SEPTEMBER 2021

BACKGROUND INFORMATION DOCUMENT

FOR THE PROPOSED OFFSHORE FLOATING STORAGE AND REGASIFICATION UNITS (FSRU) MOORED WITHIN ST HELENA BAY AND SALDANHA BAY WITH A CONNECTING GAS PIPELINE NETWORK, LOCATED IN THE SALDANHA BAY LOCAL MUNICIPALITY, WEST COAST DISTRICT MUNICIPALITY, WESTERN CAPE PROVINCE

Short name: **FSRU'S & GAS PIPELINE**

Hierdie dokument is op aanvraag in Afrikaans beskikbaar

Compiled for:	Specific Project section
ARA ENERGY (PTY) LTD	ARA GAS PIPELINE NETWORK
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LIST OF ACRONYMS AND ABBREVIATIONS

BID	Background Information Document
CBA	Critical Biodiversity Areas
DFFE	National Department of Forestry, Fishery and Environment,
DEA	National Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EXIGENT	Exigent Engineering Consultants cc
FSRU	Floating Storage & Regasification Unit
I&APs	Interested and Affected Parties
LNG	Liquefied Natural Gas
NEMA	National Environmental Management Act (No. 107 of 1998)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008)
NEMPAA	National Environmental Management: Protected Areas Act (Act 57 of 2003)
NG	Natural Gas
NWA	National Water Act (No. 36 of 1998)
NFEPA	National Freshwater Ecosystems Priority Areas
PPP	Public Participation Process
SACAD	South Africa Conservation Areas Database
SAPAD	South Africa Protected Areas Database
SEMA	Specific Environmental Management Act

1. INTRODUCTION

In view of the growing electricity demand and the aim to use viable energy resources, **Sagitta Energy Pty Ltd, Cepheus Energy Pty Ltd & ARA Energy Pty Ltd** are assessing the feasibility of a **FSRU and gas pipeline network** within the Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province.

Exigent Engineering Consultants cc (hereafter referred to as Exigent) have been appointed by Sagitta Energy Pty Ltd, Cepheus Energy Pty Ltd & ARA Energy Pty Ltd as the Environmental Assessment Practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) for the proposed project

Natural Gas (NG) will be transported through a **gas pipeline network** from two **Floating Storage and Regasification Units (FSRU's)**, permanently moored at Saint Helena Bay and within the Port of Saldanha Bay, to:

a) the planned Vortum and Auriga Thermal Power Plants; and/or
b) to potential end-users at the Saldanha Bay and Besaansklip industrial areas; and/or
c) at the Port of Saldanha Bay and/or St Helena Bay, for refuelling, bunkering and other uses.

Please note that the two FSRUs & connecting pipeline, proposed at Saint Helena Bay and within the Port of Saldanha Bay, will be assessed in a single Environmental Impact Assessment process as approved by the DFFE. The report will be split into various chapters dealing with the specific project components.

This report has been compiled to provide the National Department of Forestry, Fisheries and Environment (DFFE) background information to the project prior to the submission of the Application Form for Environmental Authorisation. The aim is to identify the key features and possible impacts associated to the relevant location, as well as to provide insights to the applicable legislation.

2. PROJECT DESCRIPTION

St Helena Bay FSRU: The FSRU will be permanently moored within the St. Helena Bay, approximately 10 km off the town of Velddrif and the settlements of Dwarskersbos and St. Helena Bay, at a depth of approx. 20 m below the mean sea level (msl).

Saldanha Bay FSRU: The FSRU will be permanently moored within the Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province at a depth of approx. -20 m below the mean sea level (msl).

Ara Pipeline: Liquefied Natural Gas (LNG), at the temperature below -162 ˚C and under near atmospheric pressure, will be delivered to the FSRU's by LNG carriers. The FSRU's will store the LNG within their cryogenic tanks and then will re-gassify the LNG to natural gas (NG).

This FSRU's will provide NG to the following areas:

- Vortum Thermal Power Plant (Environmental Authorisation No. 14/12/16/3/3/2/827) and/or Auriga Thermal Power Plant (Environmental Authorisation process ongoing), both planned on Portion 6 of the Farm LANGEBERG 188, Malmesbury RD, and/or
- to the industrial areas of Saldanha, St Helena Bay and Besaansklip and/or
- to industrial customers within the Port of Saldanha Bay and/or St Helena Bay.

Three subsea gas pipeline alternative routes to each FSRU have been identified, and differs between 10.0 km, to 11.3 km subsea, depending on the location of the FSRU and the proposed land access point.

The **Gas Pipeline Network** will be located within the Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province. The gas pipeline may also cross limited farm portions located on the Bergrivier Local Municipality (Alternative Study Corridor 3).

According to the preliminary location of the FSRU's and to the pipeline study corridors selected during the feasibility study, the gas pipeline network will be approximately **62 km in length**, with the first corridors offshore (subsea) from the FSRU's, then onshore (underground) for the remaining pipeline length. A right-of-way (servitude) with a width of 8.0 m (to-be-confirmed and assessed during the scoping and EIA phase) will be established before the construction and installation of the pipeline.

According to the preliminary location of the FSRU's and to the pipeline study corridors selected during the feasibility study, the gas pipeline will be offshore (subsea) and onshore as follows:

Table 1. Gas pipeline route details

Location	Alternative Corridor 1 Length (km)	Alternative Corridor 2 Length (km)	Alternative Corridor 3 Length (km)
Saldanha Bay (subsea)	6.1	7.0	7.9
Saldanha Bay to St Helena Bay (onshore)	33.8	35.4	36.2
Deviation to the Vortum and Auriga Thermal Power Plant (onshore)	7.3	7.3	7.3
St Helena Bay (subsea)	11.3	10.0	10.6
Overall length	**58.5**	**59.7**	**62.0**

The characteristics, the technology and the extent of the initiative are defined more in detail in this document.

