

Reduction of Scope 1 & 2 Emissions

At SK Innovation, we take net zero as a critical opportunity to upgrade our competitiveness and to answer the call of our times. We reviewed all of IPCC's scenarios suggesting various paths to a 1.5°C cut in temperature by 2050 and developed our Net Zero Roadmap, under which our portfolio is being transformed toward decarbonization. We will also innovate our business fundamentals under the Carbon to Green strategy, with the goal of reaching net zero in the energy and chemical business by 2050-α and in the battery and materials business by 2035, while financial values will not be compromised let alone environmental values in that process.



2025 Targets

Emissions of the energy and chemical biz. compared to 2019

25% reduction

Emissions of the battery and materials biz. compared to BAU

21% reduction*

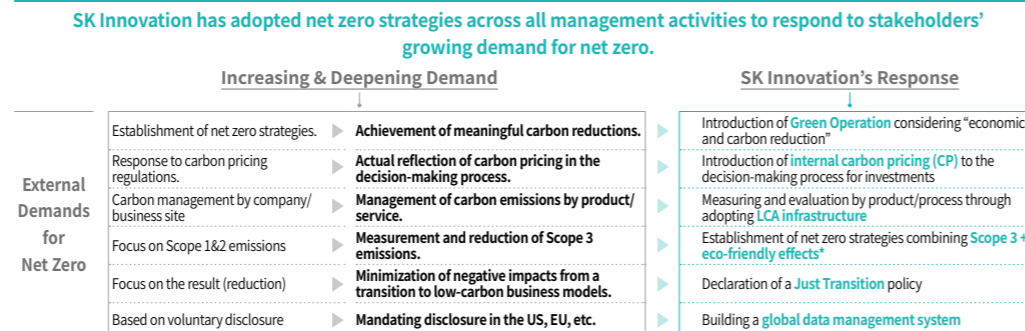
* Weighted average of the reduction targets of SK On and SK IE Technology and can be subject to change depending on actual BAU emissions.

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

SK Innovation has kicked off the "Net Zero Operations", which is a two-track approach to reaching net zero in Scope 1 & 2 of its existing and new businesses. The company plans to reduce carbon emissions by 25% in the energy and chemical business, and by 21% in the battery and materials business by 2025 compared to that of 2019 baseline. This target will be backed up with diverse initiatives, such as improvement of process efficiency, introduction of low-carbon raw materials and operational optimizations, and application of carbon capture/storage/utilization technologies. Our battery and materials business will also cut its carbon emissions to net zero by tapping into renewable energy, higher process efficiency, and low-carbon fuels. Every month, we assess actual carbon reductions in Scope 1 & 2 and make sure to boost our practical actions toward net zero accordingly.

[Activities of the Green Management Initiative \(regular progress assessment, p.87\)](#) →

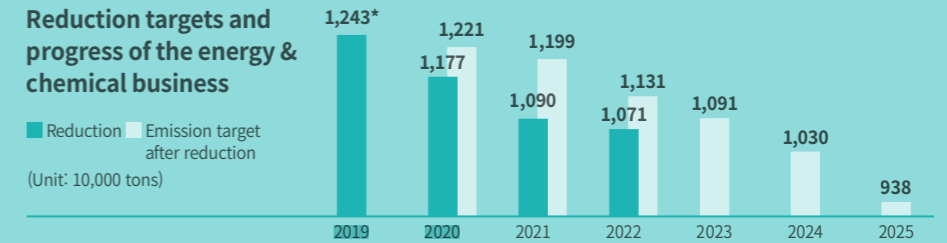
External Demand for Net Zero and SKI's Response



* Avoided emission: Contribution to the reduction of GHG emissions outside SK Innovation's value chain through the expansion of eco-friendly and low-carbon businesses and products

Reduction History & Short-Term Targets

Reduction targets and progress of the energy & chemical business



* 2019 baseline: 12.43 million tons (Target and progress are the same.)

Major Activities Planned for 2023

With a strong commitment to carbon reduction, SK Innovation updates the Net Zero Roadmap every year and assesses companywide progress vs targets on a regular basis. The BOD particularly leads the monitoring of ESG-related issues and our actual progress on carbon reduction, thus helping the company create tangible impacts in the areas of ESG. Accepting external stakeholders' demands, the company decided to specify annual reduction targets until 2030 and adopt diverse measures to reduce carbon emissions in Scope 2. The execution of the Net Zero Roadmap will be further accelerated by reflecting annual progress vs net zero in the KPIs of the CEO and major subsidiaries. With regards to the energy and chemical business, the company has been optimizing companywide efforts toward net zero by assessing economics with the assessment framework of the Net Zero Roadmap and adjusting priorities among the measures we use to curb carbon emissions accordingly. This assessment framework is elaborated further on page 86.

Tighten Progress Control of Reduction

- Estimate carbon to be added by new businesses, facility expansions, and tightening regulations, and maintain the existing reduction path by offsetting these estimates.



