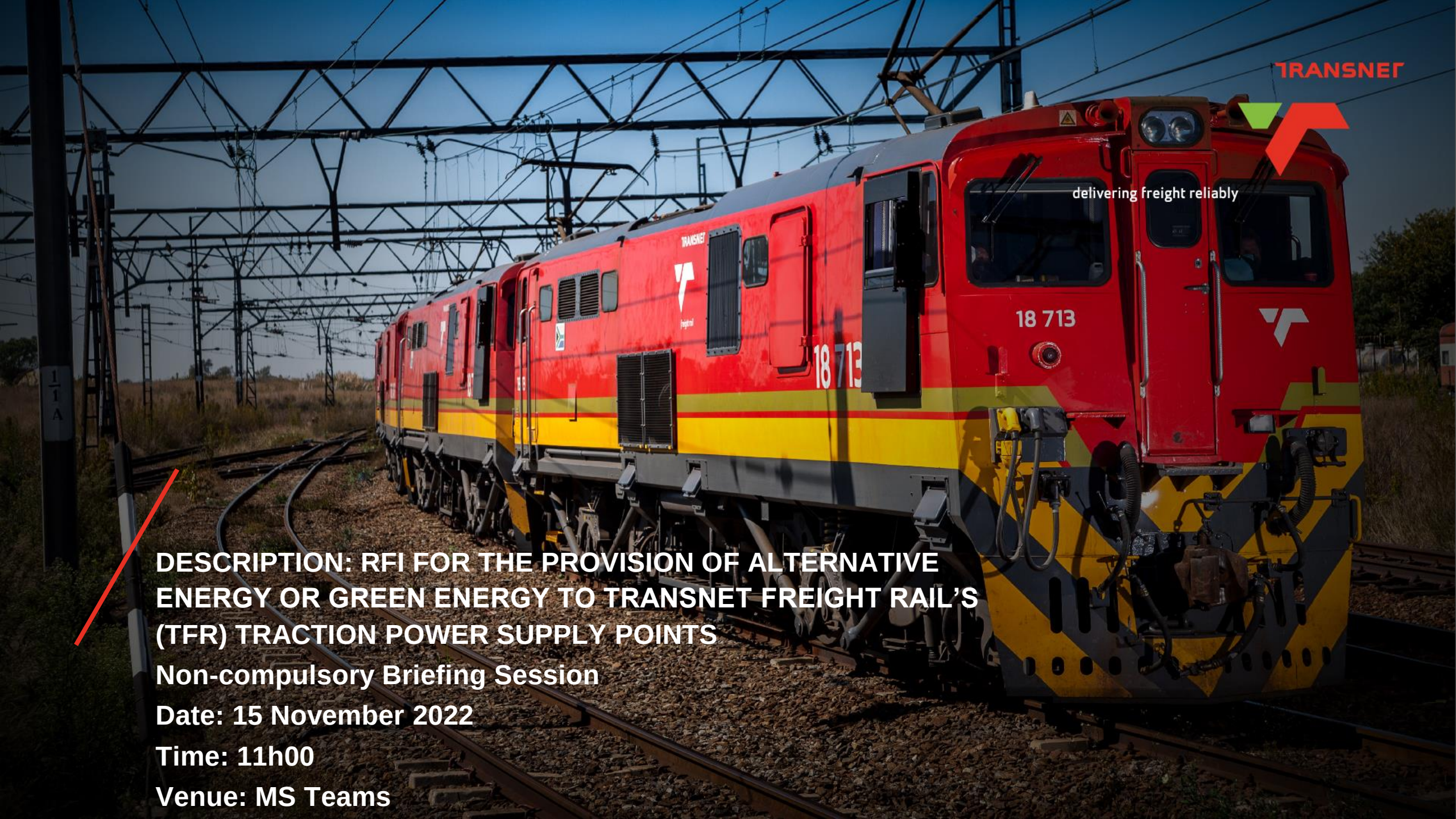


DESCRIPTION: RFI FOR THE PROVISION OF ALTERNATIVE ENERGY OR GREEN ENERGY TO TRANSNET FREIGHT RAIL'S (TFR) TRACTION POWER SUPPLY POINTS

