

Golden Beach Energy Storage Project

Offshore Geotechnical Investigations – Identified Risks

Environmental Hazards

As part of the EP submission, GB Energy has identified the potential impacts and risks to the environment that may result from the geotechnical investigations. A summary of these is included on the following pages.

PLANNED EVENTS		
Hazard	Impact	Key control measures
Seabed disturbance	<ul style="list-style-type: none"> Localised turbidity of the water column Localised variations to the seabed 	<ul style="list-style-type: none"> Damage to rocky reef habitat will be avoided by including detailed bathymetric mapping into the vessel navigation system and marking it for avoidance. Only low toxicity, biodegradable and non-bioaccumulating water-based muds and additives will be used during the coring process. Vessel will only anchor in emergency situations.
Air emissions	<ul style="list-style-type: none"> Temporary & localised decrease in air quality 	<ul style="list-style-type: none"> Vessel will comply with MARPOL 73/78 requirements, including using low-sulphur (<0.5% m/m) marine diesel. Combustion equipment will be well maintained.
Lighting (direct/ambient) emissions	<ul style="list-style-type: none"> Temporary & localised attraction of light sensitive fauna Visual impact from shoreline 	<ul style="list-style-type: none"> Light glow is minimised by managing external vessel lighting in accordance with AMSA Marine Orders Part 30 (Prevention of Collisions) and AMSA Marine Orders Part 59 (Offshore Support Vessel Operations). Lighting is managed in accordance with relevant aspects of the National Light Pollution Guidelines for Wildlife.
Underwater sound from dynamic positioning	<ul style="list-style-type: none"> Behavioural effects on sound-sensitive fauna (e.g., whales, some fish) 	<ul style="list-style-type: none"> Vessel thrusters will be well maintained. Activity will not be undertaken concurrently with local recreational fishing competitions.
Discharge of treated sewage and grey water	<ul style="list-style-type: none"> Temporary and localised reduction in water quality 	<ul style="list-style-type: none"> Engines and associated equipment that require cooling by water will be maintained in accordance with the vessel maintenance system so that they are operating within accepted parameters. Only low-toxicity chemicals are used in the cooling and brine water systems.

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PLANNED EVENTS (cont'd...)		
Hazard	Impact	Key control measures
Discharge of cooling water and reverse osmosis (brine)	<ul style="list-style-type: none"> Temporary and localised elevation in sea surface water temperature and salinity levels 	<ul style="list-style-type: none"> Engines and associated equipment that require cooling by water will be maintained in accordance with the vessel maintenance system so that they are operating within accepted parameters. Only low-toxicity chemicals are used in the cooling and brine water systems.
Discharge of putrescible waste (food scraps)	<ul style="list-style-type: none"> Temporary and localised increase in nutrient content of surface waters Associated increase in scavenging behaviour or marine fauna and seabirds 	<ul style="list-style-type: none"> Food scraps will be managed in line with the vessel Garbage Management Plan, and either returned to shore for disposal or discharged overboard only when the vessel is >3 nm from shore and after waste has been macerate to <25 mm in line with MARPOL Annex V requirements.
Discharge of contaminated bilge water and deck drainage	<ul style="list-style-type: none"> Temporary and localised reduction in surface water quality around discharge point Toxicity to marine fauna 	<ul style="list-style-type: none"> For vessels >400 gross tonnes (likely to be the case for the geotechnical vessel): Bilge water will pass through a MARPOL-compliant oily water system (OWS) set to 15 parts per million oil-in-water limit. Residual oil will be pumped to tanks for onshore disposal. Deck cleaning detergents will be biodegradable. Hydrocarbon and chemical storage areas will be bunded to drain to bilge tank. Vessel crew will be trained and competent in spill response. Spill response kits will be available onboard.
Displacement of marine users	<ul style="list-style-type: none"> Localised exclusion (500-m radius around vessel) from fishing grounds. 	<ul style="list-style-type: none"> Advanced notice will be provided to local communities about the activity. A Notice to Mariners will be issued in advance of the activity.

