

CORPORATE SOCIAL RESPONSIBILITY REPORT 2019

INDICATORS DOCUMENT

Renewi PLC

The data in the Renewi annual CSR Report and the more-in-depth CSR Full data document comes from a wide variety of sources. It is critical this data is as consistent and accurate as practical. This indicators document is aimed at two audiences: **1. Internal stakeholders**: such as the Renewi employees who collect our CSR data to ensure this is collected in a consistent manner. **2. External stakeholders**, such as readers of our CSR Report documents to allow them access to how we calculate CSR data and on what basis.





1. Index and general reporting guidelines

The tables below in section 2 show the CSR performance indicators used in Renewi it's **CSR** report documents. These are listed by themes (safety, recycling, carbon footprint, etc). Each indicator is listed by what it is, the units the indicator is reported in and comments. In addition, the method of calculation for the indicator, where appropriate. For many indicators the method of calculation is obvious, while for others more explanation is provided. However, in general: see right for overall reporting quidelines applied

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1. General reporting guidelines and boundaries

- In general the Renewi annual CSR reports state performance on a financial year basis. For example, 1st April 2016 to 31st March 2017. However, where data is collected on a calendar year (January December) for regulatory purposes (for example where an environmental regulator requires an annual report), or for other reporting cycles and similar reasons such data is acceptable and is used to avoid duplication of effort
- The Renewi CSR reports cover all of its operating divisions across the Group and all countries of operation and all sites/operations of the Group. Report boundaries are not constrained by company structure or geography
- However, reports do not include the activities of sub-contractors or suppliers. As a waste management company
 Renewi it's upstream supply chain consists largely of the wastes its sites receive (see the Renewi CSR Policy,
 supply chain section)
- Reporting of joint ventures is on a case-by-case basis. Where Renewi has < 50% share in a company, data is not generally included. Where share is 50% or more reporting is generally by level of share. For example for the UK Joint Venture site at Cumbernauld, environmental data is reported as a proportion representing the shareholding of Renewi (50%) to reflect the financial reporting arrangements. But, H&S and H.R. parameters are reported as 100% for contractual reasons. Specific arrangements for specific joint ventures are decided on at Renewi it's Group CSR Committee</p>
- Where an operation was only operational (or owned by Renewi in the case of acquisitions) for part of the year, data is only be reported for that portion of the year Renewi operated/owned the site
- Conversion factors for calculating carbon dioxide emissions are detailed in appendix 1. Please note that Renewi
 sets itself 5-year key CSR objectives, one of which is the amount of carbon avoidance our activities produce. To
 allow valid comparisons from year-to-year during these 5-year objectives cycles we retain the same carbon
 factors. At the end of each cycle we revise the factors to update them



2. Table of indicators with definitions

2.1 Renewi at a glance

Indicator	Description	Definition
Number of people	Number permanent employees in FTE per country and business line	✓ As already reported as below under 2.2
Number of operating sites	Number active operating centres	✓ Not including offices, small civic amenity and similar sites, and other non-operational sites such as closed sites
Operating sites with recycling/recovery	Number active operating sites	✓ All operating centres with recycling and/or recovery operations on them. This includes multi-functional sites with more than one type of operation on them, one being recycling/recovery
Operational landfill sites	Number active sites	✓ Number of operational landfill sites – not including closed landfill sites (which still can be under our management though) Full data document indicator only
Number waste collection and transport trucks	Number of vehicles per country and business line	 ✓ Number of motor vehicles used for the collection and/or transport of waste. Thus, this excludes non motor (semi-) trailers. It also excludes terrain vehicles, cranes, shovels, light vans, company cars, mopeds, etc. ✓ Only vehicles registered for operational service are reported. This excludes vehicles which aren't in active service

Note much of the above data is already included as below. The key facts and figures data section is simply to show the extent of the Group and to give an indication of the size of its activities. Where data is already included below this is noted next to the indicator. This key facts and figures data is also used in the Group annual financial report.





Protecting and preserving the environment

We take waste and we create something new. This helps to protect the world's natural resources and preserve the planet for future generations. Our work is integral to preserving the environment and it puts us at the heart of the circular economy.



2.2. Recycling and recovery performance		
Definition		Indicator
Total waste in tonnes (collected by Renewi or third parties) sent from Renewi sites (see below) – waste sent to R1 incineration and waste sent to landfill (including Renewi landfill sites) or incineration disposal	V 100	= Recycling rate as % of
Total waste in tonnes (collected by Renewi or by third parties) sent from Renewi sites to third parties for reuse as secondary material or fuel, further processing or recycling, energy recovery, incineration disposal or landfill (including Renewi landfill)	X 100 waste handled	
Total waste in tonnes (collected by Renewi or third parties) sent from Renewi sites (see below) – waste sent to landfill (including Renewi landfill) or incineration disposal	V 100	= Recycling and recovery
Total waste in tonnes (collected by Renewi or by third parties) sent from Renewi sites to third parties for reuse as secondary material or fuel, further processing or recycling, energy recovery, incineration disposal or landfill (including Renewi landfill)	X 100	rate as % of waste handled
Note – for wastes accepted at Renewi landfill sites the % recycled or recovered is zero	•	

