



*INPEX Operations Australia Pty Ltd
ABN 48 150 217 262*

*22/100 St Georges Terrace Perth
Western Australia 6000*

*Tel +61 8 6213 6000
Fax +61 8 6213 6455*

INPEX.com.au

15 February 2021

Environment Policy - Office of Climate Change
Department of Environment, Parks and Water Security
Northern Territory Government
Arnhemica House, 16 Parap Road, Parap NT 0820
GPO Box 3675, Darwin NT 0801

RE: Greenhouse Gas Emissions Management for New and Expanding Large Emitters

Thank you for the opportunity to provide this submission to the Northern Territory Government's Greenhouse Gas Emissions Management for New and Expanding Large Emitters' Draft Policy Paper.

This submission is made by INPEX Operations Australia Pty Ltd (hereafter referred to as INPEX).

As Japan's flagship oil and gas company, INPEX's mission is to provide a stable and efficient supply of energy to our customers by exploring and developing oil and natural gas resources throughout the world.

INPEX has been a proud member of the Northern Territory community since 2008 after selecting Darwin as the location for the Ichthys LNG onshore processing facilities. Ichthys LNG is now at full production with more than 250 LNG cargoes delivered from Darwin since first production in 2018.

INPEX would like to acknowledge the Northern Territory Government's commitment to addressing climate change by setting a net zero greenhouse gas emissions target by 2050. INPEX has also recently announced a commitment to net zero greenhouse gas emissions by 2050, which we intend to achieve by focusing on renewable energy and technology initiatives.

This submission will provide the Department with an understanding of INPEX's position on the government's policy paper and reaffirm our ongoing commitment to strengthening our climate change response.

For further information, please do not hesitate to contact our Northern Territory General Manager, Roland Houareau at roland.houareau@inpex.com.au.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Bill Townsend", is written over a light blue horizontal line.

Bill Townsend

**Vice President Corporate
INPEX**

Executive Summary

INPEX welcomes the opportunity to make this submission. We are a member of the Australian Petroleum Production and Exploration Association (APPEA), the national peak body representing the upstream oil and gas exploration and production industry. INPEX has contributed to APPEA's submission on the policy paper, and our comments should be read in conjunction with the APPEA submission.

INPEX recognises climate change as a critical business issue. An economy-wide transition to a low carbon society is underway. Government policy measures, technology, development, industry response and other long-term initiatives are particularly pertinent. INPEX is committed to fulfilling our role in addressing climate change. We have set a target of net zero carbon emissions by 2050, which is consistent with the climate policy of the Northern Territory Government.

For additional details of our commitment, please refer to Appendix A ([Business Development Strategy - Towards a Net Zero Carbon Society by 2050](#))

Natural gas also has an essential role to play in reducing emissions. Gas-fired power generators can ramp up and down relatively rapidly, making them complementary with intermittent renewable energy.

INPEX has undertaken numerous actions aimed at maximising energy efficiency and minimising greenhouse gas emissions at Ichthys LNG. Carbon capture and storage (CCS) also has a key role to play in the transition to a low carbon economy. The Ichthys LNG facilities were designed and developed to be "CCS ready." the Ichthys joint venture spent over US\$10 million in pre-appraisal studies of potential geosequestration sites. INPEX is currently discussing with the Northern Territory government and the Commonwealth government, the potential for Darwin to become a CCS hub. Our aspiration is to use CCS as a means of reducing greenhouse gas emissions from Ichthys LNG.

INPEX wishes to make the following comments regarding the policy paper:

National Approach to Emissions Reduction Policy – INPEX believes the design of the Northern Territory Government's climate change policy should be consistent with, but not duplicate, the requirements of the Federal Government's climate change commitments made under the Paris Agreement. INPEX supports a national climate change policy that delivers emissions reductions at least cost and facilitates investment decisions consistent with an international price on carbon. INPEX reports its greenhouse gas emissions for Ichthys LNG on an annual basis to the Clean Energy Regulator under the National Greenhouse and Energy Reporting scheme and reports emissions to the Northern Territory Government under its licence agreements with the NT Environment Protection Authority.

Definition of a new project – Forecast life of field greenhouse gas emissions from Ichthys were fully considered as part of Ichthys LNG Project Environment Impact Statement (EIS) and approved under the Federal Environmental Protection and Biodiversity Conservation Act (1999). The scope approved under this mechanism should be exempt from retrospective application of new NTG greenhouse gas emission requirements. Notwithstanding this, INPEX continues to seek opportunities to reduce emissions from its existing facility.

