

DRAFT SCOPING REPORT

Draft Scoping Report for the proposed development of the Vhuvhili Solar Photovoltaic (PV) Facility near Secunda in the Mpumalanga Province.

PART A: MAIN REPORT

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CHAPTER I:

Introduction

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1 INTRODUCTION

1.1. Project Overview

The Project Applicant, Vhuvhili Solar RF (Pty) Ltd (hereafter referred to as the “Project Applicant”), is proposing to design, construct and operate the Vhuvhili Solar Photovoltaic (PV) Energy Facility and associated infrastructure approximately 7 km south-east of the town of Secunda in the Mpumalanga Province. The proposed Vhuvhili Solar Energy Facility (SEF) will have a capacity of up to 300 MW. The locality and current footprint of the proposed project is depicted in Figure 1-1. It should also be noted that the project footprint may be refined as part of the detailed specialist studies to be undertaken in the EIA phase. Hence, an updated, refined footprint may be presented in the EIA Report. The proposed project is situated in the Govan Mbeki Local Municipality and the Gert Sibande District Municipality, in the Mpumalanga Province (Figure 1-2).

The associated infrastructure includes a Battery Energy Storage System (BESS) and various structures, buildings and electrical grid infrastructure (EGI) such as, but not limited to an on-site 33/132 kV Substation (SS). Two site alternatives for the on-site SS and BESS (known as the SS and BESS complex) (i.e., the Preferred and Alternative SS and BESS complex) have been identified by the Project Applicant (Figure 1-1). A construction laydown area was also identified and includes the Operation and Maintenance (O&M) buildings. A detailed project description is provided in Chapter 2 of this Draft Scoping Report (DSR).

Appendix 2 of the 2014 NEMA EIA Regulations (as amended) states that a Scoping Report must provide the location of the activity, including the 21-digit Surveyor General code of each cadastral land parcel; where available, the physical address and farm name; or the coordinates of the boundary of the property or properties if the aforementioned is not available. Appendix 2 of the 2014 NEMA EIA Regulations (as amended) also states that a Scoping Report must include a plan which locates the proposed activity or activities applied for at an appropriate scale.

Table 1-1: The farm portions to be affected by the proposed Vhuvhili SEF project

Farm name	Farm No.	Farm Portion	SG code
GROOTVLEI	584	RE	TOIS00000000058400000
GROOTVLEI	293	23	TOIS00000000029300023
GROOTVLEI	293	18	TOIS00000000029300018
GROOTVLEI	293	20	TOIS00000000029300020
GROOTVLEI	293	21	TOIS00000000029300021
POVERTY ACRES	585	RE	TOIS00000000058500000
VLAKSPRUIT	292	22	TOIS00000000029200022
VLAKSPRUIT	292	21	TOIS00000000029200021

In line with the above, refer to Figure 1-1 for a locality map of the proposed Vhuvhili SEF and associated infrastructure. Refer to Appendix C of this DSR for additional maps. The proposed Vhuvhili SEF project will be developed on the farm portions as indicated in Table 1-1 which also specifies the corresponding 21-digit Surveyor General code for each affected farm portion. The properties to be affected by the development of the proposed project will be leased from the property owners by the Project Applicant for the life span of the PV project (i.e., 20 years). The Project Applicant is also proposing to develop a 132 kV power line, a 33/132 kV Step-down SS and a Collector SS (if required) to feed the electricity generated by the proposed Vhuvhili SEF into the Sasol grid at (Figure 1-3). It is important to note that these EGI components will be assessed as part of a separate application and a Basic Assessment (BA) process to be undertaken by the Project Applicant.

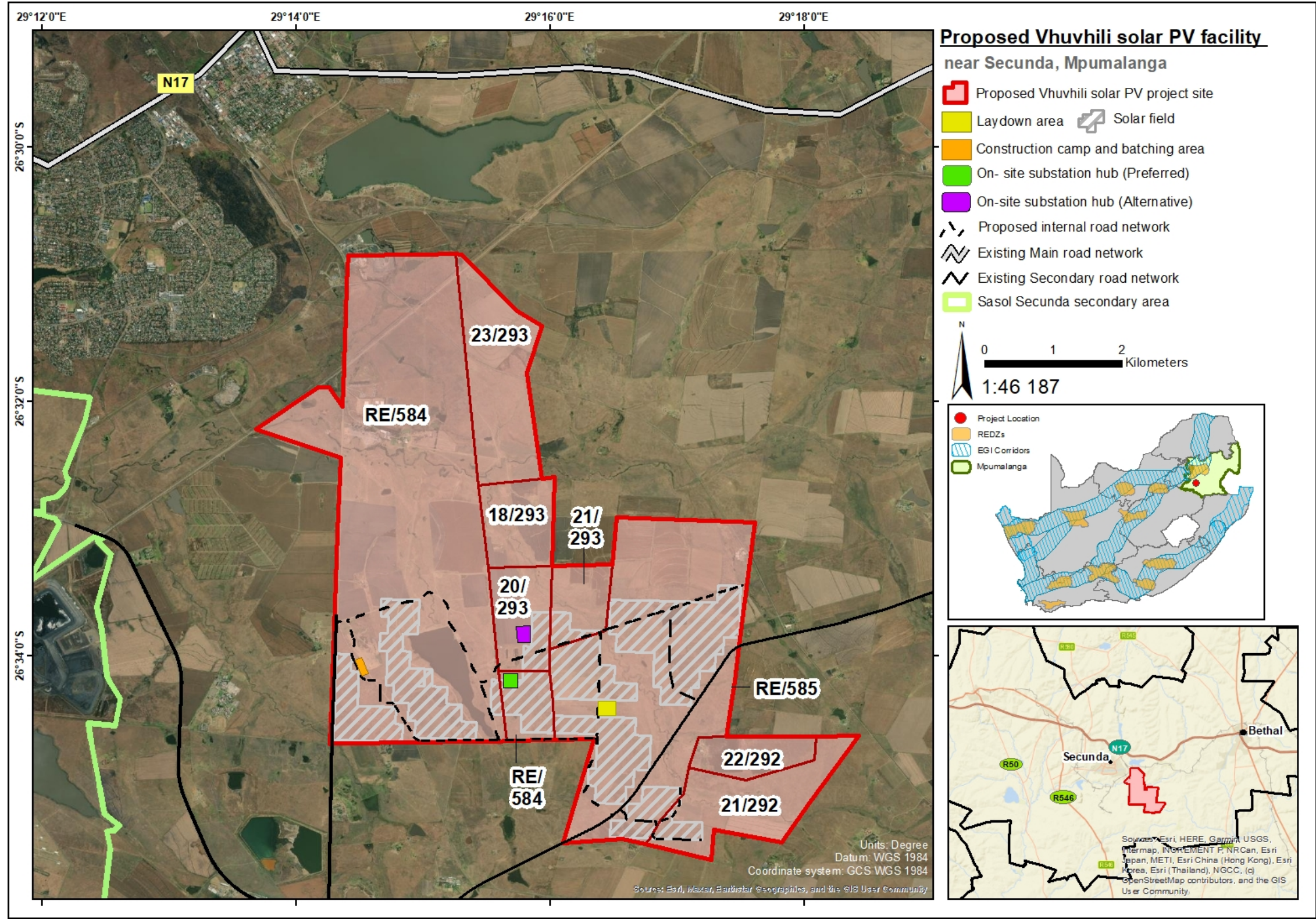


Figure 1-1: Locality map for the proposed Vhuvhili Solar PV Facility near Secunda in the Mpumalanga Province.

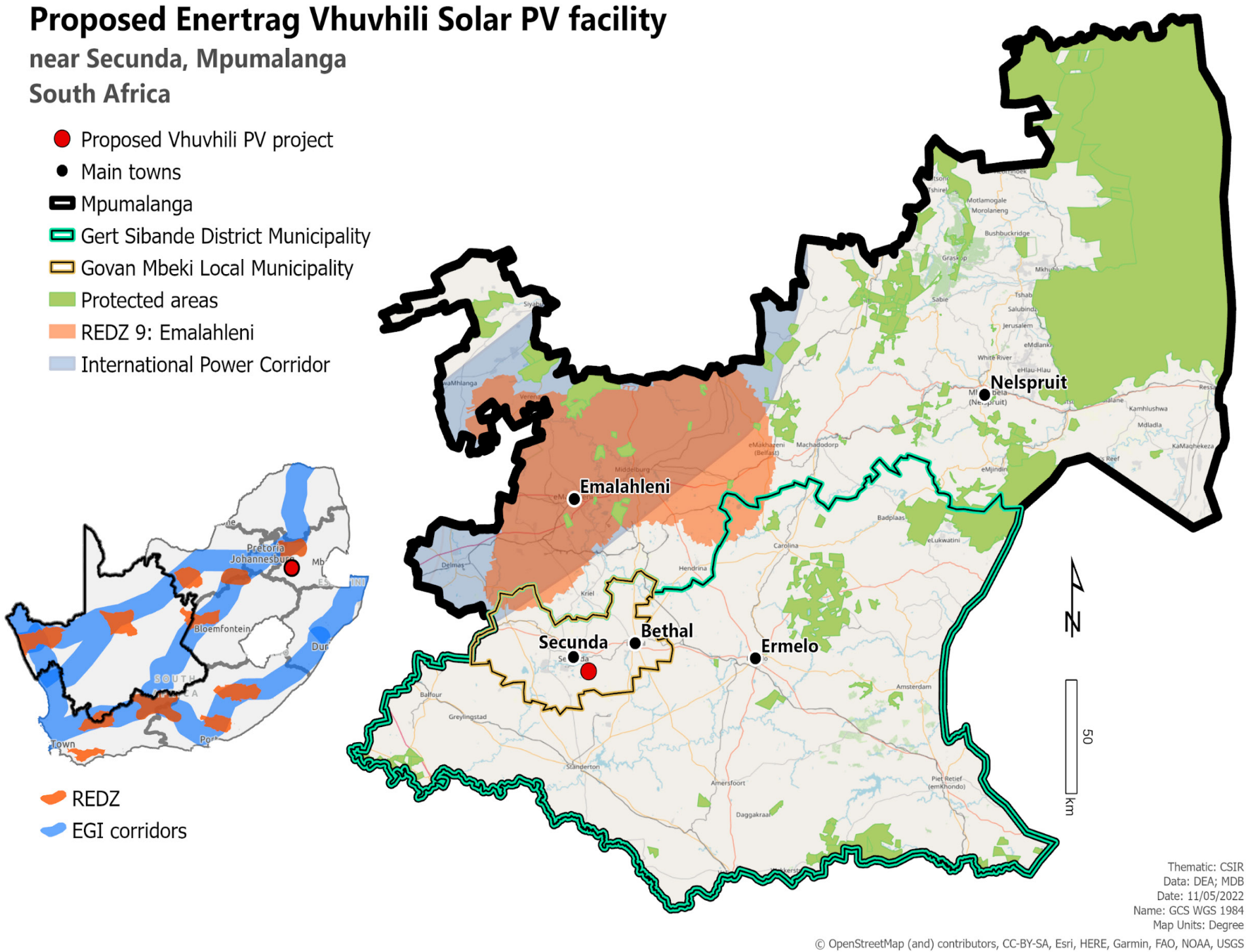


Figure 1-2: Regional context map for the proposed Vhuvhili SEF situated near Secunda in the Mpumalanga Province

