



Liberty Global's Environmental Reporting Criteria 2018

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Liberty Global's Environmental Reporting Criteria (2018)

This document sets out the reporting criteria for Liberty Global plc's 2018 Energy Consumption and Greenhouse Gas (GHG) emissions statements as published in our UK Annual Report & Accounts and in our Corporate Responsibility Report for year ended December 31, 2018.

Reporting period and comparative data

All reported data covers the period from January 1 to December 31, 2018 unless otherwise stated. For comparative purposes and to create new base-year values for our environmental targets, we have made adjustments to our environmental results for 2012 to include representative pre-acquisition values for Virgin Media, which we acquired in June 2013, for BASE in Belgium for 2012 through 2015, which we acquired in February 2016, and for SFR BeLux, for 2012 through 2016, which we acquired in June 2017. We have excluded VodafoneZiggo Holding in the Netherlands from our reporting due to the formation of the VodafoneZiggo Joint Venture with Vodafone in 2016. We have also excluded UPC Austria which was sold to T-Mobile in 2017.

Organizational reporting boundaries

Liberty Global's reported environmental data follows the World Resources Institute and World Business Council on Sustainable Development's GHG Protocol Corporate Standard using the operational control approach. This covers our operations in Europe under the consumer brands Virgin Media, Unitymedia, Telenet and UPC. We have reported 100% of the emissions from Telenet, in which we had an ownership interest of 59.7%, as of December 31, 2018. Emissions from businesses in which we have non-controlling equity stakes are not included within our reported figures.

Acquisitions and disposals

Our policy is to include any new subsidiaries that have been acquired in the first six months of the reporting period. . As such, we had no acquisitions in 2018 for further inclusion in the reporting period.

In terms of disposals, our policy is to exclude any subsidiaries where we no longer have operational control during the reporting period. During 2017, we completed the Liberty Latin America Split-off Transaction, which included Cable & Wireless Communications, VTR and Liberty Puerto Rico and the sale of UPC Austria to T-Mobile. Therefore, we have excluded these operations from our 2018 reporting.

In terms of our presentation of Virgin Media (UK), Base and SFR BenLux, please see the comparative performance information above.

The data collection process

Data from our activities has been collected by the relevant providers across all market operations and entered into the cr360 system. The provided data has been reviewed and approved by the relevant subject matter experts at each of our market operations. This data was then reviewed and analyzed by Liberty Global's Corporate Responsibility team and our corporate issue area experts, before being signed off by senior management and the Legal department, as well as the Chief Financial Officer (CFO) in each of our market operations.



Location and market-based emissions

In 2015, the Greenhouse Gas (GHG) Protocol changed its guidelines for reporting Scope 2 emissions from purchased electricity. For companies like Liberty Global, this change has meant that Scope 2 emissions should now be reported as two numbers instead of one.

The first number is total Scope 2 emissions using the “location-based” methodology. This method involves applying a “grid average” emissions factor, which is an average that relates to the grid on which energy consumption occurs. In Europe, this usually relates to a country-level electricity emissions factor, and is effectively the same as the method required in the original GHG Protocol Corporate Standard.

The second number is total Scope 2 emissions using the “market-based” methodology. This method involves using supplier-specific emissions information wherever available and then applying the relevant “residual mix” emissions factor to any electricity that does not have supplier-specific emissions information. The market-based method was designed to better reflect electricity purchasing decisions, including accounting for the impact of green or low-carbon electricity.

In 2015, for the first time, we collected supplier-specific emission factors from our global operations. For our 2014, 2013 and 2012 data, we have used the residual mix emission factor due to the lack of available prior year supplier specific emission factors.

Environmental Impacts

In line with the GHG Protocol, our GHG emissions have been calculated in carbon dioxide equivalent (CO₂e) using the latest, most relevant emission conversion factors according to the countries in which we operate. For Scope 2 electricity, we have a policy to recalculate historic GHG emissions when more precise emission factors become available for previous reporting years.

For Scope 1 emission sources, we have applied emission factors produced by the Department for Environment, Food & Rural Affairs (Defra 2017) – UK Government GHG Emission Conversion Factors for Company Reporting.

For Scope 2 emission sources, the GHG intensity of electricity varies significantly among countries, and also within geographically large countries. As such, for Scope 2 ‘location-based’ (electricity) GHG emissions, we have applied the following location-specific emission factors for our operations:

- United States – Environmental Protection Agency (EPA) - Emissions & Generation Resource Integrated Database (eGRID) 2018 (RMPA and CAMX sub-regions)
- United Kingdom – Department for Environment, Food & Rural Affairs (Defra 2018) – UK Government GHG Emission Conversion Factors for Company Reporting

For all of our other market operations, we have applied electricity emission factors from the International Energy Agency (IEA).



For our Scope 2 ‘market-based’ (electricity) GHG emissions, we have applied supplier-specific emission factors where available, with factors from the Reliable Disclosure (RE-DISS 2017) applied to any remaining electricity consumption for our other European operations. For the U.S. we have applied the grid average from eGRID 2017.

District heating as a Scope 2 GHG emission source is not widely used, but where it is we have applied an emission factor from Defra.