Indicator	Description		Definition
Total waste handled at sites (million tonnes)	Total volume	✓	Million tonnes of total waste (collected by Renewi or third parties) sent from Renewi sites to third parties for reuse as secondary material or fuel, further processing or recycling, energy recovery, incineration disposal or landfill (including Renewi landfill)
Materials recycled (million tonnes)	Type of treatment	✓	Million tonnes of total waste (collected by Renewi or third parties) sent from Renewi sites which receive a destination for further (end-) processing, trading to other processors or use of waste directly as a secondary raw material
Materials recovered for energy production from waste (million tonnes)	Type of treatment	√	Million tonnes of total waste (collected by Renewi or third parties) sent from Renewi sites which are sent to incineration or are transformed into waste derived fuels: Icopower pellets, woodchips for biomass, SRF from MBT, etc. Only materials going to production and recovery processes are included. Non-recovery incineration not included
Total materials recycled and recovered for energy production	Type of treatment	✓	Sum of the above (materials recycled and materials recovered for energy production from waste) in million tonnes
Materials disposed (million tonnes)	Type of treatment	✓	Million tonnes of waste accepted at Renewi landfill sites or sent from Renewi sites towards other landfill sites or other waste-disposal companies (no recycling or recovery). Full data document indicator only
Total handled waste per waste type	Tonnes (for each of the types of waste)	√	Million tonnes of waste leaving our sites, split into Renewi standard waste categories (see appendix 2 for categories). Note – where it is not possible to match categories 100%, wastes are allocated to the nearest category. Note – ONLY the 'Top Hierarchy' categories as shown in appendix 2 are used. Full data document indicator only



2.3. Our Carbon Performance

2.3a Carbon emissions from	2.3a Carbon emissions from our activities (CO2-equivalent '000 tonnes)			
Indicator	Description	Definition		
Process based emissions				
Emissions from green composting	CO ₂ equivalents in '000 tonnes	✓ Tonnes waste composted x conversion factor = CO₂ equivalent (see appendix 1 for conversion factors)		
Emissions from hazardous waste treatment	CO ₂ equivalents in '000 tonnes	✓ ATM emissions and other E-PRTR emissions from hazardous waste sites		
Emissions from landfill	CO ₂ equivalents in '000 tonnes	 ✓ Emissions are CO₂ emitted from the combustion of collected landfill gas in a flare or power engines and landfill gas (CO₂ and CH₄) emitted from passive venting of collected gas or emitted from the surface of the landfill ✓ If a methodology for calculating the emissions for a landfill site already exists - a method agreed for regulatory reporting, this is used. Otherwise, GasSim (model used in UK for regulatory reporting) is used ✓ Emissions reported include operational landfill sites and closed landfills where Renewi actively manages gas 		
Emissions from other processes (mechanical biological treatment (MBT) and anaerobic digestion (AD))	CO ₂ equivalents in '000 tonnes	✓ Technology specific calculations are used. These are peer reviewed by Renewi Group CSR Committee		
Transport based emissions				
Fuel used by waste collection and transport vehicles	CO ₂ equivalents in '000 tonnes	 ✓ Includes all waste and recyclable materials collection, transfer, etc, transport movements by road by Renewi vehicles. Does not include third party transport (only emissions from Renewi vehicles are included) ✓ Includes any diesel, petrol, LPG, biodiesel, etc. used (see appendix 1 for conversion factors) ✓ Litres fuel consumed x relevant conversion factor = CO₂ equivalent (see appendix 1 for conversion factors) ✓ Vehicles operated for business purposes but which do not carry waste (such as cars and light vans) are not included in this indicator (see below for this category) 		
Business travel (Fuel used by company lease cars)	CO ₂ equivalents in '000 tonnes	 ✓ Includes all fuel used and reported by lease car companies (business, commuting and private use) ✓ Includes any diesel, petrol, LPG, biodiesel, electricity etc. used (see appendix 1 for conversion factors) ✓ Litres fuel consumed x relevant conversion factor = CO₂ equivalent (see appendix 1 for conversion factors) 		



Energy use emissions	Energy use emissions			
Electricity used at sites and in offices	CO ₂ equivalents in '000 tonnes	 ✓ All electricity used at sites and in offices included. Includes electric motors etc used in recycling and other operations, electric heating, general electricity usage etc. ✓ Electricity consumed (kWh) x relevant conversion factor = CO₂ equivalent (see appendix 1 for factors) ✓ Electricity generated from renewable sources on- site and used on site (other than parasitic usage) is excluded ✓ Imported electricity from renewable sources reported separately in order to use different conversion factors 		
Gas used at sites and in offices	CO ₂ equivalents in '000 tonnes	✓ Gas consumed (kWh or Nm3) x conversion factor = CO₂ equivalent (see appendix 1 for conversion factors)		
Fuel used on sites for plant / machinery and equipment / heating	CO ₂ equivalents in '000 tonnes	 ✓ Includes fuel used in heavy mobile and static plant, terrain vehicles oil heating etc ✓ Litres of fuel (diesel) consumed x relevant conversion factor = CO₂ equivalent (see appendix 1 for conversion factors) 		
Total emissions from significant sources	CO ₂ equivalents in '000 tonnes	✓ Total of 1 (process emissions), 2 (transport emissions) and 3 (energy use emissions) to give Renewi total significant carbon emissions expressed as CO₂ equivalent '000 tonnes (in outline, scope 1 and 2 emissions)		

