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Scope 3 for CPG Companies: Why the Calculations Are Easier Than You Think

The Five Stage Process for Future-Proofing Your Scope 3 Reporting



Executive Summary

When sustainability executives at large CPG companies think about Scope 3 calculations, a few words may come to mind: complicated, messy, difficult, tedious, and the list goes on. There are many challenges when it comes to Scope 3 emissions reporting, and these are only exacerbated by the increasing regulatory requirements around the world.

But not all hope is lost: with digitization and automation, Scope 3 calculations don't have to be so much of a pain.

This white paper looks into the current challenges of Scope 3 emissions reporting faced by CPG companies. Then, we'll provide you with a practical 5-stage process to systematically digitalize and automate your Scope 3 reporting. This analysis is based on best practices from a global CPG company, a real use case that will help you streamline your own sustainability practice.

Challenges of Current Scope 3 Emissions Reporting

Scope 3 emissions data capture and reporting are far from simple for CPG companies.

Data Collection and Coordination Challenges

- The logistics of collecting data across vast value chains, which can sometimes include thousands of suppliers across the globe
- The use of manual ad-hoc spreadsheets to collect data
- Tedious questionnaire processes that result in low data quality
- Manual pulling of spend and revenue data from ERP and accounting systems
- Lack of employee bandwidth to handle
 manual processes
- Lack of centralized sources of truth and dashboards that track supplier status
- Reliance on emails for revisions and approvals from multiple stakeholders, leading to bottlenecks and delays

Data Quality Challenges

- Untrustworthy data due to low data quality or erroneous processes
- Lack of standardization in data collection and reporting

Meeting Regulatory Requirements

• The Corporate Sustainability Reporting Directive (CSRD) requires that the use of primary data (data specific to your value chain rather than secondary, industryaverage data) in your emission estimations is above a specified minimum percentage. This is because calculations based on primary data are considered more accurate. However, primary data is also the most difficult to collect.

In the next sections, we'll learn how to overcome these challenges using the 5-stage Scope 3 emission reporting method.





Stage 1: Determine Your Significant Scope 3 Categories

Use the screening process to determine which of the 15 upstream and downstream categories are most relevant to your company.

Under each category, evaluate the following criteria for each relevant activity:

- Size: Does the activity contribute significantly to your Scope 3 emissions?
- Influence: Does your company have significant influence over the conduct of the activity?
- Risk: Does the activity contribute significantly to your risk profile?
- **Stakeholder perception:** Do your stakeholders (your employees, customers, suppliers, investors, or sections of society) consider the activity critical?
- **Outsourcing:** Do you outsource the activity though it's typically performed in-house by other companies in the CPG industry?
- Sector guidance: Does any sector-specific guidance consider it critical?
- Spending and revenue: Does the activity involve high spending or generate high revenue?

GHG Scope 3 Category	Importance	What is it?
Category 1 - Purchased goods and services	Very high	All emissions from upstream cradle-to-gate activities that don't fit cleanly under any of the other upstream categories
Category 4 - Upstream transportation and distribution	Very high	Emissions from logistics of transporting raw materials to manufacturing sites when the company doesn't own its transportation logistics
Category 9 - Downstream transportation and distribution	Very high	Emissions from downstream distribution to retailers and consumers
Category 12 - End-of-Life Treatment of Sold Products	High	Emissions from packaging waste, esp. single-use plastics, that harm ecosystems that participate in carbon sequestration (like mangroves and seagrasses)
Category 3 - Fuel- and Energy-Related Activities Not Included in Scope 1 or 2	Medium-High	For energy-intensive CPG operations like manufacturing and large-scale distribution, emissions related to the production of purchased energy and losses in transmission can be significant.
Category 2 - Capital Goods	Medium	Emissions from the production of capital goods like facilities and machinery.
Category 11 - Use of Sold Products	Medium	Indirect use-phase emissions from food products that require cooking and refrigeration and from soaps and detergents that require heated water.



Stage 2: Decide Your Data Collection Strategy

Automate Primary Data Collection from Your Suppliers

As mentioned before, primary data is often the most difficult to gather. Unlike secondary data, which comes from industry standards, primary data is emission-related information for activities specific to your company's value chain during the reporting period.

