

Reduction of Scope 3 Emissions

Carbon reduction in Scope 3 is not simply about meeting international efforts and targets to reach net zero but is a key part of our corporate strategy to adapting to structural changes in the economy and society triggered by climate change. SK Innovation pursues to migrate its business model shifting from carbon-intensive businesses to low-carbon ones and strives to cut carbon emissions across the value chain with the goal of making its business structure more sustainable.



2030 targets

Financial intensity of SK Innovation and its subsidiaries in 2030 compared to 2019

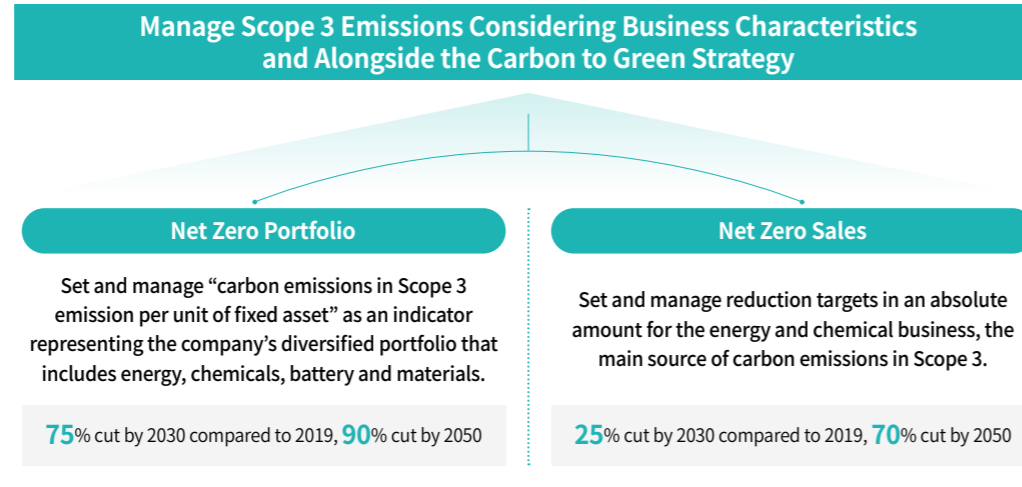
75% reduction

Absolute Scope 3 emissions of the energy and chemical biz. in 2030 compared to 2019

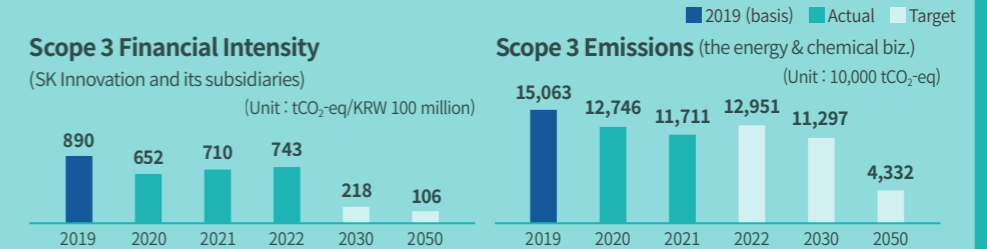
25% reduction

Strategies to Achieve Key Tasks (Mid-to Long Term)

SK Innovation established the carbon reduction roadmap for Scope 3 across the company and all subsidiaries in 2022 and plans to take sincere actions and continue to deliver results based on this roadmap, thus contributing to worldwide carbon reduction efforts. The company is taking a two-pronged approach to cutting Scope 3 emissions: “Net Zero Portfolio” focusing on the financial intensity and “Net Zero Sales” based on the absolute amount of Scope 3 emissions by the energy and chemical business.

