



Decarbonizing Value Chains:

How Renewable Energy Can Help Companies Go Green





Table of Contents

Introduction

02

**Renewable energy for value chain
decarbonization**

03

**Renewable
electricity primer**

04

Case study: Nike

06

**Renewable electricity and
Scope 3 accounting**

07

**Example:
“Two Packaging”**

10

**Using Green Project's
Decarbonization platform**

14

**Get in touch
to learn more**

16



Value chain decarbonization is challenging but critical

We're looking down the barrel of a large value chain climate opportunity. As much as 40% of global greenhouse gas (GHG) emissions are driven solely by a company's purchases and the products they sell – and these are only a slice (category 1 and 11 out of fifteen) of a company's value chain.

Addressing these large impacts, and harnessing the multiplicative power of value chain mobilization, is critical to the Net Zero transition.

Leading standards and the latest climate regulation recognize this imperative, mandating that companies identify material value chain impacts and manage them.

Without a plan to mitigate climate-related risks and leverage opportunities along its value chain, a company cannot demonstrate their preparedness and potential for long-term value creation. A 2019 survey of 416 institutional investors found that 79% consider climate-related disclosures at least as important as financial disclosures.

Further, without meaningfully abating Scope 3 emissions, a company cannot achieve SBTi-aligned Net Zero, which mandates over a 90% reduction in covered Scope 1, 2, and 3 emissions in the long-term. Some companies, preferring to focus on their operational emissions, are leaving their value chain out of their targets altogether. Only 37% of G2000 companies have set a Net Zero target that includes Scope 3, a recent Accenture study found. Scope 3 can't be left out of the equation; doing so leaves a large opportunity for mitigated risk, reduced costs, and enhanced resilience on the table.

There's a lot more action to take, and Scope 3 decarbonization can be daunting. So, where does one start?



Renewable electricity for value chain decarbonization

To accelerate value chain decarbonization, large corporates and PE firms are exploring various engagement models for different partners in their value chain, from suppliers and customers to investees.

Disclosing climate-related data, purchasing renewable energy, and setting science-based emissions reduction targets are three of the most common requirements that companies impose on their value chain partners.

Among these, requesting that suppliers, investees, and other value chain partners disclose their emissions data is a productive place to begin. Having granular primary data improves the quality of a company's Scope 3 GHG inventory, access to decision-useful information, and visibility into trends over time.

Then, requiring that your suppliers or investees set science-based targets or purchase renewable energy can more readily follow once they have measured their emissions. Some corporate buyers, like Microsoft, are going so far as to require specific suppliers to buy 100% renewable electricity.

But why? How do these obligations benefit the supplier and the corporate purchasers who are enacting them?

For suppliers, renewable energy procurement, specifically renewable electricity, is a proven strategy for reducing Scope 2 emissions, which can help achieve SBTi Approved targets. For corporate buyers, supplier Scope 2 emissions reductions cascade down the value chain, showing up as reductions in value chain (Scope 3) emissions.

The upshot? Supplier-purchased renewable electricity is a lever for reducing Scope 3 emissions.

For the remainder of this guide, we'll show you how suppliers'— or any value chain partner's—renewable electricity usage can be considered and reflected in Scope 3 GHG inventories.



Renewable electricity primer

There are several renewable electricity procurement types, such as:

On-site generation (e.g., solar panels) Power Purchase Agreements (PPAs), or direct contracts with energy producers for physical power and associated Energy Attribute Certificates (EACs) Virtual or Financial PPAs, a variation on the above that excludes physical power delivery Green tariffs from utilities (typically, a utility retires EACs on their customers' behalf) Unbundled EACs

You'll notice that, across most types, EACs are transferred to the buyer (then retired) to substantiate renewable electricity usage. EACs are a type of contractual instrument that conveys certain information about energy generated and fed into a shared grid and are sold either bundled with physical energy or unbundled.

Owners of these instruments have property rights over the renewable attributes of the underlying generation and can therefore claim the use of renewable electricity. Renewable Energy Certificates (RECs), Guarantees of Origin (GoOs), and International Renewable Energy Certificates (I-RECS) are commonly used instruments from different EAC schemes, all of which are sold unbundled on act50, Green Project's Decarbonization Platform.

