

# Brambles

**CHEP IFCO**



CONNECTING THE  
GLOBAL SUPPLY CHAIN FOR  
**A MORE  
SUSTAINABLE  
FUTURE**

**Sustainability  
Review  
2018**

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Supplementary  
Information



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Brambles defines sustainability as the strategies and activities the Group has adopted in relation to its employees, the environment, ethics and the community

Brambles sustainability framework focuses our activities in three areas: *Better Business, Better Planet and Better Communities*.

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# Brambles Sustainability Review 2018 - Supplementary Information

As at 3 September 2018

## BOUNDARIES

This Sustainability Review (the Review) covers Brambles' businesses for the financial year ended 30 June 2018 (FY18, or the Year).

Brambles Limited is an ASX-listed supply chain logistics company with a network of over 850 service centres in over 60 countries. Brambles is the world-leading provider of supply chain logistics solutions based on the provision of 610 million reusable pallets, crates and containers for shared use by multiple participants throughout the supply chain. Brambles' longstanding asset management expertise and superior network advantage are integral to its customer solutions.

Brambles primarily serves customers in the fast-moving consumer goods (e.g. dry food, grocery, and health and personal care), fresh produce, beverage, retail and general manufacturing industries, counting many of the world's best-known brands among its customers.

Brambles operates primarily through the CHEP and IFCO brands and manages its businesses within the following operating segments:

- IFCO – The RPC (Reusable Plastic Crates) businesses in Europe, North America, South America and Asia operating under the IFCO brand;
- CHEP Europe (EMEA) – The pallet and container pooling businesses in EMEA and the CHEP-branded RPC business in South Africa;
- CHEP Americas – The pallet and container pooling businesses in the Americas; and
- CHEP Asia-Pacific – The pallet and container pooling businesses in Asia-Pacific and the CHEP-branded RPC business in Australia and New Zealand.
- CHEP AIME – The pallet and container pooling businesses in Africa, India and Middle East

There were significant changes during the Year, CHEP Recycles was divested on 14<sup>th</sup> April 2018, Paramount Pallets in August 2017, Hoover Ferguson in April 2018. Further organisational changes include commencement of CHEP Services operations in April 2018.

The FY18 Sustainability Review data reported covers all operations as listed above to the date of divestment (if applicable), with the following exceptions.

The Review does not include data from service centres operated by a third party (outsourced service centres), with the following exceptions:

- An estimation of emissions data associated with third-party service centres operating on CHEP's behalf and transportation associated with balancing its pallet pool;
  - Emissions data associated with third-party operations used by the IFCO RPC operations to wash and condition its crates; and
  - Wood purchased directly by third party service centres, subsequently used in the repair or manufacture of CHEP pallets.
- In order to focus our data collection and efficiency efforts in relations to emissions, Brambles undertook an exercise in FY16 to identify sites representing 95% of emissions (based

on FY15 emissions totals). Taking into account site openings and closures for FY18 this identified 138 sites. The remaining sites that represented 5% of emissions are estimated based on the average emissions of the 138 sites. 100% of fleet data was collected.

Waste and wood and plastic diverted from landfill, is reported by larger sites. Production figures were used to identify the larger sites that represent 80% of the total production of wood pallets. CHEP Services sites were not included as in scope due to the group's operations starting in April 2018.

All other reported data covers all segments of Brambles' business.

Consideration has been given to the impact of sustainability issues on Brambles' customers as described in the Share and Reuse Model and Supply Chain Collaboration and Emissions sections of the Review.

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## ASSESSMENT OF MATERIAL TOPICS, KEY IMPACTS, RISKS AND OPPORTUNITIES

Brambles continued to follow an annual material sustainability topics process to identify sustainability topics deemed material by its businesses and stakeholders. Brambles began a formal analysis of sustainability topics in FY11, using a third party provider with AccountAbility Principles Standards AA1000 five-part test as a guide. Brambles identifies sustainability issues through stakeholder engagement processes internally. This includes a review of stakeholder feedback through both formal and informal processes, either directly from stakeholder responses and comments, or as summarised and analysed by the responsible function for that stakeholder group. Ranking is also conducted as a part of this process.

Brambles risk management processes considers the Australian Stock Exchange Corporate Governance Council's Corporate Governance Principles and Recommendations.

In FY15, economic, environmental and social sustainability risks were incorporated into the Group's risk management framework. In FY16, this framework was further enhanced with the establishment of a Sustainability Risk Committee (SRC).

The SRC is a management committee comprising Brambles' Group Senior Vice President, Human Resources, Global Head of Sustainability and Group Vice President, Risk & Assurance and a

cross section of senior Brambles corporate and business unit executives with relevant and applicable functional expertise. (For further information, please see the 2018 Corporate Governance Statement, Principle 7. Recognise and Manage Risk, available online.) This process has contributed to the identification of material sustainability topics for the 2018 Sustainability Review.

Stakeholders are engaged throughout the Year through a number of other ongoing business processes, including programs such as the Brambles Employee Survey and customer insights program, which are under the direct control of senior management and reported in the Review where applicable. While internal stakeholders were engaged as proxies to represent external associations in some cases, this was limited and may not result in a complete and unbiased contribution.

The top sustainability issues of concern to each stakeholder group were identified and ranked. These were approved by senior management responsible for the stakeholder group. Further details of the stakeholder engagement process are included on page 4. The environmental, economic and social sustainability risks assessed by our internal risk management processes were also included in our analysis. The material sustainability issues were identified as being those sustainability issues applicable to multiple stakeholder groups and/or with a material impact on our businesses.

Brambles efforts to address sustainability risks and opportunities is reported in three areas:

### **1. Better Business** – Our business model is sustainable. We provide safe, efficient and sustainable solutions for our customers' supply chains, based on the principles of the circular economy – recover, reuse and reduce – while we take advantage of the benefits of recycling.

Share and Reuse Model	Brambles provides pallets, reusable plastic crates and containers that are shared and reused amongst our customers (previously referred to as 'pooling'). Sharing our reusable equipment in this circular model is inherently sustainable.
Supply chain collaboration	Brambles works with customers and suppliers to deliver mutually beneficial sustainable solutions. We use our logistics knowledge to minimise the footprint of our customers and our supply chain, through network optimisation and the use of collaborative and Multi-Modal transportation.
People	Brambles believes an engaging, safe tolerant and diverse work environment brings out the best in our people and helps them reach their potential. This will help us attract and retain employees capable of delivering exceptional value to customers and appropriate returns to investors.

### **2. Better Planet** – We minimise our impact on the environment through continuous improvement

Materials	Our Zero Harm Charter sets our commitment to achieving zero harm to the environment. We consider social and environmental impacts in the purchasing and use of materials.
Emissions	Brambles is committed to reducing the greenhouse gas (GHG) emissions impact from the use of our products and services through the supply chain. This includes accurately measuring and reducing our total emissions footprint.
Waste	Brambles is committed to using resources efficiently and minimizing waste. With pooling models that operate on the principles of recover, reuse, reduce and recycle we are focused on continuously improving our performance to reduce material consumption maintenance costs and meet stakeholders' sustainability expectations.
Water	Brambles recognises that water is a precious resource. In many regions where our businesses operate, water supply is an important issue for the community. Our operations have a responsibility to use water wisely.

### **3. Better Communities** - We contribute positively to the communities in which we work, both as a corporation and by our individual employees.

Community Investment	Brambles contributes positively to the communities where we operate by supporting environment, education and food loss and waste initiatives and encouraging our people to participate in local community initiatives
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The framework and content of the review has been reviewed and approved by the Executive Leadership Team and the Chief Executive Officer and presented to Brambles Board.

# Brambles Sustainability Review 2018 - Supplementary Information

As at 3 September 2018

In FY17, Brambles conducted our review in consideration of the Global Reporting Initiative (GRI) G4 guidelines, in order to identify material aspects that reflect Brambles' economic, environmental and social impacts. Consideration was also given to the requirements of the ASX Corporate Governance Principles recommendation 7.4.

In FY18, the following material sustainability issues were identified:

- Sustainable supply chain (including sourcing and availability of materials – current and ongoing);
- Zero Harm;
- Learning and development;
- Corporate governance (including anti-corruption and bribery);
- Customer relationship and collaboration and benefits of share and reuse model to customers;
- Labour standards;
- Work/life balance;
- Environmental impacts of operations;
- Climate change; and
- Quality and value of products.

The results of this process were approved by the Executive Leadership Team and the Board, as part of the approval of the Sustainability Review 2018.