The above represents Renewi emissions. Below are avoidance indicators: That is Renewi activities, such as recycling and recovery and production of various 'fuels' have a carbon benefit in that they avoid carbon emissions compared with the fuel or material they are displacing. For example, metals separated for recycling and passed to a processor emit less CO₂ than producing the same metal from raw ores. Likewise waste derived fuels may displace fossil fuels such as coal in a cement kiln so reducing CO₂ equivalent tonnes emissions. Renewi does not use a simple add and subtract calculation – rather emissions and avoidance are stated and the reader can make their own conclusions

2.3b Carbon avoidance as a	2.3b Carbon avoidance as a result of our activities		
Indicator	Description	Definition	
Renewable energy generated	CO ₂ equivalents in '000 tonnes	 ✓ Both landfill gas power generation and anaerobic digestion power generation ✓ Comparison used is CO₂ emissions avoided from average grid electricity generation ✓ Electricity generated (kWh) x conversion factor = CO₂ equivalent (see appendix 1 for conversion factors) 	
Waste derived fuels produced and sold	CO ₂ equivalents in '000 tonnes	 ✓ Includes all waste derived fuels: Icopower pellets, woodchips for biomass, SRF from MBT, etc ✓ Only materials going to production and recovery processes are included. Non-recovery incineration not included ✓ Emissions avoided based on calorific value of fuel and what it replaces (see appendix 1 for conversion factors) 	
Materials separated for re- use/recycling	CO ₂ equivalents in '000 tonnes	 ✓ Each waste type recycled to be reported separately ✓ Tonnes waste recycled x relevant conversion factor for each waste type (see appendix 1 for conversion factors) 	
Energy from waste used on site as a fuel	CO ₂ equivalents in '000 tonnes	✓ This indicator describes the use of waste as an alternative fuel at the ATM plant. The corresponding avoided CO₂ equivalents are part of the CO₂ footprint report from ATM	
Total potential avoided emissions	CO ₂ equivalents in '000 tonnes	✓ Total of above to give Renewi total potential avoided carbon emissions expressed as CO2 equivalents in '000 tonnes (in outline, scope 1 and 2 emissions)	



2.3c Carbon emissions and a	2.3c Carbon emissions and avoidance intensity ratios		
Million tonnes greenhouse gases emitted (CO ₂ equivalents) per million tonnes waste handled	Rate	✓ Total emissions from significant sources (page above) / total waste handled = emissions intensity ratio	
Million tonnes greenhouse gases avoided by our activities (CO ₂ equivalents) per million tonnes waste handled	Rate	✓ Total potential avoided emissions (page above) / total waste handled = avoidance intensity ratio	

2.4. Resource use

Indicator	Description	Definition
Electricity consumption	Megawatt hours	 ✓ All electricity used at sites and in offices included. Includes electric motors etc used in recycling and other operations, electric heating, general electricity usage etc ✓ Electricity generated from renewable sources on- site and used on site (other than parasitic usage) is excluded here and put under green electricity generated (below) ✓ Imported electricity from renewable sources is excluded here and put under green electricity purchased (below)
Gas used at sites and offices	Megawatt hours	✓ As for section 3 above energy use based emissions, but expressed as raw consumption data in Megawatt hours (see appendix 1 for conversion factors)
Fuel (such as diesel) used on sites and offices	Megawatt hours	✓ As for section 2.3a above; energy use based emissions, but expressed as raw consumption data in litres used
Total energy use at sites	Megawatt hours	✓ Total of above to give Renewi total energy use at sites expressed in Megawatt hours
Fuel used by waste collection vehicles	'000 litres	 ✓ Includes all waste and recyclable materials collection, transfer, etc, transport movements by road . Does not include third party transport ✓ Includes any diesel, petrol, LPG, biodiesel, etc. used ✓ Vehicles operated for business purposes but which do not carry waste (such as cars and light vans) are not included in this indicator (see below for this category)
% of waste collection / transport truck fleet compliant with Euro VI Standard	Number of vehicles	✓ The Euro VI standard is an official standard to indicate the amount of NO _x and fine particulate emissions



Green electricity generated from waste	Mega Watt Hours	✓ Electricity produced out of landfill gas, anaerobic conversion. Electricity generated and used elsewhere on site and electricity generated and sold to grid are both reported		
Green electricity generated from wind and sun	Mega Watt Hours	✓ Electricity produced with solar panels or wind turbines. Electricity generated and used elsewhere on site and electricity generated and sold to grid are both reported		
Significant spills at sites – number of reported spills required by permits	Number of incidents	✓ Number of spills which were reportable to environmental regulators under site environmental permits. Small scale spills which were not reportable (that is spills which fell below site permit reporting requirements) are not included		

