Contribute to society through the stable supply of energy and address social issues toward realizing the sustainable development goals.

- Explore, develop, produce and deliver oil and natural gas in Japan and overseas.
- Further enhance the natural gas supply chain, consisting of our domestic infrastructures and electric power supply.
- Contribute to addressing challenges toward realizing a sustainable society associated with energy and climate change through the development and commercialization of new technology, drawing from our expertise.
- Place top priority on maintaining trust with all stakeholders and achieve sustainable growth and maximize corporate value.
**Oil and Gas E&P Value Chain**

Since its establishment, JAPEX has been engaged in oil and gas E&P (exploration and production) and its transportation and supply. Also, JAPEX contributes to the stable supply of energy, drawing from its extensive track record both in and outside of Japan and the broad range of technology and expertise it has accumulated over the years.

**Origin of Oil and Natural Gas**

Oil and natural gas were said to be formed by the decomposition of prehistoric organisms underground over several to tens of millions of years as a result of high subterranean temperatures and microorganisms. These resources move upward through subterranean cracks and collect in a stratum called the source rock. Then, oil and natural gas is accumulated in formations where reservoir rocks exist, and dense rocks called cap rocks form in domes.

**Oil**

Oil is a general term for a flammable liquid substance that exists underground mainly composed of various hydrocarbons. Crude oil is the liquid extracted from underground, and gas and water are removed. By applying heat based on their distinct boiling points, it is distilled and decomposed into oil products such as liquefied petroleum gas (LPG), naphtha (gasoline), kerosene, diesel oil, heavy fuel oil, and asphalt. According to their properties, these products are used as fuels for powering automobiles and machines, and as raw material for PET bottles, plastic products, textiles, and chemical products.

**Natural Gas and LNG**

Natural gas is a flammable gas mainly composed of methane, which is colorless, odorless and lighter than air. Regarded as an energy source with a lower environmental impact than other fossil fuels such as oil or coal due to its smaller emissions of carbon dioxide (CO₂), nitrogen oxide (NOₓ) and sulfur oxide (SOₓ) when burned. LNG is liquefied natural gas produced by cooling natural gas to minus 162°C, where it exists in liquid form. When liquefied, its volume is reduced by one six-hundredth, allowing for long-distance transport and mass storage. Most of the natural gas consumed in Japan is imported from overseas as LNG.
Maximizing the Value of E&P Projects

JAPEX is engaged in oil and natural gas E&P (exploration and production) projects around the world, leveraging its technology and expertise to maximize project value. We are also pursuing new opportunities.

JAPEX has been participating in development and production of crude oil based on the development and production right jointly acquired with Malaysia’s state-owned oil company PETRONAS, the operator, in 2009. Commercial production commenced in August 2013, with the project currently producing between 90,000 and 100,000 barrels of crude oil per day. Development is now underway to gradually increase this volume toward achieving the target of 200,000 barrels per day by the end of 2020.

Production of natural gas is being conducted in several offshore gas fields in East Java, and JAPEX has been participating in the project since 2007. Current production is mainly from the TSB Gas Fields, including the Sirasun and Batur gas fields, which commenced production in March 2019. The production will be increased to 5.0 or 5.1 million cubic meters of natural gas per day. The natural gas is processed at a floating production unit (FPU) and supplied through the East Java Gas Pipeline to a state-owned electric power company and fertilizer factories in the suburbs of Surabaya City.

Since the establishment of JACOS in 1978, JAPEX has been engaged in oil sands projects in Canada for the past 40 years as a pioneer in oil sands development. JACOS contributed to establishing the SAGD (steam-assisted gravity drainage) method for using steam to extract bitumen from the oil sands layer. Test production of bitumen by the SAGD method at the Hangingstone leases began in 1999, followed by the start of commercial production in 2003. We have continuously sought to improve the technology and productivity of oil sands development.

In the area where bitumen production commenced in August 2017, the phase shifted to a stable production at the scale of 20,000 barrels per day in the end of June 2018, which is still maintained.

