Oil and Gas
Upstream
Business Activities
JOGMEC was established in February 2004 with the purpose of contributing to stable supplies of oil and natural gas and metals through the integration of the former Japan National Oil Corporation and Metal Mining Agency of Japan. Since September 2012, JOGMEC has added the new task of managing coal and geothermal energy, and has become an organization responsible for all kinds of subsurface natural resources.

With respect to oil and gas upstream business, JOGMEC provides financial and technical support to exploration and production (E&P) projects carried out by Japanese companies. JOGMEC is also engaged in research and development (R&D) such as CO2 enhanced oil recovery technologies (CO2-EOR) and unconventional hydrocarbon exploitation.

The economic situations surrounding energy and natural resources have been changing significantly over the past decade, becoming more complex as emerging economies drive global economic trends, technology advances, and international environments surrounding resource-rich countries fluctuate. For a country like Japan, which relies on imports for most of its natural resource requirements, it is important to ensure a stable and
affordable supply of these resources for the lives of its citizens and industries.

Accordingly, JOGMEC has been and will continue building mutually beneficial relations with the national corporations of resource-rich countries in line with Japan’s national policy for securing natural resources. Such efforts include providing the technical training program for resource-rich countries and creating further technological collaboration. Based on the wealth of state-of-the-art technologies and expertise Japan has accumulated as a result of technology-based national development, JOGMEC has been working on “Technical Solution” projects that apply or modify relevant Japanese technologies for overcoming challenges faced by the natural resource and energy industry. One area of focus is tackling the technical challenges that arise in oil- and gas-producing countries.

In conclusion, JOGMEC is committed to fostering the development of natural resources and energy worldwide, and securing a stable supply of natural resources for Japan while serving as an integrated national corporation.

Keisuke KUROKI
President
Exploration & Production (E&P)

We work with Japanese E&P companies, supporting them both financially and technically. We also conduct geological and geophysical (G&G) surveys in frontier areas.

Examples of E&P Projects

<table>
<thead>
<tr>
<th>Conventional Oil &amp; Gas</th>
<th>Oil</th>
<th>Natural Gas (LNG)</th>
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<tbody>
<tr>
<td></td>
<td>Sakhalin1 (Russia)</td>
<td>Wheatstone (Australia)</td>
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<td></td>
<td>Garraf (Iraq)</td>
<td>Ichthys (Australia)</td>
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<tr>
<td></td>
<td>Area1 (Mozambique)</td>
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</tbody>
</table>

- **Oil**: Sakhalin1 (Russia), Garraf (Iraq), Area1 (Mozambique), Wheatstone (Australia), Ichthys (Australia)

**Examples of E&P Projects**

- **Conventional Oil & Gas**: Currently, JOGMEC invests in numerous conventional oil/gas E&P projects worldwide. Recently, our projects include large scale LNG projects, which target Japan as a major consumer.

- **Unconventional Oil & Gas**: JOGMEC is actively seeking new projects in shale oil/gas. JOGMEC also conducts joint studies with host countries and companies to establish an optimum development strategy for the Americas.

- **Frontier Areas**: JOGMEC conducts joint G&G surveys with host countries, promoting the entry of Japanese companies into these projects. A JOGMEC-assisted special purpose company (SPC) was awarded exploitation licenses in Greenland as a result of a joint survey program started in 1989.

- **Shale Gas**: North Montney (Canada)
- **Oil Sand**: Hangingstone (Canada)
- **Arctic Sea**: KANUMAS (Greenland)
- **Emerging Oil/Gas-Producing Country**: Onshore Block of Kenya

**Financial Assistance**

We can provide financial support for Japanese companies’ high-risk E&P projects that have hydrocarbon potential.

Investment in E&P projects is capital intensive. To mitigate financial risks, we provide equity capital to such E&P projects conducted by Japanese companies. Additionally, during the development phase, we can provide liability guarantees.

