Fact Sheet: Environment

The Anchor Energy LNG terminal (AELNG) and the Nseleni Independent Floating Powered Plant (NIFPP), a large combined cycle power plant, is a project to be established near the sensitive natural environments within the port precincts of Richards Bay. As such the project requires careful and adaptive management during planning, construction and ultimately when in operation.

It has been found that effective management of the environmental risks is entirely possible, but the environmental management needs to be proactive and transparent in order that circumstances which may detract from the overall objectives are identified early on, and resolved with immediate and appropriate corrective action.

The Environmental Management Programme (EMPr) developed and approved by the Department of Forestry, Fisheries and the Environment (DFFE) for the NIFPP, has been structured in order to meet this objective. Full implementation of the EMPr is essential in order to ensure that the project is implemented in a manner that leads to protection – and indeed enhanced protection – of the sensitive environmental elements in the Richards Bay harbour.

Changes made to minimise impact on the environment

Major changes and adjustments were made to the design of the AELNG terminal and NIFPP project during the environmental impact assessment (EIA) process. All of these changes were made in order to achieve the least adverse impact on the environmental sensitivities in and around the Richards Bay harbour.

Mangroves, the Kabeljous Flats and the sandspit which runs in an east-west direction to the north of the Kabeljous Flats, were among the important environmental sensitivities that had to be taken into consideration during the four-year long EIA process. The Kabeljous Flats form an important estuarine and marine species breeding area, while the sandspit provides habitat for birds, including migratory species.

Applications

Two applications were submitted to the DFFE as the Competent Authority (CA): one for the LNG storage infrastructure and one for the power generation infrastructure.

With approval from the CA, one combined EIA was conducted for both applications to reduce the administrative burden for the authorities, facilitate stakeholder review of the documentation and assess the cumulative impacts of the combined facilities.

Siting

The complexity of the operational harbour required taking cognizance of the port operations, turning circles for large vessels, associated safety zones and future development. The siting of the proposed NIFPP had to take both environmental sensitivities and port operations requirements into account. Some five different sites within the port were assessed, but only one met the requirements of not materially impacting on either sensitive environments or port operations.

Air quality

Since Richards Bay is heavily industrialised, air quality impacts had to be assessed together with noise, terrestrial biodiversity, estuarine systems, socio-economic impact, climate change and emergency preparedness. Two key issues emerged from the EIA, namely the impact of the power evacuation bridge on the Kabeljous Flats and mangroves; and potential impacts on migratory bird species which are protected by the Bonn Convention.

The Bridge

Several iterations of the power evacuation bridge were considered until it was finally positioned north of the Kabeljous Flats and sensitive estuarine areas. The power island was also straightened and one of the finger jetties removed, precluding the need for piling in that area. The net effect was to significantly reduce potential impacts. The design changes are also consistent with the mitigation hierarchy which is based on preventing – or avoiding – impacts rather than mitigating palliatively.

Mangroves

Potential impacts on mangroves were avoided by running the power evacuation pipe and cabling bridge north of the main mangrove stand and on an elevated structure above the smaller mangrove cluster canopies, using a construction method that does not require a cutline through any mangroves.

Sandspit

For the sandspit, the estuarine specialists were initially concerned that noise from the NIFPP would disturb birds utilising the sandspit to the point where the birds would potentially abandon the sandspit. The specialists also described the sandspit habitat as irreplaceable to the extent that impacts to the sandspit could not be offset.

Noise

Attention then turned to reducing the noise from the power barges and several methods for noise abatement on the power barges were investigated. Most importantly, the specialists were pressed to define a noise damage threshold so that the barge designs could meet such a threshold. UK-based estuarine bird specialists were commissioned to define such a noise damage threshold. They immediately moderated the noise impact indicating instead that the movement of people (construction workers and operational personnel) would be far more disturbing to birds in triggering flight responses.

Dredging

An estimated 346 000 m^3 of sediment, comprising mainly silt, will be dredged from the area east of the sandspit. This material will be disposed of at the existing approved offshore dredging disposal site. The dredging will result in some loss of benthic habitat, but this would be temporary (due to recolonisation by fauna post dredging) and restricted to the dredged area. In addition, the dredging zone is characterised by relatively low species diversity and habitat quality.

Mitigation

Prescribed mitigation is to visually separate people and their movement on the marine jetties in order to minimise any alarm signals which may be detected by the birds on the sandspit.

A full year of avifauna monitoring was conducted in order to characterise the bird species utilising the sand spit and their behaviour, which allowed for flight paths to be defined. The flight paths showed that a larger gap was needed between the Floating Storage Units (FSUs) and the Power Island to avoid possibly invading the flight path airspace and potentially minimising access to the sandspit. The FSUs were subsequently relocated southwards by some 200 m in order to provide for this larger gap.



Anchor Energy LNG has committed to protecting the sandspit and its ecological function throughout the construction and operation of the NIFPP and to the using of adaptive environmental management based on scientific monitoring and analysis. Anchor Energy has undertaken to establish an independent environmental monitoring committee of stakeholders and technical experts to oversee the efficacy of the adaptive environmental management function.

Other key mitigations are: -

Maintaining a realistic heat balance. The waste heat from the turbines will consequently be used to augment the energy needed for regasification, thereby avoiding the creation of any thermal plumes in the estuary as a consequence of discharging cold effluent water back into the estuary;

Noise attenuation across the project;

Use of Gas Insulated Lines (GIL) for electricity transmission in favour of overhead transmission lines thus alleviating electromagnetic fields associated therewith and eliminating potential bird strike risk.

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