Environment Centre NT

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15 June 2026

Northern Territory Environment Protection
Authority Level 1 Arnhemica House
16 Parap Road PARAP NT 0801

To whom it may concern,

RE: **Proposed Terms of Reference for CCS project proposed by INPEX Operations Australia Pty Ltd**

The Environment Centre NT (**ECNT**) is the peak community sector environment organisation in the Northern Territory of Australia, raising awareness amongst community, government, business, and industry about environmental issues, assisting people to reduce their environmental impact, and supporting community members to participate in decision-making processes and action.

ECNT appreciates the opportunity to comment on the three interconnected carbon capture and storage projects (**the Inpex CCS proposal**), referred to the NTEPA by INPEX Operations Australia Pty Ltd (**Inpex**).

In this Submission, we will address the Draft Terms of Reference (**TORs**) for all three proposals and provide comment on the overall concept and design, and recommend changes to the TORs with the aim of ensuring robust assessment of risks and impacts.

We commend many of the elements of the TORs as proposed, which have taken into consideration concerns raised by ECNT and other stakeholders about the potential for these interconnected projects to have a significant impact on air quality, human health, and significant habitats.

Given the unprecedented nature of the Inpex CCS Proposal and the consequent likelihood of unanticipated risks and uncertainties around likelihood and significance of impacts, we encourage the NTEPA to take measures to ensure that the Environmental Impact Statements submitted by Inpex contain a high degree of detail related to a range of potential scenarios and impact pathways.

**Addressing the impacts of CO2 leaks and venting**

In ECNT's submissions made as part of the public consultation on the Referral of the Bonaparte and Ichthys CCS project components, we highlighted significant potential risks and impacts related to CO2 release across a range of environmental values.

We acknowledge that the TORs stipulate assessment of risks and impacts related to CO2 release (including trace elements of other air toxins) in relation to marine ecosystems, air quality, and human health. Release of the CO2 stream release through pipeline leak/rupture or planned or unplanned venting of the CO2 stream has the potential to significantly impact a wider range of environmental factors, and the TORs should require Inpex to address this.

In our submissions to the NTEPA in relation to the Referral of the Ichthys and Bonaparte CCS projects, we outlined a range of significant impact pathways through which release of the CO2 stream through pipeline leak/rupture and planned and unplanned venting. Particular concerns outlined in those submissions that are relevant to the proposed TORs under consider are:

- Potential impacts to terrestrial species, particularly migratory shorebird species and their habitats. Uncontrolled release or venting of the $CO_2$ stream could result in direct mortality, disturbance, habitat loss, and degradation of habitat. This is of particular concern given that the proposed $CO_2$ pipeline will transect saltpans that meet the definition of a nationally important habitat for the critically endangered Far Eastern Curlew, with records at the site meeting the threshold for this definition.[1]

- Potential impacts to marine fauna and their habitats. $CO_2$ release can lead to changes in microbial communities, aquatic vegetation, and fauna and their behaviour. This is of particular concern given that proposed project locations intersect with Biologically Important Areas (**BIAs**) for the Australian Snubfin Dolphin (breeding and calving), the Australian Humpback Dolphin (breeding, calving, foraging), and the Spotted Bottlenose Dolphin (breeding and calving), and with an interesting BIA for the Flatback Turtle, and constitutes habitat critical for the survival of the species.

As such, ECNT submits that the TORs should be adjusted to require Inpex to assess the risks and impacts associated with planned and unplanned release of the CO2 stream through pipeline rupture in relation to marine environments.

While the proposed TORs require Inpex to consider "changes to marine fauna behaviours as a result of, noise, CO2 (and trace elements in an unplanned leak) emissions or lighting from the Proposal areas" in relation to marine ecosystems, this should be extended to include risks and impacts including in direct mortality, disturbance, habitat loss, and degradation of habitat.