3. PROJECT LOCATION

The FSRU's and the undersea gas pipeline will be located within the St Helena Bay and Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province. The gas pipeline may also cross selected farm portions located on the Bergrivier Local Municipality (Alternative Study Corridor 3).

Please find attached, as **Annexures A , B and C**, the Locality Maps.

4. PURPOSE OF THIS DOCUMENT

The main purposes of this background information document are:

- To provide information about the proposed project
- To explain the EIA process
- To provide an opportunity for participation in the EIA process

This document also indicates how you can receive information, or raise issues, which may be of concern and/or interest for I&AP's.

The sharing of information forms the basis of the public participation process and offers you the opportunity to become actively involved in the project from the outset.

Public participation plays an important role in the undertaking of an EIA process, as input from I&AP's ensures all potential issues are considered within the study.

5. KEY FEATURES OF THE PROPOSED PROJECT

5.1 Project description

The **FSRU** is a special vessel equipped with the following main components:

- **Cryogenic steel tanks**, with an overall storage capacity **up to 263,000 m³** designed to safely storage and handle the Liquefied Natural Gas (LNG) at a temperature of -162 ˚C under near atmospheric pressure, in order minimize the storage hazard if compared with pressurised storage tanks. The volume of natural gas as liquid form is 160 times smaller than natural gas as gaseous form.

- **Re-gasification units**, designed to re-gasify the LNG by means of heat exchangers, in order to vaporize the LNG as natural gas (NG). Vaporizers may be operated as:
  - **Closed-loop mode:** steam from the FSRU boilers is used to heat fresh water circulated through the shell-and-tube vaporizers in the regasification plant. This results in minimal usage of sea water;
  - **Open-loop mode:** sea water is drawn in through the FSRU's sea chests. This warm seawater is used as a heat source and passed through the shell of the shell-and-tube vaporizers, causing the vaporization of the LNG. During this process, the temperature of the sea water is lowered by approximately 7 ˚C.

- **Gas Compressors**, in order to pump the natural gas into the gas pipeline at high pressure (typically 75 bar, up to 120 bar). The design and operation pressure of the gas pipeline will be assessed and confirmed during the scoping and EIA phase).

- **Mooring system**: the FSRU will be moored offshore Saint Helena, at depth of -20 m below the mean sea level, by means of a **turret-mooring system**, which consists of a turret lattice assembly, integrated into the vessel, permanently fixed to the seabed by means of an array of anchor legs. The turret system contains a bearing system that allows the vessel to rotate, enabling it to select a favorable heading for the environment.

- **LNG loading and NG unloading system**: from the LNG carriers, LNG will be transferred to the FSRU using a **tandem loading system** from the bow of the LNG carrier to the stern of the FSRU, via flexible cryogenic hoses. Tandem mooring allows LNG loading operations up to 5.5 m waves, while natural gas unloading operations are allowed up to 12.5 m waves.

Table 2. FSRU details

FSRU specifications	Value (preliminary)
Type of vessel	floating storage and regasification unit
Cryogenic tanks storage capacity	up to 263,000 m³ of LNG

Maximum daily re-gasification capacity	up to 23,000,000 Sm^3/day of NG
Maximum annual re-gasification capacity	up to 8.4 bcma (billion Sm^3 per annum)
Tonnage	up to 170,000 Gross Tonnage (GT)
Length	up to 350 m
Beam	up to 60 m
Draft	up to 12 m

5.2 St Helena Bay

The St Helena FSRU will be permanently moored in the **southern sector of St. Helena Bay**, between Baboon point and the Berg River mouth, approximately 10 km off the town of Velddrif and the settlements of Dwarskersbos and St. Helena Bay, at a depth of approx. -20 m below the mean sea level (msl). This location will be further discussed and evaluated during the scoping and the EIA phase.

Please find attached, as **Annexure A** the **Locality Map** showing the proposed location for the mooring of the **St Helena Bay FSRU**, as well as the study area to be evaluated during the Scoping and EIA phases of the EIA process.

The proposed gas pipeline may cross through any of the following properties:

From the FSRU at St. Helena Bay up to the Vortum/Auriga Thermal Power Plants project site:

