

TULLOW

Tullow's

GHG Emissions Scope & Calculation Methodology

Tullow Oil plc

GREENHOUSE GAS (GHG) REPORTING BOUNDARIES

Tullow Oil reports its greenhouse gas emissions in line with the World Resources Institute (WRI)/ World Business Council for Sustainable Development (WBCSD) GHG Protocol Corporate Standard and Corporate Value Chain (Scope 3) Standard and IPIECA Estimating petroleum industry value chain (Scope 3) greenhouse gas emissions. The scope of our greenhouse gas reporting includes all of Tullow's countries of operation including United Kingdom, Ghana, Kenya, Suriname, Guyana, Argentina, and Côte d'Ivoire as well as our non-operated assets in West Africa:

- Côte d'Ivoire: Espoir
- Gabon: Etame Complex (Etame, North Tchibala, Avouma, South Tchibala, Ebouri), Tchatamba (South, West, Marin), Turnix, Limande, Simba, Echira, M'Oba, Niungo, Oba, Ezanga Complex (Gwedidi, Mabounda, Maroc, Maroc Nord, Mbigou, Niembi, Omko, Onal)

ORGANISATIONAL REPORTING BOUNDARIES:

Material emissions categories	Organisational boundary reported	
	Net equity share	Operational control
Scope 1: Direct Energy Consumption and Direct Emissions	✓	✓
Scope 2: Emissions from Purchased Electricity	✓	✓
Scope 3: Business Travel		✓
Scope 3: Non-operated assets*	✓	✓
Scope 3: Employee Commuting		✓
Scope 3: Transportation and Distribution		✓
Scope 3: Waste Disposal		✓
Scope 3: Purchased Goods and Services		✓
Scope 3: Capital Goods		✓
Scope 3: Use of Sold Products		✓

* Emissions from our non-operated assets are considered Scope 3 following the GHG Protocol Technical Guidance for Calculating Scope 3 emissions (Category 15: Investments). However, Tullow has a commitment to achieve net zero emissions (Scope 1 and 2) on a net equity basis by 2030, against a 2020 baseline. From a net equity perspective, Tullow therefore includes the proportional emissions from our non-operated assets, including those associated with monitored decommissioning activities in the UK North Sea, within the net equity emissions reporting boundary.

NET ZERO COMMITMENT¹

Tullow has and will:

- Embed mitigation of climate change risks in our strategy, decision-making on capital allocation and management compensation;
- Ensure our business strategy responds to evolving climate-related transitional (market, reputational, technology, regulatory, policy, legal and financial) and physical risks;
- Increase transparency in our performance reporting, including reporting in alignment with the recommendations of the Taskforce on Climate Related Financial Disclosures and other key global benchmarks including CDP. This will include stress testing our portfolio annually to ensure its resilience in a 1.5-2°C scenario in support of the Paris Agreement goals and reporting transparently on the findings;
- Seek to influence operator efforts on non-operated joint ventures to ensure projects minimise emissions; and
- Implement its Net Zero delivery plan to achieve net zero Scope 1 and 2 emissions from its operations by 2030.

¹ Our Net Zero Commitment is focused on Scope 1 & 2 emissions on a net-equity basis, however offsetting residual hard to abate emissions will be 100% attributable to Tullow's emission balance.

CARBON INTENSITY CALCULATION ²

Tullow's Carbon intensity is expressed as both tonnes of CO_{2e} per thousand tonnes of hydrocarbon produced, as well as kilograms (Kg) of CO_{2e} per barrel of oil equivalent (boe).

$$\frac{\text{Scope 1 emissions (tonnes CO}_2\text{e)} + \text{Scope 2 emissions (tonnes CO}_2\text{e)}}{\text{thousand tonnes of hydrocarbon produced}}$$

$$\frac{\text{Scope 1 emissions (kilograms CO}_2\text{e)} + \text{Scope 2 emissions (kilograms CO}_2\text{e)}}{\text{barrels of oil equivalent}}$$

Scope of the numerator:

- Greenhouse gases in scope: CO₂, CH₄ and N₂O expressed as CO_{2e}
- Assets in scope within the operational control reporting boundary: all controlled³ and operated assets, excluding monitored⁴ activities
- Assets in scope within the net equity share reporting boundary: all controlled and operated assets, including monitored activities

Scope of the denominator:

- Total hydrocarbons produced, measured as either tonnes of hydrocarbons or barrels of oil equivalent, in the reporting period from all operated assets. Within the operational control boundary reporting, only the production from assets owned by Tullow is included, however under the net equity reporting boundary, production from non-operated assets will also be included.
- Production of gas, measured as million standard cubic feet per day, in the reporting period from all operated assets, converted to tonnes of hydrocarbons or barrels of oil equivalent. Gas production is measured at the wellhead. Within the operational control boundary, only the production from assets owned by Tullow is included, however under the net equity reporting boundary, production from non-operated assets will also be included.

