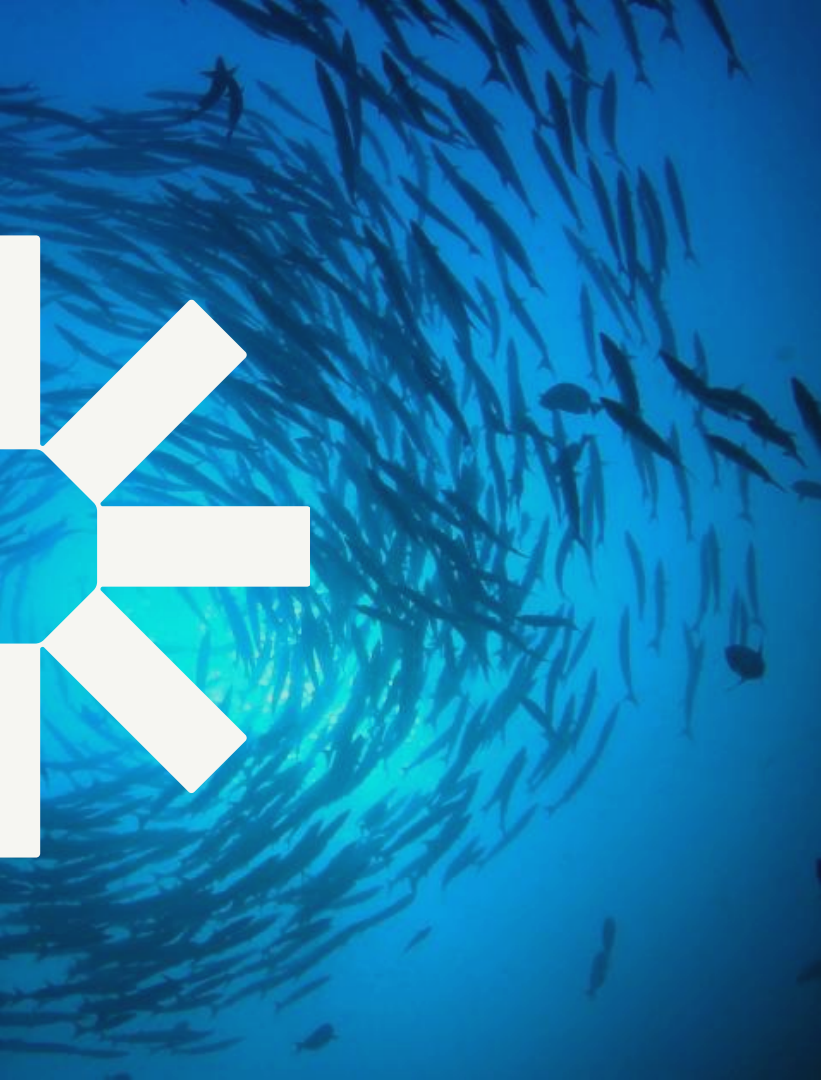




Environmental and Social Impact Assessment (ESIA) for the Venus Development (Offshore PEL0056/Block 2913B), Namibia

April 2026





Introductions

- TotalEnergies, QatarEnergy, Impact Oil & Gas and NAMCOR:
 - Joint Venture representatives
- SLR Environmental Consulting:
 - Environmental Assessment Practitioner