It includes:

- Activity data provided by your suppliers/ vendors related to specific activities
- Product lifecycle GHG emissions data calculated by suppliers/vendors that are specific to their activities
- Supplier-specific cradle-to-gate emission factors for the goods or services they sold to you
- Ratio of primary and secondary data used for each emission factor
- A description of the methodologies used to quantify emissions and a description of the data sources used, including emission factors and global warming potentials (GWP) values
- Has the data been assured or verified? If so, details about the assurance achieved

Automate this entire process using some kind of process orchestration.

For example:

 Distribute your emission questionnaire via an online service that can display it to recipients, allow them to answer the questions, let them upload data files, and send the responses and data back to you.

Automate Secondary Data Retrieval from Public Databases

Secondary data is emissions-related information that is not specific to your value chain but generally applicable to your industry.

It includes:

- Typical general activities observed in the industry, region, or product
- Industry-average, regional, or global emission factors — from public databases, government statistics, literature studies, industry associations, financial data, proxy data, and other generic data.

Commonly used databases include:

- The EPA's GHG emission factors hub [1]
- The EPA's United States Environmentally-Extended Input-Output (USEEIO) model [2]
- The life cycle databases suggested by the GHG Protocol [3]

Automate the extraction of data from these databases for your emission estimation.





Stage 3: Scope 3 Emission Calculations for CPG Companies Under Purchased Goods and Services Category

In stage 1, you identified the Scope 3 categories that are most significant to your business. In this section, we'll assume that one of those categories is purchased goods and services, and walk you through how to calculate the emissions for that category. You will need to conduct similar calculations for the other categories that you've deemed significant.

Before you begin:

Remember that purchased goods and services are the catchall category for upstream processing. Use it only for emissions and activities that don't fit well under any of the other seven focused upstream categories [4].

Step 1: Primary Data You Need

Quantities of Goods You Purchased from Your Suppliers

This data comes from your enterprise resource planning (ERP) and accounting systems, typically reported by mass (kg) or volume (gallons / liters) of goods but may also be in currency units if you're using spend-based estimation.

Data From Your Tier 1 Goods Suppliers (Required)

i. Material Inputs Used in the Purchased Goods

Activities	Applicable to	Details
Material inputs that went into making the purchased goods	Manufacturers Raw material suppliers Packaging suppliers	How much material inputs were used in the making of the purchased goods? Units: Mass (kg) or volume (gallons / liters) of inputs
Transport of material inputs to the supplier	Manufacturers Raw material suppliers Packaging suppliers Wholesalers / distributors	Emissions from transport and logistics Units: Distance transported in km / miles



ii. Scope 1 Data for Goods

Note: The suppliers must break down these metrics by product or raw material and provide only the data relevant to the goods they sold you.

Activities	Applicable to	Details
Transport	 Manufacturers Raw material suppliers Packaging suppliers Wholesalers / distributors Retailers 	Combustion of fossil fuels in land, air, and ship transport Metrics: kWh of fossil fuels consumed
Boilers, Steam systems	 Food and beverage manufacturers Cosmetics / toiletries / home care manufacturers 	Combustion of natural gas / fuel oil / coal for steam, cooking, heating, sterilization, cleaning, facilitating chemical reactions Metrics: kWh of fossil fuels consumed
Ovens, Fryers	 Food manufacturers Cosmetics / toiletries / home care manufacturers 	Baking / roasting / frying food products Curing / drying Metrics: kWh of fossil fuels consumed
Heat-based processing	 Food and beverage manufacturers Cosmetics / toiletries / home care manufacturers Packaging supplies 	Pasteurization, distillation, drying that uses natural gas / propane / diesel Melting raw materials Metrics: kWh of fossil fuels consumed
On-site power generation, Refrigeration and cooling	 All types of manufacturers Raw material suppliers Packaging suppliers Wholesalers / distributors Retailers 	Generators, backup generators, and cogeneration systems using diesel Hydrofluorocarbon (HFC) fugitive emissions Methane emissions and leakages Metrics: kWh of fossil fuels consumed
Facility heating / cooling	 Manufacturers Raw material suppliers Packaging suppliers Wholesalers / distributors Retailers 	Building heating using oil / natural gas / propane Metrics: kWh of fossil fuels consumed
Agricultural operations	 Food and beverage manufacturers that own / control raw material production 	Agricultural machinery (tractors, harvesters, etc.) directly supporting the manufacturing process Metrics: kWh of fossil fuels consumed



