Climate

Our food system is resilient, but it has never faced a challenge like climate change. Cargill is working to transform our food and agricultural system to meet the challenge, from reducing emissions across our global supply chains to building sustainable practices into farming processes around the world.

Our approach

We believe that many of the most impactful solutions for addressing climate change are rooted in agriculture. It starts with the earth itself and the very way we grow our food, and extends to all parts of our business—from production and transportation to customers and consumers.

We are working to transform the industry with our partners around the world by improving agriculture's environmental impact and providing solutions to farmers whose livelihoods are increasingly affected by the impacts of climate change.

Cargill is addressing climate change through four strategic approaches:

Reducing and sequestering emissions

We are taking action across our operations and key supply chains to reduce our Scope 1, 2, and 3 emissions against the measurable and time-bound science-based targets detailed in this report. This year, we invested more than $70 million in emissions-reducing technology and renewable energy projects. And we are working with farmers, customers, and partners to lower emissions across our supply chains—driven by industry commitments such as our goal to advance regenerative agriculture practices across 10 million acres of North American row crop farmland by 2030.

Innovating new products and solutions

We are collaborating with customers and suppliers in the development of products created from more sustainable raw materials with lower carbon footprints. We are also investing in innovations where we see the greatest opportunity for emissions reductions, such as a wearable device that can capture and neutralize methane emissions in cattle, and wind-assisted propulsion technology for ocean transport.

Scaling new markets

We are creating new, diverse revenue opportunities that compensate farmers for adopting regenerative agriculture practices that sequester carbon and reduce emissions. This can be seen in programs like Cargill RegenConnect™, which we launched this year and have since expanded to 15 states across the United States—an approach we believe can scale globally. We're also helping to expand the market for bio-based products and alternative protein options, such as our **ongoing investments in PURIS**, the largest North American producer of pea protein.

Supporting climate policy and collaboration

We promote decarbonization in agriculture, manufacturing, and energy, and advocate for public policies that align with our strategies. We fully endorse the Paris Climate Agreement and support government actions to address climate change. We actively engage in several pre-competitive initiatives to reduce emissions across supply chains, such as the Ecosystem Services Market Consortium (ESMC) and the Global Maritime Forum's Decarbonization Task Force.

Cargill conducts an annual assessment of our climate-related risks across our global operations—as well as upstream and downstream value chains—from a medium- and long-term perspective. This assessment is detailed in our **2022 CDP Climate Response** and aligned to our TCFD Disclosure in the **Appendix** section of this report.

Scope 1 and 2

Our operations and energy purchases

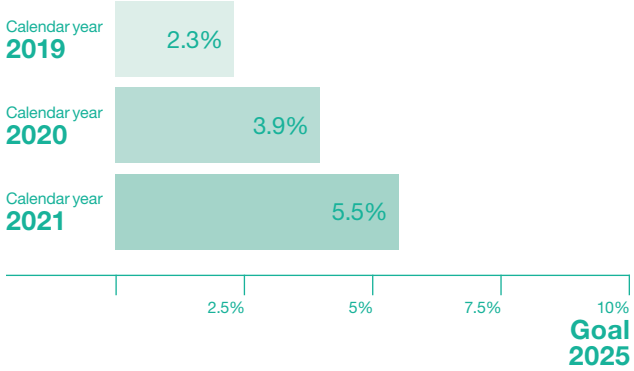
To minimize the environmental impact of our global operations, Cargill is taking steps to innovate, develop, and make investments to implement emissions-reducing technologies and renewable energy.

Scope 1 and Scope 2 refer to greenhouse gas (GHG) emissions from our operations and from energy purchased from the grid, respectively. Our Scope 1 and 2 targets were set and approved by the Science Based Target initiative (SBTi) in fiscal year 2019 against a fiscal year 2017 baseline.

