

Petroleum Segment

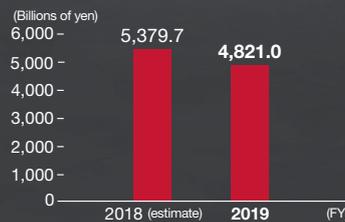
Review of Operations

The Idemitsu Group's six refineries in Japan refine crude oil, which is imported mainly from Middle Eastern oil-producing countries, producing various petroleum products. Through our marine and inland logistics network, we distribute these products safely and reliably across Japan and for export overseas.

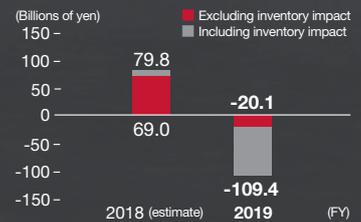
Our service stations sell gasoline and diesel oil as automotive fuel and kerosene as heating fuel. We also sell industrial-use fuel, including jet fuel, heavy fuel oil A, and heavy fuel oil C, to such corporate customers as electric power companies, general companies, airlines, and shipping companies. Overseas, we are working to strengthen our sales network, especially in Asia and the Pacific Rim, with such bases as the Nghi Son Refinery in Vietnam and a local subsidiary in Singapore.



■ Net sales



■ Operating income + Equity earnings



Social Issues

- Responding to demands to address climate change via greenhouse gas emission reduction
- Ensuring energy security in Japan despite its low energy self-sufficiency
- Meeting increasing energy demand in overseas where population growth is expected

Risks

- Structural changes in demand due to the COVID-19 pandemic
- Deterioration in the supply-demand balance due to continued decline in domestic fuel oil demand
- Changes in international affairs involving oil-producing countries where crude oil is sourced

Strengths

- Group refineries (six sites) and a network of oil depots positioned in key areas around Japan
- Unified measures at our approximately 6,400 service stations, which boast the second largest market share in Japan
- Cooperative framework with dealers whose businesses are embedded in the local communities
- Accumulation of experience and technologies cultivated since the Company's founding and the overseas expansion of the value chain

Opportunities

- Growing demand for petroleum products centered on the Asia-Pacific region
- New business expansion through domestic service stations, which act as regional hubs for day-to-day life
- Harnessing business integration synergies, such higher efficiency and lower costs
- Cultivation of new needs by taking measures that make use of digital transformation (DX)

Business Environment

Due to the stagnation of economic activities caused by the COVID-19 pandemic in early 2020, energy demand fell sharply and crude oil prices subsequently plunged. In mid-2020, major oil-producing countries began decreasing production while economic activities picked up in China, Europe, and some areas of the United States, setting crude oil prices on a path to recovery. Nevertheless, demand remains sluggish for petroleum products, especially jet fuel, and we expect the impact on supply and demand to persist.

Over the medium to long term, we expect domestic petroleum demand to decline 1.6%* annually by FY2022, compared with the FY2018 level, against a backdrop of population decline and the broader adoption of eco cars. The rate is also expected to continue declining thereafter. However, demand for petroleum in the Asia-Pacific region is forecasted to grow until 2030 mainly due to population growth.

*The domestic demand forecast is calculated based on the figures of the FY2019 petroleum products demand estimation review committee of the Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry.

Medium-term Management Plan

By enhancing the international competitiveness of refineries, ensuring their safe and stable operation, and building a robust supply chain, we will stably provide the energy that Japan needs for its economic activities and daily life. We aim to realize a strong revenue base by implementing sales strategies based on customer needs.

In oil refining, we aim to realize refineries that have an international competitive advantage in the Asia-Pacific region as well as top-level operational reliability in Japan and will continue to pursue strategic investment to this end. Furthermore, we will foster greater cooperation among the refineries and businesses that have expanded through the integration and will continue enhancing the competitiveness of our supply chain.

As for sales of petroleum products, we will roll out a new brand for our service stations from April 2021. In addition, going forward, we will collaborate with dealers who conduct business rooted in their communities to provide higher-value-added services by, in

part, working to integrate products and services. In tandem, we will continue working to build a new business model that, for example, offers EV charging and daily life services at service stations.

We are also working to undertake a digital transformation (DX) across our entire business. Specifically, we will enhance the sophistication of refinery security, optimize logistics systems, and introduce marketing strategies to enhance convenience and efficiency while addressing the labor shortage.

Regarding the overseas expansion of the petroleum business, we are expanding the trading business in the Asia-Pacific region, the wholesale business in North America, the wholesale and retail business in Australia, and the retail business in Vietnam. We will continue working to expand business in regions where demand is expected to grow over the medium to long term. At the Nghi Son Refinery in Vietnam, we are supporting NSRP to maintain stable operations and take measures to improve competitiveness in the refinery.

HIGHLIGHTS

Promoting Sales Strategies and Creating Next-Generation Businesses at Service Stations

Revamping the Service Station Brand

We will unify our service station brands from April 2021 and begin rolling out the apollostation brand.

This new brand is more than a logo. As a brand icon, Apollo embodies the ideal role that Idemitsu aspires to fulfill, as evidenced by its people-centered management. Apollo manifests in each and every employee and symbolizes our efforts to strengthen the brand. We decided on the new brand in line with our aspiration to create futuristic stations that fulfill diversifying customer needs. They will do this by providing joy and added value while supporting the overall mobile experience of customers and building on the proud legacy of customer trust that both companies have earned.

