



TotalEnergies EP South Africa B.V.

**ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT (ESIA) FOR THE OFFSHORE
PRODUCTION RIGHT AND ENVIRONMENTAL
AUTHORISATION APPLICATIONS FOR BLOCK
11B/12B - REF NO: 12/4/13 PR**

Draft Environmental and Social Impact
Assessment Report



CHAPTER 11



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Draft Environmental and Social Impact Assessment Report

PUBLIC

PROJECT NO. 41105306

OUR REF. NO. REPORT NO: 41105306-358669-10

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11 CUMULATIVE IMPACT ASSESSMENT

The EIA Regulations, 2014 require the consideration of the “cumulative impact”, which includes the ‘reasonably foreseeable future impact of an activity’. Cumulative impacts must be considered when assessing the risk and potential impacts of a particular project. Cumulative impacts are those resulting from the incremental effects of a proposed project when added to present, and reasonably foreseeable future actions, regardless of who undertakes them. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time.

This Chapter considers the cumulative effects that could arise from a combination of the Block 11B/12B Project effects.

Section 11.1 provides a brief overview of historic oil and gas activities in South Africa, to indicate the extent of exploration and development that has taken place in the oil and gas sector.

Based on a review of existing and planned projects within reasonable proximity and/or coincident with the Project, as well as inputs received from I&APs during the Scoping Phase PPP, the existing and approved activities outlined in Section 11.2 have been identified and assessed from a cumulative impact perspective.

In addition, where possible, at a high level, the assessment has included projects which are not yet consented but are in the public domain (Section 11.3). These projects have been referred to as proposed projects and have been included in this Chapter for completeness.

11.1 HISTORIC OIL AND GAS ACTIVITIES

Several oil and gas exploration and production areas exist along the South African coast, including the Orange River Mouth (Orange Basin) offshore the west coast; the south coast (including Bredasdorp, the Outeniqua, the Gamtoos and Algoa Basins) and another two off the east coast (Durban and Zululand Basins). Within these basins, various Licence Blocks have been allocated by DMRE to national and multinational oil and gas companies. Drilling has been conducted in some of the blocks and in others it is still proposed, but the timing of these is unknown.

The Bredasdorp Basin on the Agulhas Bank has been the focus of most oil and gas exploration and drilling activity since 1980, with the development of the Oribi, Oryx and Sable oil fields and F-O gas fields, approximately 120 km south-west of Mossel Bay. Block 9 is located the north-west of Block 11B/12B.

In the entire South African offshore area, there are approximately 358 exploration, appraisal and production wells that have already been drilled; most (56%) of these have been drilled off the South Coast on the Agulhas Bank in relatively shallow waters (less than 250 m water depth).

The Block 11B/12B Project will be the first deep sea production well offshore South Africa⁵¹. Figure 11-1, accessed from the PASA geoportal (in June 2023), geographically presents the location of drilled wells within the various resource basins. This map includes TEEPSA’s Brulpadda – 1AX exploration well.