The highest quality (i.e. most additional, traceable, and local) procurement types are operationally impossible for many companies. For example, tenants in leased spaces cannot install on-site renewables or directly transform their energy source in an unowned space. PPAs and vPPAs are not available to smaller energy consumers given high contracting costs and complexity.

Purchasing unbundled EACs can be a more accessible mechanism to source renewable electricity for globally dispersed operations, and particularly for companies with constrained resources and limited control over their electricity supply.

When a company's value chain partner (e.g., a supplier, subcontractor, tenant) possesses EACs, these instruments can be reflected in the partners' market-based Scope 2 GHG inventory in accordance with the GHG Protocol so long as certain Scope 2 Quality criteria are satisfied. Corporate buyers should look for such evidence of quality before incorporating their suppliers' market-based Scope 2 data in their Scope 3 GHG inventories.



Building a renewable energy program for your value chain

Early corporate leaders, from IKEA, and Apple, to Microsoft and ZF, have launched supply chain renewable energy programs. Their program successes and pain points provide valuable insights for new entrants exploring this strategy.

Combining insights from RE100's survey, EPA guidance, and industry research, we've created a list of the key components of a supply chain renewable energy program:

Setting ambitious targets informed by a Scope 3 emissions screening (e.g., identify which suppliers comprise 80% of supply chain electricity usage, per GHG Protocol Supplier Engagement Guidance)
Establishing a supplier engagement plan that prioritizes supplier outreach in tranches, beginning with high-capacity suppliers (as first-movers to set an example) in geographies where renewable energy options exist
Exploring procurement tools, including:

Energy supplier partnerships Renewable energy procurement software, e.g., act50.

Conducting internal Procurement staff training or presenting awards to upskill staff directly engaged in supplier relationships and reinforce your program
Setting clear guidance and requirements, e.g., IKEA's Supplier Code of Conduct
Supporting value chain partner capacity-building, e.g., workshops/webinars, peer education, regional policies, and regular updates.
Creating enforcement or incentive mechanisms, e.g., financial resources, public recognition, preferred supplier status, fines, and/or preferential sourcing decisions.
Implementing Inventory Management Plan updates to explicitly define accounting and quality assurance procedures
Collaborating with peer organizations to drive collective industry improvement, e.g., Supplier LOCT
Publishing public progress updates to share lessons and learnings with your customers.

Case Study: Nike

Let's look at an example from a successful program. This case study covers Nike's Supplier Climate Action Program, started in 2020.

Through this program, Nike has engaged suppliers responsible for over 65% of their strategic supplier emissions to develop GHG inventories, disclose via CDP, and validate Scope 1 and 2 emissions targets with the World Resources Institute, the creator of the GHG Protocol. Their program and complementary programs include many of the above components, such as:

Supplier prioritization: Nike targeted their highest-emitting suppliers for their Climate Action Program, going so far as to involve their suppliers in developing Nike's own 10-year climate action plan, thereby driving purchaser-supplier alignment

- **Data collection:** Nike has mandated monthly reporting of energy data from their suppliers in a unified performance tool
- **Procurement tools:** Nike has facilitated PPAs in key sourcing markets such as Vietnam, as well technical assistance programs for on-site renewables with an emphasis on Vietnam and China
- **Clear guidance and requirements:** Participating suppliers have signed on with full awareness of the program's requirements and support resources from Nike
- **Capacity-building:** Nike convenes forums, conducts trainings, and fosters peer collaboration
- **Public progress reporting:** Nike leverages program data and reports on progress in white papers, case studies, and their annual Sustainability Reports.

Outcomes of engagement:

- In FY23, 60% of electricity used in finished goods factories was from renewable sources
- Nike's SCAP now involves suppliers accounting for over 65% of strategic supplier emissions
- Nike suppliers have contracted over 300 MW of onsite solar PV at nearly 80 facilities.
- Based on CDP HSBC 2024 report





Renewable electricity and Scope 3 accounting

In the guidance below, we use the term Corporate Entity to refer to the organization acting across their value chain to reduce Scope 3 emissions.

Changes to a value chain partner's (VCP) Scope 2 GHG inventory (see section above) that arise from renewable electricity procurement can be reflected in the Corporate Entity's Scope 3 GHG inventory.

