

Carbon Reduction Program Assessment

November 14, 2023

Introduction

In 2020, ADM retained a third-party consulting firm to complete a [carbon reduction feasibility study](#) and identify significant opportunities and projects that could enable the company to set and achieve an ambitious GHG reduction goal. This report has informed our strategy to address our combined Scope 1 and 2 greenhouse gas (GHG) emissions and allowed us to develop a goal to reduce absolute emissions by 25% from our 2019 baseline by 2035. This is one facet of ADM's "Strive 35" goals – a collection of sustainability-related targets which also address other material topics such as energy, water, and waste. Since these goals were first established, we have further committed to two additional climate-related targets: reducing absolute Scope 3 GHG emissions by 25% from a 2021 baseline and increasing our usage of low-carbon energy to 25% of total energy use with both commitments having a target year of 2035.

In 2022, ADM published its first Carbon Reduction Program Assessment Report, which outlined our net zero aspiration and described the progress that we have made thus far toward our climate-related targets. In this report, we provide an update on additional progress we have made towards these climate-related targets; our current glidepath for achieving our medium-term targets; and a summary of the technologies that are under consideration to support our aspiration of net zero emissions by 2050 at the latest.

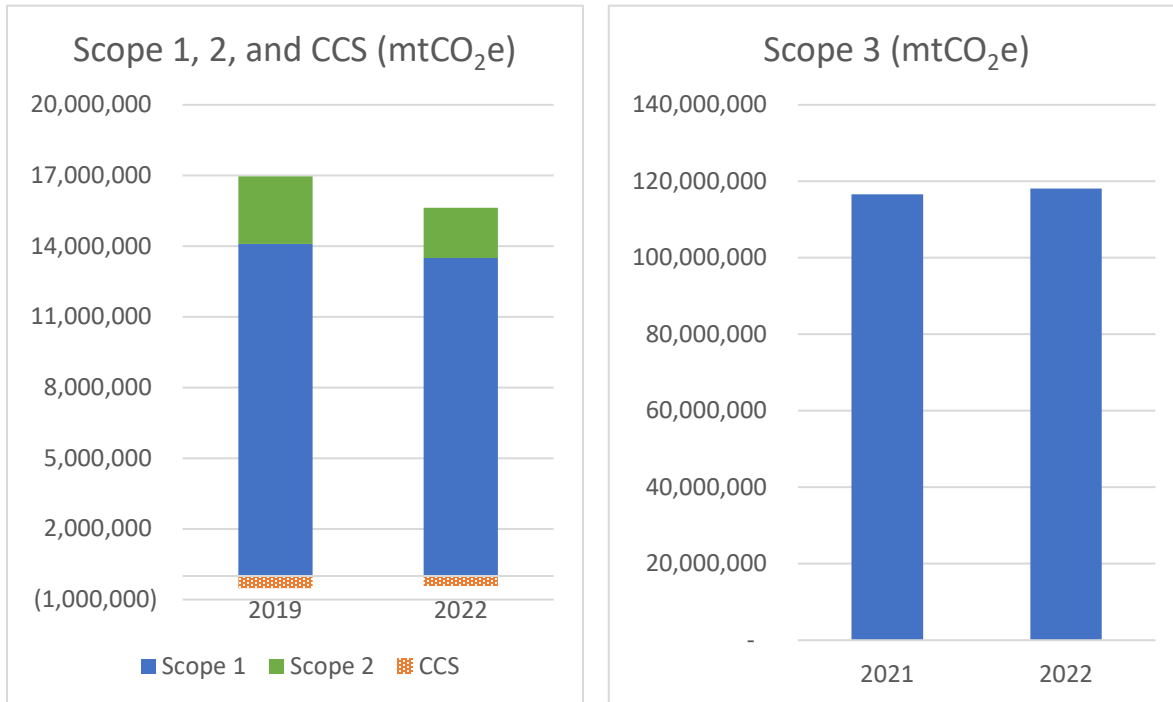
Short-term Target Development (SBTi)

When we developed our Strive 35 Scope 1 and 2 reduction goal in 2020, it was aligned with scientific methods and exceeded the minimum ambition required by SBTi at the time (absolute contraction methodology under a two-degree scenario.) SBTi now requires companies to commit to a 1.5-degree scenario and with a timeline shorter than our Strive 35 goal. In 2022, we committed to submitting targets to the Science-Based Targets Initiatives (SBTi) triggering a two-year window to prepare and submit for review. We continue to work to develop these goals for combined Scope 1 and 2 and for Scope 3, as well as forests, land, and agriculture (FLAG) targets aligned with the current SBTi methodology, and we aim to submit these goals to SBTi for review prior to April 20, 2024 – two years from the date we sent our commitment letter to SBTi.