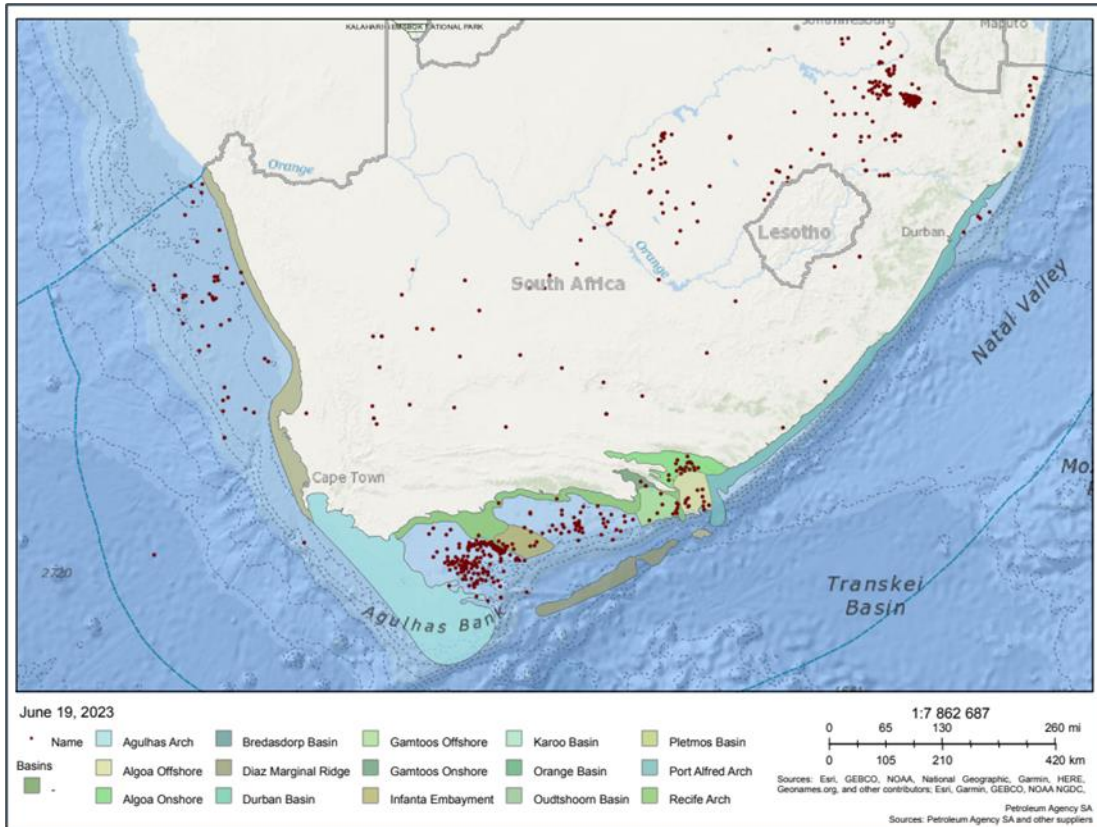


Figure 11-1 - Location of Exploration, Appraisal and Production Well Activities in South Africa

11.2 EXISTING AND APPROVED INFRASTRUCTURE

Table 11-1 provides a list of existing and approved infrastructure and identifies, at a high-level, their potential impacts which, combined with the TEEPSA Block 11B/12B Project effects could potentially result in cumulative impacts.

⁵¹ Note: the first deep sea wells were drilled by TEEPSA in Brulpadda and Luiperd in 2019 and 2020 as part of the Block 11B/12B exploration programme

Table 11-1 – Existing and Approved Infrastructure Within Reasonable Proximity to the Project

Infrastructure	Description	Status	Potential Cumulative Impact			
			Physical	Biological	Social	Economic
Gourikwa Power Station, Mossel Bay	740 MW open cycle gas turbine power station commissioned in 2007. The PetroSA GTL facility supplies the fuel, which is diesel, via a pipeline.	Existing	<ul style="list-style-type: none"> Effect on air quality/GHG emissions 			<ul style="list-style-type: none"> Use of gas would reduce the running costs in replacing diesel as feedstock for the turbines
Re-commissioning of PetroSA F-A Platform operations, to process and transport gas from TEEPSA Block 11B/12B, 85 km offshore south of Mossel Bay	Should a commercial agreement be reached between TEEPSA and PetroSA and the relevant authorisations are obtained, the F-A Platform and associated infrastructure will be used to process and transport the gas and condensates to the onshore GTL facility in Mossel Bay. Some upgrades and modifications to the FA-platform may be required.	Existing (in care and maintenance since November 2020)	<ul style="list-style-type: none"> Effect on air quality/GHG emissions 	<ul style="list-style-type: none"> Impacts on marine ecology, fisheries, ecologically sensitive areas due light pollution and routine discharges 	<ul style="list-style-type: none"> Increased marine traffic from Mossel Bay port Permanent maritime safety zones impacting on fishing industry Influx into IZol resulting on pressure on public infrastructure and services Household livelihood impacts in terms of job creation Vulnerable group impacts in terms of job creation Negative impacts on intangible cultural heritage, and coastal tourism 	<ul style="list-style-type: none"> Beneficial economic impacts linked to spending on local goods, services and labour Reduction on tourism in coastal zone
TEEPSA Exploration drilling in Block 5/6/7, offshore of the South-West Coast	Exploration in Block 5/6/7 located offshore the southwest coast of South Africa, between Cape Town and Cape Agulhas. Since the first granting of the Exploration Right, two seismic surveys have been undertaken in the Block. Based on the analysis of acquired seismic data, it is proposed that one exploration well is drilled and, depending on success, up to four additional wells in total within the Area of Interest within the Block (i.e. up to five wells in total).	Approved - EA issued on 17 April 2023 and is valid for two years	<ul style="list-style-type: none"> No cumulative impacts anticipated as the Block 5/6/7 activities are too distant from Block 11B/12B and the exploration well drilling activities are unlikely to coincide with the production well drilling and construction phases of Block 11B/12B. 			