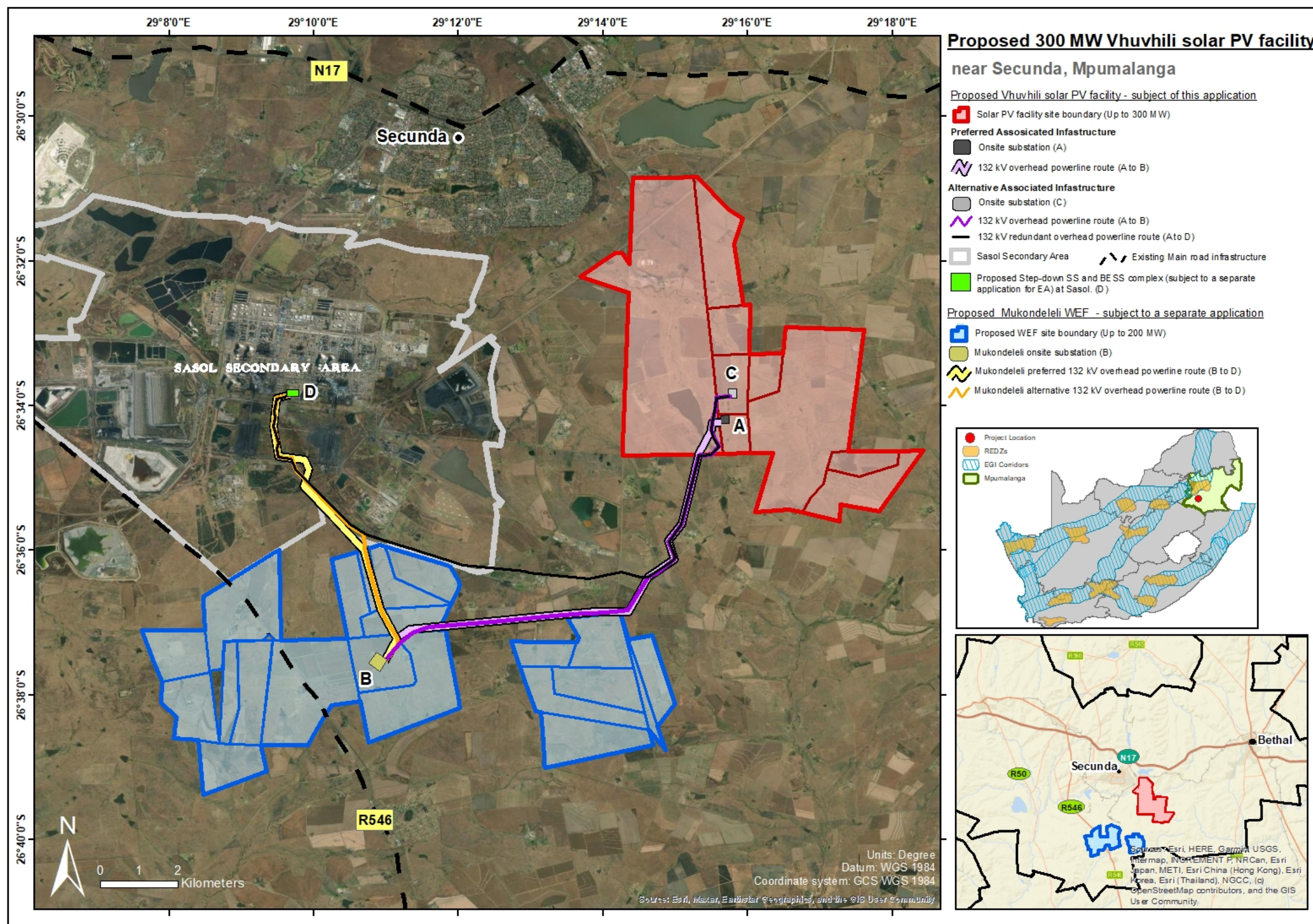


Figure 1-3: Proposed Power Line and Electrical Grid Infrastructure associated with the proposed Vhuvhili Solar PV Facility (subject to a separate Environmental Assessment application).

1.2. Project Coordinates

The approximate co-ordinates of the boundary points of the project site for the proposed Vhuvhili SEF project are included in Table 1-2a. A map corresponding to the co-ordinate points are indicated in Figure 1-4. Coordinates of the mid-point of the development area as well as the mid-point of the preferred on-site SS and BESS complex are also included in Table 1-2b.

Table 1-2a. Co-ordinate Points along the boundary of the proposed Vhuvhili SEF project

Point	Decimal Degrees		Degrees, Minutes, Seconds	
	Latitude (Y)	Longitude (X)	Latitude (Y)	Longitude (X)
VH-1	-26.57812604	29.23784672	26° 34' 41.25"	29° 14' 16.25"
VH-2	-26.5406955	29.23906249	26° 32' 26.50"	29° 14' 20.62"
VH-3	-26.53698836	29.22814835	26° 32' 13.16"	29° 13' 41.33"
VH-4	-26.5314131	29.23612331	26° 31' 53.09"	29° 14' 10.04"
VH-5	-26.53149644	29.23762344	26° 31' 53.39"	29° 14' 15.44"
VH-6	-26.53387164	29.23937358	26° 32' 1.94"	29° 14' 21.74"
VH-7	-26.51431333	29.24022312	26° 30' 51.53"	29° 14' 24.80"
VH-8	-26.51412242	29.25492312	26° 30' 50.84"	29° 15' 17.72"
VH-9	-26.52156787	29.26232085	26° 31' 17.64"	29° 15' 44.36"
VH-10	-26.52357242	29.26547085	26° 31' 24.86"	29° 15' 55.70"
VH-11	-26.52958605	29.26356176	26° 31' 46.51"	29° 15' 48.82"
VH-12	-26.54352242	29.2655663	26° 32' 36.68"	29° 15' 56.04"
VH-13	-26.54342696	29.2671413	26° 32' 36.34"	29° 16' 1.71"
VH-14	-26.55483378	29.26704585	26° 33' 17.40"	29° 16' 1.37"
VH-15	-26.55464287	29.27468221	26° 33' 16.71"	29° 16' 28.86"
VH-16	-26.54858151	29.27539812	26° 32' 54.89"	29° 16' 31.43"
VH-17	-26.54924969	29.29343903	26° 32' 57.30"	29° 17' 36.38"
VH-18	-26.57721787	29.28976403	26° 34' 37.98"	29° 17' 23.15"
VH-19	-26.57707469	29.30699358	26° 34' 37.47"	29° 18' 25.18"
VH-20	-26.59105878	29.29697085	26° 35' 27.81"	29° 17' 49.10"
VH-21	-26.58943605	29.28809358	26° 35' 21.97"	29° 17' 17.14"
VH-22	-26.59320651	29.28775948	26° 35' 35.54"	29° 17' 15.93"
VH-23	-26.59062924	29.27592312	26° 35' 26.27"	29° 16' 33.32"
VH-24	-26.59110651	29.26847767	26° 35' 27.99"	29° 16' 6.52"
VH-25	-26.57759969	29.27234357	26° 34' 39.36"	29° 16' 20.44"

Table 1.2b. Co-ordinate Points of the mid-point of the proposed Vhuvhili SEF study area and mid-point of the preferred on-site Substation and Battery Energy Storage System complex area (preferred option)

Point	Decimal Degrees		Degrees, Minutes, Seconds	
	Latitude (Y)	Longitude (X)	Latitude (S)	Longitude (E)
Mid-point of project area	-26.555314	29.265552	26° 33' 19.1304"	29° 15' 55.9872"
Mid-point of preferred on-site SS and BESS complex (Option 1)	-26.569868	29.26139	26° 34' 11.5248"	29° 15' 41.004"

