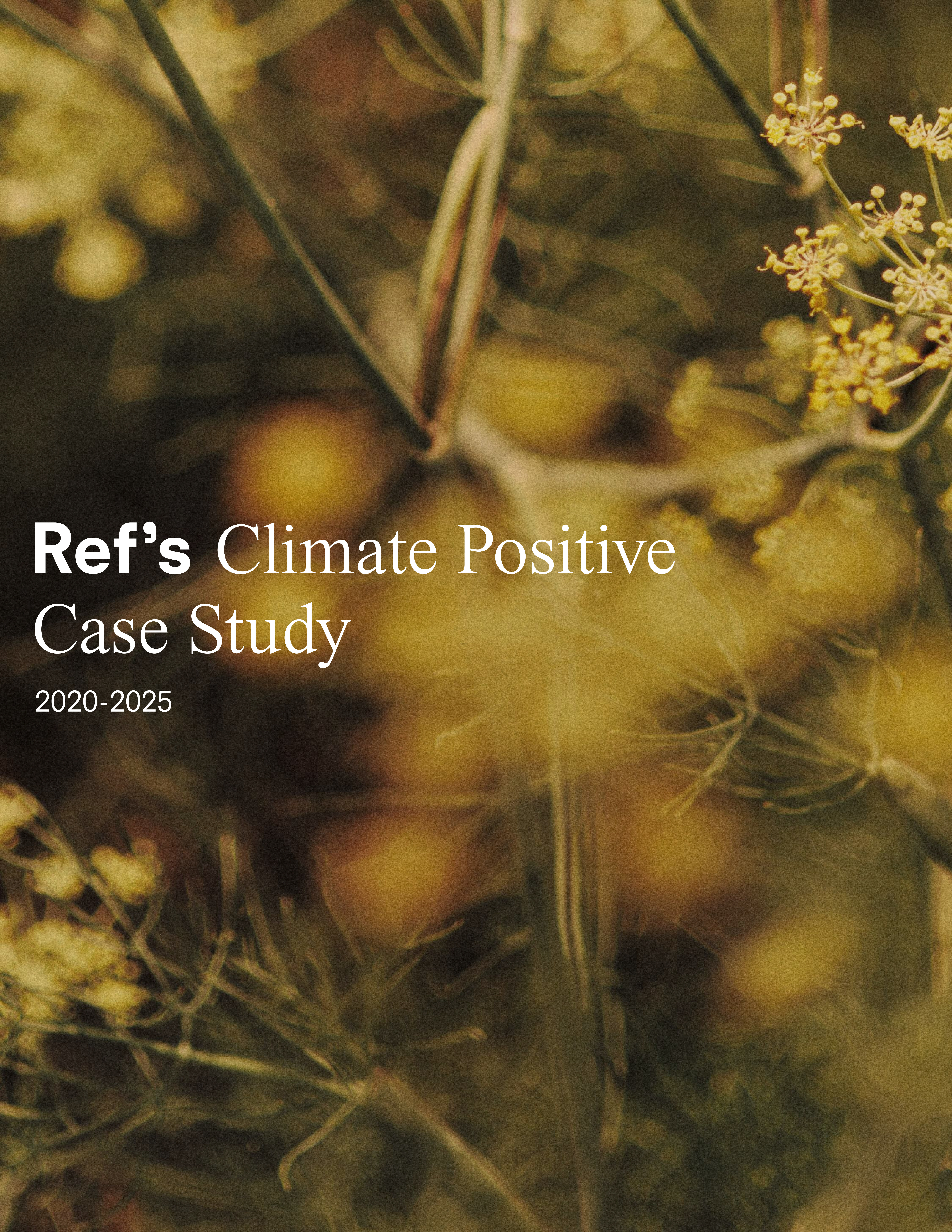




Ref's Climate Positive Case Study

2020-2025

When we committed to becoming Climate Positive by 2025, there was no clear playbook and very few examples for how a fashion brand could implement climate ambition at this scale or speed. We moved forward anyway, knowing that moving early would mean learning as we go. But, as we've said before, we aren't afraid of a challenge. Five years later, we're proud of what our ambition unlocked.

We successfully reached our science-based reduction target for Scope 3 and invested in carbon removal projects that account for about 125% of our total footprint.

While not everything went exactly as originally planned, particularly within Scope 1 and 2, these changes still drove transformation throughout our business. A compressed timeline fundamentally changed how we operate. It accelerated work that might otherwise have taken a decade, or may not have happened at all.