Retrospectivity – INPEX supports the Northern Territory Government's approach to making this policy prospective only. Retrospective changes to greenhouse gas policy settings could downgrade the economics of Ichthys LNG (Final Investment Decision 2012) and discourage future investment. The introduction of additional greenhouse gas policies which are inconsistent with federal climate change policies could stymie oil and gas investment in Australia more generally.



Business Development Strategy

Towards a Net Zero Carbon Society by 2050

January 27, 2021

Basic Policy on Management Towards a Net Zero Carbon Society by 2050

1

INPEX will proactively engage in energy structure reforms towards the realization of a net zero carbon society by 2050, while responding to the growing energy demands of Japan and the world and fulfilling its responsibility for the development and stable supply of energy over the long-term.

2

The company will set climate change response goals to achieve its own net zero carbon emissions by 2050, to contribute to the realization of the Paris Agreement objectives in relation to climate change.

3

INPEX will actively promote five business pillars through the following three initiatives, in order to offer solutions responding to the needs of society in an age of transformation towards a net zero carbon society.

1. Leverage the company's strengths (knowledge and experience)

- ▶ INPEX will make the most of its strengths such as its management, technical and operational experience gained in Japan and around the world to select business targets and apply its management resources including human resources, finances and business knowledge.

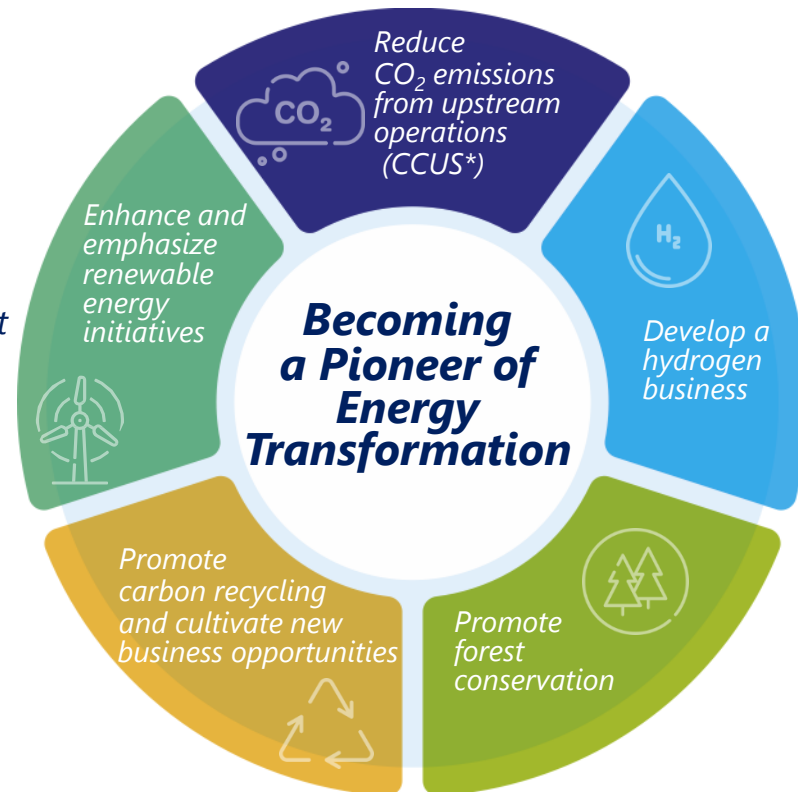
2. Strengthen collaboration with industry, academia and government

- ▶ Responding to changing times requires innovation and the realization of new business models. INPEX will promote long-term ties and collaboration with industry, academia and government in a broad spectrum of business fields.

3. Utilize policy support measures

- ▶ The company will collaborate on the improvement of policy frameworks and promote rapid and efficient initiatives making use of policy incentives.

* Carbon dioxide **C**apture, **U**tilization and **S**torage



Climate Change Goals

- INPEX has set its own goals to contribute to realizing a net zero carbon society as outlined in the Paris Agreement.^{*1}

^{*1:} International treaty with the goal of keeping average global warming to well below 2 degrees Celsius

2050

NET ZERO^{*2}

in absolute emissions
(Scope 1+2)

^{*2:} on INPEX equity share basis

2030

30% OR MORE^{*3}

reduction of net carbon intensity
(Scope 1+2)

^{*3:} in comparison with 2019

Scope 3

REDUCTION

work together with
all relevant stakeholders to
address challenges
across the value chains

TO ACHIEVE THESE GOALS INPEX WILL...

