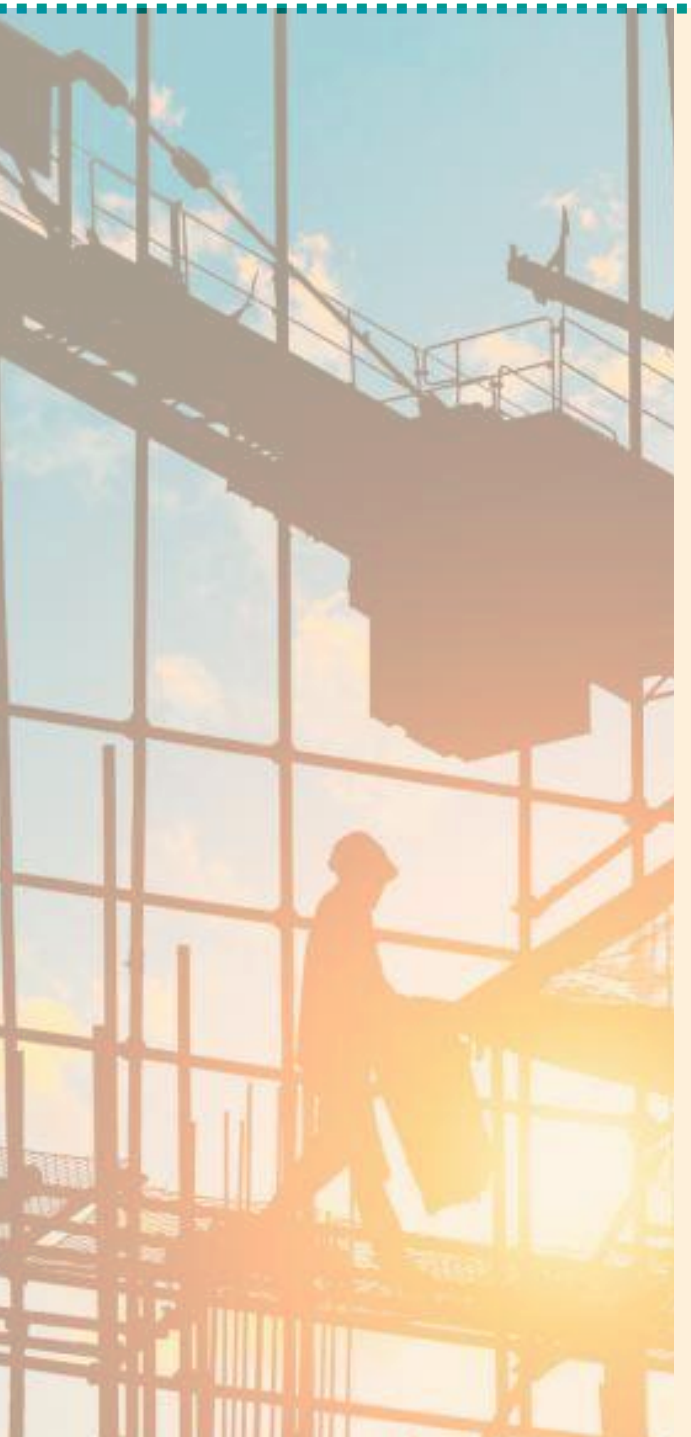
INFRASTRUCTURE South Africa Investment Handbook

Special Edition: Energy Sector Focus



INVESTMENT PORTFOLIO OUTLINE

1. EXECUTIVE SUMMARY

2. ENABLEMENT

2. ENERGY STRATEGIC INTEGRATED PROGRAMS PORTFOLIO

EXECUTIVE SUMMARY OF ENERGY PORTFOLIO

The **National Infrastructure Plan (NIP) 2050** estimates that the cost of delivering infrastructure to meet National Development Plan (NDP) objectives will be in excess of **US$ 333 Billion between 2016 and 2040**, with energy and transport accounting for over 72% of the requirements.

According to the Integrated Resource Plan (IRP) 2019, **South Africa is expected to have more than 30GW of installed Renewable Capacity by 2030.** As the Just Energy Transition (JET) proceeds, the reliance on coal is expected to decline as it is overtaken by renewable energy. As sector reforms are implemented, energy infrastructure delivery through the transition to a low carbon economy is also expected to stimulate industrial diversification.

In support of South Africa's Social and Economic Development, Infrastructure South Africa has gazetted various **Strategic Integrated Programs (SIP)** for Energy as well as launching a **Top 12 Infrastructure Priorities for Project Preparation.**

SIP9: Green Energy in Support of the South African Economy (REIPPP)
The Renewable Energy Independent Power Producer Program (REIPPP) aims to attract private investment into renewable energy generation. The current bidding window (BW7) seeks to procure 5,000 MW from wind and solar resources.

SIP10: Electricity Transmission and Distribution for All
The Transmission Development Plan (TDP) outlines the need for over **14,000 km of new power lines by 2034**, with significant investment required in transformation capacity.

The program includes more than 300 projects and aims to connect approximately 37 GW of new generation capacity.

SIP20c: Embedded Generation National Programme
This program facilitates private sector investment in utility-scale renewable energy projects, targeting over **10,000 MW of new generation capacity** across various sectors.

SIP20d:Just Energy Transition National Programme
The US$ 83.3 Billion Just Energy Transition Investment Plan outlines **Priority Investments in Electricity, New Energy Vehicles, and Green Hydrogen** sectors over the next five years.

SIP 20e: Green Hydrogen National Programme
Following the Hydrogen Society Roadmap established in 2021, South Africa aims to produce **500 kilotonnes of green hydrogen annually by 2030**, positioning itself as a leader in this emerging market.

SIP 20f: Oil and Gas National Programme
This initiative focuses on ensuring energy security through Upstream Production and more than **2500MW of Downstream Use in Gas to Power applications**

Top12 Infrastructure Priorities for Project Preparation:
ESKOM Tubatse Pumped Storage Scheme, Port of Ngqura Liquified Natural Gas Import Terminal, Richards Bay Liquified Natural Gas Import Terminal, Mossel Bay Gas To Liquids Refinery (GTLR) Reinstatement

QuickFacts

SIP Program Capital Value
~US$ 40 Billion
(excl. Green Hydrogen)

Province
National

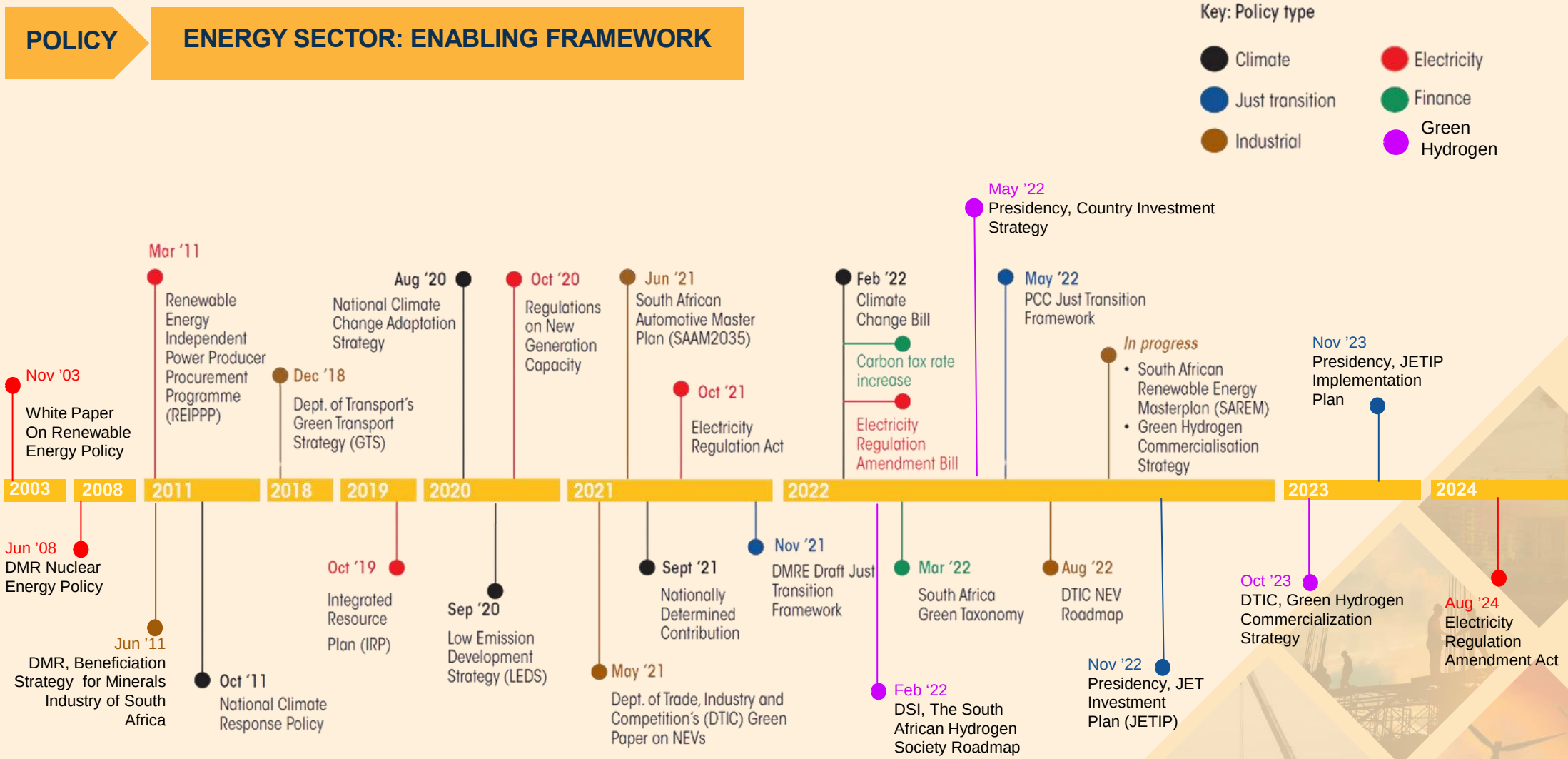
Project Ownership
Various Public/ Private Entities