- Remainder of the Farm PATRYSENBERG 43 (Alternative Corridors 1 and possible 2)
- Portion 4 of the Farm PATRYSENBERG 43 (Alternative Corridors 1 and possible 2)
- Portion 7 (Remaining Extent) of the Farm PATRYSENBERG 43 (Alternative Corridors 1 and possible 2)
- Portion 8 of the Farm PATRYSENBERG 43 (Alternative Corridor 1)
- Portion 20 of the Farm PATRYSENBERG 43 (Alternative Corridor 1)
- Portion 10 of the Farm PATRYSENBERG 43 (Alternative Corridors 1 and possible 2)
- Portion 15 of the Farm PATRYSENBERG 43 (Alternative Corridors 1 and possible 2)
- Farm PATRYSENBERG 42 (Alternative Corridor 1)
- Remainder farm LANGE KLIP 47 (Alternative Corridor 1)
- Portion 1 of FARM 90 (Alternative Corridor 3)
- Remainder of the Farm WILDE VARKENS VLEI 48 (Alternative Corridors 2 and 3)
- Portion 1 of the Farm WILDE VARKENS VLEI 48 (Alternative Corridors 2 and 3)
- Remainder Farm VLAMINKE VLEI 54 (Alternative Corridor 3)
- Portion 1 of the Farm VLAMINKE VLEI 54 (Alternative Corridors 2 and 3)
- Portion 2 of the Farm VLAMINKE VLEI 54 (Alternative Corridor 3)
- Portion 5 of the Farm VLAMINKE VLEI 54 (Alternative Corridor 3)
- Portion 1 (Remaining Extent) of the FARM 59 (Alternative Corridors 2 and 3)
- Portion 4 of the FARM 59 (Alternative possible Corridor 3)
- Portion 2 of the FARM 59 (Alternative possible Corridor 3)
- Portion 1 of the Farm OLIPHANTS KRAAL 61 (Alternative Corridor 3)
- Portion 4 of the Farm OLIPHANTS KRAAL 61 (Alternative Corridor 2)
- Portion 1 (Remaining Extent) of the Farm KLEINEBERG 87 (Alternative Corridors 1, 2 and 3)
- Portion 5 of the Farm KLEINEBERG 87 (Alternative Corridor 1)
- Portion 6 of the Farm KLEINEBERG 87 (Alternative Corridors 1 and 2)
- FARM 88 (Alternative Corridor 1)
- Remainder of the Farm NIEUWE RUST 89 (Alternative Corridors 1, possible 2 and 3)

- Portion 1 of the Farm NIEUWE RUST 89 (Alternative Corridors 1, possible 2 and 3)
- Portion 2 of the Farm NIEUWE RUST 89 (Alternative Corridor 2)
- Farm ANNEX NOOITGEDACHT 93 (Alternative Corridors 1 and possible 2)
- Portion 2 of the Farm SCHOUWTONEEL 94 (Alternative possible Corridor 2)
- Portion 4 of the Farm SCHOUWTONEEL 94 (Alternative possible Corridor 2)
- Portion 6 of the Farm SCHOUWTONEEL 94 (Alternative possible Corridor 2)
- Remainder of the Farm EENZAAMHEID 135 (Alternative Corridors 1, 2, 3)
- Portion 2 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Portion 3 (Remaining Extent) of the Farm EENZAAMHEID 135 (Alternative Corridors 1, 2, 3)
- Portion 6 of the Farm EENZAAMHEID 135 (Alternative Corridors 1, 2, 3)
- Portion 7 of the Farm EENZAAMHEID 135 (Alternative Corridors 1, 2, 3)
- Portion 14 of the Farm EENZAAMHEID 135 (Alternative Corridors 1, 2, 3)
- Portion 15 of the Farm EENZAAMHEID 135 (Alternative Corridors 2)
- Portion 20 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Remainder of Portion 21 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Remainder of Portion 22 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Remainder of Portion 23 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Portion 27 of the Farm EENZAAMHEID 135 (Alternative possible Corridors 1, 2, 3)
- Portion 26 of the Farm EENZAAMHEID 135 (Alternative possible Corridors 1, 2, 3)
- Portion 29 of the Farm EENZAAMHEID 135 (Alternative possible Corridors 1, 2, 3)
- Portion 39 of the Farm EENZAAMHEID 135 (Alternative possible Corridors 1, 2, 3)
- Portion 40 of the Farm EENZAAMHEID 135 (Alternative Corridors 1, 2, 3)
- Portion 43 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Portion 47 of the Farm EENZAAMHEID 135 (Alternative Corridors 1, possible 2, 3)
- Portion 48 of the Farm EENZAAMHEID 135 (Alternative Corridor 2)
- Portion 49 of the Farm EENZAAMHEID 135 (Alternative possible Corridors 1, 2, 3)
- Portion 50 of the Farm EENZAAMHEID 135 (Alternative possible Corridors 1, 2, 3)
- Portion 78 of the Farm EENZAAMHEID 135 (Alternative possible Corridor 2)
- Portion 2 of the Farm KONINGS VLEI 138 (Alternative Corridors 1, 2 and 3)
- Portion 6 of the Farm LANGEBERG 188 (Alternative Corridors 1, 2, 3) (ending point: project site of the Vortum Thermal Power Plant)
- Remainder of the Farm LANGEBERG 188 (Alternative possible Corridors 1, 2, 3)
- Remainder of the FARM 1026 (Alternative possible Corridor 2)
- Portion 1 of the FARM 1026 (Alternative Corridor 2)
- Portion 2 of the FARM 1026 (Alternative Corridor 2)
- Remainder of the FARM 1043 (Alternative Corridors 1, 2, 3)
- FARM 1196 (Alternative Corridor 3)
- St Helena Bay Erf 462 (Alternative Corridor1)
- St Helena Bay Erf 55 (Alternative Corridor1)
- St Helena Bay Erf 56 (Alternative Corridor1)
- St Helena Bay Erf Re/82 (Alternative Corridor1)
- St Helena Bay Erf 608 (Alternative Corridor1)
- St Helena Bay Erf 609 (Alternative Corridor1)
- St Helena Bay Erf 346 (Alternative Corridor 2)
- St Helena Bay Erf 344 (Alternative Corridor 2)
- St Helena Bay Erf 81 (Alternative Corridor 2)
- Vredenburg Erf 15345 (Alternative Corridors 1, 2 and 3) See Ptn 23 of Farm 135
- Vredenburg Erf 16466 (Alternative Corridors 1, 2 and 3) See Ptn 22 of farm 135

5.3 Saldanha Bay

The FSRU will be permanently moored within the Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province at a depth of approx. -20 m below the mean sea level (msl).