- ▶ Promote CCUS;
- ▶ Strengthen renewable energy initiatives;
- ▶ Promote forest conservation for CO₂ absorption;
- ▶ Maintain current low methane emissions intensity of approximately 0.1%^{*4} (calculated by methane emissions / natural gas production); and
- ▶ Aim to eliminate routine flaring by 2030.^{*4}

^{*4:} in INPEX-operated projects

PROMOTE THE ONGOING DISCLOSURE OF CLIMATE-RELATED INFORMATION IN LINE WITH TCFD RECOMMENDATIONS.

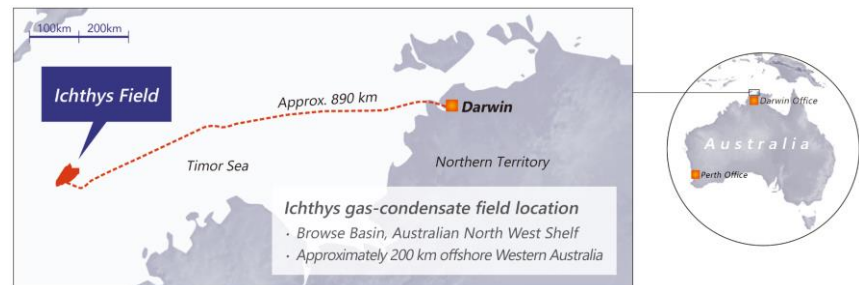
- *Taking advantage of its track record and technical expertise in CCUS (Japan's first CCUS project commenced at INPEX's Kubiki Oil field in Niigata in 1988), INPEX seeks to apply CCUS to achieve safe storage and efficient utilization of CO₂ in Japan and overseas including the Ichthys LNG Project in Australia.*
- *INPEX promotes a shift to natural gas and carbon neutral LNG in conjunction with efficient use of energy and implementation of energy saving measures across its entire business including exploration, development and production.*

CO₂ EOR Demonstration Tests in Niigata, Japan

- *INPEX plans to conduct CCUS (CO₂ EOR) demonstration tests at one of its onshore oil fields in Niigata, Japan, applying EOR recovery improvement technology (CO₂ foam technology) being developed by the company.*
- *The demonstration tests will consist of drilling two new wells in 2022, analyzing reservoir core samples and conducting CO₂ injection tests. The tests are expected to boost the application of CCUS technologies in Japan as well as CO₂ EOR technologies at INPEX's upstream assets overseas.*

Ichthys LNG Project CCS

- *INPEX is evaluating the feasibility of sequestration of CO₂ captured at the INPEX-operated Ichthys LNG plant in Darwin, Australia.*
- *An appropriate injection site is to be selected based on detailed evaluation.*



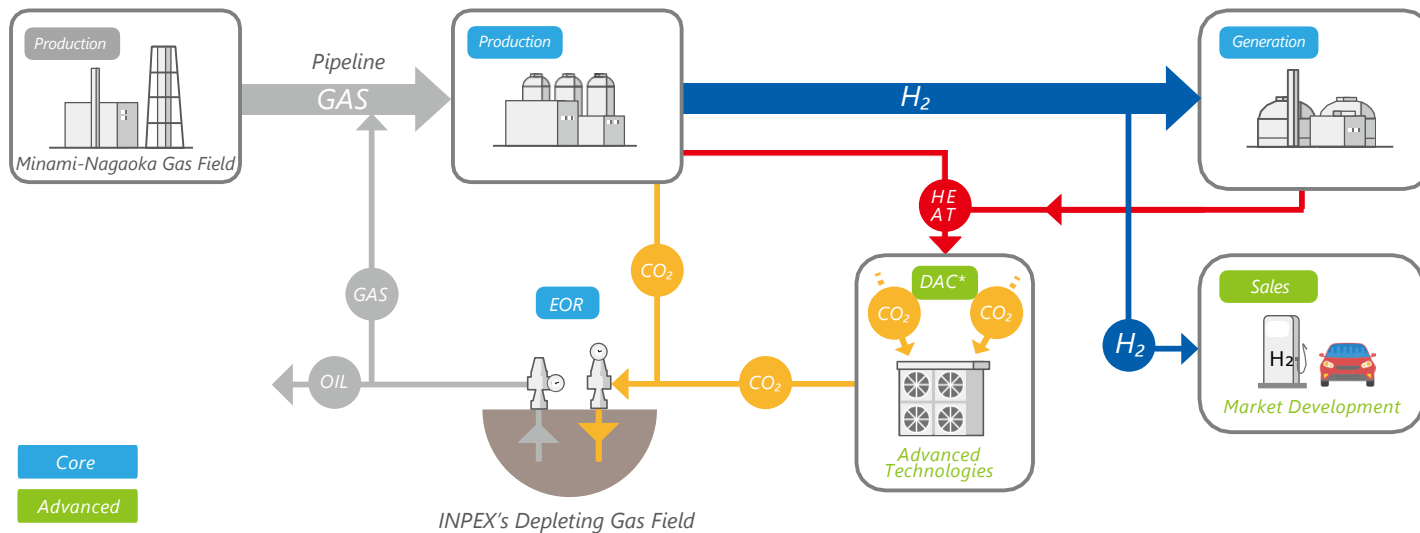
* **Enhanced Oil Recovery.** In this document EOR includes Enhanced Gas Recovery.