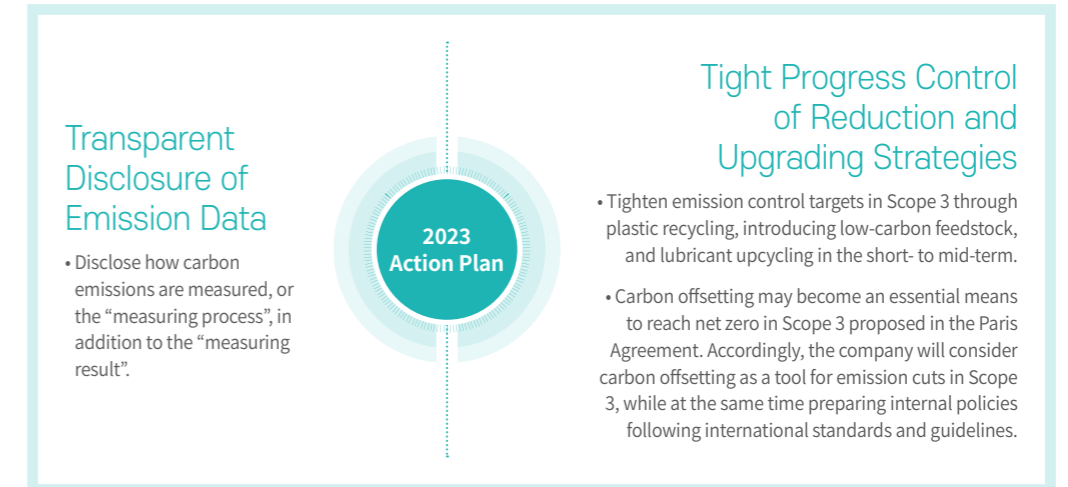


Reduction History & Mid-to Long Term Targets



Major Activities Planned for 2023

Carbon measuring methods and progress monitoring on carbon reduction activities are two areas where we will make focused efforts to cut Scope 3 emissions. These will include disclosing Scope 3 carbon emissions with greater transparency and tightly controlling progress on actual carbon reduction.



SK Innovation established strategies and a roadmap to reduce Scope 3 emissions for the period of 2022 to 2050, and its subsidiaries have identified and implemented low-carbon business items accordingly. Plastic recycling through pyrolysis*, low-viscosity engine oil development, and carbon-offset crude oil import are among the major activities implemented in 2022.

*Pyrolysis cracks waste plastic with heat and extracts feedstock for petrochemicals, such as naphtha.

Activities and Achievements in 2022

Our Commitment



Net zero is key to our endeavors for ESG management to achieve sustainable growth and win the confidence of our stakeholders around the world.

SK Innovation will migrate to a green portfolio with low carbon intensity across Scope 1, 2, and 3, and put in place a system where net zero will always be a constant goal for all of us.

- CEO's New Year Message for 2023

Vice Chairman Kim Jun, SK Innovation

Achievement 1 Plastic Recycling

SK Geo Centric is engaged in a variety of businesses recycling waste plastic into feedstock for petrochemicals and new plastic materials. Recycling waste plastic has the effect of cutting carbon emissions in Category 12 (end-of-life treatment) and Category 1 (purchased goods and services) of Scope 3. In this context, the company officially had its technology to recycle pyrolysis-refined oil into feedstock for petrochemicals as an external business methodology with the Ministry of Environment in 2022, which was the first of its kind in Korea. Recycling one ton of waste plastic through pyrolysis, not incineration, can help reduce approximately 2 tons of CO₂. The company is also pushing for a project to construct an Advanced Recycling Cluster (ARC) for Advanced recycling technologies, including pyrolysis, in Ulsan. SK Geo Centric plans to complete the ARC by 2025 in strategic alliance with Plastic Energy Co., a UK-based plastic pyrolysis firm and launch products upcycled from waste plastic.