Target

Reduce absolute operational GHG emissions 10% by 2025[11]

Emission reduction progress[12]



Renewable electricity around the world

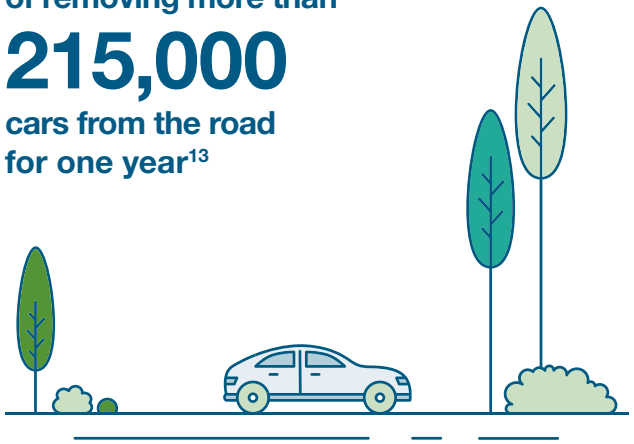
The renewable electricity used in our operations reduced our annual carbon dioxide equivalent emissions (CO_2e) by more than 462,000 metric tons from January 1, 2021 to December 31, 2021. This was accomplished primarily through the procurement of Power Purchasing Agreements (PPAs) for wind and solar.

At the end of December 2021, we had 21 projects online in 10 countries, and an additional 14 projects in development. Once all these projects are fully online by fiscal year 2024, we expect our renewable electricity mix will reduce our CO_2e emissions by more than one million metric tons per year.

This is the equivalent of removing more than

215,000

cars from the road for one year[13]



[11] Against fiscal year 2017 baseline.

[12] Refer to our **CDP Climate Response** for more information.

[13] The estimates included in this section are approximate and calculated using the **EPA Greenhouse Gas Equivalencies Calculator**.

Harnessing solar power in the Midwest

In December 2021, Cargill and National Grid Renewables, a U.S.-based renewable energy company, began commercial operations of the Prairie Wolf Solar Project in Coles County, Illinois. The project boasts 200 megawatts (MW) of solar power and is the second renewable energy Virtual Power Purchase Agreement (VPPA) contracted between Cargill and National Grid Renewables, with the first being a portion of the Crocker Wind Farm in Clark County, South Dakota.

The Prairie Wolf Solar Project will reduce our CO_2e emissions by

234,000↓ metric tons

per year from the time it went live in November 2021. This is the equivalent of removing more than 50,000 cars from the road for one full year—making it Cargill's largest renewable energy project to date.

A mighty wind in the Netherlands

Cargill and Vattenfall, a leading European energy company, have entered into a partnership to offtake electricity generated by an onshore wind farm being built by Windpark Hanze in the Netherlands.

The wind farm, which will go into full commercial operation in 2023, is expected to power more than 90% of Cargill's grid-based electrical consumption in the country—an amount that will nearly eliminate the Scope 2 emissions from Cargill's operations there.

The 10-year Corporate Power Purchase Agreement (CPPA) is Cargill's largest physical renewable power purchase signed globally and the first Cargill has signed in Europe.

The wind farm is expected to reduce CO_2e emissions by more than

130,000↓ metric tons

per year once it becomes fully operational in 2023.

Focused energy management

Across Cargill, more than 30 manufacturing sites have implemented ISO50001, a voluntary standard with specific requirements for setting up, operating, and improving a formal energy management system. With the additional rigor of ISO50001, we are integrating energy management into our business processes, allowing us to conserve resources and reduce our environmental impact in a structured approach. For example, we are identifying significant energy users within these sites, such as dryers and evaporators, and developing action plans to run them more efficiently. We are also using this data to utilize energy models that allow us to continuously improve our energy management through active response. We plan to expand implementation of ISO50001 to our largest manufacturing locations to more effectively manage our energy and GHG emissions.

> "The implementation of ISO50001 is just one example of the work we are doing to embed sustainability into how we operate. As Cargill continues to grow our business, having a strong energy management system in place is critical to ensure we are able to more sustainably and efficiently serve our customers."
>
> **Peter Dahm**
> *Sustainability Director of Operations and Natural Resources, Cargill*

Scope 3

Our supply chains

With a global footprint and presence in major food and agriculture supply chains around the world, Cargill is undertaking comprehensive, large-scale efforts to reduce emissions across our global supply chains.