Non-compulsory Briefing Session

Date: 15 November 2022

Time: 11h00

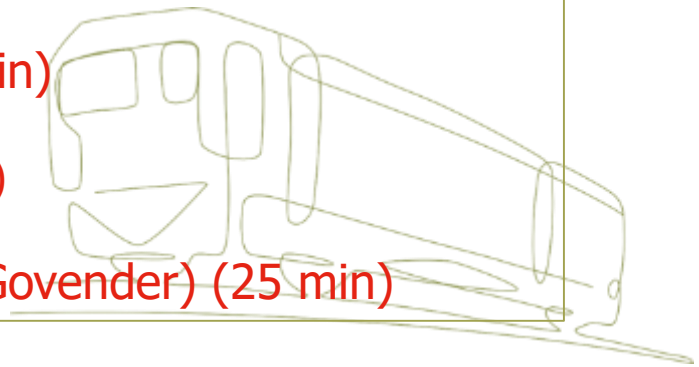
Venue: MS Teams

RFI NUMBER: SIC22009CIDB/ HOAC-HO-38730

DESCRIPTION: FOR THE PROVISION OF ALTERNATIVE ENERGY OR GREEN ENERGY TO TRANSNET FREIGHT RAIL'S (TFR) TRACTION POWER SUPPLY POINTS

Agenda

Welcome & Safety briefing	Khimane Motupa (5min)
RFI Notice, Invitation and Overview	Phumudzo Gadivhana (15 min)
Broad-based Black Economic Empowerment (B-BBEE) Preference points	
Purpose of the Service and Requirements	Thabo Selemela (10 min)
Electrical traction network overview	Theolen Chetty (10 min)
TFR traction electricity overview	Zackaria Mokhobo (15 min)
RFI key information	Thabo Selemela (10 min)
Q&A session	All (Facilitated by Tyrell Govender) (25 min)

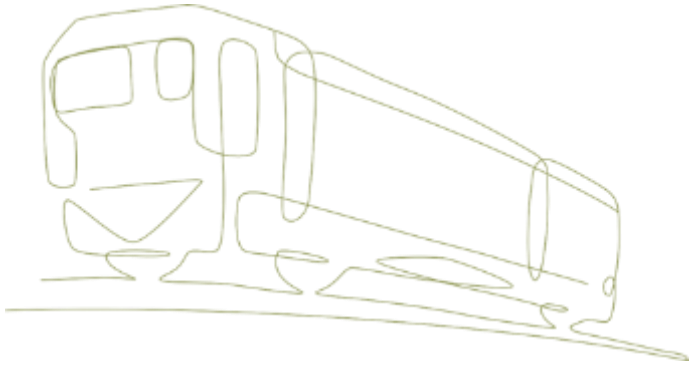


Welcome & Introduction

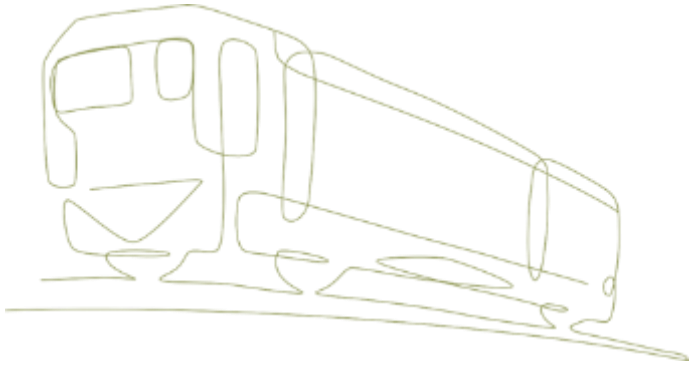
TEAM COMPOSITION

- Phumudzo Gadivhana:RFI Administrator (SCS)
- Thabo Selemela: Project Coordinator (Technology Management)
- Theolen Chetty: Project Coordinator (Rail Network)
- Patrick Croucamp: Snr Engineer (Technology Management)
- Zackaria Mokhobo: Engineer (Rail Network)
- Tyrell Govender: Act. Snr. Engineer (Rail Network)
- Khimane Motupa: Principal Engineer (Technology Management)
- Selby Mathebula: Principal Engineer (Rail Network)
- Johan Van Aardt: Chief Engineer (Office of the GCE)

