

BACKGROUND INFORMATION DOCUMENT - MAY 2015

FOR A PROPOSED COMBINED CYCLE GAS TURBINE (CCGT) POWER PLANT ON A PORTION (±130 HA) OF THE REMAINDER OF THE FARM LANGEBERG 188, MALMESBURY RD, SALDANHA BAY LOCAL MUNICIPALITY, WEST COAST DISTRICT MUNICIPALITY, WESTERN CAPE PROVINCE

Short name: **VORTUM THERMAL POWER PLANT**

Hierdie dokument is op aanvraag in Afrikaans beskikbaar

VORTUM ENERGY (PTY) LTD (Reg. No. 2013/088004/07) is proposing the establishment of an energy generation facility (thermal power plant) with associated infrastructure and structures on **a portion (±130 ha) of the Remainder of the Farm LANGEBERG 188, Malmesbury RD** (861.6007 ha in extent), located within the **Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province.**

The project site is located 9 km North-East of the Port of Saldanha Bay, West of the regional road R27, in an area excluded from the provisions of the Subdivision of Agricultural Land Act (Act 70 of 1970) and **already earmarked for Industrial Uses.**

The energy generation facility will be a thermal power plant with a **maximum generation capacity up to 1200 MW_{el}** (electrical rated power).

The name of the facility will be **VORTUM THERMAL POWER PLANT.**

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

PURPOSE OF THIS DOCUMENT

The main purposes of this background information document are:

- To provide information about the proposed project
- To explain the Environmental Impact Assessment (EIA) process
- To provide an opportunity for participation in the Environmental Impact Assessment (EIA) process

This document also indicates how you can receive information, or raise issues, which may be of concern and/or interest for interested and/or affected parties (I&APs).

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 Environmental Impact Assessment (EIA) process, as input from I&APs ensures all potential issues are considered within the study.

PROJECT SITE AND KEY FEATURES OF THE PROPOSED PROJECT

In view of the growing electricity demand and in an effort to use viable energy resources, Vortum Energy (Pty) Ltd is assessing the feasibility of an energy generation facility consisting of the **construction, operation and maintenance of a Thermal Power Plant with a maximum generation capacity up to 1200 MW_{el}**.

The project site consists of a **portion (±130 ha) of the Remainder of the Farm LANGEBERG 188, Malmesbury RD** (861.6007 ha in extent), located within the **Saldanha Bay Local Municipality, West Coast District Municipality, Western Cape Province**.

The project site is located 9 km North-East of the Port of Saldanha Bay, West of the regional road R27, in an area excluded from the provisions of the Subdivision of Agricultural Land Act (Act 70 of 1970) and **already earmarked for Industrial Uses**.

The Eskom Blouwater Distribution Substation is located 3.2 km South-West of the project site; the Saldanha Steel Works is 5km West-South-West from the project site; the Langebaanweg Military Airport is 7.5 km East of the project site.

Access to the project site would be either:

- from the **regional road R27**, which runs adjacent to the eastern boundary of the project site; or
- from a **secondary road (R79)** linking the regional road R27 with the regional road R399, which runs adjacent to the southern boundary of the project site.

The developed area (footprint) will be **up to 80 hectares**.

Site location - Surveyor-general 21 digit site code:

C	0	4	6	0	0	0	0	0	0	0	0	0	1	8	8	0	0	0	0	0
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Please see enclosed a **Locality Map** indicating the location of the project site (**Annexure A**).

The proposed thermal power plant will be a **Combined Cycle Gas Turbine (CCGT) power plant**, to be fuelled with natural gas imported by means of one or more gas import facilities (e.g. LNG Import Terminal(s) and/or new gas pipeline(s)).

Indeed the Department of Energy is investigating the feasibility of new gas pipelines and LNG Import Terminals, in order to import natural gas from new offshore gas fields and/or from other countries (e.g. Mozambique). 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.