**Geological and Geophysical Surveys**

We conduct G&G surveys with host countries in support of Japanese companies aiming to extend their areas of activities.

We aim to build solid relationship foundations with countries that have hydrocarbon potential, through early-stage G&G survey. Then, we evaluate the acquired data and share the results with host countries and interested Japanese companies to stimulate further partnerships and businesses.
Research & Development (R&D)

We are developing our E&P technologies and contributing to improved oil and gas production.

Development of exploration and production technologies plays an essential role in securing future oil and gas production. JOGMEC promotes R&D of upstream technology for oil, gas and unconventional resources, such as shale oil/gas and methane hydrate, in order to increase the amount of oil and gas supply for Japan. Environmental sustainability technologies and technologies for the sustainable use of oil and gas are also studied. In addition, JOGMEC carries out technological support of exploration and development projects by Japanese companies worldwide and joint studies with NOCs.

Examples of R&D Projects

- Maximizing Oil Recovery
- Unconventional Hydrocarbon Exploitation
- Offshore Oil and Gas Development
- Environment-Conscious Oil and Gas Exploitation
Technical Solutions

“Your Challenges, Our Solutions”
—JOGMEC’s Technical Solutions Projects using Japanese Cutting-Edge Technologies—

JOGMEC believes that Japanese cutting-edge technologies have significant potential to solve a broad range of technical problems that oil- and gas-producing countries face. JOGMEC’s task is to grasp and analyze the technical needs of oil- and gas-producing countries and propose practical solutions to solve these challenges.

As a foundation of the Technical Solutions Group, JOGMEC conducts ongoing technological development through collaborative research with a wide range of Japanese industries, from the laboratory phase to the demonstration phase, to create suitable and practical technical solution packages for oil- and gas-producing countries.

Scheme of Technical Solutions Project

JOGMEC Techno Forum

The JOGMEC Techno Forum provides a unique opportunity to discuss technical challenges in the oil- and gas-industry and discover Japanese cutting-edge technologies and technical solutions applicable to the needs of oil- and gas-producing countries.

Technical Solutions Training Program

JOGMEC provides a training program focused on Japanese cutting-edge technologies (seeds) for experts from oil- and gas-producing countries. The final goal of this Technical Solutions Training Program is to provide technology transfer, such as the innovative CO2-EOR technology, reservoir monitoring technology, and advanced produced water treatment technology, as technical solutions using applicable Japanese technologies to solve industry challenges.
International Relationships

Enhancing close relationships with oil- and gas-producing countries and emerging producers is one of our crucial roles.

JOGMEC has been promoting collaborative activities with IOCs and NOCs. These activities encompass a broad range, including reciprocal visits by senior executives, regular consultations and collaborative research projects. We have entered memorandums of understanding (MOU) with several countries and NOCs in recent years. In addition, we organize various conferences and promotional meetings in order to open up high-level dialogues both within Japan and overseas.

Training Program for Technical Experts

As one of the largest oil and gas importers in the world, Japan strengthens cooperative relationships with oil- and gas-producing countries by contributing to human resource development in partner countries. JOGMEC invites oil and gas experts from these countries and hosts various technical training courses that provide practical skills to international participants.

Regular Courses:
- Exploration Geology Course
- Geophysics Course
- Drilling Management Course
- Reservoir Engineering Course

Custom Courses:
- LNG Course etc.

Field Excursion Workshop Facility Tours at TRC Commemorative Photo
International Relationships

Accordingly, JOGMEC has been and will continue building mutually beneficial relations with the national corporations of resource-rich countries in line with Japan's national policy for securing natural resources. Such efforts include providing the technical training program for resource-rich countries and creating further technological collaboration. Based on the wealth of state-of-the-art technologies and expertise Japan has accumulated as a result of technology-based national development, JOGMEC has been working on “Technical Solution” projects that apply or modify relevant Japanese technologies for overcoming challenges faced by the natural resource and energy industry. One area of focus is tackling the technical challenges that arise in oil- and gas-producing countries.

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