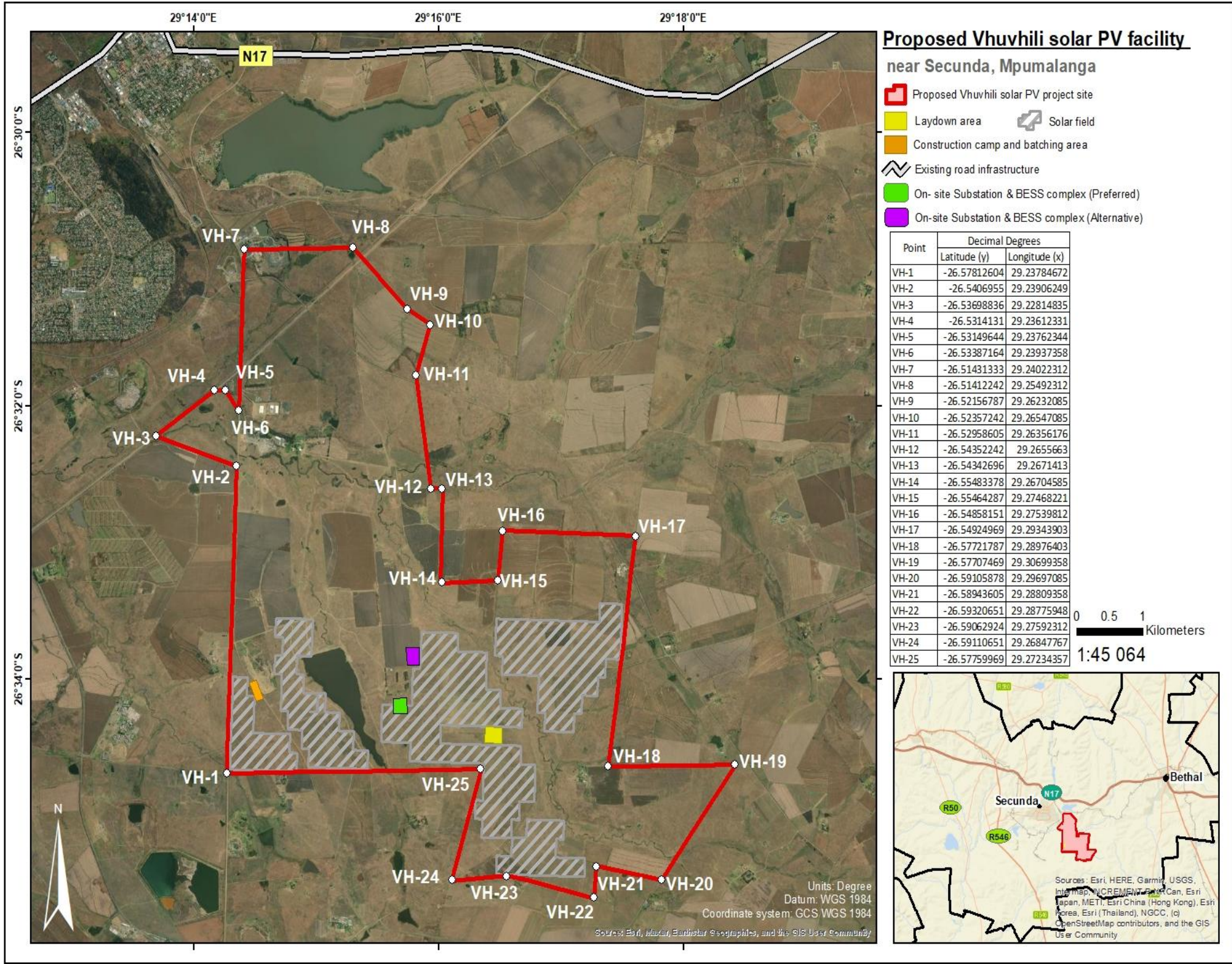


Figure 1-4: Vhuvhili SEF Boundary Co-ordinate Point Map

1.3. Project Scenarios

The Project Developer, ENERTRAG South Africa (Pty) Ltd (hereafter referred to as the “ENERTRAG”), is currently investigating two scenarios for the uptake of energy from the proposed Vhuvhili SEF:

Scenario 1:

The proposed Vhuvhili SEF is planned to provide renewable energy to Sasol for the production of green hydrogen and green aviation fuel. This is viewed as the main proposed outcome of the proposed project, via an agreement between several consortium parties including ENERTRAG and Sasol.

Scenario 2:

However, should the above agreement not materialise under Scenario 1, and a private off-taker of the renewable energy cannot be obtained, the proposed Vhuvhili SEF will be bid into the future rounds of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) or similar bidding processes. It is understood that the Environmental Authorisation (EA) received for the proposed Vhuvhili SEF (should it be granted) would be suitable for both scenarios. Furthermore, the scenario of providing the proposed renewable energy to Sasol via a private off-taker agreement and the scenario of bidding the project into the REIPPPP would have no bearing on the assessment of potential environmental impacts of the proposed project by the Environmental Assessment Practitioner (EAP).

Therefore, both scenarios have been documented in the Scoping Report, i.e., Scenario 1 of having a private off-taker (i.e., Sasol) and Scenario 2 of bidding the project into the REIPPPP or another suitable tender process.

1.4. Project Motivation

1.4.1. The need for renewable energy in South Africa

The need for renewable energy is becoming increasingly apparent, in both local and international context, with South Africa becoming an integral part of the global transition towards renewable sources of electricity generation. The urgency behind this evolution can be appreciated considering that South Africa is one of the largest emitters of greenhouse gases in Africa¹, and is also estimated to rank amongst the top 20 largest emitters of greenhouse gases in the world. These emissions are largely a result of an energy-intensive economy and high dependence on coal-based electricity generation to meet more than 90% of its energy needs. South Africa is therefore one of the highest per capita producers of carbon emissions in the world and Eskom, as an energy utility, has been identified as the world’s second largest producer of carbon emissions. The South African government is therefore committed to supplementing the existing generation capacity of thermal and nuclear power plants with renewable energy power generation, thus creating the framework that will lead to an increase in the supply of clean energy for the nation. The development of renewable energy is important for South Africa to reduce its overall environmental

¹ <https://ourworldindata.org/co2/country/south-africa?country=ZAF~NGA~KEN~ZWE~IRN~LBY~GIN~LBR~MWI~TGO~BWA~BFA~BDI~CMR~SDN#citation>

footprint from power generation (including externality costs), and thereby to steer the country on a pathway towards sustainability.

South Africa is facing the challenge of securing clean, affordable and sustainable energy to power its economy and to contribute to the transition to a climate-neutral society. A clean energy future is seen as a critical enabler of inclusive and transformational economic growth and development. This challenge is addressed in the National Energy Act of 2008 which aims to ensure that diverse energy resources are available in affordable quantities to the South African economy to support economic growth and poverty alleviation whilst accounting for surrounding environments and economic sectors².

Commitment toward decarbonisation of the economy is clearly illustrated in the South Africa's National Development Plan (NDP) Vision 2030 published in 2012. Chapter 4 and 5 of the NDP advocates for increased investment in an energy sector that is both economically inclusive and environmentally sustainable –with renewable energy at the core of enabling this transition³. The plan identifies, as a priority, the production of sufficient energy to support industry at competitive prices, ensuring access for poor households, while reducing the carbon intensity of the economy.

Further, the Minister of the Department of Forestry, Fisheries, and the Environment (DFFE), Ms Barbara Creecy announced the approval of the revised National Determined Contribution (NDC), the Climate Bill and South Africa's negotiating position for COP26 during a Media Release on 22 September 2021. The NDC describes South Africa's contribution to global efforts to reduce GHG emissions and mitigate climate change. The revised NDC includes the updated mitigation target range of 350-420 Mt CO₂-eq (previously 398-614 Mt CO₂-eq) in line with targets set out in the Paris Agreement. The updated NDC also states that emissions are due to decline from 2025 (previously 2035)⁴.

The transition from an intense carbon-based energy system with substantial dependence on coal to a sustainable, clean and affordable energy system based on renewable resources is therefore a priority for South Africa as it pursues both economic prosperity and its international climate commitments.

The proposed Vhuvhili solar PV project will also have international significance as it will contribute to South Africa being able to meet some of its international obligations by aligning domestic policy with internationally agreed strategies and standards as set by the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement on Climate Change, Kyoto Protocol, and United Nations Convention on Biological Diversity (UNCBD), all of which South Africa is a signatory to. Renewable energy is critical to South Africa as this source of energy is recognised as a major contributor to climate protection, has a much lower environmental impact significance, as well as advancing economic and social development.

² Strambo, Claudia, Jesse Burton, and Aaron Atteridge. 2019, The End of Coal? Planning a 'Just Transition' in South Africa. Stockholm Environment Institute.

³ Roos, T and Wright, J., 2021, Powerfuels and Green Hydrogen (public version). European Union.

⁴ Department of Forestry, Fisheries and the Environment (DFFE), South African delegation meets climate envoys ahead of CoP26, Media release, [Online]. Available <https://www.environment.gov.za/mediarelease/cop26climateenvoysmeeting>. [Accessed 30 September 2021]

Green hydrogen has also been identified as a low-carbon solution to meet Greenhouse Gas (GHG) emission reduction targets and to power industries in which emissions have previously been difficult to abate⁵. Hydrogen is also used in various industrial processes, such as ammonia production, and thus has the potential to contribute to decarbonising a variety of industries.

In October 2021, at the second Sustainable Infrastructure Development Symposium, President Cyril Ramaphosa stated that green energy had the potential to drive industrialisation and establish a whole new industrial reality. Furthermore, the President stated that “We stand ready to be a major exporter in this market, to use hydrogen to rapidly decarbonise our existing industries, and attract industrial investment from across the globe seeking to meet new standards of green power in the production process”.

The proposed development of the Vhuvhili SEF directly addresses the President’s statements and the need to implement renewable energy technologies and green fuels and/or products in Mpumalanga.

1.4.2. The Green Hydrogen Economy

Hydrogen is widely referred to as an energy vector as it is an “energy-rich substance that facilitates the translocation and/or storage of energy [...] with the intention of using it at a distance in time and/or space from the primary production site”⁶. Green hydrogen is obtained through the electrolysis of water into hydrogen and oxygen molecules, using electricity obtained from renewable sources.

Positive energy trends moving towards decarbonisation goals in the energy sector have been noted since 2014. This trend is strongly attributed to the implementation of national policies and subsidies supporting renewables which resulted in the reduced cost of renewable energy and a consequent rapid roll out of renewable energy facilities between 2014 and 2019. The trend of the decreasing cost and consequent increased accessibility of renewable electricity opens opportunities for feasible production of green hydrogen⁷. Therefore, countries such as South Africa which are rich in renewable energy resources are at a competitive advantage lead in the global export of green hydrogen⁸.

In addition, South Africa’s land availability, and decreasing cost of renewable energy projects provides an opportunity “position itself as a country that can produce renewable hydrogen at scale and at competitive prices, triggering an export market from which economic growth and energy independence can be derived”⁹.

⁵ DSI (Department of Science and Innovation). 2021. Hydrogen Society Roadmap for South Africa 2021: Securing A Clean , Affordable And Sustainable Energy. [<https://www.dst.gov.za /index.php/resource-center/strategies-and-reports/3574-hydrogen-society-roadmap-for-south-africa-2021>]

⁶ Abdin, Z., Zafaranloo, A., Rafiee, A., Mérida, W., Lipiński, W. and Khalilpour, K.R, “Hydrogen as an energy vector”. Renewable and sustainable energy reviews, 120, p.109620, 2020

⁷ Roos, T and Wright, J., 2021, Powerfuels and Green Hydrogen (public version). European Union

⁸ Bischof-Niemz, T. "Liquid fuels from wind: Turning South Africa into the Saudi Arabia of the sustainable energy era," in Workshop: The Potential for Powerfuels, 9 December, Johannesburg, 2019.

⁹ DSI (Department of Science and Innovation). 2021. Hydrogen Society Roadmap for South Africa 2021: Securing A Clean, Affordable And Sustainable Energy. Pp 15. Available at: <https://www.dst.gov.za /index.php/resource-center/strategies-and-reports/3574-hydrogen-society-roadmap-for-south-africa-2021>

1.4.3. South Africa's experience with Fischer-Tropsch Technology

In addition to the rich endowment of natural resources for renewable energy, coupled with South Africa's experience with Fischer-Tropsch (FT) technologies, positively positions the country as a strong contender to cost-effectively produce green hydrogen. Priscillah Mabelane, Executive Vice President for Energy at Sasol, expressed in a statement that Sasol believes "that Southern Africa is well positioned to play in the global green hydrogen economy due to key structural advantages. Our proprietary Fischer-Tropsch (FT) technologies and renewable endowments, are some of the best in the world,". She added that Sasol has committed to be net zero by 2050 and sees green hydrogen as core to enabling this goal."

