

ENVIRONMENT, HEALTH AND SAFETY REPORTING CRITERIA 2019 BASELINE – 2023 ANNUAL REPORT

This document sets out the scope, principles, and methodologies used in reporting environment, health, & safety (EH&S) metrics in the Environment, Health & Safety section of Tate & Lyle's 2023 Annual Report (Report).

OUR GENERAL REPORTING PRINCIPLES

We have sought to ensure that:

- The reported data accurately reflects our performance and serves the general needs of the Report's users.
- Information reported is transparent to enable the Report's users to have confidence in the integrity of the data and information we report.
- The data reported is meaningful and consistent with the definitions, scope and boundaries stated in these Reporting Criteria.
- Consistent data scope and methodologies are used year-to-year and between our base year (2019) and subsequent years to provide accurate and transparent performance comparison over time. Any material changes in data scope or measurement methodologies versus the previous reporting year, or the base year, are made clear.
- Any specific, material exclusions are stated and explained.
- The use of any assumptions we make regarding our measurement and calculation methods are stated.

Restatement of Reported Data

We periodically open, close, acquire or divest manufacturing, R&D and office facilities based on business requirements. As appropriate to maintain or improve the accuracy and/or comparability of data and performance trends between years and/or with the base year of 2019, and/or where any variance in prior years' data has been identified, the data is restated in the Report.

Reporting Boundaries

The reporting boundaries used in the Report are as follows:

- Environmental, Health & Safety related performance data is reported by calendar year (i.e., 01 January 2021 through 31 December 2021) to ensure compliance with EH&S regulatory reporting requirements.
- Safety performance data is reported from all Tate & Lyle-owned and joint-venture manufacturing facilities, offices, and research & development centers for all Tate & Lyle employees, regardless of the duration of employment, and contractors.
- Environmental performance data is reported from Tate & Lyle-owned and joint-venture manufacturing facilities where Tate & Lyle has operational control or responsibility for environmental compliance. Excluded are stand-alone offices and labs, grain elevators and bulk stations, which together generate less than 5% of Tate & Lyle's total Scope 1 and Scope 2 greenhouse gas (GHG) emissions.

Site Openings, Restarts & Acquisitions

Unless otherwise stated, the following principles are applied:

- EH&S data is measured from the date of purchase or operation start date of a new facility.
- Safety data is included in the external reporting scope from the first day of operation under our ownership / control (i.e., safety data from a manufacturing facility purchased in March 2021 would be first reported in the 2022 Annual Report).
- Environmental data is included in the external reporting scope after data has been measured for one full calendar year of operation under our ownership / control (i.e., environmental data from a manufacturing facility purchased in March 2021 would be first reported in the 2023 Annual Report after a full calendar year of reporting & verification).

- The environmental targets baseline is adjusted to incorporate acquired sites and restated when performance data is first included in the external reporting scope (i.e., the 2019 baseline will be restated to incorporate environmental data from a manufacturing facility purchased in March 2021 in the 2023 Annual Report after a full calendar year of reporting & verification).

Site Closings and Divestitures

Unless otherwise stated, the following principles are applied:

- Safety data is included up until the date of sale and/or closure, as far as practical.
- Environmental data is included up until the last full month of ownership / control.
- Environmental target baselines are adjusted when sites are divested to remove them from the baseline and subsequent reporting years, changes are communicated.

Data Quality Assurance

Since 2018, the system of record for EH&S process related data is Benchmark ESG – The Next Generation of Benchmark (“Benchmark”), which is web-based and commercially available. All EH&S process data referred to herein, except Scope 3 GHG emissions, is audited pursuant to internal procedure which requires internal EH&S professionals to review performance data on a regular basis. All publicly reported EH&S data is audited by Tate & Lyle’s internal audit team and third-party auditors annually.

REPORTING DETAILS AND METHODOLOGY

Safety Data

The scope of all safety data is defined in the Reporting Boundaries section above.

