₂e per tonne of bricks. This factor has been applied as the uplift factor across all products.
- Packaging, waste to landfill, water use and wastewater treatment: Based on Brickworks' NCOS LCA FY19, the total of greenhouse gas emissions associated with these sources added up to 2.2 kg CO₂e per tonne of bricks. This factor has been applied as the uplift factor across all products.

Cumulatively, the uplift factors account for 2% of the Longford products' life cycle emissions.

Excluded sources (within certification boundary)

The demolition of the building or structure in which bricks are used is excluded from the assessment, as explained earlier in this document. No other attributable emission sources have been excluded from the LCA.

Non attributable sources (outside certification boundary)

The following items meet the condition of 'non-attributable' and are therefore left outside the system boundaries:

- Corporate business travel and head office energy use (at 738-780 Wallgrove Rd, Horsley Park NSW) have been excluded from the LCA, as these emission sources are not attributable to the products.
- The embodied emissions of capital goods (plant equipment, buildings, infrastructure) are considered non-attributable to the product. This is consistent with industry standard LCAs for construction products, as outlined in the Product Category Rules (PCR) of the International EPD System, and has been verified by the Registered Consultant that has compiled our inventory (Rob Rouwette; Energetics).

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3. EMISSIONS SUMMARY

Emissions reduction strategy

Austral Bricks Tasmania understands and accepts responsibility for environmental protection which is integral to the conduct of its commercial operations. Austral Bricks Tasmania's objective is to comply with all applicable environmental laws, regulations and community standards in a commercially effective way. Austral Bricks is committed to encouraging concern and respect for the environment and emphasising every employee's responsibility for environmental performance.

Reducing energy consumption, emissions and associated costs are key issues organisations are facing in a carbon constrained world with increasing energy prices. Austral Bricks Tasmania actively participates in greenhouse gas reporting scheme such as the National Greenhouse and Energy Reporting (NGER) Act 2007. This program requires organisations to measure and report their energy consumption, production and greenhouse gas emissions under strict protocols. The data is subsequently collated and reported to Senior Management and the Board.

Gas efficiency is a key priority for Brickworks with periodic audits undertaken of all kilns. In 2018, gas efficiency plans were developed for all Australian brick kilns including Austral Bricks Longford. Those plans are currently being implemented. In 2020 Brickworks released its sustainability strategy which includes a target to improve gas efficiency by 10% and investment in the transition to hydrogen fuel economy.

Austral Bricks Tasmania produces low embodied carbon bricks fired in traditional kilns fueled by saw dust at over 1000°C. The management team has implemented numerous initiatives to reduce energy consumption and greenhouse gas emissions, as set out below. These initiatives will drive down energy consumption per unit of production.

Emissions over time

In FY20, the Climate Active standard superseded the NCOS program. This has resulted in a significant change in our footprint calculation for Longford, mainly because the default emission factors used for transport processes under Climate Active are significantly higher than our previous estimates. This adds around 1,500 t CO₂e to our FY20 footprint compared to FY19.

Table 3

Emissions since base year								
	Base year: 2012-13	Year 1: 2013-14	Year 2: 2014-15	Year 3: 2015-16	Year 4: 2016-17	Year 5: 2017-18	Year 6: 2018-19	Current year: 2019-20
Scope 1 (tCO ₂ e)	1140	1418	1324	2244	2462	2881	2320	2307
Scope 2 (tCO ₂ e)	782	677	338	359	342	617	576	502
Scope 3 (tCO ₂ e)	1480	1573	1718	2229	2284	2434	2158	3847
Total tCO ₂ e	3402	3668	3381	4832	5088	5932	5054	6656

Emissions reduction actions

Austral Bricks has an ongoing maintenance schedule, and during the 2020 reporting year, continued to upgrade its lighting systems throughout the factory and workshop, replacing Fluorescent and Sodium Vapor with more efficient LED's globes.

The main compressor and the dryer compressor were replaced with energy efficient compressors. Austral Bricks found additional savings by collecting oil on a returning empty Austral Bricks truck rather than using a separate delivery truck.

Table 4.