4 | Hydrogen Business (1)

- Envisioning the advent of a hydrogen era, INPEX aims to expand its energy business to include the production and supply of hydrogen.
 - ▶ Utilize natural gas from INPEX assets to produce “carbon-free hydrogen” through a natural gas reforming process and conducting CCUS with the CO₂ emitted from this reforming process.
 - ▶ Enhance R&D activities to establish a hydrogen value chain in collaboration with external companies and organizations.
 - ▶ Aim to create a hydrogen society at an early stage through collaborative cross-sector projects on the social implementation of hydrogen as a member of the Japan Hydrogen Association.

Concept of Integrated Hydrogen Business Test Project in Kashiwazaki, Niigata, Japan

- An integrated “all-in-one” demonstration test is planned in Niigata, Japan, taking advantage of INPEX’s upstream technologies and domestic natural gas supply infrastructure. INPEX will demonstrate a hydrogen business model delivering hydrogen produced at INPEX’s overseas natural gas assets to Japan.



* Direct Air Capture

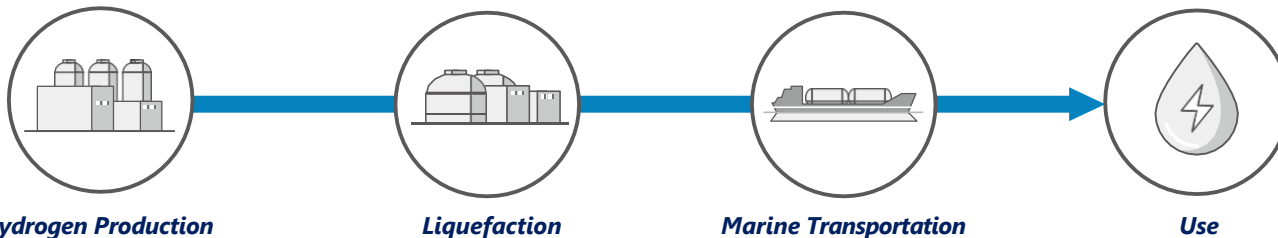
- ▶ INPEX is evaluating ammonia production and liquified hydrogen business opportunities as ways to transport and import hydrogen produced at INPEX upstream assets overseas to Japan.
- ▶ These opportunities are expected to eventually lead to a carbon-free energy business leveraging INPEX's natural gas assets outside of Japan.

Clean Ammonia Business in Abu Dhabi

- INPEX is evaluating opportunities to produce hydrogen and ammonia from natural gas produced in Abu Dhabi. CO₂ from the gas reforming process will be utilized in CCUS / EOR at an onshore Abu Dhabi oil field in which INPEX has a participating interest, with the objective of realizing clean ammonia.
- The ammonia is to be imported to Japan using marine vessels and supplied to Japanese utilities as clean fuel for power plants, contributing to the reduction of CO₂ emissions.
- A feasibility study is being proposed to ADNOC (UAE) and discussions with ADNOC and domestic partners are ongoing (as of 2021).

Carbon-Free Hydrogen Business outside Japan

- INPEX is examining ways to participate in a hydrogen liquefaction and offloading business to develop its own hydrogen business abroad.
- The company is making use of knowledge and experience in natural gas liquefaction (LNG).