Status/Stage
Feasibility/ Bankability/ Procurement/ Execution

Investor Opportunities
Funding/ Financing/ Equipment Supply/ EPC

Notes: A SIP is a Strategic Integrated Project designated by Infrastructure South Africa (ISA) under the South African Infrastructure Development Act
Exchange Rate used in document: R18/ 1US$

POLICY ENERGY SECTOR: ENABLING FRAMEWORK



Reference: Adapted from JETIP

SIP 8

GREEN ENERGY IN SUPPORT OF THE SOUTH AFRICAN ECONOMY

Renewable Energy Independent Power Producer Program (REIPPP)

The Renewable Energy Independent Power Producer Program (REIPPP) is **a competitive tender process that was designed to facilitate private sector investment into grid-connected renewable energy** generation in South Africa through various bidding windows (BWs). Bid windows are defined as the time between when a Request for Proposals (RFP) is issued and the deadline time for submission. The offtake for the program is the public sector through Eskom as the offtaker. A total of **9,906MW has been purchased from 123 IPP projects during BW 1 through BW5** of the independent power producer procurement process.

The preferred bidders for BW6 for 1000MW of solar PV were announced in December 2022. AMEA's 120MW Doornhoek and Red Rocket's 240MW Virginia Solar PV projects are now in construction with other BW6 projects proceeding to financial close. Currently under procurement is **BW7 which seeks to procure 3,200MW from wind and 1,800MW from solar PV resources.** The RFP closed on 15 August 2024. Evaluation is targeted for completion within 3 months of RFP closure and financial close targeted for 6 months thereafter. Potential exists for funding and supply of infrastructure.

The REIPPPP programme includes the following technology options:

- **Solar PV:** Balance of Plant (BOP), Civil & Electrical, Structures & Trackers, Modules, Cables, Inverters
- **Wind:** BOP, Civil & Electrical, Towers, blades, Nacelles, Hubs
- **Energy Storage:** Battery Energy Storage Systems (BESS)
- **Substations:** Transformers, Circuit Breakers, Busbars, Capacitors

QuickFacts

Project Capital Value

Estimated: US$ 816.7 Million (Bid Window 6)

Estimated: US$ 4.2 to 5.6 Billion (Bid Window 7)

Province

National

Project Ownership

Various Independent Power Producers (IPPs)

Status/Stage

Procurement & Contract Structuring

Investment Opportunities

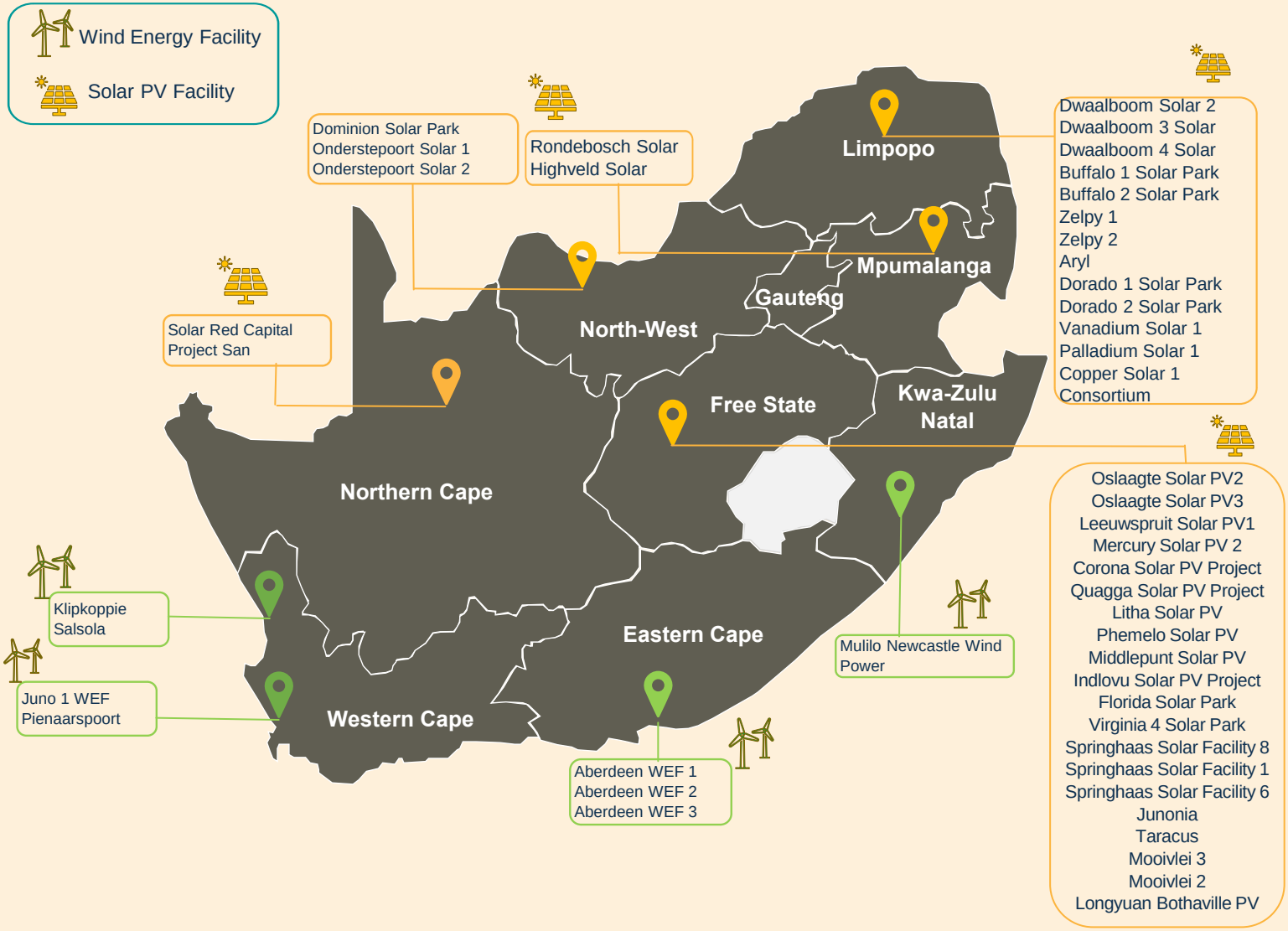
Funding and Equipment Supply

ISA Energy Sector

***DTIC designated sector thresholds apply**

Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

SIP 8 GREEN ENERGY IN SUPPORT OF THE SOUTH AFRICAN ECONOMY (REIPPP BW7*)



Active REIPPP Project Developers:

Scatec
AMEA POWER
enel Green Power
ibvogt
MULILO RENEWABLE ENERGY
GLOBELEQ POWERING AFRICA'S GROWTH
RED ROCKET
Subsolar
MAINSTREAM RENEWABLE POWER
EDF renewables
PELEGREEN ENERGY

*List of bidders was announced on 15 August 2024 Preferred bidder announcement expected in Q4/ 2024

SIP 8 GREEN ENERGY IN SUPPORT OF THE SOUTH AFRICAN ECONOMY (REIPPP: BW6)

BOITUMELO & KUTLWANO SOLAR PV PROJECTS

The proposed Kutlwano (150MW) and Boitumelo (150MW) are Solar PV projects which were selected as successful bidders in Bid Window 6 of the Renewable Energy Power Producer Program (REIPPP). They are currently proceeding to financial close.

Project Developer: Enel Green Power
Project Phase: Bankability
Estimated Capital Value: US$ 333 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC Equipment Supply

GOOD HOPE SOLAR PV PROJECT

The proposed Good Hope Solar PV Project (200MW) was selected as a successful bidder in Bid Window 6 of the Renewable Energy Power Producer Program (REIPPP). The project is currently proceeding to financial close.

Project Developer: Red Rocket
Project Phase: Bankability
Estimated Capital Value: US$ 222 Million
Locality: Free-Sate Province, South Africa
Potential Opportunity: Project Finance/ EPC Equipment Supply

NGONYAMA SOLAR PV PROJECT

The proposed Ngonyama Solar PV Project (140MW) was selected as a successful bidder in Bid Window 6 of the Renewable Energy Power Producer Program (REIPPP). The project is currently proceeding to financial close.