We embedded carbon accountability into design, sourcing, logistics, facilities, and leadership decision-making. We built internal fluency, external partnerships, and real operational capability that now serves as infrastructure for everything that comes next. Along the way, we also strengthened our data. Investments in internal systems, supplier engagement, and updated emission factors improved the accuracy and quality of our footprint accounting. Together, these changes drove real reductions and ultimately enabled us to reach our milestone target.

More importantly, we proved that ambitious climate commitments are not just aspirational. They are operationally transformative. And, given the choice, we would do it all over again. The planet doesn't need companies to wait for certainty. It needs us to move early, learn fast, and raise the bar for what the industry can achieve.

Here is what going for it made possible:

- A major reduction in product carbon intensity, dropping from 37 pounds per product in 2021 to 26.3 pounds in 2025. That means we **reduced our product carbon intensity on average by 29%** and Ref stuff now offers an **average carbon saving of 73% per unit** when compared to standard apparel.¹
- A shift toward lower-impact materials at scale, with **97.5% of fibers sourced from recycled, regenerative, or renewable inputs by 2025**.
- Measurable progress on transportation emissions while preserving a business model that avoids overproduction and waste.
- Launched our FactoryForward program including **14 active** projects to support energy efficiency and renewable energy in our supply chain.
- Expansion of circular business models that extended the life of nearly **two million garments** between 2021 and 2025.

Going forward, we'll continue to:

- Measure and publicly disclose our full carbon footprint across our operations and supply chain.
- Invest in real emissions reductions.
- Maintain independent verification through Change Climate and earn the [Climate Label](#).

Over the past five years, we captured many of the more accessible reductions and built the systems needed to truly understand and manage our footprint. The next phase will require deeper transformation across our operations and supply chain. Through the Climate Label framework, we will translate this challenge into a clear climate transition budget that will guide where we invest, how we prioritize action, and how we stay accountable to climate science.

What follows is a detailed look at how we approached this work across materials, transportation, energy, and circularity, including what we set out to do, what we achieved, and the lessons that will shape our next phase of climate action.

The background

In 2020 we set a goal to be Climate Positive by 2025. We were one of the first fashion brands to make that kind of commitment on such an accelerated timeline. At the time, it was also not totally clear how companies could operationalize these goals and actually make them happen. So we published a detailed roadmap of what we thought we needed to do to get there, and a [guide](#) for other businesses that wanted to do the same.

There still isn’t a single global definition of Climate Positive. We define it as reducing our greenhouse-gas emissions in line with science-based targets and removing more carbon from the atmosphere than we emit through verified carbon removal projects.

- That basically means two things:
1. Cutting our carbon footprint as much as possible
 2. Only offsetting what we can’t yet eliminate

In 2022 we set [science-based targets](#) (SBTs) to make our reduction goals more concrete. Our SBTs are to reduce absolute scope 1 and 2 GHG emissions by 42% and scope 3 emissions by 48% per value added by 2030 from a 2021 base year. In simpler terms: For every dollar we earn, the carbon footprint of our business must be nearly half what it was in 2021.

We know intensity versus absolute targets are not the same. And in retrospect, we would have done this differently, tying our targets to units produced, or something like that. But because we are a growing brand, doing this for our Scope 3 targets made the most sense.

Where our emissions (mostly) come from

Emission sources	Why it matters
Materials	Almost 2/3 of Ref’s total carbon footprint is based on material sourcing. Designing into fabrics with lower carbon emissions helps us reduce our total footprint.
Transportation	It takes a lot of fuel to transport our raw materials to our factories and even more to ship our finished goods to our warehouse, retailers, and customers. We use air shipping a lot to get stuff to you on time. But shipping via air is up to 31x more carbon-intensive than shipping via cargo ship.
Energy	A lot of our energy use happens in our supply chain at our mills, dye houses, and yarn producers, but we also need to become more efficient in our own facilities to have the most impact.
Circularity	Circular practices reduce emissions because they eliminate waste, help regenerate natural systems, and keep materials in use.