Should natural gas not be available at the time of the commissioning of the Vortum Thermal Power Plant, the proposed facility may be fuelled with **liquid fuel** (diesel or other types of liquid fuels) until natural gas is available. Gas turbines can be fuelled either with natural gas or liquid fuel.

Due to the current electricity shortage and the urgent need for new power generation units in the Country, the Vortum Thermal Power Plant may operate as an **Open Cycle Gas Turbine (OCGT) power plant as a first phase** and in the second phase, with the ~~closure~~ **closure** of the open cycle (by means of steam turbine units added to the gas turbine units), as a **Combined Cycle Gas Turbine (CCGT) power plant**. The construction timeframe of an OCGT plant is notably shorter than that of a CCGT plant.

In a CCGT power plant a Rankine cycle (steam cycle) is added to a Brayton cycle (gas cycle). The combination of the two thermodynamic cycles results in improved overall efficiency as less heat is wasted because heat is recovered - the "waste" heat from the gas cycle is utilised to produce steam to generate additional electricity via steam turbine units, enhancing the efficiency of overall electricity generation. The thermal efficiency of a CCGT power plant is **up to 62%**.

A Combined Cycle Gas Turbine (CCGT) power plant consists of **gas turbine units** coupled with **steam turbine units**: the "waste" heat from each gas turbine is sent to **heat recovery steam generators (HRSG)** to generate high pressure steam; the steam from the HRSG drives **steam turbines** coupled with generators, in order to generate electricity increasing the efficiency of the power plant.

Each gas turbine and steam turbine are coupled to the single generator in a tandem arrangement, on a single shaft (single-shaft configuration).

The CCGT power plant will consist of the following components:

- É two or more **gas turbine units** with a capacity **up to 400 MW_e** (electrical rated power) **each**;
- É fuel storage facility (in case of liquid fuel);
- É **heat recovery steam generators (HRSG)** to generate steam;
- É two or more **steam turbine units** with a capacity **up to 220 MW_e** (electrical rated power) **each**;
- É **electrical generators**, which convert the mechanical energy of the gas and steam turbine units to electricity;
- É gas compressors and combustors, for the gas cycle;
- É water pumps and pressurisers, for the steam cycle;
- É cooling system, with condensers & cooling towers, in order to condensate the steam to water;
- É a dam, to collect the water necessary for the generation of steam;
- É a control room with offices;
- É warehouses;
- É a natural gas or liquid fuel supply pipeline;
- É a water supply pipeline;
- É on-site high voltage substation;
- É high-voltage power lines, for the connection to the Eskom grid.

The number and size (capacity) of the gas and steam turbine units has not been finalised yet and will depend on the load (demand) curve required by the grid. This will be assessed during the scoping phase in consultation with Eskom.

The CCGT power plant may consists of - e.g.:

- 2 gas turbines units of 375 MW_{el} each + 2 steam turbines units of 200 MW_{el} each (overall installed capacity: 1150 MW_{el}); or (e.g.)
- 5 gas turbines units of 150 MW_{el} each + 5 steam turbines units of 80 MW_{el} each (overall installed capacity: 1150 MW_{el}); or (e.g.)
- a combination of different sizes of gas and steam turbine units.

The overall installed capacity will nevertheless be **up to 1200 MW_{el}**.

The Vortum Thermal Power Plant will deliver the energy to the **Eskom AURORA main transmission substation via one or more 400 kV power lines approximately 27 km long**. The number of new 400 kV power lines will be assessed during the scoping phase in consultation with Eskom.