Project Developer: Red Rocket
Project Phase: Bankability
Project Value: US$ 155 Million
Locality: North-West, South Africa
Potential Opportunity: Project Finance/ EPC Equipment Supply

SIP 10

ELECTRICITY TRANSMISSION AND DISTRIBUTION FOR ALL

Transmission Development Plan (TDP) 2025-34

The Transmission Development Plan (TDP) Program entails investment in more than **14 000 km of new power lines that will need to be added by 2034 at a yearly rate of 1 400km** of which 5044km are required to be added from FY2025-29. Furthermore, required will be the installation of 122 600 MVA of new transformation capacity, representing 77% of Eskom's current installed base.

The TDP comprises more than 300 projects to expand the grid and **47 quick-win projects have been identified that would allow the connection of roughly 37 GW of new generation capacity**. A significant number of these (25) revolve around strengthening existing substations by bringing onboard new transformers. **Over the coming 5 years, the program requires CAPEX of US$ 6.25 Billion which has been allocated**.

In terms of transmission line construction, Eskom has adopted an engineering, procurement and construction (EPC) model (see attached information for appointed EPC and transformer suppliers). The required line construction capacity averages 1,400km per year and peaks at 2,700km. **Existing industry capacity is 800km per year, at a stretch. There are no local suppliers for Class 4 Transformers and the country also has only supplier of Fabricated Structural Steel.**

The programme includes the following infrastructure:

- **Transmission:** Towers foundation, tower structures, tower stubs, conductors, tower hardware, conductor hardware, spacer dampers, insulation
- **Substations:** Transformers, surge arrestors, reactor, protection, isolators, circuit breakers, capacitors, current transformers

QuickFacts

SIP Program Capital Value
~US$ 6.25 Billion (FY 25-29)

Province
National

Project Ownership
National Transmission Company of South Africa

Status/Stage
Feasibility/ Bankability/ Procurement/ Execution

Investor Opportunities
Manufacturing/ Equipment Supply/ EPC

ISA

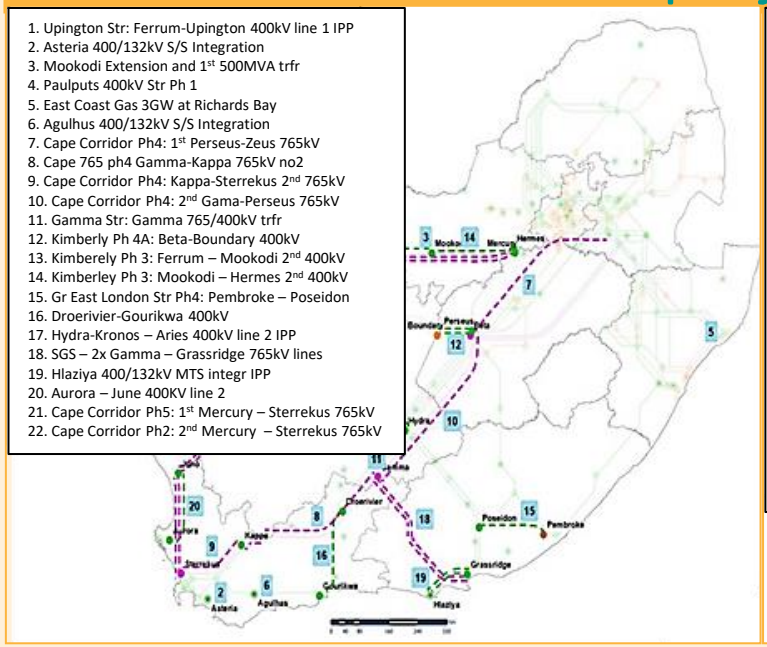
Energy Sector

***DTIC designated sector thresholds apply**
Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

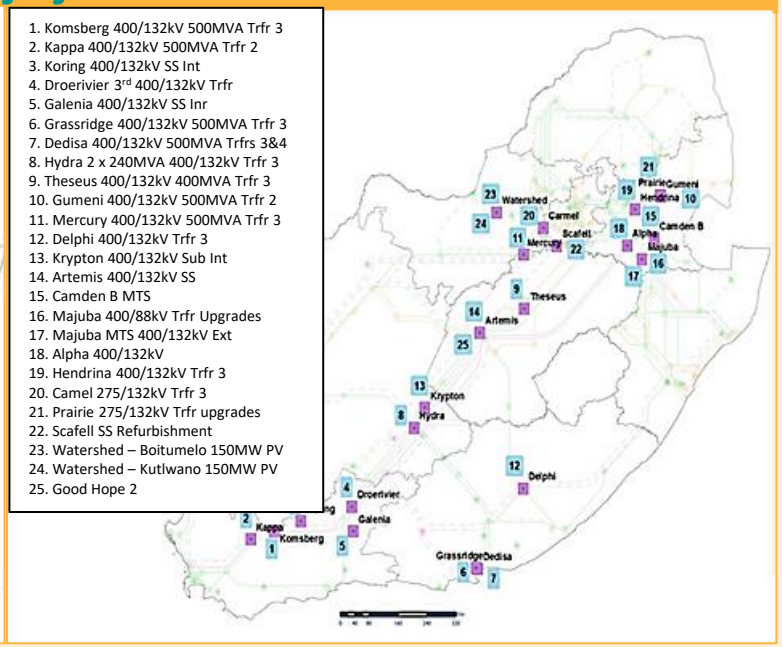
SIP 10 ELECTRICITY TRANSMISSION AND DISTRIBUTION FOR ALL (TX)

47 Priority projects have been identified to accelerate 37GW of new connection capacity by 2033

1. Upington Str: Ferrum-Upington 400kV line 1 IPP
2. Asteria 400/132kV S/S Integration
3. Mookodi Extension and 1st 500MVA trfr
4. Paulputs 400kV Str Ph 1
5. East Coast Gas 3GW at Richards Bay
6. Agulhus 400/132kV S/S Integration
7. Cape Corridor Ph4: 1st Perseus-Zeus 765kV
8. Cape 765 ph4 Gamma-Kappa 765kV no2
9. Cape Corridor Ph4: Kappa-Sterrekus 2nd 765kV
10. Cape Corridor Ph4: 2nd Gama-Perseus 765kV
11. Gamma Str: Gamma 765/400kV trfr
12. Kimberly Ph 4A: Beta-Boundary 400kV
13. Kimberely Ph 3: Ferrum – Mookodi 2nd 400kV
14. Kimberley Ph 3: Mookodi – Hermes 2nd 400kV
15. Gr East London Str Ph4: Pembroke – Poseidon
16. Droerivier-Gourikwa 400kV
17. Hydra-Kronos – Aries 400kV line 2 IPP
18. SGS – 2x Gamma – Grassridge 765kV lines
19. Hlaziya 400/132kV MTS integr IPP
20. Aurora – June 400KV line 2
21. Cape Corridor Ph5: 1st Mercury – Sterrekus 765kV
22. Cape Corridor Ph2: 2nd Mercury – Sterrekus 765kV



1. Komsberg 400/132kV 500MVA Trfr 3
2. Kappa 400/132kV 500MVA Trfr 2
3. Koring 400/132kV SS Int
4. Droerivier 3rd 400/132kV Trfr
5. Galenia 400/132kV SS Inr
6. Grassridge 400/132kV 500MVA Trfr 3
7. Dedisa 400/132kV 500MVA Trfrs 3&4
8. Hydra 2 x 240MVA 400/132kV Trfr 3
9. Theseus 400/132kV 400MVA Trfr 3
10. Gumeni 400/132kV 500MVA Trfr 2
11. Mercury 400/132kV 500MVA Trfr 3
12. Delphi 400/132kV Trfr 3
13. Krypton 400/132kV Sub Int
14. Artemis 400/132kV SS
15. Camden B MTS
16. Majuba 400/88kV Trfr Upgrades
17. Majuba MTS 400/132kV Ext
18. Alpha 400/132kV
19. Hendrina 400/132kV Trfr 3
20. Camel 275/132kV Trfr 3
21. Prairie 275/132kV Trfr upgrades
22. Scafell SS Refurbishment
23. Watershed – Boitumelo 150MW PV
24. Watershed – Kutlwano 150MW PV
25. Good Hope 2



Power Lines (km)

- **15** projects in development stages to deliver **6,269 km and 20,079 MW**
- **7** projects in procurement and construction stage to deliver **808.4 km** and **4,070 MW**

Transformers

- **13** projects in development stages to deliver **8,531 MW**
- **10** projects in procurement and construction stage to deliver **4,051 MW**
- **2** projects at PCA consisting of **950 MW**

ESKOM EPC, PC and Construction Panel*:

19 local companies have signed agreements:

1. Ady Em Technical (Pty) Ltd
2. Bona-GPWG JV
3. Imbawula Technical Services and Suppliers Group (Pty) Ltd
4. KRM Global Works (Pty) Ltd
5. Letacla (Pty) Ltd
6. Melees Electrical Lines (Pty) Ltd
7. Mico Construction
8. Mkhulu Electro Distribution Projects (Pty) Ltd
9. Murray and Roberts (Pty) Ltd
10. NYC Water and Mining (Pty) Ltd
11. Olot Engineering (Pty) Ltd
12. Power Line Africa (SA) (Pty) Ltd
13. Rethuseng Live Line and Services (Pty) Ltd
14. Siya and Aya Engineering (Pty) Ltd
15. Siyavuya Power Projects (Pty) Ltd
16. SKM Africa (Pty) Ltd
17. Take Five To Make Ten General Trading
18. Thenga (Pty) Ltd
19. Tractionel Enterprise (Pty) Ltd

*The above entities signed long-term agreements for the construction of overhead power lines

SIP 10 ELECTRICITY TRANSMISSION AND DISTRIBUTION FOR ALL (DX)

ALPHA GWEDA 5GWh/yr BESS MANUFACTURING

The proposed project entails the development of a 5Gigawatthour (GWh) per annum Lithium Iron Battery Energy Storage System (BESS) manufacturing facility for Utility Scale and Automotive Storage Applications for distribution within the SADC region.