Enhance and Emphasize Renewable Energy Initiatives

- *INPEX will accelerate its initiatives both in Japan and around the world relating to geothermal power generation applying oil and gas development technologies, as well as offshore wind leveraging experience in the construction and operation of offshore floating facilities gained at operations sites overseas.*

Geothermal

- *High potential in Japan and Indonesia where INPEX has considerable business experience.*
- *Applying oil and gas development technologies such as geological / geophysical surveys and drilling.*
- *Planning further development of Sarulla in Indonesia, one of the world's largest geothermal projects.*
- *Domestic track record of conducting development studies, exploratory drilling and flow tests in the Oyasu area of Akita Prefecture and the Amemasu area in Hokkaido, Japan.*



Sarulla Geothermal Independent Power Producer (IPP) Project

Offshore Wind

- *Plans to realize fixed-bottom wind project offshore Noshiro, Mitane and Oga in Akita Prefecture, Japan.*
- *Ability to apply business management experience of designing and operating floating structures for crude oil and gas production at Ichthys and elsewhere.*
- *Plans to create a floating offshore wind business, which has advantages for first movers, making particular use of INPEX's strengths.*



Generic image of offshore wind

7 | Promote Carbon Recycling and Cultivate New Business Opportunities

- INPEX will promote carbon recycling with the aim of setting up business operations at an early stage, leveraging synergies with its oil and gas business operations.

Acceleration of Methanation Business *(towards the supply of carbon-free methane)*

- Plans to complete basic technical development in 2021, scale up the test facility in stages while implementing cost reduction measures and achieve commercialization beyond 2030.
- Commenced joint studies with the Australian Federal Institute for Scientific and Industrial Research (CSIRO) in July 2020 towards practical application in Australia, based on the Japan-Australia Carbon Recycling Cooperation Memorandum.



Test facility within Koshijihara Plant
(a NEDO* project)

Artificial Photosynthesis *(towards the supply of hydrogen derived from renewables)*

- Participating in the Japan Technological Research Association of Artificial Photosynthetic Chemical Process (ARPCHEM) and in charge of technical development for production of solar hydrogen through catalytic reaction.
- Steady implementation of R&D with aims to ultimately achieve 10% solar energy conversion efficiency; plans to evaluate practical application.
- Installation of artificial photosynthesis panels in Darwin, Australia, the location of the Ichthys onshore plant.



Artificial photosynthesis panels installed in Darwin, Australia

As a member of the "Challenge Net Zero Carbon Innovation" initiative led by the Japan Business Federation (Keidanren), INPEX is implementing the two initiatives listed above. (INPEX Joins Keidanren's "Challenge Zero" Decarbonization Initiative: <https://www.inpex.co.jp/english/csr/topics/20210118.html>)

- INPEX will swiftly pursue initiatives in new business fields showing signs of growth.
 - ▶ The company will accelerate the startup of businesses in new fields through proactive tie-ups with external R&D ventures and research institutions, etc., in addition to internal ventures leveraging in-house resources to the maximum extent.

Specific business prospects

- Improved operational stability and security through pipeline management utilizing drones
- Introduction of DX relating to energy businesses
- Development of methane direct cracking technologies; development of technologies to directly crack methane into hydrogen and carbon
- Carbon materials business; effective use of carbon extracted from the direct cracking of CO₂
- Development of CO₂ extraction, processing and utilization technologies

- *INPEX will promote CO₂ absorption through forest conservation.*
 - ▶ *The company will contribute to forest conservation activities in Indonesia and other countries, mainly by supporting distinguished REDD+* projects, which contribute to climate change response, biodiversity conservation and improved living standards of the local communities.*

Current Projects in Australia

- *CO₂ absorption through eucalyptus tree planting and management and savanna fire management projects.*



Eucalyptus trees grown in plantations in southwestern Australia

Future Projects

- *Starting in 2021, INPEX will support forest conservation mainly through REDD+.*



◀ *Educational support for local communities*

Biodiversity conservation ▶



* **Reducing Emissions from Deforestation and forest Degradation** – a concept defined in the Cancun Agreements (2010) aiming at reduction of CO₂ emissions by controlling deforestation and deterioration through forest management and actively increasing carbon stock through afforestation.

