

# The Impact of Scope 3 Emissions Regulations on Global Supply Chain Strategies

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## Abstract

Scope 3 emissions<sup>[1]</sup> refer to indirect greenhouse gas emissions across a company's value chain and, in many sectors, represent more than 75 percent of overall corporate emissions. *In* upstream supply chains, emissions can exceed those from Scope 1 and Scope 2 sources by a factor of more than twenty, depending on industry structure and sourcing models.

By early 2026, enforcement of climate-related disclosure and border measures has become more stringent across several major jurisdictions. The European Union's Carbon Border Adjustment Mechanism (CBAM) moved into its definitive phase on January 1, 2026, following the review of over 12,000 authorization applications and the approval of approximately 4,100 declarants. Although certificates are not yet due, financial liabilities associated with 2026 imports are accumulating ahead of the first surrender deadline in September 2027. Revisions under the 2025 Omnibus package limit the scope of the Corporate Sustainability Reporting Directive (CSRD) primarily to large entities with over 1,000 employees and net turnover above 450 million euros. Material Scope 3 disclosures nevertheless remain mandatory for covered firms. In the United States, California's Senate Bill 253 requires Scope 1 and Scope 2 emissions reporting by August 10, 2026, with limited good-faith leniency in the first year. Scope 3 reporting is expected to follow from 2027, subject to ongoing rulemaking and legal challenges. In response, many companies are beginning to incorporate carbon-related criteria into procurement practices, supplier engagement<sup>[7]</sup>, sourcing strategies, and longer-term financial planning. Building on recent industry and policy research, including the EcoVadis-BCG Carbon Action Report 2025, this paper examines the regulatory drivers behind Scope 3 requirements, the strategic responses emerging across global supply chains, and the associated business risks and opportunities. When approached strategically, Scope 3 management can reduce long-term compliance costs and, in some cases, support operational improvements and product differentiation in carbon-constrained markets.

## Introduction

Sustainability now plays an important role in corporate strategy, facilitated by regulation, investor pressure, shifting consumer preferences, and increasing climate-related risks.

Under the Greenhouse Gas Protocol, Scope 3 emissions refer to indirect emissions classified into 15 separate categories. These emissions arise from both upstream activities, including supplier operations and purchased inputs, and downstream stages such as product use and disposal. Across most industries, indirect emissions make up a large share of overall corporate carbon footprints. In many cases, upstream emissions are significantly higher than a firm's direct operational emissions, as shown by recent benchmarks. This imbalance is most visible in consumer goods, manufacturing, and retail sectors, where upstream inputs dominate total emissions.

The financial implications of such emissions exposure are considerable. Without active management, Scope 3 emissions could lead to very large transition-related costs by 2030. These estimates are based

on carbon pricing assumptions similar to those currently observed in the EU Emissions Trading System. For firms in emission-intensive sectors, such costs could materially affect operating earnings. Comparable impacts have been identified even among companies included in major stock market indices.

By 2026, regulatory efforts have moved beyond planning and toward enforcement. The European Union's CBAM now applies direct financial charges to emissions embedded in certain imported goods. At the same time, the revised CSRD focuses compliance requirements on larger firms while retaining value-chain accountability. In the United States, California's SB 253 establishes mandatory emissions reporting with implications for global supply chains. Together, these regulatory measures are encouraging firms to rethink traditional cost-focused supply chain models. In response, companies are increasingly adopting supply chain models that emphasise emissions visibility and resilience.

This article examines regulatory developments alongside corporate responses, implementation challenges, and practical business insights. It suggests that despite their complexity, Scope 3 regulations can support long-term value creation. Such value is enabled through stronger supplier engagement<sup>[7]</sup>, selective technological adoption, and improved internal coordination.

## **Regulatory Landscape as of January 31, 2026**

The current regulatory landscape reflects an attempt to balance ambitious decarbonisation goals with practical administrative and economic constraints.