We believe that sustainable agriculture is part of the solution to mitigating the effects of climate change. Our work is focused on targeted supply chain interventions, such as working with ranchers and downstream customers to explore new ways to graze cattle and new technologies that could reduce methane emissions. We optimize this work through programming and policy solutions that benefit farmers, customers, and the broader food system.

We are prioritizing our efforts in supply chains that have the greatest impact and opportunity for change, including animal protein, row crop farming, aquaculture feed, and ocean transportation. These supply chains are accountable to Scope 3 targets that align with our goal to reduce our global supply chain emissions 30% by 2030.[14]

Accelerating initiatives

Cargill is focused on applying technology, training, and tools to mitigate GHG emissions within our integrated supply chains globally. As described in this report, through partnership and collective action, we are driving progress to help our customers and industry decarbonize.

[14] As outlined in this report, we have reduced total Scope 3 emissions by 0.15M metric tons of CO_2e from a fiscal year 2017 baseline.

Cargill RegenConnect: Linking farmers to the carbon marketplace

This year, we launched **Cargill RegenConnect**, a new regenerative agriculture program that pays farmers for improved soil health and positive environmental outcomes, including payment per metric ton of carbon sequestered. The program connects farmers to the growing carbon marketplace and will help scale the voluntary adoption of regenerative agriculture practices. It also supports Cargill's commitment to advance regenerative agriculture practices across 10 million acres of farmland in North America by 2030.

Most recently, in May 2022, Cargill RegenConnect expanded grower eligibility to 15 states for the 2022-2023 crop season. Cargill RegenConnect is available to farmers whose primary crop is corn, soy, or wheat in the U.S. states of Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, and Wisconsin. Cargill's program was designed to meet the needs of farmers—offering one-year contracts for acres farmed through new or expanded regenerative agriculture practices such as cover crops, no-till, or reduced-till. The program has since expanded to cotton growers as well.

Cargill RegenConnect contributes to Cargill's Scope 3 climate target while also helping downstream customers achieve their goals—whether that's carbon reduction or the need for a regeneratively sourced cotton bale. The regenerative agriculture practices adopted also offer multiple other benefits, including delivering higher yields, improving water quality and water use, and building soil health and resiliency.

"This program has been a fantastic way to make cover crops and no tilling and regenerative agriculture work out on a balance sheet. It provides a more immediate financial return for the money you're investing in protecting and conserving your land."

Tyler Bruns
Bruns Farms, Missouri, U.S.

BeefUp Sustainability™: Supporting ranchers to scale sustainable grazing

We believe cattle can be a force for good in mitigating climate change and protecting the environment. In 2019, Cargill established **BeefUp Sustainability**, which seeks to reduce and sequester GHG emissions throughout the company's North American beef supply chain by 30% by 2030. Through BeefUp Sustainability, we are collaborating with farmers, ranchers, conservation organizations, and like-minded companies to make this goal a reality. We focus in the areas we believe will make the biggest impact: innovation,grazing management, feed production, and food waste. Since the program's launch, we have collaborated on eight partnership programs alongside our customers, farmers, and some of the world's largest conservation organizations.

Most recently, in April 2022, Cargill announced a partnership with **Burger King and the National Fish and Wildlife Foundation (NFWF)** to invest up to $5 million, plus up to an additional $5 million more in grantee match funding, to drive adoption of regenerative agricultural practices among cattle ranchers. Through this work, together with our partners, we will bring financial and technical resources to ranching organizations in the Southern Great Plains to improve grassland management and sequester carbon. Grants for this partnership were awarded through the Southern Plains Grassland Program, an NFWF-led initiative launched in April 2021, by separate contributions from Sysco, Cargill, and the U.S. Department of Agriculture's Natural Resources Conservation Services (NRCS), with additional subsequent contributions this year provided by Burger King and the Bezos Earth Fund.