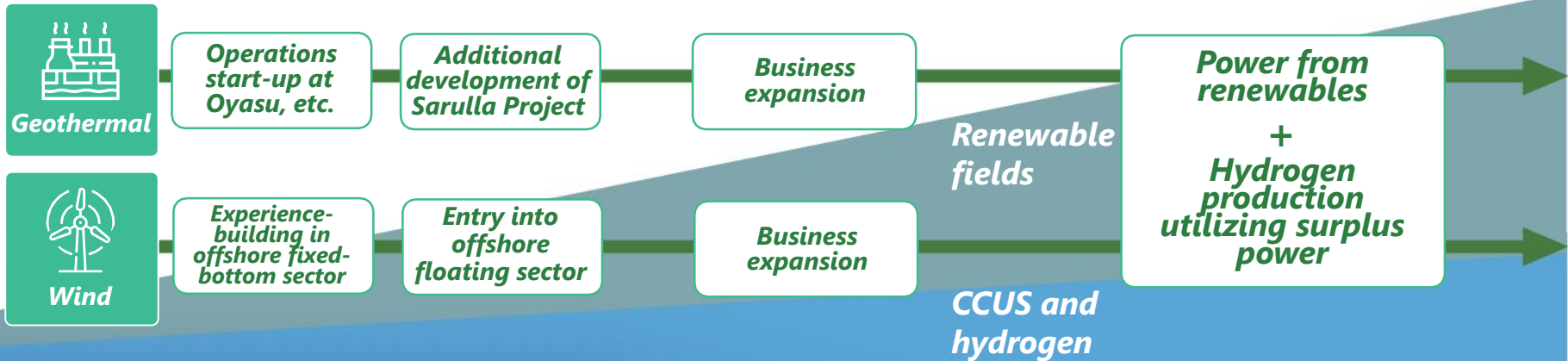
Present

2050

Business implementation

Active business expansion

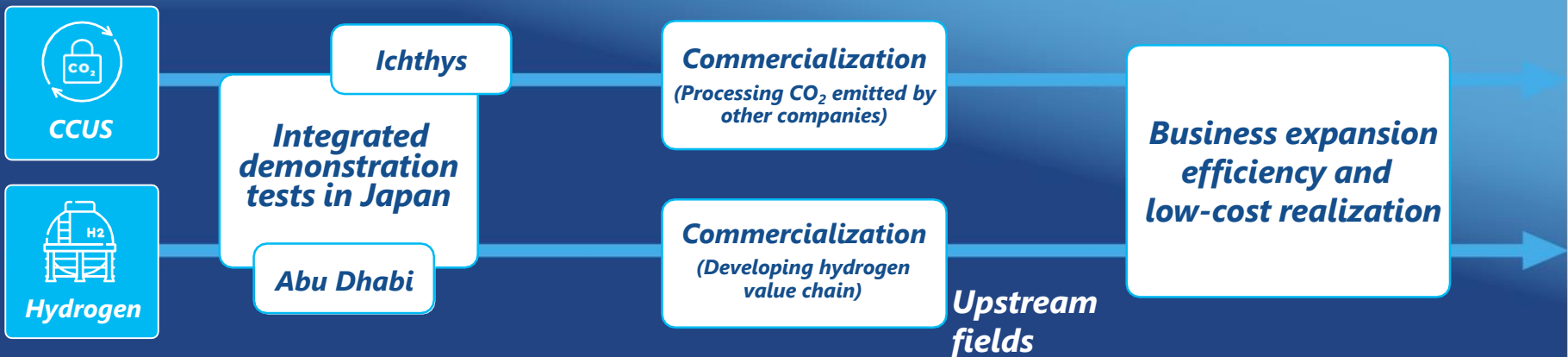
Reinforcement of earning power
Hydrogen business expansion



Reduction of CO₂ from INPEX assets

Business establishment

Reinforcement of earning power as core business



Organization

● Establishment of Hydrogen & CCUS Development Office

New office set up to promote the clean development and supply of crude oil and natural gas as well as a hydrogen business.

● Reorganization as Renewable Energy & New Business Division

Renewable Energy & Power Business Division renamed as Renewable Energy & New Business Division, with the establishment of New Business Development Unit to promote activities in new areas of business.