From the project site of the Vortum/Auriga Thermal Power Plants up to the Port of Saldanha Bay and to the Industrial Area of Saldanha Bay:

- FARM 1185 (Alternative Corridors 1 and 2)
- FARM 196 (Alternative Corridors 1, 2 and 3)
- Portion 12 of the farm PIENAARS POORT 197 (Alternative Corridor 3)
- Portion 7 of the farm PIENAARS POORT 197 (Alternative Corridor 1)
- Portion 8 of the farm PIENAARS POORT 197 (Alternative Corridors 1 and 2)
- Portion 14 of the farm PIENAARS POORT 197 (Alternative Corridor 1)
- Portion 15 of the farm PIENAARS POORT 197 (Alternative Corridors 1, 2 and 3)
- Portion 16 of the farm PIENAARS POORT 197 (Alternative Corridors 1, 2 and 3)
- Remainder Portion 3 of the farm PIENAARS POORT 197 (Alternative Corridors 1, 2 and 3)
- Portion 1 of the FARM 1139 (Alternative Corridors 2 and 3)
- Remainder of the FARM 1139 (Alternative Corridors 1, 2 and 3)
- Portion 3 of FARM 1112 (Alternative Corridors 1, 2 and 3)
- Remainder of FARM 1112 (Alternative Corridors 1, 2 and 3)
- FARM 1239 (Alternative Corridor 1)
- Portion 9 of the farm YZERVARKENSRUG 129 (Alternative Corridors 1, 2 and 3)
- Remainder Portion 2 of the farm YZERVARKENSRUG 127 (Alternative Corridor 3)
- Remaining Extent of Portion 13 of the farm YZERVARKENSRUG 127 (Alternative Corridor 1)
- Portion 17 of the farm YZERVARKENSRUG 127 (Alternative Corridors 1 and 2)
- Portion 65 of the farm YZERVARKENSRUG 127 (Alternative Corridor 1)
- Portion 66 of the farm YZERVARKENSRUG 127 (Alternative Corridor 1)
- Portion 69 of the farm YZERVARKENSRUG 127 (Alternative Corridor 1)
- Portion 70 of the farm YZERVARKENSRUG127 (Alternative Corridors 2 and 3)
- Remainder Portion 15 of the farm YZERVARKENSRUG 127 (Alternative Corridors 2 and 3)
- Portion 5 of the farm YZERVARKENSRUG 129 (Alternative Corridors 1 and 2)
- Portion 39 of the farm YZERVARKENSRUG 127 (Alternative Corridors 1 and 2)
- Portion 7 of the farm YZERVARKENSRUG 129 (Alternative Corridor 1)
- Portion 3 of the farm YZERVARKENSRUG 129 (Alternative Corridors 1, 2 and 3)
- Portion 1 of the farm UYEKRAAL 189 (Alternative Corridors 1, 2 and 3)
- Portion 3 of the farm UYEKRAAL 189 (Alternative Corridors 1, 2 and 3)
- Remainder Portion 9 of the FARM 187 (Alternative Corridors 1, 2 and 3)
- Portion 6 of the farm LANGEBERG 188 (Alternative Corridors 1, 2, 3) (ending point)
- Erf 14722 Saldanha(Alternative Corridor 3)
- Erf 11945 Saldanha(Alternative Corridors 1, 2 and 3)
- Erf 11930 Saldanha(Alternative Corridor 3)

5.4 Ara pipeline

Natural Gas from the proposed FSRU's will be delivered to the planned Vortum/Auriga Thermal Power Plants and/or to potential end-users at the Saldanha Bay industrial area and/or at the Port of Saldanha Bay and/or at St Helena Bay by means of a **gas pipeline up to 62 km long, laid down subsea for between 6 - 8 km from Saldanha Bay, and for between 10 - 11 km in St. Helena Bay, and underground for between 34 - 36 km onshore**, with a

diameter up to 1.2 m (48-inch diameter) and a throughput capacity **up to 7000 ton/day** (80 kg/s) of natural gas, working at a nominal pressure up to 120 bar.

Due to the overall length of the gas pipeline (up to 62 km) and of the altitude of the highest point of the pipeline route (50 m above the main sea level), **Compressor Station/s** may be required along the onshore route. Furthermore, **Metering Station(s)**, to measure the flow of gas along the pipeline, may be installed at the delivery point(s).

The pipeline will be buried underground with a cover of at least 1.0 m to the top of the pipe. A right-of-way (servitude) with a width of approximately 8 m (to-be-confirmed and assessed during the scoping and EIA phase) will be established before the construction and installation of the pipeline.

Please find attached, as **Annexure A**, the **Locality Map** showing:

- The proposed location for the proposed mooring of the FSRU's, as well as the study corridors (Alternatives 1, 2 and 3) for the **Gas Pipeline Network**, to be evaluated during the Scoping and EIA phases of the Environmental Impact Assessment process.

6. THE NEED FOR NATURAL GAS FOR ENERGY GENERATION

In the last few years, the demand for electricity in South Africa has been growing at a rate of approximately 3% per annum.

The urgent need to procure power in the short-to-medium term has been qualified as a priority by the Government of South Africa in the Integrated Resource Plan 1 (IRP1). Subsequently the Department of Energy of South Africa (DoE) decided to undertake a detailed process to determine South Africa's 20-year electricity plan, called **Integrated Resources Plan 2010-2030** (**IRP 2010**). The IRP1 (2009) and the IRP 2010 (2011, updated in March 2014) outline the Government's vision, policy and strategy in matter of the use of energy resources and the current status of energy policies in South Africa. In particular, the IRP 2010 highlights the necessity of commissioning **2370 MW with Gas-CCGT technology and 3910 MW with Peak-OCGT technology by the end of 2030.**

Since the promulgation of IRP 2010, a total of 18,000 MW of new generation capacity has been committed, comprising 9,564 MW of coal power at Medupi and Kusile, 1,332 MW of water pumped storage at Ingula, 6,422 MW of renewable energy by Independent Power Producers (IPPs), and 1,005 MW of Open Cycle Gas Turbine (OCGT) peaking plants currently using diesel at Avon and Dedisa.