Specific Reduction Methods

- Diversify measures to reduce Scope 2 emissions until 2030, aligned with the disclosure of the mid-term reduction plan and the amount by respective measures from 2026 onward.
- Optimize the carbon reduction portfolio by considering diverse factors, including mid-to long term supply and demand outlook, costs, economics, and feasibility of respective measures, on top of reduction target reviews.

SK Innovation has mobilized diverse measures to reduce carbon emissions since it established the Net Zero Roadmap in 2021 and has reduced 1.72 million tons (Δ14%) in Scope 1 & 2 of the energy and chemical business, exceeding the reduction targets.

Activities and Achievements in 2022

Our Commitment



SK Innovation declared “All Time Net Zero” as its ambitious goal to achieve by 2062, its centennial anniversary, by addressing carbon emissions of the present and the future as well as its carbon footprint from the past six decades. It also means our commitment to passing a sustainable globe down to future generations.

There will be no limits in our quests for innovation. SK Innovation will reach “All Time Net Zero” and supply greater sources of power moving the world forward in the future.

- Declaration of “All Time Net Zero” on the 60th anniversary of SK Innovation

Vice Chairman Kim Jun, SK Innovation



Achievement 1 Introduction of Renewable Energy

SK Innovation is engaged in REC purchasing and Green Premium, a type of green tariff offered by KEPCO (the state-run electric utility) tenders and mobilizes diverse means to implement RE100, such as PPA, as part of its initiative to expand the use of renewable energy. In energy and chemicals, the company will assess its respective reduction measures in all aspects, including economics and feasibility, and develop diverse structural measures with R&D and technology investments, in addition to reviewing reduction targets for Scope 2. In battery and materials, we share our commitment to RE100 with all domestic and overseas business sites and lead the way in environmental management. SK On has adopted renewable energy in phases in its overseas business sites, starting in Hungary. SK IE Technology has made steady progress toward 100% renewable energy use by 2030 since it joined RE100 in 2021, and the ratio of renewable energy to electric power supply rose to 55% across all business sites worldwide in 2022. Moving forward, SK Innovation will closely assess the market environment and sourcing conditions of renewable energy in its respective business sites and establish/operate an optimized portfolio of renewable energy to secure its reliable supply.

Achievement 2 Higher Process Efficiency and Energy Efficiency

Our endeavors to cut greenhouse gas directly emitted from the production process are backed up by raising the operating efficiency of production facilities with heat exchange, process separation, change of drive source, and rotating machines. In the mid-to long term, the company will cut carbon emissions across all businesses at a faster pace through diverse measures, such as introducing advanced catalysts to cut fuel consumption and low-carbon steam from outside.

Achievement 3 Transition to Low-carbon Materials

By adopting DBL* Max in its decision-making process on business operation, we compare what difference we can make in carbon emissions by adjusting raw materials, operation quantity, mode, etc. This way, we pursue both economic and social value. The company seeks to curb carbon emissions early on from the production process by introducing low-carbon raw materials as a short-term measure and plans to create a more sustainable energy product portfolio in the mid-to long term, with such measures as adopting carbon-free fuels like ammonia.

* SK no longer ties itself to a single bottom line pursuing only financial performance but embraces a double bottom line focusing on both economic value (EV) and social value (SV) under its business philosophies.

Greenhouse Gas Reduction in 2022

- SK Innovation has explored diverse ways to slash carbon emissions, such as high process efficiency and change to low-carbon fuels and raw materials, since it made the Net Zero Roadmap in 2021. This has enabled us to cut carbon emissions in Scope 1 & 2 of the energy and chemical business by 1.72 million tons (Δ14%), surpassing the 2022 target of 1.12 million tons (Δ9% vs 2019).

Greenhouse Gas Reduction in 2022 (+)

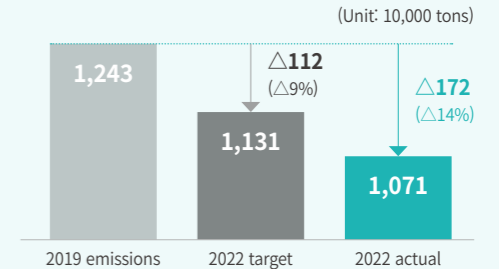
- We published the Net Zero Special Report in 2022 to share our commitment and progress toward net zero and will continue transparent communication with external stakeholders along the journey to reach net zero.

Achievement 4 CCS Technology and External Businesses

We strive to raise economics in carbon capture drawing on our experience in running the carbon capture process in the Ulsan CLX over the past ten years, while at the same time taking part in diverse government-led projects including one for the Donghae-1 gas field in the East Sea. Outside of Korea, the company also leads future technology development by joining the Shepherd CCS Project, a carbon capture-transport-storage project between Korea and Malaysia. In the mid-to long term, we plan to develop and expand the application of CCU technology to turn captured CO₂ into fuels or chemicals using renewable energy, thus curbing carbon emissions from our business sites and securing new, sustainable business models.