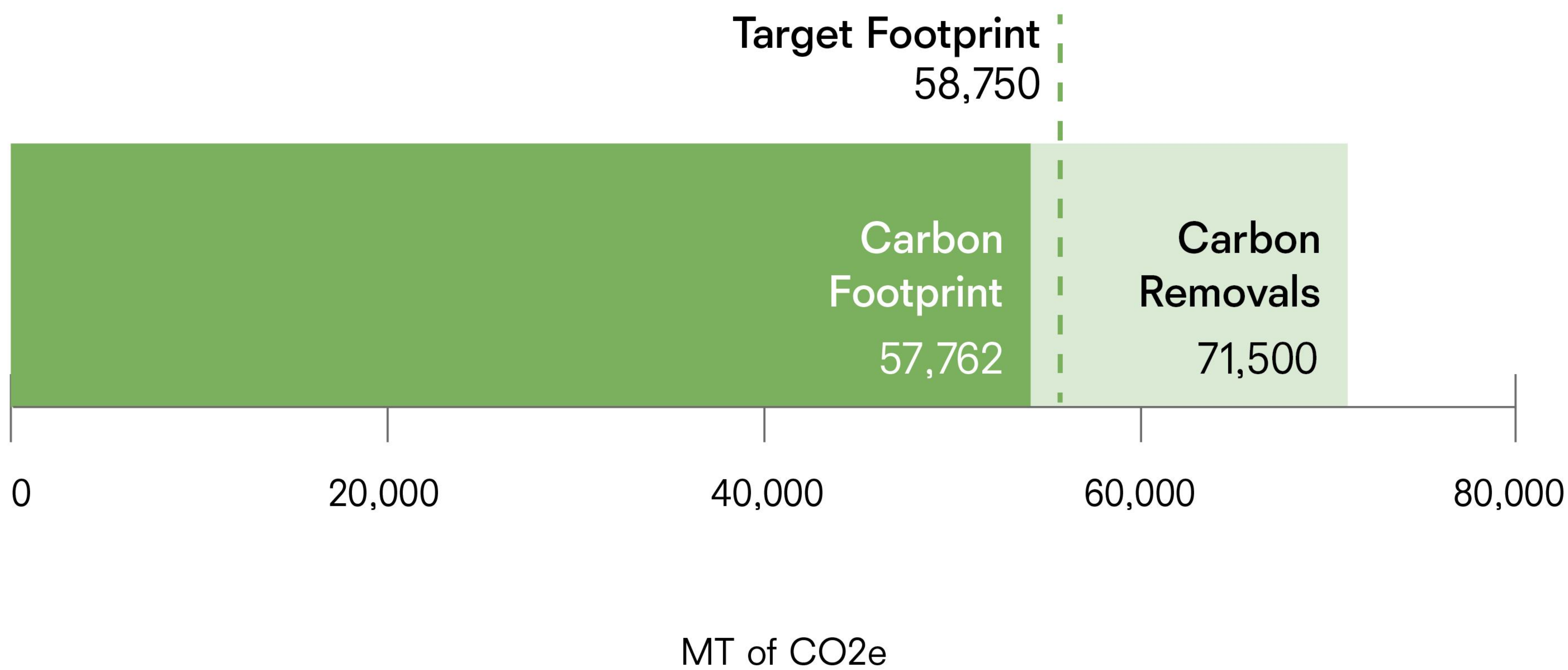
What we set out to do and the actual results

By the end of 2025, we hoped to show we were on track to meet our total carbon reduction targets and shift to 100%+ offsets via verified carbon removal projects.

Target/Commitment	Result
Reduce absolute scope 1 and 2 GHG emissions by 42%	✗
Reduce scope 3 emissions by 25% per value added by 2025, aligned with our pathway to a 48% reduction by 2030	✓
Commit to 100% renewable electricity by matching all energy use with renewable energy credits	✓
Invest in nature-based carbon removal projects that move us beyond neutrality to climate positive	✓



Ref's 2025 Carbon Footprint & Offsets



What worked

- Focused priorities. We targeted the biggest climate levers instead of spending too much time and resources on things that wouldn't really move the needle.
- Training and education. We did a lot of internal training and developed team-specific scorecards each year. Teams understand the "why," not just the Ref rules.
- Leadership accountability. Sustainability goals are tied to performance reviews and bonus remuneration.
- Public-sector partnerships. Our energy audits were free and revealed efficiency opportunities and tax incentives.
- Cross-industry collaboration. We took collective action by working with other brands and third-party industry experts, like Fashion for Good and Apparel Impact Institute (Aii), to combine leverage and co-sponsor carbon reduction programs.