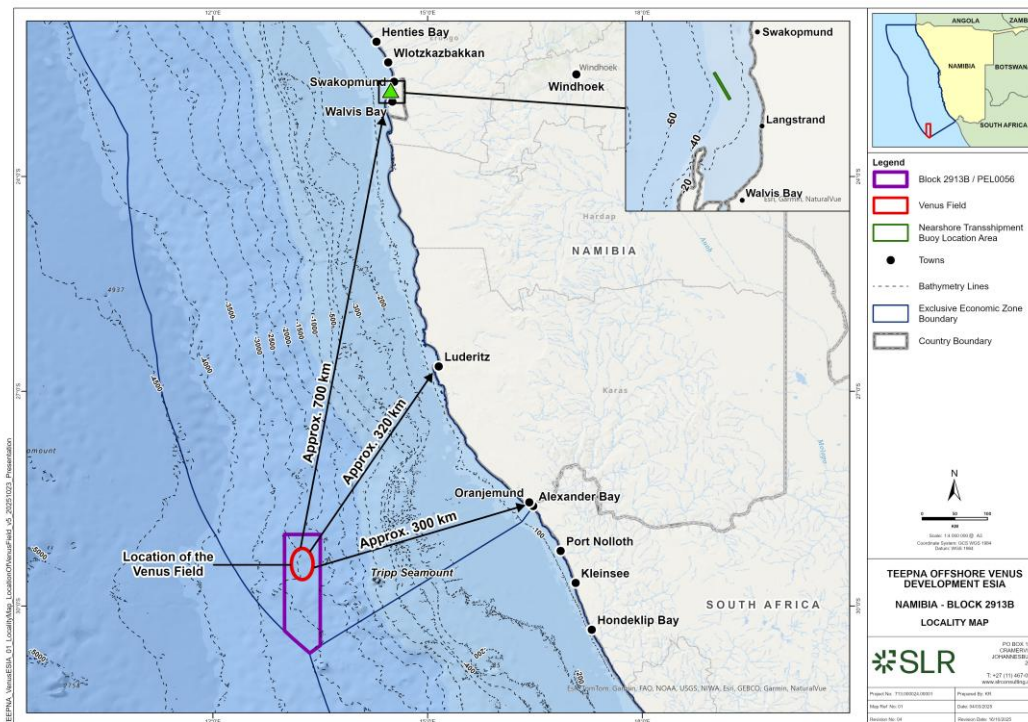
Project Overview



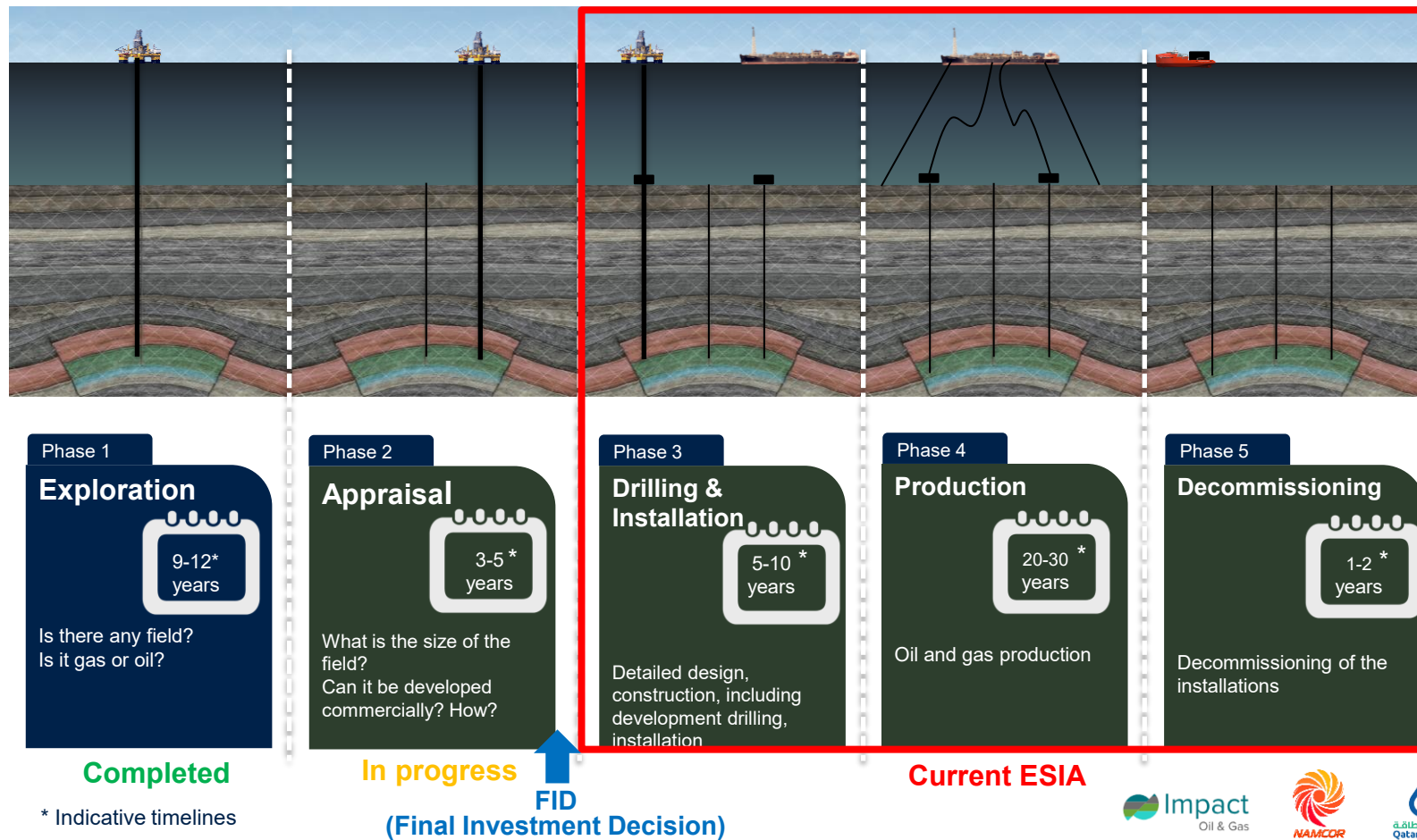


Background

- JV partners hold Petroleum Exploration License over PEL0056/Block 2913B
- Venus offshore project area within PEL0056/Block 2913B is far offshore:
 - 700 km from Walvis Bay
 - 320 km from Lüderitz
 - 300 km from Oranjemund
 - 3 000 m water depth
- Activity in Venus offshore area to date:
 - Seismic surveys
 - 3 wells drilled (2021 – 2024): discovery of light oil
 - Geophysical and geotechnical surveys conducted
- Proposed development:
 - To extract oil from the Venus field for commercialisation
 - Nearshore transshipment area
 - ~5 km from shore, ~20 km north of Walvis Bay
 - Water depth less than 40m

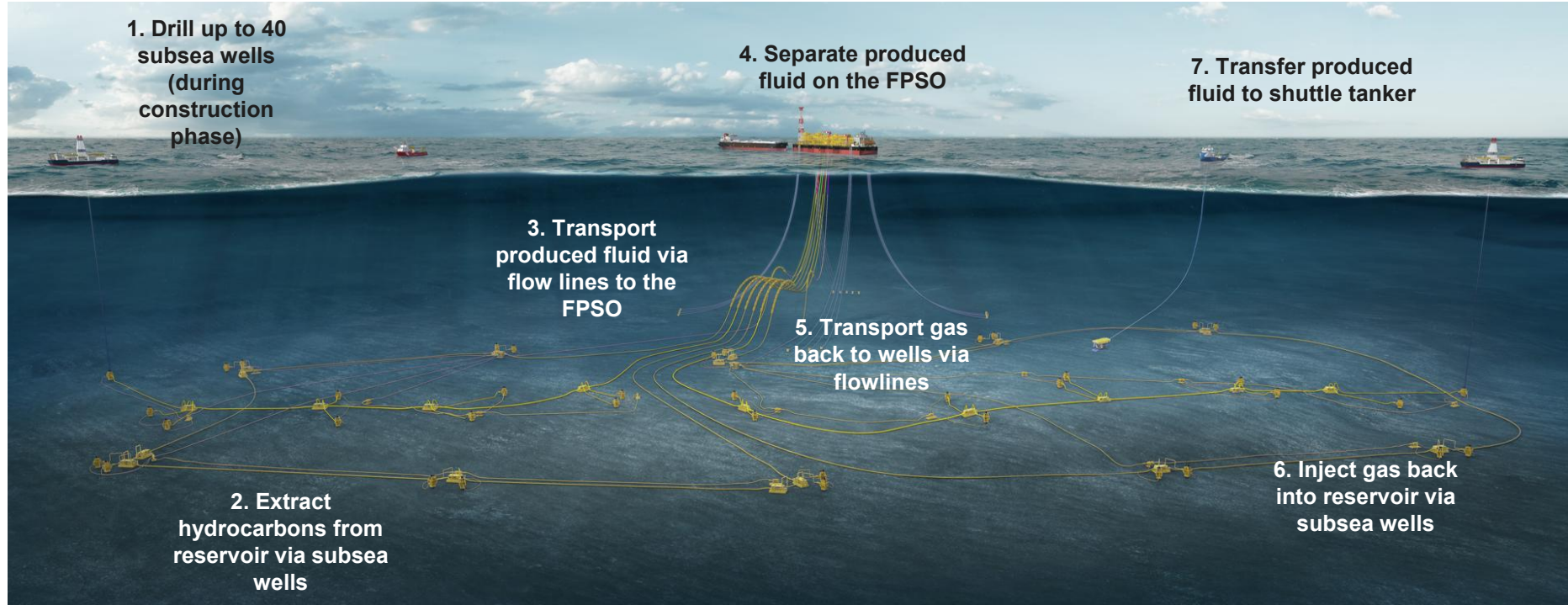


Oil & Gas Life Cycle





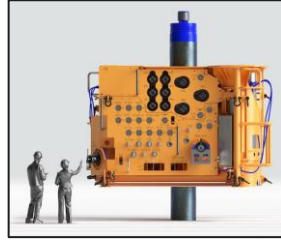
Concept of oil production at the offshore Venus Project Area ✨