Project Developer: Alpha Gweda
Project Phase: Bankability
Estimated Capital Value: US$ 417 Million
Locality: East Cape Province, South Africa
Potential Opportunity: Funding/ Project Finance

ARARAT SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS (BESS)

This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Desert Rose BESS, Oasis Ararat, Izimvu Energy Facility, Lemonong Battery Energy Storage System.

Project Developers: Preferred bidders to be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

BIGHORN SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS BESS

This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Oasis Big Horn, Procyon BESS, Rooikoppies BESS, Capella BESS.

Project Developers: Preferred bidders to be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

CARMEL SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS (BESS)

This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Oasis Carmel, Savannah BESS, Edasich BESS, Welverind BESS.

Project Developers: Preferred bidders to be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: Gauteng Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

SIP 10 ELECTRICITY TRANSMISSION AND DISTRIBUTION FOR ALL (DX)

HERMES SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS (BESS)

This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Vaal River BESS, Oasis Hermes, Hartebeesfontein BESS, Tango BESS,

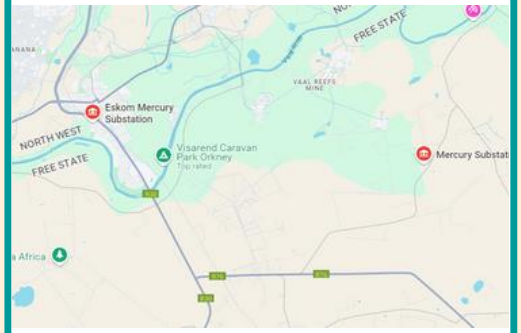
Project Developers: Preferred bidders o be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

MARANG SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS (BESS)

This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Oasis Marang, Mokgopha Marang BESS, Boitekong BESS, Sandpan BESS.

Project Developers: Preferred bidders o be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

MERCURY SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS (BESS)



This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Orkney BESS, Oasis Mercury, Tlholo BESS, Mulilo BESS.

Project Developers: Preferred bidders o be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

MIDAS SUBSTATION 77MW BATTERY ENERGY STORAGE SYSTEMS (BESS)

This project is part of the public procurement of Battery Energy Storage Systems (BESSIPPPP Bid Window 2). The Bidders announced on 29 August 2024 are: Jasmyn BESS, Oasis Midas, Leeuwpoort BESS, Merafong BESS.

Project Developers: Preferred bidders o be announced (+/-3months post bid submission)
Project Phase: Bankability
Estimated Capital Value: US$ 86.5 Million
Locality: North-West Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

SIP 20C

EMBEDDED GENERATION NATIONAL PROGRAMME

EMBEDDED GENERATION NATIONAL PROGRAMME (EGNP)

The Embedded Generation National Program (EGNP) is in pursuit of incentivising further investment and development across the country's renewable energy landscape through **private sector investment in utility-scale renewable energy projects. The offtake for the program is the private sector.** The program aims to diversify supply and reduce emissions in line with the industry's commitment to reach a target of net-zero carbon emissions by 2050.

The program is currently supporting the pipeline of **more than 100 projects representing over 10,000MW of new private sector renewable generation capacity** which is now at various stages of development and comprising the petrochemical, mining and other industrial sectors. Potential exists for funding and supply of infrastructure for the various projects currently under development.

TThe programme includes the following infrastructure:

- **Solar PV: Solar:** Balance of Plant (BOP), Civil & Electrical, Structures & Trackers, Modules, Cables, Inverters.
- **Wind Energy Facilities**: BOP, Civil & Electrical, Towers, Blades, Nacelles, Hubs
- **Storage:** Battery Energy Storage Systems (BESS)
- **Substations:** Transformers, Circuit Breakers, Busbars, Capacitors

QuickFacts

SIP Program Capital Value
~US$ 11.1 Billion

Province
National

Project Ownership
Various Private Off-takers

Status/Stage
Feasibility/ Bankability/ Procurement/ Execution

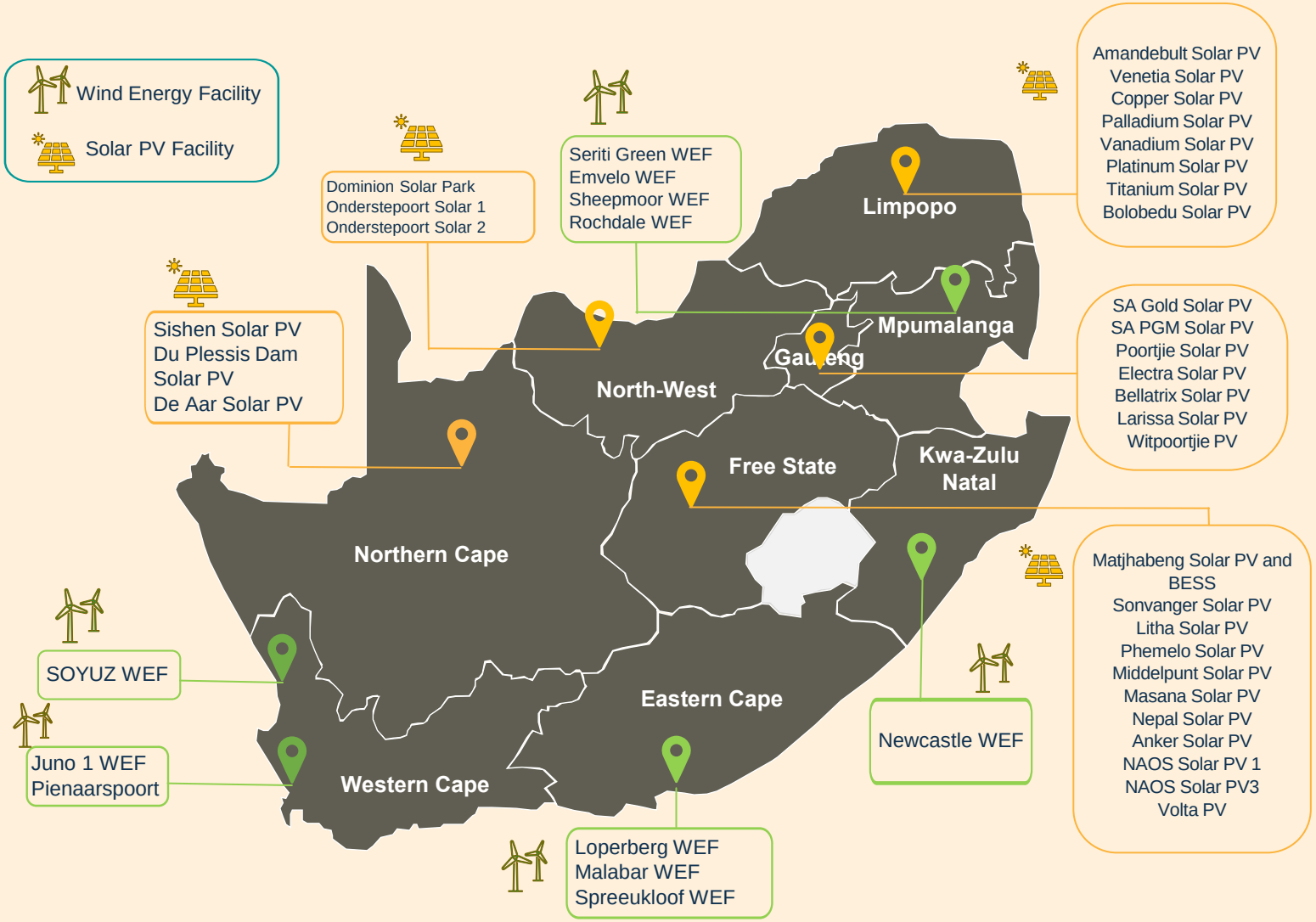
Investor Opportunities
Funding/ Financing/ Equipment Supply/ EPC

ISA

Energy Sector

***DTIC designated sector thresholds apply**
Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

SIP 20C EMBEDDED GENERATION NATIONAL PROGRAMME



Active EGNP Project Developers:

enel Green Power
ENVUSA ENERGY
MULILO RENEWABLE ENERGY
RED ROCKET
voltalia
SERITI Green
PELEGREEN ENERGY
SOLA
MERCHANT ENERGY
Subsolar
AFRICAN CLEAN ENERGY DEVELOPMENTS

SIP 20C EMBEDDED GENERATION NATIONAL PROGRAMME

ANGLO REGIONAL RE ECOSYSTEM (RREE)

Anglo American is developing a Regional Renewable Energy Ecosystem ("RREE") in South Africa. The RREE entails implementing 3-5 GW of renewable electricity (solar and wind) and storage over the next decade.