Activities	Applicable to	Details
Chemical processes	 Cosmetics / toiletries / home care manufacturers Packaging suppliers 	Processes that directly emit GHGs Metrics: kg of chemicals used or kg of GHGs released
Waste outputs	ManufacturersRaw material suppliersPackaging suppliers	Waste generated during the production of goods Metrics: kg of waste generated

iii. Scope 2 Data for Goods

Each supplier must break down their consumption of purchased electrical energy by goods and report only the consumption relevant to your purchased goods, either in kilowatt-hours (kWh) / megawatt-hours (MWh) or utility bill amounts.

Data From Your Tier 1 Service Providers (Required)

i. Quantity of Services Purchased (Required)

Quantify your purchased services using relevant metrics like:

- Unit of currency spent
- Time spent (hours)
- Service-specific units (e.g.: amount of data stored or processed in the cloud)
- ii. Scope 1 Data for Services (Required)

Have your service providers report the metrics that went into providing their services to you.

Service	Details
Services Purchased by Manufacturers	
Logistics and transportation services	Metrics: Currency spent
Supply chain management and consulting	Metrics: Currency spent
Packaging design and production	Metrics: Currency spent
Marketing and advertising agencies	Metrics: Currency spent
Research and development services	Metrics: Time spent
IT / cloud services	Metrics: Time spent / CPU-hours used / data used



Service	Details
Services Purchased by Wholesalers / Distributors	
Inventory and warehouse management systems	Metrics: Currency spent
Transportation and distribution services	Metrics: Currency spent
Financial services	Credit facilities, insurance, payment processing Metrics: Currency spent
Sales and merchandising services	Metrics: Currency spent
IT / cloud services	Metrics: Time spent / CPU-hours used / data used
Services Purchased by Retailers	
E-commerce platforms and services	Metrics: Currency spent
Consumer analytics and market research services	Metrics: Currency spent
Facility management services	Metrics: Currency spent
Employee training and development services	Metrics: Currency spent
Retail technology providers	Point-of-sale (POS) systems, inventory management solutions, customer relationship management (CRM) software Metrics: Currency spent

iii. Scope 2 Data for Services (Required)

Each service provider must break down their consumption of purchased electrical energy by goods and report only the consumption relevant to your purchased services, either in kilowatt-hours (kWh) / megawatt-hours (MWh) or utility bill amounts.

Scope 1 and 2 Data From Tier 2/2+ Suppliers and Service Providers (Optional but Desirable)

As your data collection processes mature, obtain primary data from increasingly deeper levels of your value chain. This helps improve the accuracy of your emission calculations.



Step 2: Secondary Data You Need

Whenever supplier-specific primary data is not available or reliable, use relevant secondary data related to your activities, sourced from:

- Industry-average data
- Regulatory data
- Government and private databases
- Government statistics

- Data from industry associations
- Financial data
- Proxy data, where available data from another activity is used

Step 3: Emission Factors Data

The purpose of collecting primary and secondary data is to apply emission factors and obtain their CO2equivalent emissions. Based on the availability of emission factors, use either the GHG Protocol Standard method or the direct CO2e method.