The European Union's definitive CBAM regime came into force on January 1, 2026, marking the end of the transitional reporting period. Importers of covered products such as steel, aluminium, cement, fertilisers, electricity, and hydrogen are now required to submit annual embedded emissions<sup>[9]</sup> reports. The first verified declaration, along with the surrender of certificates, is scheduled for September 30, 2027 and will cover imports from 2026. Certificate pricing is set quarterly during 2026 and will shift to a weekly basis from 2027, in line with EU ETS allowance auctions. In early January 2026, more than 12,000 economic operators applied for authorised declarant status, with over 4,100 approvals issued. The Omnibus simplification package introduced a 50-tonne de minimis threshold<sup>[19]</sup> for low-volume importers and an emergency brake mechanism to allow temporary suspensions during periods of economic stress. Although no certificate purchases are required in 2026, financial liabilities are already accruing, encouraging firms to favour suppliers with lower embedded emissions<sup>[9]</sup>.

The CSRD, as revised under the Omnibus package agreed in December 2025, significantly limits its scope to large EU-based firms exceeding 1,000 employees and 450 million euros in net turnover. As a result, the number of in-scope companies has fallen by an estimated 80 to 90 percent, alongside exemptions for listed SMEs and transitional relief for some early reporters. Scope 3 disclosures under ESRS E1<sup>[20]</sup> remain relevant for covered firms, with a continued focus on double materiality<sup>[8]</sup> and a substantially reduced set of required data points.

In California, SB 253 requires companies with annual revenues above 1 billion dollars and business operations in the state to report Scope 1 and Scope 2 emissions by August 10, 2026, with good-faith leniency available for first-time reporters. The California Air Resources Board continues its rulemaking process, incorporating good-faith protections and postponing third-party assurance requirements for Scope 3. Ongoing legal challenges, including Ninth Circuit proceedings in January 2026, have not delayed statutory timelines, effectively creating a national benchmark for many global firms.

At the international level, the ISSB's IFRS S2 standard further promotes material Scope 3 disclosure and gradual global convergence. Together, this fragmented regulatory framework extends corporate

accountability deep into supply chains, with CBAM and SB 253 exerting significant extraterritorial effects<sup>[12]</sup>.

## Strategic Responses in Global Supply Chains

Companies are responding with holistic, multi-faceted approaches. Supplier engagement<sup>[7]</sup> has become the single most effective reason of Scope 3 progress. Companies that interact with suppliers are nine times more likely to achieve their Scope 3 reduction goals (EcoVadis-BCG Carbon Action Report 2025), but over 90 percent of companies have not set upstream targets for Scope 3 emissions despite the average indirect emission being 21 times higher than direct emissions. Best-in-class companies are using primary data<sup>[13]</sup> collection methods such as supplier audits, digital platforms, emissions-contracted clauses, multi-tiered engagement strategies focusing on key partners, and collaborative decarbonization<sup>[11]</sup> initiatives like joint renewable energy purchases.

Resilience is being strengthened through increased visibility. Detailed Scope 3 analysis identifies risks of climate-related incidents, policy changes, and resource constraints, driving increased supplier diversification, the use of circular economy<sup>[10]</sup> approaches (including the use of recycled materials to lower reliance on raw materials), and faster decarbonization<sup>[11]</sup> of transport solutions through biofuels, electric vehicles, and hydrogen-based options. A number of organizations are adopting two-track approaches that aim for both greenhouse gas emissions reduction and adaptation to locked-in physical and transition risks<sup>[6]</sup>.

However, cost factors remain relevant. Initial expenditures on data infrastructure, third-party audits, and possible tariffs pose short-term challenges, but abatement potential<sup>[17]</sup> is very economically attractive. About a third of supplier emissions can be abated at costs below 12 dollars per tonne of carbon dioxide equivalent, with as much as 50 percent possible at net-zero cost and overall return on investment ranging from three to six times in most instances. Although end-product price hikes of 1 to 4 percent in affected sectors may result from comprehensive value chain decarbonization<sup>[11]</sup>, these may be mitigated by the availability of green finance, consumer demand for higher-priced low-carbon products, and lower risks of supply chain disruptions (which have traditionally reduced revenues by 8 to 12 percent in affected quarters).