On 19 December 2012, the Minister of Energy issued three Determinations in terms of section 34 of the Electricity Regulation Act, 2006:

- "***IPP Procurement Programme 2012***" published in Government Notice 1074 in Government Gazette No. 36005 on 19 December 2012;
- "***Baseload IPP Procurement Programme 2012***" published in Government Notice 1075 in Government Gazette No. 36005 on 19 December 2012;
- "***Medium Term Risk Mitigation Project IPP Procurement Programme 2012***" published in Government Notice 1076 in Government Gazette No. 36005 on 19 December 2012.

Pursuant to the "***Baseload IPP Procurement Programme 2012***" and to the "***Medium Term Risk Mitigation Project IPP Procurement Programme 2012***", the Minister of Energy has determined in particular:

- *that baseload and/or mid-merit energy generation capacity is needed to contribute towards energy security, including **2652 MW to be generated from Natural Gas** (which includes Liquefied Natural Gas or Natural Gas delivered by pipeline from a Natural Gas Field), which represents the capacity allocated to **"Gas CCGT (natural gas)" and "OCGT (diesel)"**, under the heading "New build", **for the years 2021 to 2025**, in Table 3 of the IRP 2010-2030;*
- *that baseload energy generation capacity is needed to contribute towards energy security, including **474 MW to be generated from Natural Gas**, which represents the capacity allocated to **"Gas CCGT (natural gas)", under the heading "New build", for the years 2019 to 2020**, in Table 3 of the IRP 2010-2030;*
- ***the electricity must be purchased from Independent Power Producers.***

The **IRP 2019**, published in October 2019, indicated that there is a short-term electricity supply gap of approximately **2,000 MW** between 2019 and 2022. In order to procure this energy supply, the **Department of Mineral Resources and Energy (DMRE)** launched a **Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP)** on the 23rd of August 2020. The objective of the RMIPPPP is "*to fill the current short-term supply gap, alleviate the current electricity supply constraints and reduce the extensive utilisation of diesel-based peaking electrical generators*".

The Department of Mineral Resources and Energy furthermore invited Requests or Qualifications and Proposals (RFPs) under a further **BID Window 5 of the Renewable Energy Independent Power Producers Procurement Programme (REIPPP)** on 13 April 2021.This procurement bid window is the first to be released in line with the Ministerial Determination, promulgated on 25th September 2020, which seeks to procure 11 813 MW of power from various sources including renewable energy, storage, gas and coal. These include wind (4800 MW), solar PV (2000 MW), coal (500 MW), gas (3000 MW), and battery storage (513 MW). Bid Window 5 will call for 1600 MW from wind and 1000 MW from Solar PV. The other technologies with specific reference to GAS will be released at a later stage to be announced.

The securing of new energy sources, like natural gas, has become high priority for the Government, considering that the current energy production is not able to meet the increased energy demand of the Country. This leads to frequent electricity shortage and fluctuations in supply ("load shedding"), detrimental to the economic development of South Africa.

Therefore, the development of a pipeline network moving natural gas (NG) from offshore FSRUs to the key locations, as identified, will represent a key feature in the fulfilment of the proposed goals of sustainable fuel for new generation capacities for energy security.

The purpose of the proposed **FSRU's and Gas Pipeline Network** is to secure sustainable fuel required to add new capacity for the generation of electrical energy to the national electricity supply, in compliance with the Minister of Energy's Determinations and to meet the "electricity consumptions' growth" of the Western Cape Province.

7. SPECIALIST STUDIES TO BE DONE

Apart from environmental screening, numerous specialist investigations have informed the design criteria to date for the proposed project. These include:

1. **For the Gas Pipeline Connection:**

- Geotechnical, Seismicity geo-hydrological Assessment;
- Agricultural Impact Assessment;
- Aquatic Biodiversity Impact Assessment;
- Terrestrial Biodiversity Impact Assessment;
- Ecological (Plant Species and Animal Species) Impact Assessment;
- Archaeological and Cultural Impact Assessment;
- Palaeontological Impact Assessment;
- Major Hazard Installation Risk Assessment;
- Socio-economic Impact Assessment.

2. **For the St Helena Bay & Saldanha Bay FSRU's:**

- Geo-technical Impact Assessment;
- Marine Ecological Impact Assessment;
- Marine Archaeological and Cultural Impact Assessment;
- Marine Palaeontological Impact Assessment;
- Major Hazard Installation Risk Assessment;
- Visual Impact Assessment;
- Maritime Traffic Impact Assessment;
- Socio-economic Impact Assessment.

The DFFE or other stakeholders may require additional specialists' studies if necessary.

8. APPLICABLE LEGISLATION

This section deals with the Environmental law and regulations that would be applicable with regards to the proposed project.

8.1. National Environmental Management Act (Act 107 of 1998)

The National Environmental Management Act (NEMA) (Act 107 of 1998) is an all-encompassing act regulating various aspects of natural resource use, integrated environmental management and pollution control. The Act provides for:

- The right to an environment that is not harmful to the health and well-being of the South African people;
- Sustainable development, environmental protection, equitable distribution of natural resources; and
- The formulation of environmental management frameworks.

