

··· *Research & Development* ···

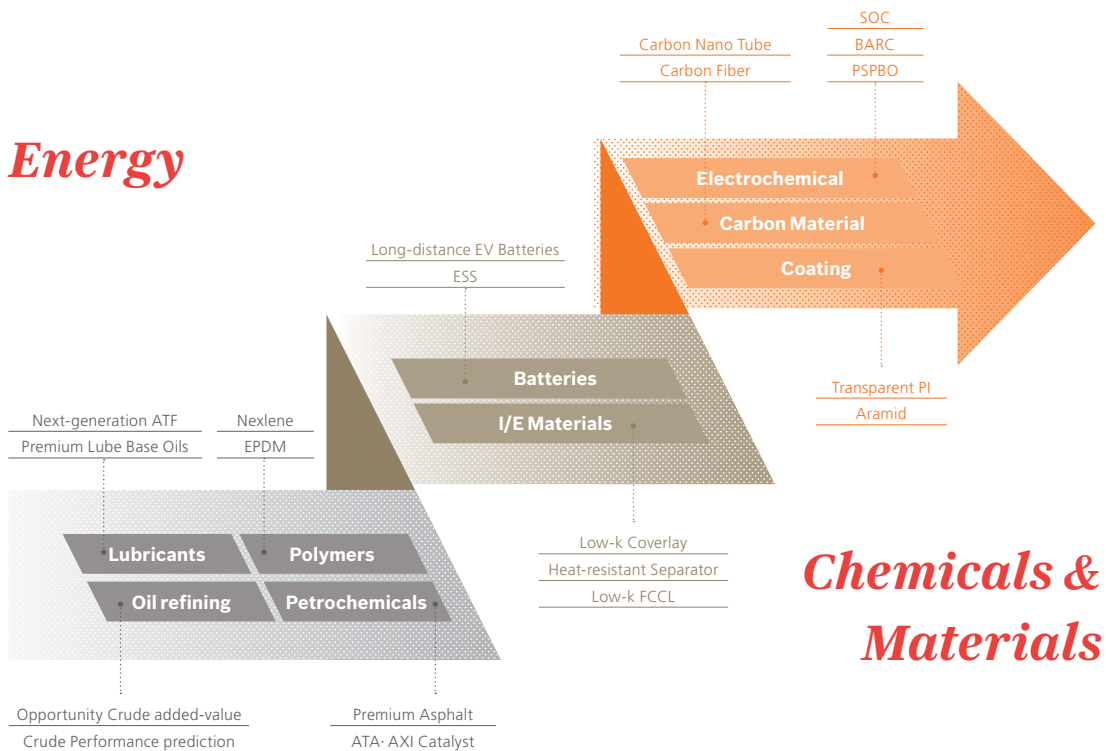
In order to acquire the competitive edge required to create a sustainable future for the company, SK innovation must engage in innovative research and development to provide customers with differentiated products and services. This R&D not only boosts the technical competitiveness of its existing businesses, but also develops new growth engines through open innovation and new technology development to reinforce the company's position as a global leader.

Global Technology

In 1995, SK innovation established the SK Daedeok R&D Park to gain the technological leadership critical for its business. Global Technology, which is responsible for technological R&D for SK innovation and its subsidiaries, and the B&I R&D Center, which provides technological support for the battery and I/E materials busi-

ness, are located within this complex. Global Technology, which is composed of the petroleum & lubricant R&D center, chemical R&D center and base technology R&D center, focuses on creating future value through unwavering technology innovation.

R&D Growth Plan



Key Research Activities

Multi-wall Carbon Nanotube Technology

To satisfy the requirement for lighter and more efficient materials, SK innovation is developing multi-wall carbon nanotube technology with high conductivity, insulation, mechanical strength and flexibility. The ultimate goal is to mass-produce high-quality carbon nanotube at lower cost than competitors by using ethylene and applying a unique catalyst, fluidized bed reactive processing, and product technology. Once completed, we expect this technology to be used on heatsinks(LED and electronic devices) and conductive materials(cable, wires and batteries). Currently, we are conducting the R&D for pre-marketing.

Future Plans

SK innovation Global Technology performs a wide range of R&D projects and technology support to strengthen the competitiveness of each subsidiary. By developing a total solution for crude limitations, R&D Center is trying to identify the factors constraining crude as feedstock to contribute to lower crude import costs. In addition, Global Technology develops more advanced technology to be deployed across the value chain, such as base oil feedstock conversion and assessment technology, base oil yield and properties forecasting technology, and measures to expand feed used in producing high-quality base oil.

In 2017, Global Technology is planning to focus on commercializing Par-Frac technology, a technology developed independently by the institution, in order to increase oil production and strengthen the competitiveness of the petrochemical business. In the chemical sector, we are planning to develop new production techniques for functional products to penetrate the advance chemicals market, and continue R&D on technology that can reinforce the specialty business, such as technology related to semiconductors and carbon materials.

Core Mid- and Long-term Projects

Project Name	Project Goal	Target Due Date
Par-Frac technology for subsidiary integration and value creation	Create execution options	2018
Developing a total solution to address crude oil limitations	Reduce crude import costs	2019
Developing a leading product for the advance chemicals market	Develop two global top 3 products	2020
Developing fundamental products for the specialty business	Expand sales in the semiconductor and chemical display materials sector	2020
Developing next-generation technology	Develop and commercialize technology	2021
Developing base oil feedstock conversion and assessment technology	Secure Group III base oil feedstock Expand Group III plus base oil feedstock	2021