SAFETY BRIEFING



RFI NOTICE, INVITATION AND OVERVIEW



Tender Submission

Tender Closing Date & Time

- Tuesday, 31 January 2023 at 10h00
- No Late tenders will be considered
- Encourage Bidders to submit bid responses before the 31 January 2023

Tender Submission

- The Transnet e-Tender Submission Portal can be accessed as follows:
- Log on to the Transnet eTenders management platform website (https://www.transnet.net);
- Click on "TENDERS";
- Scroll towards the bottom right hand side of the page;
- On the blue window click on "register on our new eTender Portal";
- Click on "ADVERTISED TENDERS" to view advertised tenders;
- Click on "SIGN IN/REGISTER – for bidder to register their information (must fill in all mandatory information);
- Click on "SIGN IN/REGISTER" - to sign in if already registered;
- Toggle (click to switch) the "Log an Intent" button to submit a bid;

Tender Clarification

❑ Communication

- ❑ **Prior to the Tender Closing Date & Time**

  For all clarification questions prior to the tender closing date and time, direct the communication to the RFI Administrator at Phumudzo.Gadivhana@transnet.net

  RFI deadline for questions / RFI Clarifications/Request for deadline extension: **12:00pm 18 JANUARY 2023**

- ❑ **After the Tender Closing Date & Time**

  For all clarification questions **after** the tender closing date and time, direct the communication to:

  EMAIL: Prudence.Nkabinde@transnet.net

  Cc: Phumudzo.Gadivhana@transnet.net

- ❑ All communication needs to be in writing.
- ❑ Responses to questions / tender clarifications will be communicated to all Tenderers.
- ❑ Tenderers to ensure that communication details (e-mail address) is correct and legible in order to ensure that communication is received.

- ❑ Clarification Request Form caters for all Admin and technical related queries.

RFI Overview

❑ RFI Evaluation Methodology

❑ Eligible Criteria

- **Test for Administrative Responsiveness**
  - Whether the Bid has been lodged on time
  - Whether all Returnable Documents and/or schedules [where applicable] were completed and returned by the closing date and time
  - Verify the validity of all returnable documents
  - Verify if the Bid document has been duly signed by the authorised respondent

- **Technical**
  - Project financing
  - Development and modelling of renewable energy projects
  - Engineering, Procurement and Construction (EPC) of renewable energy projects
  - Operation and maintenance of renewable energy plants
  - Development of Power Purchase Agreements
  - Embedded Generation Installation (EGI) compliance testing
  - Training of staff on various stages of renewable energy projects

❑ Price (Commercial)

Purpose of the Service and Requirements

- Background
  - Transnet is an energy intensive organization utilizing electricity and liquid fuels in its operations.
  - During the 2021/22 financial year, TFR consumed in excess of 1,800 GWh on traction energy.
  - The electricity consumed by the traction loads is generated from coal fired power station.
  - The cost of electricity has been increasing at an alarming rate (9.6% in 21/22 FY), further increases are anticipated in the next FY.
  - Traction loads are characterized by high peak and short duration demand periods.
  - TFR seeks to understand how affordable renewable energy can be integrated in its traction power supplies to improve energy security and efficiency and to reduce its operational impact on the environment.

Purpose of the Service and Requirements

- Purpose of the RFI
  - The purpose of this RFI is to obtain information from the market to enable Transnet Freight Rail to procure renewable energy for TFR's traction loads across all corridors, nationwide.