## **APPLICATION OF THE GLOBAL REPORTING INITIATIVE – G4 REPORTING GUIDELINES**

The above material issues and other sustainability issues raised throughout FY17 were compared to the GRI G4 guidelines and the following GRI aspects were identified as material and reported against:

- Economic: Economic Performance, Procurement;
- Environmental: Materials, Water, Biodiversity, Emissions, Effluents and waste, Products and services, Compliance, Transport, Supplier environmental assessment;
- Social: Labour Practices and Decent Work: Employment, Occupational Health and Safety, Training and Education, Diversity and Equal Opportunity, Equal Remuneration for Women and Men, Supplier Assessment for Labour Practices;
- Human Rights: Child Labour, Forced and Compulsory Labour, Indigenous Rights, Supplier Human Rights Assessment;
- Society: Anti-Corruption, Supplier Assessment for Impacts on Society, Grievance Mechanisms for Impacts on Society; and
- Product Responsibility: Customer Health and Safety.

A table outlining Brambles response to each of the indicators that applies to these aspects is provided on our website at [www.brambles.com](http://www.brambles.com). Brambles considers its application of the GRI G4 guidelines to be 'in accordance' to a 'comprehensive' level. There were no changes to the material GRI aspects from FY16. In 2018, Brambles will apply the GRI Standards.

## **ASSURANCE**

In FY18, Brambles engaged KPMG to undertake a limited assurance engagement in respect of FY18 and provide a report on whether, in all material respects, the Assured Information, as described below, and as reported in the 2018 Sustainability Review is prepared and presented in accordance with Brambles Limited's internal guidelines for sustainability reporting, as described in this document

KPMG issued an unmodified opinion on 27 September 2018, which is available on our website at [www.brambles.com/sustainability-review](http://www.brambles.com/sustainability-review).

KPMG will also report key observations and recommendations arising from the assurance engagement to Brambles, for consideration by Brambles.

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## *Assured Information*

The Assured Information contained within the Brambles 2018 Sustainability Review and accessible through the 'Sustainability Review' section of Brambles Limited's website. The Selected Sustainability Information subject to assurance as presented in the 2018 Sustainability Review is identified below:

Selected Sustainability Information	Page reference
Measure positive impact of pooling model through savings of emissions, water, wood, waste, food waste and trees	7
Carbon emissions and kilometres saved and customers participating in transport collaboration projects	7 and 12
2017 Brambles Employee Survey results (% participation, engagement and % enablement results)	7 and 15
Brambles Injury Frequency Rate (BIFR)	7 and 16
Women in leadership (% at board and in management)	7 and 18
Gender salary ratio by level	18
% and volume of certified lumber and % of chain of custody lumber	7, 20 and 22
Year on year change in carbon dioxide emissions per unit delivered	7 and 24
% energy and Year on Year change from certified renewable sources	7 and 24
Scope 1 and scope 2 emissions	24
% of largest pallet and RPC sites with alternative uses for waste	7 and 25
Volunteer value in \$USD, volunteer hours and volunteer hours per employee	7 and 27
Savings from pooling model per employee, both absolute savings and equivalent annual US household energy use, garbage trucks, water tank trucks and trees	29

KPMG has not been engaged to, and do not, provide assurance in respect of the application of the GRI G4 reporting guidelines or claims included in the 2018 Sustainability Review, this document or other pages of the Brambles website, other than the Assured Information as identified above.

## **EXTERNAL BENCHMARKING**

Brambles 2018 Sustainability Review is published 'in accordance' with the GRI G4 guidelines to a comprehensive standard.

Brambles supports the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labour, Environment and Anti-Corruption. Brambles became a signatory to the United Nations Global Compact in June 2013. Brambles' communication of progress and table addressing each of the principles can be found on its website.

Brambles was again selected in 2018 as a component of the Dow Jones Sustainability World Index (effective as of September 2018), the Dow Jones Sustainability Asia-Pacific Index and the Dow Jones Sustainability Australia Index. The Dow Jones Sustainability Indices serve as benchmarks for investors who integrate sustainability considerations into their portfolios and provide an effective engagement platform for companies who want to adopt sustainable best practices.

Brambles is a constituent of the FTSE4Good Index Series. FTSE4Good is an equity index series that is designed to facilitate investment in companies that meet globally recognised corporate responsibility standards.

## **STAKEHOLDER ENGAGEMENT**

Brambles actively seeks feedback from five key stakeholder groups. Key stakeholders are identified as those groups significantly impacted by the policies and practices of Brambles businesses. Feedback from key stakeholders is reported annually in our sustainability reporting.

Stakeholder Group	Responsible function
Customers	Group Presidents of businesses
	Customer insight teams
	Global key account managers
	Customer-driven external evaluations (eg EcoVadis, SEDEX, CDP supply chain survey)
Investors	Senior Director, Investor Relations and Corporate Affairs
	Group Vice President, Capital Markets
	Company Secretary
Employees (including contractors)	Investor-driven external evaluations, eg DJSI and CDP
	Group Senior Vice President – Human Resources Group General Counsel (human rights)
Suppliers	Group Presidents of businesses Vice President – Operations Vice President – Global Procurement (assisted by Procurement Lead with responsibility for sustainability)
Community and government, including regulatory bodies	Global Director of Sustainability Group Senior Vice President – Human Resources
	Group Vice President Taxation
	Group General Counsel

Feedback from key stakeholders, conducted through both external and internal processes, is reported throughout the

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Sustainability Review within the relevant section. These processes are outlined below.

Brambles holds regular meetings with relevant regulatory bodies, government and non-government organisations (NGOs) and employee representative bodies and also conducts customer, employee and supplier surveys and consultation forums, local community forums and focus groups.

Brambles uses the Annual Report and the Annual General Meeting to communicate with shareholders about its financial situation, performance, strategies and activities. General Meetings allow an opportunity for shareholders to engage directly with the Board. The Group Vice President, Capital Markets and Group Company Secretary deal with shareholder enquiries at other times.

Brambles encourages vigorous and robust analysis by the investment community and a policy of consistent access and treatment is applied, irrespective of the views and recommendations expressed. Brambles holds briefings with investors and analysts to provide information and seek feedback from time to time. No new materials or price sensitive information is provided at those briefings unless it has been previously or is simultaneously released to the market. A record of any briefings is maintained and copies of presentation materials are available on the Brambles website. New or updated information and materials provided at these meetings are also released to the Australian Securities Exchange.

Brambles follows a calendar of regular disclosure to the market on its financial and operational results. This calendar is available on the Brambles website.

Brambles ensures that employees are informed of significant company news and strategic developments through regular announcements and newsletters, in-house publications, information posted on the intranet and face to face meetings with senior managers.

Employee engagement is monitored through the Brambles Employee Survey (BES). The confidential survey is conducted bi-annually and is offered to employees in both web and paper-based formats. The results of that survey are communicated to employees. Data is used to track progress from previous surveys, measure Brambles against internal and external best practice and identify key actions for improvement.

To continue to improve customers' experience of our products, services and people, Brambles seeks to hear the Voice of the Customer through a variety of channels. This includes strategic leadership forums, face-to-face customer interviews, global market insights, sharing of global best practice throughout the Group, the Net Promoter program and customer care centres.

Brambles began the roll-out of the Relationship program across the Group in 2010. Since then, the program has evolved beyond simply measuring Net Promoter Scores (NPS) to activities that allow us to focus on the areas that are of importance to customers, with the ability to track and measure our performance in these areas over time. Brambles has geared leadership practices to promote customer centricity, integrated the program into core business processes and ensured that our operational systems are able to identify and measure improvements in customer experience.

Detailed questionnaires are collected through Brambles' annual customer survey customers in over 30 countries, which measure customers' perceptions of the level of partnership they have with us, the factors driving their loyalty and identifying the areas in which we can enhance their overall customer experience with us.

Brambles expects its suppliers' practices to be in line with its principles. Brambles is committed to driving efficiency and environmental sustainability in the supply chains it serves.

Responsibility for managing relationships with suppliers resides with the Group Presidents of each Brambles segment. In FY12, the Pallets segment created a procurement team within the Global Operations function. Procurement is responsible for supplier standards and monitoring performance.

Brambles updated its global procurement policy, that is approved by the Brambles Board, in March 2018. The Policy confirms the alignment of the Procurement function to Brambles Code of Conduct principles and part of its scope is to be the sourcing basic tool to ensure the higher ethical standards and respect for Code of Conduct itself.

Brambles recognises that its business units need to collaborate closely with their third-party operators and suppliers to meet customers' growing interest in understanding their environmental impact and in turn to demonstrate the benefits of using Brambles' products and services.