The current FT process involves the conversion of coal into hydrocarbons via gasification in a Lurgi gasifier. Cooled oxygenated hydrocarbons are thereafter converted into a wide range of liquid fuels and chemicals¹⁰. The FT facilities at Secunda (Sasol Two and Sasol Three) account for 80% of Sasol's global GHG emissions. Sasol has emphasised its commitment to transition towards a less carbon intensive process and reducing GHG emissions via the use of through efficiency and cleaner energy sources. Incorporating green hydrogen into the FT process can significantly assist in lowering GHG emissions and meeting climate targets. Further, it is noted that the use of green hydrogen and green carbon (i.e., carbon captured from existing fuel gas or the air) in the production of Powerfuels will greatly assist Sasol and South Africa in meeting climate targets whilst ensuring a Just Energy Transition. The incorporation of green hydrogen in the FT process would also contribute to the beneficiation of South African Platinum reserves as platinum is a key component for electrolyser technology, required to produce green hydrogen.

Several global future markets have emerged for low-carbon Powerfuels. These markets provide numerous opportunities for South African businesses and international businesses located in South Africa¹¹, and thus have the potential to contribute to decarbonising a variety of industries. The aviation industry in particular is considered globally as one of the most challenging sectors to decarbonise. The production of Sustainable Aviation Fuels (SAFs) using green hydrogen and green carbon is considered key in reducing GHG emissions in the industry¹². South Africa's rich endowment in renewable resources and experience with the FT process presents a key strategic advantage to address the decarbonisation of the aviation sector.

In 2021 Sasol partnered with Linde PLC, ENERTRAG AG and Navitas Holdings (Pty) Ltd to form the LEN Consortium whose main aim is to explore the feasibility of SAF production at the Secunda Synfuels plant in Mpumalanga, in order to produce to bid SAF under Germany's H2Global platform¹³. A successful bid would significantly improve South Africa's capacity to become a major role player in the global hydrogen economy, as well as improve the country's domestic green hydrogen production capacity¹⁴. Apart from

¹⁰ De Klerk, A., 2008, Fischer-Tropsch Refining. Philosophiae Doctor Thesis, University of Pretoria.

¹¹ Roos, T and Wright, J., 2021, Powerfuels and Green Hydrogen (public version). European Union

¹² Ed Reed, 'Sasol signs up green hydrogen study in northwest', Energy Voice, 6 October 2021.

energyvoice.com/renewables-energy-transition/hydrogen/africa-hydrogen/354588/sasol-study-hydrogen-boegoebaai/; See the Just Transition Centre, ituc-csi.org/just-transition-centre.

¹³ <https://www.sasol.com/media-centre/media-releases/sasol-explore-potential-cleaner-aviation-fuels-world-class-partners>

¹⁴ Ed Reed, 'Sasol signs up green hydrogen study in northwest', Energy Voice, 6 October 2021.

energyvoice.com/renewables-energy-transition/hydrogen/

increased energy security, it is also expected that the benefits of SAF production will promote socio-economic development through job creation in areas where biomass is farmed for feedstock¹⁵. This will contribute towards a just energy transition through the re-skilling of communities to take up opportunities in new and emerging energy areas¹⁶.

The capacity of the SAF production project at the Secunda Synfuels plant is expected to comprise of up to 500 MW of renewable energy (i.e., using wind and solar technology) and a 150 MW hydrogen electrolyser to produce approximately 60,000 t/a of SAF (Figure 1-5). Should the proposed Vhuvhili SEF be acceptable and authorised, the facility will form one of two RE facilities which will feed into the hydrogen electrolyser at the Secunda Synfuels plant, contributing 300 MW of the required 500 MW.

The proposed Vhuvhili SEF will therefore form an integral component of the SAF production chain. Additionally, the proposed Vhuvhili SEF is intended to address the current energy shortages in South Africa and would contribute towards meeting the national energy target as set by the Department of Mineral Resources and Energy (DMRE) and will assist the South African government in achieving its proposed renewable energy targets.

[africa-hydrogen/354588/sasol-study-hydrogen-boegoebaai/](#); See the Just Transition Centre, [ituc-csi.org/just-transition-centre](#).

¹⁵ Sasol to explore potential of cleaner aviation fuels with world class partners', Sasol, April 2021. [sasol.com/media-centre/media-releases/sasol-explorepotential-cleaner-aviation-fuels-world-class-partners](#)

¹⁶ Sasol to explore potential of cleaner aviation fuels with world class partners', Sasol, April 2021. [sasol.com/media-centre/media-releases/sasol-explorepotential-cleaner-aviation-fuels-world-class-partners](#).

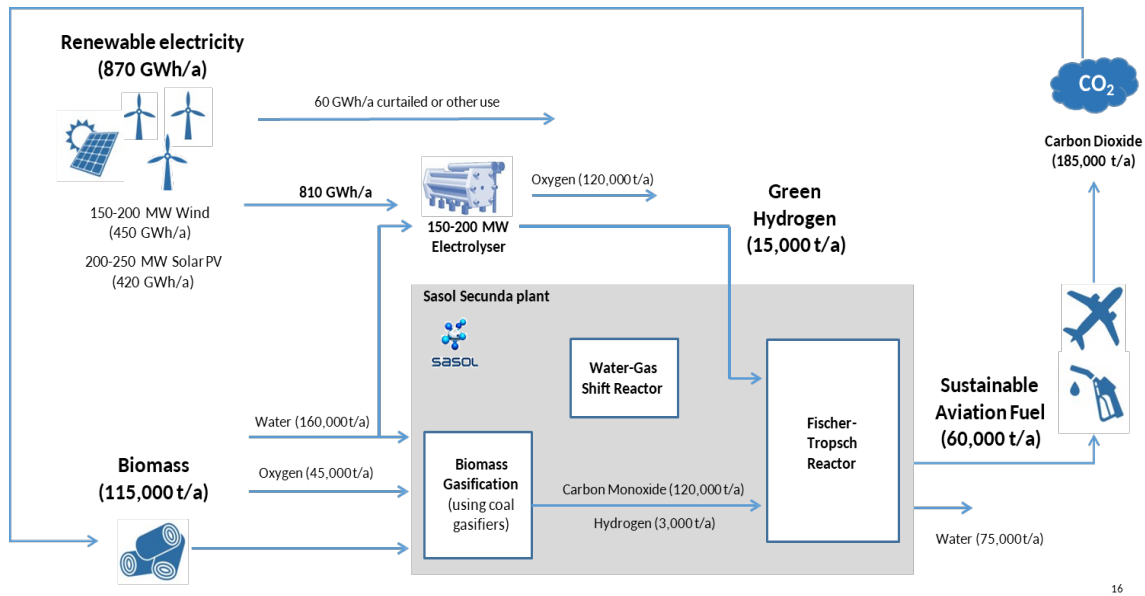


Figure 1-5: The SAF production process and estimated outputs proposed at the Sasol Secunda Synfuels plant in Mpumalanga for bidding into the German H2Global platform (Source¹⁷)

1.4.4. An overview South Africa's Renewable Energy Independent Power Producer Programme (REIPPPP)

The Integrated Resource Plan (IRP) for South Africa for the period 2010 to 2030 (referred to as "IRP2010") was released by government in 2010, and a draft of an updated report was published in 2013, which proposed to secure 17 800 MW of renewable energy capacity by 2030 (including solar, wind and other energy sources). In August 2011, the Department of Energy (DoE) (currently operating as the DMRE) launched the REIPPPP and invited potential IPPs to submit proposals for the financing, construction, operation and maintenance of the first 3 725 MW of onshore wind, solar thermal, PV, biomass, biogas, landfill gas or small hydropower projects. On 18 August 2015, an additional procurement target of 6 300 MW to be generated from renewable energy sources was added to the REIPPPP between 2021 to 2025, as published in Government Gazette 39111. Of this, the additional target allocated for solar energy is 2 200 MW.

The most recent update to the IRP, the IRP 2019, was gazetted by the Minister of the DMRE, Mr. Gwede Mantashe, in October 2019. The update revised the energy forecast for South Africa from the current period to the year 2030. Provision has been made for new additional capacity by 2030 including in particular 14 400 MW of wind, 6 000 MW of solar PV and 2 088 MW for storage. In terms of the REIPPPP, submitted proposals are then evaluated according to a Request for Proposal (RfP). Bidding Window 5 has

¹⁷ [<https://www.google.com/url?q=https://www.sasol.com/media-centre/media-releases/sasol-explore-potential-cleaner-aviation-fuels-world-class-partners&sa=D&source=docs&ust=1654098677107519&usg=AOvVaw14ZpqFoAK9s9LhCrIILINK>]

the same two main evaluation criteria for compliant proposals as the previous Bidding Windows 1-4, namely price and economic development. However, for Bidding Window 5, the point allocation changed to 90/10 compared to 70/30 for the previous Bidding Windows. The overview summary document (DMRE, 2022¹⁸) on the RFP issued for Bidding Window 6 notes that Bid responses will be assessed firstly in terms of Functional and Qualification Criteria to determine if they are compliant. These criteria include the structure of the project; legal aspects; land acquisition and land use; environmental; financial; technical; economic development; and value for money. Secondly, the compliant Bids are proposed to be evaluated on a comparative basis (out of 100 points) in terms of price (maximum of 90 points) and economic development (maximum of 10 points). Therefore, economic development has been retained as a qualification criterion based on the RFP for Bidding Window 5, but it is also considered in the comparative scoring (DMRE, 2022). The bidders whose responses rank the highest (according to the aforementioned criteria) generally have the greatest potential to be appointed as “Preferred Bidders” by the DMRE.

Should the proposed Vhuvhili SEF not provide energy to Sasol, it is intended that the project will be bid into a future REIPPPP bidding rounds or other suitable tender processes. As announced by President Cyril Ramaphosa in the State of the Nation Address delivered on 11 February 2021, Bidding Window 5 was conducted during 2021 with an allocation of 2 600 MW for new wind and solar energy. The successful bidders were announced on 28 October 2021. Furthermore, Bidding Window 6 was announced in April 2022. This aims to procure up to 2 600 MW of additional renewable capacity to diversify the country’s energy mix and ensure energy security. The proposal submission date is 11th August 2022.

The IRP 2019 forecasts that by 2030 coal will form a significant, but decreasing portion of the electrical energy mix (~55%). The IRP 2019 also provides for a significant allocation of capacity to new-build solar and wind renewable facilities^[16]. The various iterations of the IRP all aim to establish long-term planning scenarios relative to a least-cost base plan to meet electricity demand requirements whilst considering government policy objectives for a diverse generation mix and therefore provides a detailed indication of South Africa’s level of commitment to increasing the country’s renewable energy capacity.

The success of the REIPPPP, the decrease in the cost of renewable energy projects along with the significant planned allocated capacity of new build renewable facilities, highlights the rapid growth of renewable energy capacity of South Africa and its future potential as a result of abundant renewable resources^{19 20}.

