
VORTUM THERMAL POWER PLANT

SOCIO-ECONOMIC CONSIDERATIONS FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

COMPILED BY



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1. PURPOSE

The purpose of this report is to document socio-economic issues at the scoping level that should be considered as part of the environmental impact assessment of the proposed Vortum Thermal Power Plant, which is in Saldanha Bay Local Municipality, located in the Western Cape Province. This report is one of several documents that consider the environmental impact of the proposed project from different perspectives, with specific consideration of the national Independent Power Producer Programme (IPP). The gas component of this programme is the particular area of focus.

Relevant planning documents were used and experts who are working on other elements of the Vortum Thermal Power Plant Environmental Impact Assessment were also consulted.

2. PROJECT DESCRIPTION

A 1,200 MW Thermal Power Plant is being proposed on a portion (± 130 ha) of the remainder of the farm Langeberg 188 in Saldanha Bay Local Municipality (Western Cape Province) by Vortum Energy (Pty) Ltd. It is likely to be constructed in two phases, commencing with 800 MW capacity in the first phase. The project footprint will be 60 ha. The farm is located 7 km north-east of the Saldanha Steel Plant (Arcelormittal) and 9km from the Port of Saldanha. Several alternative sites were considered, but the proposed site is the only option that is available.

The nearest town is Vredenburg, 14 km to the west with a 2011 population of 38,400 people, growing to more than 44,000 in 2015. Langebaan town, with a smaller population of 8,300 people, is located 16 km to the south. The aerial photograph below (figure 1) illustrates the proposed location relative to Vredenburg town and the Saldanha Steel Plant. The proposed site is currently used for grazing and is zoned for agriculture. It has a flat slope and is earmarked for industrial use. Several properties may have to be crossed with transmission lines from the proposed site to the Eskom Aurora Transmission Substation.

Figure 2 reflects the boundaries of Saldanha Bay Local Municipality and the location of the proposed project in this context. The proximity of other major industrial applications, such as Saldanha Steel, is evident. Langebaanweg to the east, is a military flying training school.

The proposed technology is Combined Cycle Gas Turbine (CCGT), which is intended to be two or more gas turbine units with a capacity of 400 MW_{el} each; coupled with two or more steam turbine units with a capacity of 220 MW_{el} each. This electricity will be delivered to the Eskom AURORA main transmission substation by way of 2 x 400 kV power lines (double circuit), which will be approximately 27 km long. New transmission lines will run parallel and adjacent to existing Eskom transmission lines.