JAPEX has been participating in the project since 2014, and after a flow test and an evaluation, a decision on the development of the block was made in March 2019. Currently, we are conducting development with the aim of commencing the production of crude oil and natural gas by the end of 2021.
Ensuring Stable Supply by Combining Domestic Production with Overseas Procurement

JAPEX is currently conducting oil and natural gas E&P (exploration and production) at oil and gas fields in 10 locations around Japan. We transport and supply crude oil and natural gas through pipelines and by tank trucks and tankers. Also, we are expanding the scope of our energy business, which includes receiving imported LNG and electric power generation.
Energy Development
Including Unconventional and Renewable Resources

JAPEX engages in the development and production of oil and natural gas with both conventional and unconventional resources such as oil sands and shale gas, as well as the development of renewable energy including geothermal power generation.

Oil Sands Development by SAGD Method

JAPEX pioneered the SAGD method for extracting bitumen (extra heavy oil) from the oil sands layer. We began our approach to commercialization of the method from 1992 in Alberta, Canada, and then succeeded in test production in 1999, and commenced its commercial production in 2003. Today we conduct the production operation of bitumen at the Hangingstone leases in Canada (see page 8).

The SAGD method uses high-temperature, high-pressure steam to heat the oil sands layer and provide liquidity to the bitumen. A pair of horizontal wells are drilled, and as heat is applied to the oil sands layer by injecting steam into the upper well, the bitumen contained in the layer begins to flow downward to be recovered in the lower well.

Development of Shale Gas and Tight Oil

The development and commercial production of shale gas and tight oil became active in the 2000s with the introduction of technologies for drilling horizontal wells along low permeability shale formations and applying hydraulic fracturing that utilizes high-pressure water to crack shale formations (see page 8).

JAPEX has been participating in a tight oil development project in Texas, United States, since 2012, and in a shale gas development project in British Columbia, Canada, since 2013.

Tight Oil Development in Japan

In Japan, JAPEX was the first to succeed in the commercial production of tight oil in 2014, at the Ayukawa Oil Field in Akita Prefecture. We conducted a verification test of tight oil development from 2014 to 2017 by applying multistage fracturing to the Onnagawa formation at the Fukumizawa Oil Field in Akita Prefecture.

Renewable Energy

JAPEX is promoting renewable energy as a new business field of environmentally-conscious type that contributes to low-carbon and decarbonization of the society by leveraging the technology and expertise we acquired through oil and natural gas development as well as our experience in operating the natural gas-fired power plant and procuring its fuel.

Geothermal power generation provides electricity by extracting high-temperature steam and water from the subsurface. JAPEX has been exploring the potential of geothermal energy in Japan and overseas by applying technologies such as those used in surveying the subsurface structure and drilling wells.

We also operate two mega-solar power plants capable of generating over 1,000 kW in Tomakomai City, where our Hokkaido District Office is located.
Ensuring a Stable Supply of Energy by Reinforcing Domestic Infrastructure

To meet natural gas and LNG (liquefied natural gas) demand in Japan, which has less environmental impact compared to other fossil fuels, JAPEX has been expanding our natural gas supply chain by reinforcing a stable supply system that combines natural gas produced in Japan and LNG procured overseas, and supplying electricity generated by natural-gas-fired power plants.

**LNG Terminals**

**Soma LNG Terminal (see [page 7-3])**

The Soma LNG Terminal commenced its commercial operations in March 2018 as a key base of our natural gas supply network in Japan.

The terminal receives, stores, and vaporizes LNG procured overseas and supplies LNG vaporized gas through our natural gas pipeline network to clients along the way. It is also responsible for supplying LNG by tank trucks to clients in the Tohoku region and transporting LNG by coastal vessels to the Yufutsu LNG Receiveing Terminal.

The terminal consists of one of the largest ground-type LNG storage tanks in Japan with a capacity of 230,000 kl, a receiving jetty for large ocean-going LNG carriers from overseas, a jetty for coastal vessels for receiving LPG (liquid petroleum gas) and dispatching LNG, LNG vaporization equipment, and an LNG shipping facility for tank trucks. In addition, construction of a second LNG tank and additional LNG vaporization equipment is in progress at the terminal to start its commercial operation coinciding with the commencement of commercial operations of the Soma LNG Terminal.