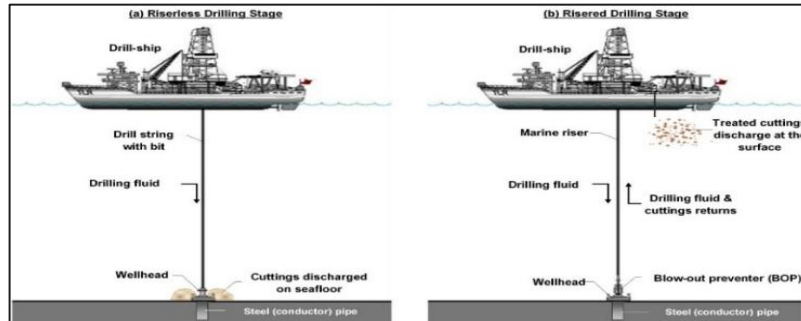
- This is a conceptual representation of the offshore production process

Drilling Phase

- Drill up to 40 subsea wells
 - Water depth: ~3 000 m
 - Half producing wells
 - Half gas injector wells
 - Reservoir at a depth of ~3 000 m below seabed
- Up to 3 drilling rigs
- Commence ~18 months after FID
- Planned to last for up to four years
- Logistics support (port base, support vessels, helicopters, plane)



Conceptual design of a Christmas tree and wellhead

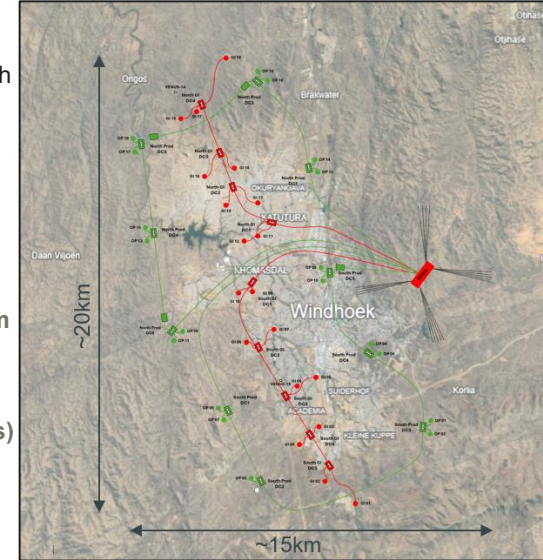


Drilling Stages

Installation Phase



- Installation of subsea infrastructure (flowlines, well heads, umbilicals, etc...) which will be used to connect the subsea wells to the FPSO:
 - Water depth: ~ 3 000 m
 - Subsea footprint: ~ 20 km x 15 km
 - Commence ~ 1 year from FID
 - During 2 austral summers (2 x ~6 months) – metocean condition constraints
- Logistics support (port base, support vessels, tugboats, helicopters, plane)

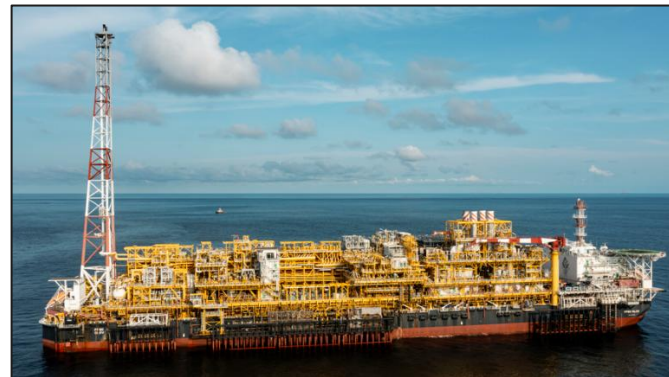


Tentative subsea layouts spatial comparison

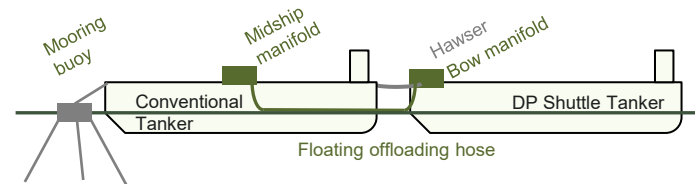


Production and Operation Phase

- Produce hydrocarbon from subsea wells to an FPSO (Floating Production Storage Offloading vessel), permanently moored at Venus offshore project area.
- Separate hydrocarbons on FPSO into
 - 1) gas → reinject,
 - 2) water → clean and release to sea,
 - 3) oil → store on FPSO
- Offload oil from FPSO to Dynamically Positioning Shuttle Tanker (DPST) followed by nearshore transshipment from DPST to Conventional Tanker (CT) for transport to final destination.
- **Production expected to last 20+ years**
- Logistics support (port base, support vessels, tugboats, helicopter)



Example of an FPSO



Example of nearshore transshipment



Decommissioning phase

- At end of field life
- Decommissioning plan in compliance with the Petroleum Act, 1991 and amended in 1998. A Decommissioning Trust Fund will be set up by the JV as per the law.
- Restoring the site as close as possible to its natural state following a planned rigorous Net Environmental Benefit Analysis (NEBA), e.g.:
 - Plugging the subsea wells
 - Removing subsea production structures like Christmas trees or Flow Lines End Termination (FLET)
 - Towing FPSO to specialized port for recycling
- Anticipating and developing a strategy to minimize social impact of decommissioning
- Logistics support (specific vessels or rigs, port base, support vessels, tugboats, helicopter)