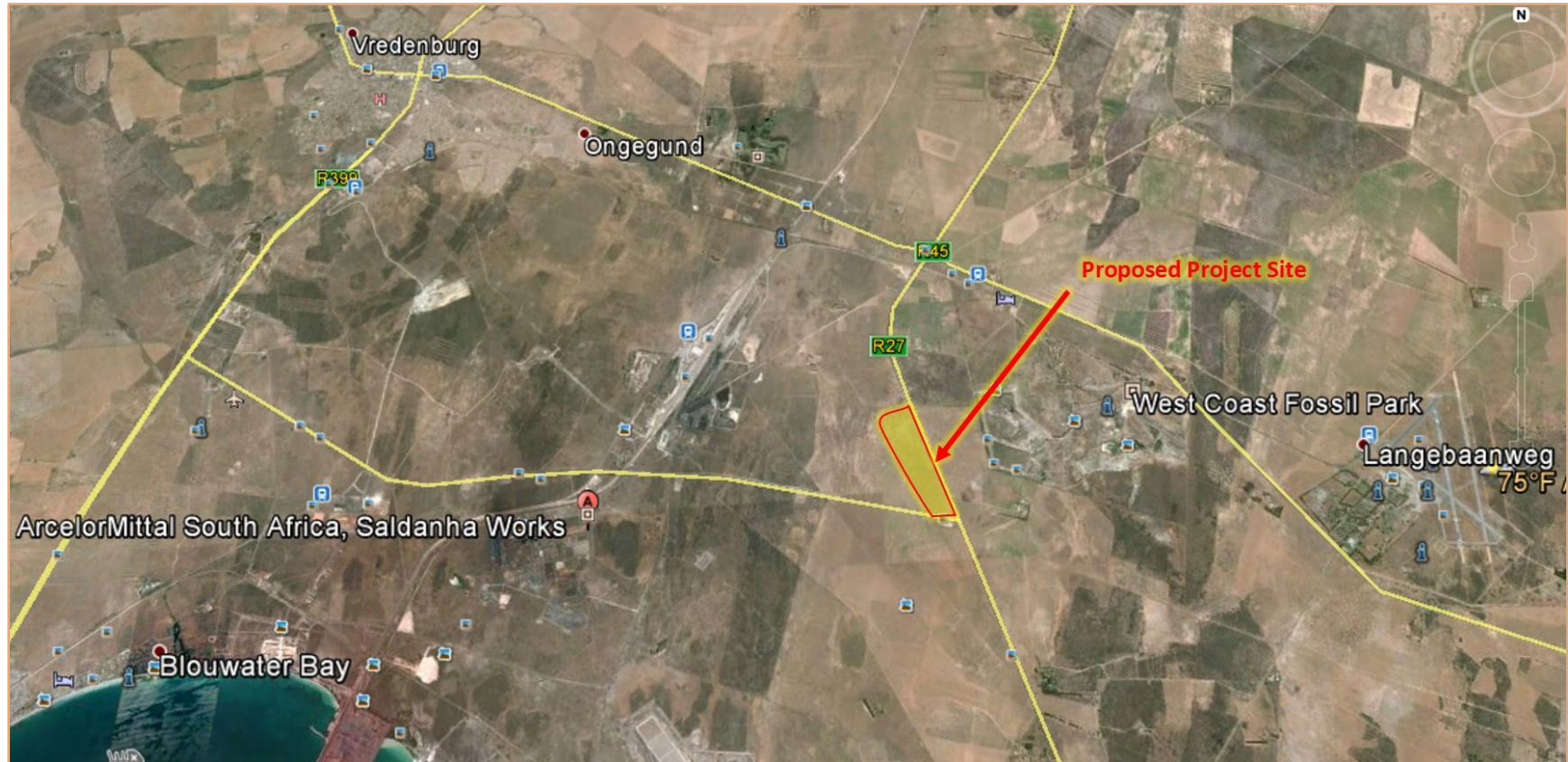


Water requirements will range from 1 to 21m³ per day, depending on the cooling technology that is used. Dry cooling, with its lower water requirements, is the preferred option.





Figure 1: Proposed Location Relative to Vredenburg Town



Legend

- Vortum Thermal Power Plant
- SA Roads
 - Arterial
 - Main
- Rivers
- Dams
- LMBnd
- Settlements
- DMBnd

Map Title:
**Vortum Thermal Power Plant
Proposed Project Site**

Client:
AGES
Purpose with Passion

Consultants:
OGSA
Geography and Planning Solutions



The feedstock required is 1 million tonnes of natural gas per annum. In the event that natural gas may not be available at the time of commissioning, then the proposed facility may have to use liquid fuel such as diesel. The first phase of 800 MW will require approximately 700,000 tons of diesel per year if this feedstock is to be used. A liquid fuel (diesel) pipeline of approximately 12 km, from the Saldanha Port Oil Pier to the on-site fuel storage tanks will be needed to convey feedstock to the proposed Power Plant. It will be converted to a gas pipeline as soon as natural gas becomes available. CO₂ drops by a factor of four when gas is used as a feedstock instead of diesel.

Turbines, gas compressors, generators, electricity transmission and the fuel pipeline will be primary components of the proposed project. Secondary components will include fuel storage, workshops and offices, as well as on-site infrastructure.

Project construction is expected to take 15 months for phase one and could be completed by 2020. Construction will require another 15 months for the second phase, which is projected for completion in 2022. The average number of employees on site during this time will be approximately 300. The size and structure of operational employment requirements is still being finalised. The facility will have a working life of 40 years.

Table 1: Anticipated Employment Profile for the Proposed Vortum Thermal Power Plant

Category	Number	Monthly Salary R'	Total Monthly Salary R'	Recruitment
Plant Managers				Local/National
Plant Operators				Local/Provincial
Admin/Finance				Local
Security				Local
Labourers				Local
Total				

Feedstock, staff remuneration, maintenance equipment and consumables are likely to be the primary operational expenses. A substantial proportion of this expenditure could be retained in the local Municipality, because gas importation terminals are being planned and established. A liquefied petroleum gas bulk importation terminal is already under construction by Sunrise Energy and should be completed in 2016. It will not have sufficient capacity to supply the proposed project with all its feedstock requirements. The Department of Energy is considering the development of additional LNG import facilities in Saldanha Bay.

Rates and property taxes will accrue to the local municipality. The municipal local economic development strategy relating to the Oil and Gas Industrial Development Zone will also be promoted, with benefits relating to income generation and growth. Specific attention will be paid to socio-economic development and local economic growth by way of job creation, education and skills development, facilitating the participation of local communities and supporting local manufacturing. Western Cape Province, and other parts of the country if necessary, will benefit from the availability of additional electricity, especially during peak periods, which will lift one of the constraints on economic development. Company tax will accrue to the national government.





3. SOCIO-ECONOMIC CONTEXT

3.1 Population

Saldanha Bay Local Municipality is sparsely populated and has an intricate combination of commercial farmland, industrial development and tourism attractions. The land size is approximately 2,015 km² and the municipal population according to the official census of 2011 was almost 99,200 people. The population density is therefore 49.2 people/km². This is slightly higher than the provincial population density of 44.9 people/km² and the national figure of 42.4. Males and females are evenly balanced, which points toward a stable population with low levels of circular labour migration. The average household size is 3.44 people, which is slightly lower than the provincial average of 3.56.

Almost 40% of the municipal population (38,400 people) live in the primary town of Vredenburg and 28% in the second largest town of Saldanha. This has grown to 44,000 people in 2015.

