

Corporate Position on Climate Change

INPEX's role in the low carbon transition



INPEX CORPORATION

Introduction

INPEX recognizes that climate change is a critical business issue that requires governments, civil society and the business community to work together to achieve the goals of the Paris Agreement. INPEX also recognizes that, as part of global action on climate change, the world economy is in transition to a low carbon society. This transition presents a number of risks and opportunities to all businesses, including the oil and gas industry.

As a member of IPIECA, the global oil and gas industry association for environmental and social issues, INPEX supports “The Paris Puzzle: The pathway to a low-emissions future (※1)”, a set of communications on the challenges and responses needed to address the risks of climate change issued by IPIECA.

This paper outlines INPEX’s position and initiatives concerning below six key themes in line with “The Paris Puzzle” and INPEX’s own “VISION 2040 – Delivering tomorrow’s energy solutions (※2)”, so that stakeholders may better understand the manner in which the company is responding to the challenges of climate change.

1. Meeting energy needs: The unique role of oil and gas
2. Natural gas: Sustainable growth
3. Renewable Energy: Long-term demand growth
4. Managing our emissions: Energy conservation and beyond
5. CCS (※3) : A key technology for delivering a low-emissions world
6. Appropriate policy: The provision of a reliable framework

For more information on the company’s initiatives relating to sustainability including Climate Change response, please refer to the INPEX Sustainability Report (※4).

※1 : <http://www.ipieca.org/paris-puzzle>

※2 : <https://www.inpex.co.jp/english/company/vision.html>

※3 : Carbon dioxide Capture and Storage

※4 : <http://www.inpex.co.jp/english/csr/index.html>

Revision History

December 2015	Published
February 2017	Updated
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Key Messages

1. INPEX recognizes that climate change is a critical business issue. To achieve the long-term goals of the Paris Agreement, an economy wide transition to a low carbon society is under way. Global climate change response requires action by all members of the international community. Governmental policy measures, technology development, industry response, and other long-term initiatives are particularly pertinent. We are committed to fulfilling our role in addressing climate change as a responsible member of the oil and natural gas industry.
2. INPEX complies with national regulations in each country we operate – including those introduced to support the international policy framework for greenhouse gas (GHG) emissions reductions. Our businesses will work with governments and other stakeholders to address the two societal demands of meeting energy needs and reducing greenhouse gas (GHG) emissions; achieving a balance between the two.
3. In our actions towards a low-carbon society, INPEX will strengthen initiatives on promoting natural gas development and renewable energy as a means to reducing the emissions associated with INPEX’s value chain. In addition, we will ensure proper management of greenhouse gases from our operations and proceed with technology development for practical applications of carbon capture and storage (CCS) to capture and sequester GHG emissions.
4. INPEX shall also undertake analysis and initiatives in line with stakeholder expectations coming from the Task Force on Climate Related Financial Disclosure (TCFD) recommendations and seek to complete disclosure of exposure to climate-related risks as well as information on climate related opportunities.

INPEX’s current initiatives

- 1) Response to climate change
 - ① In June 2018, the Climate Change Strategy Group was established within the Corporate Strategy and Planning Unit, and a Vice President was assigned within the Corporate Strategy and Planning Division in order to promote action against climate change and create a framework for responding to this critical business issue.
 - ② In June 2018, a new standalone business division was formed – The Renewable Energy and Power Business Division – whose remit is to grow

the company's renewable energy and power business in line with the goals articulated in the VISION 2040.

- ③ In October 2017, the company mandated the use of an internal carbon price for economic evaluation of projects. The price level for the internal carbon price is US\$35/t CO₂-e.
- ④ In August 2017, the Gas Business Development Unit within the Global Energy Marketing Division was established in order to pursue a gas value chain business.
- ⑤ In January 2019, the company started to assess financial impact of portfolio with oil price and carbon price according to the IEA WEO 2 degrees scenario (Sustainable Development Scenario).

1. Meeting energy needs: The unique role of oil and gas

Global energy demand is expected to grow as a result of a combination of population growth and economic improvement. Access to reliable and affordable energy is essential to the growth of strong economies, sustained improvement in quality of life and the eradication of poverty in emerging markets. To meet this demand, it is essential that there is appropriate utilization of all available energy sources including oil, natural gas, and renewable energy – within the context of reducing net emissions over time to also achieve the long-term goals of the Paris Agreement.

While energy supply from renewables is expected to grow rapidly, it is likely also that demand for oil and gas will continue to grow in order to fuel economic growth in emerging markets as well as expanded use of natural gas in power generation both as a lower emissions primary energy source for power stations and as a backup source to firm renewable energy sources.