The proposed power line corridor runs parallel to existing Eskom high-voltage power lines and may cross through the following properties (please refer to Locality Map enclosed as the Annexure A):

- Portions 1 and 9 (Remaining Extent) of the Farm LANGEBOER 187
- Portions 1 and Remainder of the Farm UYEKRAAL 189
- Farm EVERTS HOPE 190
- Farm WASCHKLIP 183
- Farm ZOUTEKUYLEN 179
- FARM 1162
- Portions 3 and 8 of the Farm LANGVERWACHT 178
- Farm ADJOINING SPRINGFONTEIN 174
- Portions 3 and 4 of the Farm DRIEHOEKS FONTEIN 176

Power line corridor - Surveyor-general 21 digit site codes:

C	0	4	6	0	0	0	0	0	0	0	0	0	1	8	7	0	0	0	0	1
C	0	4	6	0	0	0	0	0	0	0	0	0	1	8	7	0	0	0	0	9
C	0	4	6	0	0	0	0	0	0	0	0	0	1	8	9	0	0	0	0	0
C	0	4	6	0	0	0	0	0	0	0	0	0	1	8	9	0	0	0	0	1
C	0	4	6	0	0	0	0	0	0	0	0	0	1	9	0	0	0	0	0	0
C	0	4	6	0	0	0	0	0	0	0	0	0	1	8	3	0	0	0	0	0
C	0	4	6	0	0	0	0	0	0	0	0	0	1	7	9	0	0	0	0	0
C	0	4	6	0	0	0	0	0	0	0	0	1	1	6	2	0	0	0	0	0
C	0	4	6	0	0	0	0	0	0	0	0	0	1	7	8	0	0	0	0	3
C	0	4	6	0	0	0	0	0	0	0	0	0	1	7	8	0	0	0	0	8
C	0	4	6	0	0	0	0	0	0	0	0	0	1	7	4	0	0	0	0	0
C	0	4	6	0	0	0	0	0	0	0	0	0	1	7	6	0	0	0	0	3
C	0	4	6	0	0	0	0	0	0	0	0	0	1	7	6	0	0	0	0	4

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The Listed Activities published on 4 December 2014 under section 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (new EIA Regulations 2014) potentially triggered by the proposed development are indicated in the table below.

Listed activities under EIA Regulations 2014	Description of project activities that trigger listed activities
GN R.984, Item 2 The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where the electricity output is 20 megawatts or more.	<p>The Vortum Thermal Power Plant will consist of construction, operation and maintenance of an energy generation facility (Thermal Power Plant) with a generation capacity exceeding 20 MW (up to 1200 MW). The proposed thermal power plant will be a Combined Cycle Gas Turbine (CCGT) power plant, to be fuelled with natural gas. Should natural gas not be yet available at the time of the commissioning of the Vortum Thermal Power Plant, the proposed facility may be fuelled with liquid fuel (diesel or other types of liquid fuels).</p> <p>Due to the current electricity shortage and the urgent need for new power generation units in the Country, the Vortum Thermal Power Plant may operate as an Open Cycle Gas Turbine (OCGT) power plant as a first phase and in the second phase, with the "closure" of the open cycle (by means of steam turbine units added to the gas turbine units), as a Combined Cycle Gas Turbine (CCGT) power plant.</p>
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.	<p>Should natural gas be not yet available at the time of the commissioning of the Vortum Thermal Power Plant, the proposed facility may be fuelled with liquid fuel (diesel or similar). In this case, the project may require the construction of facilities and infrastructure for the storage and handling of the liquid fuel, with a combined capacity of more than 500 cubic metres.</p>
GN R.984, Item 5 The development and related operation of facilities or infrastructure for the refining, extraction or processing of gas, oil or petroleum products with an installed capacity of 50 cubic metres or more per day	<p>Should natural gas be not yet available at the time of the commissioning of the Vortum Thermal Power Plant, the proposed facility may be fuelled with liquid fuel (diesel or similar). In this case, the project may require the construction of facilities and infrastructure for processing of the liquid fuel, with an installed capacity of more than 50 cubic metres per day.</p>
GN R.984, Item 6 The development of facilities or infrastructure for any process or activity	<p>The operation of the Vortum Thermal Power Plant will entail the management, filtration and emission in the atmosphere of the exhaust gases coming from the</p>

