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Committee Secretary
Senate Standing Committees on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600

Submission to the Middle Arm Sustainable Development Precinct Senate Inquiry 2023

Dear Sir/Madam

Thank you for the opportunity to provide a submission to the Middle Arm Sustainable Development Precinct Inquiry. We understand the Inquiry will result in recommendations being made to both the Senate and Parliament in the terms of reference in relation to this inquiry.

INPEX Corporation is a global energy company listed on the Tokyo Stock Exchange and is 21.19 per cent owned by the Japanese Ministry of Economy, Trade and Investment. In addition to the sale of hydrocarbon products globally, INPEX is also engaged in energy research and development, including renewable technologies.

Through our investment in Ichthys LNG, INPEX ranks as the largest Japanese investor in Australia. INPEX is a major contributor to the Northern Territory and national economies through jobs, taxes, local contracts and engagement with First Nations communities. INPEX is also a significant investor as a participant in Prelude FLNG and Darwin LNG as well as several offshore oil and gas projects and onshore renewable energy projects across Australia.

INPEX recognises 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 eh Paris Agreement. Last year, we released our business strategy roadmap "INPEX Vision@2022". It sets out the path to achieving our target of net zero carbon emissions by 2050 while providing a stable supply of diverse and clean energy sources, including oil and natural gas, hydrogen and renewable energy. Further, INPEX is committed to an interim target of a 30 per cent reduction in scope one and scope two net carbon intensity over 2019 levels by 2030. Australia is one of five international regions globally prioritised by the company for future investment opportunities.

INPEX supports the creation of a multi-user carbon capture and storage (CCS) hub, amongst other decarbonisation and clean energy initiatives at Middle Arm. INPEX is the operator of the Bonaparte CCS Assessment Project, a joint venture with TotalEnergies and Woodside Energy. This project, approximates 250 kilometres off the coast from Darwin, provides an opportunity to prove up a large -scale carbon storage and has the potential to become one of the largest CCS projects in the world.

Our commitment to the places in which we operate is extensive, but, of relevance here we highlight that Ichthys LNG has arrangements in place with NT Power and Water Corporation (PWC) that allow for the provision of emergency gas supply to PWC when required. When called upon by PWC to supply emergency gas we have responded. This supply has directly assisted in avoiding potential electricity blackout scenarios in the Darwin area and provided security and stability for the Northern Territory gas market.

Middle Arm Sustainable Development Precinct not only has potential benefits to INPEX, most prominently our Bonaparte CCS plans, it will also have far reaching, positive benefits for local industries, international investors looking to invest in clean energy and emissions reduction initiatives, supply chains, contractors and community members within the Northern Territory.

Our submission focuses on four key areas we believe are vital to your considered recommendations:

1. INPEX supports the Middle Arm Sustainable Development Precinct as part of the Northern Territory Government's plans for the development of a multi-user carbon capture and storage hub to support decarbonisation and new energy projects.
2. The Middle Arm Sustainable Development Precinct represents a significant opportunity for Australia to decarbonise and supports the Commonwealth Government's commitment to achieving net zero emissions by 2050.
3. CCS projects will offer hard-to-abate industries in the Northern Territory the opportunity to address and reduce their emissions. An example of the typical hard-to-abate industry that could be attracted to the hub location is green cement or mineral processing.
4. The Middle Arm Sustainable Development Precinct has the potential to create large-scale opportunities for new and emerging opportunities such as:
    - hydrogen, ammonia and other hydrogen derivative commodities;
    - CO_2 importation and direct air capture of CO_2; and
    - renewable energy projects to provide power into the Precinct.

These four themes will have direct positive impacts for job creation and greater economic benefits for Territorians and local businesses.

INPEX has been a part of the Australian business community for more than 35 years. We have built positive, long-term relationships with the Commonwealth, Northern Territory and Western Australian governments.

On behalf of INPEX, I would like to thank the Senate Committee for the opportunity to make this submission. For further information, please do not hesitate to contact John Williams, Government Affairs and Regulatory Approvals Manager, at john.w@inpex.com.au.