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UNPLANNED EVENTS		
Hazard	Impact	Controls
Accidental overboard release of hazardous and/or non-hazardous waste from the vessels.	<ul style="list-style-type: none"> Marine pollution (litter and a temporary and localised reduction in water quality). Injury and entanglement of individual animals (such as seabirds and seals) and smothering or pollution of benthic habitats. 	<ul style="list-style-type: none"> Vessel will implement a vessel-specific Garbage Management Plan, including measures such as: <ul style="list-style-type: none"> Vessel crew and visitors will be inducted into the waste management procedures. A waste manifest will be maintained. Solid waste that is accidentally discharged overboard is recovered if reasonably practicable. Large bulky objects are securely fastened to the deck. Lifting equipment is maintained in certification.
Introduction of invasive marine species from the vessel hull and/or ballast water discharge.	<ul style="list-style-type: none"> Reduction in native marine species diversity and abundance. Socio-economic impacts on commercial fisheries. Reduction of conservation values of protected areas. 	<ul style="list-style-type: none"> A vessel contractor pre-qualification is undertaken to ensure vessel biofouling and ballast water controls meet EP requirements. <p><u>Biofouling</u></p> <ul style="list-style-type: none"> Vessels are managed in accordance with the National Biofouling Management Guidance for the Petroleum Production and Exploration Industry. Vessel >400 gross tonnes carries a current International Anti-fouling System (IAFS) Certificate and is compliant with and Marine Order Part 98 (Anti-fouling Systems). Submersible equipment will be cleaned (e.g., fouling is removed) prior to initial use in the activity area. <p><u>Ballast water</u></p> <ul style="list-style-type: none"> Vessel will fulfil the requirements of the Australian Ballast Water Management Requirements.
Vessel strike with marine fauna (whales, dolphins, seals).	Injury or death of individual animals.	<ul style="list-style-type: none"> The Australian National Guidelines for Whale and Dolphin Watching (2017) will be implemented, which means: <ul style="list-style-type: none"> Caution zone (300 m either side of whales and 150 m either side of dolphins) – vessel will operate at no wake speed in this zone. No approach zone (100 m either side of whales and 50 m either side of dolphins) – vessel will not enter this zone and should not wait in front of the direction of travel or an animal or pod/group. Do not encourage bow riding, if animals are bow riding, do not change course or speed suddenly. If there is a need to stop, reduce speed gradually. Vessel crew will complete an environmental induction covering the above-listed requirements for vessel and megafauna interactions.

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UNPLANNED EVENTS (cont'd...)		
Hazard	Impact	Key control measures
Interference with third-party vessels.	<ul style="list-style-type: none"> • Damage to or loss of fishing equipment and loss of commercial fish catches. • Vessel-to-vessel collision. 	<ul style="list-style-type: none"> • GB Energy will undertake pre-activity consultation with fishing stakeholders to ensure that commercial fishers are aware of the activity operations, timing and safety exclusion zone requirements. • The Australian Hydrographic Office will be notified of the activity no less than four weeks prior to the activity commencing to enable the promulgation of Notice to Mariners and AusCoast navigational warnings. • The vessel will be readily identifiable to third-party vessels. • Visual and radar watch is maintained on the bridge of the vessel at all times. • The Vessel Master and deck officers have a valid SCTW certificate in accordance with AMSA Marine Order 70 (seafarer certification) (or equivalent) to operate radio equipment to warn of potential third-party spatial conflicts. • The Vessel Master will issue warnings (e.g., radio warning, flares, lights/horns) to third-party vessels approaching the safety exclusion zone in order to prevent a collision with the vessel/s or equipment. • The vessel will display the appropriate lights and day shapes for a vessel with restricted ability to manoeuvre during operations when geotechnical equipment is deployed.
Diesel release due to a vessel-to-vessel collision or grounding.	<ul style="list-style-type: none"> • Temporary and localised reduction in water quality. • Tainting of commercial fisheries species. • Injury and death of species such as seabirds and turtles. • Pathological effects on fish larvae and plankton. 	<ul style="list-style-type: none"> • As per 'displacement of or interference with third-party vessels', plus: <i>Preparedness:</i> • No refuelling will take place on location. • The vessels have an approved SMPEP (or equivalent appropriate to class) that is implemented in the event of a fuel tank rupture and spill. • Vessel crew will be trained in spill response techniques in accordance with the SMPEP and vessel training matrix. • Within 4 weeks prior to each vessel contractor commencing the activity, a desktop oil spill response exercise will be conducted to test interfaces between the SMPEP, OPEP, NatPlan and VicPlan.