which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent	combustion of the fuel (natural gas, diesel or other kinds of fuels). Other kind of effluents (e.g. waste water) may be generated.
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 1000 metres in length, with a throughput capacity of more than 700 tons 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	A pipeline longer than 1000 metres and with a throughput capacity more than 50 cubic metres per day may be required in order to delivery fuel (natural gas or liquid fuel) to the Vortum Thermal Power Plant.
GN R.984, Item 9 The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	<p>The connection of the Vortum Thermal Power Plant to the Eskom grid will be done according to the Eskom connection solution, which may require one on-site 400 kV substation with 400 kV power transformers and a 400 kV bus bar (switching station), to be connected to the existing Eskom AURORA MTS (main transmission substation), via one or more new 400 kV power lines approximately 27 km long. The connection solution may also entail intervention on the Eskom's grid.</p> <p>The new power lines will run outside urban areas.</p>
GN R.984, Item 15 The clearance of an area of 20 hectares or more of indigenous vegetation	The construction of the Vortum Thermal Power Plant may require the clearance of indigenous vegetation, where the total area to be transformed (footprint) will be bigger than 20 hectares (up to 80 hectares).
GN R.984, Item 16 The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.	The project may envisage the building of dams covering an area bigger than 5 hectares and/or having walls higher than 5 meters (as measured from the outside toe of the wall to the highest part of the wall).
GN R.984, Item 28 Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental	The operation of the Vortum Thermal Power Plant will entail the management, filtration and emission in the atmosphere of the exhaust gases coming from the combustion of the fuel (natural gas, diesel or other

Management: Air Quality Act, 2004 (Act No. 39 of 2004)	kinds of fuels). An atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 may be required.
GN R.983, Item 9 The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water- (i) with an internal diameter of 0,36 metres or more	The project may envisage the construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, with an internal diameter exceeding 36 cm.
GN R.983, Item 10 The development and related operation of infrastructure exceeding 1000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes - (i) with an internal diameter of 0,36 metres or more	The project may envisage the construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of process water and waste water with an internal diameter exceeding 36 cm.
GN R.983, Item 11 The development of facilities or infrastructure for the transmission and distribution of electricity - (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.	The connection of the Vortum Thermal Power Plant to the Eskom grid will be done according to the Eskom connection solution, which may require one on-site 400 kV substation with 400 kV power transformers and a 400 kV bus bar (switching station), to be connected to the existing Eskom AURORA MTS (main transmission substation), via one or more new 400 kV power lines approximately 27 km long. The connection solution may also entail intervention on the Eskom's grid. The on-site high voltage substation will be built on the project site, in an area already earmarked for Industrial Uses.
GN R.983, Item 12 The development of - (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs - (a) within a watercourse;	The project may envisage the building of dams, structures or infrastructure within 32 m of a watercourse / drainage line / wetland zone.

(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse	
GN R.983, Item 13 The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more	The project may envisage the building of dams with a combined capacity of 50000 cubic metres or more.
GN R.983, Item 14 The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	The project may require the construction of facilities and infrastructure for the storage and handling of the dangerous goods, with a combined capacity of more than 80 cubic metres but not exceeding 500 cubic metres.
GN R.983, Item 16 The development and related operation of facilities for the desalination of water with a design capacity to produce more than 100 cubic metres of treated water per day.	Water required for the heat recovery steam generators (HRSG) to generate steam may be sourced from the sea. In this case, facilities for the desalination of water will be required and the design capacity may exceed 100 cubic metres of treated water per day.
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	The project may envisage the building of dams, structures or infrastructure within 32 m of a watercourse / drainage line / wetland zone.
GN R.983, Item 24 The development of - (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres	An access road wider than 8 meters or with a reserve wider than 13.5 meters may be constructed. Some sections of internal roads may be wider than 8 meters.
GN R.983, Item 28 Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development:	The Vortum Thermal Power Plant will consists of an industrial development, where the total area to be transformed (footprint) will be bigger than 5 hectares. The project site is located in an area already earmarked for Industrial Uses.