Project Developer: Envusa Energy
Project Phase: Execution/Bankability
Estimated Capital Value: US$3 - 5 Billion
Locality: Various Provinces, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

SERITI GREEN UMMBILA EMOYENI WEF

Umbila Emoyeni is a 900 MW renewable energy cluster in Mpumalanga that includes a 155 MW wind farm. The wind farm is expected to be completed in mid-2026 and will supply 75% of Seriti's coal mining operations with power. The remaining 900 MW of the project is expected to be completed by 2027.

Project Developer: Seriti Green
Project Phase: Execution/Bankability
Estimated Capital Value: US$ 1.3 Billion
Locality: Mpumalanga Province, South Africa
Potential Opportunity: Project Finance/ EPC Equipment Supply

SIBANYE RENEWABLE ENERGY PROGRAMME


First turbine erection at the ACED-EIMS-IDEAS Castle Wind Farm, under construction for Sibanye-Stillwa

Sibanye-Stillwater has developed a Strategic Energy Sourcing Programme which seeks to supplement a portion of our South African electricity supply through a portfolio of renewable energy projects. The total capacity of portfolio is 557MW across four embedded solar projects and three remote wind projects.

Project Developer: ACED
Project Phase: Execution/Bankability
Project Value: US$ 672 Million
Locality: Various Provinces, South Africa
Potential Opportunity: Project Finance/ EPC Equipment Supply

IMPOFU WIND ENERGY FACILITY

As part of Sasol's ambition to reduce its absolute scope 1 and 2 Greenhouse Gas (GHG) emissions by 30% off a 2017 baseline, the Impofu Cluster entails 3x110MW Wind Energy Facilities to supply SASOL Secunda site. The project is currently in construction.

Project Developer: ENEL Green Power
Project Phase: Construction
Estimated Capital Value: US$ 500 Million
Locality: Eastern Cape Province, South Africa

SIP 20D

JUST ENERGY TRANSITION NATIONAL PROGRAMME

JUST ENERGY TRANSITION INVESTMENT PLAN (2023-2027)

To support the goals of energy security, just transition, and economic growth, South Africa developed the R1.5-trillion (US$8.5 billion Just Energy Transition Investment Plan (JET IP) to clarify its priority investment requirements over the next five years (2023-2027) in the Electricity, New Electric Vehicle (NEVs), and Green Hydrogen (GH2) sectors.

The national **Electricity Sector's infrastructure investment needs are US$ 39.5Bn** entailing the following infrastructure; New Wind, New Solar PV, Transmission, New Batteries, Distribution, Coal plant decommissioning. The **investment needs in the New Energy Vehicle sector are US$ 7.1Bn** entailing the following; Industrial Development and Innovation, Public Transport, Mobility Emissions Abatement, Early Adoption and Innovation, Technical Assistance and NEV Deployment support. The **investment needs in the Green Hydrogen sector are US$ 17.7Bn** entailing Project Feasibility and Capital Costs.

The programme includes the following infrastructure:

- **Solar PV**: Solar: Balance of Plant (BOP), Civil & Electrical, Structures & Trackers, Modules, Cables, Inverters.
- **Wind Energy Facilities**: BOP, Civil & Electrical, Towers, Blades, Nacelles, Hubs
- **Storage**: Battery Energy Storage Systems (BESS)
- **Gas to Power Facility**: Gas Turbines, Heat Recovery Steam Generators, Steam Turbines, Balance of Plant
- **Gas Supply:** Import Terminals, Storage Facilities, Processing Facilities, Pipelines
- **Substations**: Transformers, Circuit Breakers, Busbars, Capacitors

QuickFacts

SIP Program Capital Value
~US$ 8.5 Billion

Province
National

Project Ownership
Various Public/ Private Entities

Status/Stage
Feasibility/ Bankability/ Procurement/ Execution

Investor Opportunities
Funding/ Financing/ Equipment Supply/ EPC

ISA

Energy Sector

***DTIC designated sector thresholds apply**
Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

SIP 20D

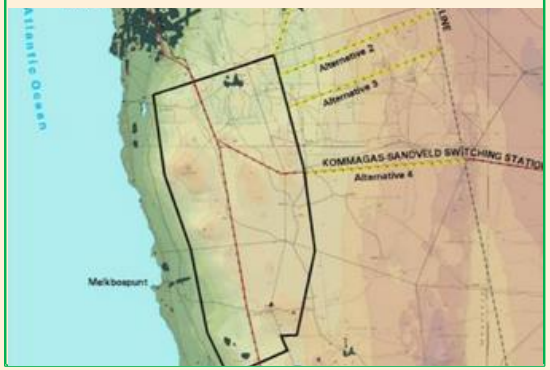
JUST ENERGY TRANSITION NATIONAL PROGRAMME HIGHLIGHTS

KOMATI POWER STATION SOLAR PV AND BESS

Eskom

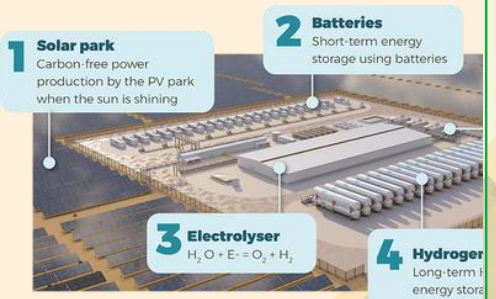
KLEINZEE WIND ENERGY FACILITY PROJECT

Eskom



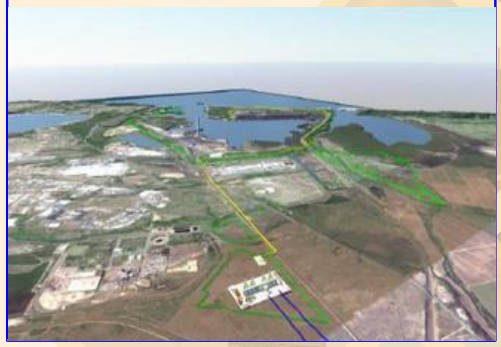
HDF ENERGY RENEWSTABLE ANCILLARY SERVICES

HDF ENERGY



RICHARDS BAY GAS TO POWER

Eskom



SIP 20D

JUST ENERGY TRANSITION NATIONAL PROGRAMME HIGHLIGHTS

RICHARDS'S BAY COMBINED CYCLE POWER PLANT

The proposed Richards Bay Combined Cycle Power Plant project, located in Richards Bay Industrial Development Zone (IDZ) , in KwaZulu Natal, will comprise of four units, each rated at 750 MW installed capacity for a combined total of 3000 MW.

Project Developer: ESKOM
Project Phase: Bankability
Estimated Capital Value: US$ 3.8 Billion
Locality: Kwazulu-Natal Province, South Africa
Potential Opportunity: Project Finance/ EPC/ Equipment Supply

KLEINZEE WIND ENERGY FACILITY PROJECT

The proposed 300MW Kleinzee Wind Energy Facility is in the Nama Khoi Local Municipality. Extensive prefeasibility work has been done including the completion of concept designs and obtaining an environmental approval.

Project Developer: Eskom
Project Phase: Bankability
Estimated Capital Value: US$ 480 Million
Locality: Northern Cape Province, South Africa
Potential Opportunity: Funding/ Project Finance/ EPC/ Equipment Supply

KOMATI POWER STATION SOLAR PV AND BESS

Komati Power Station has reached its expected end-of-life in September 2022. The proposed project entails the repurposing of Komati Power Station to Solar PV (100MW) and Battery Energy Storage (150MW, 600MWh).

Project Developer: ESKOM
Project Phase: Feasibility
Estimated Capital Value: US$ 294 Million
Locality: Mpumalanga Province, South Africa
Potential Opportunity: EPC/Equipment Supply

HDF ENERGY RENEWSTABLE ANCILLARY SERVICES

The proposed Renewstable® Mpumalanga Project is a portfolio of 8 projects which will provide a 24/7 firm output of 265 MW during the day, 60 MW at night, and able to peak at 325 MW.

Project Developer: Red Rocket
Project Phase: Feasibility
Estimated Capital Value: US$ 2.2 Billion
Locality: Mpumalanga Province, South Africa
Potential Opportunity: Funding/Project Finance/ EPC/ Equipment Supply

SIP 20E

GREEN HYDROGEN NATIONAL PROGRAMME

GREEN HYDROGEN NATIONAL PROGRAMME (GHNP)

In 2021 South Africa developed the **Hydrogen Society Roadmap which targets 500 kilotonnes per annum (ktpa) of Green Hydrogen production by 2030**. This was followed by designation of Green Hydrogen as Big Frontier 1 in the South African Country Investment Strategy of May 2022. On the back of these government documents and projects which were stimulated, Infrastructure South Africa (ISA) gazetted Strategic Integrated Project (SIP) 20c, the Green Hydrogen National Program (GHNP).