Indicator	Description	Definition
Energy use on sites (MWh per tonne of waste handled)	Rate	✓ Energy used on sites in MWh per tonne of waste handled at sites (as reported at 2.2)
Total waste collected by Renewi trucks	Tonnes	✓ Total tonnes of waste collected by Renewi trucks (this EXCLUDES waste collected by third parties and brought to Renewi sites) – used to calculate the indicator below
Litres of fuel used (per tonne of waste collected / transported)	Rate	✓ Fuel used by Renewi trucks in Litres per tonne of waste collected by these trucks





Keeping our people safe and well

Safety is our first value and number one priority.
There is nothing more important than getting our people home safely every day. Ensuring the health, safety and wellbeing of our people and their full engagement with Renewi is crucial to our success.
We are proud to have that responsibility and we take it very seriously.



2.8. Health and Safety Performance

Indicator	Description	Definition
Number of <u>fatal</u> accidents	Number accidents	An accident resulting in injury, including death, suffered by an employee in a workplace. Workplaces include Renewi's own sites, third party sites including customer sites, where a Renewi employee may be working, and while Renewi employees are actively involved in the collection of wastes, including on the public highway. It would not include road traffic accidents which occur while not actively collecting wastes, such as while travelling between sites. An employee is a permanent employee of Renewi. This would not include non-permanent workers, contractors, other third parties and members of the public. The accident needs to be work related. For example, a heart attack suffered by an employee resulting from non-work causes would not be included.
Number of >3 day accidents	Number accidents	✓ All accidents which result in an injured permanent employee being off-work for more than three working days. Classification does not start until the day after the incident occurred
>3 day accident rate	Rate per 100,000 permanent employees	✓ Number of >3 day accidents / number of permanent employees (FTE) x 100,000 (standard rate)
Number lost time injuries (LTI)	Number of lost time injuries	✓ An accident whereby the injured permanent employee is unable to perform their normally assigned work or restricted work for more than one working day
LTI frequency rate	Frequency rate	✓ Number of LTIs / total number hours worked x 1,000,000
Severity rate	Frequency rate	 ✓ The total number of lost working days per Lost Time Injury accident ✓ The number of working days lost due to workplace injury accidents of permanent employees. This includes lost workdays due to <3 day injury accidents. Working days are all days accept weekends, but including public holidays (because these deviate among different countries)
Number of near-misses raised	Number NM raised	 ✓ An event that did not result in injury, illness or damage, but had the potential to do so. Near miss includes unsafe conditions, unsafe actions and unsafe behaviour, that did not result in any loss. Also called risk reports, close calls or similar ✓ All events that are registered as Near Miss in the SHEQ registration systems
Number of near-misses closed-out	Number NM closed	✓ The number of near misses closed requires that all actions, raised for this near miss, have been implemented or discounted
Near-Miss close-out rate	rate	✓ Number NM closed out / number NM raised x 100 (as a percentage)



2.9. People performance indicators

Indicator	Description	Definition
Total number permanent employees	Number employees in FTE	 ✓ Permanent employees have a contract of employment direct with Renewi and this contract is either for a fixed term (such as a year) or open-ended and not time limited except by retirement ✓ Reported as average annual number (number per month divided by 12) per division and per country ✓ FTE: Full Time Equivalent, one FTE is equivalent to one employee working full-time (e.g. 40 hours a week)
Number of female permanent employees	Number employees in FTE	 ✓ Number of permanent female employees (both operational as non-operational) ✓ Reported as average annual number (number per month divided by 12)
Number of male permanent employees	Number employees in FTE	 ✓ Number of permanent male employees (both operational as non-operational) ✓ Reported as average annual number (number per month divided by 12)
Number of operational permanent employees	Number employees in FTE	✓ Number of permanent operational ('blue-collar') employees, such as operators, lorry drivers, mobile plant drivers etc. Reported as average annual number (number per month divided by 12)
Number of administration, managerial and support employees	Number employees in FTE	 Number of permanent non-operational ('white collar') employees, such as managers, support staff, administration staff etc. Reported as average annual number (number per month divided by 12)
Number of full-time employees	Number employees in FTE	 ✓ Number of permanent employees (both operational as non-operational) with a full time (1 FTE) contract ✓ Reported as average annual number (number per month divided by 12) Full data document indicator only
Number of part-time employees	Number employees in FTE	 ✓ Number of permanent employees (both operational as non-operational) with a less than 1 FTE contract ✓ Reported as average annual number (number per month divided by 12) Full data document indicator only
Number of female statutory plc Board directors	Number employees in FTE	 ✓ Number of female directors (as listed via Company House etc) ✓ Reported as average annual number (number per month divided by 12)
Number of male statutory plc Board directors	Number employees in FTE	 ✓ Number of male directors (as listed via Company House etc) ✓ Reported as average annual number (number per month divided by 12)
Number of female senior managers	Number employees in FTE	 ✓ Number female senior managers – senior managers being managers on organisational levels N-1 to N-3 ✓ Reported as average annual number (number per month divided by 12)
Number of male senior managers	Number employees in FTE	 ✓ Number of male senior managers – senior managers being managers on organisational levels N-1 to N-3 ✓ Reported as average annual number (number per month divided by 12)
Number of employees who left the company during the year	Rate	 ✓ Number of permanent employees which left the company during the reporting year (April 01 up until March 31) – used to calculate the indicator below
Employment turnover rate	Rate	✓ Number of permanent employees which left the company during the reporting year divided by the average number of permanent employees (FTE) during the year