Current Status and Progress

ADM's Strive 35 goals include two distinct carbon reduction targets: an absolute reduction of combined Scope 1 and 2 GHG emissions by 25% over the 2019 baseline by 2035, and an absolute reduction of Scope 3 GHG emissions by 25% over a 2021 baseline by 2035. In 2022, we realized a reduction of 7.8% for the combined Scope 1 and 2 emissions and a slight increase in Scope 3 emissions of 1.3%.



Throughout 2022 and 2023, we have continued efforts to improve energy efficiency and implement projects to reduce Scope 1 and 2 emissions. In 2022, 39 projects were completed that are expected to reduce our combined Scope 1 and 2 GHG emissions by 135,000 mtCO₂e per year. Two examples of projects completed include:

- Combustion controls improvements in Cedar Rapids, Iowa, expected to reduce CO₂e by 62,000 MT per year.
- Reverse Steam Tube Germ Dryer Airflow in Decatur, Illinois, expected to reduce CO₂e by 45,000 MT per year.

In addition, through renewable energy certificates (RECs) and power purchase agreements (PPAs), we purchased renewable electricity that reduced our Scope 2 footprint by more than 88,000 MT.

So far in 2023, we have implemented several projects expected to reduce our Scope 1 and 2 GHG emissions, including:

- Coal usage has been discontinued at our Mankato, Minnesota; Lincoln, Nebraska; and Des Moines, Iowa oilseeds facilities. Combined this is projected to result in the reduction of approximately 180,000 metric tons of CO₂e per year.
- A collaborative wind power project in South America generating renewable power that is expected to lower our Scope 2 footprint by 19,000 metric tons of CO₂e per year.

Glidepath

We have identified emission reduction projects at our processing complexes using the best technologies available including, where possible, transitioning from higher carbon energy to lower carbon energy production by leveraging advanced technologies such as carbon capture and storage (CCS), renewable electricity, and renewable natural gas. In addition, we continue to look for ways to reduce our overall energy footprint through our global Energy Treasure Hunt Program and further focused efforts on optimization within our production processes. These efforts collectively make up our glidepath to carbon reduction and goal achievement. The plan is a living document and subject to change based on operating scenarios, technology costs, and future technology development.

Energy Efficiency

We have set an interim goal to achieve at least 5% reduction in energy intensity for manufacturing operations by 2025. Efforts include focus in both plant utilities areas and in our production processes. Utilities areas of focus include flue gas heat recovery and deaeration system optimization as well as development of cleaner gas fired cogeneration projects replacing some existing less efficient coal-fired operations. Process improvement efforts include focus projects related to drying, evaporation and centrifugation which will yield both thermal and electrical savings. Use of the global energy treasure hunt program will also continue to maintain an evergreen pipeline of improvement projects.

Energy Transition

We have set a goal for at least 25% of our total energy use to come from low-carbon sources, including renewable energy sources such as wind, hydro, and solar, as well as zero or extremely low emission energy sources such as biofuels, nuclear, natural gas with carbon capture and storage, and low-carbon hydrogen and ammonia.

- ADM and Warwick Carbon Solutions have announced the signing of a formal agreement for the development of Broadwing Energy, a natural gas power plant that will have the capability to capture over 90% of its resulting CO₂ emissions. The plant will sell lower-carbon steam and electricity to our Decatur complex while taking advantage of ADM's existing CCS operations, potentially sequestering over 2 million tons of CO₂ annually. Once operational, we expect to reduce our coal usage in Decatur by 60% and our GHG footprint by 3,000,000 metric tons of CO₂e per year.
- At our U.S. facilities that still burn coal, we are identifying technology and engineering needed to transition to natural gas, which could reduce our GHG footprint by an additional 1,500,000 metric tons of CO₂e per year.
- We are working with new technology providers on feasibility of CO₂ capture for alternative beneficial use. Successful implementation could yield more than 80,000 metric tons per year



reduction at the targeted trial facility and could prove out the potential for further use of the technology.

- Project development is underway in several regions to increase the use of renewable biomass in place of natural gas as fuel for steam boiler operations which on a combined basis could reduce Scope 1 emissions by more than 150,000 metric tons per year.
- We are exploring site feasibility for the construction of solar and wind energy generation that could reduce our Scope 2 emissions by more than 35,000 metric tons per year.
- Within our transportation fleet, we are piloting compressed natural gas, liquified natural gas, electrification, and higher biodiesel blends that could reduce our Scope 1 footprint by over 150,000 metric tons of CO₂e per year.
- Renewable electricity purchases through power purchase agreements and/or renewable energy certificates can reduce Scope 2 emissions that remain after energy efficiency initiatives have been implemented. In 2022, our Scope 2 emissions from electricity purchases were approximately 2.1 million MT CO₂e. We are investigating opportunities to increase our use of renewable electricity at multiple facilities.