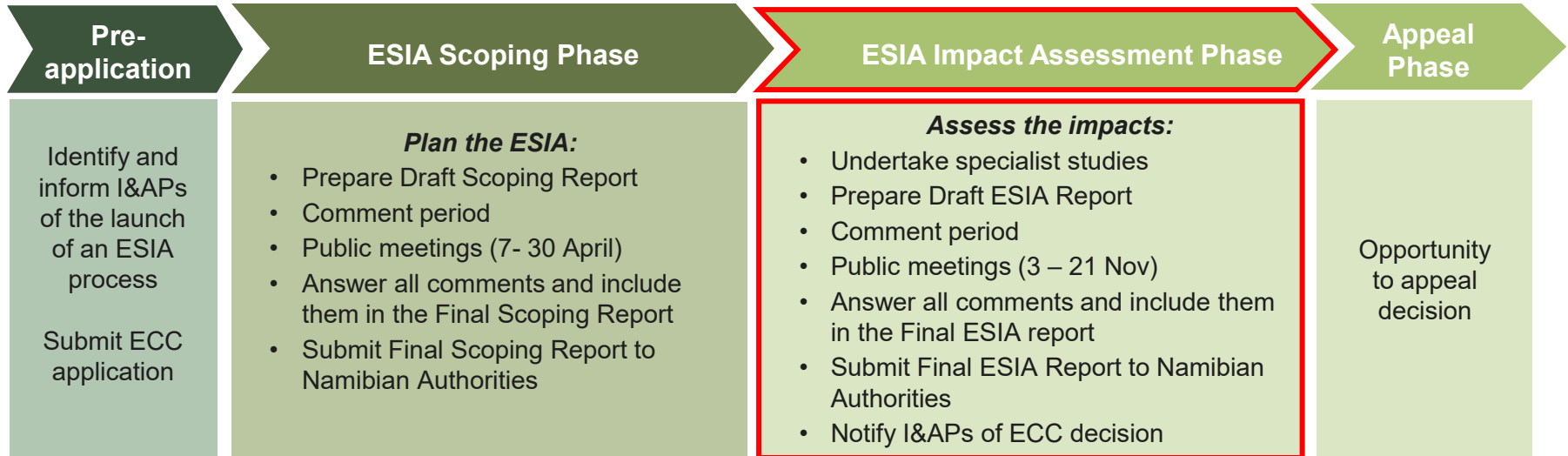
The ESIA Process



ESIA Process



- Oil production needs Environmental Clearance Certificate (ECC) from Namibian authorities
- ESIA process and timeframes are defined in the EIA Regulations 2012
- Approval of Scoping Report by MEFT on 7 August 2025
- Currently in the **Impact Assessment Phase**:
 - Undertaken specialist studies and investigated potential negative and positive impacts of the Project
- Final ESIA uploaded to MEFT Portal on 12 January 2026













Technical and Specialist Studies



Technical and Specialist Studies



Technical Modelling

- Underwater Noise
- Drilling Discharge
- Liquid Effluent Discharges
- Oil Spill Modelling
(unplanned event – if there was an oil spill)

Specialist Studies



Socio-Economic



Marine Ecology



Fisheries



Air Quality



GHG & Climate Change



Cultural Heritage



Waste Management

Decommissioning & Closure



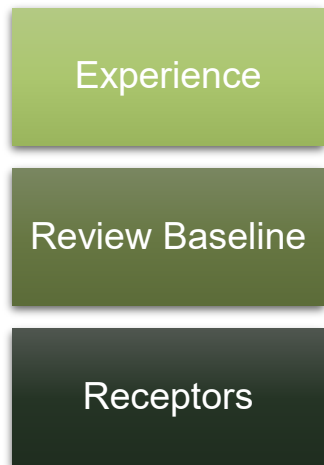
Impact Assessment Findings and Mitigation



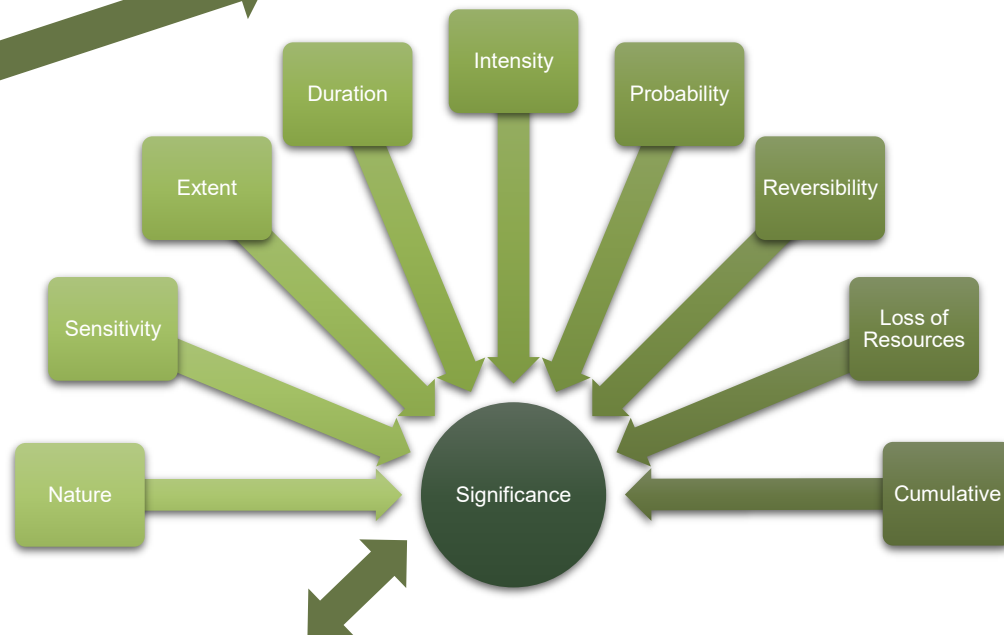


Potential Impacts

Impact Identification

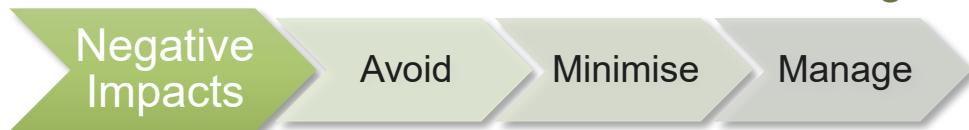


Impact Assessment



Significance
Very High +
High +
Medium +
Low +
Very Low +
Negligible
Very Low -
Low -
Medium -
High -
Very High -

Mitigation



MARINE ECOLOGY



Seabed Effects

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

NEGLECTABLE (SMOTHERING AND DISTURBANCE & ACUTE AND CHRONIC EFFECTS)

VERY LOW – (SMOTHERING AND DISTURBANCE & MODIFICATION)

Low -

Medium -

High -

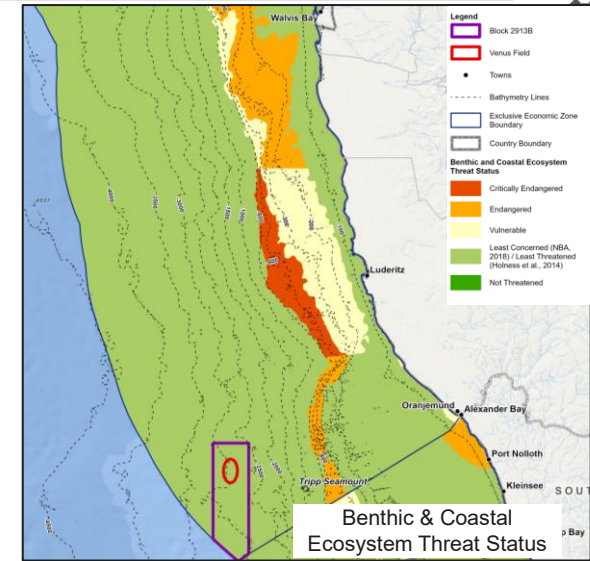
Very High -

IMPACT DESCRIPTION

- Sources: drilling discharge and muds, infrastructure placement
- 'Least Threatened' deep-water ecosystem
- Unconsolidated sediments and low-diversity benthic communities
- No hardgrounds
- Potential Impacts:
 - *Smothering and Disturbance of Benthic Fauna*
 - *Acute and Chronic Effects on Benthic Fauna*
 - *Modification of Benthic Habitat*

KEY MITIGATION

- Should a well site fall outside of geophysical survey area undertake complementary surveys prior to drilling and installation to identify objects, seafloor inconsistencies or structural features (e.g. colony forming corals, sponge fields).
- Optimise subsea infrastructure routing and operations (i.e. placement/design) to minimize potential disturbance of the seabed.