Indicator	Description	Definition
Number NON-permanent employees in FTE	Number employees in FTE	✓ Non-permanent workers, also known as temporary workers, agency workers, non-fixed term contract workers, accommodation workers, systematic workers or other descriptions. See also appendix 4
Total employee absenteeism from work (% of available days)	Rate	 ✓ Total days absence * 100 / Total available days ✓ Days of Absence are the working days an employee cannot work because of illness. This excludes occupational therapy ✓ Total available days are all working days in the reporting year (so all calendar days minus weekend, but including public holidays which don't fall in the weekend), times the number of employees

Indicator	Description	Definition
Permanent employees under 21	Number of employees in headcount	✓ No. Of permanent employees up until 20 years old Full data document indicator only
Permanent employees between 20 and 30 year	Number of employees in headcount	✓ No. Of permanent employees from age 21 to 30 Full data document indicator only
Permanent employees between 30 and 40 year	Number of employees in headcount	✓ No. Of permanent employees from age 31 to 40 Full data document indicator only
Permanent employees between 40 and 50 year	Number of employees in headcount	✓ No. Of permanent employees from age 41 to 50 Full data document indicator only
Permanent employees between 50 and 60 year	Number of employees in headcount	✓ No. Of permanent employees from age 51 to 60 Full data document indicator only
Permanent employees over 60 year	Number of employees in headcount	✓ No. Of permanent employees from age 61 and above Full data document indicator only





Making society better and being a good neighbour

Our actions and our innovations help society towards a more sustainable future. We also understand that our activities can have an impact on the communities that host us and we do our best to mitigate this. Our local communities and society as a whole are key stakeholders for us.



2.10 Community performance

Indicator	Description	Definition
Number of environmental complaints received by our sites/operations	Number complaints received	 ✓ Number of complaints received from any third party relating to an environmental issue (can be reported directly or via a regulator). Includes substantiated and unsubstantiated complaints ✓ If a site has received a particularly high number of complaints, comments are given in footnotes
Average number of complaints per site	Number per operating centre	✓ Total number of complaints / number of operating centres
Type of complaints	Number of types of complaints	✓ Split into the following categories: Odour, litter, vermin (flies, birds, rats etc), traffic (mud on the road, numbers of lorries etc), noise, dust and others

2.11 Governance, compliance and external accreditation

Indicator	Description	Definition
2.11a Accreditations		
ISO 14001 / EMAS	Number of sites	
ISO 9001	Number of sites	 Report number of operating centres certified to ISO14001, EMAS, ISO9001, OHSAS18001, VCA, etc. Specify number of sites certified to each standard separately
OHSAS 18001	Number of sites	
2.11b Our Compliance performan	ce	
Number of environmental convictions and fines	Number of convictions/fines	✓ Convictions (cases where the company goes to court) and significant administrative fines (such as those that can be received in Belgium and the Netherlands) reported
Number of health and safety convictions and fines	Number of convictions/fines	✓ Convictions (cases where the company goes to court) and significant administrative fines (such as those that can be received in Belgium and the Netherlands) to be reported
Legal actions for anti-competitive behaviour, anti-trust and monopoly practices	Number of actions	✓ Convictions (cases where the company goes to court) and significant administrative fines (such as those that can be received in Belgium and the Netherlands) to be reported



Indicator	Description	Definition		
2.11c Our Governance performan	ce			
Number of employees which received training/courses/ workshops on integrity	Number of employees	✓ Number of employees (headcount) which received training, courses or workshops given by integrity managers		
Number of investigations on integrity issues	Number of investigations	✓ Investigations commenced by integrity managers leading to a report for the management		
Total number of advices to employees/ management following integrity notifications	Number of advices	✓ Number of times the integrity management advised employees/management on a notified integrity affair		
Number of reports on ethical misconduct by employees	Number of reports	 ✓ Both ethical misconduct between employees or imposed upon or by external persons. Ethical misconduct includes: Break-in, theft, embezzlement (internal crime) Abuse or improper use of confidential information Fraud Drugs/alcohol/medication abuse Undesirable behaviour/bullying/discrimination Abuse company assets Aggression and violence 		
Number of reports on aggression and violence against or by employees	Number of reports	✓ Both aggression and violence between employees as caused by or imposed upon external persons		
% employees covered by formal safety committees	Percentage	✓ Coverage of organisation by formal safety committees which have a measurable influence on safety policy		
% of operations which have undergone risk assessment for bribery and other similar risks	Percentage	✓ Coverage of organisation by means of policy instruments		