Additionally, the proposed project is intended to address the current energy shortages in South Africa and would contribute towards meeting the national energy target as set by the DMRE and assist the government in achieving its proposed renewable energy targets if it is bid in a REIPPPP or similar bidding process.

Should the proposed Vhuvhili SEF be acceptable and authorised, it is considered viable that long-term benefits for the community and society in the Sasol/Secunda area would be realised. The proposed project

¹⁸ DMRE (2022). Overview of the Request for Qualification and Proposals for New Generation Capacity under Sixth Bid Submission Phase of the Renewable Energy Independent Power Producer Procurement Programme. Accessed online: <https://www.ipp-renewables.co.za/> [June 2022]

¹⁹ Roos, T and Wright, J., 2021, Powerfuels and Green Hydrogen (public version). European Union

²⁰ Bischof-Niemz, T. "Liquid fuels from wind: Turning South Africa into the Saudi Arabia of the sustainable energy era," in Workshop: The Potential for Powerfuels, 9 December, Johannesburg, 2019

will provide an opportunity for additional employment in an area where job creation is identified as a key priority. During the construction phase there will be approximately 300 employment opportunities over a period of 24 months. This will comprise of 20% skilled, 30% medium skilled (Patterson B and above) and 50% low positions. The operational phase will have fewer employment opportunities, i.e., approximately 60, but these positions will be long-term. The proposed Vhuvhili SEF project will make use of local labour as much as possible during the construction and operational phases of the proposed project.

In order to submit a bid in terms of the REIPPPP, the Project Applicant is required to have obtained an EA in terms of the 2014 NEMA EIA Regulations (as amended), as well as several additional authorisations or consents.

1.5. Legal Requirements for an EIA

Section 24(1) of the NEMA, states that “In order to give effect to the general objectives of integrated environmental management laid down in this Chapter, the potential impact on the environment of listed activities must be considered, investigated, assessed and reported to the competent authority charged by this Act with granting the relevant EA”. The reference to “listed activities” relates to the regulations promulgated in Government Notice (GN) R982, R983, R984 and R985 in Government Gazette 38282, dated 4 December 2014, which came into effect on 8 December 2014. These were amended in April 2017, specifically promulgated in GN R326, R327, R325 and R324 in Government Gazette 40772, dated 7 April 2017. GN R327 and GN R324 include listed activities that trigger the need for a BA Process, whereas GN R325 includes listed activities that trigger the need for a full Scoping and EIA Process. It must be noted that the 2014 NEMA EIA Regulations were further amended in Government Gazette 44701, GN 517 on 11 June 2021. Additional detail is provided in Chapter 4 of this DSR.

In terms of the NEMA and the 2014 NEMA EIA Regulations (as amended), a full **Scoping and EIA Process** is required for the construction of the proposed Vhuvhili SEF.

The proposed Vhuvhili SEF is not located within any of the Renewable Energy Development Zones (REDZs) gazetted in Gazette 41445, GN R114 on 16 February 2018; and Gazette 44191, GN R144 on 26 February 2021. It is also not located within any of the strategic power corridors gazetted in Gazette 41445, GN R113 on 16 February 2018; and Gazette 44504, GN R383 on 29 April 2021. Therefore, a full Scoping and EIA Process is being undertaken for the proposed Vhuvhili SEF with a 107-day decision-making timeframe, as opposed to a BA Process and 57-day decision-making time frame allowed for in the REDZs and strategic power corridors.

The need for the full Scoping and EIA is triggered by, amongst others, the inclusion of Activity 1 listed in GN R325 (Listing Notice 2):

“The development of facility or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facility or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure”.

As noted above, the proposed Vhuvhili SEF requires EA from the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) as the Competent Authority (CA), acting in consultation with other spheres of government.

Chapter 4 of this DSR contains the detailed list of activities contained in R327, R325 and R324, which may be triggered by the various project components and thus form part of the Scoping and EIA Process.

The purpose of the Scoping and EIA Process is to identify, assess and report on any potential impacts the proposed project, if constructed and implemented, may have on the receiving environment. The environmental assessment therefore, needs to show the CA, what the biophysical and socio-economic impacts will be of the proposed SEF. It also needs to show the CA how such impacts can be avoided, remedied, mitigated or managed, and how positive impacts can be enhanced.

1.6. Project Developer

ENERTRAG South Africa (Pty) Ltd (“ENERTRAG”) is a subsidiary of the German-based ENERTRAG AG, a hydrogen and renewable energy developer founded in 1992. ENERTRAG AG has an established track-record of renewable energy projects around the world, comprising over 100 wind turbines with an installed capacity of over 760 MW, and over 500 employees. Current projects are in Germany, United Kingdom, France, Poland, Bulgaria and Belarus.

ENERTRAG AG has established itself as a Green Hydrogen Developer globally. It developed its first green hydrogen facility, Hybridkraftwerk, in Germany which is powered by wind energy. The Hybridkraftwerk was commissioned in October 2011 and produces 94 tons of hydrogen per year (Figure 1-6).

ENERTRAG South Africa (Pty) Ltd (hereafter referred to as ENERTRAG) was established in 2017, with the intention to investigate and develop clean energy projects in South Africa. ENERTRAG currently owns the Darling Wind Farm in the Western Cape and has numerous wind measurement campaigns throughout South Africa, the first IPP to commence with a wind measurement campaign in Mpumalanga. During the time of the installation of this initial wind mast, mainstream belief was that there were insufficient wind resources in Mpumalanga for a Wind Energy Facility to be viable. Data from the wind measurement mast located near Hendrina has shown that the wind resource is viable for wind farm development in the region. Other IPPs are now following suit and securing land for Renewable Energy Facilities (REFs) throughout Mpumalanga.

ENERTRAG’s goal is to be a market leader in making the Just Energy Transition a reality for South Africa. It is within this context that the Developer proposes the development of the Camden and Hendrina Renewable Energy Complexes in the Mpumalanga province. These include the development of WEF and SEF projects as well as the associated development of the Camden and Hendrina Green Hydrogen and Ammonia Facilities, including grid infrastructure.

These projects are subject to separate applications to the relevant CAs.

ENERTRAG is therefore paving the way towards a Just Energy Transition in the Mpumalanga Province.



Figure 1-6: ENERTRAG Germany's Hybridkraftwerk

Although the Project Developer will be ENERTRAG, the Project Applicant seeking EA for the proposed Vhuvhili SEF is Vhuvhili Solar RF (Pty) Ltd.

1.7. EIA Project Team

In accordance with Regulation 12 (1) of the NEMA EIA Regulations, 2014, as amended, the Applicant has appointed the Council for Scientific and Industrial Research (CSIR) to undertake the EIA process for the proposed Vhuvhili SEF to determine the biophysical, social and economic impacts associated with undertaking the proposed development. Public participation forms an integral part of the S&EIA Process and assists in identifying issues and possible alternatives to be considered during the S&EIA Process. The CSIR is undertaking the Public Participation Process (PPP) for this S&EIA Process. Details on the PPP are included in Chapter 4 of this DSR.

The project team, which is involved in this S&EIA Process, is listed in Table 1-3 below. This team includes several specialists who have extensive experience in conducting specialist studies for renewable energy projects in South Africa.

Table 1-3: The EIA Project Team

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN
Environmental Management Services (CSIR)		
Paul Lochner (<i>Registered EAP (2019/745)</i>)	CSIR	Technical Advisor and Quality Assurance
Minnelise Levendal (<i>Pr.Sci.Nat.</i>)	CSIR	Project Manager and EAP
Dhiveshni Moodley (<i>Cand.Sci.Nat.</i>)	CSIR	Project Officer and GIS specialist
Specialists		
Johann Lanz (<i>Pr.Sci.Nat.</i>)	Private	Agriculture and Soils Assessment
Dr Noel van Rooyen (<i>Pr.Sci.Nat.</i>)	Ekotrust cc	Terrestrial Biodiversity and Species Impact Assessment
Lorainmari den Boogert (<i>Pr.Sci.Nat.</i>), Antoinette Bootsma Nee van Wyk (<i>Pr.Sci.Nat.</i>), Rudi Bezuidenhoudt (<i>Pr.Sci.Nat.</i>) and André Strydom	Iggdrasil Scientific Services & Limosella Consulting	Aquatic Biodiversity and Species Impact Assessment
Chris van Rooyen and Albert Froneman (<i>Pr.Sci.Nat.</i>)	Chris van Rooyen Consulting	Avifauna Impact Assessment
Kerry Schwartz	SIVEST SA (Pty) Ltd	Visual Impact Assessment
Dr Jayson Orton	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology and Cultural Landscape)
Professor Marion Bamford	Private	Palaeontology Site Sensitivity Verification Report
Tony Barbour	Tony Barbour Environmental Consulting	Socio-Economic Impact Assessment
Avheani Ramawa and Iris Wink (<i>Pr Tech Eng</i>)	JG Afrika (Pty) Ltd	Traffic Impact Assessment
Debbie Mitchell (<i>Pr Eng</i>)	Ishecon cc	Battery Storage High Level Safety, Health and Environment Risk Assessment
Sandile Nkosi	WSP GOLDER	Geotechnical Desktop study
Minnelise Levendal (<i>Pr.Sci.Nat.</i>) and Rohaida Abed (<i>Pr.Sci.Nat.</i>)	CSIR	Civil Aviation Site Sensitivity Verification and, where required, Compliance Statement (Note: TBC)
Minnelise Levendal (<i>Pr.Sci.Nat.</i>) and Rohaida Abed (<i>Pr.Sci.Nat.</i>)	CSIR	Defence Site Sensitivity Verification

It is important to note at the outset that the Risk Assessment to be undertaken by ISHECON is a technical study and serve to inform the layout, mitigation and management requirements of the proposed SEF (as required) and does not constitute specialist studies in terms of Appendix 6 of the NEMA EIA Regulations, 2014, as amended.

The list of specialist studies was discussed with the CA, the Mpumalanga DARDLEA, at the pre-application meeting held on 23 May 2022 (Appendix F). Feedback on the specialist studies commissioned as part of this S&EIA Process is also included in Chapter 3, Chapter 4, Chapter 6 and Chapter 7 of this DSR. Chapter 4 also includes motivation for not undertaking certain studies identified by the Screening Tool.

1.8. Details and Expertise of the CSIR EIA Project Management Team

This section provides information on the expertise of the CSIR EIA Project Management Team and EAPs.