Direct CO ₂₀ Method		
Activity Metric Or X CO _{2e} Emission Factor =	Direct CO2-Equivalent Emissions kg-CO _{2e} / t-CO _{2e})
GHG Protocol Standard Meth	od	
	Global Warming Potentials (GWPs)	Total CO ₂₀ Emissions for Activity / Spend
GHGco2 Emission Factor CO2 Emissions kg-CO2 / t-CO2		CO2 Emissions kg-CO2 / t-CO2
Activity Metric GHGous Emission Factor GHGous Emissions kg / t	GWP of GHGCH4	CO2 Equivalent Emissions of GHG _{CH4} Kg-CO _{2e} / t-CO _{2e}
Spend GHGwao Emission Factor GHGwao Emissions kg / t	GWP of GHGN20	CO2 Equivalent Emissions of GHG _{N20} Kg-CO _{2e} / t-CO _{2e}
GHGwc Emission Factor GHGwc Emissions kg / t	GWP of GHGHEC	CO ₂ Equivalent Emissions of GHG _{HFC} Kg-CO _{2e} / t-CO _{2e}

Emission factor data is available at different granularities, going from specific to generic:

- Supplier-specific, product-specific, cradle-tograve emission factors provided by the suppliers
- 2. Region-specific, industry-specific, activitybased emission factors
- 3. Global, industry-specific, activity-based emission factors

- 4. Generic activity-based emission factors
- 5. Region-specific spend-based (or economic input-output) emission factors
- 6. Global spend-based emission factors

Always try to use the most specific and most recent emission factors, subject to their availability and accuracy.

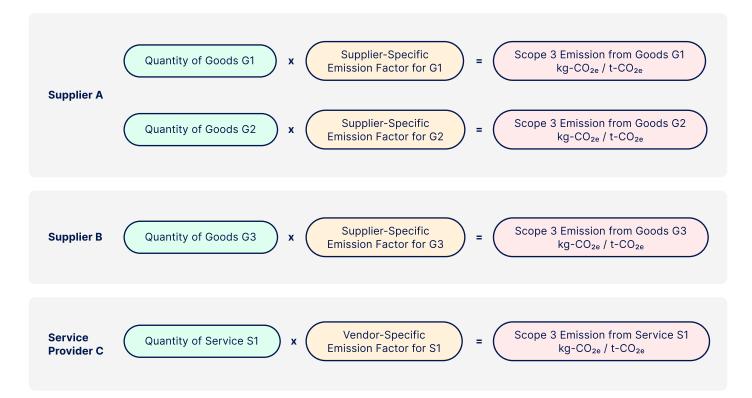


Step 4: Emissions Estimation Per Purchased Good or Service

The emission calculation depends on the granularity of collected data and emission factors. For each purchased good or service, use this decision table to decide which methodology to use.



I. Supplier-Specific Emissions Estimation Method



For each purchased good:

Scope 3 emission from the good = Quantity of the good purchased (kg / gallons) x Supplier-specific emission factor for that good (kg-CO2e / kg or gallon) For each purchased service:

> Scope 3 emission from the service = Quantity of service purchased per unit (currency / hours / CPU-hours / terabytes) x Provider-specific emission factor for that service (kg-CO2e / unit)

II. Hybrid Emissions Estimation Method

Use this method if any one of these data for a purchased good or service — Scope 1, Scope 2, material inputs, or waste output — are available from its tier 1 supplier.