INPEX's current initiatives

- 1) Contribute to global efforts toward stable and efficient energy supply through continuous investment in oil and natural gas development
 - ① In Q2 2019, maintained stable supply of approximately 568,000 boe/d of oil and natural gas
 - ② Continue to ramp up production of the Ichthys LNG project in Australia and work towards stable operations
 - ③ Abadi LNG project in Indonesia obtained approval of the revised plan of development based on an onshore LNG development scheme and Production Sharing Contract (PSC) terms extended until 2055
 - ④ Development work ongoing to increase production capacity of each field in Abu Dhabi oil field projects
 - ⑤ Continued long-term stable operation of the Minami Nagaoka gas project, one of the largest gas fields in Japan

- 2) Research and development for future
 - ① Participate in methane hydrate research and development led by the Japanese government

2. Natural gas : Sustainable growth

Natural gas is recognized as one of the cleanest burning fossil fuels. It is increasingly accessible, affordable, abundant and flexible. INPEX's view is that natural gas will continue to play an important role in a global shift towards a low-carbon economy. In particular, there is a significant near-term opportunity to reduce global emissions by fuel-switching to natural gas in some applications of power generation.

In addition to the promotion of natural gas as a clean burning fuel, INPEX has a program to manage fugitive methane emissions along the natural gas supply chain. Successful management of fugitive emissions contributes positively to the life cycle emissions of natural gas.

INPEX's current initiatives

- 1) Promote natural gas development and reinforce natural gas portfolio
 - ① Continue to ramp up production of the Ichthys LNG project in Australia and work towards stable operations
 - ② Abadi LNG project in Indonesia obtained approval of the revised plan of development based on an onshore LNG development scheme and Production Sharing Contract (PSC) terms extended until 2055
 - ③ Continued long-term stable operation of the Minami Nagaoka gas project, one of the largest gas fields in Japan
- 2) Develop a gas value chain connecting gas fields globally and in Japan to the Japanese natural gas network
 - ① Continued operation of the LNG terminal in Naoetsu and a network of high-pressure gas pipelines in Japan
 - ② Supply natural gas to more than thirty gas companies as well as directly to manufacturing and other facilities
 - ③ Promote fuel-switching to natural gas with the community along our pipelines in Japan and provide energy-saving solutions such as gas co-generation systems to customers
 - ④ Consider potential projects, such as promoting natural gas and fuel-switching to natural gas (e.g., through gas delivery infrastructure, construction of gas-fired power plants, fuel switching in the transportation industry and others) in other Asian countries and elsewhere globally
- 3) Control methane fugitive emissions along the gas value chain
 - ① Selection of process equipment to minimize fugitive emissions and vents to atmosphere and implementation of a leak monitoring and repair program

to quantify fugitive emissions and perform maintenance when required

3. Renewable Energy: Long-term demand growth

According to the New Policies Scenario in the IEA's World Energy Outlook 2017, renewable energy, excluding hydro-power and biomass, is expected to grow fivefold at an average of 7% annually, from 0.2 billion TOE in 2016 to approximately 1.1 billion TOE, in 2040.

To help meet the long-term demand for renewable energy and reduce the carbon footprint of our portfolio, we aim for renewable energy to account for 10% of our project portfolio in the long term.

We intend to expand our renewable energy footprint into wind power generation and in other areas. This is in addition to our existing geothermal power business, which leverages our oil and natural gas E&P activities.

INPEX's current initiatives

- 1) Continued focus on INPEX's geothermal power business
 - ① Geothermal surveys have been conducted in Hokkaido, Akita Prefecture, and Fukushima Prefecture and the next stage of development is being evaluated based on the survey results
 - ② INPEX is participating in the Sarulla Geothermal IPP (Independent Power Producer) Project in Indonesia, which is currently in operation with maximum generating capacity of 330MW
- 2) Promote wind-power generation business
 - ① INPEX is developing onshore wind-power generation projects in Japan
- 3) Research and development for the future
 - ① Access to new resources through technological development focusing on open innovation with universities and other industries, and field-based innovation utilizing proprietary sites in Japan
 - ② Participate in an industry-academia collaboration that is researching sustainable carbon recycling systems that may one day transform CO₂ to methane for use as an energy source
 - ③ Participate in the "Artificial Chemical Photosynthesis Project", established in cooperation with industry-government-academia, to research the conversion of CO₂ into fuel sources utilizing hydrogen generated from water via a photocatalysis process using solar energy
 - ④ Investment in ELIY Power Co., Ltd., a company which aims to store electricity for stable power supply through mass production of large-scale lithium-ion batteries

4. Managing our emissions: Energy conservation and beyond

Improving energy efficiency in our own operations and in the production of oil and natural gas, our core business, can make a significant contribution to mitigate the risks associated with climate change. INPEX is and has been actively implementing energy conservation measures, flaring reduction and controlled methane emissions.

The company also lends its support to society by helping reduce energy consumption and GHG emissions through promoting efficient energy use and the switch to natural gas as a fuel source. In addition, INPEX participates in GHG offset projects globally. These include forest preservation and forestation activities, and other activities such as savannah fire management.