	Emissions Reduction Action	Technical details	Usage details	Energy Savings	Emissions Reduction
1	Upgrades main factory compressor	Old Compressor specs: 30kW New Compressor specs: 55kw but runs at 50% ~27.5kW	Previous compressor ran 24/7. (5040kWh) New compressor runs on average 14hours a day 6 days a week. (2310kWh)	142,680kWh/year	24.2556 tCO ₂ -e
2	Upgraded lighting from Sodium Vapour light to LED above Kiln	Sodium Vapour lighting specs: (5 x 500W = 2500W) LED lighting specs: (4 x 150 W = 750W)	This light is operating 24 hours/day @ 7 days/week	15,330kWh/year	2.6061 tCO ₂ -e
3	Upgraded lighting from Fluorescent Tubes to LED type in the Workshop Office	Fluorescent Tube lighting specs: (2 x 40W = 80W) LED lighting specs: (2 x 20W = 40W)	These lights are operating 12 hours/day @ 5 days/week	350.4kWh/year	59.568 kgCO ₂ -e
4	Upgraded Dryer Compressor	Old Compressor specs: 2kW New Compressor specs: 1.1kW	Previous Compressor ran 24/7. (336kWh) New compressor runs on average 14hours a day 6 days a week. (92.4kWh)	12,667kWh/year	2.15339 tCO ₂ -e
5	Oil picked up from Hobart on empty Austral Bricks truck rather than delivered via separate truck.	Fuel saving of 200km truck drive. 30L/100km = 60L Diesel	Once every 4 weeks.	780 L diesel/year	2.2308 tCO ₂ -e

Functional units

Table 5

	Number of functional units
a) Number of functional units manufactured this period	14,465 x 1000 SBE
b) Number of functional units to be forward offset demonstrating commitment to carbon neutrality (true-up to be conducted at the end of the reporting period)	0

Emissions summary (inventory)

Brickworks has undertaken an LCA for our total brick and paver production in Longford. Table 6 shows the life cycle emission factor per tonne¹ of bricks at each of our eleven production locations. These factors include emissions from transport of bricks to clients by a delivery truck over 50 km. When determining the emissions associated with bricks supplied to a client or project, we use the actual mass of the bricks supplied and actual transport distance from plant to client to get an accurate carbon footprint for the consignment.

Note: in line with our NGER reporting, we have applied a location-based approach for electricity.

Table 6. Emissions Summary (inventory)	
Emission source category	tonnes CO ₂ -e
Extraction of clay (diesel use)	29.2
Transport of clay to Longford (diesel use)	118.8
On-site energy: Longford plant electricity use	575.4
Truck vehicle fleet (diesel); on-site vehicles	173.1
On-site energy: Kiln fuel (bituminous coal) use	0
On-site energy: Kiln fuel (natural gas) use	1652.5
On-site energy: Kiln fuel (saw dust) use	271.1
Calcination of clay	165.4
Body additive (coal/char) use	31.4
Transport of products to customer	2847.4
Manual application and manual maintenance/cleaning	0

¹ Our functional unit is expressed per 1,000 bricks, as bricks and pavers are ordered in number of units required. However, since we have hundreds of different product types, it is easier to present results per tonne of bricks since cradle-to-gate manufacturing impacts are calculated at site level per tonne of product.

Transport of bricks to end-of-life landfill	466.6
Bricks in landfill	0
1. Total inventory Emissions	6,330.9
2. Net emissions per reference unit (1,000 Single Brick Equivalent (SBEs) = 3,000 kg)	0.484
3. Number of reference units sold this period	39,120 tonnes = 13,763 x 1000 SBE
4. Carbon Footprint (Net emissions per reference units (2) * number of reference units (3))	6656

Table 7

Emission source category	tonnes CO ₂ -e
1. Total inventory emissions	6331
2. Emissions per functional unit (based on the number of functional units represented by the inventory) Total tCO ₂ -e divided by the number of functional units in table 5.	154.8kgCO ₂ per tonne of bricks
3. Carbon footprint (Emissions per functional unit (2)* number of functional units (a or b from table 6))	6656

Uplift factors

Cumulatively, the uplift factors account for 2% of the Longford products' life cycle emissions.