By working in partnership with suppliers as it rolls out its supplier policy, Brambles' business units will be able to improve supply chain transparency and understanding for more sustainable and mutually beneficial outcomes.

As part of Brambles' internal compliance efforts, designated country General Managers are required to include details of any representations received from local communities, governments or legitimate special interest groups raising any significant, or potentially significant, community relations issues in bi-annual management declarations.

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## DATA MEASUREMENT TECHNIQUES AND EXPLANATIONS

### Better Business

#### Share and reuse

This section describes the methods used to estimate the environmental benefits that the Brambles sharing and reusing models produce in our customers' supply chains.

Calculations stated in the pooling model diagram are based on the results of independent life cycle analyses (LCA) for pallets and RPCs. The unit benefits of the pooled solutions were obtained by comparing the environmental impacts of:

- a) Brambles pooled solutions, versus
- b) the most commonly used market alternative in the absence of pooling. Depending on the particular region, these alternatives are exchangeable or disposable systems.

LCA studies provide the unit factors for CO<sub>2</sub>-e emissions, water consumption, wood consumption, food waste, and total waste to landfill generated by platforms. They cover the whole lifecycle of the product, from the raw materials to the end of life.

Pallet LCA studies have been independently conducted using ISO 14044 Life Cycle Assessment methodology. The European, USA and Australian studies were submitted to a peer review process, following the ISO 14044 standard.

The RPC study for South America conducted in 2016 followed ISO 14044 and incorporated supply chain and environmental data that is specific to this region. The RPC study for Australia in 2010 also follows ISO and has been peer reviewed. The RPC study for the USA was conducted also following ISO standards and peer reviewed by a panel of LCA and packaging experts in 2013. The USA RPC study was updated in 2017. The 2016 LCA savings were re-calculated and restated using the 2017 report. The restatement was performed as the 2017 data was considered to be more accurate estimation of the 2016 performance and the restatement allows a more appropriate comparisons between the measurement periods.

Food waste avoided by the use of RPC instead of cardboard in Europe is calculated using food damage rates calculated in a study of the German food distribution network, "Determination of spoilage levels of fresh fruit and vegetables according to the type of packaging", prepared by Stiftung Initiative Mehrweg and conducted by the University of Stuttgart in collaboration with the Fraunhofer institute. The expected avoided waste per issue is then applied to all EU RPC issues in the year.

In order to quantify the total benefits, unit factors were applied to the corresponding activity volumes in each region. These volumes were obtained from Brambles financial management reports.

Only regions with LCAs studies available were considered for the calculations. The following regions are included in the calculation:

Region	Wooden pallets LCA	RPC LCA
CHEP Europe	✓	✓
CHEP North America	✓	✓
CHEP South America	✓	✓
CHEP South Africa	✓	-
IFCO Europe	-	✓
CHEP Australia	✓	✓

The LCA studies consider the savings generated associated with the following specific equipment types in the applicable regions were:

Region	Equipment
Europe	8060 Pallet
Europe	1208 Pallet
Europe	1210 Pallet
USA	48X40 Inch Pallet
North America (Canada)	48X40 Inch Pallet
North America (Canada)	48X20 Inch Pallet
South Africa	1210 Pallet
South America	1210 Pallet
South America (Mexico)	48X40 Inch Pallet
Europe	RPC
South America (LATAM)	RPC
North America	RPC
Australia	1165 Pallet
Australia	RPC

It is estimated that the savings associated with the pooling model includes more than 80% of pallets issued in the Year.

This approach represents a conservative estimate of the annual global environmental benefits of our pooled solutions, since it:

- Does not include any savings from regions that don't currently have an LCA.
- Does not include all equipment types, and therefore not all issues made by Brambles in the year.
- Alternate CHEP pallet solutions that would give even better results compared to alternative platforms were not considered.
- Not all LCAs consider all factors:
  - Avoided food waste only considers RPCs issued in Europe; and
  - Avoided solid waste and water savings for RPCs considers USA, South America and Australia RPC movements.

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The benefits of customers' use of our pooled equipment is made possible because of our continuous reuse model, asset control, use of certified and sustainable timber, control of end of life management and transport efficiencies due to our global multi-nodal network.

The number of trees saved by customers' use of our pooled wooden pallets was calculated using the following method:

- Conversion of the LCA data on whitewood m3 savings;
- Estimates are based on Radiata Pine (ex New Zealand), which is a softwood species (as are the majority of CHEP wooden pallets). This species was chosen because of the availability of credible data;
- Source of Radiata Pine estimates was the New Zealand Forestry Industry Facts and Figures 2013 version;
- We approximated millable log yield, based on the information provided in this document;
- We estimated large scale modern mill board yield to be around 55% and discounted by an additional 10% to allow for harvesting differences to other regions. This resulted in a board yield per tree;
- This board yield was applied to the LCA data on whitewood savings to give an approximate number of trees saved;
- This methodology resulted in a conversion rate of approx 1 m3 of pallet timber per tree.

However, CHEP is unlikely to get all elements of the sawlog. For both economic and engineering performance reasons, CHEP only purchases elements of the log; therefore, any reference to number of trees used or saved is theoretical.

The back page in the FY18 sustainability review contains conversions which help readers understand in relative terms the impact each employee has had throughout the year.

- For water use a conversion from Olympic sized swimming pools was used  
[https://en.wikipedia.org/wiki/Olympic-size\\_swimming\\_pool](https://en.wikipedia.org/wiki/Olympic-size_swimming_pool)
- For waste a conversion from US EPA was used  
<https://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and-references#recycle>
- 20,800 litres was the conversion used for the water saved volume  
[https://en.wikipedia.org/wiki/Tank\\_truck](https://en.wikipedia.org/wiki/Tank_truck)

The amount of rescued food from in-kind donations of pallets and crates and the number of meals provided to those in need was calculated by estimating the amount of kg per meal and the amount of kg of food per pallet. The average amount of kg per meal was provided to us by the Food Bank organisation that we work with in Australia and Europe (FEBA). Knowing the amount of CHEP pallets and IFCO RPCs that are used by these organisations in the Year allows us to estimate the amount of food in kg by using an average weight per pallet/crate provided by these organisations.

## Transport

The report identifies the savings made in our customers' supply chains. A specific module for CO2-e measurement of subcontracted transport carriers was developed with LeanLogistics and implemented in Europe and the USA.

This system allows CHEP to measure the carbon savings achieved through supply chain collaboration, savings come from the following initiatives;

1. Plant Network Optimisation
2. Customer Collaboration
3. Transport Orchestration
4. Multi-Modal activity

### Plant Network Optimisation

Plant network optimisation is the practice of strategically positioning the service centre in our network in a specific location to reduce the distance needed to travel for pallet issues and returns.

There are regional variations in methodology to measure the optimisation for the material regions. There methodologies are defined as follows:

#### USA

In FY17 only savings from FY17 v FY16 were reported however to become more consistent across regions this year we have recognised the savings of the networks optimisation compared to the baseline year FY15, i.e. FY18 vFY15.

An average length of haul for each month of the reported year is calculated from all shipments. An average length of haul for each month is also calculated from the baseline year. The difference between these lengths of haul is multiplied by the number of trips in each month to determine the distance saved. This distance is then converted to fuel usage and then a diesel emissions factor (source: US EPA 'Climate Leaders GHG inventory protocol') is applied to calculate the CO2e saved.

To ensure there is no double counting of savings associated with Multi-Modal activity a factor of 38% is removed from the calculated CO2 savings. This factor is calculated by using the above methodology, comparing the saving from the current reported year with the previous reported year with and without Multi-Modal activity.

#### EU

Europe supply chain team track the implementation of TPMs (Total Pallet Management service centres installed at customer locations). For each of these TPMs they log the number of trips and the distance avoided from their use. The avoided distance is then converted to CO2e savings using calculation described below. These savings are also cumulative having data recorded from the baseline year.

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## CO<sub>2</sub>e Conversion

$$[\text{AFC}] + [\text{AFC per TEU}] \times [\text{TEU per Truck}] \times [\text{Distance Saved}] = \text{gCO}_2\text{e}$$

AFC (Average Fuel Consumption) of empty truck (g)	733
AFC per TEU (g)	0.609
TEU (Transport Equivalent Unit)	cm <sup>3</sup> Volume of B1208 pallet = 1
TEU per Truck	548

## Factor Sources:

European Union 2009

<http://www.eea.europa.eu/data-and-maps/figures/specific-co2-emissions-per-tonne-1>

## Latin America

The regional methodology is undergoing further development to be consistent with the more robust EU and US regions methodologies. The carbon savings are therefore not reported in FY18. To ensure a consistent comparison to demonstrate progress the regions contribution is also removed from FY17.