Cargill's BeefUp Sustainability projects launched to date will reduce or sequester an estimated

1.7 million

metric tons of CO_2e

through outreach to 1,600 producers and some of our largest customers.

"As one of the biggest buyers of beef in North America, partnering with Cargill and NFWF allows us to accelerate ambitious efforts to reduce greenhouse gas emissions in our beef supply chain and to make meaningful impacts important to our planet and guests."

Tom Curtis
President, Burger King

SeaFurther™ Sustainability: Reinventing responsible aquaculture to protect our planet

Cargill has set a course to help protect oceans, a vital ecosystem that helps to provide, grow, and move food around the world. Cargill's **SeaFurther** Sustainability initiative helps aquaculture farmers raise more sustainable seafood with less environmental impact. Amid a growing population and an increased global demand for seafood, it's more important than ever that we do more with less.

Feed represents up to 90% of a harvested fish's total carbon footprint. Through SeaFurther, which launched in 2021, Cargill is working across the value chain to make an impact. Upstream, we're partnering with suppliers to identify and grow more sustainable ingredients and find new ways to reuse byproducts, like fish trimmings, that would normally be discarded. In our own operations, we're working to reduce energy use and optimize feed delivery logistics. And downstream, SeaFurther is helping farmers increase fish efficiency by using fewer resources and enhancing fish nutrition to promote the health and welfare of farmed fish. See **Sustainable Supply Chains: Aqua Nutrition** for additional details.

2 million

metric tons of CO_2e

is the estimated amount SeaFurther alone will help save by 2030, which is the equivalent of removing more than 400,000 cars from the road.

Ocean Transport: Decarbonizing the maritime industry

At Cargill, we charter around 700 vessels at any given time, which affords us the opportunity to help steer the maritime industry towards a zero-carbon future.

In fact, we are one of the maritime industry's leading proponents of, and investors in, efforts to achieve aggressive decarbonization goals. We're making investments and working with partners to create a variety of solutions that combine digital technologies and other innovations to make shipping more sustainable.

Aligning on climate goals through the Sea Cargo Charter

With the Sea Cargo Charter, which Cargill played a leading role in developing, we have for the first time a global framework in place for assessing and disclosing the climate alignment of industry-wide chartering activities. The Sea Cargo Charter provides a common, global baseline to quantitatively assess and disclose if chartering activities are aligned with climate goals. 2021 was the inaugural reporting year for the Sea Cargo Charter.

Advancing digital solutions with likeminded partners

We invested in ZeroNorth, a provider of voyage, vessel, and bunker optimization software, to accelerate the use of digital solutions that decarbonize shipping. Through ZeroNorth, vessel owners and operators are able to help improve vessel performance, reduce carbon emissions, and increase earnings.

Njord is our strategic collaboration with Maersk Tankers and Mitsui, which enables us to provide turnkey, energy-saving device solutions to our fleet, and to the wider maritime market.

By working closely with ship owners and other key stakeholders and by investing in and piloting new technologies and fuel, we continue to make progress against our long-term emissions reduction goals. We are intensifying our efforts in this direction and have, to date, reduced CO_2 emissions on 24 vessels by up to 10% through the installation of energy-saving devices, including specialized hull paints, LED lights, and hydrodynamic-improvement appendages.