Achievement 2 Carbon-offset Crude Oil Produced with DAC Technology

In 2022, SK Trading International entered into a contract to purchase 200,000 barrels/year of “carbon-offset” crude oil from Occidental Petroleum Corp. for five years from 2025. With the Direct Air Capture (DAC) technology, we can supply carbon-offset crude oil by injecting CO₂ directly captured from the air into an oil well and offsetting the equivalent amount of CO₂ emitted throughout the life cycle of crude oil from cradle to grave. Hence, carbon-offset crude oil is recognized as a superior alternative to the majority of carbon-offsetting crude oil whose carbon emissions are offset simply by carbon credits purchased from the market. SK Innovation plans to produce a wide range of products, including jet fuel, out of carbon-offset crude oil and, by doing so, expects to slash carbon emissions in Scope 3 by approximately 100,000 tons annually.

Scope 3 Emissions in 2022

		(Unit: 10,000 tCO ₂ -eq)									
		Company	Category 1	Category 3	Category 4	Category 5	Category 6	Category 7	Category 9	Category 11	Category 12
SK Innovation and subsidiaries 132.13 million tCO ₂ -eq	Energy & Chemical Biz. 129.5 million tCO ₂ -eq	SK Energy	1,233	17	81	2			26	8,734	12
		SK Geo Centric	102	7	3	1			7	4	399
		SK Enmove	94	1	2	<1	<1	<1	8	-	103
		SK Incheon Petrochem	340	4	20	<1			4	1,470	161
		SK Earthon	-	-	-	-			-	115	-
		Total	1,768	30	105	3			46	10,324	675
Battery & Materials Biz. 2.62 million tCO ₂ -eq	Company	Category 1	Category 3	Category 4	Category 5	Category 6	Category 7	Category 9	Category 11	Category 12	
		SK On	234	15	2	1			1	-	-
		SK IE Technology	2	4	<1	<1	<1	1	<1	-	<1
		Total	237	19	3	1			1	-	<1

* The sum of emissions is rounded off and could entail a difference in single digits.

* SK Geo Centric's Scope 3 emissions exclude the biogenic removal effects(63,000 tons).

* Emissions from Peruvian mining areas #88 and #56 owned by SK Innovation are added to SK Earthon, considering business relevance and operational control.

We will be on a constant lookout for opportunities to import carbon-offset crude oil by keeping our eyes on the market.

* Direct Air Capture is one of carbon capture & storage (CCS) technologies, which directly captures rarefied CO₂ (~0.04%) from the air.

Achievement 3 Development of Low-Viscosity Engine Oil

SK Enmove supplies low-viscosity engine oil. This product has less viscosity than regular engine oil and offers excellent protection for the engine and higher fuel efficiency, thus being a good method of cutting carbon emissions. Carbon reduction effect associated with the low-Viscosity engine oil business can be measured by a methodology registered with the Ministry of Environment and, when registered as an external emission reduction potential, can be recognized as part of the company's official carbon reduction performance. As such, we will promote the use of low-viscosity engine oil and expect to contribute to reaching the country's carbon reduction target for the transportation sector.