What didn't

- While Scope 1 and 2 emissions represent less than 2% of our total footprint, we still missed our reduction targets. Because we already sourced 100% renewable electricity in our baseline year, further absolute reductions—across both location and market-based emissions—were inherently limited, particularly as we continue opening 10–15 stores annually. We eliminated mobile combustion emissions by purchasing an EV shuttle, but additional reductions have proven more complex, especially in leased spaces where structural and landlord constraints have limited our ability to install on-site solar.
- We set out to eliminate virgin silk entirely, but there are currently limited non-synthetic alternatives to virgin silk that meet our standards for quality, durability, and design intent. To help address this gap, we supported an updated silk life-cycle assessment and are optimistic about the potential of organically cultivated silk as a lower-impact alternative that aligns with our standards.
- We couldn't shift a high volume of our shipments to ocean freight without risking overproduction and bigger disruptions to our business model.
- We didn't have the resources or leverage to tackle carbon reduction in our supply chain quickly. We have launched programs via Factory Forward, but haven't seen significant results yet.



Materials

Two-thirds of a product’s impact comes from the raw materials stage, and some fibers are way more impactful than others. For example, cashmere represents less than 1% of our material volume but still contributes almost 20% of our material footprint because it’s so carbon-intensive.



Our Plan	What we did	How we feel about it
1. Eliminate conventional cashmere	• Developed recycled cashmere yarns, progressing from 70% → 90% → 95% → 100% recycled. • As a result, we reduced our CO2e from cashmere alone by ~55%.²	:D
2. Increase recycled and lower-impact fibers	• Increased our recycled, regenerative & renewable fiber sourcing (93% in 2021 vs 97% in 2025 of our total fiber sourcing).	:D
3. Eliminate conventional silk	• Increased overall silk sourcing (1.5% in 2021 vs 3.8% in 2025 of our total fiber sourcing) • In 2025, we displaced half of our silk (and silk-like) sourcing with alternatives. • Introduced Naia™ Renew as a silk alternative. This fiber saves on average 91% CO2e in comparison to conventional silk.³	:/

What we learned

- We put a lot of time and investment into Materials R&D and fiber innovations. Despite that, we don’t yet have an exact replacement for protein/animal fibers like silk and cashmere. Especially for silk alternatives, we tried some new fabrics that didn’t hold up when it came to product quality, fit, or design intent.
- Customer demand for silk and cashmere actually grew during the last five years, so even as we were doing R&D on alternatives, we couldn’t completely eliminate them. Silk jumped to 4.7% of our total sourcing in 2022-2023, and we have reduced it from that peak, but still not back to 2021 levels.
- We’ll need to be deliberate about how and where we incorporate recycled fibers and ensure we do not sacrifice quality. Recycled fibers, especially cotton, often have a shorter staple length. This can lead to increased nep (a fuzzy surface texture) in the fabric compared to non-recycled ones. This fuzziness isn’t for everyone, or always a good look.
- Recycled & next-gen innovations have also been slower to develop and harder to commercialize than we expected.

What’s next

- We’ll continue to invest in Materials R&D and innovations for silk and cashmere alternatives.
- We recently completed a life-cycle assessment of silk, including research from our specific supply chain. Based on those findings, organically cultivated silk has 30% carbon savings. So, we will test sourcing organic silk in 2025, and hope to shift the balance of our silk sourcing over the next few years.
- We will test regeneratively cultivated cashmere for the small balance of virgin fiber we may need for our sweater yarns.
- We’ve updated our Fiber & Fabric standards to incorporate not only carbon intensity, but also circularity and other environmental indicators, so we don’t miss important trade-offs.

Transportation

Our Plan	What we did	How we feel about it
Shift as much shipping as possible from air to ocean/ground freight	• From 2021 to 2025, our freight mix has meaningfully shifted: air decreased from 40% to 33%, truck increased from 60% to 63%, and ocean—previously at 0%—now represents 3.5% of shipments. • Improved data systems so we could track shipping emissions more accurately. • Prioritized boat shipping for predictable, repeat bestsellers; Increased ocean freight for these styles to 46% in 2025 vs 21% in 2024. • Opened a third-party logistics center in the Netherlands to service our growing EU customer base. • Updated reporting to reflect the latest emission factors from the Global Logistics Emissions Council Framework.	:)

What we learned

Air freight is extremely carbon-intensive, but it also allows us to:

- Produce in small batches
- Replenish only what sells
- Avoid overproduction

That’s why less than <1% of our product is unsold or donated each year. According to the 2025 State of Fashion Report, the fashion industry produced an estimated 2.5–5 billion excess garments in 2023. At the same time, 92 million tons of textiles are discarded annually, much of it landfilled or incinerated.⁴ We won’t risk overproduction just to lower one part of a product’s footprint.