Appendix 1. Carbon conversion factors

Carbon factors

These factors are used to convert energy use, recyclates, material production etc to carbon equivalents. Factors vary from country to country for a variety of reasons. For example, the UK has a greater reliance on fossil fuels than the Netherlands and therefore will have a different conversion factor to express electricity used as a carbon equivalent

Carbon factors for emissions and avoidance

Carbon factors for emissions and avoidance							
Source of emission or	Unit of measurement	Conversion factor to convert to tonnes of carbon dioxide equivalents					
avoidance	om of measurement	NL	BE	UK	EU		
1. Emissions							
Transport based emissions							
Diesel for road transport	litres	0.00323	0.00320	0.00320	0.00320		
Petrol	litres	0.00274	0.002338	0.00315	0.00280		
LPG	litres	0.00181	0.0015088	0.00152	0.00190		
Propane	litres	0.001725					
Business travel train	Travelers Km	0.000006			0.000026		
Business travel air (<700 km)	Travelers Km		0.0002	97			
Business travel air (700-2500 km)	Travelers Km		0.0002	00			
Business travel air (>2500 km)	Travelers Km		0.0001	47			
Energy use emissions							
Electricity - fossil	kWh	0.000649	0.000267	0.000256	0.000323		
Electricity – solar and wind	kWh	0	0	0	0		
Electricity from landfill gas	kWh	0.20	0.28		0.27		
Electricity from anaerobic digestion	kWh	-	0.26	0.0004585	0.51		
Natural gas	see individual column	0.00189 (Nm3)	0.00018396 (kWh)	0.00203 (Nm3	-		
Diesel used on sites	litres	0.00323	0.0026695	0.0025839	0.00320		



Carbon factors Continued...

We first set ourselves quantified key CSR objectives in 2010. These original objectives ran over a five-year cycle, and ended in 2015. One of these five-year 2010-2015 objectives was to improve the level of carbon avoidance our activities produce. We achieved this objective. In 2015 we set ourselves a new and wider range of CSR objectives, again over a five-year period running to 2020. These new objectives also include a carbon avoidance target.

Source of emission or avoidance

Unit of measurement	Conversion factor to convert to tonnes of carbon dioxide equivalents				
Onit of measurement	NL	BE	UK	EU	

2. Avoidance

Waste derived fuels produced and sold							
Icopower pellets	tonne CO ₂ / tonne waste	0.713 ¹	-	-	-		
Woodchips/Wood for biomass incineration	tonne CO ₂ / tonne waste	0.7471	1.088917	-	-		
Wood dust for biomass incineration	tonne CO ₂ / tonne waste	0.6231	1.795025				
SRF from MBT used in cement kilns	tonne CO ₂ / tonne waste	-	1.532932	1.01426			
Non dangerous sludge used in cement kilns	tonne CO ₂ / tonne waste	-	0.469843	-	-		
Dangerous sludge used in cement kilns	tonne CO ₂ / tonne waste	-	0.363036	-	-		
Non dangerous impregnated sawdust	tonne CO ₂ / tonne waste	-	1.237843	-	-		
Dangerous impregnated sawdust	tonne CO ₂ / tonne waste	-	1.203849	-	-		

Many carbon calculations are based on 'factors'. For example, amount of electricity consumed x a factor = amount of carbon emitted. These factors are taken from various sources, such as Government agencies, and are periodically revised by their producers as knowledge increases or external conditions change. To allow comparison between years we did not revise the carbon factors used to arrive at our carbon emissions and avoidance over the five-year period 2010-2015 - any revision

Materials separated for re-use/recycling – main categories

Commercial waste (recovery)	tonne CO ₂ / tonne waste	-0.212
Domestic waste (recovery)	tonne CO ₂ / tonne waste	-0.212
Mineralz	tonne CO ₂ / tonne waste	0.012
Wood	tonne CO ₂ / tonne waste	-0.680
Paper	tonne CO ₂ / tonne waste	0.095
Metals	tonne CO ₂ / tonne waste	-1.613
Plastics	tonne CO ₂ / tonne waste	-0.887
Glass	tonne CO ₂ / tonne waste	-0.021
Organics	tonne CO ₂ / tonne waste	-0.052



during the five-year cycle would have resulted in false year-on-year comparisons. When we set our new objectives in 2015 we took the opportunity to revise the factors we use and bring them upto-date. As a result some of our longer-term carbon data may not be comparable. The factors in this document are revised 2015 onwards factors

Materials separated for re-use/recycling – sub categories					
Other waste	tonne CO ₂ / tonne waste	0.000			
Hazardous waste	tonne CO ₂ / tonne waste	Not known			
Other recyclates / PMD	tonne CO ₂ / tonne waste	Not known			
Bulky (household waste)	tonne CO ₂ / tonne waste	-0.212			