Population has increased by more than 28,700 people since the 2001 census, which means that population growth was 3.5% per year, compared to 1% growth per year for the country and 2.6% for the Western Cape Province. This is one of the fastest growing municipalities in terms of population growth, which means that it must be experiencing an in-migration of families. The population was 70,433 people in 2001. The projected population for 2015 could be approximately 114,000 people.

Population numbers for the eight settlements in the Municipality are reflected in the table below. It is evident that almost 97% of the municipal population live in towns or villages. The remaining 3,100 people live on commercial farms.

Table 2: Urbanised Population in Saldanha Bay LM, 2011

Settlement	Population 2011		
	Male	Female	Total
Vredenburg	19354	19028	38382
Saldanha	13876	14259	28135
St Helena Bay	5705	5822	11527
Langebaan	4048	4246	8294
Hopefield	3153	3297	6450
Paternoster	971	1000	1971
Langebaanweg	504	448	952
Jacobs Bay	205	210	415
Total	47816	48310	96126

Source: Stats SA Census 2011

Almost 71% of all households speak Afrikaans as their first language and 16% speak IsiXhosa. English is the first language for 6.5% of local households.





3.2 Education

Education levels of local youths and adults are better than the national average, with only 2.4% of people older than 20 years never having attended school as compared to 8.6% for the County. However, only 10.6% of residents older than 20 years have obtained post-school qualifications, compared to 13.4% for South Africa. There is a very high incidence of people who start secondary school (40.8% of people older than 20 years), but who do not complete it. More than 28% of this group have completed secondary school, which is similar to this statistic for the Country.

The proposed project is therefore unlikely to experience problems with the local recruitment of staff.

Table 3: Highest Education Level of People over 20Years of Age in Saldanha Bay LM, 2011

Highest educational level	2011	%
No schooling	1 540	2.4
Some Primary	11 447	17.8
Some Secondary	26 142	40.8
Grade 12 / Standard 10 / Form 5	18 187	28.4
Post Matric	6 823	10.6
Total	64 139	100

Source: Stats SA Census 2011

3.3 Housing

The housing profile reflects a relatively stable community with almost 78% of families living in brick houses on separate stands. However, the proportion of families living in informal dwellings (shacks) is high at 17.2%, compared to the national average of 13%. The provincial average is even higher than the Local Municipality at 18.1%.

The 2001 Census recorded 13.8% of households in Saldanha Bay LM living in shacks. It may therefore be that much of the recent and rapid population growth in the Municipality is represented by low-income families who have relocated to Saldanha Bay and now live in shacks. It is documented in the Municipal Economic Review and Outlook of 2015 for example, that commercial farms in neighbouring municipalities are shedding labour. Some of these retrenched workers could be moving to Saldanha Bay LM with their families. They will cause the local unemployment rate to rise from current low levels.

3.4 Economic Production Structure

Saldanha Bay Local Municipality has a relatively small economy with a total domestic product of almost R6.2bn at current prices in 2013 compared to R431bn for the Province. The economy has a large finance and real estate sector, which reflects the imputed rental value of land, including high-value commercial farms. However, the primary drivers of production are government expenditure, mostly for the compensation of employees, as well as trade and manufacturing. Trade includes tourism, which is mainly concentrated in the Bay. The primary manufacturing activity is the Arcelormittal Steel Smelter.





Value-added in the agriculture sector is also significant. This is mostly from wheat, animal products, vegetables and fruit.

Saldanha Bay LM has sustained a remarkably high economic growth rate of 4.1%¹ per year for the period 2005-2013. The growth rate has dropped slightly to 3.8% per year from 2010-13, but is still considerably higher than the national, as well as the Western Cape provincial average. Electricity, gas and water was the fastest growing sector, albeit from a low base. Commercial services and government also grew rapidly, whereas manufacturing has shrunk in real terms, which is in line with the constrained global steel market. Offices of the West Coast District Municipality are also located in Saldanha Bay LM.

The Municipal Economic Review and Outlook anticipates that economic growth in Saldanha Bay LM will accelerate after 2017 due to the Saldanha Bay-Northern Cape development corridor. Two of the key objectives of the development corridor project comprise strengthening maritime support capacity for oil and gas, and expanding iron ore mining production² and beneficiation.

Table 4: Gross Value Added per Sector at Current Prices for Saldanha Bay LM

Industry	2011	2012	2013	%
Agriculture, forestry and fishing	406.2	436.7	451.6	7.3
Mining and quarrying	105.0	103.6	132.3	2.1
Manufacturing	598.1	633.7	619.1	10.0
Electricity, gas and water	33.4	39.5	43.0	0.7
Construction	192.2	202.8	214.1	3.5
Wholesale and retail trade, catering and accommodation	605.4	675.9	743.5	12.0
Transport, storage and communication	493.7	519.1	534.8	8.7
Finance, insurance, real estate and business services	1467.7	1660.4	1852.2	30.0
Community, social and personal services	241.1	263.9	281.0	4.6
General government	1021.5	1151.0	1301.8	21.1
Total	5164.4	5686.5	6173.3	100

Source: Quantec Regional Economic Database, 2015

3.5 Employment Profile

Saldanha Bay Local Municipality has approximately 26,400 people in formal employment and 6,000 people in the informal sector. Almost 15% of the formal workforce is highly skilled, whereas 33% is semi or unskilled. Demand for highly skilled labour is rising rapidly, but is shrinking for unskilled labour.