To raise awareness of the new service station brand, we will also release a credit card (dubbed the apollostation card), apollostation oil, and other products.

In addition, as a new initiative, we will provide services that leverage digital technology. We will consolidate such existing

digital services as *PIT in plus*, which enables customers to reserve automotive services at stations online, and release an integrated app to enable collaboration with retailers that have alternative formats or are in different industries. Through these and other measures, we will greatly increase engagement with customers through the strength of our digital outreach and strive to provide services in line with the needs of every customer. In addition, in the near term, we aim to provide services rooted in communities that fulfill their specific needs, in part, by providing parking spaces that have Wi-Fi as well as compact EV services for people with few transportation options.

Under the new brand, we aim to create service stations that are truly future oriented. As a life partner, we will support each customer's mobility and daily life as part of the community, going beyond our existing services of fueling automobiles and providing car care products.



New brand design for our tanker trucks

Pilot Test Launch of Japan’s First Carwash App “AND WASH”



From April 2020, we began a pilot test of Japan’s first carwash app “AND WASH,” which enables users to choose and pay for carwash options on their smartphone.

The app was developed with careful consideration of the customer perspective and based in part on interviews with customers who use carwashes. After downloading the app and registering, the user can select a carwash course in advance. When the user arrives at an AND WASH location in the designated vehicle, an on-site camera recognizes the vehicle and the carwash automatically activates as the user drives in.

This eliminates the usual process of using a machine to select, adjust, and pay for a course as well as options. Even customers using a carwash for the first time can easily avail themselves of this service.

Going forward, we will analyze usage patterns to further evolve the service while making appropriate improvements. Ultimately, we will strive to expand the number of customers using the AND WASH service, for example, by rolling it out to our service stations based on the know-how gained from the pilot test.



An AND WASH carwash location

Pilot Test Launch of Next-Generation Car Services



From April 2020 in Tateyama, Chiba Prefecture, we began a second pilot test of Auto Share, an EV car sharing business. We conducted the first pilot test in Hida and Takayama, Gifu Prefecture in August 2019. For the second test, we are using ultra-compact EVs that are charged by lightweight CIS thin-film solar modules and will conduct assessments with the aim of

realizing a next-generation mobility society in regions with limited transportation options.

In August 2020, we began a pilot test of Park & Charge, a multipurpose EV charging station service. We will assess the need for and profitability of EV charging services by offering combinations of EV charging, parking, and cafes.



A carport equipped with lightweight CIS thin-film solar module used in the Auto Share pilot test



The parking garage of a Park & Charge test store, Delta EV Charging Station (Yokohama)

Initiatives to Make Our Refineries More Competitive

Promoting Capital Investment at the Chiba Complex



As an investment aimed at enhancing long-term cost competitiveness and swiftly responding to regulations set by the International Maritime Organization (IMO) on bunker fuel sulfur content, we modified the Chiba Complex's heavy fuel oil direct desulfurization unit to raise its efficiency and commenced operations from May 2020. Going forward, this will enable us to reduce high-sulfur heavy fuel oil C production by 600,000 kL annually and increase production of low-sulfur heavy fuel oil C by 500,000 kL annually. In addition, we will invest in enhancing the heavy fuel oil cracking ability of our fluid catalytic cracking units, turning them into residue fluid catalytic cracking (RFCC) units as we strive to enhance our cost competitiveness by boosting capital investment.



Chiba Complex

Strengthening Cooperation among Refineries(Tokyo Bay Cooperation)



With the aim of reducing heavy fuel oil C, we realized an off-site alliance to enable the asphalt by-product of the Chiba Complex to be processed by the cracking units of refineries in the Keihin-Keiyo area. This commenced operations from FY2020.

Going forward, we will implement area-specific strategies for each refinery, expand use of fuel oil fractions for petrochemicals, boost export capacity, and pursue other business strategies while promoting initiatives to expand integration synergies.

Introducing AI to Enhance Supply Chain Sophistication

Introducing AI to Forecast Shipments for Oil Depots



In early 2020, at 28 locations of oil depots and joint oil depots, we introduced AI to forecast shipments, thereby strengthening petroleum product inventory management. Inventory management systems also predict shipments based on data learning that takes into account such conditions as shipment track records, markets, and weather data. By visualizing the data, we are enhancing the accuracy and operational efficiency of inventory management operations that previously had largely relied on the experience of veterans. In 2020, we plan to introduce AI to 46 locations.



Teizan Shiogama Oil Depot

Using AI in Formulating Ship Allocation Plans



Regarding ship allocation plans, which traditionally are formulated relying on the experience and skills of veteran managers, we completed the first pilot test for automating operations and improving transport efficiency in June 2020.

In the test, we were able to formulate monthly ship allocations in periods of 1.5 to 5 minutes each, a time equivalent to one-sixtieth of that taken using previous methods. The resulting ship allocation plans successfully improved transport efficiency by up to around 20% while realizing stable supply. Going forward, we will begin considering system designs and assessing business models that further increase the number of refineries, oil depots, and ships, with the aim of commencing operations in 2021.