	FY18		FY17	
	Distance	tCO <sub>2</sub> e	Distance	tCO <sub>2</sub> e
<b>Total</b>	70,889,970	62,831	64,711,682	56,640
<b>LatAm PNO</b>	-8,155,917	-9,061	-6,869,985	-7,633
<b>Subtotal</b>	<b>62,734,053</b>	<b>53,770</b>	<b>57,841,697</b>	<b>49,007</b>

## Customer Collaboration

Using our own reverse logistics network for the process of recovering pallets, together with our Lane Matching Tool, CHEP collaborates with customers identifying empty lanes, optimising the supply chain and improving performance while reducing environmental impact of CO<sub>2</sub>e. CO<sub>2</sub>e savings are calculated by measuring the distance of each collaborative trip and converting the avoided distance to CO<sub>2</sub>e.

## Transport Orchestration

CHEP facilitates collaborations between different customers, in which transport resources are being integrated in our network. CHEP help close open logistics loops reduce empty trucks and therefore unnecessary carbon emissions. The number of collaboration trips are established between customers at the beginning of their commercial agreement. The distance of each lane is then multiplied by the number of agreed collaborative trips which is then converted to CO<sub>2</sub>e saved by applying the aforementioned conversion factor.

## Multi-Modal

This activity involves the movement of products on alternate more efficient modes of transport, such as rail or sea to reduce cost and deliver environmental benefits. CO<sub>2</sub>e savings are calculated by taking the distance that would have been travelled via road and calculating the CO<sub>2</sub>e for the Multi-Modal trip being: rail and sea travel and road required between port station and destination), the saving is the difference between the two.

## US Rail Emissions Factor

In previous reporting periods an outdated rail emissions factor has been used that understated the savings. The factor uses was 1.24 lb-CO<sub>2</sub>e per tonne mile. For consistency in reporting year on year progress the rail factor remains the same in FY18 however it will be updated in line with the EPAs Climate Leaders GHG Inventory Protocol Core Module Guidance which has a factor of .0695 lb-CO<sub>2</sub>e per tonne mile.

The Scope 3 transportation emissions in other regions are estimated through distance measurement where available (Australia, MEA) and through the quantity of product delivered (Asia).

## Customer Insights Program

Brambles began the roll-out of the Relationship program across the Group in 2010. Since then, the program has evolved beyond simply measuring Net Promoter Scores (NPS) to activities that allow us to focus on the areas that are of importance to customers, with the ability to track and measure our performance in these areas over time. Brambles has geared leadership practices to promote customer centricity, integrated the program into core business processes and ensured that our operational systems are able to identify and measure improvements in customer experience.

Brambles is well positioned to actively listen to customer feedback on our performance, to understand customers' motivations and challenges and to respond to our customers with initiatives that build better customer experiences and foster greater loyalty.

Detailed questionnaires are collected through Brambles' annual customer survey customers in over 30 countries, which measure customers' perceptions of the level of partnership they have with us, the factors driving their loyalty and identifying the areas in which we can enhance their overall customer experience with us.

The survey is further complemented by the closed loop process, which was introduced in 2013 and is aided by a fully automated system, capable of reporting root causes. The purpose of the closed loop process is to conduct an in-depth investigation into an identified problem or to uncover a challenge or pain point that customers might have, giving Brambles the opportunity to immediately respond to issues as the survey is taking place. It fosters customer engagement through customer centric dialogues to understand the root cause of the issues indicated and, if possible, resolve the issue immediately or to escalate it. Not only instrumental in recovering at risk customers, the closed loop process focuses also in strengthening customer relationships, improving organisational learning and allows us to uncover potential growth opportunities.

# Brambles Sustainability Review 2018 - Supplementary Information

As at 3 September 2018

## People

For the 2018 Sustainability Review, Brambles collected data on permanent employees via the Human Resources (HR) database and reporting platform, Workday. The date of 30 June 2018 was selected to take a 'snapshot' of the organisation.

Brambles extracted the following data in a format where individuals could not be identified by name:

- gender;
- age;
- base salary;
- banding (pay grade);
- nationality or residency status;
- parental leave (taking and returning from leave);
- training days (including compulsory work based training, development courses); and
- volunteering (hours that comply with three days paid leave).

## Total employees – Headcount

Headcount includes permanent part-time and permanent full-time employees and casual and temporary staff paid through Brambles payroll. It excludes temporary workers and contractors paid through a third party provider.

## Gender

Gender percentages were calculated by dividing the number of employees (headcount) by gender by total permanent headcount, to obtain a percentage split.

## Age distribution

The age of each employee (headcount) was gathered and then sorted into six age bands.

## Parental leave

Parental leave data was calculated using employee headcount number of employees who took parental leave during the period of 1 July 2017 to 30 June 2018 as a percentage of total employees.

Employees returning to work after parental leave was also calculated using the headcount number of employees.

## Management

Brambles employees are assigned a 'band' based on their position and salary, with management defined as Band 3 and above (manager through to Band 6 and Executive Leadership Team).

Employee data (Headcount) is split into 'non-management' (bands zero to 2) and 'management' (band 3 and above) and analysed and reported by gender, group and segment.

## Salary ratio data

Salary ratios by gender were calculated using 2018 salary data from Workday.

All salaries were converted to USD. Employees were split into the categories of 'management' and "non-management" (see definition of Management above for details) and the average salary for male and the average salary for female employees were calculated. The average salary of males was divided by the average salary of females to obtain the ratios.

## Voluntary turnover data

Voluntary turnover data was calculated using actual employee data where employment ceased on a voluntary basis and includes those whose redundancy was not compulsory divided by average headcount during FY18.

## Brambles Employee Survey

Employee engagement is monitored through the Brambles Employee Survey (BES) through a third party provider. This is extended to all permanent employees (employed for at least three months at the date of survey) and is confidential. It surveys employees' perceptions of their workplace and the data is used to track progress from previous surveys, measure Brambles against internal and external best practice and identify key actions for improvement. The BES was performed in 2017.

More than 1,000 team reports were generated and they included scores for those dimensions, and comparisons with the previous year and the industry benchmark referred to as the "high performance norm".

The high performance norm is a standard benchmark index compiled from the collective results of a group of external organisations, which display outstanding financial performance in their industries.

## Safety data

The Brambles Injury Frequency Rate (BIFR) is the primary measure of safety performance in Brambles. BIFR should be regarded as being generally comparable to the Total Recordable Injury Rate (TRIR) used in other businesses. The difference is that BIFR is a measure of incidents per million work hours (exposure hours) while the more common TRIR measure incidents per 200,000 exposure hours.

BIFR is a measure of the total number of work-related fatalities, modified duty, lost time or medical treatment incidents (Recordable Safety Incidents) per million exposure hours during a given period.

Safety incidents affecting Brambles employees as well as labour hire, contract or temporary staff working under Brambles supervision and the associated exposure hours are included BIFR calculation. All incidents are reported, investigated and classified as either BIFR or work-related First Aid Treatment.

Safety incidents involving visitors, customers and third parties (e.g. trades people, servicemen, etc.) on Brambles operations are reported as required and investigated but are not included in BIFR.

Serious safety incidents occurring at outsourced operations are reported to Brambles and where possible the findings of the investigations are provided for dissemination to Brambles locations in the form of safety alerts and/or changes to Brambles operating procedures.

Non-work-related events affecting any party above or the wider community are reported and investigated and managed, although they are not included in BIFR. These typically include pre-existing medical conditions that manifest themselves in the workplace but are not caused by work activities such as heart attacks.

# Brambles Sustainability Review 2018 - Supplementary Information

As at 3 September 2018

## Better Planet

### Materials

#### Wood

CHEP purchases, controls, or has due diligence oversight of all of the wood used in the manufacturing and repair of CHEP pallets. European third party outsourced service centres purchase wood directly from approved CHEP providers. In FY15, the global timber sourcing strategy was updated. It includes supply base segmentation and sustainability objectives. The volume of wood purchased by third parties service centres in Europe is estimated using the repair rates of the service centres during FY18 multiplied by the average volume of wood used per repair in own service centres.

All wood purchased by CHEP meets one of the following definitions:

- 1) Chain of Custody (COC) certified wood: Where CHEP can verify supplier claims, through documentation, that wood purchased has an associated COC certification credit.
- 2) Wood from certified sources: wood classified as being from a certified source is required to meet one of the following criteria:
  - Certified sources, where the supplier of the wood has COC certification; however, the supplier has not referenced this certification or provided complete COC accreditation details for the wood supplied to CHEP;
  - Other sources, where CHEP has undertaken due diligence that seeks to provide confidence, that the source forest or mill is certified by PEFC, FSC or equivalent.
- 3) Policy compliant wood source: Where the purchased wood does not carry COC certification and is not from a certified source, CHEP has undertaken due diligence to establish that the wood flow has not been contaminated by controversial source wood.<sup>1</sup> Wood will not be purchased from a source where due diligence is not satisfied.