More than 9,600 people are unemployed, which implies an unemployment rate of 23%. This is marginally lower than the national unemployment rate. The figures reflect an urgent need for job creation for unemployed people and especially for those with limited skills.

¹ Western Cape Municipal Economic Review and Outlook, 2015

² Some delays may be experienced in this regard due to the global over supply of iron ore





3.6 Household Income Distribution

Household income distribution is comparatively better than the national average. In Saldanha Bay Local Municipality, only 31% of all households earn less than R19, 600 per year (R1, 633 per month), which is considered to be indicative of absolute poverty. The comparative figure for the Country is 55.5% and 31.5% for the Western Cape Province.

Table 5: Household Income Distribution for Saldanha Bay LM, 2011

Income Category	2011	%
No income	3 996	13.9
R 1 - R 4800	690	2.4
R 4801 - R 9600	1 140	4.0
R 9601 - R 19 600	3 088	10.7
R 19 601 - R 38 200	5 008	17.4
R 38 201 - R 76 400	4 813	16.7
R 76 401 - R 153 800	4 385	15.2
R 153 801 - R 307 600	3 310	11.5
R 307 601 - R 614 400	1 763	6.1
R 614 001 - R 1 228 800	444	1.5
R 1 228 801 - R 2 457 600	109	0.4
R 2 457 601 or more	80	0.3
Total	28 826	100

Source: Stats SA, Census 2011

During 2011, the largest number of households (35% of the total) earned more than R6, 366 per month and should be in a position to pay the full cost of all municipal serves. This is a strong position to be in, considering that less than 24% of households fall into the same category at the national level. The high incidence of households in the upper income group indicates that managerial staff for the proposed thermal plant could be recruited from within the Municipality.

3.7 Household Infrastructure

Almost all households in the Municipality (97%) have access to electricity in their homes. This form of energy is widely used for lighting, but 5% of households still use gas for cooking. This occurrence is likely to be associated with households living in shacks.

More than 80% of households have piped water in their homes, compared to 46% at the national level. Almost all the remaining households (17.2%) have piped water in their yards. Only 0.6% does not have access to piped water. Almost all the domestic water is provided from regional or local water schemes. This speaks of high levels of household infrastructure. At the national level, almost 9% of all households do not have access to piped water.





Sanitation services are also of a high standard, with more than 92% of households having flush toilets that are connected to sewerage systems. Less than 3% of households have sanitation facilities that are below RDP standards, compared to 26.4% at the national level.





4. DEVELOPMENT PLANNING CONTEXT

The proposed project is consistent with national, provincial and municipal development policy as reflected in the extracts of policy documents that are provided below. The important issues emerging from economic development strategies are the imperatives for alternative energy generation and independent power producers, the promotion of the Saldanha Bay Industrial Development Zone (IDZ) and job creation.

4.1 National Planning Context³

Historically, South Africa has relied heavily on non-renewable fossil fuels (primarily coal) for energy generation purposes. This reliance remains a key feature of the current energy mix with just over 90% of national electricity generation needs being met from non-renewable sources. Given South Africa's abundance of coal reserves relative to most other countries, it is not surprising that the energy mix favours coal and it is to be expected that coal will remain dominant. However, relatively recent imperatives with regard to global warming, other environmental impacts associated with 'dirty' fuels; and energy security, have elevated renewable energy solutions to a far more prominent position both within energy policy and in the economic development arena in general. This has happened at a rapid pace particularly in response to the threats associated with global warming. Most governments in the global community now recognise that the roll-out of renewable energy at an unprecedented scale will be needed among a number of other actions to curb global warming. South Africa stands out as a country that is going to have to introduce particularly significant measures as it is characterised by high levels of greenhouse Gas (GHG) emissions relative to other countries at similar stages of development.

Du Plooy (2009) points out the following in this regard:

- South African CO₂ production doubled between 1980 and 2004 and is higher than that of Brazil, which has more than four times the population, and only slightly lower than the UK.
- South Africa's economy is 5-10 times less carbon efficient (or its carbon intensity is 5-10 times higher) than the US, UK or Japan. Regarding total emissions, South Africa is not nearly as significant a contributor to climate change as China. However, South Africa is a far greater contributor to the world's CO₂ emissions than to the world's GDP and on this score just about exactly equalled China in 2003 at 2.8 tonnes of CO₂ for every \$1000 of GDP generated, compared to the US at 0.55.
- South African emissions per capita are still half that of the US and slightly lower than Russia's, but three times higher than China's and nine times higher than India's.