ROV Footage of seabed in Venus offshore project area

MARINE ECOLOGY



Water Column Effects: Acute and Chronic Effects on Pelagic and Demersal Fauna

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

Negligible

VERY LOW -

Low -

Medium -

High -

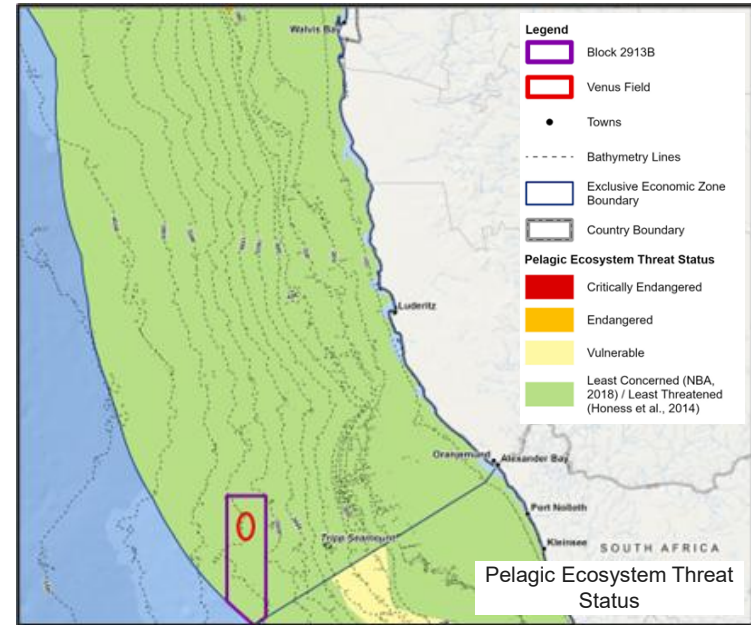
Very High -

IMPACT DESCRIPTION

- Sources: discharges of substances (drilling discharge, commissioning effluent and produced water)
- Most pelagic species (e.g. whales, dolphins, turtles, migratory fish) are highly mobile and can avoid affected areas.
- Presence of species like humpback whales, loggerhead turtles – still mobile

KEY MITIGATION

- Use of low-toxicity, biodegradable additives in drilling and production fluids.
- Treatment and monitoring of produced water to ensure oil content <15 mg/L.
- No routine discharges in nearshore transshipment zone.



MARINE ECOLOGY



Behavioural Effects

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

Negligible

VERY LOW – (TURTLES)

LOW – (MARINE MAMMALS, FISH & SEABIRDS)

Medium -

High -

Very High -

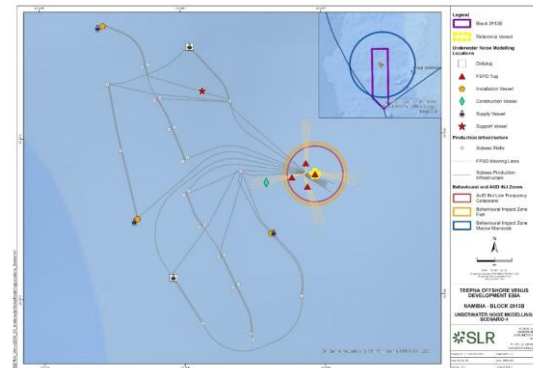
IMPACT DESCRIPTION

- Sources:
 - Underwater noise (e.g. Dynamic Positioning Systems, VSP)
 - Lighting
 - Helicopter noise
- Temporary, localized and reversible impacts
- Nearshore transshipment area – proximity to sensitive ecological zones (e.g. foraging and breeding areas, migration corridors and spawning grounds)

KEY MITIGATION

- Reduced lighting
- Soft-start procedures during VSP
- Helicopter flight path planning
- Reduce vessel power and duty cycle when using dynamic positioning systems.

Maximum behavioural impact zone to marine mammals (in blue) during drilling and installation activities (underwater noise modelling scenario UC-2).



Maximum behavioural impact zones during production phase (offshore transshipment operations) (underwater noise modelling scenario UP-1)



MARINE ECOLOGY

Physical and/or Physiological Injury Effects



FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

Negligible

VERY LOW – (FISH)

**LOW – (MARINE MAMMALS
&TURTLES)**

Medium -

High -

Very High -

IMPACT DESCRIPTION

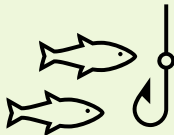


- Sources:
 - Underwater noise (e.g. Dynamic Positioning Systems, VSP)
 - Collision with vessels
 - Entrapment/entanglement with mooring lines and seawater abstraction systems
- Intermittent, localized and reversible impacts
- Vessel collisions and entanglement are greatest risks – but likelihood reduced

KEY MITIGATION

- “Soft-start” procedures
- Enforce vessel speeds
- Keep constant watch from all vessels
- Fit seawater intakes with grid system

FISHERIES



Impacts on Large Pelagic Longline, Linefish and SSF Sectors

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very low +

Negligible

VERY LOW -

Low -

Medium -

High -

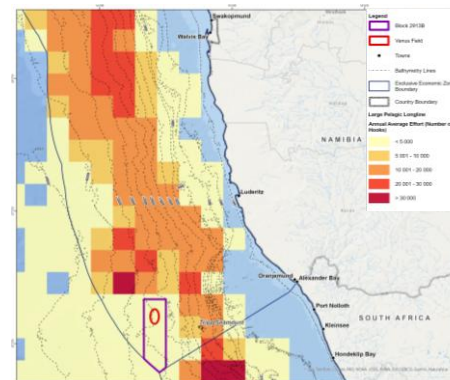
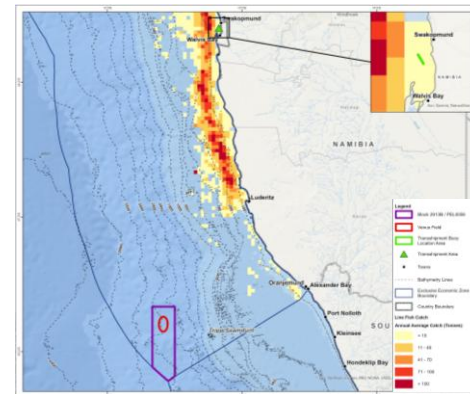
Very High -