Paul Lochner (EAP, Technical Advisor and Quality Assurance):

Paul Lochner is an EAP at the CSIR in Stellenbosch, with more than 28 years of experience in a wide range of environmental assessment and management studies. Paul commenced work at CSIR in 1992, after completing a B.Sc. degree in Civil Engineering and a Masters in Environmental Science, both at the University of Cape Town. His initial work focused on wetlands and estuarine management; environmental engineering in the coastal zone; and coastal zone management plans. Since 2008, Paul has been the leader and manager of the Environmental Management Services (EMS) group within CSIR that has been at the forefront of advancing environmental assessment in South Africa. This group currently consists of approximately 10 environmental scientists, planners and engineers, with offices in Stellenbosch, Cape Town and Durban. Paul's particular experience is in environmental planning and assessment for renewable energy, EGI, desalination, oil & gas, wetlands & coastal zone management, and industrial & port development. He has been closely involved in the research and application of Strategic Environmental Assessment (SEA) in South Africa and has wide experience in Environmental & Social Impact Assessment, Environmental Management Programmes (EMPRs) and Environmental Screening Studies. He has been the project leader for over 40 SEAs and EIAs over the past 28 years. He also served as project leader for a suite of SEAs commissioned by the DFFE from 2014 to 2020.

Paul is a Registered EAP (2019/745) with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

Minnelise Levendal Pr. Sci. Nat. (Project Manager and EAP):

Minnelise is a Senior EAP in the Environmental Management Services (EMS) Group of the CSIR and holds a Masters degree in Botany from the Stellenbosch University. She obtained her BSc (Education) and BSc (Honours) degrees at the University of the Western Cape. She has 15 years of experience in Environmental Management (which includes five years working as a case officer at the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)). Minnelise is currently managing various EIAs and BAs for wind and solar renewable energy projects in South Africa. She was the project manager of ten BAs for wind monitoring masts in South Africa as part of the National Wind Atlas Project of the Department of Energy (DoE). EAs for all the ten masts were obtained from DEA in 2010. Minnelise managed the Special Needs and Skills Development Programme of DEA (from 2014 to 2018) which provided *pro bono* environmental assessments (BAs) to applicants with special needs, i.e., applicants who do not have the financial means to appoint an EAP to undertake a BA for their small-scale projects. Under this programme, 30 BAs have been undertaken and received EA. Minnelise is currently managing four BAs for WEFs and associated EGI near Kleinsee in the Northern Cape Province. She is a registered Professional Natural Scientist (117078) with the South African Council for Natural Scientific Professions (SACNASP).

Dhiveshni Moodley Cand.Sci.Nat (Project Officer and GIS Specialist):

Dhiveshni Moodley is an EAP in the EMS group of the CSIR. Dhiveshni holds a BSc, BSc Honours (*cum laude*) and MSc (*cum laude*) degrees in Environmental Science from the University of KwaZulu-Natal. She has

about two year's work experience in flood risk, hydrogeological- and wetland functional assessment specialist studies, as well as conducting BAs and Scoping/EIAs in the Renewable Energy sector. Her key interest lies in using GIS analyses to apply the formation of accurate, feasible solutions to complex environmental challenges.

Dhiveshni is registered as a Candidate Natural Scientist with the SACNASP (1472997/19).

1.9. Need and Desirability

It is an important requirement in the EIA Process to review the need and desirability of the proposed project. Guidelines on Need and Desirability were published by the DEA (now operating as the DFFE) in 2017²¹. These guidelines list specific questions to determine need and desirability of proposed developments. This checklist is a useful tool in addressing specific questions relating to the need and desirability of a project and assists in explaining that need and desirability at the provincial and local context. Need and desirability answer the question of whether the activity is being proposed at the right time and in the right place.

Table 1-4 includes a list of questions based on the DEA's Guideline to determine the need and desirability of the proposed project. It should be noted that this table will be informed by the outcomes of the S&EIA Process and will be updated once the Specialist Assessments are completed in the EIA Phase. The motivation for the project is included in Section 1.4 of this Chapter. Note that the Scoping Level Specialist Assessments are included in Appendix G of this Scoping Report, and where possible, the findings of these studies have been integrated into Table 1-4.

²¹ DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa. ISBN: 978-0-9802694-4-4.

Table 1-4: The Guideline on the Need and Desirability's list of questions to determine the "Need and Desirability" of a proposed project

NEED	
Question	Response
1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	
<p>1.1. How were the following ecological integrity considerations taken into account?:</p> <ul style="list-style-type: none"> 1.1.1. Threatened Ecosystems, 1.1.2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure, 1.1.3. Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"), 1.1.4. Conservation targets, 1.1.5. Ecological drivers of the ecosystem, 1.1.6. Environmental Management Framework, 1.1.7. Spatial Development Framework, and 1.1.8. Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.). 	<p>The environmental sensitivities, in particular the aquatic and terrestrial biodiversity and ecological sensitivities, present within the study area have been assessed within the Terrestrial Biodiversity and Species and Aquatic Biodiversity Impact Scoping studies which are included in Appendices G.2 and G.3 respectively. Detailed assessments will be included in the EIA Report.</p> <p>The specialists identified terrestrial and aquatic biodiversity sensitive areas on site that should be avoided by the proposed development, as well as any other ecologically sensitive areas and how to suitably develop within these areas so that the ecological integrity of the areas is maintained.</p> <p>These findings will inform the revised project layout which will be included and assessed in the EIA Report.</p> <p>According to the Terrestrial Biodiversity Specialist:</p> <ul style="list-style-type: none"> ● Protected Areas: The study area is not located in a protected area. ● National Protected Areas Expansion Strategy (NPAES): The development will not interfere with the protected areas expansion strategy according to the NPAES spatial data of 2010. ● Critical Biodiversity Areas (CBAs): According to the current layout, some solar arrays are located in the CBA area. These arrays need to be repositioned to avoid the CBA.

NEED	
Question	Response
	<ul style="list-style-type: none"> • Ecological Support Areas (ESAs): These are no ESAs within the boundary of the Vhuvhili site. • Freshwater Ecosystem Priority Area (FEPA): Although the entire site is classified as an upstream management area, the site assessment of the vegetation and the application of a sensitivity model rated most of the river FEPA area as being of low to medium sensitivity, with only the drainage lines having a high sensitivity. The wetland FEPAs were largely incorporated into the delineation of the CBAs (see above bullet). <p>The specialist noted that in terms of an ecological point of view large portions of the site have been heavily modified. In terms of ecological processes, function and drivers the specialist noted overall that it is unlikely that the development will contribute to the disruption of broad-scale ecological processes such as dispersal, migration or the ability of fauna to respond to fluctuations in climate or other conditions.</p> <p>Based on the terrestrial Mpumalanga Biodiversity Sector Plan (MBSP) the majority of the site is classified as CBA I with medium to large areas classified as heavily or moderately modified.</p> <p>The preliminary sensitivity map is included in Chapter 3 of this DSR. The Terrestrial Biodiversity specialist noted that the wetland habitat (Habitat 7) was rated as highly sensitive in the current assessment. A small section of the current layout has to be amended to avoid Habitat 7. Therefore, the layout will be amended to incorporate the recommendations from the specialists and will be further refined during the EIA Phase following detailed assessments to be completed by the specialists on the EIA project team.</p>

NEED	
Question	Response
1.2. How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	<p>The environmental sensitivities present on site were identified by the Terrestrial and Aquatic Biodiversity and Ecology specialists and are discussed in the Scoping inputs provided in Appendix G.2 and G.3 respectively of this DSR. Detailed Terrestrial Biodiversity and Aquatic Scoping studies were undertaken and will be further refined and full Assessment Reports will be included in the EIA Report.</p> <p>Based on the biodiversity screening and mapping that was done for the site during the Scoping Phase, the specialists confirmed that there are some highly sensitive features on site, which will be avoided in the revised layout to be included and assessed by the specialists in the EIA report.</p> <p>The current site layout for the SEF partially encroaches on the rocky outcrops (Habitat 3), which has a medium sensitivity and on one of the drainage lines with a high sensitivity (Habitat 7). The solar infrastructure in the east should be repositioned to avoid the high sensitivity drainage lines.</p> <p>The following buffers are proposed by the Aquatic specialist:</p> <ul style="list-style-type: none"> • Floodplain Wetlands - 37 m • Channelled Valley Bottom Wetlands – 56 m • Unchannelled Valley Bottom Wetlands – 50 m • Seepage Wetland – 54 m <p>It must be noted that the rocky outcrops of medium sensitivity above-mentioned buffers will be avoided by the final updated layout which will be included in the EIA Report.</p> <p>Please refer to Appendix G.2 and G.3 respectively for the Terrestrial and Aquatic Biodiversity Assessments.</p>

NEED	
Question	Response
	<p>The Terrestrial and Aquatic Biodiversity specialists will identify all ecological sensitive areas on site that should be avoided by the proposed development and propose mitigation measures to reduce or minimise impacts to ensure that the ecological integrity of the areas is maintained.</p> <p>The preliminary sensitivity map is included in Chapter 3 of this DSR and will be further refined during the EIA Phase.</p> <p>Measures to avoid, remedy, mitigate and manage impacts will be included in the Environmental Management Programme (EMPr) that will be compiled during the EIA Phase and included within the EIA Report.</p>
1.3. How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Measures to avoid, remedy, mitigate or manage biophysical impacts will be included in the EMPr that will be compiled during the EIA Phase and included within the EIA Report.
1.4. What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether; what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Waste will mostly be generated during the construction and decommissioning phases of the project. Measures to avoid, remedy, mitigate or manage waste will be included within the EMPr that will be compiled during the EIA Phase and included within the EIA Report. Waste generated on site will be disposed of at a licenced landfill site.
1.5. How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	A Heritage Impact Assessment (HIA) will be undertaken during the EIA Phase to assess potential archaeological and cultural impacts resulting from the proposed development during the EIA Phase. Scoping inputs have been provided by the heritage and palaeontological specialists and are included in Appendix G.7 and Appendix G.8 respectively of this DSR. A detailed, full HIA will be included in the EIA Report. The HIA will also be sent to SAHRA for approval during the EIA Phase.