At the end of the Year, each Pallets' region submits to Brambles information on:

- The volume of wood (cubic metres) purchased;
- A breakdown of this volume by definition (as above); and
- Details of species purchased and in particular any species that appear on the IUCN Red List of threatened species.

For species that are classified in the IUCN category of "Near threatened" or worse, the regions are asked to provide the volume of wood involved and details on what the business has done to work with suppliers to better understand and minimise potential use.

The data is then reviewed by the Procurement team and reported in Brambles Sustainability Review.

#### Chain of Custody

Where CHEP purchases COC certified wood, records (including purchase order and invoice) detailing the chain of custody

certification number of each supplier for each purchase are maintained.

Brambles has not been prescriptive on what type of COC certification CHEP should use, only that it is well recognised and is considered credible.

For FY18, CHEP has purchased wood from suppliers that are registered as COC certified by the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC). (see Glossary for definition of FSC and PEFC).

#### Plastics

Brambles collected internal figures on the volume of plastics for manufacture of reusable plastic crates, plastic pallets and containers purchased by our businesses in FY18. We did not collect data for other plastic purchased, for example, plastic stretch wrap.

#### Detergents

Brambles conducted internal figures on the volume of detergent for use in the cleaning of pallets, reusable plastic crates, plastic pallets and containers purchased by our businesses in FY18. This review included due diligence on the responsible sourcing of palm oil.

#### Water

Brambles businesses report their water consumption data monthly. Businesses enter data on water purchased from utilities, recycled water, harvested rainwater and the amount of water discharged.

Only a limited number of sites are currently reporting water recycled and rainwater harvesting; however, we expect this to improve over time. Water discharged is a difficult metric to collect and can be inaccurate even from utility bills due to limited metering.

#### Greenhouse gas emissions - Scope 1 and Scope 2 emissions

In FY18, the carbon reduction from our share and reuse model outweighs Brambles' operational carbon impact. This continues to make Brambles' carbon position for a 'net positive' in FY18.

Brambles collects emissions data primarily from energy and fuel invoices received at a site level. In FY18 we have made improvements to the data collection process using the Arete system. With this system we obtained material energy data directly from our energy providers. This is complemented with data collected monthly by site with the iCare system.

<sup>1</sup> Controversial Source is a term used by the PEFC to cover a broad range of forestry activities that do not comply with local, national or international legislation, use genetically modified forest based organisms or converts forest to other vegetation types, including primary forests to forest plantations.

# Brambles Sustainability Review 2018 - Supplementary Information

As at 3 September 2018

Geography	Source of emissions factors
EMEA, Asia, New Zealand, Canada and Latin America	International Energy Agency Data Services, 2016 (2014 and 2015 Factors).
USA	US Environmental Protection Agency eGRID 2016 data for all US operations, by state.
Australia	The National Greenhouse Accounts (NGA) Factors (July 2017) for all Australian operations, by state..

Energy and emissions data are monitored regularly at a regional level. A narrative description of key movements in energy used is provided to the Group at this point.

The emissions intensity (emissions per unit of production) is reported on a like-for like basis meaning that only sites that are owned and operated both in the baseline year and the reporting year are included in the intensity calculation. In FY18 a number of large production contributors were removed from the like for like calculation due to subcontracting and divestments. The intensity is also recalculated for the comparative years on the same basis to allow a transparent and consistent view of performance. This resulted in a reduction of intensity shown below;

	Reported in FY17		Reported in FY18	
Fiscal Year	grams per unit produced	% reduction in intensity	grams per unit produced	% reduction in intensity
FY15	0.226		0.154	
FY16	0.212	-6.6%	0.145	
FY17	0.196	-14.3%	0.135	-12.5%
FY18			0.130	-15.4%

In FY18 we improved the system for estimating missing data, moving from a manual process to an automated process in the Arete system. For further details please see appendix 1.

## 2020 emissions reduction target

In 2016, Brambles set a target of achieving a 20% reduction in carbon emissions per unit delivered by 2020 from 2015 levels, as well as the supporting goals of year on year improvement in energy provided from renewable sources.

## Renewable energy

Electrical energy purchased from renewable energy sources are recognised in the sustainability report with no associated emissions. Renewable energy sources refers to renewable, non-fossil fuel energy sources, that is, wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases. Under this instrument, "biomass" means the biodegradable fraction of products, waste and residues of biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste.

Had the electricity been recognised using the relevant grid emissions factors the scope 2 emissions would be 7.22 kt higher.

## Operational control

For the purposes of reporting scope 1 and 2 emissions (and associated energy consumption) Brambles does not include any site that is sub-contracted to a third party to operate or a Total Pallet Management operation (whereby CHEP manages a customer's pallet needs on site and supply CHEP pallets without the need for additional transport).

## Emissions boundaries

For emissions data, Brambles applies an aggregated method for site selection to determine the contribution of sites and offices to the overall materiality of some reported environmental data and information. In FY16, 95% of sites with emissions were selected and the associated sites counted as in scope. 5% of emissions were subsequently estimated. These same sites were measured and/or estimated in FY18. 100% of fleet emissions were included in scope.

The emissions intensity (emissions per unit of production) is reported on a like-for like basis which allows the comparison those sites that were in scope for FY15, FY16, FY17 and FY18.

## Completeness of energy sources

The nature of the Brambles' sites can be split into two broad categories:

- office buildings; and
- pallet/crate/container repair centres.

The facilities in each category have a similar energy use profile and use similar types of fuel in their operations. This profile is considered at a site and a portfolio level to test that all material energy sources are identified at each facility.

The Arete system can be configured to capture, transform, validate and use any data sent from the groups vendors. We have begun with configuring the largest of the utilities providers and this will continue with the remaining providers through the next Fiscal Year.

The iCARE system can be customised at the site level to accommodate the reporting of all energy sources expected to be consumed at the sites and currently complements the Arete system to collect data for smaller vendors.

## Greenhouse gas emissions - Scope 3

An analysis performed in 2012 identified the following material sources of scope 3 emissions:

- washing and conditioning of RPCs on behalf of IFCO;
- outsourced service centre sites that inspect and repair CHEP's pallets; and
- subcontracted transport carriers that move CHEP's pallets through its network to rebalance the pallet pool – this does not include transport of pallets underload through our customers' supply chains.

## Measurement and Estimation techniques – scope 3

### Outsourced service centres

Using the Arete and iCARE online system, Brambles collects actual energy and emissions data from outsourced service centres that wash and condition RPCs wherever possible. The

# Brambles Sustainability Review 2018 - Supplementary Information

As at 3 September 2018

emissions associated with the conditioning of pallets by outsourced service centres are either received directly from the third party or estimated. The method of estimation of emissions is to calculate the average energy and emissions associated with the production of one conditioned pallet using data collected by service centres operated by CHEP. This average factor is then applied to the number of conditioned pallets produced by third party service centres to arrive at an estimated emissions number.

## *Science based target*

Following the COP21 Climate Conference in Paris, Brambles investigated how our carbon reduction goals align with a science based target.

The Science Based Targets initiative is a partnership between CDP, UN Global Compact, World Resources Institute (WRI) and World Wildlife Fund (WWF), and helps companies determine how much they must cut emissions to prevent the worst impacts of climate change.

In 2016 following our analysis and a review by our assurance provider Brambles' has concluded our carbon emission goals are broadly consistent with approaches approved by the Science Based Target initiative. Brambles' reviewed the requirements for a formal submission to the SBT advisory group in FY17.

An update to the SBT CFACT method requires a carbon reduction target for scope 3 emissions if it is determined that more than 40% of total measurable emissions fall into the scope 3 category. For Brambles, this is the case. The current method to determine scope 3 emissions for logistics suppliers will be reviewed throughout FY19 to determine how Brambles can confidently measure emissions from this source. Data gathering and system requirements will also be reviewed to establish better methods of capturing and reporting sustainability data. When this review is complete Brambles will be in a better position to determine commitments to the SBT initiative.

## *Resource management*

Brambles businesses enter their waste data into the iCARE system regularly. Brambles requests the businesses to enter the amount of plastic, metal, paper and corrugate that sites collect from customers (ie returned with the equipment) and have recycled.