8.1.1. Listed Activities

The Listed Activities published on 4 December 2014 under section 24(5) and 44 of the NEMA, 1998 (Act No. 107 of 1998) (EIA Regulations 2014, as amended) potentially triggered by the proposed development are indicated in the tables below.

The EIA Process consists of the following two very closely interlinked processes:

- A technical process, which entails the identification and management of possible environmental issues/concerns; and
- A public participation process, which requires public consultation in order to assist in the identification of possible environmental and/or social issues and/or concerns.

Table 3. Listed activities potentially triggered by the proposed GAS PIPELINE NETWORK development

Listed activities under EIA Regulations 2014 (as amended)		Description of project activities that trigger listed activities
GN R.983, Item 12	**The development of-** **(xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs-** **(a) within a watercourse;** **(b) in front of a development setback; or** **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;**	Natural Gas from the FSRUs will be delivered to the planned Vortum/Auriga Thermal Power Plants and/or to the industrial areas of Saldanha Bay and/or to the Port of Saldanha Bay and/or St Helena Bay by means of a gas pipeline network, laid down subsea and underground. The gas pipeline may cross watercourses.
GN R.983, Item 19	**The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-** **(i) a watercourse;** **(ii) the seashore; or** **(iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater**	Natural Gas from the FSRUs will be delivered to the planned Vortum/Auriga Thermal Power Plants and/or to the industrial areas of Saldanha Bay and/or to the Port of Saldanha Bay and/or St Helena Bay by means of a gas pipeline network, laid down subsea and underground. The gas pipeline will cross the seashore and may cross littoral active zone and/or watercourses.
GN R.984, Item 7	**The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods -** **(i) in gas form, outside an industrial complex, using pipelines, exceeding 1000m in length, with a throughput capacity of more than 700t per day;** **(ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity of more than 50 cubic metres per day**	Natural Gas from the FSRUs will be delivered to the planned Vortum/Auriga Thermal Power Plants and/or to the industrial areas of Saldanha Bay and/or to the Port of Saldanha Bay and/or St Helena Bay by means of a gas pipeline network, laid down subsea and underground, with a throughput capacity of more than 700t per day (up to 7000 ton/day) and a diameter up to 1.2 m (up to 48-inch diameter).

Listed activities under EIA Regulations 2014 (as amended)		Description of project activities that trigger listed activities
GN R.984, Item 14	**The development and related operation of- (i) an island;-** **(ii) anchored platform; or** **(iii) any other structure or infrastructure on, below or along the sea bed;**	Sections of the gas pipeline network will be located offshore, from the FSRUs to the coastline, where it will surface and continue underground on land.
GN R.985, Item 12	**The clearance of an area of 300 square metres or more of indigenous vegetation:** **(i) In Western Cape province:** **(i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;** **(ii) Within critical biodiversity areas identified in bioregional plans** **(iii.) Within the littoral active zone or 100 metres inland from the high-water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;**	The gas pipeline will cross endangered ecosystems in terms of Section 52 of the NEMBA and critical biodiversity areas identified in the Fine-Scale Biodiversity Planning (FSP) project led by Cape Nature in partnership with the South African National Biodiversity Institute (SANBI), part of the C.A.P.E. (Cape Action for People and the Environment) programme. The gas pipeline will cross the littoral active zone.
GN R.985, Item 14	**The development of-** **(xii) infrastructure or structures with a physical footprint of 10 square metres or more;** **(i) In Western Cape: Outside urban areas:** **(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;**	The gas pipeline will cross endangered ecosystems in terms of section 52 of the NEMBA and critical biodiversity areas identified in the Fine-Scale Biodiversity Planning (FSP) project led by Cape Nature in partnership with the South African National Biodiversity Institute (SANBI), part of the C.A.P.E. (Cape Action for People and the Environment) programme.
GN R.985, Item 15	**The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial, or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010.**	A Compressor Station, with a footprint bigger than 1000 m^3, may be required along the onshore route of the gas pipeline. Furthermore, Metering Station(s) with a footprint bigger than 1000 m^3, to measure the flow of gas along the pipeline, may be installed at the delivery point(s).

Table 4. Listed activities potentially triggered by the proposed St Helena Bay & Saldanha Bay FSRU development

Listed activities under EIA Regulations 2014 (as amended)		Description of project activities that trigger listed activities
GN R.983, Item 12	**The development of-** **(xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs-** **(a) within a watercourse;** **(b) in front of a development setback; or** **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;**	Natural Gas from the FSRU will be delivered onshore by means of a gas pipeline, laid down subsea to the beach. The gas pipeline will cross the seashore and may cross littoral active zone.
GN R.983, Item 19	**The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-** **(i) a watercourse;** **(ii) the seashore; or** **(iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater**	Natural Gas from the FSRU will be delivered onshore by means of a gas pipeline, laid down subsea to the beach. The gas pipeline will cross the seashore and may cross littoral active zone.
GN R.984, Item 4	**The development of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.**	The FSRU will include cryogenic storage tanks and equipment, for the storage and handling of LNG, with a combined storage capacity of more than 500 m³ (up to 263,000 m³ of LNG). Natural Gas from the offshore FSRU will be delivered onshore by means of a subsea gas pipeline with a throughput capacity of more than 700t per day (up to 7000 ton/day) and a diameter up to 1.2 m (up to 48-inch diameter).