11.3 PROPOSED PROJECTS

There are several known applications for infrastructure projects within the Block 11B/12B Area of Influence, including exploration and PR applications. These projects are at various phases of approval and, as such, their implementation is not confirmed.

Where an application has not been approved, the impacts have not been formally assessed as part of this cumulative assessment. However, known project are presented in Table 11-2, for consideration by the CA.

Table 11-2 – Proposed Project Within Reasonable Proximity to the Project

Infrastructure	Description	Status	Potential Cumulative Impact			
			Physical	Biological	Social	Economic
PetroSA Offshore Bypass Pipelines	PetroSA proposes to modify the existing Single-Point Mooring (SPM) subsea bundle by installing two new ~1.4 km steel pipelines on the seabed, parallel to the existing housing structure. The pipelines will terminate in a new Pipeline End Manifold seabed structure and be tied into the existing SPM buoy (to be repositioned) and the existing operating bundle. The pipelines will be launched to sea from the pipeline assembly site at PetroSA's Tank Farm	Proposed – Awaiting decision on final Basic Assessment Report (BAR) submitted in May 2023	<ul style="list-style-type: none"> Increased underwater noise levels due to vessel transit and pipeline construction activities 	<ul style="list-style-type: none"> Impacts on marine ecology due to disturbance to seabed New subsea infrastructure colonised by sessile marine life 	<ul style="list-style-type: none"> Maritime safety zone around pipeline excluding fishing activities Security measures around tank farm 	<ul style="list-style-type: none"> Beneficial economic impacts linked to spending on local goods, services and labour
CGG Services SAS (CGG) Proposed speculative 3D seismic survey in the Algoa/Outeniqua Basin, off the south-east coast of South Africa	Proposed 3D survey covering an area of up to 9000 km ² in a 12 750 km ² area of interest located offshore between Gqeberha in the east and a point approximately 120 km southeast of Plettenberg Bay in the west. A portion of the area of interest overlaps with the eastern section of Block 11B/12B (see Figure 11-1).	Proposed – Awaiting decision on final BAR submitted in July 2023	<ul style="list-style-type: none"> Increase in underwater noise levels over large area 	<ul style="list-style-type: none"> Impacts on marine megafauna and fish and turtles due to increase in underwater noise levels 	<ul style="list-style-type: none"> Maritime safety zone around survey area excluding fishing activities 	<ul style="list-style-type: none"> Limited beneficial economic impacts linked to spending on local goods, services and labour
Karpowership – 450MW Gas to Power Powership Project at the Port of Ngqura, within the Coega SEZ, Eastern Cape	Proposed Gas to Power Powership Project at the Port of Ngqura, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape.	Proposed - DFFE refused EA on 7 March 2023. Appeal process underway	<ul style="list-style-type: none"> Effect on air quality/GHG emissions Increase vehicle traffic on roads for LNG collection and delivery Increased ambient noise levels due to operations 	<ul style="list-style-type: none"> Impacts on marine ecology and marine protected areas 	<ul style="list-style-type: none"> Negative impacts on landscape and seascape 	<ul style="list-style-type: none"> Improved security of electricity supply Beneficial economic impacts linked to spending on local goods, services and labour
The Coega Development Corporation gas to power project, including three power plants and associated infrastructure, within the Coega Special Economic Zone (SEZ), and Port of Ngqura, 20 km northeast of Gqeberha	<p>Proposed LNG terminal, consisting of a berth with off-loading arms within the Port of Ngqura, cryogenic pipelines, storage and handling facilities and re-gasification modules (both on and off-shore).</p> <p>Proposed LNG Infrastructure, floating storage regasification unit, gas pipelines and distribution hub, for the transmission, distribution and reticulation of natural gas within the Coega SEZ and Port of Ngqura.</p> <p>Proposed three Gas to Power plants, each with a 1 000 MW generation capacity (specific generation technologies may vary).</p> <p>Proposed electricity transmission connecting powerlines to evacuate distribute electricity to the previously approved 400 kV lines in the SEZ.</p>	Proposed - No EA secured to date	<ul style="list-style-type: none"> Effect on air quality/GHG emissions Increased ambient noise levels due to operations 	<ul style="list-style-type: none"> Increase vessel traffic to the port for regular deliveries of LNG 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> Beneficial socio-economic impacts linked to spending on local goods, services and labour Negative impact on coastal tourism