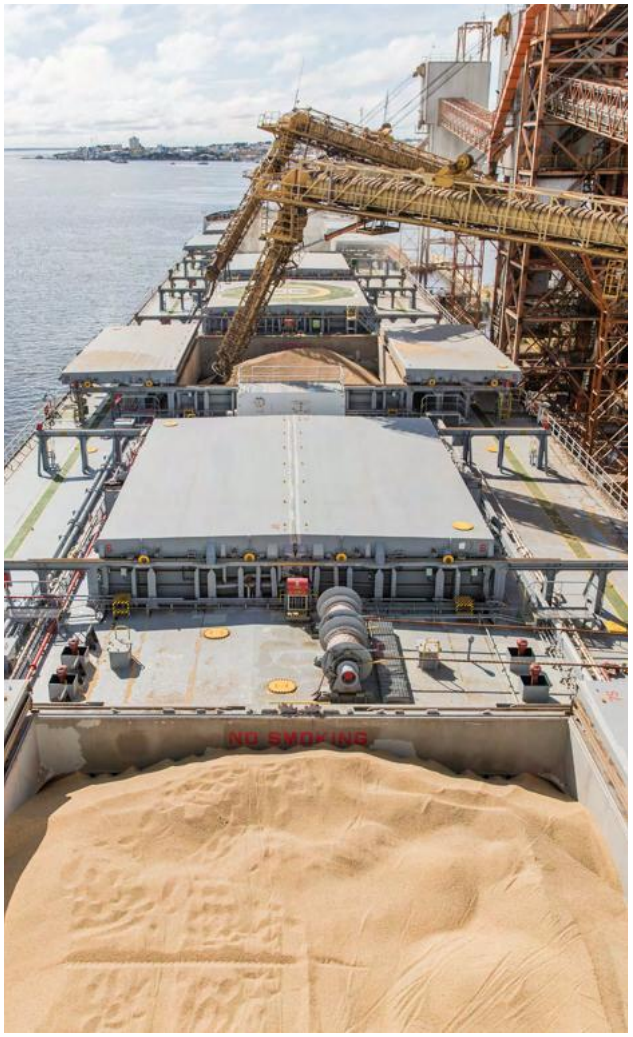
Innovating with wind-assisted propulsion

Cargill is exploring different wind-assisted propulsion (WAP) technologies, as we believe that wind could make an important contribution to achieving our decarbonization goals in the short, medium, and long term. The cost of fuels that could contribute to a zero-carbon future may remain high, but developing, testing, and improving WAP technologies before these fuels are available could reduce reliance on them.

For example, Cargill will be the first to install WindWings, large, solid wing sails with a potential to deliver double-digit percentage reductions in emissions. Working with partners BAR Technologies and Yara Marine Technologies, Cargill will soon install WindWings on a Kamsarmax vessel, Pyxis Ocean. The performance of the sails will be closely monitored to further improve their design, operation, and performance. The Pyxis Ocean project will be used to assess the ability to scale this innovative technology across the fleet and industry.

Reducing GHG emissions by parceling

This year, we continued to make progress in optimizing emissions through parceling, which enables us to use bigger ships and maximize freight input. We measured 38 parceling voyages this year and saw a 19% reduction in GHG emissions and 18% reduction in the Energy Efficiency Operational Indicator (EEOI), a measurement tool established by the International Maritime Organization.[15]



Trialing innovative alternative fuels

In the Netherlands, Cargill is conducting multiple trials of fuel oil/biofuel (FAME) blends of up to 30%. As of June 2022, 16 successful trials have produced an average CO_2e reduction of more than 22% versus conventional fuels.

Cargill is also a founding partner of the Maersk McKinney Møller Center for Zero Carbon Shipping, an initiative that is pursuing the use of a wide range of alternative fuels and energy efficiency technologies, including ammonia and methanol as maritime fuels.

For more details on Cargill Ocean Transport's ongoing quest to reduce emissions from shipping, read our latest report, **Making Zero Carbon Shipping a Reality**.

In April 2022, Jan Dieleman, Cargill's President of Ocean Transportation, was elected as Chair of the Board of Directors of the Global Maritime Forum, an international organization committed to shaping the future of global seaborne trade to increase sustainable economic development and human well-being.

[15] This calculation is based on voyages from January 2021 through June 2022.

Innovating new products and solutions

Cargill is blending creativity, ingenuity, and partnership—connecting across agriculture, environmental, academic, and business stakeholders—to create solutions from farm to fork that are helping to solve climate challenges.

Investing in disruptive technologies to reduce methane

We recognize that sustainability is a critical part of customer operations, and our customers face increased complexity as they balance animal health and welfare, performance, and business economics while reducing their environmental footprint. We are excited by the potential for innovation and technology to help address methane emissions in cattle to further the sustainability of ruminants. Cargill's partnership with ZELP (Zero Emission Livestock Project) is one key example.