Listed activities under EIA Regulations 2014 (as amended)		Description of project activities that trigger listed activities
GN R.984, Item 6	**The development of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent**	The operation of the FSRU will entail the emission in the atmosphere of exhaust gases coming from the combustion of natural gas and/or boil-off gases coming from the vaporisation of the LNG.
GN R.984, Item 7	**The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods -** **(i) in gas form, outside an industrial complex, using pipelines, exceeding 1000m in length, with a throughput capacity of more than 700t per day;** **(ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity of more than 50 cubic metres per day**	Natural Gas from the FSRU will be delivered onshore by means of a subsea gas pipeline with a throughput capacity of more than 700t per day (up to 7000 ton/day) and a diameter up to 1.2 m (up to 48-inch diameter). The gas pipeline will cross the seashore and may cross littoral active zone to the beach.
GN R.984, Item 14	**The development and related operation of- (i) an island;-** **(ii) anchored platform; or** **(iii) any other structure or infrastructure on, below or along the sea bed;**	**Cepheus Energy (Pty) Ltd & Sagitta Energy (Pty) Ltd are** proposing the establishment of: • an offshore Floating Storage and Regasification Unit (FSRU), to be permanently moored within the Saint Helena Bay & Saldanha Bay • an undersea pipeline to the beach.
GN R.984, Item 26	**Development-** **(i) in the sea; in respect of-** **(a) facilities associated with the arrival and departure of vessels and the handling of cargo;**	The FSRU's will be moored offshore Saint Helena and within the Big Bay of Saldanha Bay, at depth of -20 m below the mean sea level, by means of a turret-mooring system, which consists of a turret lattice assembly, integrated into the vessel, permanently fixed to the seabed by means of an array of anchor legs. The turret system contains a bearing system that allows the vessel to rotate, enabling it to select a favorable heading for the environment. LNG vessels will deliver Liquefied Natural Gas (LNG) to the FSRU on a weekly basis.

Listed activities under EIA Regulations 2014 (as amended)		Description of project activities that trigger listed activities
GN R.984, Item 28	**Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)**	The operation of the FSRU may entail the emission in the atmosphere of exhaust gases coming from the combustion of natural gas and/or boil-off gases coming from the vaporisation of the LNG. An atmospheric emission license in terms of National Environmental Management: Air Quality Act, 2004 may be required.
GN R.985, Item 12	**The clearance of an area of 300 square metres or more of indigenous vegetation:** **(i) In Western Cape province:** **(i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;** **(ii) Within critical biodiversity areas identified in bioregional plans** **(iii.) Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;**	The undersea gas pipeline will cross the littoral active zone.
GN R.985, Item 14	**The development of-** **(xii) infrastructure or structures with a physical footprint of 10 square metres or more;** **(i) In Western Cape: Outside urban areas:** **(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;**	The gas pipeline will cross endangered ecosystem (Saldanha Limestone Strandveld) in terms of section 52 of the NEMBA and critical biodiversity areas identified in the Fine-Scale Biodiversity Planning (FSP) project led by Cape Nature in partnership with the South African National Biodiversity Institute (SANBI), part of the C.A.P.E. (Cape Action for People and the Environment) programme. The undersea gas pipeline will cross the littoral active zone.

8.2. National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)

The National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008), was enacted on 1 December 2009 in Government Notice 32765, (referred to here as NEM: ICMA). The NEM: ICMA is informed by the NEMA principles as adapted for the coastal zone in the nationally adopted White Paper for Sustainable Coastal Development in South Africa (DEAT, 2000 cited in Celliers *et al*., 2009). The ICM Act must therefore be regarded as 'a specific environmental management Act' (SEMA) in terms of the NEMA Section 1.

To minimise or mitigate impacts in the coastal zone, the NEMA makes provision for the need to obtain environmental authorisations prior to undertaking certain listed activities. Environmental authorisations are issued by competent authorities which are designated in the NEMA regulations providing for the procedures and requirements for environmental authorisations. The ICM Act provides for additional criteria that must be considered by the relevant competent authority when evaluating an application for an activity which will take place in the coastal zone. The competent authority must ensure that the terms and conditions of any environmental authorisation are consistent with the objectives of any coastal management programme in the area.

It is therefore recommended that consultation with the Department Oceans and Coasts also occur prior to submission of the application, as well as throughout the application process as their input will form an integral part of the application.

9. WAY FORWARD: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

In order to undertake the construction of the proposed thermal power plant, Cepheus Energy (Pty) Ltd; Sagitta Energy (Pty) Ltd & ARA Energy (Pty) Ltd must receive an environmental authorization granted from the DFFE, under the terms of the EIA Regulations, 2014 published on 4 December 2014 under section 24(5) and 44 of the NEMA, Act No. 107 of 1998.

The environmental authorization shall be granted in consultation with the **Western Cape Department of Environmental Affairs and Development Planning (WC DEA&DP).**

The EIA process permits the identification and assessment of potential environmental impacts resulting from the proposed project.

Cepheus Energy (Pty) Ltd; Sagitta Energy (Pty) Ltd & ARA Energy (Pty) Ltd will undertake the required EIA process and appointed **Exigent Engineering Consultants** as EAP to identity and assess potential environmental impacts, proposing appropriate mitigation and management measures as part of an Environmental Management Programme (EMPr). This process also gives the opportunity to dialogue with interested and affected parties through a public participation process. Therefore, during the entire EIA process, I&AP's will be actively and constantly involved.

The main environmental studies will be the following:

- Draft Scoping Report;
- Final Scoping Report ;
- Draft EIA Report ;
- Final EIA Report ;
- Draft EMPr.

10. POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT

A series of preliminary significant environmental issues and potential environmental impacts are currently being investigated and evaluated in terms of the severity, duration, extent, frequency and probability during the construction and the operational phases. The methods to be used are internationally recognised and based on facts, experience and expert opinions.