Going Further – Future Projects and Technology

With the establishment of a new low-carbon energy usage target, we have placed further emphasis on the adoption of alternative fuels and will seek new technologies that will enable us to achieve our sustainability goals. ADM recognizes that innovation will be essential to our net zero aspirations, and we continue to evaluate cutting edge solutions such as:

- The U.S. Department of Energy is supporting the development of small modular nuclear reactors (SMRs) as a way to use nuclear technology to provide generation at a smaller scale (tens to hundreds of MW). If SMRs became commercially viable in the future, these could be used to produce electricity onsite with zero GHG emissions. We are currently engaged in a feasibility study to determine the viability of nuclear power as a supplement or replacement for thermal energy from fossil fuels.
- Currently, hydrogen and renewable natural gas are not widely available. At some ADM locations, methane is captured from anaerobic wastewater treatment and used onsite as fuel or to generate renewable natural gas. We are participating in multiple collaborations focused on the feasibility of developing hydrogen infrastructure in different geographies where we operate.
- Our Decatur, Illinois, facility is located above a large geological formation called the Mount Simon sandstone that has the capacity to permanently store millions of metric tons of CO₂. We have been operating carbon capture and injection equipment for over a decade at the facility. Currently, only CO₂ from onsite fermentation is captured and sequestered; however, several companies have announced intentions to build pipelines to transport CO₂ that could allow us to implement post-combustion capture technology at larger facilities where the exhaust gas can be captured, scrubbed, and transported to a sequestration location with the potential to significantly reduce Scope 1 emissions.



Supply Chain Emissions (Scope 3)

The past year has also yielded significant developments in regard to Scope 3 emissions as a result of enhanced GHG accounting guidance. In accordance with these proposed best practices, we recalculated our Scope 3 inventory and incorporated the emissions associated with land use change (LUC). While this methodology change resulted in a higher emissions total for 2021 when compared to our previous disclosures, it paints a clearer picture and is aligned with global accounting protocols. Because of the significant change in methodology and lack of data to allow LUC calculation for our previous baseline year of 2019, we have set 2021 as our new baseline. From 2021 to 2022, our Scope 3 emissions increased by 1.3%, wholly attributable to sourcing in a region with higher LUC values. This highlights the need to collaborate and coordinate carbon reduction efforts between our sourcing and origination teams, regen ag team, and sustainability team. Our current Scope 3 inventory includes Purchased Goods and Services; Fuel-and-energy-related Activities, Upstream Transportation; Waste from Operations; and Processing of Sold Products (Categories 1-5, 10). Considering these categories as our significant sources of Scope 3 emissions, our key objectives to achieve our absolute Scope 3 emissions reduction target include:

- Increasing traceability and satellite monitoring to calculate actual LUC emissions.
- Using traceability and grower engagement to ensure deforestation- and conversion-free sourcing in high-risk regions, such as the Gran Chaco and Brazil in South America.
- Working with farmers in our supply chains to implement regenerative agriculture practices on 4,000,000 acres by 2025 to reduce on-farm emissions and sequester carbon in the soil.
- Collaborating with transportation providers to reduce emissions through initiatives such as Sea Cargo Charter, Green Shipping Corridors, and increased biofuel usage.

Conclusion

To keep the 1.5°C target in the Paris Agreement within reach, tackle food crisis risks, and enable the transformation to a global net-zero future, we must focus on limiting impacts from land use change, reducing emissions at the field level, leveraging the land's ability to sequester carbon, and improving productivity of existing agricultural land. Since our last update, we have continued to identify and implement carbon reduction projects. We have reduced our combined Scope 1 and 2 footprint by 7.8% over the baseline and identified a glidepath of projects that could reduce our footprint by an additional 5 million MT. For Scope 3, we have recalculated our baseline to align with new protocol standards. Two programs, regenerative agriculture and no-deforestation, will fuel emissions reductions in FLAG categories through avoiding LUC emissions, reducing field-level emissions, and sequestering carbon within the soil. Collaboration with stakeholders in our supply chain such as downstream customers and transportation providers will drive further reductions in Scope 3. We will continue to explore new technologies that will allow us to reach our short- and medium-term reduction targets, as well as our long-term net-zero target.