KEY ASSUMPTIONS

Scope 1 emissions

- IPECA Oil and Gas Industry Guidance on Sustainability reporting for the oil and gas industry, Appendix Measurement Units and Conversion Factors – various conversion factors
- IOGP Environmental Data Collection User Guide -2019 Data – various conversion factors
- Source: UK Ministry of Defence Standard 91-91 Issue 7 – aviation fuel conversion factors
- DEFRA Greenhouse Gas Emission Conversion Factors – greenhouse gas emission factors and global warming potential for various fuels, electricity, fluorinated gases (F-gas) and ozone-depleting substances (ODS)
- Oil and Gas UK EEMS Atmospheric Emissions Calculations (Nov 2008) – emission factors for combustion of diesel and fuel gas in turbines, boilers and engines
- The gas composition of vent gas from tank tops on Tullow's operated asset, Jubilee was reviewed in 2020. Previously the vent gas was assumed as 100% methane, however, laboratory analysis indicates the actual composition of methane in vent gas is 1.371%.
- Lab analysis of fuels used in our Ghana operations allows for more specific calculation of Scope 1 emissions utilising the specific densities of diesel, jet fuel, natural gas and vent gas in our operated assets in Ghana. We apply these emission factors to our Ghana operations to ensure consistency in our calculations and for transparent reporting against our 2020 baseline.
- Flared gas will contain a small percentage of unignited hydrocarbons (typically 1-2%) and the methane component of this unignited emission is also reflected in the overall CO₂ equivalent emissions

² Carbon intensity will be calculated on an operational control as well as net equity basis, in line with the reporting boundaries defined herein

³ Controlled sites are those where Tullow sets EHS management standards and directly supervises and enforces their application

⁴ Monitored sites are those where Tullow can influence but cannot set EHS management standards and/or cannot directly supervise and enforce their application. This includes production activities from our non-operated portfolio as well as decommissioning activities.

Scope 2 emissions

- Emissions from consumption of purchased electricity at Tullow's main offices are calculated using the 2019 version of the DEFRA UK electricity conversion factor.

Scope 3 emissions

Tullow has been supported by GHD Group for its scope 3 Greenhouse Gas (GHG) emissions calculations. GHD has followed the Greenhouse Gas Protocol Technical Guidance for Calculating Scope 3 Emissions (version 1.0) (2013). Emissions are from eight categories of Scope 3 emissions, including:

Category 1 & 2: Purchased goods and services & Capital Goods: GHG Protocol Scope 3 Guidance spend based methodology is used for Categories 1 and 2 as data on the physical quantity of purchased good and services was not available to adopt a supplier specific method or the hybrid method indicated in the guidance. GHD used its proprietary software which calculates carbon emissions by applying Environmentally Extended Input-Output (EEIO) factors to the spend data. As the EEIO method does not consider price inflation, the system may assume more goods were purchased for the £ spent, whereas price per quantity of the good may have increased and hence more spend is captured by Tullow Accounts department.

- **Category 4:** Upstream Transportation and Distribution (distance-based method) – Emission factor sources are from DEFRA
- **Category 5:** Waste Generated in Operations (average-based method) – conversion factors sourced from DEFRA & IPIECA Sustainability reporting guidance, Appendix: Measurement Units and Conversion Factors
- **Category 6:** Business Travel (distance-based method)- The emission factors used are from the 2020 UK Government GHG Conversion Factors for Company Reporting, v1, Business Travel
- **Category 7:** Employee Commuting – conversion factors sourced from 2020 UK Government GHG Conversion Factors for Company Reporting, v1, Business Travel and Passenger Vehicles – average based methodology
- **Category 11:** Use of sold Products: Equity control. IPIECA Guidance on Scope 3 emissions Final Product Method (direct end use). Emissions from use of sold products = \sum Quantity of product sold (bbl.) x average hydrocarbon component % x Combustion emission factor (kg emissions/bbl.)
- **Category 15:** Investments (investment-specific method) – these are non-operated assets, and the conversion factors are the same as Scope 1 (under the net-equity share reporting boundary these will be reported as scope 1)