South African energy policy actively encourages renewable energy and independent power producers. The first Integrated Resource Plan (IRP1) was released in late 2009. Subsequently, the the Department of Energy of South Africa (DoE) decided to undertake a detailed process to determine South Africa's 20-

³ The first part of this section was extracted from a specialist economic assessment that was conducted by Dr Hugo Van Zyl (Independent Economic Researchers) for a photo-voltaic solar panel project in October 2010





year electricity plan, called **Integrated Resource Plan 2010-2030 (IRP 2010)**. The IRP1 and the IRP 2010 outline the Government's vision, policy and strategy for the use of energy resources.

The DoE announced a Renewable Energy IPP (Independent Power Producers) Procurement Programme (REIPPPP) in 2011 as part of the implementation of the Integrated Resource Plan. It, envisages the commissioning of 3725 MW of renewable projects and which must be capable of beginning commercial operation before the end of 2020. The specific objectives and key principles of the REIPP Procurement Programme are to achieve positive socio-economic outcomes through:

1. Job creation, to counteract the national unemployment crisis;
2. Increased local content *inter alia by way of* local manufacturing;
3. Fostering rural development and involving communities;
4. Education and the development of skills;
5. Enterprise development through the promotion of emerging businesses;
6. Socio-economic development; and
7. Participation by historically disadvantaged citizens and marginalized regions in the mainstream of the industrial economy.

An Independent Power Producers (IPP) Office⁴ was established by the DoE, the National Treasury and the Development Bank of Southern Africa (DBSA) to facilitate the involvement of IPPs in the generation of electricity. The IPP Office has to date successfully procured 6327 megawatts (MW) under the Renewable Energy IPP Procurement Programme.

A recent study⁵ by the Council for Scientific and Industrial Research (CSIR) found that renewable energy projects, mostly solar photovoltaic and wind energy projects as a first phase, generated benefits worth R4bn more than the R4.3bn in tariff payments that were made by Government between January and June 2015. A total of 92 renewable projects with a capacity of more than 6,200 MW had been procured by January 2015. The weighted average price that was paid to operating renewables projects for the six-month period was R2.16 kWh. This cost is dropping. The benefits referred to above also include prevention and delays in load-shedding.

It is currently intended that a further 3126 MW of new generation capacity will be generated from natural gas. For the Gas IPP Procurement Programme, the DoE through the IPP Office has, in collaboration with Transnet, developed a two-phased approach. The first phase is to introduce Floating Power Plants in three of South Africa's commercial ports, one of which is Saldanha Bay. The second phase is to facilitate the import of Liquefied Natural Gas (LNG) in the same three ports, to allow for the development of medium- to long-term gas power plants outside of the port boundaries. This provides a flexible and cost effective solution to peak energy requirements.

⁴ Department of Energy, 2015, Background Information Document on the IPP

⁵ Financial benefits of renewables in South Africa in 2015, CSIR August 2015





In summary, the policy case for independent power producers has been made at the national level within the country context of the urgent need for flexible electricity generation options to deal with peak demand and the international context of greater emphasis on renewable energy.

4.2 Western Cap Provincial Planning Context

The annual Western Cape Provincial Economic Review and Outlook⁶ (PERO) has become a key form of economic intelligence in the Western Cape. It provides a review and analysis of past and forecasted economic growth, labour market dynamics and socio-economic development of the Province. It aims to improve understanding and insight into the Western Cape economy as part of the evidence-based approach to informing and guiding provincial policy, planning and budgeting.

Key strategic priorities and initiatives contained in the 2014 - 2019 Provincial Strategic Plan include creating an enabling environment through energy security, reducing red tape, skills development and promoting infrastructure-led growth. The Western Cape is advertising economic opportunities particularly in Agri-processing, Tourism and Oil and Gas sectors, which are key strategic priority areas. The last-mentioned priority area of Oil and Gas is where the focus of the Vortum Thermal Power Plant proposal is placed.

The Provincial Spatial Development Framework identifies Saldanha Bay as an emerging regional centre, with regional connector routes. Within the Province, Saldanha Bay is targeted to become the key oil rig repair hub. Saldanha Bay hosts the country's largest oil-storage facility (about 45 million barrels).

The Western Cape Economic Review and Outlook of 2015 reports that the Saldanha Bay Industrial Development Zone (SBIDZ) was officially launched on 31 October 2014. The IDZ designation allows the area to be customs free.

The zone is intended to become an oil, gas, and marine repair, engineering and logistics services complex, targeting upstream exploration and production services. The SBIDZ provides extra depth to serve modern rigs. Saldanha Bay is a natural, deep water port and can accommodate vessels with a draft of up to 21.5 metres. The port will be geared to serve two rigs simultaneously.

The SBIDZ will include logistics, repairs and maintenance as well as fabrication activities. In addition, an offshore supply base will be developed to supply rigs with food, materials and waste-collection services. Transnet estimates that the offshore oil and gas industry may create 6 300 direct new jobs and a further 25 200 indirect employment opportunities. By early August 2015⁷, nondisclosure agreements had been signed with 20 local and international investors.

