



Liberty Global's Environmental Reporting Criteria 2016

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This document sets out the reporting criteria for Liberty Global plc's 2016 Greenhouse Gas (GHG) emissions statements as published in its UK Annual Report & Accounts and in its Corporate Responsibility Report for year ended December 31, 2016.

Reporting period and comparative data

All reported data covers the period January 1 to December 31, 2016 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 on June 7, 2013, and for BASE in Belgium for 2012 through 2015, which we acquired in February 2016. We have excluded Ziggo Group Holding in the Netherlands from our reporting due to the recent formation of the Dutch Joint Venture (JV) with Vodafone.

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 global operations, including Virgin Media, operations under the UPC brand, Unitymedia, Telenet, VTR and Liberty Puerto Rico. We have reported 100% of the emissions from Telenet and Liberty Puerto Rico, in which we had ownership interests of 57.4% and 60.0%, respectively, as of December 31, 2016.. 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. Therefore, we include the recent acquisition of BASE in Belgium (completed in February 2016) and of Tullamore Beta Limited, the parent of TV3, a commercial broadcaster, in Ireland (completed in December 2015) in our 2016 data.

In May 2016, we completed the CWC Acquisition. Due to the nature and size of CWC, a readiness review over the 2016 environmental data will be carried out prior to inclusion of CWC within our 2017 GHG reporting. Therefore, we have excluded CWC from our 2016 reporting.

In terms of disposals, our policy is to exclude any subsidiaries where we no longer have operational control during the reporting period. In December 2016, we and Vodafone formed the Dutch JV, therefore, we have excluded Ziggo Group Holding from our 2016 reporting.

In terms of our presentation of Virgin Media and Base performances, please see the comparative data information above.

The data collection process

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



Location and market-based emissions

In 2015, the 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. The location-based 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. The market-based method involves using supplier-specific emissions information wherever it is 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 has been 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

Our Scope 1 and 3 emissions are calculated by using the UK Department for Environment, Food and Rural Affairs (DEFRA) emission factors (2016). In the UK, our scope 2 location-based emissions are calculated by using the DEFRA emission factors (2016).

In all of our other European-based operations, we calculated our Scope 2 location-based emissions by using DEFRA international emissions factors (2015). Please note, in 2016, DEFRA published new emission factors, which no longer include overseas electricity generation factors (Scope 2). Therefore, the applied DEFRA emission factors for overseas electricity generation are not the most up to date Scope 2 emission factors and they don't represent the most recent grid mixes of electricity generation in some regions where we operate. This represents a known GHG accounting accuracy weakness in our reporting that is likely to result in an overstatement of Scope 2 location-based GHG emissions, due to the overall trend of de-carbonization within the national electricity grids where we operate. As part of our 2017 reporting, we will apply the latest IEA emissions factors to our GHG reporting.

In Latin America, we use the IEA (2015) emissions factors in Chile and the Energía Eléctrica de Puerto Rico - Electricity Generated (2011) emission factors in Puerto Rico. We use the US Environmental Protection Agency RMPA eGRID region (2012) emission factors for our corporate office in Denver, Colorado.

Our market-based emissions are calculated by using supplier-specific emissions information wherever it is available and then applying the relevant “residual mix” emissions factor to any electricity that does not have supplier-specific emissions information. Reliable Disclosure (RE-DISS) European Residual Mixes (2014) emission factors are available for all markets operations except Chile, Puerto Rico and the US. Where no residual mix emission factor is available, we have used the grid average.

All calculations are 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 is neither possible nor practical to do so, and we have therefore made estimates. In order to ensure a consistent approach in estimating data across the Group, we have implemented a hierarchy of data sources. We have amended prior years' data as a result of previously used estimates and other changes that have been identified 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 previous periods' 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 is 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 is 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. In 2016, 2015 and 2014, emissions from travel by our third-party service and installation vehicles were included as part of our Scope 3 emissions. This data was excluded in our 2013 and 2012 reporting. This information is collected via third party service invoices and reporting (e.g. corporate travel agency), business travel expenses and estimations by the market operations. Gases included: CO₂, N₂O, CH₄ (where available). 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 metrics

In order to provide a meaningful target to measure our energy usage against our business operations, we measure our Scope 1 and 2 market-based emissions per terabyte (TB) of data traffic generated as we run our networks and our customers use our services. This calculation reflects internet protocol (IP) based data traffic from fixed broadband services, such as web browsing, IP streaming voice and video services, from all of our market operations that we can reliably measure. Approximately 50% of our total revenue is IP based.

Currently, our intensity calculations do not take into account data traffic generated through non-IP-based and non-cable-based services. These are services such as cable television, asymmetric digital subscriber line (ADSL) and others. This is because power consumption for these services is calculated per unit of installed hardware and does not reflect actual traffic generated by customers through use of the services. We intend to convert all non-IP based services to IP-based over the next 10-15 years. As services migrate to IP-based, our intensity metric will reflect an increasing proportion of our total services, eventually covering our entire offerings.

In 2016, our GHG emissions intensity is calculated on the basis of Scope 1 and 2 market-based emissions per TB of actual data traffic generated from all but four market operations. Data was estimated for Virgin Media Ireland and our UPC operations in Switzerland, Poland and Romania to ensure TB of data that was not measured during a network upgrade is accounted for. The estimation is based on actual data measured elsewhere in the network. The estimation uses the measured flow of traffic further up the network, which was not impacted by the network upgrade issue, and multiplies 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 to try to achieve the best estimated value possible while being fully transparent. In this case, due to the existing back-up measurements, we can achieve in our opinion the most accurate estimate 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 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 assumption that the users in these market operations consume data similar to the rest of our operations for which actual data usage is available.

We have 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.

