NorthPeak Advisory

Scope 1, 2 & 3

Emissions Explained

Understanding greenhouse gas accounting for your organisation

A guide for ESG & sustainability teams

Corporate Sustainability Guide Series

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1. Why Emissions Accounting Matters

Before a company can set a credible net zero target or report under CSRD, it needs to know where its greenhouse gas (GHG) emissions come from. The GHG Protocol Corporate Standard – the globally accepted framework – divides emissions into three 'scopes' based on where they occur in the value chain.

The GHG Protocol

Developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), the GHG Protocol Corporate Standard is used by over 90% of Fortune 500 companies and forms the basis of most regulatory reporting requirements including CSRD (ESRS E1) and the Science Based Targets initiative (SBTi).

2. The Three Scopes at a Glance

Think of the three scopes as concentric rings of responsibility – from direct emissions you own, to the energy you buy, to the full footprint of everything connected to your business.

Scope 1
DIRECT

Emissions from sources your company owns or controls directly – your combustion, your processes, your vehicles.

Examples: Natural gas boilers, company-owned vehicles, diesel generators, industrial process emissions, refrigerant leaks

Scope 2
INDIRECT (ENERGY)

Emissions from the generation of purchased electricity, heat, steam or cooling that you consume. You don't own the power plant, but you create the demand for it.

Examples: Electricity bought from the grid, district heating, purchased steam

Scope 3
VALUE CHAIN

All other indirect emissions that occur upstream or downstream in your value chain. Usually the largest share – often 70–90% of a company's total footprint.

Examples: Business travel, freight, supplier manufacturing, employee commuting, product use & end-of-life

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3. Scope 3 in Detail: The 15 Categories

The GHG Protocol divides Scope 3 into 15 categories. Not all will be material for every company – your sector and business model determine which are significant.

Category	Name	Relevance Tip
Cat. 1	Purchased goods & services	Often the largest category – covers all supplier manufacturing
Cat. 2	Capital goods	Equipment, machinery, buildings purchased during the year
Cat. 3	Fuel & energy (not Scope 1/2)	Upstream extraction and transmission of fuels you buy
Cat. 4	Upstream transportation	Freight you pay for moving goods to your facilities
Cat. 5	Waste generated in operations	Disposal and treatment of waste from your sites
Cat. 6	Business travel	Flights, rail, hotels – often significant for service firms
Cat. 7	Employee commuting	Daily travel of employees to and from work
Cat. 8	Upstream leased assets	Assets you lease but don't include in Scope 1/2
Cat. 9	Downstream transportation	Moving finished products to customers
Cat. 10	Processing of sold products	Emissions when customers further process your products
Cat. 11	Use of sold products	Emissions during customer use – critical for energy/tech sectors
Cat. 12	End-of-life treatment	Disposal or recycling of your products after use
Cat. 13	Downstream leased assets	Assets you own but lease to others
Cat. 14	Franchises	Emissions from franchisee operations
Cat. 15	Investments	Portfolio emissions – key for financial institutions

4. Calculation Methods

There are three main approaches to calculating emissions. The right method depends on data availability and the accuracy required:

Method	How It Works	Best Used For
Spend-based	Multiply spend (€) by an emissions factor per £ of spend in that category	Starting point for Scope 3 Cat. 1 when supplier data is unavailable
Activity-based	Multiply physical activity data (kg, km, kWh) by an emissions factor	Scope 1, 2, freight, business travel – preferred for accuracy
Supplier-specific	Use actual emissions data provided by your suppliers	Scope 3 Cat. 1 & 2 – most accurate; requires supplier engagement

Emission Factors

An emission factor converts an activity (e.g. 1 kWh of electricity) into a CO_2-equivalent figure (kg CO_2e). Key sources include:

- DEFRA (UK Government): annual factors for UK-based reporting.
- IEA: country-specific electricity grid emission factors.
- IPCC AR6: global warming potentials for each greenhouse gas.
- EPA (US): emission factors for North American operations.

Market-based vs Location-based (Scope 2)

Two methods for Scope 2

Location-based: Uses the average emissions intensity of the national grid. Reflects actual physical electricity flows.

Market-based: Uses emissions factors from contractual instruments such as Renewable Energy Certificates (RECs), Guarantees of Origin (GOs), or supplier-specific rates. Reflects purchasing decisions.

5. Common Pitfalls

- Double-counting: including the same emissions in both Scope 1 and Scope 3.
- Ignoring refrigerant leaks (HFCs can have very high global warming potential – up to 12,000x CO_2).
- Using spend-based Scope 3 without a plan to improve data quality over time.
- Failing to restate the base year when your business structure changes significantly.
- Omitting Scope 3 categories without justification.

6. How This Connects to Reporting & Targets

Your emissions inventory is the foundation for:

- CSRD / ESRS E1 disclosure – mandatory for in-scope companies
- Science Based Targets (SBTi) – requires Scope 1, 2, and material Scope 3 coverage
- CDP Climate questionnaire – aligned to GHG Protocol
- Net zero commitments – your reduction roadmap starts here

Next steps

Start with a Scope 1 and 2 inventory – data is more controllable and sets the baseline. Layer in Scope 3 categories by materiality: identify your top 3–5 categories first, then build a data improvement plan to shift toward additional activities.