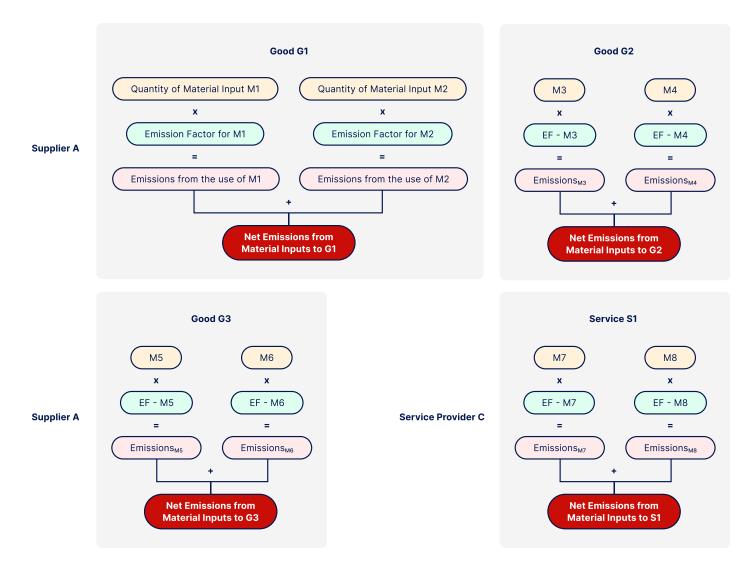
(1) Emissions for the good or service

Scope 1 emission of good or service + Scope 2 emission of good or service

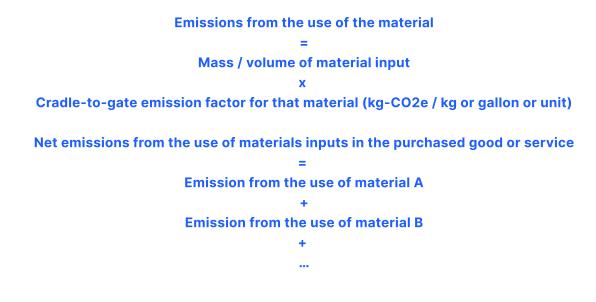






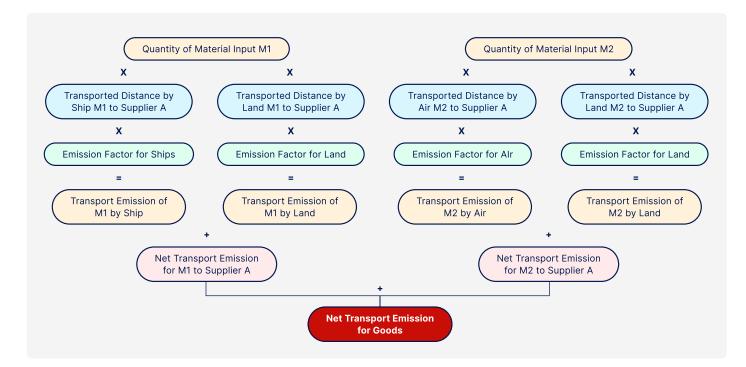


For each material input that went into the good or service:



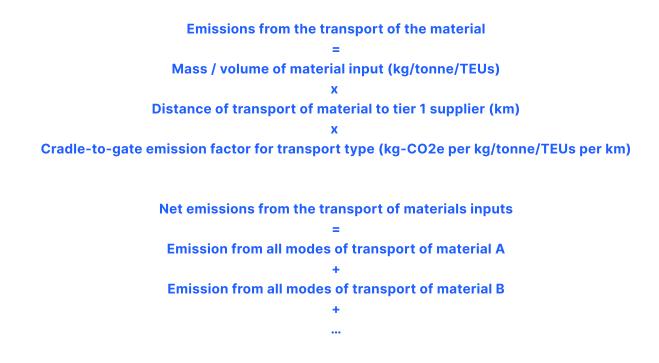


(3) Emissions from the transport of material inputs in the good or service



Transportation covers all modes of transport like air, land, and sea. For sea transport, the mass or volume of material is typically measured in twenty-foot equivalent units (TEUs).

For each material input that went into the good or service:





(4) Emissions from wastes generated during the making or provision of the good or service by tier 1 supplier

Mass of waste reported by supplier during making or provision of good or service (kg)

x Emission factor for waste activity (kg-CO2e per kg of waste)

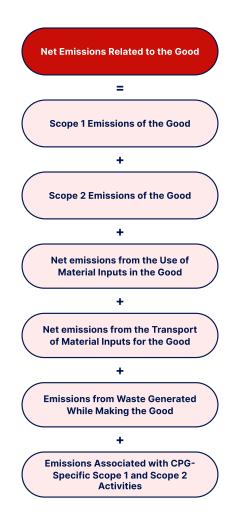
(5) Other CPG-specific emissions from Scope 1 and Scope 2 metrics

Scope 1 or Scope 2 metric

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Emission factor for that activity (kg-CO2e per appropriate unit)

