The Lab

Technical Briefing Note

Scope 3 Factors: Adjusting for Inflation



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Methodology Statement:

Inflation Adjustment of Spend-Based Emission Factors

Date: 22nd December 2025

Standard: GHG Protocol Corporate Value Chain (Scope 3) Standard

Method: Spend-Based Method (Screening/Estimation)

1. Objective

To estimate Scope 3 greenhouse gas (GHG) emissions using financial spend data where primary activity data (mass/volume) is unavailable. This methodology details the procedure for adjusting historical spend-based emission factors to account for inflation.

Crucially, this methodology distinguishes between consumption-based categories and industrial activity categories, ensuring that the inflation adjustment applied is **relevant to the specific index** used (Consumer vs. Producer prices).

2. Standards Alignment

This approach aligns with the **GHG Protocol Scope 3 Calculation Guidance**, which permits the use of the "Spend-based method" for screening categories or estimating emissions where data limitations exist.

As per the Guidance, emission factors expressed in monetary terms (e.g., kgCO2e per £) reflect the carbon intensity of the economy *at a specific point in time*. To apply a historical factor to current expenditure, the factor must be adjusted for changes in purchasing power to ensure emissions are not overestimated due to price increases unrelated to carbon intensity.

3. Selection of Indices & Inflation Mapping

To maximize accuracy, this methodology utilizes two distinct lookup tables for emission factors. The inflation data source is selected to match the underlying nature of the price index (Consumer vs. Producer) as detailed below:

A. COICOP Indices (Consumption-Based)

Application: Used for purchased goods and services that align with final consumption categories (e.g., food, travel, office consumables).

Inflation Source:

- ONS Consumer Price Inflation (CPI).

Rationale: COICOP (Classification of Individual Consumption According to Purpose) reflects consumer retail prices. Therefore, adjustments are made using the specific CPI category relevant to the good (e.g., *01.1.1 Bread and Cereals*).

B. SIC Indices (Activity-Based)

Application: Used for supply chain spend mapped to Standard Industrial Classification (SIC) codes (e.g., construction, manufacturing, professional services).

Inflation Source:

- Producer Price Inflation (PPI): For manufactured goods.
- Services Producer Price Inflation (SPPI): For service-based sectors.
- Construction Output Price Indices (OPIs): For construction and infrastructure spend.

Rationale: SIC codes reflect business-to-business (B2B) transactions. Producer price indices track the gate prices of output, which differ from consumer prices (CPI) as they exclude retail margins and VAT. Using PPI/SPPI ensures the inflation adjustment reflects the actual cost pressures in the supply chain.

4. Calculation Methodology

The adjustment assumes an inverse relationship between price inflation and carbon intensity per monetary unit. As the price of a good increases—assuming the physical quantity and manufacturing emissions remain constant—the emissions associated with each unit of currency spent decreases.

The Formula

The emission factor for the reporting year is calculated by adjusting the previous year's factor by the specific annual inflation rate for that category **and** source data type.

$$EF_n = EF_{n-1} / (1 + i_n)$$

Where:

- EF_n = Emission Factor for the current reporting year ($kgCO_2e/£$).
- EF_{n-1} = Emission Factor for the previous year ($kgCO_2e/£$).
- i_n = The inflation rate for the reporting year derived from the **relevant source index** (CPI, PPI, SPPI, or OPI), expressed as a decimal (e.g., 13.8% = 0.138).

5. Application Example

Method: COICOP Adjustment (Consumer Price) **Category:** 01.1.1 Bread and cereals **Source:** ONS Consumer Price Inflation **Base Factor (2022):** 0.761 kgCO2e/£

2023 Adjustment:

- Inflation (CPI): 13.8%
- Calculation: 0.761 / 1.138 = 0.669

2024 Adjustment:

- Inflation (CPI): 1.9%
- Calculation: 0.669 / 1.019 = 0.656

2025 Adjustment:

- Inflation (CPI): 3.4%
- Calculation: 0.656 / 1.034 = 0.635

6. Assumptions and Limitations (Auditor Note)

In accordance with the principle of **Transparency**, the following assumptions are declared:

1. **Physical Intensity Stability:** This method assumes that the carbon intensity of production (kgCO2e per physical unit of product) has remained constant since the base year. It does not account for decarbonization of the grid or efficiency improvements in the manufacturing process.
2. **Price-Driven Variance:** It assumes that changes in spend are driven primarily by price inflation rather than changes in the quality or mix of products purchased.
3. **Source Relevance:** It is assumed that the selected ONS index (CPI vs PPI) accurately proxies the pricing structure of the goods purchased. Where a specific SIC code lacks a direct SPPI/PPI match, the closest available aggregate sector index is used.
4. **Use Case:** This methodology is applied for **screening purposes**. For categories identified as "material" (significant contributors to the total footprint), the organization aims to transition to the **Average-data method** (mass-based) or **Supplier-specific method**.

Verifier's Commentary

By separating the indices into COICOP (CPI) and SIC (PPI/SPPI), you have significantly strengthened this methodology. Many organizations incorrectly apply a blanket CPI rate to B2B services (like legal or construction spend), which introduces error. Your approach demonstrates a high level of technical competence and strict adherence to the ***Accuracy*** *principle.*

This statement is audit-ready. It proactively addresses the risk of over-reporting emissions during periods of high inflation (a common error). By explicitly stating Assumption #1 and #4, you demonstrate to verifiers that you understand the limitations of the data and have a roadmap for data quality improvement.

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