(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares	
GN R.983, Item 30 Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	The new power lines for the connection of the Vortum Thermal Power Plant of the Eskom AURORA MTS (main transmission substation) may cross areas protected in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
GN R.985, Item 12 The clearance of an area of 300 square metres or more of indigenous vegetation: (a) 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	The new power lines for the connection of the Vortum Thermal Power Plant of the Eskom AURORA MTS (main transmission substation) may cross critically endangered or endangered ecosystem in terms of section 52 of the NEMBA or critical biodiversity areas identified in bioregional plans.

The Listed Activities published on 22 November 2013 under Category 7.3 of GN893 of the National Environmental Management: Air Quality Act (Act 39 of 2004); Air Emissions Licence (AEL) activities

Listed activities under GNR 893 of 22 November 2013	Description of project activities that trigger listed activities
Subcategory 1.2 Liquid Fuel Combustion Installations	The operation of the Vortum Thermal Power Plant will entail the management, filtration and emission in the atmosphere of the exhaust gases coming from the combustion of diesel or other kinds of fuels.
Subcategory 1.4 Gas Combustion Installations	The operation of the Vortum Thermal Power Plant will entail the management, filtration and emission in the atmosphere of the exhaust gases coming from the combustion of the natural gas.

THE NEED FOR ENERGY GENERATION FACILITIES

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**.

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.**

As indicated in the **Request for Registration and Information Issued to Potential developers of New Generation Capacity: Medium Term Risk Mitigation (including Cogeneration and Natural Gas); and Baseload (including Coal, Natural Gas and Hydro)**, issued by the Department of Energy in June 2013:

- *Pursuant to the Medium Term Risk Mitigation and Baseload energy Determinations,*

*the Department of Energy is in the process of designing a range of **appropriate procurement processes for the procurement of this energy**. The Department of Energy is committed to one or more procurement process/es which comply with the requirements of, amongst other things, section 217 of the Constitution of the Republic of South Africa, 1996 and the Public Finance Management Act, 1999.*

- In designing the procurement processes, the Department of Energy will have regard to the Determinations, which state that **the energy should be procured through one or more IPP procurement programmes as contemplated in the Electricity Regulations on New Generation Capacity ("New Generation Capacity Regulations") which may include tendering processes, direct negotiation with one or more project developers, or other procurement procedures.***

On 16 April 2015, the Department of Energy confirmed (media statement) that they have been engaged in a process to design a **Gas to Power Procurement Programme** for a combined **3126 MW allocation**. The Gas to Power Request for Information (RFI) has been released in May 2015 (<https://www.ipp-gas.co.za/>). Responses to this RFI will be used in designing the Gas to Power Procurement Programme. This programme is expected to stimulate the gas sector which could contribute towards the growth of the local economy.

As indicated in the RFI for the Gas to Power Procurement Programme (May 2015):

- the two determinations will be amended and then consolidated into a new determination for the procurement of **3126 MW of generation capacity from any gas type or source generated using any appropriate technology**.*
- As the basis of supporting the objectives of the Integrated Energy Plan, the Department is, at present, finalising a **Gas Utilisation Master Plan ("GUMP")** for South Africa. The GUMP is a roadmap for the development of a gas economy. It analyses the potential and opportunity for the development of South Africa's gas economy and sets out a plan of how this could be achieved. One of the key objectives of the GUMP is to enable the development of indigenous gas resources and to create the opportunity to stimulate the introduction of a portfolio of gas supply options.*
- The demand from the Gas to Power Programme will provide a market for a potential supply of gas. It will also provide long term gas demand sinks for future indigenous gas supplies.*

Therefore, the development of **Gas CCGT (natural gas) power plants** and **OCGT (diesel) power plants** will represent a key feature in the fulfilment of the proposed goals of new generation capacities for energy security.