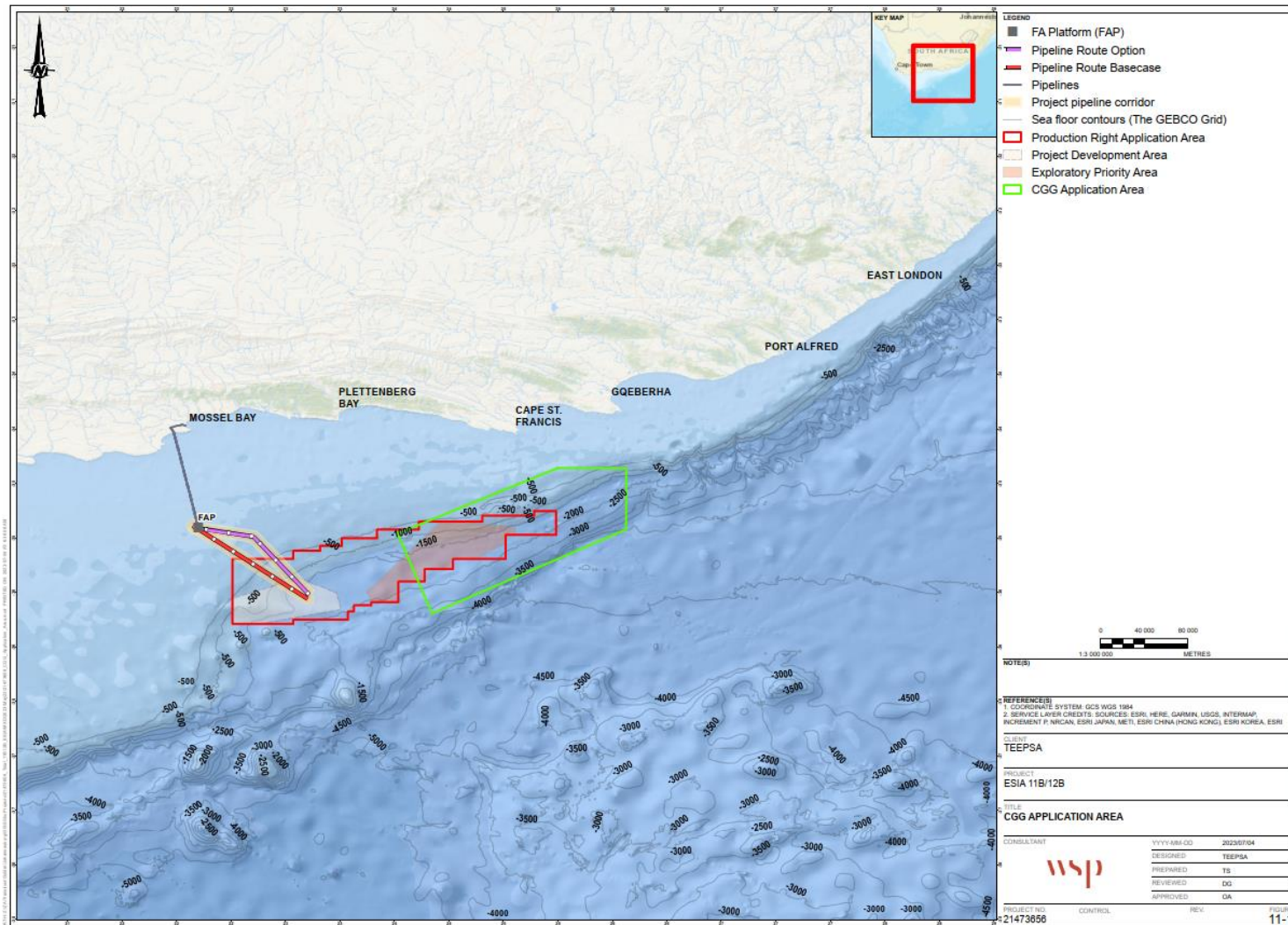


Figure 11-2 - Overlap of the Block 11B/12B and CGG application areas

11.4 CUMULATIVE IMPACT ASSESSMENT

Of all the developments that have been identified as proposed or authorised, the following have potential for cumulative impacts to occur with Block 11B/12B:

- The proposed 3D seismic survey covering an area of up to 9 000 km² in a 12 750 km² area of interest located offshore between Gqeberha in the east and a point approximately 120 km southeast of Plettenberg Bay in the west. A portion of the area of interest overlaps with the eastern section of Block 11B/12B and there is potential for cumulative impacts in terms of underwater noise generated by the seismic survey activities coinciding with the exploration well drilling activities undertaken in the Exploratory Priority Area of Block 11B/12B.
- The PetroSA F-A Platform – if the Platform is re-commissioned, the timing of these activities may coincide with the activities of the Block 11B/12B drilling and construction phases. Although Block 11B/12B is approximately 40 km to the south of the F-A Platform, there is potential for cumulative impacts due to a decrease in air quality and a simultaneous increase in carbon emissions resulting from the greater number of vessels manoeuvring within and around the Project Development Area and the F-A Platform; and
- Karpowership Gas to Power Powership Project – with the commencement of the 450MW Gas to Power Powership Project at the Port of Ngqura, within the Coega Special Economic Zone in the Eastern Cape, the potential exists for cumulative impacts such as a decrease in air quality and a simultaneous increase in carbon emissions due to the Block 11B/12B 25-year production phase coinciding with the proposed 20-year contract for electricity generation from the Gas to Power Powership Project.

Other Project impacts that may contribute to cumulative impacts as a result of activities undertaken during Well Drilling, Construction, Production Operations and Decommissioning include.