INPEX's current initiatives

- 1) Improve energy efficiency in the production of oil and natural gas
 - ① Energy efficient plant design aimed at process optimization and incorporation of waste heat recovery wherever possible, and elaborately planned facility maintenance procedures and daily improvement practices
 - ② Incorporation of detailed maintenance procedures and ongoing review of energy efficiency to maintain focus on minimizing energy wastage
 - ③ Technology research to devise new extraction and processing methods for increasing energy efficiencies
 - ④ Monitoring the efficiency of equipment in oil and gas fields as well as pipeline networks
- 2) Reduction of emissions associated with flaring, venting and leaks
 - ① Incorporation of policies that prohibit operational flaring and venting where possible
 - ② Selection and design of equipment to minimize fugitive methane emissions and incorporation of a robust leak detection and repair program
- 3) Support for the reduction in energy consumption and GHG emissions in communities located along INPEX's natural gas pipeline network in Japan
- 4) Forest preservation, forestation and other offset projects
 - ① Japan: Preservation of forests near the Minami-Nagaoka Gas Field in Niigata Prefecture through forestation programs in coordination with local communities
 - ② Australia: Planting and ongoing management of 1.4 million eucalyptus

saplings in southwestern Australia (eligible for, and generates, Australian Carbon Credit Units)

- ③ Australia: The Ichthys LNG Project is funding a Savannah Fire Management Program in the Northern Territory which reduces GHG emissions through conducting early season prescribed burning of savannah lands (eligible for, and generates, Australian Carbon Credit Units)

5. CCS : A key technology for delivering a low-emissions world

Carbon capture and storage (CCS) is a key technology that will be required to deliver significant emission reductions in coming years. The CCS process comprises a number of technologies that are widely used in the oil and gas industry. Deploying CCS on a scale that makes a material contribution to reducing CO₂ emissions however, requires addressing current barriers, which include cost, regulatory/policy uncertainty, public acceptance, large-scale storage sites and long-term liability issues. To be deployed at scale, it will require continued technological research and development, geological appraisal of potential storage locations, demonstration projects designed to build experience and reduce cost, public-private partnerships and transitional support from governments.

INPEX's current initiatives

- 1) Participation in CCS research and development activities
 - ① Participation in the CCS verification tests conducted by the Research Institute of Innovative Technology for the Earth (RITE) since 2000, and provision of the Iwanohara well site at the Minami-Nagaoka Gas Field as a location for storage and monitoring of 10,000 tons of CO₂
 - ② Investment in the Japan CCS Co., Ltd. in 2008 and participation in an initiative targeting the practical application of CCS technology by 2020, which had successfully stored its target amount of CO₂ (300,000 tonnes) by November 2019. The company continues to monitor the behavior of stored CO₂
 - ③ Participation in Geological Carbon dioxide Storage Technology Research Association since 2016 which promotes the development of technologies related to large-scale CCS (1,000,000 tonnes/year) at suitable storage sites in Japan as well as the improvement of social awareness and acceptance of CCS
 - ④ Participation in the Sustainable CCS demonstration project led by the Ministry of the Environment since 2019, which demonstrates the integrated operation of CCS with a focus on CO₂ storage technology
- 2) Initiatives in oil and gas development
 - ① Development of CO₂-EOR technology utilizing Japanese nanotechnology and target practical applications at INPEX projects overseas
 - ② Participation in a CCS-EOR feasibility study in southern Mexico
- 3) CCS standardization

- ① Active contribution to the development of ISO TC265, a global CCS standardization workshop

6. Appropriate policy: The provision of a reliable framework

INPEX is supportive of the aims of the Paris Agreement and the long-term goals it presents to the global economy. The objective of climate change policy should be to reduce the risk of a serious impact to society and ecosystems, while recognizing the importance of abundant, reliable and accessible energy for the world's growing population.

In order to be appropriate, policies to manage the risks of climate change should be science-based, extend globally, be market-driven, and provide businesses with a degree of medium-term certainty whilst being flexible to progressive amendments as understanding of the climate change risks develops.

For the oil and gas industry to play its role in reducing global GHG emissions, it is important to have a mechanism enabling companies to select economically feasible options without compromising competitiveness.

INPEX's current initiatives

- 1) Participate in global initiatives
 - ① Sign the United Nations Global Compact and activities Network Japan
 - ② Participate in industry organizations including the International Association of Oil & Gas Producers (IOGP) and IPIECA

- 2) Communicate and cooperate with governments of nations in which INPEX operates
 - ① Japan: Participate in a Low Carbon Society of the Japan Business Federation's (Keidanren's) Commitment to through the Japan Petroleum Development Association, and establish targets of GHG emissions reduction for 2020 and 2030
 - ② Australia: INPEX actively participates in the development of Federal policy frameworks through consultation processes relating to policy changes and via the Australian Petroleum Production and Exploration Association (APPEA) when appropriate
 - ③ Indonesia: Participate in GHG and climate change discussions with Government of Indonesia and research institutions. Furthermore, involvement in Indonesian's policy making on GHG through Indonesian Petroleum Association (IPA)

End
(February 2020)