**Yufutsu LNG Receiving Terminal and Yufutsu LNG Plant (see [page 7-1])**

The Yufutsu LNG Receiving Terminal receives LNG carried by coastal vessels and supplies natural gas through our underground storage of natural gas has been operating at the Shiunji gas field to take advantage of subsurface geological properties and connectivity to our natural gas pipeline network, in order to respond effectively to seasonal fluctuations in demand.

**Natural Gas Pipeline Network**

Our 800 km network of high-pressure gas pipelines, mainly consisting of Niigata-Sendai Gas Pipeline, connects our gas fields as well as the LNG terminals along the way, and supplies natural gas to clients.

In addition to securing semi-permanent service life by designing our natural gas pipelines to withstand major earthquakes and applying the anti-corrosive coating, their operational status is always being centrally monitored. Also, we pay the utmost attention to ensure safe operations: the gas supply is able to be remotely shut down in the event of an emergency, and our staff patrols the length of the pipeline and conduct facilities' maintenance and inspections.

**Utilizing the Underground Storage of Natural Gas**

The underground storage of natural gas has been operated at the Shiunji gas field to take advantage of subsurface geological properties and connectivity to our natural gas pipeline network, in order to respond effectively to seasonal fluctuations in demand.

**LNG Satellite System**

To meet demand from clients in regions not served by gas pipelines, JAPEX operates the LNG Satellite System to ensure supply by transporting LNG to clients. Imported LNG is stored at domestic LNG receiving terminals, and it is transported by tank trucks to the surrounding area, and by LNG railway tank containers to more distant locations from the terminals. In addition, a coastal vessel transports it from the terminals while closely monitoring natural gas demands in our supply network.

**LNG Bunkering (LNG direct supply to vessels)**

The spread of LNG-fueled vessels is expected to accelerate due to the trends in environmental regulations for ocean-going vessels after 2020, and consideration for implementing LNG bunkering to directly supply LNG to ships as marine fuel has been underway. JAPEX is aiming for early realization of LNG bunkering in Japan and abroad by leveraging our infrastructure and experience acquired from LNG transfer operations between ships off Tomakomai port, Hokkaido in 2011 and 2012.
Rising to the Challenge of Advanced Technologies to Address Future Energy Needs

Leveraging our strengths in technology and experience acquired through oil and gas E&P, we actively participate in projects for establishing and commercializing technologies toward realizing a low-carbonization/decarbonization society and developing new energy sources.

Carbon Dioxide Capture and Storage (CCS)
CCS is a method to capture CO₂ from industrial facilities and power plants without emitting it to the atmosphere, and to transport and store it stably for a long time deep underground, which is suitable for geological sequestration. Correspondence related to global warming is needed in a global scale, and CCS is regarded as the practical, secure, and safe method for large-scale reduction of CO₂.

A demonstration project of CCS is being conducted in Tomakomai City, Hokkaido. JAPEX will contribute to the commercialization of CCS by providing the advanced technologies it has acquired through the exploration and development of oil and gas, such as investigating subsurface structures and estimating petrophysical properties, drilling injection wells, production, fluid migration simulation, and subsurface monitoring based on seismic surveys.

Carbon Dioxide Capture, Utilization and Storage (CCUS)
CCUS is a method to capture CO₂ from industrial facilities and utilize it before storing it in a sustainable site. CO₂-EOR (Enhanced Oil Recovery) is an example of the method whereby CO₂ is injected into an oil field in which production has declined, to push out its remaining crude oil and store the CO₂ underground. It is considered ideal for adoption in Japan and elsewhere, as we expect to reduce CO₂ emissions while also increasing crude oil production.

Methane hydrate is a mixture of methane and water in solid form. It has been confirmed to exist abundantly under the seabed at depths of more than 500 meters near Japan. It is attracting significant attention in Japan for its potential of becoming a new domestic energy resource, and the government has launched a project to develop technology for its commercial production in a joint effort with private companies.

JAPEX will continue to pursue its commercialization by participating in the government verification test through Japan Methane Hydrate Operating Co., Ltd. (JMH), a joint venture established by 11 private companies including JAPEX in 2014.

The presence of rich mineral deposits within Japan’s vast exclusive economic zone has been confirmed. The government set up the Cross-ministerial Strategic Innovation Promotion Program (SIP) to develop science and technology by transcending conventional bureaucratic and academic boundaries, and to select the social issues that need to be addressed. For the second consecutive term, the SIP included an initiative for leading the world in establishing a survey technology for deep-sea mineral resources and sharing it with the private sector.