## *Waste*

Brambles businesses enter the amount of waste in the iCARE system. Brambles consolidates the information and applies conversion factors to calculate total amount in metric tonnes.

For waste and wood and plastic to landfill, production figures were used, with 80% of production calculated and associated sites counted as in scope. 100% of Containers sites that have plastic product waste were included. For each of the sites selected as being in scope management of the site have provided evidence and a statement describing the alternative uses available for the wood/plastic at their site. The data reported is 'in-scope' sites that have alternate uses as a % of the total number of sites in scope. CHEP Recycles sites were removed from scope as this business was divested. CHEP Services sites were not included in scope due to them joining the business during FY18.

The measurement of waste recycled varies depending on data provided by the waste service provider. Some providers will weigh the recycling and give us a report, or we have a

methodology to estimate weights based on averages at other sites. Brambles consolidates the information and applies conversion factors to calculate total amounts by metric tonnes.

Reused wood data is collated by CHEP service centres during the reclaim process. All wood salvaged is recorded, usually in 'number of elements' then converted to average weight.

Recycled wood data is captured mainly by the companies who purchase the wood from us, using weight calculations.

## **Better Communities**

Donations data is obtained from internal finance and operations. Monetary donations are converted to US dollars using June 2018 foreign exchange rates. Data for charitable donations, in-kind donations and volunteering has been collected from all businesses in FY18.

## *Charitable donations*

In FY18, Brambles global finance teams identified all donations to charitable and community organisations. Donations were converted to US dollars on a monthly basis where possible, or using June 2018 foreign exchange rates where this was not done.

## *In-kind donations*

The value of in-kind donations to community and not-for-profit organisations was calculated by applying the commercial value of the donated products in the country where the donation occurred. Donations were converted to US dollars using June 2018 foreign exchange rates.

## *Volunteering*

Brambles has an employee volunteering policy, which provides employees with three days of paid volunteer leave per year during usual contracted hours to provide volunteer services to community-based not-for-profit, educational, or environmental organisations.

Brambles collects the number of volunteer hours recorded in HR systems. Brambles calculates the value of employee volunteering by calculating the average hourly rate for employees by country, based on the median salary of employees in that country in FY18, divided by the Organisation for Economic Co-Operation and Development's (OECD) average number of hours per worker per year by country for 2017 and multiplying this by the total hours volunteered in the relevant country. Average hours per worker per year are only available for OECD countries for 2017 in 2018 (not yet updated for 2018). For non-OECD countries (Argentina, Brazil, Bulgaria, Croatia, Guatemala, India, Romania, Serbia, Thailand, United Arab Emirates and South Africa) the average hours worked for Mexico for 2017 was applied (as this was the highest of OECD country averages and therefore the most conservative estimate). OECD hours for Turkey and Belgium were not updated in 2017, so the most recent year's average was applied. The total of all countries is the total value of employee volunteering in FY18. Salary amounts by country were calculated in US dollars from the Workday system.

## GLOSSARY

<b>Assurance</b>	<p>Assurance relates to the review of sustainability data by an independent third party. In FY18 Brambles engaged KPMG to provide limited assurance. The engagement consisted of KPMG making inquiries, primarily of persons who are responsible for the preparation of data included in the Brambles' Sustainability Review and for the preparation of the selected sustainability information presented in the Review, and applying analytical and other evidence gathering procedures to that information, as appropriate.</p> <p>The extent of evidence gathering procedures performed in a limited assurance engagement is less than that for a reasonable assurance engagement, and therefore a lower level of assurance is provided.</p> <p>KPMG's statement of limited assurance can be found on the Brambles' website on the Sustainability Reviews page.</p>
<b>Bi-annual management declarations</b>	Bi-annual management declarations confirm, among other matters, the adequacy of internal control procedures, the effectiveness of risk management systems and compliance with material regulatory and statutory requirements. General Managers and Finance Managers are required to sign off the management declaration questionnaires for their area of responsibility.
<b>Brambles Employee Survey (BES)</b>	Brambles measures employee engagement through the annual Brambles Employee Survey (BES). Engagement is a combination of perceptions that positively impact behaviour. These perceptions include satisfaction, pride, loyalty and a willingness to be an advocate for the organisation; engagement results are an average of these four items and measure to what extend employees agree or disagree with the statement. Those employees who agree or strongly agree are the most engaged.
<b>Brambles injury frequency rate (BIFR)</b>	<p>Brambles Injury Frequency Rate is the primary measure of safety performance in Brambles. BIFR is generally comparable to the total recordable injury frequency rate (TIFR) or total recordable injury rate (TRR) used in other businesses. BIFR records all fatalities and three types of injury, each at a rate of injury per million hours worked:</p> <ul style="list-style-type: none"> <li>- work related fatalities;</li> <li>- loss of a full work shift due to injury;</li> <li>- modified duties following an injury; and</li> <li>- incidents that require medical treatment.</li> </ul>
<b>Carbon neutral pallet offering</b>	<p>A product available to CHEP European customers. Participants are able to offset the annual carbon footprint of their CHEP pallet movements. Features of the program include:</p> <ul style="list-style-type: none"> <li>- The requirement that the product's materials come from sustainable sources.</li> <li>- A robust measurement system that covers all service centres, subcontracted locations, offices and transportation functions.</li> <li>- A comprehensive life-cycle analysis developed in partnership with an independent third party, carried out under ISO14040 standards and peer-reviewed.</li> <li>- A partnership with a recognised leader in the carbon credit industry, the Carbon Neutral Company, to purchase internationally recognised Verified Carbon Standard-certified credits.</li> </ul> <p>The cost of purchasing offset credits for customers to achieve carbon neutrality is relatively inexpensive, due to the inherent environmental efficiencies of the pooling model. By choosing to purchase credits, customers are able to reduce the carbon footprint in the supply chain and invest in reforestation projects in developing countries.</p>
<b>C-GEN</b>	<p>'C-gen' stands for C generation stock. 'A' generation stock is stock awaiting inspection, 'B' generation stock is that which is waiting to be conditioned or repaired and 'C' generation (C-gen) stock has been conditioned and is ready for a customer.</p> <p>C gen gives us an understanding of the number of products (pallets, crates, or containers) that have been conditioned at our sites, which is the productivity measure we use.</p>
<b>CEDEP</b>	Brambles is a member of the Cedep consortium. Cedep is the European centre for executive leadership development, based on the campus of the prestigious INSEAD business school in Fontainebleau, France.

## GLOSSARY

<b>Certified sources (of wood)</b>	<p>CHEP promotes sourcing of wood for its pooled pallet requirements from sustainable wood sources. Brambles set a target in 2010 for 100% chain of custody certification for wood purchased by CHEP. Brambles reports all wood purchased in three categories:</p> <ol style="list-style-type: none"> <li>1) Chain of custody certified wood (see Chain of custody certification)</li> <li>4) Wood from certified sources; and</li> <li>5) Policy compliant wood (see Policy compliant wood).</li> </ol> <p>Wood from certified sources is defined in two categories:</p> <ol style="list-style-type: none"> <li>2) Certified sources with chain of custody certification, where CHEP has confidence, via due diligence, that the source of the wood has chain of custody certification; however, suppliers have not correctly referenced this certification or have not provided complete accreditation details for the wood supplied to CHEP carrying chain of custody certification.</li> <li>3) Other certified sources, where CHEP has confidence, via due diligence, that the source forest or mill (ie a certified forest, in the case of PEFC and FSC, or a certified mill in the case of United States SFI-certified sourcing) is certified by PEFC, FSC or equivalent. Equivalence is based on the Montreal sustainability criteria that underpin PEFC and FSC.</li> </ol> <p>Wood that does not satisfy CHEP's due diligence requirements for certified source definition must still meet its policy on sustainable wood sourcing standards.</p>
<b>Chain of custody certification</b>	<p>Chain of custody certification is the process by which certified forest products are verified to come from properly managed, sustainable sources. To become chain of custody certified, organisations must meet minimum requirements in product traceability, product storage and handling, invoicing and record keeping, and have an on-site audit by an accredited third-party verifier.</p> <p>There are several recognised standards that promote sustainable forestry management, including those set by the Forest Stewardship Council (FSC) and schemes endorsed by the Program for the Endorsement of Forest Certification Programs (PEFC). For example, FSC Chain of Custody certification allows companies to label FSC products and applies to manufacturers, processors and traders of FSC certified forest products. It provides assurance regarding the sustainability status of wood at all stages along the supply chain. At each stage in the chain of processing and transformation, chain of custody certification is needed to confirm that FSC certified wood products are not being compromised by the entry of uncertified products.</p> <p>Brambles has a target for 100% chain of custody certification for wood purchased by CHEP. Brambles reports all wood purchased in three categories:</p> <ol style="list-style-type: none"> <li>1) Chain of custody certified wood</li> <li>2) Wood from certified sources; (see Certified sources) and</li> <li>3) Policy compliant wood (see Policy compliant wood).</li> </ol> <p>CHEP Europe achieved chain of custody certification for wood purchased for its pallets from FSC and PEFC in 2011; CHEP Australia in 2014 and CHEP New Zealand in 2015.</p>
<b>CO2-e</b>	<p>Carbon dioxide equivalent (CO2-e) is the universal unit of measurement to indicate the full global warming potential (GWP) of a particular greenhouse gas emission. It takes into account the GWP of each of the six Kyoto greenhouse gases, and expresses them in terms of the equivalent units of carbon dioxide. It is used for measuring and reporting different emissions sources on a common basis. At the corporate level, CO2-e is typically reported in kilotonnes (kt).</p>
<b>Containers</b>	<p>Brambles' business is organised into a number of segments, which includes Pallets, RPCs and Containers. Containers serves the bulk goods, automotive, aerospace and chemical sectors. Operates mostly under the CHEP brand worldwide, as well as the CAPS brand in bulk goods in the Americas.</p>
<b>Executive Leadership Team (ELT)</b>	<p>The Brambles Executive Leadership Team assists in implementing Brambles' strategic direction, and ensuring its resources are well managed. The members of the Team and their biographies are can be found on the Executive Leadership Team page on Brambles' website.</p>