Yours sincerely,

Tetsu Murayama
President Director INPEX Australia

Terms of Reference

As part of its submission to the Middle Arm Sustainable Development Precinct Senate Inquiry, INPEX has outlined its response to the terms of reference which are of relevance to our organisation, as well as its current and future investment into Australia and the Northern Territory. at this stage, INPEX does not have any announced investments into the proposed development at Middle Arm other than our pre-existing investment in our Ichthys LNG facility located.

The Middle Arm Sustainable Development Precinct provides an opportunity to:

- Secure investment from national and international organisations;
- Play an active role in driving Australia's transition to cleaner energy solutions;
- Assist key hard-to-abate Australian industries in their quest to actively reduce their emissions;
- Create one of Australia's largest value chain CCS projects, with benefits to national and international emissions reduction; and
- Future-proof the NT economy by investing in strong and vibrant hydrogen and ammonia production facilities to supply establishing markets.

In its current capacity, renewable energy is unable to adequately service high intensity industries such as critical minerals. This will likely change in the future, but in the interim industries need to be supported with ways to abate their emissions, and should be afforded reliable, cost-efficient energy as renewable projects are established.

The energy transition will require hydrocarbons such as natural gas for decades to come if we are to be successful in the development of new, cleaner technologies and energy sources such as hydrogen, solar and wind power.

(a) the development of Darwin's Middle Arm Sustainable Development Precinct, the role and funding intentions of the Northern Territory and Commonwealth governments

INPEX remains supportive of the Northern Territory Government's proposed Middle Arm Sustainable Development Precinct, highlighting the benefits that the committed funding would have for not only Australia and the Northern Territory, but also our regional neighbors and strategic partners.

INPEX welcomes the Northern Territory and Commonwealth Governments' committed funding to the project, and wholly supports all efforts that the hub represents in supporting decarbonisation, net zero goals as well as jobs and economic benefits for Northern Territorians for decades to come.

We note that the Commonwealth Government has committed to invest A$1.5 billion in the Middle Arm Sustainable Development Precinct in Darwin to create a globally competitive precinct.

INPEX believes the precinct's proposed hub development concept would have a positive impact in three key areas positioning the Northern Territory as a domestic and regional leader in energy development and decarbonisation.

New energy opportunities

Through the development and investment in new and emerging energy technology and infrastructure, the precinct has the potential to contribute to Australia's decarbonisation efforts, in line with the Commonwealth's and Northern Territory Government's commitment to net zero emissions by 2050.

The INPEX-led Bonaparte CCS Assessment Project is more than simply a means to decarbonise the existing INPEX-operated Ichthys LNG. It is also a step towards a world-scale CO_2 storage operation that would not only underpin lower emissions expansion plans for Ichthys LNG, but also support the development of the 1500-hectare Middle Arm Sustainable Development Precinct and the Northern Territory Low Emissions Carbon Capture Utilisation and Storage Hub. The hub concept can facilitate carbon reduction for third-party operations and underpin the development of new energy such as hydrogen. In addition to CCS, INPEX will seek to decarbonise Ichthys production through the staged introduction of firmed renewables to power its production facilities in Darwin.

Global investment in hydrogen and ammonia projects has seen heightened levels of interest and attention worldwide as demand develops. The Middle Arm Sustainable Development Precinct could offer the Northern Territory and Australia the opportunity to become a leading supplier of low-carbon hydrogen and ammonia, aiding in the establishment of global markets as the world transitions to a cleaner future.

Scalability and commercialisation of carbon capture and storage

As stated by the International Energy Agency (IEA), CCS is a vital and necessary tool in the world's efforts to address climate change and its ability to lower emissions at the desired pace to achieve net zero by 2050.