Table 8

Reason for uplift factor	kg CO ₂ -e/tonne bricks
Uplift factor for packaging, business travel and other overhead	5.4
Uplift factor for additives not reported under NGER	2.2
<i>Total uplift factors</i>	7.6
Total to offset (Carbon footprint + total uplift factors)	324.9 tonnes CO ₂ -e

Carbon neutral products

All clay brick and paver products manufactured at Austral Bricks Longford, Tasmania.

4. CARBON OFFSETS

Offset purchasing strategy: in arrears

Upon determination of final tonnes of carbon emissions required to be offset, Brickworks engages accredited providers (such as Carbon Neutral, South Pole Group and CBL Markets) of carbon offsets (such as VCUs) to purchase and surrender the offsets as required under Climate Active at the end of the reporting period. The carbon emissions to be offset are determined based on the production volume of the bricks and pavers during the reporting period (FY20).

The purchase and surrender of the offsets will occur within 4 months of the reporting period. It is Brickworks intention to purchase eligible offsets generated from Australia and NZ Projects as well as permits generated in overseas projects.

Brickworks endeavors to procure a portion of its carbon units from local Tasmanian forestry projects. These have been in short supply however 1000 units were available for purchase this year so these were procured and banked for the 2020 and 2021 reporting years.

To ensure that the Carbon Neutral Brick remains competitively priced, international credits are an important aspect to the purchasing strategy due to their low cost. Brickworks engages a broker to find clean energy projects such as wind power in Asia. The latest project in Chakala holds many co-benefits for the region.

Offsets summary

Table 9

1. Total offsets required for this report		6656							
2. Offsets retired in previous reports and used in this report		1635							
3. Net offsets required for this report		5021							
Project description	Type of offset units	Registry	Date retired	Serial number (and hyperlink to registry transaction record)	Vintage	Quantity (tonnes CO2-e)	Quantity used in previous report	Quantity banked for future years	Quantity used in this report
Chakala Wind Power Project in Maharashtra India	VCU	APX VCS	03/12/2019	7068-368110465-368116464-VCU-034-APX-IN-1-1197-01012016-31122016-0	2016	6,000	4365	0	1635
Redd Forests Grouped Project: Protection of Tasmanian Native Forest	VCU	APX VCS	25/10/2019	4147-176334640-176335639-VCU-016-MER-AU-14-641-16042012-15042013-0	2013	1,000	0	0	1000
Forests Alive: Protection of Tasmanian Native Forest	ACCU	ANREAU	13/08/2020	3.801,759,297 - 3.801,760,796	2020	1500	0	1000	500
Wind Power project in Gujarat India	VCU	VERRA	31/08/2020	7235-378925560-378930559-VCU-034-APX-IN-1-1190-01012017-31122017-0	2017	5000	0	1479	3521
<i>Total offsets retired this report and used in this report</i>								6656	
<i>Total offsets retired this report and banked for future reports</i>								2479	

5. USE OF TRADE MARK

Table 10

Description where trademark used	Logo type
Sustainability Report 2020	Member
Carbon Neutral Brochure	Product

6. ADDITIONAL INFORMATION

APPENDIX 1

Non-attributable emissions for products and services

To be deemed attributable an emission must meet two of the five relevance criteria. Non-attributable emissions are detailed below against each of the five criteria.

Table 11

Relevance test					
Non-attributable emission	<i>The emissions from a particular source are likely to be large relative to the organisation's electricity, stationary energy and fuel emissions</i>	<i>The emissions from a particular source contribute to the organisation's greenhouse gas risk exposure.</i>	<i>Key stakeholders deem the emissions from a particular source are relevant.</i>	<i>The responsible entity has the potential to influence the reduction of emissions from a particular source.</i>	<i>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.</i>
Head Office business travel	No	No	No	No	No
Head Office energy use	No	No	No	No	No
Capital goods	No	No	No	No	No

APPENDIX 2

Non-quantified emissions for products/services

Table 12

Non-quantification test				
Relevant-non-quantified emission sources	<i>Immaterial <1% for individual items and no more than 5% collectively</i>	<i>Quantification is not cost effective relative to the size of the emission but uplift applied.</i>	<i>Data unavailable but uplift applied. A data management plan must be put in place to provide data within 5 years.</i>	<i>Initial emissions non-quantified but repairs and replacements quantified</i>
Business Travel Flights	Yes	Yes	No	No