Subsequent to this, the **Green Hydrogen Commercialisation Strategy (GHCS) was approved by cabinet in October 2023 followed by a cabinet approved a Just Energy Transition Investment Plan (JETIP) in November 2023**. These documents position the country's competitive advantage in the sector and support the decarbonisation of the country's heavy industrial base, creating opportunities for new export markets, value chains, jobs, and skills.

The programme includes the following infrastructure:

- **Solar PV**: Solar: Balance of Plant (BOP), Civil & Electrical, Structures & Trackers, Modules, Cables, Inverters.
- **Wind Energy Facilities**: BOP, Civil & Electrical, Towers, Blades, Nacelles, Hubs
- **Storage**: Battery Energy Storage Systems (BESS)
- **Substations**: Transformers, Circuit Breakers, Busbars, Capacitors
- **Green Hydrogen:** Water Desalination Plant, Electrolysers, Air Separation Units, Hydrogen Fuel Cells, Storage and Distribution Facilties

QuickFacts

SIP Program Capital Value
~US$ 44 Billion

Province
Various Private Sector Entities

Project Ownership
National

Status/Stage
Feasibility/ Bankability/ Procurement/ Execution

Investor Opportunities
Funding/ Financing/ Equipment Supply/ EPC

ISA

Energy Sector

***DTIC designated sector thresholds apply**
Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

SIP 20E GREEN HYDROGEN NATIONAL PROGRAMME

Active GHNP Project Developers:

UPINGTON SOLAR & GREEN H2 PARK UPILANGA

Prieska POWER RESERVE

HIVE ENERGY

UGE

sasol

HDF ENERGY

ENERTRAG

Green Hydrogen Solutions™

WKN Windcurrent PNE GROUP

ISONDO PRECIOUS METALS

ArcelorMittal

RESH2

Atlanthia Green Hydrogen

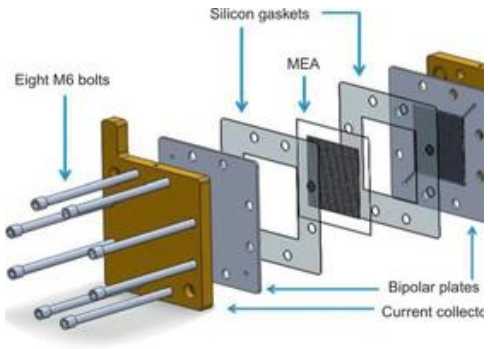
Phelan GREEN ENERGY

keren energy

REAMWORKS Haven Investments (Pty) Ltd

SIP 20E GREEN HYDROGEN NATIONAL PROGRAMME

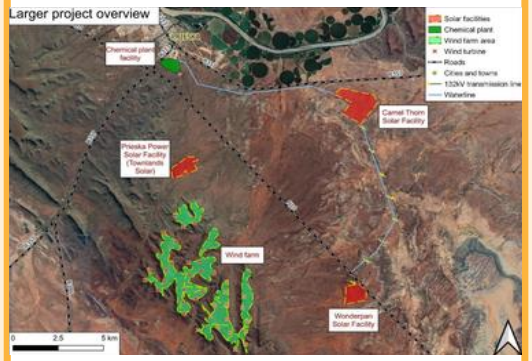
ISONDO PM MEA MANUFACTURING



The Isondo Precious Metals (IPM) enables beneficiation of our Platinum Group Metals (PGMs) into PGM catalysts, Membrane Electrode Assemblies (MEAs), Catalyst Coated Membranes and PGM chemicals for the Fuel Cells and Electrolysers required to produce Green Hydrogen

Project Developer: Isondo Precious Metals
Project Phase: Execution
Estimated Capital Value: US$ 116 Million
Locality: Gauteng Province, South Africa
Potential Opportunity: Funding

PRIESKA POWER RESERVE GREEN HYDROGEN PROJECT



The proposed Prieska Power Reserve Project, entails the production of 80 kilotonnes per annum (ktpa) of Green Ammonia with a green hydrogen content of approximately 14ktpa from 180MWp Solar PV , and 138.6MWp of wind. The Project consists of a 120MW electrolyser and 300mtpd Ammonia Synthesis Plant which will be operational in 2027.

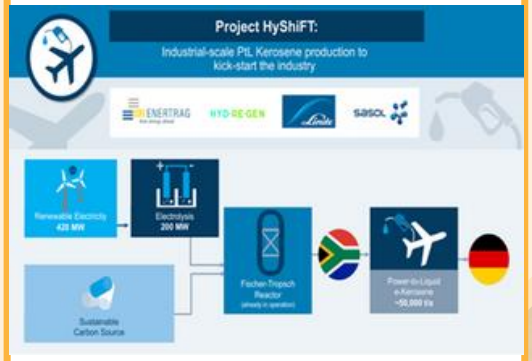
Project Developer: CENEC & Mahlako
Project Phase: Bankability
Estimated Capital Value: US$ 722 Million
Locality: Northern Cape Province, South Africa
Potential Opportunity: Project Finance/ EPC

COEGA GREEN AMMONIA PROJECT

The proposed Hive Hydrogen South Africa project entails the development of Solar PV (1430MW) and Wind (2108MW) facilities will be wheeled across the Eskom network to drive which will supply 1120MW of Electrolyser plant to produce 1,000 ktpa of Green Ammonia. The project is located in the Coega port/SEZ area.

Project Developer: Red Rocket
Project Phase: Bankability
Project Value: US$ 5.9 Billion
Locality: Eastern Cape, South Africa
Potential Opportunity: Project Finance/ EPC

SASOL HYSHIFT SUSTAINABLE AVIATION FUEL PROJECT



The project entails ~ 500MW of wind and solar electricity supplying electricity to a 200 MW electrolyser that will produce ~20 ktpa of green hydrogen. The green hydrogen will be combined with industrial carbon dioxide in Sasol's existing Fischer Tropsch facilities to produce ~50 kt/a of PtL-Kero type Sustainable Aviation Fuel (SAF).

Project Developer: Red Rocket
Project Phase: Feasibility
Estimated Capital Value: US$ 0.83 – 1.1 Billion
Locality: Mpumalanga Province, South Africa
Potential Opportunity: Project Finance/ EPC

SIP 20F

OIL AND GAS NATIONAL PROGRAMME

OIL AND GAS NATIONAL PROGRAMME (OGNP)

Energy security is a fundamental ingredient to a stable and growing economy. The Oil and Gas National program is focused on the **key strategic objective of ensuring energy security, ensuring availability of energy resources and access to energy services in an in an affordable and sustainable manner, while minimizing adverse environmental impact.** The scope of the program includes Upstream Production, Midstream Transmission and Downstream Use in Gas to Power applications.

The program is currently supporting a pipeline of more than **10 major upstream and downstream projects including over 2,500MW of private sector Gas to Power generation capacity** which is now at various stages of development. Potential exists for funding and supply of infrastructure for the various projects currently under development.

The programme includes the following infrastructure:

- **Upstream Production:** Drilling rigs, Production Facilities, Transportation Systems, Storage Facilities, Support Infrastructure
- **Gas Supply:** Import Terminals, Storage Facilities, Processing Facilities, Pipelines
- **Gas to Power Facility**: Gas Turbines, Heat Recovery Steam Generators, Steam Turbines, Balance of Plant
- **Substations**: Transformers, Circuit Breakers, Busbars, Capacitors