## GLOSSARY

<b>Greenhouse gas (GHG) emissions</b>	Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities.  Other greenhouse gases (e.g. fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O) and fluorinated gases. Like most businesses, Brambles impacts on climate change through the consumption of energy, which entails the burning of fossil fuels.
<b>iCARE</b>	Brambles global online data collection system (rolled out in FY13) that will collects Occupational Health & Safety and sustainability data of its businesses, providing a standardised system that enables data entry at a site level.
<b>The IUCN Red List of Threatened Species™</b>	The IUCN Red List of Threatened Species™ is recognised as a leading inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognised as the most authoritative guide to the status of biological diversity.
<b>Net positive carbon impact</b>	Net positive is a term that describes how an organisation can provide more positive benefits from activities than negative measured carbon impacts. Brambles' CO <sub>2</sub> -e savings in the Year for customers must be greater than the total of our own scope 1, 2 and 3 emissions for the Year to make this statement.
<b>Net Promoter Score (NPS)</b>	Net Promoter is a multi dimensional program that includes Net Promoter Score (NPS) measurement, leadership practices that promote customer centricity, organisational strategies to ensure program adoption, integration with core business processes and operational systems geared to identify improvements in the customer experience.  Detailed questionnaires generate data about customers' views on processes and performance. This data is distilled into a single usable indicator, known as the NPS. The NPS measures the relative weight of people who use and recommend a company's services or products to others, compared to those who are unhappy.
<b>NR</b>	Not Reported.
<b>Per Unit of Production</b>	As different terms are used for the production of our products, this is a single term to encompass the production of pallets, crates washed or Bins Serviced.
<b>Pallets</b>	Brambles' business is organised into a number of segments, which includes Pallets, RPCs and Containers. Pallets serves customers in multiple supply chains, in particular consumer goods, fresh produce and general manufacturing, across three regions: Americas; Europe, Middle East & Africa (EMEA); and Asia-Pacific.  The Americas region consists of the CHEP Canada (including Paramount Pallet), CHEP Latin America, CHEP USA and IFCO Pallet Management Services customer business units as well as the LeanLogistics business.  The EMEA region consists of the CHEP Central & Eastern Europe, CHEP Middle East & Africa and CHEP Western Europe customer business units.  The Asia-Pacific region consists of the CHEP Asia and CHEP Australia & New Zealand customer business units.
<b>Policy compliant wood sources</b>	CHEP promotes sourcing of wood for its pooled pallet requirements from sustainable wood sources. Where the purchased wood does not carry chain of custody certification, or is not from a certified source, CHEP undertakes due diligence to establish that the wood flow has not been contaminated by controversial source wood. CHEP's due diligence includes consideration of legislation, biodiversity, conservation, protected and endangered species, labour practices for forest workers, indigenous rights, and so on. Wood will not be purchased from a source where CHEP's due diligence is not satisfied.
<b>Reusable Plastic Crates (RPCs)</b>	Brambles' business is organised into a number of segments, which includes Pallets, RPCs and Containers. RPCs serves the fresh produce sector under the IFCO brand in Europe, North America and South America and the CHEP brand in Australia, New Zealand and South Africa.
<b>Scope 1, Scope 2 &amp; Scope 3 greenhouse gas emissions</b>	Scope 1 emissions come from direct purchases of fuel, for company-owned transport or heating. Scope 2 emissions are indirect purchases of energy, like electricity. Scope 3 emissions are generated by a third party, e.g. a transport company carrying a company's freight.

## GLOSSARY

<b>Supplier Data Exchange (Sedex)</b>	Sedex is a not for profit membership organisation dedicated to driving improvements in ethical and responsible business practices in global supply chains. Several regional CHEP businesses are members of Sedex.
<b>The Year</b>	Brambles' 2016 financial year: 1 July 2015 – 30 June 2016.
<b>Zero Harm</b>	Brambles' Zero Harm commitment is based on the belief that all accidents, injuries and harm can and should be prevented. To that end, every manager is accountable for achieving Zero Harm and required to demonstrate leadership in creating a culture that actively promotes Zero Harm. Everyone is responsible for committing and contributing to Zero Harm. Brambles' Zero Harm Charter, which sets out the vision, values and behaviours and commitment required to work safely, is provided to all employees.

## APPENDIX 1

[Estimation Engine Overview](#)

[Areté Online](#)

Document File Name	Arete Estimation Engine Overview v0.1.docx
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# Solution Description

## ABOUT THIS DOCUMENT

### Document Purpose

The purpose of this document is to describe the business rules which govern the automated estimation of cost, usage and emissions data.

### For more information

Solution Architecture	Sustainability Expertise
Matt Vale	Dr Chris Dey
Solution Architect	Industry Expert
matt.vale@aretesustainability.com	chris.dey@aretesustainability.com

### Document History

Version	Date	Author(s) and Department	Change Description
0.1	15/08/2018	Matt Vale	Initial Version

# Solution Description

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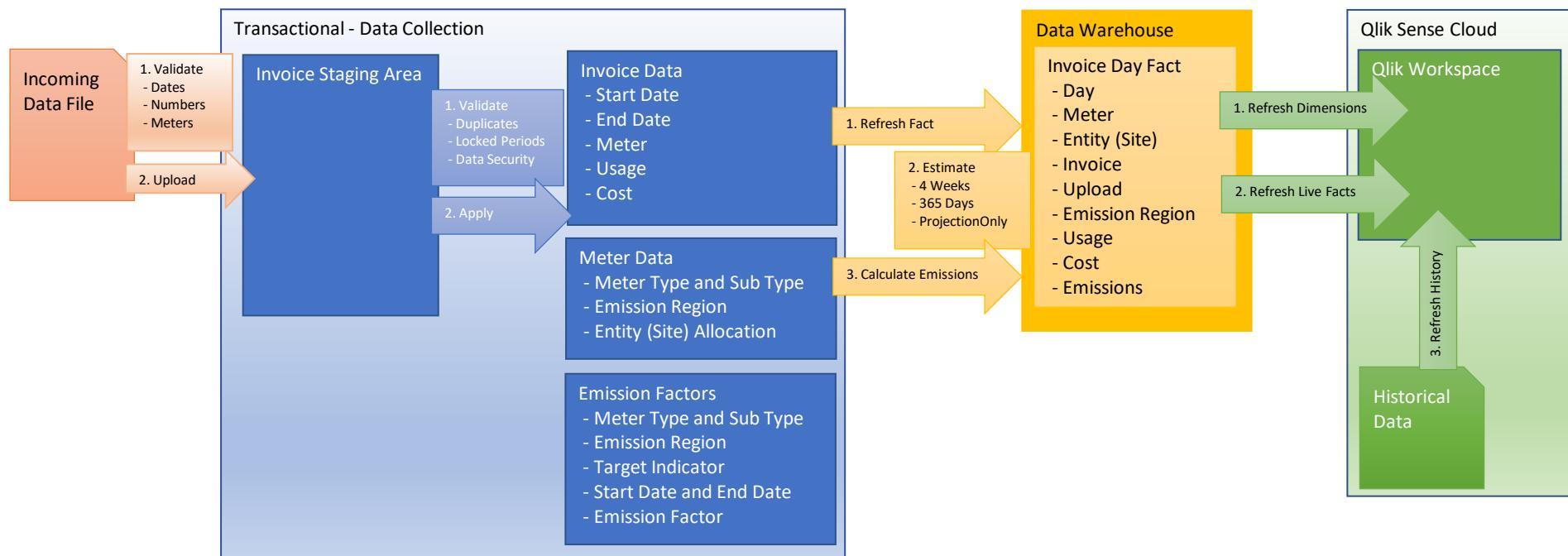
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## Solution Description

### ESTIMATION ENGINE CONTEXT

#### Overview

Pictured here is a high level diagram of data flow from imported data files through to Qlik Sense Cloud.