NEED	
Question	Response
	In terms of palaeontology, the specialist assessment (Appendix G.8) states that since the site visit by the archaeologist for this project confirmed that the land has been ploughed and planted in the last few decades, it is unlikely that any fossils will be seen before excavations commences. Therefore, a desktop study with a Fossil Chance Find Protocol that should be added to the EMPr, is strongly recommended.
1.6. How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Measures to avoid, remedy, mitigate or manage impacts on non-renewable natural resources will be included in the EMPr that will be compiled during the EIA Phase and included within the EIA Report.
1.7. How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	South Africa has heavily relied on coal as a source of electricity for decades. Due to the nature of coal as a non-renewable resource that causes major environmental degradation, there is therefore a need to identify alternative resources that could promote sustainable energy sources as well as cleaner energy production mechanisms. The proposed project aims to harness the solar resources available in the area for the generation of electricity. This project is seen as a source of 'clean energy' and reduces the dependence on non-renewable sources.
1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e., de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)	<p>The project may also provide electricity to the proposed electrolyser at the Sasol site which will produce green Hydrogen which can provide energy or fuel without emitting greenhouse emissions when used.</p> <p>The proposed project is a sustainable option for the area and the footprint will as far as possible avoid areas of very high environmental sensitivity. Where</p>

NEED	
Question	Response
<p>1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e., what are the opportunity costs of using these resources of the proposed development alternative?)</p> <p>1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>	<p>impacts cannot be avoided, the footprint will be placed to minimise, mitigate or manage potential impacts to the receiving environment.</p>
<p>1.8. How were a risk-averse and cautious approach applied in terms of ecological impacts?:</p> <p>1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>1.8.2. What is the level of risk associated with the limits of current knowledge?</p> <p>1.8.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>The precautionary approach has been adopted for this study, i.e., assuming the worst-case scenario will occur and then identifying ways to mitigate or manage these impacts.</p>

NEED	
Question	Response
<p>1.9. How will the ecological impacts resulting from this development impact on people's environmental right in terms following:</p> <p>1.9.1. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p> <p>1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</p>	<p>A detailed Socio-Economic Impact Assessment will be included in the EIA Report. A preliminary socio-economic profile is included in Chapter 3 of this DSR and will be further refined during the EIA Phase. Scoping inputs have been provided by the Socio-Economic specialist and have been included in Appendix G.9 of the DSR.</p>
<p>1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?</p>	<p>Linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area will be considered as part of the Socio-Economic Assessment undertaken for this project and will be included within the EIA Report.</p>
<p>1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area?</p>	<p>The impacts on ecological integrity objectives of the area will be considered as part of the Terrestrial and Aquatic Biodiversity as well as the Avifauna Assessments undertaken for this project and will be included within the EIA Report.</p>

NEED	
Question	Response
1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Please refer to Chapter 5 of this DSR where the alternatives are discussed.
1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Please refer to Chapter 6 of this DSR where the potential cumulative impacts are discussed for this project. Chapter 7 also contains a list of all the other renewable energy projects within a 50 km radius that has received EA and that is being proposed in the area.
2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?:	
2.1.1. The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	<p>The Vhuvhili SEF is entirely located in the Govan Mbeki Local Municipality which falls within the Gert Sibanda District Municipality of Mpumalanga.</p> <p>Both the local and District Municipalities' Integrated Development Plans (IDP) (2021/2022), recognises renewable energy projects as potential sustainable economic development opportunities. Supporting the development of clean forms of energy. The Gert Sibanda DM's IDP note that the municipality supports the development of clean forms of energy. It sees the renewable energy sector as a key area for intervention to facilitate growth and job creation in the manufacturing sector. The development of the Vhuvhili SEF will therefore also be in line with the vision of the Local and District Municipality to diversify the job market by creating and supporting sustainable economic growth and development opportunities.</p>

NEED	
Question	Response
	<p>One of the economic priority issues identified within the IDPs (2021/22) is the high level of unemployment, especially amongst the youth. The IDPs identify low economic growth as one of the main reasons for the lack of new labour entrants into the economy. The Govan Mbeki's IDP states that the population number for 2019 is estimated at 374 883 people (4th highest and 8.2% of the Mpumalanga population in 2019) and in 2030 estimated at 535 796 (10.2%). Given the historic population growth per annum, it will put pressure on the infrastructure, service delivery and economic/employment opportunities. provincial average unemployment rate (SLM IDP, 2019/2020).</p> <p>In the Govan Mbeki LM, the mining sector (39%) and manufacturing sector (24%) contributes the most in terms of GDP. One of the threats identified in its IDP (2021/2022) is the closure of the Mining and the Petro-chemical industry. It notes that "coal is a finite resource and exhausting coal deposits and reserves means Govan Mbeki will become a ghost town with very high unemployment, poverty and poor living conditions".</p> <p>The proposed Vhuvhili SEF will create job opportunities and economic spin offs during the construction and operational phases (if an EA is granted by the CA). It is estimated that up to 300 employment opportunities will be created during the construction phase and up to 60 during the operational phase. It should, however, be noted that employment during the construction phase will be temporary, whilst the employment opportunities during the operational phase will be long-term.</p> <p>Therefore, the proposed project would help to address the need for increased electricity supply to Sasol/Eskom while also providing advanced skills transfer and training to the local communities and creating contractual and permanent employment in the area. The proposed project will therefore be supportive of</p>

NEED	
Question	Response
	the IDP's objective of facilitating job creation to address the high unemployment rate.
2.1.2. Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	This is not applicable as the proposed project is a renewable energy project and the site is zoned for agricultural use.
2.1.3. Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)	<p>The current land use on the proposed site is agriculture, predominantly grain farming. Only soil that is not suitable for grain production is used for cattle grazing</p> <p>The impact of the proposed project on cultural or heritage areas (i.e., archaeology) will be assessed as part of the HIA in the EIA Phase. Scoping inputs have been provided by the heritage and palaeontological specialists and are included in Appendix G.7 and Appendix G.8 respectively of this DSR. A detailed, full HIA will be included in the EIA Report. The HIA will also be sent to SAHRA for approval during the EIA Phase.</p> <p>In terms of palaeontology, the specialist assessment (Appendix G.8) states that since the site visit by the archaeologist for this project confirmed that the land has been ploughed and planted in the last few decades, it is unlikely that any fossils will be seen before excavations commences. Therefore, a desktop study with a Fossil Chance Find Protocol that should be added to the EMP, is strongly recommended.</p>

NEED	
Question	Response
	<p>Should the proposed project proceed, approximately 650 hectares of the land will be developed on and it is not expected that this will significantly threaten the agricultural activities present on site. An Agricultural Assessment has been included in Appendix G.1 based on a Scoping Level and will be detailed, where necessary, during the EIA Phase. The Assessment considers the impact of the proposed project in terms of the land capability and agricultural potential. As noted in Appendix G.1:</p> <ul style="list-style-type: none"> • The layout of the facility has been deliberately designed to avoid all field crops on the farm. The proposed development will therefore only occupy land that is of limited land capability and is not suitable for crop production. There is not a scarcity of such agricultural land in South Africa and its conservation for agriculture is not therefore a priority. • The amount of agricultural land loss is within the allowable development limits prescribed by the agricultural protocol. These limits reflect the national need to conserve valuable arable land and therefore to steer, particularly renewable energy developments, onto land that is not suitable for crop production <p>As noted, an EMPr will be compiled for the proposed project to ensure that all potential negative impacts identified are suitably managed and mitigated, and potential positive impacts are enhanced.</p> <p>The impact on the sense of place is difficult to predict and would potentially be ambiguous. This is due to the subjective nature of perceptions regarding the relative attraction or disturbance of the Solar facility in a rural landscape.</p> <p>A Visual Scoping report is included in Appendix G.6 of this DSR. The visual study notes that the study area has a somewhat mixed visual character, transitioning from the heavily transformed urban / peri-urban landscape associated with the</p>

NEED	
Question	Response
	<p>Secunda and Trichardt urban areas, the Sasol Secunda synthetic fuel plant (refinery) and associated infrastructure in the north / north-west to a more rural / pastoral character across the remainder of the study area. Hence, although a solar PV development would alter the visual character and contrast with this rural / pastoral character, the location of the proposed SEF in relatively close proximity to Secunda, and Trichardt and the Sasol fuel plant will significantly reduce the level of contrast. The visual impact and considerations will be further assessed as part of the Visual Impact Assessment to be undertaken as part of the EIA Phase of this project.</p> <p>A preliminary environmental sensitivity map was prepared during the Scoping Phase and is included in Chapter 3 of this Scoping Report based on the input obtained from the various scoping specialist studies. The map will be updated in the EIA Phase to ensure that sensitive features will be identified and avoided by the project layout, as best as possible.</p>
2.1.4. Municipal Economic Development Strategy ("LED Strategy").	The LED Strategy will be considered and potential alignment will be discussed in the EIA Report.
<p>2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?</p> <p>2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</p>	This will be addressed within the Socio-Economic Impact Assessment that will be included in the EIA Report.
2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	These needs and interests of the relevant communities will be addressed within the Socio-Economic Impact Assessment that will be included in the EIA Report. Issues raised by I&APs to this effect will also be addressed in the relevant Comments and Responses Report of the Scoping and the EIA Report.

NEED	
Question	Response
2.4. Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long term? Will the impact be socially and economically sustainable in the short- and long-term?	This will be addressed in the Socio-Economic Impact Assessment that will be included in the EIA Report.
2.5. In terms of location, describe how the placement of the proposed development will:	
2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other,	Local employment opportunities will be provided as far as possible. Approximately 300 and 60 employment opportunities will be generated in the construction and operational phases, respectively.
2.5.2. reduce the need for transport of people and goods,	This is not applicable as the proposed project is a renewable energy project proposal.
2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	This is not applicable as the proposed project is a renewable energy project proposal.
2.5.4. compliment other uses in the area,	<p>The Agricultural Assessment (Appendix G.1) notes that the proposed development will only occupy land that is of limited land capability and is not suitable for crop production. There is not a scarcity of such agricultural land in South Africa and its conservation for agriculture is not therefore a priority. It states that the amount of agricultural land loss is within the allowable development limits prescribed by the agricultural protocol.</p> <p>The Visual Scoping Report (Appendix G.6) notes that the study area has a somewhat mixed visual character, transitioning from the heavily transformed urban / peri-urban landscape associated with the Secunda and Trichardt urban areas, the Sasol Secunda synthetic fuel plant (refinery) and associated infrastructure in the north / north-west to a more rural / pastoral character across the remainder of the study area.</p>
2.5.5. be in line with the planning for the area,	
2.5.6. for urban related development, make use of the underutilised land available with the urban edge,	This is not applicable as the proposed project is not an urban-related development and the site is zoned for agricultural use.