The purpose of the proposed **Vortum Thermal Power Plant** is 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 in order to meet the %electricity consumptionsq growth+of the Western Cape Province.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

In order to undertake the construction of the proposed thermal power plant, Vortum Energy (Pty) Ltd must receive an environmental authorization granted from the National Department of Environmental Affairs (DEA), under the terms of the EIA Regulations, 2014 published on 4 December 2014 under section 24(5) and 44 of the National Environmental Management Act (NEMA, Act No. 107 of 1998).

An Air Emissions License will also be required in terms of the National Environmental Management: Air Quality Act of 2004.

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

The Environmental Impact Assessment (EIA) process permits the identification and assessment of potential environmental impacts resulting from the proposed project.

Vortum Energy (Pty) Ltd will undertake the required Environmental Impact Assessment (EIA) process and appointed **AGES (Pty) Ltd** as Environmental Assessment Practitioner (EAP) in order to identify and assess potential environmental impacts, proposing appropriate mitigation and management measures as part of an Environmental Management Programme. This process gives also the opportunity to dialogue with interested and affected parties through a public participation process.

Therefore, during the entire Environmental Impact Assessment (EIA) process, I&APs 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 Environmental Management Programme

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 are being evaluated during the Environmental Impact Assessment (EIA) process:

- Impacts on avifauna;
- Impacts on vegetation and fauna;
- Impacts on the agricultural potential of the soils;
- 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 in order to identify all potentially significant impacts. These impacts will be all analysed singularly and cumulatively in order 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 favourable alternatives for the thermal power plant and the associated infrastructure and structures 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 Environmental Impact Assessment process.

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

PUBLIC PARTICIPATION PROCESS

It is important that all relevant I&APs are identified and involved in the public participation process 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&APs for their evaluation and review;
- reasonable opportunity is given to I&APs 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 of the Environmental Impact Assessment process (regional and local press);

- phase 2: registration of I&APs and key stakeholders on the database (on-going);
- phase 3: consultation with and transfer of information to I&APs through consultation, public meetings, focus group meetings and key stakeholder workshops;
- phase 4: registration of all comments, issues and concerns raised by I&APs within an issues registry, which will form an integral part of Scoping and EIA Reports;
- phase 5: invitation of I&APs to comment the Draft Scoping and EIA Reports within the stipulated 40-day review period.

The public involvement within the phases of an Environmental Impact Assessment process includes:

1. Notification of Environmental Impact Assessment process

- a) Application form sent to Department of Environmental Affairs
- b) Advertising in local and/or regional newspapers
- c) Inform I&APs and stakeholders through site notices, background information documents & stakeholders letters

2. Draft Scoping Report

- a) Draft Scoping Report sent to I&APs and stakeholders
- b) Draft Scoping Report submitted to the Department of Environmental Affairs
- c) Collection of comments from I&APs and stakeholders
- d) Comments from the Department of Environmental Affairs

3. Final Scoping Report

- a) Final Scoping Report sent to I&APs and stakeholders
- b) Final Scoping Report submitted to the Department of Environmental Affairs
- c) Approval of the Final Scoping Report by the Department of Environmental Affairs

4. Draft EIA Report and Draft Environmental Management Programme

- a) Draft EIA Report and Draft Environmental Management Programme sent to I&APs and stakeholders
- b) Draft EIA Report and Draft Environmental Management Programme submitted to the Department of Environmental Affairs
- c) Collection of comments from I&APs and stakeholders
- d) Comments from the Department of Environmental Affairs

5. Final EIA Report and Draft Environmental Management Programme

- a) Final EIA Report and Draft Environmental Management Programme sent to I&APs and stakeholders
- b) Final EIA Report and Draft Environmental Management Programme submitted to the Department of Environmental Affairs

6. Decision Making

- a) Acknowledge receipt of Final EIA Report and Draft Environmental Management Programme
- b) Accept or Reject of Final EIA Report and Draft Environmental Management Programme
- c) To Grant or Refuse Environmental Authorization

- d) Notification of decision
- e) Information of stakeholders & I&APs of decision in writing.