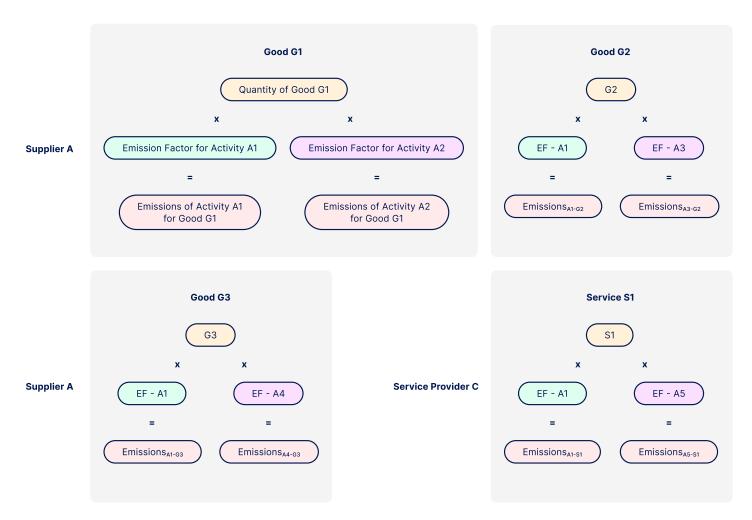
Net emission from good or service = (1) + (2) + (3) + (4) + (5)





III. Activity-Based Estimation Method

Whenever data from the supplier is not available, use the activity-based method to estimate emissions based on typical activities and their average emissions at a regional, industry-specific, or global granularity.



For each activity related to a purchased good:

 Mass/Units of purchased good (kg or items)

 x

 Activity emission factor per unit of purchased good (kg-CO2e per kg or item)

 For each activity related to a purchased service:

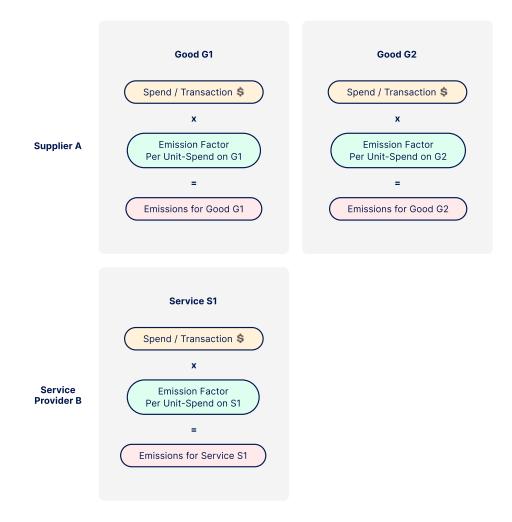
 Quantity of service purchased (currency / hours / CPU-hours / terabytes)

x Activity emission factor per unit of purchased service (kg-CO2e per unit)

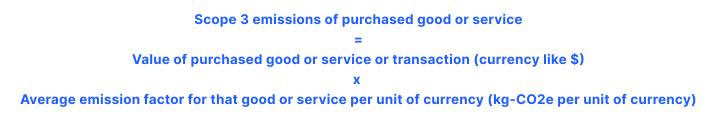


IV. Spend-Based Estimation Method

When purchased quantities, activity data, or Scope 1 and Scope 2 data are not available, you can roughly estimate the emissions based on the expenditure on a good or service. The expenditure data is typically extracted from your ERP or accounting systems.



For each purchased good or service or transaction:





Step 5: Calculate the Total Scope 3 Emissions from All Purchased Goods and Services

You now have the emissions for each purchased good or service in kg-CO2e or t-CO2e. Sum them up to get the category-level emissions.

(1) Total Scope 3 emissions from all purchased goods and services



(2) Total Scope 3 emissions due to supplier or provider

Next, sum up emissions at the supplier level too. The total Scope 3 emissions per supplier is useful to determine which suppliers to prioritize for reducing your net emissions.

For each goods supplier:

Total Scope 3 emissions due to the supplier = Emissions from goods G1 from that supplier + Emissions from goods G2 from that supplier + Emissions from goods G3 from that supplier + ...

For each service provider:

Total Scope 3 emissions due to the service provider = Emissions from service S1 from that provider + Emissions from service S2 from that provider + Emissions from service S3 from that provider +

...



Step 6: Automating Emission Estimation

Now that you understand the process, you can automate the following in steps incrementally to make your Scope 3 calculations much easier to manage.