QuickFacts

SIP Program Capital Value
~US$ 7.6 Billion

Province
National

Project Ownership
Various Public/ Private Entities

Status/Stage
Feasibility/ Bankability/ Procurement/ Execution

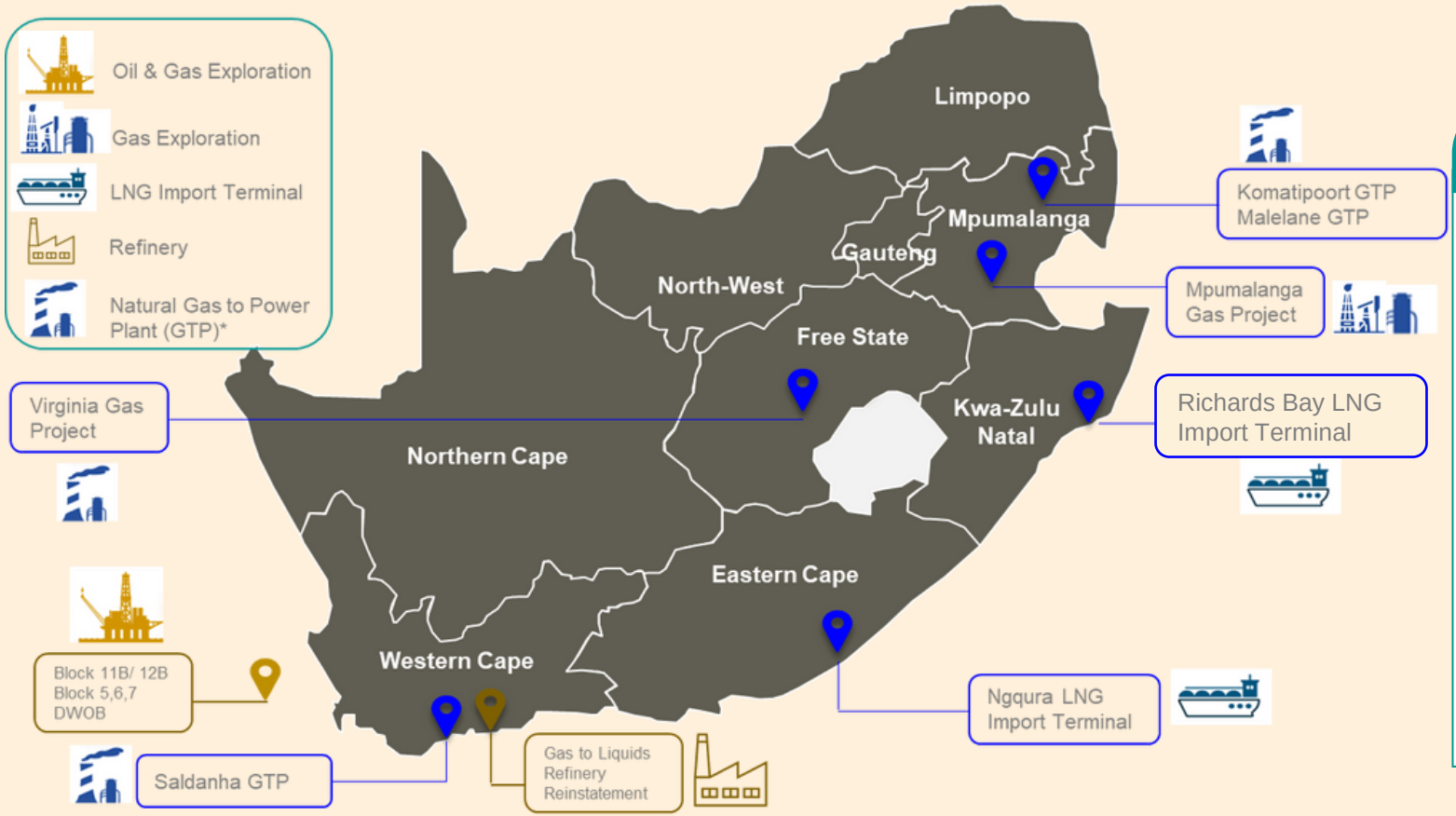
Investor Opportunities
Funding/ Financing/ Equipment Supply/ EPC

ISA

Energy Sector

***DTIC designated sector thresholds apply**
Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

SIP 20F OIL & GAS NATIONAL PROGRAM HIGHLIGHTS



Active O&G Project Developers:

TotalEnergies
RENERGEN
FUTURE ENERGY, TODAY
TRANSNET
KINETIKO ENERGY LTD
national ports authority
PetroSA
VUTOMI ENERGY PTY LTD
ASSEGAi POWER
flexed

*The RFP for Bid Window 1 of the DMRE's Gas to Power Independent Power Producer Procurement Programme was issued to the market on 14 December 2023. Bid submission is March 2025.

SIP 20F OIL & GAS NATIONAL PROGRAM HIGHLIGHTS

ASSEGAI POWER GAS TO POWER PLANT

The proposed Assegai Project entails a 1000MW Natural Gas to Power Plant with LNG Storage and Regasification, Overhead Electricity Transmission, and Associated Infrastructure. The project is located within the Bessansklip Industrial Zone in Saldanha Bay.

Project Developer: AHubEnergy
Project Phase: Bankability
Project Value: US$ 616 Million
Locality: Western Cape, South Africa
Potential Opportunity: Project Finance/ EPC

PORT OF NGURA LIQUIFIED NATURAL GAS IMPORT TERMINAL

In alignment with South Africa's energy diversification goals, Transnet National Ports Authority (TNPA) has taken a strategic initiative to position the Port of Ngqura as a key enabler for the secure supply of Liquified Natural Gas (LNG) in the Eastern Cape through the development of an LNG Import Terminal

Project Developer: Transnet Port Authority
Project Phase: Bankability
Estimated Capital Value: US$ 411 Million
Locality: Eastern Cape, South Africa
Potential Opportunity: Funding

RENERGEN VIRGINIA GAS PROJECT

The Project is an expansion of South Africa's first and currently only onshore Production Right. It aims to increase the exploration, production and processing of natural gas and associated byproduct helium. The project entails a natural gas facility producing 12.5 million gigajoules of LNG per annum.

Project Developer: Renergen
Project Phase: Bankability
Estimated Capital Value: US$ 1.2 Billion
Locality: Free-Sate Province, South Africa
Potential Opportunity: Project Finance/ EPC

KHANYAZWE FLEXPOWER 1000MW

The proposed Khanyazwe Flexpower (KFP) Project entails a 1000MW natural gas-fired power plant using Gas Engines. KFP will source gas from the Republic of Mozambique Pipeline Investments Company (ROMPCO). Alternative sources of gas may include imported LNG projects being developed in Mozambique.

Project Developer: Flexible Energy Developments
Project Phase: Bankability
Estimated Capital Value: US$ 611 Million
Locality: Mpumalanga, Province, South Africa
Potential opportunity: Project Finance/ EPC

TOP 12 INFRASTRUCTURE PRIORITIES FOR PRJECT PREPARATION

ENERGY INFRASTRUCTURE PRIORITIES FOR PROJECT PREPARATION

During the Sustainable Infrastructure Development Symposium South Africa (SIDSSA) 2024 held in Cape Town, Twelve major infrastructure project priorities were launched with the aim of driving public and private sector-led development in South Africa. The projects span Transport, Storage and Communication; Electricity, Gas and Water; Community, Social and Personal Services; Mining and Quarrying; and Agriculture, Forestry and Fishing Sectors, and fall under South Africa's 2024/2025 infrastructure pipeline. Through Project Preparation Support, Infrastructure South Africa is providing technical assistance to the Top 12 priority projects to enable them to reach bankability.

Amongst the Top 12 Priorities, the energy sector projects include the following:

- **ESKOM:** Tubatse Pumped Storage Scheme (TPSS)
- **TNPA:** Port of Ngqura Liquified Gas (LNG) Import Terminal
- **TNPA:** Port of Richards Bay Ngqura Liquified Gas (LNG) Import Terminal
- **PetroSA:** Gas to Liquids Refinery (GTLR) Reinstatement

The programme includes the following infrastructure:

- **TPSS**: Penstocks, Powerhouse, Intake Structures, Surge Chambers, Transformers and Transmission
- **LNG Terminal**: Floating Storage and Regasification Unit (FSRU), Marine Facilities, Storage Tanks, Regasification Equipment, Pipeline Infrastructure, Safety Systems, Bulk Infrastructure
- **GTLR**: Feed Gas Treatment Units, Fischer-Tropsch Synthesis Reactors, Storage Tanks, Balance of Plant, Utilities and Support Systems

QuickFacts

SIP Program Capital Value
~US$ 7.6 Billion

Province
National

Project Ownership
Various Private/ Public Entities

Status/Stage
Feasibility/ Bankability

Investor Opportunities
Funding/ Financing

ISA **Energy Sector**

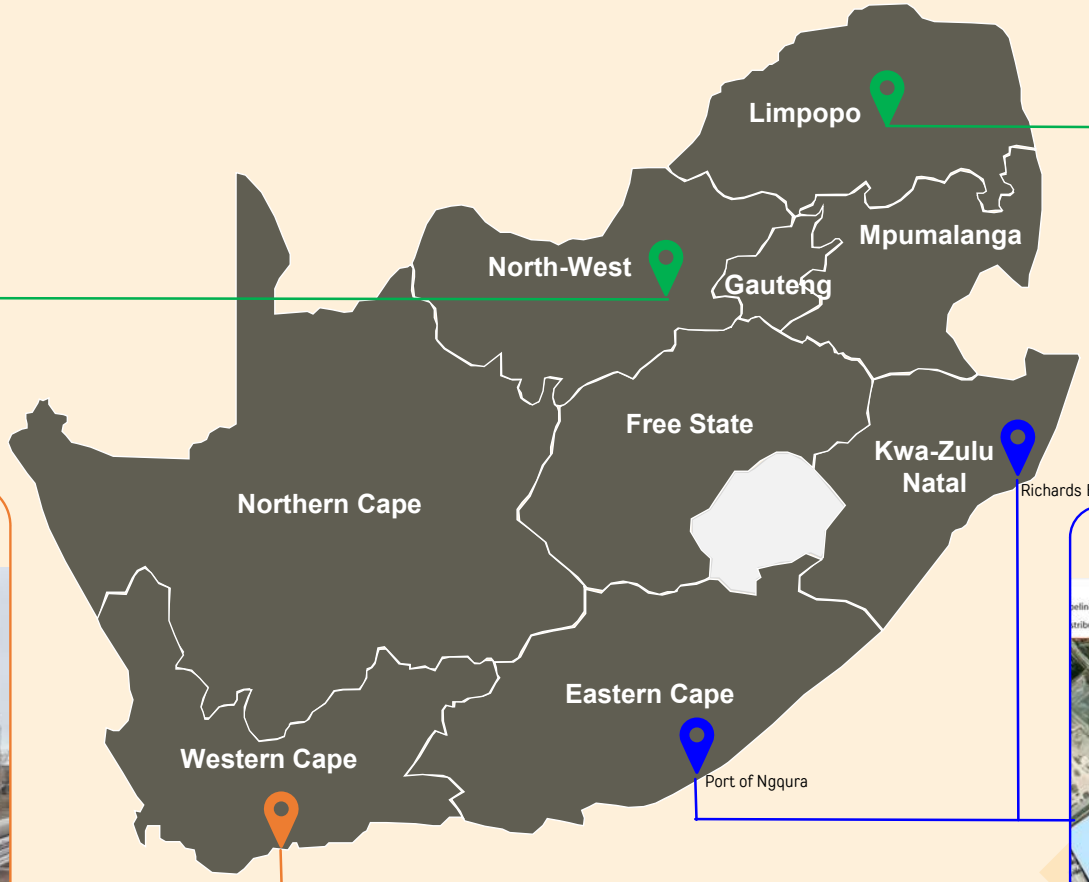
***DTIC designated sector thresholds apply**
Industrial Procurement - The Department of Trade Industry and Competition (thedtic.gov.za)