## Illustrative Case Examples

Walmart's Project Gigaton is one such example of engaging suppliers at scale. The project aims to reduce one billion metric tons of greenhouse gas emissions through collective programs in the areas of energy, waste, packaging, and sourcing. Suppliers have already achieved over 750 million metric tons of emissions reductions by 2023, and the project uses technology, category-specific resources, and common reduction goals to address data quality issues with a massive supplier base.

H&M Group shows specific support for infrastructure. The company enables suppliers to have access to renewable energy power through power purchase agreements, which provided around 300 gigawatt-hours of renewable electricity each year in the past few years. H&M Group has also shifted the sourcing of materials to different locations to meet its target of a 56 percent Scope 3 reduction by 2030.

Apple's approach involves high recycled content (above 20 percent for critical materials like aluminum and cobalt) and also has strict supplier scorecards along with technical support and renewable energy collaborations. This has helped lower upstream emissions while also improving supply chain resilience against raw material price fluctuations and changes in regulations.

In the metals industry, importers under the CBAM regime are working towards green steel and low-carbon primary aluminum suppliers. This helps to reduce risks associated with tariffs and develop a more stable supply chain. Organizations that are part of CDP's Supply Chain program are engaging their suppliers in thousands, which helps to reduce emissions through collaborative projects.

### **Implementation Challenges**

However, major challenges persist. The quality and availability of data are not strong, as most companies are using industry average estimates instead of actual data. Less than half of the reporting companies have made extensive Scope 3 disclosures in multi-tier supply chains. Small and medium-sized suppliers are often subject to indirect compliance costs without sufficient resources and incentives. Variations in methodologies among countries make harmonization challenging, while internal governance issues, such as lack of accountability and inconsistent key performance indicators, hinder implementation. Political and legal instabilities, such as current U.S. lawsuits and EU simplifications, create uncertainty, making long-term planning more complicated. Most executives agree that unclear return-on-investment calculations persist as a barrier for 56 percent of companies (MIT Sloan Management Review insights, 2025).

### **Opportunities and the Business Case**

Scope 3 regulations are proving to be a driving force for innovation. Collaborative relationships with suppliers are leading to greater levels of cooperation and problem-solving. New technologies such as AI for emissions prediction, blockchain for traceability, and digital product passports are making scalable monitoring and verification more economical. The circular economy<sup>[10]</sup> approach is helping to mitigate risks associated with volatile raw material prices and overall reliance on high-emitting materials.

The price of inaction is rising. Untreated Scope 3 emissions may pose transition risks<sup>[6]</sup> of over 500 billion dollars per year by 2030 (EcoVadis-BCG, 2025). On the other hand, proactive companies are securing improved reputation value, increased attractiveness to ESG investors, increased resilience to tariffs and physical supply chain disruptions, and a leadership role in the rapidly growing low-carbon product markets. These benefits are being realized in the form of increased market share and better access to capital.

### **Conclusion**

As of January 31, 2026, regulations on Scope 3 emissions are, in essence, revolutionizing the global supply chain landscape. Although challenges such as the lack of data, complexity, cost, and regulatory fragmentation exist, the need to act strategically is imperative. Organizations that consider Scope 3 a business issue, rather than a mere regulatory requirement, have the potential to unlock significant gains in efficiency, risk management, and differentiation.

Three key areas that senior executives should prioritize include engaging suppliers on a deeper level through programs and incentives, leveraging technology to enable accurate and scalable emissions measurement, and aligning the organization's functions in procurement, finance, operations, and sustainability. By doing so, organizations can leverage the current forces of regulation to drive future sustainable competitive advantage in a carbon-constrained world.