IMPACT DESCRIPTION

- **Large Pelagic Longline:** Fishing effort may be slightly displaced due to safety zones but overlap with key grounds is minimal ($< 0.2\%$ of average annual effort within larger 16NM exclusion zone & $< 0.06\%$ in proposed 10NM maritime restricted area)
- **Linefish:** small restricted area and temporary noise may cause minor localized disturbance
- **Small-scale Fishing:** Minimal overlap with SSF grounds
- **Mariculture:** No overlap with current/ongoing mariculture activities

KEY MITIGATION

- Advance notifications to inform fishing stakeholders.
- Arrange for official maritime safety alerts (e.g., via Navtex or VHF Channel 16) to inform vessels of restricted areas
- Monitor vessel zones and alert fishing vessels approaching restricted areas.
- Maintain regular communication with fishing communities and authorities.
- Provide a clear process for stakeholders to raise concerns or complaints



SOCIO-ECONOMIC



Macro-Economic Benefits

FINAL SIGNIFICANCE

Very High +

HIGH +

Medium +

Low +

Very Low +

Negligible

Very Low -

Low -

Medium -

High -

Very High -

IMPACT DESCRIPTION



Contribution to GDP

- Adds ~**N\$ 536–800 billion** to GDP over **25 years**.
- Peak impact: GDP grows **11–16%** in **first production years**.
- Contribution **exceeds entire mining sector** during peak years.
- **Higher** contribution for **4–8 years**, then declines as **production tapers**.



Contribution to exports and trade balance

- **Current exports:** mainly diamonds, uranium, copper, zinc, fish products.
- Crude oil becomes a major export commodity.
- The produced crude oil will be sold by the JV partners on global markets, where prices fluctuate
- **Oil exports** value depends on volume and price - could be ~10% to 40% of Namibian export value (**~N\$ 593-888 billion over 25 years**)



Contribution to government revenue

- **Royalties, taxes and levies paid to government.**
- **Total Government Revenues** from oil production: **8 % - 14%** of total government revenue at peak (**~N\$ 127-229 billion over 25 years**).
- Revenue to **NAMCOR** through JV share.



Potential benefits from utilization of government revenue

- Options to use revenue:
 - **Spend:** social grants or public sector salaries
 - **Invest:** education, health, logistics
 - **Save:** sovereign wealth fund for the future



SOCIO-ECONOMIC



Social and Micro-economic Impacts

FINAL SIGNIFICANCE

Very High +

HIGH +

Medium +

Low +

Very Low +

Negligible

Very Low -

Low -

Medium -

High -

Very High -

IMPACT DESCRIPTION



Employment, income and skills development:

- Construction Phase: ~5 000 jobs (500 direct, 2 000 indirect, 2 500 induced).
- Production Phase: ~7 000 jobs (600 direct, 600 indirect, 5 800 induced).
- Local Content Policy and training programs.
- JV ongoing Commitments:
 - Contributes to Petrofund for Oil & Gas related scholarships.
 - Supports UNAM to develop relevant courses.
 - Provides on-the-job training; ~200 locals employed by Operator and contractors to support the offshore exploration & appraisal phase.

KEY ENHANCEMENT

- Create and promote a dedicated information portal
- Leverage local partners and government agencies-to help in disseminating information
- Support implementation of IBS recommendations
- Develop a project-level Local Content Policy
- Publish detailed job requirement guides
- Provide a dedicated platform to list available jobs

SOCIO-ECONOMIC



Social and Micro-economic Impacts

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

Negligible

**VERY LOW – (SHIPPING,
GOVERNANCE, FISHING INCOME)**

LOW – (H&S, TOWNS, DECOMM)

Medium -

High -

Very High -

IMPACT DESCRIPTION

- **Fishing income:** minimal overlap of safety zones with fishing / mariculture
- **Shipping traffic:** minimal effect of safety zones on shipping routes
- **Community health and safety:** Influx of job seekers and international crews can increase competition and social ills
- **Governance and conflict:** Risk of governance failures and conflict, but experience with resource extraction in Namibia
- **Coastal towns:** In-migration increasing demand for land/services
- **Decommissioning impact on income and livelihoods:** Declines and stops at project end

KEY MITIGATION

- Notify mariners via the Directorate of Maritime Affairs (DMA), update charts
- Implement Code of Conduct and train staff
- Implement Stakeholder Engagement Plan and Grievance Management Procedures
- Share project timelines with local authorities to support urban planning
- Ensure transparent reporting of Project payments to government
- Prepare and share decommissioning plan early, complying with Namibian labour laws



CULTURAL HERITAGE



Deterioration of Cultural Heritage Links to the Sea

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

NEGLECTIBLE

Very Low -

Low -

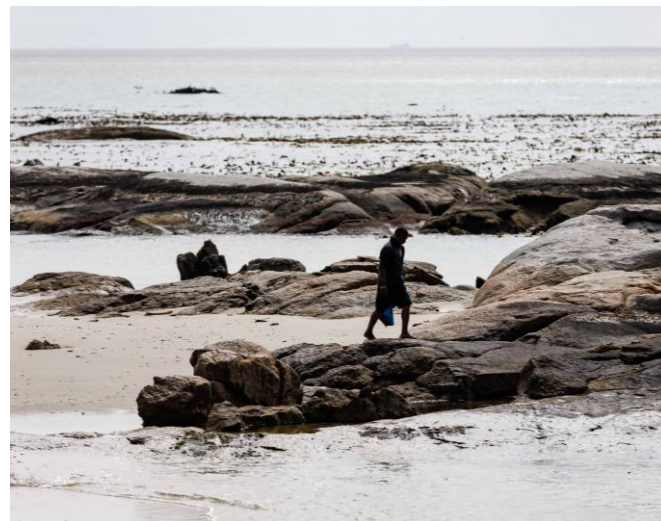
Medium -

High -

Very High -

IMPACT DESCRIPTION

- No tangible cultural heritage sites impacted by normal operations
- Most heritage sites / resources are located onshore, far from the sea
- Some cultural practices associated with the sea, most cultural links reported with onshore and coastal features and/or resources (i.e. not associated with oceanic waters)

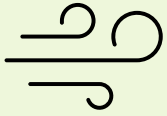


KEY MITIGATION

- Engage with key stakeholders through SEP
- Implement cultural heritage-related resolutions from stakeholder discussions
- Establish and communicate a grievance mechanism
- If historic shipwreck objects are discovered, notify the NHC immediately.