Human Resources

● In-house recruitment, multiple roles

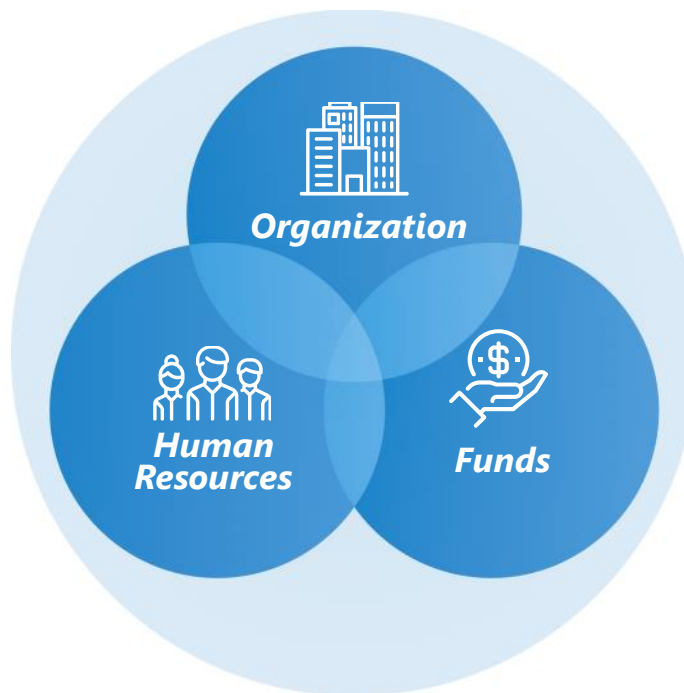
Leverage company-wide human resources through in-house recruitment and assigning multiple roles to promote initiatives including CCUS, hydrogen, renewable energies and businesses in new fields.

● External HR

Utilize external HR and knowledge by proactively pursuing collaborative efforts with R&D ventures and startups, etc.

● Reinforcement of industry, academia and government ties

Promote cross-sector corporate partnerships and industry, academia and government joint research.



Funds

● Internal venture funds

Establish systems such as internal venture funds to rapidly and flexibly promote new business activities.

● Green bonds

Proactively consider the issuance of green bonds to promote initiatives towards a net zero carbon society.

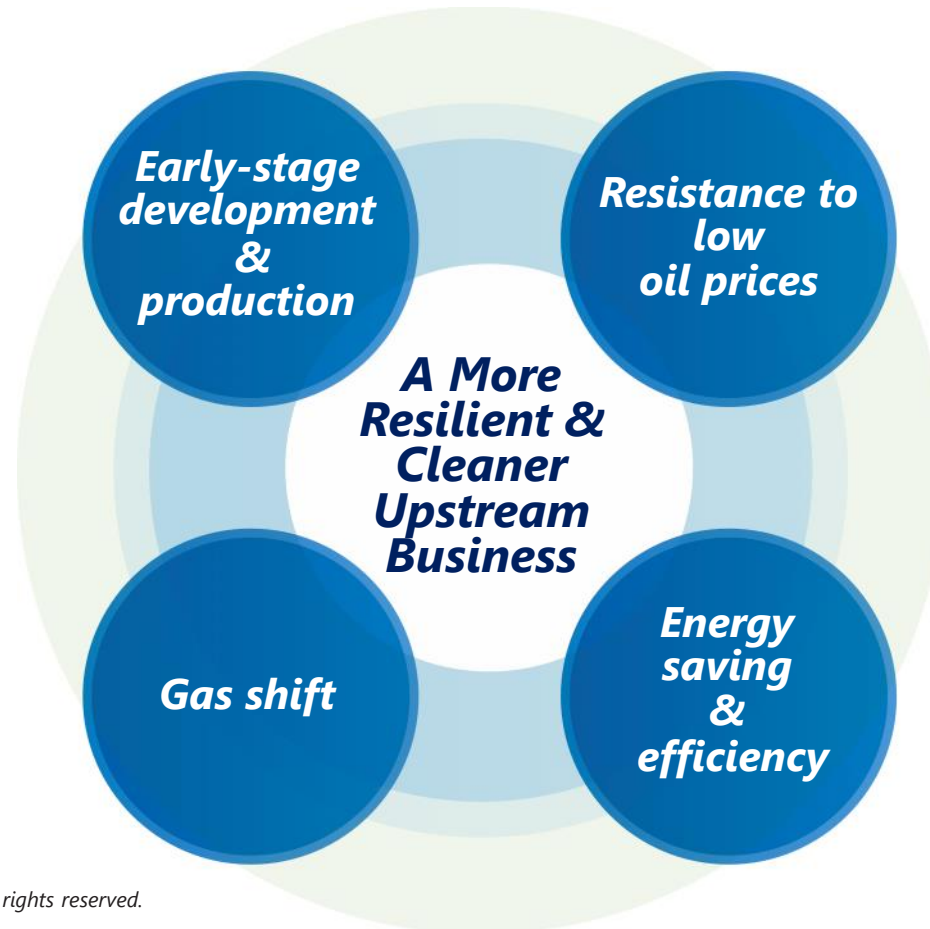
● Government support

Utilize government subsidies provided by NEDO, JOGMEC* and others.