What’s next

Going forward, we’re shifting styles that are heavier in weight (like sweaters, denim, and outerwear) to cargo ships, where that change delivers the biggest climate benefit. We’ll continue to improve our network analysis to ensure products are optimally positioned near our customers. Additionally, we will engage our freight providers and encourage them to use lower-emission transportation options.



Energy

Our Plan	What we did	How we feel about it
Audit and reduce energy use in our onsite factory, offices, and stores	- Completed energy audits and rolled out centralized energy tracking. - Upgraded HVAC systems and moved into a LEED Gold headquarters, factory, and distribution center. - Added EV charging and an electric delivery vehicle.	:D
Reduce products that require professional cleaning	Reduced dry-clean-only products (39% 2021 vs 28% in 2025).	:)
Help customers use less energy when caring for their clothes	Launched garment care tools and education with Steamery.	:D
Invest in carbon reduction programs within our own supply chain, AKA insetting	- Launched Factory Forward, a program to help suppliers get better at measuring, assessing, and reducing environmental impact. - Used Higg FEM data to understand our supply chain hot spots and identified a few facilities that are still working to eliminate coal from their energy portfolio. - Partnered with Apparel Impact Institute (Aii) and South Pole to implement projects aimed at measuring & reducing emissions within our supply chain. - Completed 14 emissions reduction programs (like target-setting and action plans such as automated shut-offs and insulating hot water pipes & steam valves) with supply chain partners that represent an estimated 30-40% of our production. 6 of these programs were co-sponsored with other brands.	:/

What we learned

- There’s a disconnect between the data collected and the capacity to actually implement carbon-reduction projects with suppliers. It will require more strategic collaboration and dollars behind the commitments to see the programs take effect.
- Diversifying product categories and types helped us shift to lower-impact care materials—AKA denim and easy knits vs bridal dresses.

What’s next

- Keep energy management and efficiency as core considerations for sourcing, Facilities, and other parts of the business.
- Invest in on-site renewable energy for our HQ when we are eligible in the next few years.
- Continue to consider low-impact care in the R&D for all new fabrics.
- We are refocusing efforts on transparent value chain discussions about shared objectives, like coal phase-out. This aims to identify areas for long-term investments in solutions that directly reduce carbon emissions.

Circularity

Circular fashion doesn’t just reduce waste, it cuts carbon by keeping materials in use longer.



Our Plan	What we did	How we feel about it
Expand repair, rental, resale, recycling, and textile reuse.	• Launched our Circular by 2030 commitment and roadmap. • Created a Circular Design Guide and trained design, product development & merchandising teams. • Joined the Ellen MacArthur Foundation’s Fashion ReModel project and set a revenue target for circular business models. • Partnered with Homeboy Threads to responsibly downcycle factory waste and damaged goods. Diverted 147,232 lbs 2021-2025. • Launched repairs & alterations with Hemster & SOJO. 21,172 units 2021-2025 that were either repaired or tailored. • Circulated 255,482 units through Rent the Runway from 2021-2025. • Sold 119,482 one-of-a-kind second-hand pieces through our Vintage offerings. • Continued resale partnership with thredUP. 1,545,461 units resold or recycled from 2021-2025. • Expanded resale with Poshmark + 1-click resale from order history, driving 3,074 units resold using peer-to-peer resale. • Launched RefRecycling for every product. 12,217 products collected for recycling from 2022-2025.	:D

What we learned

- We believe the best way to amplify circular business practices is to plug into existing platforms that meet customers where they already are.
- Textile-to-textile recycling continues to require additional investment and engagement across the industry to increase volume, enable efficient sorting, and develop partnerships to turn feedstock into value.

What’s next

- We are super focused on our [circularity roadmap](#) now through 2030.

Footnotes

1 Based on Refscale using HIGG MSI data
2 Based on a 55% reduction in absolute virgin cashmere consumption compared to our 2021 baseline
3 Based on HIGG MSI data
4 Ellen MacArthur Foundation, 2023