AIR QUALITY



Increase in Ambient
Air Pollutant
Concentrations

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

VERY LOW +

NEGLECTIBLE (OFFSHORE)

Very Low -

LOW – (NEARSHORE)

Medium -

High -

Very High -

IMPACT DESCRIPTION

- Offshore sources (negligible):
 - Vessel fuel use
 - Power generation
 - Non-Routine (i.e. safety reasons, start-up) Flaring
- Nearshore sources (low negative):
 - Vessel fuel use
 - Fugitive emissions during transshipment from DPST to Conventional Tanker
- Pollutants: SO₂, NO₂, CO, NMVOCs, Benzene, PM

KEY MITIGATION

- Use **low sulfur fuels** to reduce harmful emissions.
- **Maintain engines and equipment regularly** to keep them running efficiently and limit unnecessary emissions.
- **Detect and fix leaks early** through a Leak Detection and Repair (LDAR) programme.
- **Implement an air quality monitoring plan** to ensure impacts are minimized.



CLIMATE CHANGE

Greenhouse Gas (GHG) Emissions

FINAL SIGNIFICANCE

Very Low

Low

Medium Low

MEDIUM-HIGH

High

IMPACT DESCRIPTION

- Sources
 - Fuel combustion
 - Non-Routine Flaring and power generation
 - Fugitive emissions
 - Raw gas and oil combustion
- 530 913 tCO₂e per annum (*21-year production phase*)
- Namibia National Targets:
 - Reduce Namibia's net sink capacity by 0.6% on average during production.

European Bank for Reconstruction and Development (EBRD)

Benchmark thresholds (tCO ₂ e/a)	Significance rating
Negligible	Very low
< 20,000	Low
> 20,000 and < 100,000	Medium-low
> 100,000 and < 1 million	Medium-high
> 1 million	High

KEY MITIGATION

- Develop an **Energy and Carbon Management Plan** to improve energy efficiency and reduce methane and other emissions from operations.
- **Monitor and report** GHG emissions.
- **Engage regularly with stakeholders** (in line with SEP) to address climate-related concerns and expectations.





Unplanned Events

- Accidents or incidents are **rare, unlikely** and **not expected to happen as part of normal operations**
- **Measures** are in place to **actively prevent** them from happening
- Unplanned events assessed:
 - Major oil spill from a well blow-out at offshore area
 - Hydrocarbon spill at offshore
 - Gas injection line rupture at offshore area
 - Hydrocarbon spill at nearshore transshipment area

UNPLANNED EVENTS



Major oil spill from a well blow-out at offshore area

IMPACT DESCRIPTION



- Oil from a major blowout would move **north-west, away from the coast, and EBSA.**
- Modelling predicts **no oil reaches the shoreline** or affects coastal activities.
- Oil in/on water can **harm marine fauna** and **disrupt fishing.**
- Fisheries Overlap:
 - High-likelihood zone (90%): overlaps 0.13% of **large pelagic longline fisheries.**
 - Low-likelihood zone (1%): overlaps ~15% of **pelagic longline/tuna pole/deep-water trawl** and ~2% of **demersal fisheries.**
- Marine ecology most affected** in a major blowout scenario.

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

VERY LOW +

**NEGLECTABLE (INTANGIBLE
CULTURAL HERITAGE & AIR
QUALITY + HEALTH)**

**VERY LOW – (FISHING
LIVELIHOODS)**

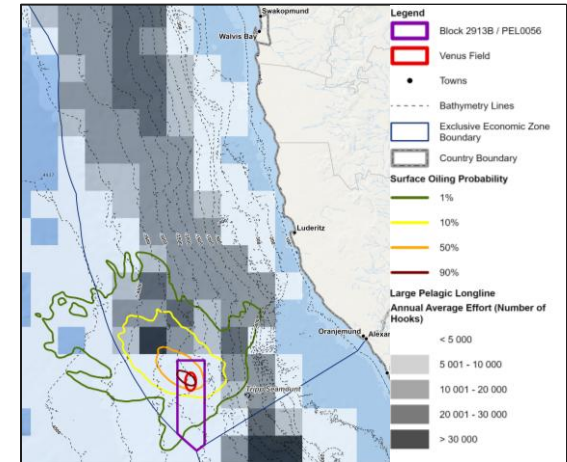
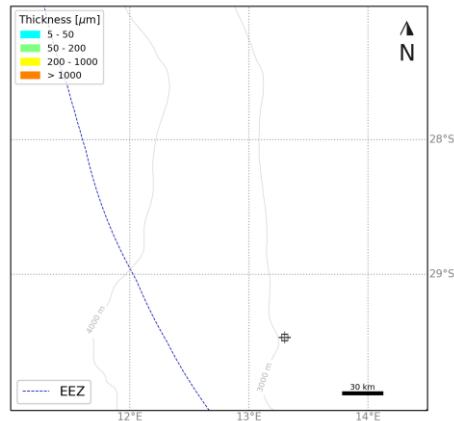
Low –

**MEDIUM – (FISHERIES /
MARICULTURE)**

High –

VERY HIGH – (MARINE ECOLOGY)

TOTAL NAMIBIA VENUS | L1 - Offshore
DETERMINISTIC MODE | Crude Oil
Season 1
Time of Simulation: 1h



Crude oil spill probability and large pelagic longline fishing effort



Hydrocarbon spill at offshore project area

IMPACT DESCRIPTION

- Hydrocarbon **spill area is much smaller** than a well blowout.
- No key fishing overlap:
 - High-likelihood zone (90%): **no overlap with key fishing grounds.**
 - Low-likelihood zone (1%): overlaps ~1.4% of **large pelagic longline** fisheries.
- Hydrocarbon in/on water can harm marine fauna and disrupt fishing.
- Marine ecology most affected** in this scenario, though spatial extent is limited.

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

VERY LOW +

NEGLECTABLE (INTANGIBLE CULTURAL HERITAGE & AIR QUALITY + HEALTH)

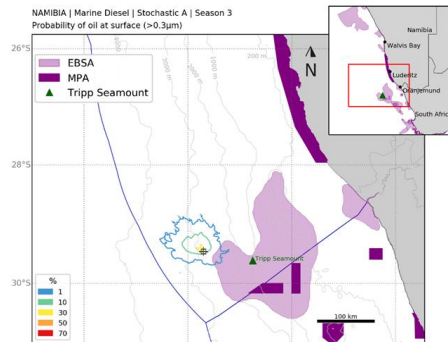
VERY LOW – (FISHING LIVELIHOODS)

LOW – (FISHERIES / MARICULTURE)

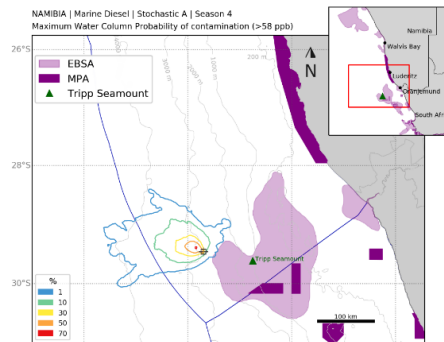
MEDIUM – (MARINE ECOLOGY)