## Keywords

- 1. Scope 3 Emissions:** All indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. In your paper, these are highlighted as representing over 75% of total corporate footprints.
- 2. Carbon Border Adjustment Mechanism (CBAM):** A landmark EU policy that applies a carbon price to certain goods imported into the European Union. As of January 2026, it has entered its "definitive phase," requiring importers to account for the carbon intensity of products like steel and aluminum to prevent "carbon leakage."
- 3. Corporate Sustainability Reporting Directive (CSRD):** An EU regulation requiring large companies and listed SMEs to publish regular reports on their environmental and social impact. Your paper notes the 2025 Omnibus revisions which narrowed the focus to entities with over 1,000 employees and €450 million in turnover.
- 4. California Senate Bill 253 (SB 253):** Formally known as the Climate Corporate Data Accountability Act, this California law requires high-revenue entities (>\$1B) to disclose their Scope 1, 2, and 3 emissions. It acts as a *de facto* national standard in the U.S. due to the scale of California's economy.
- 5. GHG Protocol:** The most widely used international accounting framework for greenhouse gas emissions. It provides the technical basis for the 15 categories of Scope 3 emissions discussed in your text.
- 6. Transition Risk:** The financial and operational risks associated with moving toward a low-carbon economy. This includes policy changes, reputational damage, and shifting market preferences—totaling an estimated \$500 billion per year in your analysis.
- 7. Supplier Engagement:** The strategic process of working with upstream partners to collect primary emissions data and implement decarbonization initiatives (e.g., Walmart's Project Gigaton). Your research identifies this as the single most effective driver of Scope 3 progress.
- 8. Double Materiality:** A reporting principle where a company must disclose both how sustainability issues affect its financial value (outside-in) and how its operations impact the environment and society (inside-out).
- 9. Embedded Emissions:** The total greenhouse gas emissions generated during the production, processing, and transport of a specific product. Under the CBAM regime, these must now be verified and declared by importers.
- 10. Circular Economy:** A model of production and consumption that involves sharing, leasing, reusing, repairing, and recycling existing materials as long as possible. As your paper suggests, this reduces the need for "raw" high-carbon inputs and lowers Scope 3 exposure.
- 11. Decarbonization:** The process of reducing carbon dioxide emissions through the use of low-carbon power sources, energy efficiency, and technological shifts (like Apple's use of recycled aluminum).
- 12. Extraterritorial Effect:** The impact of a law or regulation beyond the borders of the country that enacted it. Both CBAM and California's SB 253 exert this effect by forcing international suppliers to comply with domestic standards to maintain market access.
- 13. Primary Data (vs. Spend-Based Estimates):** Data collected directly from specific suppliers (audits, meter readings) rather than using industry averages or financial spend. Your paper emphasizes that best-in-class firms are moving toward this for high-accuracy Scope 3 reporting.

**14. Carbon Leakage:** The risk that companies might move production to countries with laxer emission constraints to avoid costs. CBAM is specifically designed to prevent this by equalizing the carbon price for imports.

**15. Science-Based Targets (SBTi):** Emissions reduction targets that are aligned with what the latest climate science deems necessary to meet the goals of the Paris Agreement. These are the benchmarks used by companies like H&M to validate their 56% reduction goals.

**16. Green Finance / ESG Investing:** Financial products and investment activities that consider environmental, social, and governance (ESG) criteria. Your paper mentions these as a "mitigation factor" for the costs of supply chain decarbonization.

**17. Abatement Potential:** The technical and economic capacity to reduce emissions. You cite that a third of supplier emissions can be abated at less than \$12 per tonne, which is a core part of your business case.

**18. Extraterritoriality:** The principle of a law applying beyond the borders of the issuing jurisdiction. This is a key theme in your paper regarding how California (SB 253) and the EU (CBAM) are forcing global supply chain changes.

**19. De Minimis Threshold:** A minimum limit below which certain regulations do not apply. In your text, this refers to the 50-tonne exemption introduced in the 2025 Omnibus package to reduce the burden on small importers.

**20. ESRS E1 (Climate Change):** The specific standard within the European Sustainability Reporting Standards (ESRS) that governs climate disclosures. It is the technical backbone for the Scope 3 reporting you describe under the CSRD.

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