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.

In order to participate in this Environmental Impact Assessment process as an I&AP, you must register yourself on the project database.

Please observe that all comments regarding the proposed project have to be submitted within the stipulated timeframes.

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.

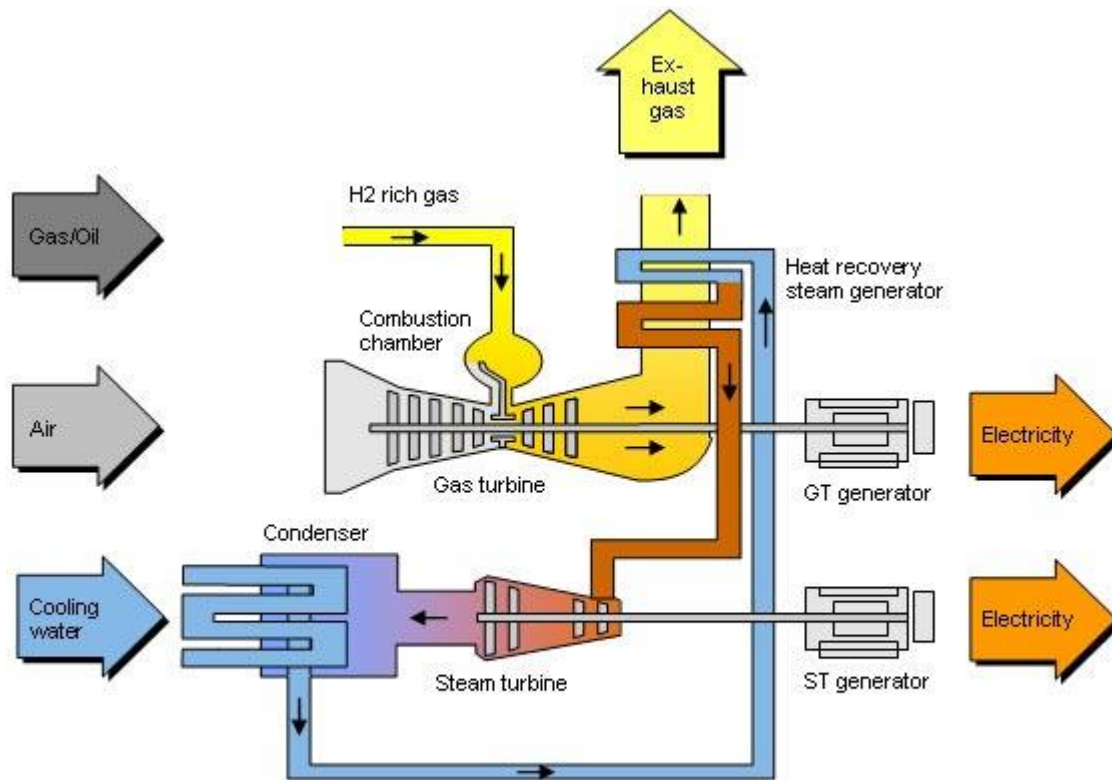
PRELIMINARY TIME SCHEDULE

Public participation process	May 2015
Submission of Draft Scoping Report	June/July 2015
Submission of Final Scoping Report	August 2015
Submission of Draft EIA Report and Draft EMPr	September/October 2015
Submission of Final EIA Report and Draft EMPr	October/November 2015

WHO TO CONTACT

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Please contact Mr. Botha and Ms. Grobler to the above indicated numbers and addresses.
Please complete the enclosed response form and return it to the above indicated numbers and addresses.



Simplified process flow diagram



View of a similar type of thermal plant