Materials separated for re-use/recycling – sub categories							
Aggregates (replacing sand)	tonnes	0.0023	0.00019	0.0001 ⁹	-		
Aggregates (replacing gravel/rock)	tonnes	0.0049					
Silt/soil	tonnes		0.00019	0.00019	-		
Sieving Sand	tonnes	0.0031					
Asphalt	tonnes	0.019					
Gypsum	tonnes	0.108					
Metals (ferrous)	tonnes	1.736	1.48710	1.48710	-		
Metals (non-ferrous)	tonnes	4.530	12.7 ⁹	12.7 ⁹	-		
Aluminium	tonnes	6.953					
Copper	tonnes	2.107					
Wood	tonnes		0.04799	0.04799	-		
Woodchips (to chipboard industry)	tonnes	0.202	-	-	-		
Rock wool	tonnes	0.093					
Plastics	tonnes	1.207 ⁵	1.55 ¹¹	1.55 ¹¹	-		
Plastics (foils)	tonnes	1.472					
Glass ⁶	tonnes	0.210	0.25310	0.25310	-		
Glass (flat)	tonnes	0.126					
Paper/cardboard	tonnes	0.817	0.45 ⁹	0.45 ⁹	-		
Textiles	tonnes	3.432	1.349	1.349	-		



Carbon factors Continued...

Compost (from green waste)	tonnes		0.0039 ⁹	0.0039^9	-
Compost for agriculture	tonnes	0.171	-	-	-
Compost for potting soil	tonnes	1.207	-	-	-
Compost for other usage	tonnes	0.800	-	-	-
Digestate	tonnes		0.0635^{5}	-	-

Sources of carbon conversion factors

Energy from grid in the State of Ontario Canada, calculated according to Handbook CO2 performance Ladder 2.0 (version 23rd of June 2011) SKAO

2015-2016 CSRC energy efficiency scheme order: table of conversion factors (Version 5: Published 24th June 2015)

DCF Carbon Factors 7 4 2016 11540

Carbon Balances and Energy Impacts of the Management of UK Wastes, ERM December 2006

Waste management options and climate change, AEA Technology for DG Environment 2001

CO2 impacts of transporting the UK's recovered paper and plastic bottles to China, WRAP August 2008

Factors of the DEFRA/DECC's 2009 and Bilan Carbone de L'ADEME, 2011

www.CO2emissiefactoren.nl

Dutch factors EpE protocol for reporting 2018, Dutch Waste Association

Waste recycled conversion factors have been chosen from a number of sources as best available. However, treat with care; what is included and excluded should be considered (eg, a factor for emissions avoided by paper recycling may take into account emissions associated with sorting but already accounted for this in site energy usage). Full life cycle assessment (LCA) figures will not correlate directly with operational emissions data as LCA approach not taken



Appendix 2. Renewi common waste categories

Renewi common waste categories

We use common waste categories across our operations. Data on these categories is collected via a system called QlikView. This operates on two levels: A top hierarchy consisting of highlevel descriptions and a lower hierarchy with more detail descriptions. Data in the Renewi CSR Report and CSR Full data document follow these categories

Waste categories

Top hierarchy description	Lower hierarchy description	Comments	
COMMERCIAL WASTE	COMMERCIAL WASTE	Usually waste inputs	
DOMESTIC WASTE	DOMESTIC WASTE	Usually waste inputs	
SRF / RDF	SRF / RDF	Usually waste ouputs	
LANDFILL	LANDFILL	Waste outputs or input own disposal sites	
MINERALS - C&D waste	C&D (construction and demolition)	Usually waste inputs	
MINERALS - RUBBLE	RUBBLE	 Usually waste inputs 	
WIINERALS - NOBBLE	GRANULATE		
	SOIL		
MINERALS - SOIL / SAND / SLUDGE	SAND	May be inputs or outputs	
MINERALS - SOIL / SAND / SLUDGE	STREET CLEANING SAND		
	SLUDGE / SEWAGE WASTE		
MINERALS - ROCKWOOL	ROCKWOOL	May be inputs or outputs	
WOOD	HIGH QUALITY WOOD (A-WOOD)		
	LOW QUALITY WOOD (B/C-WOOD)	May be inputs or outputs	
	WOOD CHIPS		
	WOOD TRADING		
	WOOD TREE BARK		
	TIMBER		
PAPER	HIGH GRADE (QUALITY) PAPER	Usually waste outputs rather than inputs	
	LOW GRADE (QUALITY) PAPER		
	NEWS & PAMS		
	MIXED PAPER		
	CARDBOARD		
METALS	FERROUS	Usually waste outputs to metal recycling	
IVIETALS	NON FERROUS		
PLASTICS	HIGH QUALITY PLASTICS	STICS Usually waste outputs rather than inputs	
I LAGING	LOW OLIVIETY BLACTICO AND FOUR		



