



Manufactured Capital

Idemitsu group produces petroleum, lubricants, asphalt, basic chemicals, advanced materials & performance chemicals, solar panels, electronic materials, and agri-bio products. In addition, a

Petroleum Refining

As a result of the business integration of Idemitsu and Showa Shell, we have achieved an even more efficient supply of petroleum products than in the past. These efforts include the interchange of products and semi-products to optimize production, the development of best practices for energy conservation and improvement of refining margins, and the reduction of procurement costs through the promotion of joint procurement. In addition to implementing optimal area-specific strategies in Hokkaido, Keihin/Keiyo, Chukyo, and West Japan, we will implement management strategies to further strengthen our competitiveness by complying with the IMO (International Maritime Organization) regulations on the sulfur content of marine fuel oil, expanding the use of fuel oil fractions in petrochemical products, and increasing export capacity. The entire Group is also working together to reform the way people who support the workplace work.



Chiba Complex

Manufacture of Petrochemical Products

Basic chemicals

We are working to strengthen our cost competitiveness by strengthening cooperation with other companies and diversifying raw materials at our industrial complexes in Chiba and Shunan. We are working to improve the efficiency of equipment operation and profitability by promoting Fuel & Chemical in conjunction with the fuel oil business. Overseas, while responding to the strengthening of plastic-related regulations, we will gather information on needs around the world and explore new business possibilities.

Advanced materials & Performance chemicals

As for advanced materials such as engineering plastics and adhesives materials and as for performance chemicals such as derivatives and solvents, we have positioned the automobile, information and communications, daily necessities, and intermediates for durable consumer products as growth markets, and will expand our business by providing solutions based on our own technologies. We will accelerate business growth by creating product synergies with other functional materials in the Group, such as lubricants, and by aggressively acquiring resources through collaboration with other fields and M&A.

variety of power plants, including solar, geothermal, biomass, wind, and LNG thermal power plants, have a total generating capacity of 1GW and generate electricity.

■ Group refineries (As of March 31, 2019)

Name	Address	Crude oil processing capacity (thousand barrels per day)
Hokkaido Refinery	Tomakoma City, Hokkaido	150
Chiba Complex	Ichihara City, Chiba Prefecture	190
Aichi Refinery	Chita City, Aichi Prefecture	160
Yokkaichi Refinery (Showa Yokkaichi Sekiyu)	Yokkaichi City, Mie Prefecture	255
Keihin Refinery (TOA Oil)	Kawasaki City, Kanagawa Prefecture	70
Yamaguchi Refinery (Seibu Oil)	Sanyo-Onoda City, Yamaguchi Prefecture	120
Total		945



Yokkaichi Refinery

■ Petrochemical plant (As of March 31, 2019)

Name	Address	Ethylene production capacity (thousand tons/year)
Chiba Complex	Ichihara City, Chiba Prefecture	374
Tokuyama Complex	Shunan City, Yamaguchi Prefecture	623
Total		997



Tokuyama Complex

Manufacture of Solar Panels

Research and development of the solar power generation business in our group started in 1978, and it has a history of 40 years. In 2007, we began commercial production of CIS solar cell modules using copper, indium, and selenium as the main components. The CIS solar cell modules are now being produced at the Kunitomi Plant of Solar Frontier K.K., which has one of the largest production capacities in the world.



Kunitomi Plant

TOPICS 2

Development of decentralized energy

In order to realize environmental conservation and a sustainable and stable supply of energy that supports people's lives, the spread of a local production and local consumption model using renewable energy (a decentralized power source that provides electricity by installing small power plants near customers to meet their needs) is considered to be an effective technology that not only leads to low carbon energy and improved energy efficiency, but also balances economic development with the environment and society. In particular, Japan is a land prone to natural disasters, and decentralized power sources are expected to strengthen the energy supply-demand structure to reduce the risk of power outages in times of emergency. In addition, since forests cover about 70% of the national land, the utilization of unused wood produced by thinning will lead to the proper maintenance and management of forests and the creation of local communities through economic circulation within the region.

In order to ensure a sustainable and stable supply of energy in all regions, we will utilize our resources, and the knowledge and know-how it has acquired through its business activities to develop businesses that make use of decentralized energy resources that suit the characteristics of regions in Japan and overseas.

■ Development of a model for local production and consumption of energy

We are working on the development of a model for local production and consumption of energy within the region from power generation to consumption. Specifically, in June 2019, we decided to commercialize biomass power generation at the Tokuyama Complex, with the aim of starting commercial operation within FY2022. A large power plant with a generating capacity of 50 MW that utilizes the former refinery site and existing infrastructure uses approximately 230,000 tons of biomass fuel annually. In the medium to long term, we will also contribute to environmental conservation,

TOPICS 1

Reinforcement of earthquake resistance of existing facilities

The Group's refineries and complexes have worked to strengthen its measures for natural disasters. As for earthquakes, we have constantly assessed the earthquake resistance of our equipment based on the standards required by laws against the expected earthquake magnitudes, and strengthen them, if necessary. In addition, having learned lessons from the Tokachi-oki Earthquake in 2003 and others, we have assessed and enhanced the earthquake resistance of our facilities against expected earthquake magnitudes that exceed the standards required by laws.

Following the Great East Japan Earthquake on March 11, 2011, laws concerning high-pressure gas equipment were tightened and the standards of earthquake resistance were reviewed. In response to these changes, we have been systematically reinforcing the spherical tanks that store LPG at the Group's refineries and complexes in order to improve the earthquake resistance of their support structures. In addition, Yokkaichi Refinery of Showa Yokkaichi Oil Co., Ltd. reinforced its marine jetty with a view to strengthening disaster response capabilities. Going forward, we will consider further enhancing the earthquake resistance of the the Group's refineries and complexes.

sustainable forest development, and the promotion of forestry by using domestic thinned wood and sawmill ends as fuels. In October, we also invested in Kesenuma Green Energy INC. (Iwate Prefecture), one of the regional new power companies promoting the model for local production and consumption. We are supporting the improvement of regional economic circulation by making use of our connections with the local economy through our oil distributors and dealers as well as our experience and knowledge gained through our business in our company.

■ Participation in the VPP (Virtual Power Plant) construction demonstration project

We are participating in a demonstration project for the construction of VPP, an energy system that uses advanced energy management technology to remotely control and integrate the energy resources of factories and homes so that they function as if they were one power plant. We are participating as a plan resource coordinator, and in 2018 started verification tests utilizing the in-house power generation facilities of the Yamaguchi Refinery of Seibu Oil Co., Ltd. In 2019, we installed large storage batteries at the Niigata Petroleum Import Terminal (Niigata Prefecture), which is an oil tank facility, and at the Kobe Plant (Hyogo Prefecture) of Shell Lubricants Japan K.K., which is a lubricating oil production base, and are expanding verification tests.