JAPEX has conducted verification tests and surveys in Akita Prefecture as well as in Indonesia and will continue pursuing initiatives for the commercialization of CCUS in Japan and overseas.

JAPEX intends to play a leading role in J-MARES by applying our technology and expertise related to petroleum exploration, establishing the survey technology for deep-sea mineral resources, and generating new private sector businesses based on that technology.
Sustainable Growth and Higher Corporate Value Together with Stakeholders

Considering that our business of ensuring a stable energy supply is itself a corporate social responsibility (CSR), JAPEX seeks to grow as a company and increase our corporate value through forging relationships of trust and promoting mutual understanding with various stakeholders while ensuring safety and also the environment.

FOCUS 01 Making HSE Our Corporate Culture

HSE Policy and HSE-MS

JAPEX regards HSE (Health, Safety, and Environment) as the top priority for its business operations and has declared its commitment to occupational HSE and environment preservation under the JAPEX-HSE Policy. To implement the policy, we have set up a unique HSE Management System (HSE-MS) that is being deployed at all business operators of the Group in Japan and overseas.

Under the HSE-MS, we strive to effectively manage and reduce risk, foster and improve our HSE culture, and promote employee health, while applying PDCA cycles to continuously promote and improve our HSE.

Initiatives on Occupational Safety and Health

To ensure health and safety for employees, we conduct company-wide HSE education systematically while also working to cultivate and secure staff with the legally mandated and voluntary qualifications so they can meet key roles and positions in HSE management. And we develop company-wide activities to let the HSE-first mentality penetrate, so to speak, and raise HSE awareness, through measures such as starting meetings with an “HSE Moment” to share personal experiences and observations related to HSE.

Wide-ranging HSE-MS audits are conducted at each worksite to confirm the status of legal compliance and implementation of HSE-MS as well as risk assessment and HSE education.

FOCUS 02 Protecting the Environment

JAPEX has set Group targets for limiting greenhouse gas (CO₂) emissions and promotes energy conservation and emission reduction at all business sites. We are also developing technologies such as CCS (see page 12), which is expected to help offset future CO₂ emissions, as well as clean sources of power, including renewable energy (see page 9).

Furthermore, we take part in forest conservation activities. In addition to tree planting activities in the prefectures of Hokkaido, Akita, and Niigata, where we maintain operations, we participate in local activities such as planting trees at the Tsurushi Disaster Prevention Forest at Shinchi Town in Fukushima Prefecture, the location of our Soma District Office.

FOCUS 03 Contribution to Local Communities

In regions where we do business, we strive to be a trusted company that contributes to the local community by engaging with various stakeholders and responding to their expectations. In our overseas operations, we develop social infrastructure rooted in local needs, engage with local communities, and meet up with other stakeholders in cooperative and exchange activities.

In Japan, we participate in and otherwise support events and lectures hosted by local governments and offer facility tours and work experience programs. We also take part in local activities such as seasonal festivals as a member of the community in order to deepen local relationships.

FOCUS 04 Establishing the Best Place to Work

The JAPEX Diversity Policy was formulated in January 2016 to help employees with diverse backgrounds better demonstrate their abilities and achieve personal growth as self-directed professionals, regardless of gender, nationality, age, career path, or workstyle.

To this end, we have sought to establish an environment and program framework that incorporates career development for various workstyles, personnel system reforms to establish appropriate work hours and maintain a healthy work-life balance, and seminars and campaigns to raise awareness.

Moreover, we encourage every employee to exercise personal initiative in developing their careers as well as acquiring and enhancing their abilities and skills through our Career Development Program.
**Main Offices**

- **Headquarters:**
  - JAPEX Tower, 1-7-12 Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan
  - TEL: +81-3-6268-7000

- **Hokkaido District Office:**
  - 33-4-34, Numanoshita, Tomakomai City, Hokkaido 059-1346, Japan
  - TEL: +81-144-51-2205

- **Akita District Office:**
  - 85-2, Hirune, Terauchi, Akita City, Akita 011-0901, Japan
  - TEL: +81-18-864-1911