This is common among companies who may have historically prepared Scope 3 inventories using industry average spend data (e.g., emissions per \$ of economic value, or EEIO data) and are climbing up the data quality hierarchy to supplier-level data, incorporating primary GHG data (e.g., site-specific emissions from their VCPs) specific to their value chain activities.

To understand how changes to a VCP's renewable electricity-related emissions roll up to a Corporate Entity's Scope 3 inventory, one needs to consider:

1. How electricity-related emissions are reflected in VCP data, and
2. How VCP data are used in Scope 3 inventories.

Let's begin with #1.

In the case of VCP data for Scope 3, Category 1, the highest quality primary data are cradle- to-gate emission factors for the goods or services supplied to the Corporate Entity. This cradle-to-gate emission factor can be sourced from a Product Carbon Footprint or Environmental Product Declaration. Beyond this, physical or economic allocation of supplier emissions based on the quantity of a good or service supplied to the Corporate Entity is recommended.

For a cradle-to-gate emission factor, suppliers can reflect EACs in their calculation of electricity-related emissions per ISO 14067 and the GHG Protocol Product Standard. For supplier emissions allocated* based on a quantity of good or service supplied, suppliers can reflect their purchased EACs in their calculation then allocation of market-based Scope 2 emissions.

Similarly, in the case of other Scope 3 categories beyond Category 1, VCPs can provide renewable electricity and market-based emissions data reflecting purchased EACs for that usage across:

Category 8: Electricity paid for by landlord

Category 11: Electricity consumed by customers in use of sold products

Category 13: Electricity paid for by tenants

Category 15: Electricity consumed by portfolio companies

* Allocation should be done in conformance with Figure 8.2 and Table 8.2 in the GHGP Scope 3 Standard, avoiding allocation then preferencing physical allocation where possible.



#2: How can a Corporate Entity use this data in their Scope 3 inventory?

For a cradle-to-gate emission factor, a supplier's EAC purchases will already be reflected in the factor provided. Simply use the published factor, multiplied by the quantity of a good or service purchased.

For other VCP emissions data, Scope 3 accounting is more nuanced.

Across all Scope 3 categories, the GHG Protocol Scope 3 Standard does not explicitly clarify whether a Corporate Entity should use market- or location-based VCP data. Given this vague guidance, practitioners have called for more clarity in GHGP's recent public solicitations.

Green Project will continue to update its resources to reflect the latest standard, expected in draft form in 2025 and published by late 2026.

In the interim, we recommend that the Corporate Entity maintain two separate Scope 3 ledgers — one which considers VCPs' market-based data and the other which considers VCPs' location-based data. Please note that while SBTi generally only permits location-based Scope 3 data, a Scope 3 ledger which considers VCPs' market-based data will likely be accepted as there are no restrictions on VCP data (e.g., supplier-specific emission factors) incorporating renewable electricity usage.



Example: Two Packaging

Two Packaging has 2 suppliers, Paperboard Central and Green Plastics, located in Maine and Ohio, respectively.

Last year, Two Packaging requested that their suppliers provide them with the following sustainability information, and they received partial data. Two Packaging supplemented the unknown upstream Scope 3 emissions of its two suppliers using secondary data, as shown in **red** in the table below (in this case, the secondary data is US EPA EEIO spend-based emission factors).

Disclosure	Units	Paperboard Central	Green Plastics
Scope 1 emissions	MTCO ₂ e	19	22
Scope 2 emissions, market-based	MTCO ₂ e	3,626	8,090
Scope 2 emissions, location-based	MTCO ₂ e	Paperboard Central	8,090
Scope 3 emissions, category 1-8	MTCO ₂ e/\$	0.479	0.544
Scope 3 emissions, category 9-15	MTCO ₂ e	Unknown	Unknown
Products sold to Two Packing	Tons	5,000	10,000
Total mass of product sold	Tons	20,000	15,000
Electricity Consumption	MWh	15,000	18,000
Renewable Energy	MWh	0	0

Note: the electricity data and emissions factors are illustrative only and do not refer to actual data.