Recordable Incident Rate (also referred to as the Total Incident Recordable Rate (TRIR))

- **DEFINITION:** The number of work-related injuries and illness cases as defined by U.S. Occupational, Health and Safety Administration (OSHA) recordkeeping requirements multiplied by 200,000 and divided by the total hours worked in the calendar year.
- **SCOPE:** All full-time, part-time, and contracted employees per the Reporting Boundaries section above. This includes work-related travel but excludes travel to/from the place of work.
- **METHOD:** Safety data is recorded by incident and reported at the facility, organization, and business levels. EH&S related incidents are communicated immediately upon entry through Benchmark, summarized weekly, reviewed with Senior Leaders monthly, and internally and externally audited.
- **REPORTING METHODOLOGY:** *Recording and Reporting Occupational Injuries and Illnesses*, 29 CFR Part 1904, OSHA, February 2020

Lost Time Rate (LTR)

- **DEFINITION:** The number of work-related injuries and illness cases as defined by U.S. OSHA recordkeeping requirements that resulted in restricted workdays and days away from work multiplied by 200,000 and divided by the total hours worked in the calendar year.
- **SCOPE:** All full-time, part-time, and contracted employees per the Reporting Boundaries section above. This includes work-related travel but excludes travel to/from the place of work.
- **METHOD:** Safety data is recorded by incident and reported at the facility, organization, and business levels.
- **REPORTING METHODOLOGY:** *Recording and Reporting Occupational Injuries and Illnesses*, 29 CFR Part 1904, OSHA, February 2020

Environmental Data

The scope of all environmental data is defined in the Reporting Boundaries section above, excepting inclusion of the London office's energy and GHG data as explained below.

Energy Use

- **DEFINITION:** The consumption of the chemical fuel sources biomass, natural gas, petroleum and coal, steam, and electricity.
- **SCOPE:** Tate & Lyle-controlled manufacturing facilities per the Reporting Boundaries section above, as well as our London office per UK Reporting requirements.
- **SOURCE:** Primarily based on third party invoices or, in their absence, from calibrated meter readings.
 - Natural gas, gasoline/petrol, gas/diesel oil, residual fuel oil, liquified petroleum gas (LPG), biomass, and coal
 - Onsite Combined Heat and Power (CHP) plants
 - Purchased electricity – Where process and non-process energy uses are metered separately, only included is the process energy; where process and non-process electricity uses are metered together, both are included.
 - Purchased steam
 - Fuel for onsite mobile equipment
- **UNITS:** Gigajoules (GJ)
- **METHOD:** Invoiced electricity, steam, and fuel usage is entered into Benchmark, which converts reported units (e.g., m3, scf, kg, short tons, litres, kWh, mmBtu, etc.) to GJ by applying the most appropriate and recent calorific conversion factors from the sources given and in accordance with the reporting guidance below. Where more accurate, specific energy values of fuel sources are known, these are calculated at the site-level prior to entry into Benchmark and these calculations are provided as supporting evidence within Benchmark.
- **CONVERSION FACTOR SOURCES**
 - *The International System of Units (SI) – Conversion Factors for General Use*, U.S. Dept. of Commerce, Technology Administration, National Institute of Standards and Technology, 2006
 - *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, U.S. Environmental Protection Agency (EPA), revised 08 Feb 2019
 - *Annex II: Metrics & Methodology. In: Climate Change 2014: Mitigation of Climate Change*. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014
- **REPORTING METHODOLOGY**
 - *Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance*, HM Government, March 2019

Greenhouse Gases (GHG), Scope 1 & 2

- **DEFINITION:** The greenhouse gas emissions resulting from onsite energy consumption
 - **GREENHOUSE GASES:** carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃)
 - **SCOPE 1 EMISSIONS:** emissions from the onsite combustion of fuel
 - **SCOPE 2 EMISSIONS:** emissions from purchased electricity and steam
 - **BIOENERGY:** energy generated from the conversion of solid, liquid, and gaseous products derived from biomass
 - **BIOMASS:** any organic matter (i.e., biological material) available on a renewable basis. This includes feedstock derived from animals or plants, such as wood and agricultural crops, and organic waste from municipal and industrial sources.
 - **LOCATION-BASED METHOD:** reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data).
 - **MARKET-BASED METHOD:** reflects emissions from electricity that companies have purposefully chosen (or their lack of choice). It derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims.