Processes to automate:

- Storage and processing of primary and secondary emissions data
- Retrieval of emission factors
- Selection of an estimation method based on data availability
- Calculation of emissions using the formulas shown above

Stage 4: Calculate Scope 3 Emissions for Each Significant Category

On the same lines as category 1 calculations in stage 3, calculate the net category-level emissions for each of the other significant categories shortlisted in stage 1.

Stage 5: Refine Scope 3 Emissions Data Over Time

Emissions estimation is not a one-time activity, but a process of continuous improvement. You should re-estimate your net emissions whenever you get higher quality, finer primary or secondary data. Plus, emissions factors can become more refined over time, which is another reason to regularly redo these emission estimates.

Benefits of End-to-End Automation of Scope 3 Emissions Reporting

As you have likely noticed from reading this white paper, Scope 3 calculations are no easy feat. That's why it's important to implement a scalable solution to handle these complexity and challenges. Here are some of the reasons you should include automation as part of your Scope 3 game plan.



Automated data collection allows you to:

- Scale your processes to handle deep value chains of thousands of suppliers and vendors.
- Reduce a significant portion of the manual data coordination efforts.
- Automatically trigger questionnaires, reminders, and emails to improve the number of responses and the data quality while reducing the effort.
- Keep a centralized source of truth to track supplier status and follow-ups. It also streamlines back-and-forth corrections and approvals from different levels, reducing bottlenecks and delays.
- Automatically sync spend and revenue data from ERP and accounting systems with emission estimations to improve the quality of the data.
- Satisfy regulatory requirements, like the use of primary data to a specified extent.

How Certa Facilitates Scope 3 Emission Reporting

Certa ESG is purpose-built to help any business, from large conglomerates to SMEs, easily capture their Scope 1,2, and 3 emissions across geographies and time, producing disclosures and reports that comply with global standards and regulations.

Scalability

Certa ESG can manage deep value chains with thousands of suppliers and vendors.

Automated Primary Data Collection

Certa streamlines and automates the entire primary emissions data collection process. The customer just has to create a relevant questionnaire on the platform requesting emissions information and data from suppliers.

The rest of the workflow is fully automated by Certa ESG:

- It automatically distributes the questionnaire to all suppliers and vendors by email.
- Suppliers open the link and fill in the requested information directly on the Certa ESG platform.
- The form provides in-depth help to suppliers on how to provide accurate data. They can either upload their emissions and transaction data directly to the platform or send them by email.
- For direct submissions, Certa ESG automatically stores their responses and emissions data in its central database for further analysis.
- For emailed submissions, Certa ESG's powerful process orchestration engine kicks in and automatically transfers the data in the emails to the central database for further analysis.

Automated Secondary Data and Emissions Data

Certa ESG's Scope Emissions workflow allows the collection of fine-grained activity and spend data. It supports:

- Bulk upload of transaction data for spend estimation
- Manual entry of emissions data at fine-grained category and activity level
- Manual entry of spend data
- Choice of emissions estimation methodology either EPA or GHG Protocol

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Emission factors are pulled from multiple sources:

- Supplier-specific factors submitted during primary data collection
- Services like Climatiq and EcoVadis
- Lifecycle databases

Automated Scope 3 Emissions Calculation

- EPA emission factors hub
- EPA EEIO database
- Your custom emission factors

Please add yo	ur data	in the table below to ca	lculate	Scope emissions				
GHG EMISSIONS	2						 0	+ Add data
EMISSION EVE	¢	TREGION C	Ŧ	PERIOD ≑	Ŧ	CO2E EMISSIONS (KG) SUM: 34163.39 -	EMISSION TY \$	T SCOP
Aircraft (freight effect unknowr		US		Q3 2023		32366.987897084775	Scope 3	Busines
ABC transporte	rs	USA		Q3 2023		1796.406	Scope 3	Busines

Certa ESG automatically selects the best estimation methodology for each Scope 3 category and calculates the net kg-CO2e or t-CO2e at activity-level and spend-level.

Automatically Generate Disclosures and Reports

Certa ESG can automatically generate the following disclosures:

- ESRS-compliant disclosures for CSRD
- TCFD-compliant disclosures
- GRI-compliant disclosures
- UN SDG-compliant disclosures

Update and Refine Emission Estimates Over Time

Certa ESG allows you to update and refine your emissions data and factors over time to improve the accuracy of the information and reports.