Two Packaging used hybrid methods to calculate its Scope 3, Category 1 emissions, applying a physical allocation method to attribute their suppliers' Scope 1 and 2 emissions based on the relative quantity of total product mass that they, Two Packaging, purchased (25% and 67%, respectively). Two Packaging has calculated Scope 3, Category 1 two ways (a "dual ledger"), using their suppliers' **location-based** Scope 2 emissions data then **market-based emissions data**.

2022 Scope 3, Category 1 emissions

Disclosure	Units	Paperboard Central	Green Plastics	Total
Scope 3 category 1 emissions, location-based	MTCO ₂ e	3,099	13,072	16,171
Scope 3 category 1 emissions, market-based	MTCO ₂ e	3,099	13,072	16,171

Note: identical location- and market-based emissions because suppliers did not specially procure renewable electricity and only used their default grid supply.



The following year, Two Packaging requires both Paperboard Central and Green Plastics to purchase 100% renewable electricity, and both comply.

For simplicity's sake, let's assume identical data is collected for 2023 with the only change being 0% to 100% renewable electricity consumption at both manufacturing plants. The two suppliers provide evidence of EAC retirement at appropriate volumes (equivalent to their facility electricity consumption) and report reductions in their market-based Scope 2 emissions to zero.

2023 supplier data

Disclosure	Units	Paperboard Central	Green Plastics
Scope 3 emissions, market-based	MTCO ₂ e	0	0
Renewable electricity	MWh	15,000	18,000

Note: identical location- and market-based emissions because suppliers did not specially procure renewable electricity and only used their default grid supply.



Two Packaging calculates their Scope 3, Category 1 emissions for 2023. They maintain a dual ledger, as is recommended, and observe that their Scope 3, Category 1 market-based emissions decreased by **39% YoY**.

The benefits of Two Packaging's supplier renewable energy requirement are significant.

2022 vs 2023 Scope 3, Category 1 emissions

Disclosure	Units	2022	2023	Reduction MTCO2e (%)
Scope 3 category 1 emissions, location-based	MTCO2e	16,171	16,171	0%
Scope 3 category 1 emissions, market-based	MTCO2e	16,171	9,872	39%



Using Green Project's Decarbonization Platform

Value chain decarbonization is not a one-size-fits-all model. The right value chain engagement program should be developed to meet stakeholder and business needs. A renewable electricity requirement is an effective programmatic element — and a good fit for corporates who have already begun collecting data from their value chain partners, e.g., Tier 1 suppliers.

Green Project has launched act50, a Decarbonization Platform, a web-based solution designed for companies to collaborate with their suppliers. Corporate entities can launch renewable energy campaigns to meet specific goals (e.g., RE100 achievement by Tier 1 suppliers), invite their suppliers to participate, and track supplier progress and Scope 3 reductions achieved. Simultaneously, participating suppliers have access to a one-click EAC marketplace with high-quality EACs sold in the smaller quantities they need — and which traditional marketplaces don't accommodate.

Our platform breaks down barriers to market access for suppliers new to renewable electricity procurement, with Green Project's whole digital ecosystem of sustainability tools at a suppliers' fingertips.

Suppliers can easily add on other Green Project solutions to expand their climate program, such as our robust, audit-ready carbon accounting engine, ESG management and reporting software, and SBTi Advisory services for target-setting.

From day one to Net Zero and beyond, our solutions help SMEs meet any and all ambitions from their supply chain manager, investor, or any other key stakeholders.

The age of the energy facility matters — RE100 will begin enforcing a 15-year facility age limit in 2025 reporting. Today, 63% of all RE procurement among members comes from newer facilities, up from 53% in 2023. Buyers should prioritize EACs from recently commissioned sources to align with quality standards.

When designing supplier engagement programs, it's worth noting that markets like Vietnam and India saw major jumps in renewable electricity procurement among RE100 companies — from 30% to 58%, and 23% to 39%, respectively. This demonstrates the viability of supplier engagement even in traditionally challenging markets.

RE100 companies now represent 2% of global electricity use — greater than Germany's total consumption. This underscores the real leverage corporate action holds in shifting global energy systems.

Green Project's platform is particularly well-positioned to help companies operating in markets like Asia, where access to PPAs is limited and unbundled EACs remain the most scalable and accessible RE procurement method.





Green Project is the carbon accounting and reporting platform designed for ease-of-use and peace-of-mind.

Get in touch to learn more
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