⁶ Western Cape Government, PERO, 2015

⁷ PERO, 2015 p74





It is therefore evident that the Vortum Thermal Power Plant proposal is consistent with Provincial development policy in the Western Cape.

4.3 Saldanha Bay Municipal Planning Context

The Integrated Development Plan⁸ for 2015/16 indicates that the strategic objective for local economic development is to diversify the economic base of the municipality through industrialisation, whilst at the same time nurturing traditional economic sectors. Two of the key strategies to achieve this objective are firstly to create an enabling environment for the promotion of economic development, tourism and industrial expansion; and secondly to grow IDZ initiatives as one of the key focus areas of this IDP period.

Within the overall spatial management concept, areas for intermediate growth were identified, creating a triangle between Vredenburg, Saldanha and the Transnet Port. An important aspect of this concept is the promotion of a proposed activity corridor which is to link Saldanha and Vredenburg. This will promote the establishment of an industrial zone (IDZ) which was also mentioned in the State of the Nation Speech in 2012.

The Municipal Spatial Development Framework of 2010 also states that the need for industrial development should be addressed without impacting negatively on the sensitive natural environment of the study area. It documents the need to spatially identify and quantify industrial land requirements related to future port expansion, downstream processing and predicated light industrial growth for the ultimate realisation of an Industrial Development Zone (IDZ).

Finally, the Medium Term Economic Development Strategy of the Municipality (2013) confirms that Saldanha has the potential and is well positioned for exponential growth and development. This growth can be expected from four “sunrise” and labour intensive sectors - Oil and Gas, Tourism, Steel Fabrication and Aquaculture. It argues convincingly that Saldanha has a distinct competitive edge due to its superior natural and deep-water harbour, its existing steel production capability, its proximity to Cape Town and the abundance of available land for expansion.

It is therefore evident that consistency has been achieved with regard to the national, provincial and municipal development priority of the proposed IDZ in Saldanha Bay and its focus on the oil and gas industry. The Vortum Thermal Power Plant proposal is also consistent with this development policy priority.

5. ECONOMIC ASSESSMENT

The national and local economies will benefit from civil contractor work, labour and building materials that will be required on site if the proposed project goes ahead. On the whole, a share of approximately

⁸ Saldanha Bay Local Municipality, IDP, 2015/16





40% of total CAPEX (investment costs) will be sourced within the country. The Industrial Development Zone in Saldanha Bay LM will receive a significant boost.

The installation of additional thermal electricity generation capacity at progressively declining costs per unit represents a significant benefit for the South African economy, both from a financial perspective and in terms of infrastructure availability. The comparative cost of diesel and gas as feedstock is important in this regard.

After approval, the project will take approximately 15 months for the first phase to be built and a similar period for the second phase. The power plant will have a useful lifetime of 40 years. Approximately 300 people are expected to be employed during the construction period, although this number can increase for short spaces of time during peak periods. During the operational phase, the power plant will require a permanent staff of approximately 7 people. That impact will be positive considering of the strategic priority for employment creation in the Municipality.

Approximately 50% of the operational costs will be locally procured in the Municipality and the Province. This will be mostly for compensation of employees and for maintenance work by local sub-contractors. The primary feedstock will be gas, which is likely to be imported, although diesel is being considered as an interim feedstock. The respective economic and environmental impacts of gas and diesel should be carefully considered in the final EIA.

A significant additional economic benefit is the experience that will be gained with regard to thermal electricity generation from gas-fired turbines in the Western Cape and in South Africa, considering that this forms part of a national strategic plan for gas-fired Independent Power Producers. This experience will be essential for the roll-out of the strategy, for efficiency improvements and for the establishment of a local manufacturing supply chain for equipment requirements.

Subsidies that were offered by the Government in the form of a tariff for solar-generated electricity that will be supplied into the national grid, represented a significant cost associated with previous rounds of bid proposals. During Window 2 of the REIPP Procurement Programme, the tariff amount was capped at 1,400 R/MWh (1.40 R/kWh) in the case of photovoltaic projects, which is close to the current domestic retail price⁹ of electricity. However, the caps have been removed for Windows Three and Four of the bidding process, due the competitive nature of previous bids. The net benefits are now convincingly positive as indicated in the CSIR 2015 report on the financial benefits of renewables in South Africa. Specific information relating to subsidies for gas-fired thermal plants should be analysed as part of the final EIA process.

⁹ R1.31 /kWh in Saldanha Bay Local Municipality from July 2015 for more than 600kWh, which could increase beyond R1.50/kWh by July 2017





The proposal is unlikely to have any significant negative implications for the tourism industry in Saldanha Bay Local Municipality because of the site location that is earmarked to form part of the existing heavy industrial area. The Economic Development Plan of the Municipality indicates that it manages different sectoral investments and activities, such as tourism and industry, in order to prevent and/or mitigate negative impacts. The proposal is also unlikely to have any significant negative implications for agriculture because of the relatively small size of the site (130 hectares) and the low carrying capacity for grazing, which is the current land use. The proposed site can only sustain 7 livestock units, whereas an economically viable herd is at least 150 livestock units.