Reporting Year	Electricity Consumption (kWh)	Emission Factor (kg CO2e / kWh)	Emission Factor Source	GHG Emissions (Metric ton of CO2e)
2014	100,000	0.40	Defra / IEA 2016 (2014 generating year)	40
2015	100,000	0.35	Defra / IEA 2017 (2015 generating year)	35
2016	100,000	0.35	Defra / IEA 2017 (2015 generating year)	35
2017	100,000	0.35	Defra / IEA 2017 (2015 generating year)	35
2018	100,000	0.28	Defra / IEA 2018 (2016 generating year)	28

For Scope 3 emission sources, we have applied emission factors produced by the Department for Environment, Food & Rural Affairs (Defra 2018) – UK Government GHG Emission Conversion Factors for Company Reporting.

All calculations were based on site-specific activity data collected by our teams around the world. We have made every effort to capture the activity data as accurately as possible. However, in some cases, it was neither possible nor practical to do so, and we have therefore made estimates. In order to ensure a consistent approach in estimating data, we implemented a hierarchy of data sources. As a results, we have amended prior years’ data to improve accuracy.

The majority of our environmental data comes from third-party sources, such as energy invoices. In limited cases, where this information was not available, we estimated the consumption data based on our previous consumption, the financial cost of the energy consumed, and/or the technical specifications of the equipment.

Scope 1 (Direct): emissions come from sources that are company owned or controlled, including: emissions from static combustion (i.e. fuel used in generators for heating/power); mobile combustion (i.e. vehicle and aviation fuel from company owned or leased fleet); and coolants and propellants used (i.e. in air conditioning units and fire suppression systems). This information was collected via company fuel cards, business travel expenses, third party invoices and third party site visits. Gases included: CO2, N2O, CH4, hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).



Scope 2 (Indirect): emissions from purchased electricity, heat and steam. This information was collected in electricity consumption invoices, co-location service invoices (i.e. where electricity is estimated by market operations), on-site meters or inverters. Gases included: CO₂ (for the UK CH₄ and N₂O gases are also included).

Scope 3 (Indirect): emissions from business air and land travel (includes the use of employee-owned vehicles for business purposes, flights taken by employees and travel in rental cars, taxis and public transportation); emissions arising from water, waste (which includes the impact of recycling customer premises equipment) and travel by our third-party service and installation vehicles. This information was collected via third party service invoices and reporting (e.g. corporate travel agency), business travel expenses and estimations by our market operations. Gases included: CO₂, N₂O, CH₄ (where available).

Beginning in 2014, we broadened our Scope 3 emissions reporting to include travel by third-party logistics, service and installation vehicles. This data was excluded in our 2013 and 2012 reporting. In 2017, for the first time, we have included emissions from travel by third-party 'network expansion' vehicles at Virgin Media in the UK. This was expanded to all our country operations in 2018. The data is estimated based on either a central model or estimations provided directly by the country operations.

Carbon offsets and their related CO₂e savings have been reported separately and they do not form part of our total GHG emissions, as per the GHG Protocol Corporate Standard.

Environmental intensity metric

Our environmental intensity metrics provide us with meaningful targets against which to measure our business operations' energy usage. We measure our Scope 1 and 2 market-based emissions per terabyte (TB) of data traffic generated as we run our networks and customers use our services. This calculation reflects internet protocol (IP) based data traffic from fixed broadband services, such as web browsing, IP streaming of video and voice services, from all of our market operations that we can reliably measure. Approximately 55% of our total revenue in 2017 was IP based.

Currently, our intensity calculations do not take into account data traffic generated through non-IP-based and non-cable services. These services include analog television, asymmetric digital subscriber line (ADSL) and others, because power consumption does not reflect the actual traffic generated by customers through use of these services. We intend to convert all non-IP based services to IP-based over the next 10-15 years. As we migrate to full IP, our intensity metrics will reflect an increasing proportion of our total services, eventually covering our entire service offerings.

In 2018, our GHG emissions intensity was calculated on the basis of Scope 1 and 2 market-based emissions per TB of actual data traffic generated from all of our market operations.

In 2017, our GHG emissions intensity was calculated on the basis of Scope 1 and 2 market-based emissions per TB of estimated data traffic generated from all of our market operations except Telenet, where actual data was available. As such, we used actual data for Telenet and made estimations for our other operations. These estimations were based on actual data measured elsewhere in the network. It is important to note that operational hurdles can occur in a network, and in such cases, we have tried to achieve the best estimated values possible while being fully transparent. In these cases, due to the existing back-up measurements, we achieved in our opinion, the most accurate estimates possible.



In 2016, our GHG emissions intensity was calculated on the basis of Scope 1 and 2 market-based emissions per TB of actual data traffic generated from all but four of our market operations. Data was estimated for Virgin Media Ireland and our UPC operations in Switzerland, Poland and Romania to ensure TBs of data that were not measured during a network upgrade have been accounted for accurately. These estimations were based on actual data measured elsewhere in our network. These estimations used the measured flow of traffic further up the network, which was not impacted by network upgrades, and multiplied it by the percentage correlation between the two types of measurements. It is important to note that operational hurdles can occur in a network, and in such cases, we have tried to achieve the best estimated values possible while being fully transparent. In these cases, due to the existing back-up measurements, we achieved in our opinion, the most accurate estimates possible.

In 2015 and 2014, our GHG emissions intensity was calculated on the basis of GHG emissions per TB of actual data traffic generated from all of our market operations. In 2013, we used actual TB data available from 10 market operations and estimates from four market operations. The estimates calculated for Virgin Media UK, Telenet, VTR and Liberty Puerto Rico were based on the assumptions that the users in these markets consumed data similar to the rest of our operations for which actual data usage was available.

We rebased the terabytes of data for the previous years for Virgin Media (UK), for comparative purposes and to create new base-year values for our environmental targets.