* Japan Oil, Gas and Metals National Corporation

11 | Towards a More Resilient & Cleaner Upstream Business

- INPEX continues to position crude oil and natural gas as important sources of energy, for which demand is expected to remain strong over the medium- to long-term. Meanwhile, it is possible that pressure from the net zero carbon movement to curtail this demand may grow.
- INPEX will continue to position its upstream business as a core business and will work to fulfill its two social responsibilities of providing a stable supply of energy and responding to climate change by strengthening its upstream business and making it cleaner.



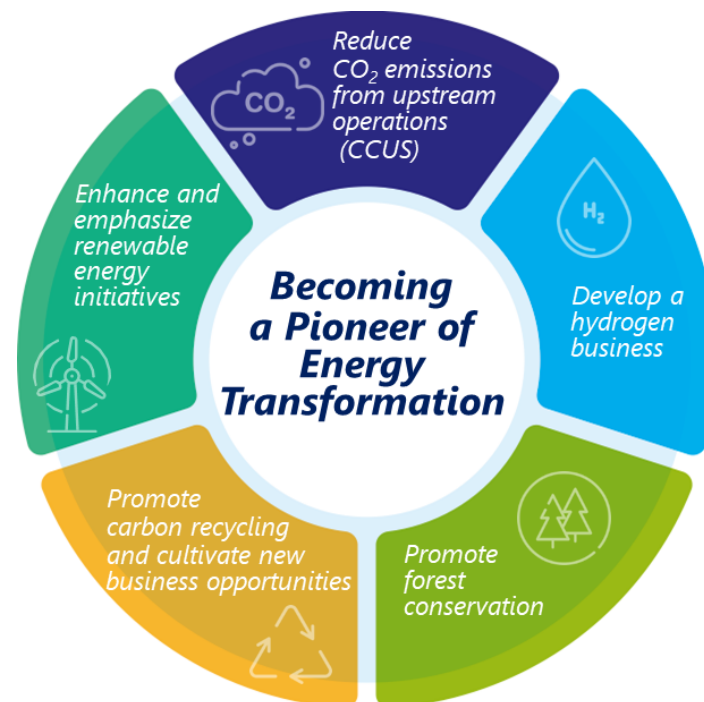
Average annual scale of investment over the next five years

**Scale of investment based on US\$50~60 oil price assumption*



Annual investment outlook of approximately 20~30 billion yen in the medium-term for the five initiatives

Appx. **20~30**
billion yen



13 | *Change of Corporate Name*

*To implement its business development as a unified group, the company will change its Japanese name from Kokusai Sekiyu Kaihatsu Teiseki Kabushiki Kaisha to Kabushiki Kaisha INPEX, effective April 1, 2021.**

INPEX's English name, INPEX CORPORATION, will remain unchanged.

INPEX will contribute to the SDGs including energy, the environment, economic growth and social development by continuing to supply Japan and countries around the world over the long-term with diverse energy in a stable and cleaner way.

INPEX



Disclaimer and Cautionary Statement

Disclaimer

Information contained in the Business Development Strategy – Towards a Net Zero Carbon Society by 2050 is not an offer or a solicitation of an offer to buy or sell securities. You are requested to make investment decisions using your own judgment. Although the company has made sufficient effort to ensure the accuracy of information provided herein, the company assumes no responsibility for any damages or liabilities including, but not limited to, those due to incorrect information or any other reason.

Cautionary Statement

The Business Development Strategy – Towards a Net Zero Carbon Society by 2050 includes forward-looking information that reflects the company's plans and expectations. Such forward-looking information is based on the current assumptions and judgments of the company in light of the information currently available to it, and involves known and unknown risks, uncertainties and other factors. Such risks, uncertainties and other factors may cause the company's performance, achievements or financial position to be materially different from any future results, performance, achievements or financial position expressed or implied by such forward-looking information.

The company undertakes no obligation to publicly update or revise the disclosure of information in the Business Development Strategy – Towards a Net Zero Carbon Society by 2050 (including forward-looking information).