Renewi common waste		GLASS AND CERAMICS		
categories	GLASS	HIGH QUALITY GLASS	Usually waste outputs rather than inputs	
Continued		LOW QUALITY GLASS		
	ORGANICS - GREEN WASTE	GREEN WASTE	Usually waste inputs	
		AGRICULTURAL WASTE		
		GARDEN WASTE		
		GREEN WASTE OTHER		
		FOOD WASTE	Usually waste inputs	
	ORGANICS – FOOD WASTE	SWILL		
		PAST DUE PRODUCTS (ODP)		
	ORGANICS - COMPOST	COMPOST	Usually waste outputs rather than inputs	
	ORGANICS - BIOMASS	BIOMASS	Usually waste outputs rather than inputs	
	ORGANICS – FAT/OILS	FAT/ORGANIC OILS	Usually waste inputs	
	BULKY (HOUSEHOLD) WASTE / WEEE	WEEE (Electrical and Electronical Waste)	Usually waste inputs	
	BULKY (HOUSEHOLD) WASTE / WEEE	BULKY WASTE OTHER	— Osually waste inputs	
	OTHER RECYCLATES / PMD	(DRY) MIXED RECYCLATES / PMD	Usually waste outputs rather than inputs	
	OTHER RECTCLATES / PIND	OTHER RECYCLATES		
	HAZARDOUS - SPECIAL WASTE	SPECIAL WASTE	Usually waste inputs	
		MEDICAL WASTE		
		SOIL	Usually hazardous wastes	
		GRID		
	HAZARDOUS - CONTAMINATED SOIL	TAG		
		REUSE		
		SOIL OTHER		
	HAZARDOUS - PAINT	PAINT		
		SOLVENTS		
		PAINT OTHER		
		SCSRAP / PALLETS		
		EXTERNAL	<u> </u>	
	HAZARDOUS - CONTAMINATED WATER	SHIPCLEANING	 	
		SLUDGE		
		WASTE FUEL		
		WATER OTHER		



	OTHER	Only use if no other alternative	
OTHER	GENERAL WASTE	Only use if no other alternative	
	RUBBER		
	The above categories are those in QlikView. However, different Renewi countries of operation use different sections of the above as they are relevant to their operations. As such not all reporting will cover all of the above categories.		



Appendix 3. Definition of non-permanent workers

Non-permanent workers

Employment law varies across the countries Renewi operates in. One area were a degree of confusion has arisen is what is a non-permanent worker. This appendix gives guidance

Non-permanent workers

There are three main groups of people who perform tasks for Renewi:

- 1. Permanent employees have a contract of employment direct with Renewi, and this contract is not for a fixed or limited time period
- 2. **Non-permanent workers** variously these persons may be called temporary workers, agency workers, contract workers, accommodation workers, systematic workers, fixed term contract workers or other descriptions. These non-permanent workers may be split into two main categories:
 - ✓ External non-permanent workers temporary, contract, accommodation, systematic etc workers typically employed via an external body such as an agency
 - ✓ **Fixed term contract non-permanent workers** workers who have a contract with Renewi, but this contract is time limited. Typical examples may be workers contracted for a fixed time period to cover maternity leave, or on a fixed term time limited contract prior to potential permanent employment
- 3. Other third parties such as contractors performing construction tasks, contract waste collections etc

The difference between permanent employees (1 above) and non-permanent workers (2 above) may be obvious, but the difference between non-permanent workers and other third parties (3 above) such as contractors may be less distinct. If a worker shows the most of the characteristics given in the first column of the table below than it is very likely that they are a non-permanent worker. However, if they show more of the characteristics given in the second column then it is likely they are a contractor or other similar third party and not a non-permanent worker

Non-permanent worker	Contractor / other third party		
Uses Renewi tools, equipment, plant, vehicles etc	Uses their own tools, equipment, plant etc		
Works to Renewi procedures	Works to their own procedures approved by Renewi		
Is paid by time period (day, hour etc)	Is paid by the job / task		
Typically does tasks Renewi employees also do	Typically does tasks Renewi employees do not do		
Renewi reporting of data, internally and externally and whether for human resources or CSR reasons, will be to the above definitions:			

Renewi reporting of data, internally and externally and whether for human resources or CSR reasons, will be to the above definitions: Permanent employees, external non-permanent workers, fixed term contract non-permanent workers



Appendix 4. List of main memberships of industry or other associations

Main memberships	Association name	Associated division	Description
To the right an overview of our main memberships of industry associations is given. This list only covers the main memberships. For information on additional memberships, please visit the websites of the different Renewi divisions and companies	Go4Circle	Commercial Waste Belgium	Industry association for organizations in the circular economy Belgium
	BRBS Recycling	Commercial Waste Netherlands	Industry association for construction and demolition waste companies
	Nederlandse Vereniging voor Afval- en Reinigingsmanagement	Commercial Waste Netherlands	Municipal waste management association Netherlands
	Vereniging Afvalbedrijven	Commercial Waste Netherlands, Hazardous Waste, Monostreams	Waste management association Netherlands
	Transport en Logistiek Nederland	Commercial Waste Netherlands, Hazardous Waste	Industry association for transport and logistics companies in the Netherlands
	Stichting Industrieel Reinigen	Hazardous Waste	Industry association for industrial cleaning
	VOMI	Hazardous Waste	Industry association for service companies in process industry Netherlands
	Environmental Services Association	Municipal UK	Main trade body for waste management UK