The proposed multi-user hub model at Middle Arm will support opportunities for hard-to-abate industries in the Northern Territory's manufacturing and mining sectors to further reduce greenhouse gas emissions. Investment in multi-user hub infrastructure will result in economies of scale thereby improving access and reducing costs of carbon capture and storage for the Northern Territory's manufacturing sector. Australian Energy Producers (AEP) recently released a report[1] that recommends the establishment of nine energy and industrial net zero hubs around Australia that collectively account for 92 per cent of all safeguard mechanism emissions and 98 per cent of all large power generation. The United States Department of Energy also supports a similar model with their Regional Clean Hydrogen Hubs program. There is a compelling case for hub developments to be backed by governments as a priority to reduce emissions.

Investment in this hub model could also allow for a completely new industry to be established in Australia through the importation and storage of CO_2. As a result of Australia's geosequestration potential, many neighboring nations in the Indo-Pacific region are highly interested in the opportunity to reduce their greenhouse emissions by exporting their CO_2 for sequestration in Australian reservoirs.

[1] APPEA, A review of Net Zero Energy and Industrial Zones, Preliminary Report May 2023

The Northern Lights Energy Hub in Norway is an example of government and industry collaboration to reduce global emissions. The hub was established with A$4 billion (equivalent) funding support from the Norwegian Government. This Norwegian hub will use ships to import carbon dioxide from geographically distant sources around Europe. Northern Lights has identified over 90 suitable capture sites, and there is already interest from industrial sites in eight countries, in sectors including steel, biomass and hydrogen. Four of these sites – a hydrogen refinery in Finland, hydrogen and chemicals facilities in Belgium, a cement plant in France and a biomass with CCS plant in Sweden – have received investment from the EU's Innovation Fund to support large-scale capture of CO_2. The Northern Lights receiving terminal, offshore pipeline and injection infrastructure are designed to be extended to accommodate over 5 million tonnes of CO_2 per year, depending on demand. Total storage capacity is expected to be at least 100 million tons.

The United States has also demonstrated its support for decarbonisation. Last year, the United States signed a major climate, energy and health care bill[2], the *Inflation Reduction Act*, that contained US$370 billion to promote clean energy development, including CCS, to combat climate change, constituting the largest climate investment in history. Under its provisions, tax credits for capturing carbon dioxide at industrial facilities and power plants would increase from US$50 per ton today to up to US$85 per ton if the carbon is stored.

We believe the Commonwealth Government should also actively consider incentives to encourage the development of carbon capture and storage for the larger resources sector emitters that in turn would support the hard-to-abate industrial sectors of the NT economy.

Emissions Reduction

A positive outcome should the precinct be developed is the ability for industries within the hub, or even international customers to abate their emissions through proposed projects such as Bonaparte CCS.

The transport of CO_2 across international boundaries for permanent storage will play an important role in reducing industrial emissions at scale both in Australia and the region. The import and export of CO_2 is expected to play an important role in meeting net zero targets in our region. Countries such as Japan, South Korea and Singapore have limited CO_2 storage potential and are seeking to partner with Australia for storage solutions given our abundant geological CO_2 storage resources, industry expertise, and world-leading regulatory frameworks. It can also create efficiencies of scale to facilitate the fast-tracking of emissions reductions from Australian industry. In Europe, similar trading relationships are being established around the North Sea's offshore CO_2 storage resources.

Australia's comprehensive regulatory frameworks for CO_2 storage ensure any local environmental risks are identified and mitigated effectively. Commonwealth and state carbon capture, use and storage (CCUS) legal and regulatory frameworks along with CO_2 storage guidelines in the London Protocol and international CCUS standards provide a comprehensive

[2] The New York Times, Democrats' Climate and Tax Bill Senate Passes Climate and Tax Bill After Marathon Debate, August 7, 2023: Democrats' Climate and Tax Bill: Senate Passes Climate and Tax Bill After Marathon Debate - The New York Times (nytimes.com)

basis for the effective management and mitigation of environmental and other risks associated with CO_2 storage. Decades of project experience also underscore that geological storage of CO_2 is a safe, proven and effective abatement solution.