Audit Trails and Process Documentation

All data entry, calculations, disclosure generation, and reporting activities on the platform are recorded with audit trails. This allows you to defend your processes and practices against auditors and regulators. Now that emissions audits are mandatory under the CSRD, these audit trails will streamline your inspections.



Case Study: Streamlined Scope 3 Reporting for a CPG Market Leader

In 2023, a CPG market leader in packaged foods, with \$40B+ annual revenue, used Certa ESG for preparing their Scope 1, 2, and 3 emissions disclosures.

The Challenges

Our customer is a multinational with a very deep supply chain consisting of thousands of tier 1 goods suppliers and service vendors across multiple countries. The company had started emissions reporting using a basic set of Excel worksheets.

Scalability: As ESG regulations gained pace around the world and the need for finer emissions data increased, our customer realized that it needed to refine its emissions workflows. It tried various online emission management services that were around at the time. However, this company was operating at a scale that was some two orders of magnitude larger than any of the tools were designed for. It was a disaster!

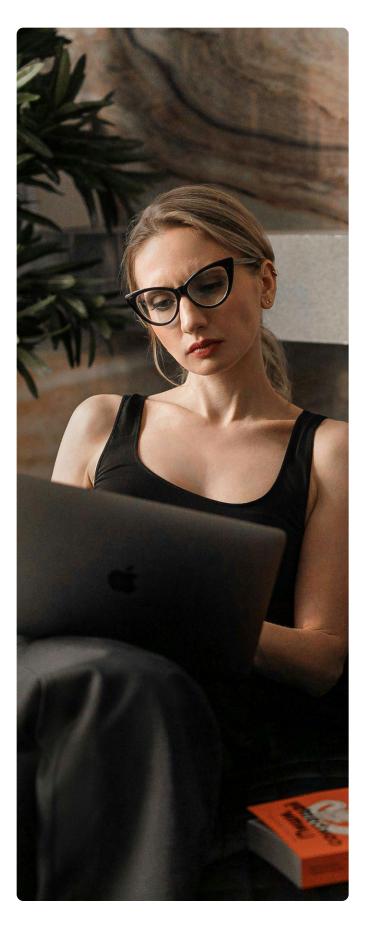
Data collection and quality: Merely collecting the raw emissions data from so many vendors turned out to be a near-impossible challenge even before it could get to the actual emissions estimation and reporting. Data collection took months and delivered unreliable data.

Emission estimation problems: For the data they managed to collect, the emission estimation and reporting turned out to be unreliable as well. The numbers and methodology were often not in compliance with the latest global emission standards and regulations. The all-important emission factors were a black box that they could not understand or customize.

With new regulations like the EU's rigorous CSRD and the SEC's climate disclosure rule looming on the horizon, the customer was on the lookout for a solution that could streamline end-to-end emissions management for its entire conglomerate.







How Certa Streamlined the Customer's Emissions Workflow

Onboarding the Entire Supply Chain of 1000+ Tier 1 Suppliers

The first step was to get the customer and all its tier 1 suppliers on a common platform. Certa ESG's scalable, automated onboarding process enabled the customer to bring all its 1000+ tier 1 suppliers and vendors on to the platform in less than a week.

Automated Data Collection

The next step was to collect emissions data from all its suppliers to create an emissions baseline.

Certa streamlined this process too. All that the customer had to do was customize an emissions questionnaire already provided by Certa ESG. The rest of the process was completely automated by Certa.

Total time to collect data from 1000+ suppliers: Just 1 week!

Additional Emissions Data Collection

Certa ESG also allowed the CPG customer to add more fine-grained activities and spends.

Automated Emission Calculations

Certa automatically pulled in the relevant emission factors from Climatiq and reported emissions data per activity and spend.

Emissions Disclosures and Reporting

The calculated emission data, along with detailed activity-level and spend-level emissions, were available in the form of disclosures and reports compatible with ESRS, TCFD, GRI, and UN SDG requirements.

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