[1] Lilleyman, A. et al (2017) Distribution and abundance of migratory shorebirds in Darwin Harbour, Northern Territory, Australia, Northern Territory Naturalist 28. Accessed via https://pdfs.semanticscholar.org/92c4/c8b02698d7749c31831b0afada1da61817ef.pdf, p37

Additionally, we recommend adjusting the TORs to require Inpex to assess the risks and impacts associated with planned and unplanned release of the CO2 stream through pipeline rupture and planned and unplanned venting of the CO2 stream in relation to terrestrial ecosystems and terrestrial environment quality.

**Reliability modelling and quantification of likelihood of risk**

ECNT submits that the proposed TORs should require Inpex not only to consider risks and impacts in a range of scenarios, as discussed above, but also to quantify the likelihood of these scenarios to better inform assessment and stakeholder input.

In its Referral of the Ichthys Carbon Capture and Storage Project to the NTEPA, Inpex estimated venting volumes of 150,000 Tpa due to "occasions where the CCES cannot export, which includes issues with the availability of the third-party $CO_2$ injection system." In ECNT's submission in response to that Referral, we asserted that Inpex had failed to substantiate the accuracy of these anticipated emissions estimates, nor disclosed the assumptions behind them, or identified all possible situations in which venting may be required.

Failure to provide a basis for this estimate is of concern because of a history of CCS technical failures globally. In Western Australia, Chevron's Gorgon CCS project has reported declining success rates since commencing operations; in FY 2024-25 the project successfully stored only 25% of the $CO_2$ removed from the Gorgon and associated gas fields.[2] This is reflected in global CCS success figures; the maximum capture rate of existing projects is around 83% .[3] Should such a failure rate be experienced by the Inpex CCS project, it would significantly increase the risks and impacts in relation to human health, atmospheric processes, terrestrial environments and terrestrial ecosystems.

ECNT also expressed concerns in previous submissions about Inpex's characterisation of the likelihood of pipeline leak or rupture, and the conseuqences of this characterisation for the accuracy of its assessment of risks and impacts.

To address these concerns and ensure that the EISs appropriately assesses the likelihood and significance of risks, we submit that the TORs should require reliability modelling of the project as a whole, as well as expected annual downtime and likelihood of pipeline failure.

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[2] Morrison, Kevin (2025) World's Largest CCS project hot new low on amount of carbon captured and stored. Renew Economy. Accessed via https://reneweconomy.com.au/worlds-largest-ccs-project-hits-new-low-on-amount-of carbon-captured-and-stored/

[3] IEEFA (n.d.) Fact Sheet: Carbon Capture and Storage (CCS) has a poor track record. Accessed via https://ieefa.org/sites/default/files/2024-02/fact-sheet-CCS-ADR.pdf

Further, we suggest that major loss of containment should be included as a scenario to be considered across all environment factors. It is most relevant to human health, air quality, atmospheric processes, terrestrial ecosystems and marine ecosystems.

**Independent review of modelling**

Given recent concerns about the accuracy and veracity of Inpex's emissions reporting, and the unprecedented nature of the proposed activities, we urge the NTEPA to include a requirement for independent review of modelling submitted by Inpex, with particular reference to human health, atmospheric processes, air quality, and marine ecosystems.

**Addressing uncertainty and information gaps**

ECNT welcomes the inclusion of requirements for Inpex to address information gaps or uncertainties in relation to several environmental factors, including further studies or measures completed to address these gaps.

However, we note that this requirement is included only with reference to terrestrial ecosystems, coastal processes, marine environment quality, and air quality. It is our view that is premature to anticipate where knowledge gaps or uncertainties may occur or be relevant in relation to these projects, and that this requirement should be applied across all environment factors included in the Draft TORs.

**Conclusion**

We are grateful for the opportunity to provide feedback on the Draft TORs for the Inpex CCS Project, and we look forward to future engagement in relation to the proposal.

Please contact me to discuss further any of the issues raised in this submission.

Yours sincerely,

Bree Ahrens

Environment Centre NT