There is significant interest in the region for the development of an international export market for CO2 for permanent storage, including from Japan. A 2022 study by the Global CCS Institute identifies a range of countries in the Asia Pacific region with limited domestic CO2 storage potential that are interested in considering the export of CO2 to other countries in the region for storage, including Japan, South Korea, Singapore and the Philippines. The same study identifies Australia as a potentially important CO2 storage "anchor nation", given our excellent storage resources and long history of CCUS development. The report highlights that engagement with industry in Japan and South Korea identified "that the export of CO2 for storage may be a solution for addressing these nations' significant emissions in the near term. Further, the Japanese government's Long-Term CCS Roadmap considers the need for domestically produced CO2 to be transported overseas for storage.

(b) the likely and intended future uses of the site as well as the industries and supply chains that would benefit from those plans

Middle Arm Sustainable Development Precinct represents the Northern Territory's opportunity to become a national and global leader in the energy transition. By supporting necessary base load energies such as gas, the precinct will ensure energy security, aid in the abatement of emissions through potential CCS development and establish new energy infrastructure for emerging energy sources such as hydrogen, that renewable energy will no doubt feed into as the technology matures and projects continue to come online.

CCUS is a proven technology which has been used to store CO_2 safely and permanently offshore, in deep sub-seabed geology for more than 25 years. **Reaching net zero by 2050 will be "*virtually impossible*" without CCUS.**[3] CCUS is a proven technology with decades of experience globally. CCUS plays a unique role amongst a portfolio of emissions reductions technologies as it can address emissions from existing facilities, mitigate emissions from hard-to-abate industry, support low-carbon hydrogen production and underpin large-scale carbon removal. The International Energy Agency Net Zero Emissions (NZE) Scenario requires 1.2 billion tons of CO_2 to be captured annually in 2030, increasing to 6.2 billion tons in 2050.[4] To achieve this "*the NZE Scenario requires more than ten new CCUS equipped facilities to be commissioned each month between* [November 2022] *and 2030*" alongside accelerated deployment of renewable energy, energy efficiency, low-carbon hydrogen and a range of other emissions reductions technologies. The Intergovernmental Panel on Climate Change median scenarios see 17 billion tons of CO_2 stored per year in 2050.

CCS deployment needs to rapidly scale up to allow the development of the next generation of clean fuels (especially blue hydrogen/ammonia) and to offer a solution to those hard-to-abate industries.

[3] IEA, CCUS in Clean Energy Transitions, 2020: https://www.iea.org/reports/ccus-in-clean-energy-transitions
[4] IEA, World Energy Outlook, 2022: https://www.iea.org/reports/world-energy-outlook-2022

As demand for hydrogen builds, INPEX believes that the gas industry through blue hydrogen will provide an important parallel vector to green hydrogen. Gas and CCS have a role to play in kick-starting the larger scale production and use of hydrogen and derivative products. Making it more affordable and accessible to markets domestically and globally, therefore making adoption of hydrogen easier and more feasible over a period of time.

Blue hydrogen and green hydrogen technology should be seen as integrating – not competing -- with one other. For instance, in areas of Australia with good hydro or combined wind and solar characteristics, the electrolysis route could be attractive, however where CCS reservoirs can be located and existing industrial infrastructure and gas distribution corridors are within proximity, the more attractive technology may well be 'blue' – that is hydrogen produced from methane with associated CO_2 stored by CCS. The Middle Arm precinct could assist with the development of such clean energy opportunities.

(c) any climate, environmental, health or cultural heritage impacts as a result of developing the harbour and the industries seeking to establish themselves at Middle Arm

INPEX strongly supports the Commonwealth's decarbonisation efforts and notes the benefits that this project will have on a range of aspects including health, the environment and the climate.

Hub models like Middle Arm Sustainable Development Precinct will allow heavy emitters and hard-to-abate industries the chance to reduce their CO_2 output if combined with proposed carbon capture and storage solutions.

Australia has seen first-hand the impact that climate change is having on our environment and communities. INPEX believes that the Middle Arm precinct will set Australia on the correct course by supporting Australian industries through their energy transition and the ability to reduce their emissions.