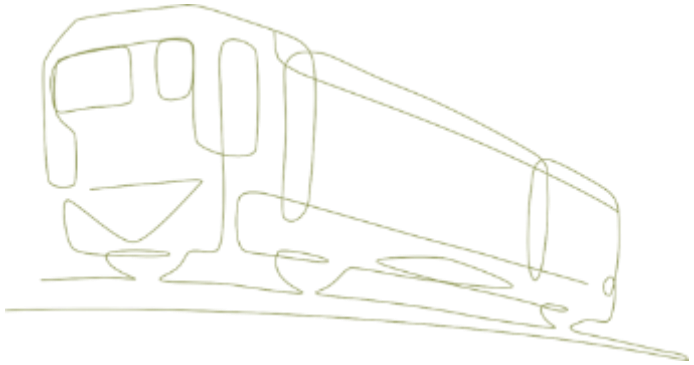
  - It is in this context that Transnet intends to:
    - Gain a better understanding of the renewable energy market, particularly for wind, solar and any other green energy sources which might be prevalent and / or relevant for the railway traction loads which are intermittent in nature.
    - Gauge market appetite for commercial supply and/or investment for the TFR Renewable Energy Power Purchase Programme for traction loads; and
    - Refine the commercial assumptions for the initiative and design an appropriate procurement framework for the initiative roll-out.

Productive Output and Technical Requirements

- The following list of deliverables captures the minimum intent and objectives of the RFI process:
  - Information on proposed projects that can be implemented to procure existing available renewable energy supply in the immediate term.
  - Information on proposed joint development and investment projects, between Transnet and private entities, that could provide renewable energy to traction substations in the medium to long term.

- The information shall be classified into the following category:
  - Information on respondent's renewable projects experience
  - Information on proposed project
  - Information relevant to TFR's REPPP RFP
  - Information relevant to the project Power Purchase Agreement
  - Information relevant to project financing