- **Nagoya District Office:**
  - 2-2-83 Hitachi-Zao, Naka City, Nagoya 460-8555, Japan
  - TEL: +81-52-581-1401

- **Soma District Office:**
  - 159-2, Imagami, Kaminagamine, Shinchi Town, Soma City, Fukushima 979-2411, Japan
  - TEL: +81-244-26-9846

- **Sendai Liaison Office:**
  - 1-1-20 Kakyoin, Aoba-ku, Sendai City, Miyagi 980-0025, Japan
  - TEL: +81-22-226-0731

**JAPEX Research Center:**
- 1-2-1, Hamada, Mihama-ku, Chiba City, Chiba 261-0025, Japan
  - TEL: +81-43-276-9311

**Subsidiaries and Affiliates**

- **Akita Natural Gas Pipeline Co., Ltd.**
- **North Japan Security Service Co., Ltd.**
- **Japan Canada Oil Sands Limited**
- **Canada Oil Sands Co., Ltd.**
- **Japan Offshore Ltd.**
- **GEOSYS, Inc.**
- **Japan Energy Co., Ltd.**
- **JAPEX Garrail Ltd.**
- **JAPEX Montney Ltd.**
- **JAPEX Pipeline Ltd.**
- **JAPEX UK E&P Ltd.**
- **TOKYO NATURAL GAS CO., INC.**
- **JJI S&N BV.**

**Main Businesses:**
- Exploration, development, production and sales of oil, natural gas, and other resources and contract service-related operations, such as drilling.

**Executives**

- **Representative Director and Chairman**
  - Osamu Watanabe
- **Chief Executive Officer**
  - Hirotaka Okada

- **Representative Director**
  - Executive Vice President
  - Masahiro Fujita
  - Vice President
  - Yosuke Higai

- **Director**
  - Executive Officer
  - Kazuhiko Ozeki
  - Manager Executive Officer
  - Hajime Ito

- **Director**
  - Manager Executive Officer
  - Toshiyuki Hira
  - Manager Executive Officer
  - Michihiro Yamashita

- **Outside Director**
  - Outside Director
  - Akira Kojima

- **Special Advisor to President**
  - Ajay Singh

**Corporate Profile**

- **Company Name:** Japan Petroleum Exploration Co., Ltd.
- **Established:** April 1, 1970
- **Paid-in Capital:** JPY14,288,694,000
- **Number of Employees:** 1,741 (as of Mar. 31, 2019)

**Corporate History**

- **Established:** As a government-owned company by the Law of Japan Petroleum Exploration Co., Ltd.
- **Dec. 1955:** Discovered Mitsuke oil field (in production from 1958 to 2016)
- **Mar. 1958:** Discovered Surakawa oil field (in production from 1959)
- **Jul. 1958:** Discovered Higashi-Niigata gas field (in production from 1959)
- **Jun. 1959:** Discovered Amarama oil field (in production from 1960)
- **Mar. 1960:** Discovered Katakai gas field (in production from 1960)
- **Dec. 1960:** Discovered Shunji gas field (in production from 1963)
- **Aug. 1962:** Expanded the operation range overseas by the law article revision
- **May 1965:** Discovered Yoshi gas field (in production from 1968)
- **Apr. 1968:** Separated from the Japan Petroleum Development Corporation (JPDC) and reorganized as a private company
- **Dec. 1970:** Discovered Yurhara oil and gas field (in production from 1976)
- **Jun. 1970:** Discovered Cheya-oki oil and gas field (in production from 1990)
- **Jun. 1976:** Discovered Fukushima oil and gas field (in production from 1996)
- **Mar. 1980:** Discovered Koutetsu oil and gas field (in production from 1995)
- **Nov. 1980:** Listed on the First Section of the Tokyo Stock Exchange
- **May 2003:** Discovered Higashi-Shiunji gas field (in production from 2003)
- **Aug. 2003:** Discovered Kajima gas field (in production from 2013)
- **Dec. 2003:** Participated in the Gulf project in the United Arab Emirates
- **Mar. 2010:** Participated in the shale gas project in Canada (in development and production)
- **May 2012:** Participated in the Natural Gas-fired Power Generation Project in Soma Port, Fukushima Prefecture
- **Mar. 2018:** Commenced operation of Soma LNG Terminal