In summary, the proposed project will enable the national, provincial and local governments to accelerate the implementation of their strategic objectives for Independent Power Producers in the gas sector, promote the Industrial Development Zone in Saldanha Bay and create new local jobs in the process. A significant additional benefit is the new flexible capacity for electricity generation to provide peak hour requirements, thereby reducing the risk of load shedding.

Priority must be given to local community residents during the recruitment process for the construction and the operational phases. Priority must also be given to local business for the procurement of project inputs.

6. ADDITIONAL SOCIAL BENEFIT FOR THE MUNICIPALITY

Vortum Energy (Pty) Ltd intends to make a corporate social investment in the proposed project area in addition to the investment in the thermal power plant. A range of options are being considered, including support for single unemployed mothers. Incentives for the mobilisation of volunteers for community development work are also being considered. Saldanha Bay Local Municipality will be consulted about the configuration of the corporate social investment initiative. The intention is to distribute the economic benefits of the project beyond employees, government and business.

7. OTHER CONSIDERATIONS

As indicated in the spatial assessment, there are several reasons why the site that has been identified for the proposed project is suited for a development of this nature.

The site can be incorporated into the industrial component of the Special Economic Zone (SEZ) that was approved for Saldanha Bay LM. The area is associated with other industrial activities and is separate from places where tourism activities are concentrated. The project is therefore unlikely to contribute significantly to any negative impacts on the tourism potential of Greater Municipality.





The site can be accessed from an existing road and it is flat, which is ideal for the proposed project. Soil, geological and ecological conditions on site are appropriate and the required rezoning is feasible from a spatial perspective.

The site is within 14km of Vredenburg, which is the main town of Saldanha Bay Local Municipality. Integrated human settlement needs of prospective employees, such as housing, shopping, education, as well as health and recreation facilities, are available in this town. Building materials for construction, as well as operational requirements for the Project, can also be procured from Vredenburg. Higher order needs can be procured from Cape Town, which is approximately 100km to the south.

Military installations such as the flying training school at Langebaanweg have restrictions in terms of construction in the approach to their runways and in their general training areas. The distance from the proposed site to the flying training school make it unlikely that the project will have a negative impact, but this will have to be verified.

8. POTENTIAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT

8.1 Construction Phase

The following socio-economic impacts may arise during the construction phase of the proposed project:

- The national and local economies will benefit from civil contractor work, labour and building materials that will be required on site. On the whole, a share of approximately 40% of total CAPEX (investment costs) will be sourced within the Country.
- Socio-economic benefits for local population due to job creation (especially in the lower skilled levels);
- Training and capacity building with enhancement of the skills of individual workers;
- Local procurement for building materials, goods and services (catering and security);
- There should be no significant negative impacts provided that priority is given to local residents during the recruitment process, market-related wage rates are paid, and prescriptions from the Environmental Practitioner regarding the construction site are adhered to.

8.2 Operational Phase

During the operational phase the following impacts and issues are anticipated:

- Contribution to the generation of “clean energy” during peak times which could reduce South Africa’s dependency on coal generated energy and the impact of such energy sources on the bio-physical environment once the gas component is activated;
- Lower cost per unit of electricity from gas-fired turbines. The cost implications of the initial diesel-fired turbines need to be clarified;
- Positive marketing of the Municipality and District as a development area for clean energy investments within the context of the proclaimed Oil and Gas Special Economic Zone;
- Employment opportunities with benefit for unemployed individuals within local communities, in compliance with the Government’s new “green economy” growth path;





- Skills development and capacity building during the life of the facility;
- Local procurement for building material, goods and services (catering and security) and for maintenance work by local sub-contractors;
- The presence of permanent security personnel will contribute to local safety and security.

9. PLAN OF WORK FOR EIA

9.1 Literature Analysis and Review

A full literature analysis and review will be done during the EIA phase of the project in order to provide further demographic, social and economic information related to the study area.

9.2 Consultation with I&APs

During the EIA Phase, additional information will be acquired through the public participation process and consultation with interested and affected parties.

9.3 Comparative Analysis with Other Studies and Reports

Further information required for the definitive socio-economic impact assessment will be gathered by benchmarking against other studies and reports for similar projects. Specific attention will be given to the relative costs, benefits and environmental impacts of diesel and/or gas as feedstock for the proposed power plant.

9.4 Variables

The following aspects will have to be assessed as part of the socio-economic impact assessment:

- Population;
- Individual and family impacts;
- Community organization and needs;
- Integration between local residents and newcomers.

The above mentioned variables will be related to the construction and operational phases of the proposed development.

9.5 Rating of Social and Economic Impacts

During the EIA phase, all the anticipated social and economic impacts will be rated according to the following parameters:

- Extent;
- Intensity;
- Probability;
- Effects;
- Duration;
- Significance.





9.6 Reporting

The Social Impact Assessment Report may include the following issues:

- Description of the social environment including but not limited to demographic and socio-economic features, current and future land-use, infrastructure requirements etc.;
- Description of the local economy;
- Connections and liaison of the proposed project with integrated development planning processes in the area;
- Further and more detailed assessment of social and economic impacts described in the present report as well as their evaluation;
- Possible mitigation measures and proposals for enhancing positive impacts connected with the development proposal;
- Conclusions and recommendations.