The following preliminary issues and potential impacts for the Gas Pipeline Network are being evaluated during the EIA process:

- Impacts on aquatic (marine) vegetation and fauna;
- Impacts on terrestrial vegetation and fauna;
- Geological, soil and erosion impacts;
- Impacts on heritage resources;
- Impact on water quantity and quality;
- Social and economic impacts.

The following preliminary issues and potential impacts for the St Helena Bay & Saldanha Bay FSRU's are being evaluated during the EIA process:

- Impacts on aquatic (marine) vegetation and fauna;
- Impacts on beach and dune cordon vegetation and fauna;
- Impacts on avifauna;
- Geological, soil and erosion impacts;
- Impacts on heritage resources;
- Impact on air quality;
- Impact on water quantity and quality;
- Noise impact;
- Visual impact;
- Social and economic impacts.

During the Scoping Phase specialists will identify the abovementioned potential environmental issues and impacts for further investigation within the subsequent EIA Phase.

Specialist studies will be conducted to identify all potentially significant impacts. These impacts will be all analysed singularly and cumulatively to exclude the risk of fatal flaws and potential threats, if any, as well as to recommend adequate and effective mitigation measures.

The Draft and Final Scoping Reports will highlight areas that should be avoided in order to limit potential impacts and will recommend the most favorable alternatives for the proposed project for further investigation in the Draft and Final EIA Reports.

The public participation process will provide valuable information in the identification of further issues which may require further and specific investigation and analysis during the EIA process.

Exigent will give response to all comments and queries received from I&AP's, and will carefully consider and evaluate all issues raised with the aim of assessing all potential impacts.

11. PUBLIC PARTICIPATION PROCESS

It is important that all relevant I&AP's are identified and involved in the PPP from the beginning of the project.

The public participation process gives the chance to become actively involved through constant sharing of information related to the projects.

The main purposes of the public participation process are to ensure that:

- all relevant information in respect of the application is made available to I&AP's for their evaluation and review;
- reasonable opportunity is given to I&AP's to comment and to submit queries related to the proposed project;
- a review period is provided for interested and affected parties to comment on findings of the Draft Scoping Report and Draft EIA Report

The public participation process includes the following phases:

- Phase 1: advertising and notification of the EIA process (regional and local press and ongoing via virtual channels and social media);
- Phase 2: registration of I&AP's and key stakeholders on the database (on-going);
- Phase 3: consultation with and transfer of information to I&AP's through consultation, public meetings, focus group meetings and key stakeholder workshops;
- Phase 4: registration of all comments, issues and concerns raised by I&AP's within an issues registry, which will form an integral part of Scoping and EIA Reports;
- Phase 5: invitation of I&AP's to comment the Draft Scoping and EIA Reports within the stipulates 40-day review period.

*The personal information of all registered I&AP's as well as stakeholders will be protected in terms of the the requirements of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA).

The public involvement within the phases of an EIA process includes:

11.1. Notification of EIA process

a) Advertising in local and/or regional newspapers;
b) Inform I&AP's and stakeholders through site notices, background information documents & stakeholders letters.

11.2. Draft Scoping Report

a) Application form sent to DFFE;
b) Draft Scoping Report sent to I&AP's and stakeholders;
c) Draft Scoping Report submitted to the DFFE;
d) Collection of comments from I&AP's and stakeholders;
e) Comments from the DFFE.

11.3. Final Scoping Report

a) Final Scoping Report sent to I&AP's and stakeholders;
b) Final Scoping Report submitted to the DFFE;
c) Approval of the Final Scoping Report by the DFFE.

11.4. Draft EIA Report and Draft Environmental Management Programme

a) Draft EIA Report and Draft EMPr sent to I&AP's and stakeholders;
b) Draft EIA Report and Draft EMPr submitted to the DFFE;
c) Collection of comments from I&AP's and stakeholders;
d) Comments from the DFFE.

11.5. Final EIA Report and Environmental Management Programme

a) Final EIA Report and EMPr sent to I&AP's and stakeholders;
b) Final EIA Report and EMPr submitted to the DFFE.

11.6. Decision Making

a) Acknowledge receipt of Final EIA Report and Draft EMPr;
b) Accept or Reject of Final EIA Report and Draft EMPr;
c) To Grant or Refuse EA;
d) Notification of decision;
e) Information of stakeholders & I&AP's of decision in writing.

12. PRELIMINARY TIME SCHEDULE

Please see preliminary time schedule overview below, with the detail dates of each phase of the process to be provided to all registered I&APs as the process progresses. However, these dates are subject to change based on project specific circumstances.

1.	Public participation process	Ongoing through EIA process
2.	Submission of Draft Scoping Report	October 2021
3.	Submission of Final Scoping Report	November 2021
4.	Submission of Draft EIA Report and Draft EMPr	February 2021
5.	Submission of Final EIA Report and Draft EMPr	March 2021

13. RIGHTS AND RESPONSIBILITIES AS AN I&AP

In terms of the EIA Regulations 2014, please take note of your rights and responsibilities as an I&AP.

1. In order to participate in this EIA process as an I&AP, you must register yourself on the project database.
2. Please observe that all comments regarding the proposed project must be submitted within the stipulated timeframes.
3. Finally, please be advised that as an I&AP you are required to disclose any direct business, financial, personal or other interest which that you may have in the approval or reject of the application for the proposed project.

14. WHO TO CONTACT

We would like to encourage you to participate in this EIA and AEL process by registering at the contact persons below.

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ANNEXURE A: LOCALITY MAP FOR THE ST HELENA BAY FSRU

ANNEXURE B: LOCALITY MAP FOR THE SALDANHA BAY FSRU

ANNEXURE C: LOCALITY MAP FOR THE GAS PIPELINE NETWORK