The Science Based Targets initiative approved target language: *Tate & Lyle PLC commits to reduce absolute scope 1 and 2 GHG emissions 30% by 2030 from a 2019 base year. The target boundary includes biogenic emissions and removals from bioenergy feedstocks.*

- **SCOPE:**
 - Tate & Lyle-controlled manufacturing facilities per the Reporting Boundaries section above, as well as our London office per UK Reporting requirements. London's Scope 1 and 2 emissions are reported, but they are excluded from performance measurements against Scope 1+2 targets.
 - CH₄ and N₂O biogenic emissions and removals from bioenergy feedstocks
- **SOURCE:**
 - Energy usage
 - CO₂ emissions measured directly from coal boilers at one U.S. site
 - Contractual instruments for the sale and purchase of energy where available (i.e., Renewable energy certificate at Koog, direct contracts at Decatur, and supplier-specific emission rates at Loudon)
- **UNITS:** Tonnes carbon dioxide equivalent (CO₂e)
 - A tonne of carbon dioxide equivalent (CO₂e) comprises one metric tonne of carbon dioxide or an amount of any other GHG with an equivalent global warming potential, calculated consistently with international carbon reporting practice.
- **METHOD:** Benchmark converts reported fuel and energy quantities to tonnes CO₂e by applying the most relevant emission factors available at the time of reporting from the sources below and in accordance with the calculation sources below. Scope 2 emissions are reported according to both the location- and market-based methods.
- **EMISSION FACTOR SOURCE**
 - *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, US EPA, revised 08 Feb 2019
 - *The Netherlands: list of fuels and standard CO₂ emission factors*, Netherlands Enterprise Agency, 2020
 - *U.S. Environmental Protection Agency Emissions and Generation Integrated Database (eGRID)*
 - *International Energy Authority (IEA)*
 - *Greenhouse gas reporting: conversion factors 2021*, UK Government, Department for Business, Energy & Industrial Strategy, January 2022
- **REPORTING METHODOLOGY**
 - *The Greenhouse Gas Protocol, a corporate Accounting and Reporting Standard*, WBCSD/WRI, Revised 2015
 - *GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard*, WBCSD/WRI, 2015
 - *Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance*, HM Government, March 2019
 - *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, US EPA, revised 08 Feb 2019
 - *Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance*, HM Government, March 2019
 - *SBTi Criteria and Recommendations*, Version 4.0, April 2019

Greenhouse Gases (GHG), Scope 3

- **DEFINITION:** The GHG emissions arising from Tate & Lyle's value chain, which include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

The Science Based Targets initiative approved target language: *Tate & Lyle PLC also commits to reduce absolute scope 3 GHG emissions 15% over the same target period [by 2030 from a 2019 base year].*

- **SCOPE:** Following a screening exercise of all 15 Scope 3 categories, the following were deemed to be relevant for Tate & Lyle and 2019 emissions estimated. Relevant emissions categories are reported on each year through 2022:
 - **PURCHASED GOODS AND SERVICES:** Embodied carbon associated with goods and services purchased by Tate & Lyle.
 - **PROCESSING OF SOLD PRODUCTS:** Emissions from the processing of sold products by Tate & Lyle's customers.
 - **UPSTREAM TRANSPORTATION:** Emissions from the transport of materials to Tate & Lyle facilities.