NEED	
Question	Response
2.5.7. optimise the use of existing resources and infrastructure,	<p>One of the scenarios being investigated by the Project Developer is to feed the electricity from the proposed Vhuvhili SEF to the step-down substation at Sasol. Therefore, existing infrastructure will be used at Sasol as far as possible. The potential use of the existing servitudes of Sasol will be included in the separate assessment required for the EGI project. This is being considered as to minimise impacts and make use of existing infrastructure.</p> <p>The Project Developer will undertake a separate BA process for the EGI project.</p>
2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	The project is a renewable energy project and not related to bulk infrastructure expansion.
2.5.9. discourage "urban sprawl" and contribute to compaction/densification,	This will be addressed in the Socio-Economic Impact Assessment that will be included in the EIA Report.
2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	N/A - the proposed project is a renewable energy project that will be developed on a site that is zoned for agricultural use.
2.5.11. encourage environmentally sustainable land development practices and processes,	The development of a renewable energy facility is a sustainable land development practice provided it is constructed and operated in an environmentally friendly manner.
2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	Please refer to Chapter 5 for a description of the process undertaken to identify the site as a preferred site for a solar PV facility.
2.5.13. the investment in the settlement or area in question will generate the highest socio-economic returns (i.e., an area with high economic potential),	This will be addressed within the Socio-Economic Impact Assessment that will be included within the EIA Report.
2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	The impact of the proposed project on cultural areas and heritage resources (archaeology and palaeontology), as well as on the sense of place will be assessed

NEED	
Question	Response
	<p>in the HIA and Visual Impact Assessment (VIA) which will be included in the EIA Report.</p> <p>A Visual Scoping report is included in Appendix G.6 of this DSR. The visual study notes that the study area has a somewhat mixed visual character, transitioning from the heavily transformed urban / peri-urban landscape associated with the Secunda and Trichardt urban areas, the Sasol Secunda synthetic fuel plant (refinery) and associated infrastructure in the north / north-west to a more rural / pastoral character across the remainder of the study area. Hence, although a solar PV development would alter the visual character and contrast with this rural / pastoral character, the location of the proposed SEF in relatively close proximity to Secunda, and Trichardt and the Sasol fuel plant will significantly reduce the level of contrast. The visual impact and considerations will be further assessed as part of the Visual Impact Assessment to be undertaken as part of the EIA Phase of this project.</p> <p>A Heritage Impact Assessment (HIA) will be undertaken during the EIA Phase to assess potential archaeological and cultural impacts resulting from the proposed development during the EIA Phase. Scoping inputs have been provided by the heritage and palaeontological specialists and are included in Appendix G.7 and Appendix G.8 respectively of this DSR. A detailed, full HIA will be included in the EIA Report. The HIA will also be sent to SAHRA for approval during the EIA Phase.</p> <p>In terms of palaeontology, the specialist assessment (Appendix G.8) states that since the site visit by the archaeologist for this project confirmed that the land has been ploughed and planted in the last few decades, it is unlikely that any fossils will be seen before excavations commences. Therefore, a desktop study with a Fossil Chance Find Protocol that should be added to the EMPr, is strongly recommended.</p>

NEED	
Question	Response
2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	<p>Chapter 7 provides a list of other REFs that received EA or are being proposed (1 x solar PV project each) within 50 km from the Vhuvhili SEF site that will be included in the cumulative impact assessments that will be undertaken at the EIA phase.</p> <p><u>Note</u> that the proposed Vhuvhili solar project site is not located within any of the gazetted REDZs.</p>
2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	<p>The current assumptions are that the secondary data sources used to compile the economic baseline can be viewed as being indicative of broad trends within the study area (as per the socio-economic scoping inputs in Appendix G.9).</p> <p>In order to be risk-averse, these predictions are based on research and years of experience from the specialist, taking the specific set of circumstances into account.</p> <p>This will be further addressed within the Socio-Economic Impact Assessment that will be included in the EIA Report.</p>
2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	
2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	
2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	<p>Govan Mbeki is the most prominently 2nd fastest growing population with an annual population growth rate of 3.10% in the whole of the Mpumalanga Province (after Steve Tshwete with a population growth of 4.29%) (Govan Mbeki IDP (2021/2022)). A population growth of this proportion is likely to place strain on existing backlogs and the municipality's ability</p>
2.7.2. Positive impacts. What measures were taken to enhance positive impacts?	

NEED	
Question	Response
2.8. Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	<p>to effectively service the community. This, combined with the high unemployment rates and low-income levels implies the need for employment provision which would be provided during both the construction and operation phase of the proposed Vhuvhili SEF.</p> <p>As indicated, the proposed development aims to provide opportunities for economic growth and development through the provision of a SEF. Furthermore, the provision of temporary employment opportunities, improved income levels, and skills development, aligns the proposed development with several key aspects and objectives outlined in the national, provincial, district, and local policies.</p> <p>This will be further addressed within the Socio-Economic Impact Assessment that will be included in the EIA Report.</p>
2.9. What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	
2.10. What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	
2.11. What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	
2.12. What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	
2.13. What measures were taken to:	
2.13.1. ensure the participation of all interested and affected parties,	<p>The Public Participation Process (PPP) that is undertaken as part of the Scoping Phase to date and is to be undertaken in the EIA Phase is included in Chapter 4 and 7 of this DSR. It provides a description of various methods to notify potential I&APs of the proposed project and the opportunity to comment on the DSR, namely, through notices in the local newspaper, sites notices, emails as well as sms text messages.</p>
2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	
2.13.3. ensure participation by vulnerable and disadvantaged persons,	

NEED	
Question	Response
	Interested and Affected Parties will also be notified of the opportunity to comment on the Draft EIA Report which will be released for a 30-day commenting period.
2.13.4. promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	The EIA process will take cognisance of all interests, needs, and values espoused by all I&APs. Opportunity for public participation will be provided to all I&APs throughout the S&EIA Process in terms of the 2014 NEMA EIA Regulations (as amended).
2.13.5. ensure openness and transparency, and access to information in terms of the process,	The PPP that is undertaken as part of the Scoping Phase to date and to be undertaken in the EIA Phase is included in Chapter 4 and Chapter 7 of the DSR. Various methods are employed to notify potential I&APs of the proposed project and the opportunity to comment on the DSR, namely, through notices in the local newspaper, sites notices, emails, as well as sms text messages.
2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge,	The EIA process will take cognisance of all interests, needs and values adopted by all I&APs.
2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein was promoted.	Public participation of all I&APs will be promoted and opportunities for engagement will be provided during the EIA process.
2.14. Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	This will be addressed within the Socio-Economic Impact Assessment that will be included within the EIA Report.
2.15. What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been	An EMPr will be developed to address health and safety concerns. An Environmental Control Officer (ECO) will be appointed to monitor compliance with the EMPr and EA (should such authorisation be granted) during the construction and operational phases.

NEED	
Question	Response
taken to ensure that the right of workers to refuse such work will be respected and protected?	
2.16. Describe how the development will impact on job creation in terms of, amongst other aspects:	
2.16.1. the number of temporary versus permanent jobs that will be created,	This will be addressed within the Socio-Economic Impact Assessment that will be included within the EIA Report.
2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e., do the required skills match the skills available in the area),	
2.16.3. the distance from where labourers will have to travel,	
2.16.4. the location of jobs opportunities versus the location of impacts (i.e., equitable distribution of costs and benefits),	
2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	
2.17. What measures were taken to ensure:	
2.17.1. that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment,	The different government departments have been listed as I&APs and are given the opportunity to comment on the DSR and will be given the opportunity to comment on the Draft EIA Report during the 30-day public participation period.
2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	This will be determined during the EIA Phase (following the Public Participation Phase undertaken as part of the Scoping Phase).
2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	The proposed project will adhere to the principles of environmental management. Measures taken to ensure adherence to the principles of NEMA will be determined during the EIA Phase.
2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	It would be premature to decide whether proposed mitigation measures of the project are realistic prior to the completion of the Impact Assessment Phase of this EIA process. Therefore, the practicality of mitigation measures will be determined during the EIA Phase. The proposed mitigation measures to be

NEED	
Question	Response
	included in the EMPr that will be included in the EIA Report will be informed by the specialist studies undertaken. This will include a detailed assessment of the environment as well as the impacts associated with the proposed development.
2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	The EMPr (to be included in the EIA Report) of this proposed project must form part of the contractual agreement and be adhered to by both the contractors/workers and the Project Applicant.
2.21. Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Agriculture on site is influenced by climatic variables and limitations. Renewable energy development is a suitable land use option for the site. The proposed project would be more robust in terms of economic viability and profitability while also being largely uninfluenced by climate change variables. The proposed project would also provide the farm owners with additional income by way of lease agreements with the Project Applicant, and will also contribute to local socio-economic upliftment through job creation.
2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope, and nature of the project in relation to its location and other planned developments in the area?	The potential cumulative impacts resulting from the proposed project can only be objectively determined at the end of the EIA process. These will be assessed as part of the EIA Phase. The cumulative impacts of similar types of projects that have received EA or whose EA status is pending (e.g. other renewable energy projects within 50 km of the proposed project) will be assessed in the EIA Report. Chapter 7 provides a list of other REFs that received EA or are being proposed within 50 km from the Vhuvhili SEF site that will be included in the cumulative impact assessments that will be undertaken at the EIA phase.

1.10. Objectives for this Scoping Report

The Scoping Phase of the EIA refers to the process of determining the spatial and temporal boundaries for the EIA. In broad terms, the objectives of the Scoping Process in terms of the 2014 NEMA EIA Regulations (as amended) are to:

- Confirm the process to be followed and opportunities for stakeholder engagement;
- Clarify the project scope to be covered;
- Identify and confirm the preferred activity and technology alternative;
- Identify and confirm the preferred site for the preferred activity;
- Identify the key issues to be addressed in the impact assessment phase and the approach to be followed in addressing these issues; and
- Confirm the level of assessment to be undertaken during the impact assessment.

This is achieved through parallel initiatives of consulting with:

- The lead authorities involved in the decision-making for this EIA application;
- The public to ensure that local issues are well understood; and
- The EIA specialist team to ensure that technical issues are identified.

The Scoping Process is supported by a review of relevant background literature on the local area. Through this comprehensive process, the environmental assessment can identify and focus on key issues requiring further assessment during the EIA Phase.

The primary objective of the Scoping Report is to present key stakeholders (including affected organs of state) with an overview of the proposed project and key issues that require assessment in the EIA Phase and allows the opportunity for the identification of additional issues that may require assessment.

Issues that will be raised in response to the DSR that is being released for a 30-day comment period will be captured in the Issues and Responses Trail that will be included in the Final Scoping Report and Plan of Study for EIA. The Final Scoping Report will be submitted to the CA for decision-making (i.e., approval or rejection) in line with Regulation 21 (1) of GN R326. This approval is planned to mark the end of the Scoping Phase after which the EIA Process moves into the impact assessment and reporting phase.

In terms of legal requirements, a crucial objective of the Scoping Report is to satisfy the requirements of Appendix 2 of the 2014 NEMA EIA Regulations (as amended), as noted in Regulation 21 (3) of the GN R326. This section regulates and prescribes the content of the Scoping Report and specifies the type of supporting information that must accompany the submission of the Scoping Report to the authorities. An overview of where the requirements of Appendix 2 of the 2014 NEMA EIA Regulations (as amended) are addressed in this Scoping Report is presented at the beginning of this report.

Furthermore, this process is designed to satisfy the requirements of Regulations 41, 42, 43 and 44 of the 2014 NEMA EIA Regulations (as amended) relating to the PPP and, specifically, the registration of and submissions from I&APs.