Of particular note is the data warehouse which serves the following purposes:

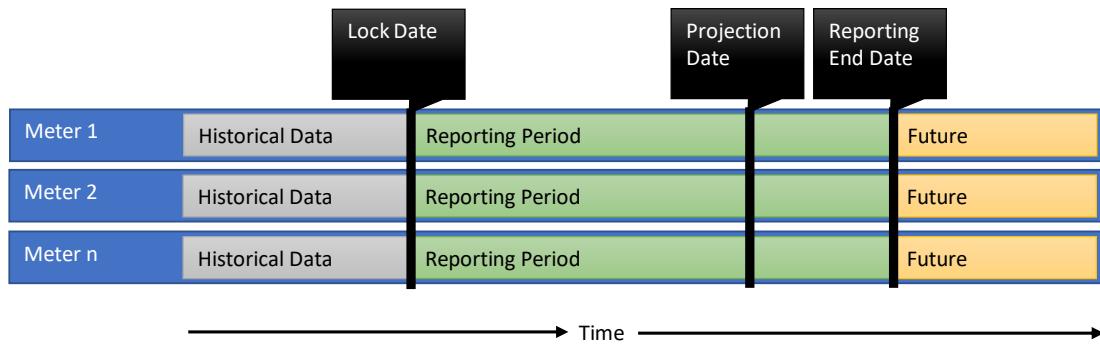
- Normalise incoming data sets to common units of measurement (tonnes, litres, kWh etc)
- Normalise incoming data sets to common time periods – **all data sets are split out to the day level**
- Store the data in a reporting friendly context. The preferred reporting platform is Qlik Sense, however the data warehouse supports a wide range of reporting platforms

### Estimation Engine Date Parameters

The estimation engine runs against the data warehouse, which has the data stored **at the day level**. If data was imported for a calendar month, this data is stored in the data warehouse split out by the number of days in that month.

The algorithm used to estimate data is prescribed at the Meter level. The algorithms available are described in subsequent sections of this document.

The time window in scope for data estimations is described by three system parameters



Parameter Name	Description
LockDate	Estimations are only applied to time periods greater than the Lock Date
ReportingEndDate	Estimations are applied up until the reporting End Date
ProjectionDate	This additional parameter enables some extra functionality in the estimation process – see below for details

## ESTIMATION ENGINE - ALGORITHMS

### Essential Reading

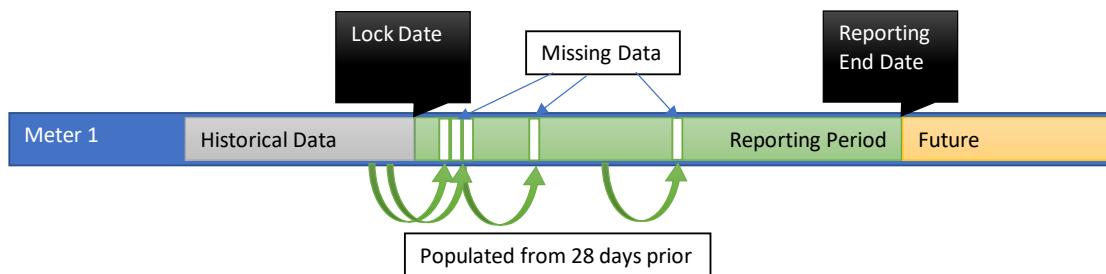
It cannot be overstated that the data in the data warehouse is stored at the day level – regardless of the nature of the incoming data.

- A data “gap” is defined as no data for a given meter for a given day
- A physical zero is NOT a data gap
- The data gap is filled from the same meter from a day determined by the estimation method

Cost and usage data are estimated using identical methodology.

Emissions are calculated using the appropriate emission factors against the estimated usage data.

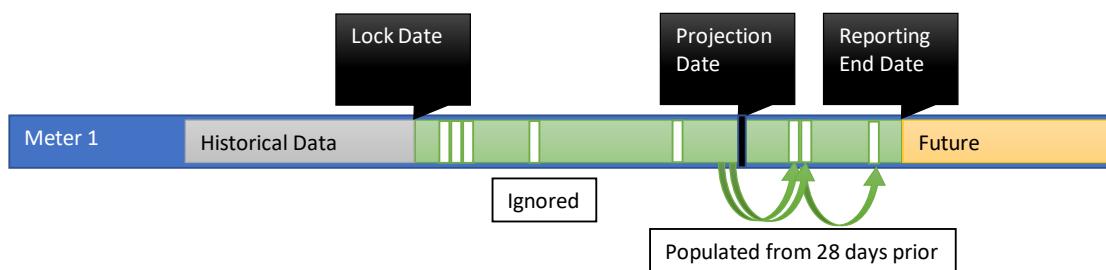
### PRIOR\_MONTH



The prior month estimation method populates all missing data from 28 days prior. Missing data is only populated in between the Lock Date and Reporting End Date.

As shown in the diagram, missing data can “leap frog” forward multiple times if required.

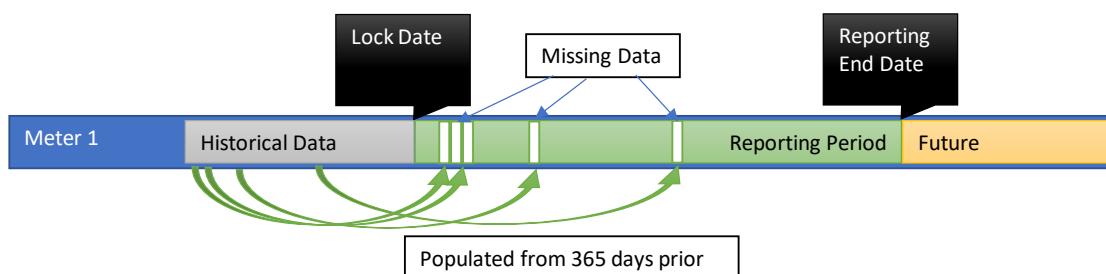
### PRIOR\_MONTH\_PROJECTED



The prior month projected estimation method populates all missing data from 28 days prior. Missing data is only populated in between the Projection Date and Reporting End Date.

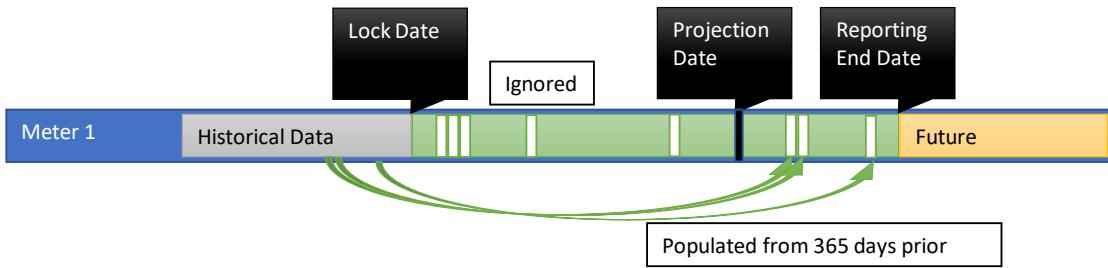
This is useful when historical data is known to be accurate and only future periods require estimations.

### PRIOR\_YEAR



The prior year estimation method populates all missing data from 365 days prior. Missing data is only populated in between the Lock Date and Reporting End Date.

#### **PRIOR\_YEAR\_PROJECTED**



The prior year projected estimation method populates all missing data from 365 days prior. Missing data is only populated in between the Projection Date and Reporting End Date.

This is useful when historical data is known to be accurate and only future periods require estimations.

#### **NONE**

This setting disables all estimation methods for the given mete

# Contacts

## Registered Office

Level 10, Angel Place  
123 Pitt Street  
Sydney NSW 2000  
Australia  
ACN 118 896 021

Telephone: +61 2 9256 5222

Email: sustainability@brambles.com

[www.brambles.com](http://www.brambles.com)