- **DOWNSTREAM TRANSPORTATION:** Emissions from the transportation and distribution of goods from Tate & Lyle facilities to customers.
- **FUEL AND ENERGY RELATED ACTIVITIES NOT INCLUDED IN SCOPE 1 AND 2:** Emissions from transmission and distribution losses from purchased electricity and steam, and well-to-tank (WTT) emissions.
- **INVESTMENTS:** Emissions from investments including joint ventures that do not meet the reporting criteria for reporting under Scope 1 and 2
- **END OF LIFE TREATMENT OF SOLD PRODUCTS:** Emissions from eventual end-of-life of Tate & Lyle's products.
- **WASTE GENERATED IN OPERATIONS:** Emissions from solid waste disposal.
- **BUSINESS TRAVEL:** Emissions from business related travel
- **EMPLOYEE COMMUTING:** emissions from Tate & Lyle employees commuting to work.

EXCLUDED CATEGORIES

The following Scope 3 categories were assessed and deemed insignificant sources for Tate & Lyle: Capital Goods, Upstream Leased Assets, Downstream Leased Assets, Franchises and Use of Sold Products.

- **SOURCE:** CO₂e emissions have been calculated using activity data from Tate & Lyle databases and emissions factors from the sources described below in the Method section.
- **UNITS:** Tonnes CO₂e
- **METHOD:**

2019 BASELINE

Of the categories included in the Scope above, the largest proportion of emissions and therefore reduction opportunities were identified for the categories below and hence further calculations were undertaken to refine these four emission estimates. Emissions from the other six categories were estimated by multiplying representative activity data by relevant conversion factors from the sources mentioned above and, where required, extrapolated to get an estimate of annual emissions for the baseline year (2019).

- **PURCHASED GOODS AND SERVICES:** Calculated by multiplying 2019 procurement data by appropriate emissions selected from the following:
 - US-based corn through the Truterra partnership
 - Stevia through a Life Cycle Analysis
 - EcolInvent v3.5 factors for all other materials
- **PROCESSING OF SOLD PRODUCTS:** Estimated by determining the proportion of customer Scope 1 & 2 emissions attributable to Tate & Lyle. In absence of more specific data, it was assumed that this proportion aligns with the ratio of Tate & Lyle's net sales to a particular customer, as it compares to the raw material portion of that customer's cost of goods sold (CoGS.).
- **UPSTREAM AND DOWNSTREAM TRANSPORTATION AND DISTRIBUTION:** Calculated by multiplying either the number of shipments or total weight of shipments and distance travelled for 2019 by appropriate conversion factors taken from the following:
 - US EPA Emission Factors for Greenhouse Gas Inventories (Note: To align with rest of world reporting, an uplift based on BEIS emission factors was applied to kgCO₂e calculations, to account for WTT in North American calculations.)
 - BEIS 2019 Conversion Factors for Company Reporting
 - EcolInvent v3.5
- **INVESTMENTS:** Calculated using Primient's 2019 Scope 1 and 2 emissions apportioned to Tate & Lyle's investment in Primient.

ANNUAL PERFORMANCE SCOPE & PERFORMANCE MEASUREMENT METHODOLOGY

The scope of annual performance measurements includes Scope 3 categories for which there has been statistically significant changes in GHG emissions due to initiatives, interventions, or emission factors.

2022 FOOTPRINT

The following updates have been made as part of Tate & Lyle's 2022 annual performance measurement:

- **PURCHASED GOODS AND SERVICES:** The following procurement and emissions factor data was updated:
 - Quantities of corn, stevia and tapioca starch purchased for 2022.
 - Emission factors for corn from Truterra (independently verified through the Primient/Truterra partnership) and stevia emissions (life cycle analysis)
 - Emissions factors from product carbon footprints undertaken for products Tate & Lyle purchased from Primient
 - Ecoinvent factors from v3.8 for all other materials.
 - All other procurement items not listed above, remain unchanged.
 - **PROCESSING OF SOLD PRODUCTS:** Emissions were revised by determining the proportion of customer Scope 1 & 2 emissions attributable to Tate & Lyle for 2022. This is following a better understanding of Tate & Lyle's distributors, including those who do not process their products (i.e., distributors and animal feed). In the absence of more specific data, it was assumed that this proportion aligns with the ratio of Tate & Lyle's net sales to a particular customer, as it compares to the raw material portion of that customer's COGS.
 - **UPSTREAM AND DOWNSTREAM TRANSPORTATION AND DISTRIBUTION:** This was revised using appropriate 2022 US/UK emission conversion factors across all transport modes, taken from the following sources:
 - *US EPA Emission Factors for Greenhouse Gas Inventories, 2022* (Note: To align with rest of world reporting, an uplift based on BEIS emission factors have been applied to kgCO_{2e} calculations, to account for WTT in North American calculations.)
 - *BEIS 2022 Conversion Factors for Company Reporting*
 - **INVESTMENTS:** Calculated using Primient's 2022 Scope 1 and 2 emissions apportioned to Tate & Lyle's investment in Primient.
 - **FUEL AND ENERGY RELATED ACTIVITIES (NOT INCLUDED IN SCOPE 1 OR 2):** Updated based on 2022 fuel and electricity usage, and the appropriate *2022 BEIS Conversion Factors for Company Reporting*
 - **WASTE GENERATED IN OPERATIONS:** Updated with 2022 activity data for waste disposal using appropriate BEIS 2022 Conversion Factors for Company Reporting.
 - **BUSINESS TRAVEL:** Updated based on business related travel including flights, hotel stays, rail and car rentals. Emissions were calculated using *DEFRA/BEIS Conversion Factors for Company Reporting*.
 - Scope 3 emissions categories that were deemed relevant in the 2019 baseline, but not listed above were not updated in 2022.
- **REPORTING METHODOLOGY**
 - *SBTi Criteria and Recommendations, Version 5.0, April 2022*
 - *Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, WRI / WBCSD, May 2013*

Water Use

- **DEFINITION:**
 - **WATER USE:** The total amount of water brought onsite and withdrawn from a well/ groundwater, municipality/ public water source, and surface water/ lake/ river. Excluded is water returned to its original source (i.e., river to river) and bottled drinking water.
 - **WATER USE INTENSITY:** Volume of water used (m³) divided by production (tonnes), which is defined below

- **SCOPE:**
 - Where process and non-process water uses are metered separately, only the water consumed in the process is reported.
 - Where process and non-process water uses are metered together, both are reported.
 - Non-contact cooling water is reported unless the non-contact cooling water is returned to its original source (e.g., taken from a river and returned to the same river).
- **SOURCE:** Invoices for purchased water and calibrated meter readings for onsite water withdraws.
- **UNITS:**
 - **WATER USE:** Cubic meters (m³)
 - **WATER USE INTENSITY:** m³ water used/ tonnes production
- **METHOD:** Benchmark converts to m³ invoiced quantities for purchased water or calibrated meter readings for onsite water withdraws and conducts the intensity. Production is defined by AEI (Aggregate Efficiency Index) by calculating Static Intensity (SI) and Static Activity (SA) through the following formula:

US EPA ENERGY STAR Aggregate Efficiency Index to calculate Water Efficiency Index
<https://www.energystar.gov/sites/default/files/tools/ENERGY%20STAR%20Aggregate%20Efficiency%20Index.pdf>

Step 1 - Collect Annual Water Consumption and Production Data for all sites from Benchmark. Calculate individual site water intensity.

1.a. $\text{Water Intensity}_{\text{Site } i} = \text{Water Consumed}_{\text{Site } i} / \text{Production}_{\text{Site } i}$

Step 2 - Calculate Static Intensity (SI) index and Static Activity (SA) index for each site.

2.a. $\text{SI} = \text{Production}_{\text{Per-B}} * \text{Water Intensity}_{\text{Per-A}}$
 2.b. $\text{SA} = \text{Production}_{\text{Per-A}} * \text{Water Intensity}_{\text{Per-B}}$

Step 3 - Compare organization-level alternative scenario water values to actual water totals.