HIGHLIGHTS

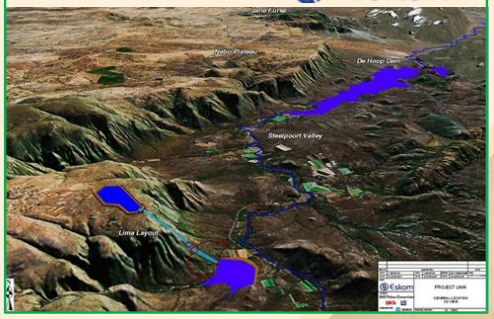
PROJECT PREPRATION: ENERGY INFRASTRUCTURE PRIORITIES

NECSA MULTI-PURPOSE REACTOR (MPR) PROJECT

MOSSEL BAY GAS TO LIQUIDS REFINERY REINSTATEMENT



TUBATSE PUMPED STORAGE SCHEME

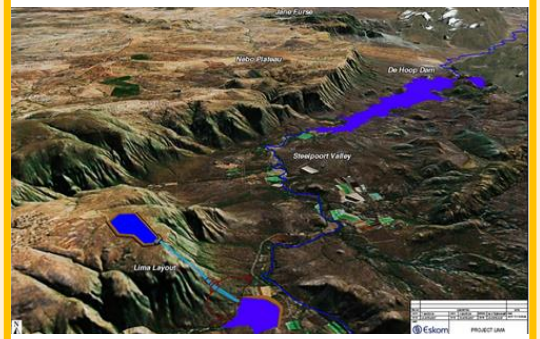


LIQUIFIED NATURAL GAS IMPORT TERMINALS

HIGHLIGHTS

PROJECT PREPRATION: ENERGY INFRASTRUCTURE PRIORITIES

TUBATSE PUMPED STORAGE SCHEME



The proposed Tubatse Pumped Storage Scheme (TPSS) entails the construction of a 1500MW (4 units x 375MW) installed capacity pumped storage scheme. The objective of the project is to support the introduction of renewable energy by creating a large grid-scale energy storage system to provide best economical peaking generating capacity and ancillary services with the lowest technical and implementation risk.

Project Developer: ESKOM
Project Phase: Bankability
Estimated Capital Value: US$ 1.94 Billion
Locality: Limpopo Province, South Africa
Potential Opportunity: Project Preparation Funding

NECSA MULTI-PURPOSE REACTOR (MPR) PROJECT

The proposed NECSA MPR project entails the replacement of the end-of-life South African Fundamental Atomic Research Installation (SAFARI-1) through the construction of a new 20-30 MW nuclear power research reactor at Pelindaba. The project will ensure that South Africa retains and grows its role as a major producer of key medical radioisotopes for the international and domestic markets.

Project Developer: Nuclear Energy Corporation of South Africa (NECSA)
Project Phase: Bankability
Estimated Capital Value: US$ 1.45 Billion
Locality: North-West Province, South Africa
Potential Opportunity: Project Preparation Funding

PORT OF NGQURA LIQUIFIED NATURAL GAS TERMINAL

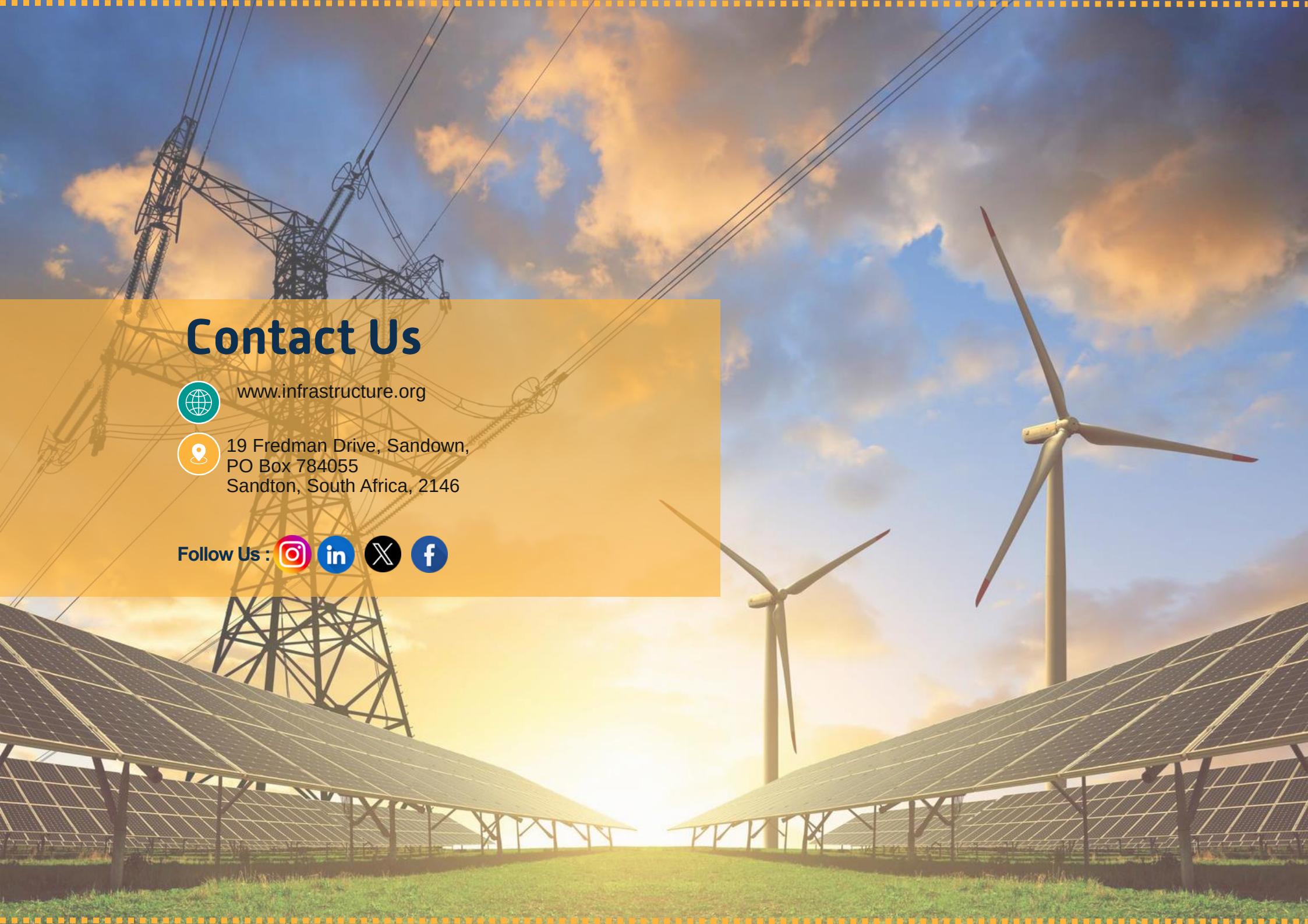
In alignment with South Africa's energy diversification goals and the Gas Masterplan, Transnet National Ports Authority (TNPA) has taken a strategic initiative to position the Port of Ngqura as a key enabler for the secure supply of Liquified Natural Gas (LNG) in the Eastern Cape through the development of an LNG Import Terminal.

Project Developer: Transnet Port Authority (TNPA)
Project Phase: Bankability
Estimated Capital Value: US$ 411 Million
Locality: Eastern Cape, South Africa
Potential Opportunity: Project Preparation Funding

MOSSEL BAY GAS TO LIQUIDS REFINERY REINSTATEMENT

The Gas To Liquids Refinery (GTLR) is currently offline and undergoing preservation maintenance. The proposed project entails the reinstatement of the Mossel Bay Production Assets which includes the GTL-Refinery (Liquids Section) in the earliest possible time at minimum costs, following suspension of production in 2020 due to feedstock challenges.

Project Developer: PetroSA
Project Phase: Feasibility
Estimated Capital Value: US$ 166 Million
Locality: Western Cape Province, South Africa
Potential Opportunity: Project Preparation Funding



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