10. SUMMARY AND CONCLUSION

The purpose of this report was to document socio-economic issues at the conceptual level that should be considered as part of the environmental impact assessment of the proposed Vortum Thermal Power Plant, which is in Saldanha Bay Local Municipality, located in the Western Cape Province. This report is one of several documents that consider the environmental impact of the proposed project from different perspectives.

Relevant development planning documents were used and reference was made to recent environmental impact assessments of similar projects at other locations in the country. Experts who are working on other elements of the Vortum Thermal Power Park Environmental Impact Assessment were also consulted.

A 1,200 MW Thermal Power Plant is being proposed on a portion (± 130 ha) of the remainder of the farm Langeberg 188 in Saldanha Bay Local Municipality (Western Cape Province) by Vortum Energy (Pty) Ltd.

Project construction could take 15 months to complete the first phase and another 15 months for the second phase. It will have a lifetime of 40 years. Almost 300 people are expected to be employed during the construction period, although this number can increase for short spaces of time during peak periods and drop during off-peak periods.

The national and local economies will benefit from civil contractor work, labour and building materials that will be required on site. On the whole, a share of approximately 40% of total CAPEX (investment costs) will be sourced in South Africa.

The installation of additional electricity generation capacity for peak periods at a competitive cost represents significant benefits for the South African economy.





Approximately 50% of the operational costs will have a local economic return (mostly for wages and maintenance work by local sub-contractors), creating positive economic impacts for 40 years.

During the operational phase the project is expected to employ approximately 50 - 100 people. That impact will be positive in view of the high unemployment rate, especially among the youth.

Staff remuneration, maintenance equipment and consumables are likely to be the primary operational expenses. Rates and taxes will accrue to the local municipality and company tax will accrue to the national government.

Saldanha Bay Local Municipality has a 2015 population of approximately 114,000, of whom more than 44,000 live in Vredenburg. Education levels in this Municipality are better than the average for the Country, especially at the lower levels.

The Saldanha Bay local economy is relatively small but growing, with government being the largest driver, mostly in the form of expenditure on the compensation of employees. Manufacturing and trade (including tourism) are also significant. The unemployment rate of 23% is marginally below the 25% unemployment rate of the Country.

The proposed project is consistent with national and provincial development policy as reflected in the extracts of policy documents that are provided in this report. It creates an opportunity to launch the implementation of the national independent power producer programme, with particular reference to oil and gas. These development policy commitments are incorporated into the local economic development strategy in the context of the Oil and Gas Special Economic Zone.

Important economic benefits of the proposed project include the experience that will be gained with independent power producers in South Africa, considering that this forms part of a national strategic plan, but from a low base. This experience will be essential for the roll-out of the strategy, for efficiency improvements and for the establishment of a local manufacturing supply chain for equipment requirements. The project will also make a contribution towards reducing the carbon emissions per unit of electricity generated in South Africa, specifically for the gas component of the Project.

The following socio-economic impacts may arise during the construction phase of the proposed project:

- The national and local economies will benefit from civil contractor work, labour and building materials that will be required on site. On the whole, a share of approximately 40% of total CAPEX (investment costs) will be sourced within the country.
- Socio-economic benefits for local population due to job creation (especially in the lower skilled levels);
- Training and capacity building with enhancement of the skills of individual construction workers;
- Local procurement for building materials, goods and services (including catering and security).





During the operational phase the following impacts and issues are anticipated:

- Contribution to the generation of “clean energy” which could reduce South Africa’s grid vulnerability during peak periods;
- Positive marketing of Saldanha Bay Municipality as an attractive area for investments in the Oil and Gas SEZ;
- Employment opportunities for the benefit of unemployed individuals within local communities, also in compliance with the Government’s new “green economy” growth path;
- Skills development and capacity building during the life of the facility;
- Local procurement for operational materials, goods and services (catering and security) and for maintenance work by local sub-contractors;
- The presence of permanent security personnel may be beneficial to the overall safety and security situation in the area;
- A reduction in the unit cost of electricity, at least for the gas component of the project.

Furthermore, Vortum Energy (Pty) Ltd intends to make a corporate social investment in the proposed project area in addition to the investment in the power plant. A range of options are being considered, including support for single unemployed mothers. Incentives for the mobilisation of volunteers for community development work are also being considered. Saldanha Bay Local Municipality will be consulted about the configuration of the corporate social investment initiative. The intention is to distribute the economic benefits of the project beyond employees, government and business.

In summary, the site that has been selected is suited for the proposed project, which will enable the national and provincial governments to launch the implementation of their strategic objectives for independent power producers in an area that is earmarked for this purpose. Secondly, the socio-economic impacts of the project could be positive for the country, the Province and the Municipality, provided that appropriate and more detailed studies are done in the next phase of the impact assessment process and the recommended mitigation measures are implemented.





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