3.a. Sum $\sum(\text{Water Consumed}_{\text{Per-A}})$ and $\sum(\text{Water Consumed}_{\text{Per-B}})$ for all sites.
 3.b. Sum $\sum(\text{SI})$ for all sites.
 3.c. Sum $\sum(\text{SA})$ for all sites.
 3.d. Divide: $\sum(\text{SA}) / \sum(\text{Water Consumed}_{\text{Per-A}})$
 3.e. Divide: $\sum(\text{Water Consumed}_{\text{Per-B}}) / \sum(\text{SI})$

Step 4 - Compute the Organization-level AEI by taking the geometric average of SA and SI

4.a. $\text{AEI} = \sqrt{(\text{SA} * \text{SI})}$
 4.b. $\text{Percent Change} = (1 - \text{AEI}) * 100\%$

Note: this methodology can be used to compare any two time periods. To compare two consecutive years Per-A = Year 1 and Per-B = Year 2. To compare current performance to a baseline year Per-A = Baseline Year and Per-B = Current Year.

- **CONVERSION FACTOR SOURCES**

- *The International System of Units (SI) – Conversion Factors for General Use*, U.S. Dept. of Commerce, Technology Administration, National Institute of Standards and Technology, 2006

Beneficial Use of Waste

- **DEFINITIONS:**

- **WASTE:** Anything for which Tate & Lyle has no further use and that is intended for disposal

- EXCLUSIONS:**

- Scrap metal, construction waste, and demolition waste generated outside of regular daily operations
 - Wastewater authorized to be directly discharged to the environment (rivers, lakes, groundwater, or the land) or discharged or hauled to an approved wastewater treatment facility (e.g., public, or regional wastewater treatment plant).

- **BENEFICIAL USE:** Waste from Tate & Lyle-controlled manufacturing facilities, per the Reporting Boundaries section above, that is disposal in a way that provides a functional benefit, meets material specifications as applicable, and does not pose concerns to human health or the environment. Beneficial use of waste may be achieved through land application, recycling, composting, and recovery, including energy recovery.

- MEANS:** Land application, recycling, composting, and recovery, including energy recovery

- EXCLUSIONS:** Non-beneficial use of waste (incineration and landfilling without waste-to-energy recovery)

- **ENERGY RECOVERY:** The conversion of waste materials into useable heat, electricity, or fuel through a variety of processes, including combustion, gasification, pyrolysis, anaerobic digestion, and landfill gas (LFG) recovery. This process is often called waste-to-energy (WTE).

- **RECOVERY:** Waste management method by which the value of waste is retained so that it can be used to substitute materials which would otherwise have been used to fulfill a particular function.

- **RECYCLING:** Waste management method wherein waste materials are reprocessed into products or materials to be used either for the same purpose for which they were intended or another purpose.

- **SOURCE:** Invoices from waste service providers or weighbridge records from the operations of Tate & Lyle-controlled manufacturing facilities, per the Reporting Boundaries section above

- **UNITS:** Waste beneficially used divided by total waste generated

- **METHOD:** Benchmark converts input waste quantities or volumes to tonnes and then conducts the beneficial use division

- **CONVERSION FACTOR SOURCE**

- *The International System of Units (SI) – Conversion Factors for General Use*, U.S. Dept. of Commerce, Technology Administration, National Institute of Standards and Technology, 2006
- *Volume-to-Weight Conversion Factors for Solid Waste*, US EPA, April 2016

Production (excluding for water intensity calculation)

- **DEFINITION:**
 - **AT CORN WET MILLING FACILITIES:** The weight of corn input before cleaning to the production process
 - **ALL OTHER FACILITIES (I.E. NON-CORN WET MILLING FACILITIES):** The weight of product exiting the manufacturing process and shipped to customers. Data is derived from site-level process control software and accounting systems.
- **SOURCE:** Internal Tate & Lyle accounting systems
- **UNITS:** Tonnes
- **METHOD:** Benchmark converts corn input volumes and finished product weights to tonnes.
- **CONVERSION FACTOR SOURCE**
 - *United States Standards for Corn, 7 CFR Part 810, Subpart D, September 1996*

Revision Date: April 2023