High -

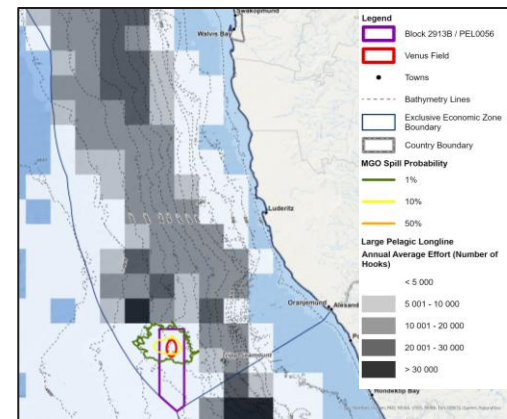
Very High -



Probability of oil at surface (> 0.3 µm)

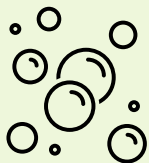


Probability of water column contamination (> 58 ppb)



Marine diesel spill probability and large pelagic longline fishing effort

UNPLANNED EVENTS



Gas injection line rupture at offshore area

IMPACT DESCRIPTION

- Gas plume in water can affect marine fauna and fishing activities.
- Based on release point and short-term dispersion (to NW and W), impacts are minimal, restricted to vicinity of leakage (local)
- No significant overlap with sensitive habitats or key fisheries expected.

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

Very Low +

Negligible

VERY LOW – (MARINE ECOLOGY)

LOW – (FISHERIES / MARICULTURE)

Medium –

High -

Very High –

UNPLANNED EVENTS



Hydrocarbon spill at
nearshore
transshipment area

FINAL SIGNIFICANCE

Very High +

High +

Medium +

Low +

VERY LOW +

NEGLIGIBLE (AIR QUALITY +
HEALTH)

VERY LOW – (INTANGIBLE
CULTURAL HERITAGE)

Low –

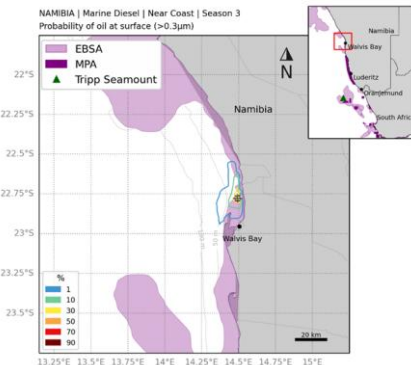
MEDIUM – (FISHING + TOURISM
LIVELIHOODS)

HIGH - (FISHERIES / MARICULTURE)

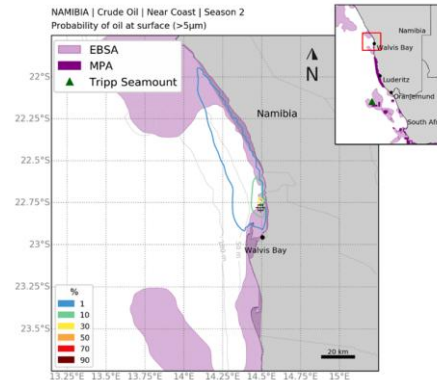
VERY HIGH – (MARINE ECOLOGY)

IMPACT DESCRIPTION

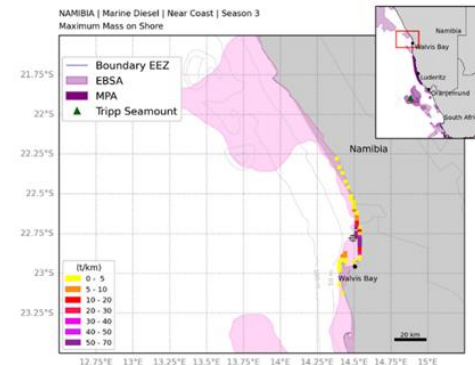
- Oil/diesel could reach **shore in ~2 hours**, affecting **~263 km north** and **~26 km south of Walvis Bay**
- Oil slick** may extend **up to ~100 km**, evaporating in ~1 day, but residues can persist in the water column.
- Coastal/pelagic seabirds, fish, turtles, and cetaceans** are highly vulnerable to hydrocarbons.
- Fisheries and mariculture**: Temporary closures; SSF livelihoods affected.
- Tourism**: Coastal activities and income **temporarily depressed**.
- Overlap with **Linefish Areas**: Only **~3% affected**.
- Transshipment area near to location where imported liquid petroleum products are transferred.



Probability of Marine Diesel at surface
(> 0.3 µm)



Probability of crude oil at surface
(> 5 µm)



Shoreline oiling from nearshore spill



Key Mitigations



■ Planning and Preparedness:

- Develop and maintain Oil Spill Contingency Plans (OSCP/BOCP) aligned with national plans.
- Conduct oil spill modelling updates, risk assessments, and regular response exercises.
- Secure an insurance policy (by the Operator), including coverage for third party liability.

■ Prevention and Risk Reduction:

- Define operating limits for bunkering and transshipment; use breakaway couplings.
- Prefer marine gas oil (MGO) over heavy fuel oil; maintain bunded areas and drip trays.
- Apply pipeline integrity measures: corrosion control, inspections.

■ Response and Control:

- Mobilize spill response equipment (booms, skimmers, dispersants) and support vessels.
- Use low-toxicity dispersants only with authority approval.
- Implement wildlife response plans and protocols for oiled fauna.

■ Restoration and Compensation:

- Collect and rehabilitate oiled wildlife.
- Follow IPIECA-IOGP guidelines for economic assessment and compensation.



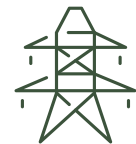
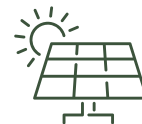
Need and Desirability

Why is this project necessary?



Need and Desirability

- Oil and gas remain important for industry and energy demand (even with fast growth of renewables)
- Namibia's policies aim to:
 - Ensure there is enough affordable energy now and later
 - Grow the economy and develop the country sustainably
 - Use natural resources, including oil and gas, to drive economic growth
 - Reduce greenhouse gas emissions over time
- Decision on development and production includes consideration of:
 - Need for economic growth
 - Potential impacts and risks associated with the proposed project
 - Current national strategic policies and the transition to net zero carbon (e.g. Namibia's National Energy Policy; NDP; National Policy on Climate Change; NDC 2023)
- Alignment to above considerations:
 - Petroleum development aligns with national plans (e.g., NDP6)
 - Energy diversification is desirable given global uncertainties
 - GHG emissions are the main negative impact, but global oil demand would persist even without the project.
- Overall:
 - The project type is compatible with key needs and desires identified in policy
 - Benefits expected from the project are highly significant and respond to needs and desires identified in policy
 - Negative impacts can be mitigated to tolerable levels





Questions and Discussion





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