When cattle eat and digest food, as much as 95% of the methane produced is emitted from their mouths and nostrils. **Cargill and ZELP** have partnered to develop a wearable device that can capture and neutralize more than 50% of cattle's methane emissions without disturbing the animals.

The ZELP wearable attaches to halters worn by cattle in a non-intrusive way. As well as converting methane, it has the potential to improve animal welfare by capturing, analyzing, and processing data on each animal. This technology has also been successfully tested through behavioral trials which evaluate the impact of the wearable on animal behavior as well as production yields, rumination, rest and activity periods, and feed intake.

Setting the standard for sustainable stevia

We believe that sustainability values, agricultural development, and business development can simultaneously thrive. Case-in-point: Our stevia leaf extracts are produced using stevia from growers that meet requirements as part of the Stevia Agricultural Standard. In addition, our next generation stevia sweetener, EverSweet®, is produced to make the sweetest components of the stevia leaf (Reb M and D) via fermentation.

After a rigorous, nearly year-long validation process, Cargill's agricultural stevia program has been benchmarked at Silver Level against SAI Platform's Farm Sustainability Assessment (FSA) 3.0—becoming the first stevia producer in the industry to evaluate our entire grower network and achieve this distinction.

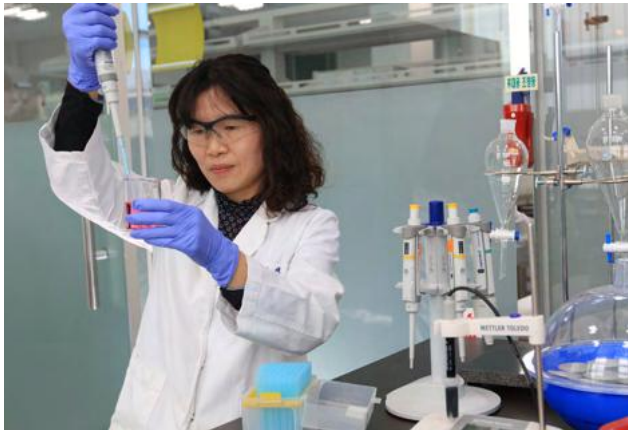
fsa Farm Sustainability Assessment BY SAI PLATFORM

Expanding the market for bioindustrial solutions

With rising demand for more sustainable offerings, Cargill's bioindustrial business takes nature-derived ingredients—such as corn, soybeans, jojoba, and seaweed—and produces a wide range of nature-based chemistries that offer alternatives to fossil-based products. From adhesives to soaps and paints to foam and even personal care solutions, our customized chemistries use nature-derived ingredients to help formulate products in ways that improve performance, such as flexibility, durability, absorbency, and reusability.

Offering sustainable solutions

To further expand our ability to provide industrial manufacturers with more sustainable ingredient solutions, Cargill entered into an **agreement with Croda** to acquire the majority of its performance technologies and industrial chemicals businesses. As part of the agreement, which closed June 30, 2022, Cargill will gain production facilities across Europe and Asia, along with a strong technology portfolio that supports leading market positions in polymer, automotive, and food packaging applications. Aligning with Cargill's commitment to sustainability, more than two-thirds of the raw materials used to manufacture these solutions are bio-based and renewable.



Investing in more sustainable power

Cargill's bioindustrial business provides a range of nature-derived offerings that help reduce GHG emissions, including in what is typically one of the most emissions-intensive industries—power generation. In December 2021, Cargill opened our first **FR3® natural ester fluid manufacturing facility in China**, making it Cargill's sixth FR3 fluid facility globally. FR3 fluid is a proven, high-performing transformer fluid that is more reliable for communities and has considerably higher flash and fire points than mineral oil. Derived of 100% vegetable oil with performance enhancing additives, FR3 fluid produces GHG emissions which are significantly lower than that of mineral oil—and is viable in many bioindustrial applications, including transformers used in power grids.