- Cumulative marine environmental impacts emanating from the Project are related to the overlap with various other sources of anthropogenic disturbance in the vicinity of the Project activities, under normal operating conditions. Potential cumulative impacts therefore include increases in anthropogenic noise, disturbance of the seabed through discharges of drilling material, loss of seabed habitat with the placement of subsea infrastructure (both pipeline routing options), and an increase in the number of vessels and aircraft in the vicinity of the project.
- Construction related safety zones associated with the Project may impact on fisheries operating within Block 11B/12B and the pipeline corridors, especially Large Pelagics and Squid fisheries. While the CGG Project is underway and fisheries are excluded from the area where seismic survey activities are taking place, at the same time as drilling and construction works in Block 11B/12B, disruption to fisheries in terms of access to fishing grounds could be extensive.
- With reference to existing and approved infrastructure within reasonable proximity to the Project, most notably the re-commissioning of the PetroSA F-A Platform operations, the cumulative economic impacts are considered to be a significant impact to the economy of the IZol, in terms of spending on local goods, services and labour, hereby translating to an increased economic output and GDP; increased employment opportunities and household income.



- Given the number of active offshore oil and gas exploration and production areas along the South African south coast, the cumulative impacts thereof will also entail the overall strengthening of the development of the local oil and gas sector servicing economy in the IZol, thereby increasing the skills base in the region for those in the industry over the long term. The Project, in addition to those approved and proposed projects in the oil and gas sectors has potential to reinvigorate the industry. In this regard, the cumulative impact is considered a significant impact.



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