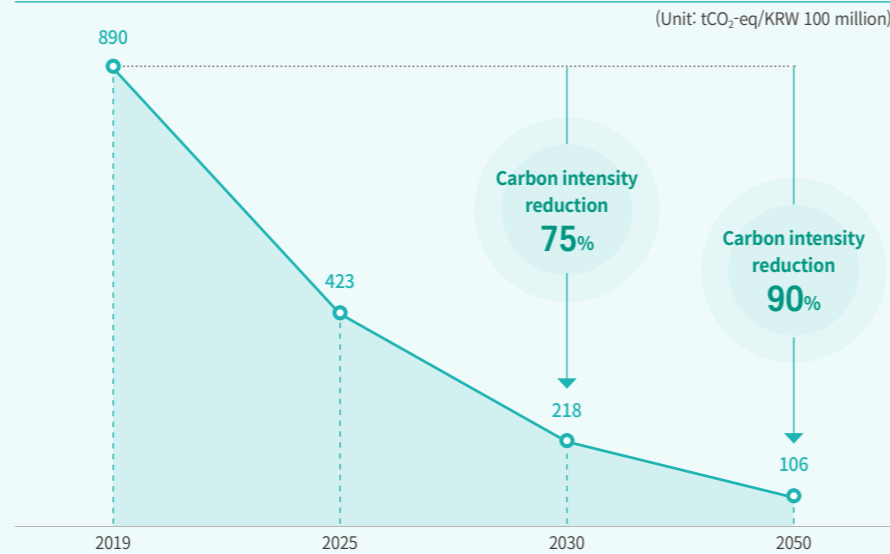


Achievement 4 Reduction Roadmap for Scope 3 Emissions

SK Innovation adopted “financial intensity” as an indicator for measuring carbon reduction effects, which enables us to manage carbon reduction activities for Scope 3 in the energy and chemical business and the battery and materials business combined. Financial intensity refers to Scope 3 emission per unit of fixed asset and, keeping this in mind, the company will choose to increase assets mainly in the battery and materials businesses whose carbon intensities are lower, while all subsidiaries continue to cut carbon emission in Scope 3.

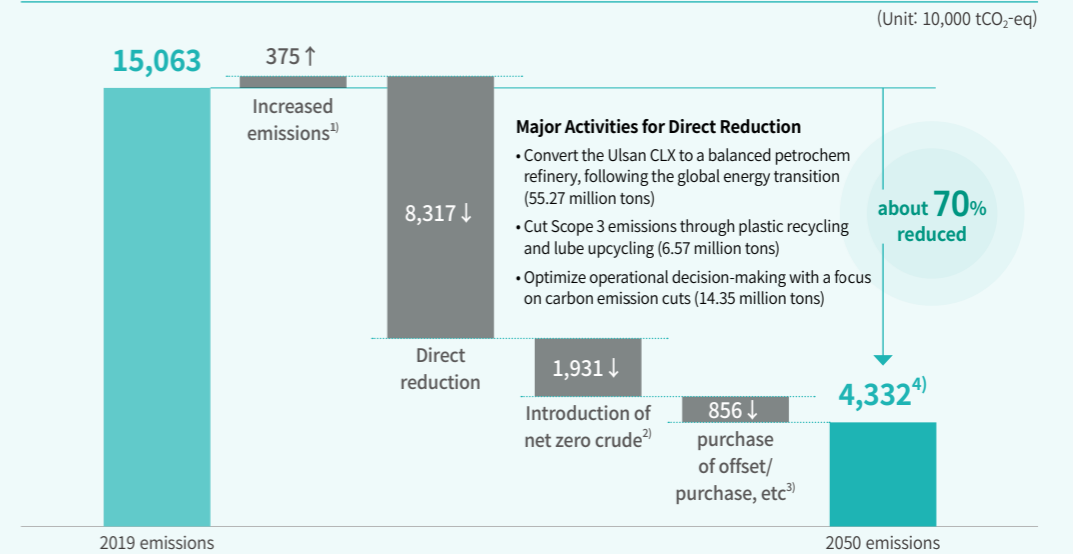
Scope 3 Aspiration of SK Innovation: Net Zero Portfolio

Shifting to a business structure with 90% less carbon emissions by 2050 through the innovation of business models and portfolios



Scope 3 Aspiration for the Energy/Chemical Business: Net Zero Sales

We achieved 110 million tons of carbon reduction, equivalent to Scope 3 emissions associated with the sales, consumption, and disposal of energy and chemical products in 2019.



1) Scope 3 emissions slightly increased due to the increased production of SAF (sustainable aviation fuel), high-performance plastic, and premium lube base oil.
 2) Introduced feedstock and manufactured products whose carbon emissions associated with crude production, refining, and product use are offset in terms of LCA by adopting direct air capture, etc.
 3) Secured voluntary carbon emission credits through product certification and external projects.
 4) The remainder of emissions is rounded off and could entail a difference in single digits.



Learn more about Scope 3 emissions.