SK Energy and SK Earthon sign an MOU with Petronas, Malaysia for the Shepard CCS Project.



Achievement 5 Internal Carbon Pricing

SK Innovation has been using internal carbon pricing in its decision-making process on investments since the second half of 2022 as we look to cut carbon emissions across all businesses dealing with future carbon price hikes and put in place a management mechanism reflecting carbon price changes. This new approach means the company reviews the economics of all investments from a holistic perspective, not only financial feasibility but also future carbon cost, and demonstrates our commitment to ESG management by making more aggressive moves to cut carbon through new businesses.

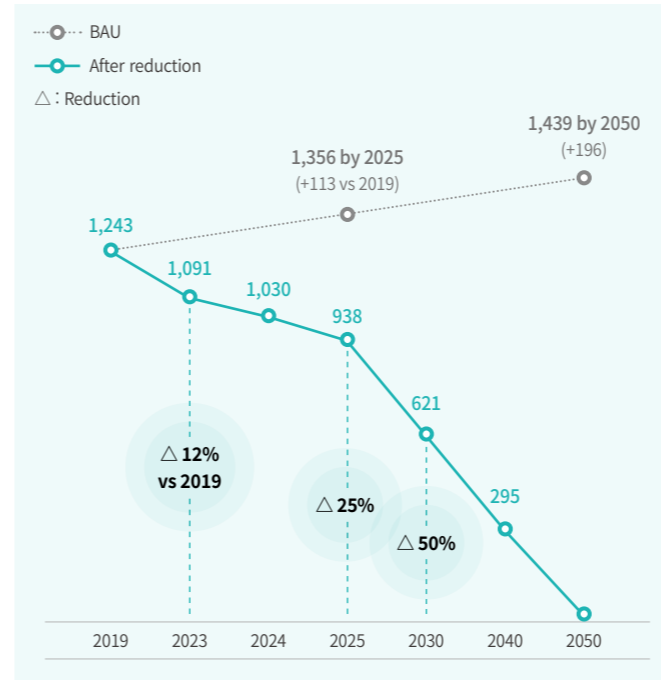
This way, the company revisits economics by factoring in a carbon-reducing investment as “value” and a carbon-emitting investment as “cost”, and internal carbon pricing is set by reflecting both future carbon price scenarios under the Paris Agreement and carbon price differentials among regions. As such, SK Innovation makes continuous efforts to refine and update the economics review framework under the Net Zero Roadmap so that it can optimize paths to net zero following its Carbon to Value strategy. Our internal carbon pricing is elaborated on page 88.

Achievement 6 Reduction Roadmap for Scope 1&2 Emissions

We aim to reach net zero in the energy and chemical business by 2050 and in the battery and materials business by 2035. Higher process efficiency and low-carbon fuels are among the main means pursued to cut carbon emissions in the energy and chemical business. We also actively decrease carbon emissions in the battery and materials business by adopting renewable energy and low-carbon technologies.

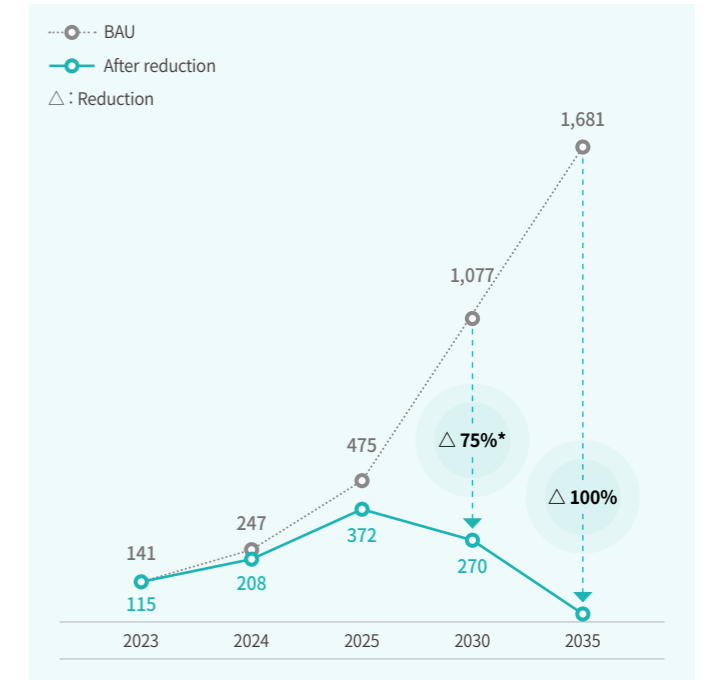
Reduction Pathway for the Energy and Chemical Business

(Unit: 10,000 tons)



Reduction Pathway for the Battery and Materials Business*

(Unit: 10,000 tons)



* Weighted average of the reduction targets of SK On and SK IE Technology and can be subject to change depending on actual BAU emissions.



Learn more about the reduction of Scope 1 & 2 emissions.