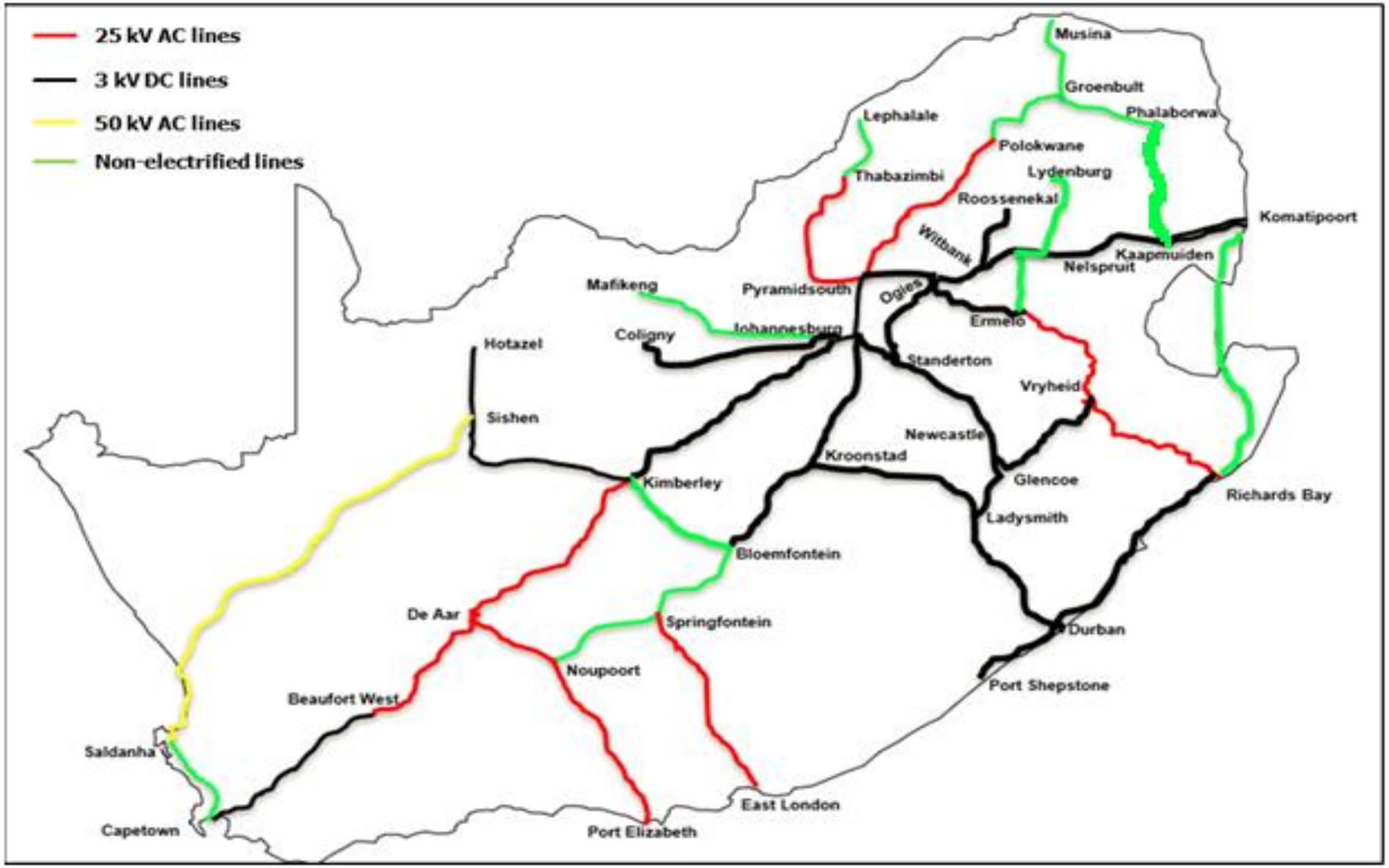
TECHNICAL



Network Configuration

- Electric traction means a locomotive in which the driving force is obtained from electric motors. These electric locomotives are powered by electrical networks known as traction electrification systems.
- There are three types of traction electrification systems that is employed in Transnet Freight Rail, which are the 3kVDC, 25kVAC and 50kVAC traction networks
- TFR's Rail Network consist of 427 of tractions substations and 12000 electrified route km, which is made up of 76% of 3kVDC substation, 22 % of 25kVAC substations and 2% of 50kVAC track feeder stations.
- Currently Eskom is the main power utility that feeds the traction network, however, in municipal areas the local municipalities are responsible for feeding power to the traction network.
- Transnet freight rail has entered into separate service level agreements with each of the utilities, that details the terms and conditions of which we buy and consume power.
- There is currently capital expansion (power upgrade) projects that are being executed on the coal and ore line in order to support volume growth.

Network Configuration



Traction Electricity Current State

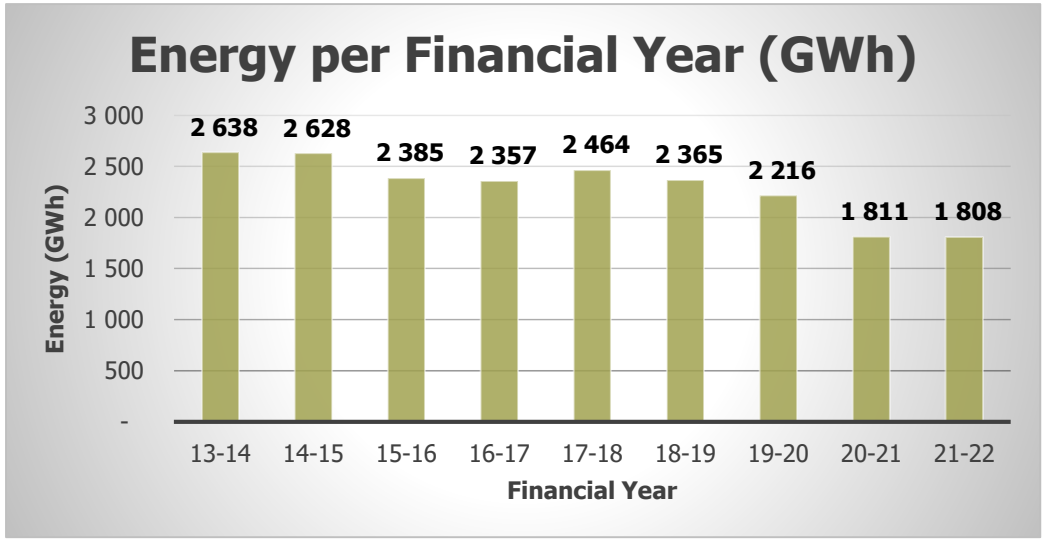
Transnet Freight Rail has 441 active Traction substation and most have a dedicated supply from Eskom

Supply Ranges from 33 kV – 132kV AC

Total Energy budget for in 2022-23 financial year is 2 039 GWh

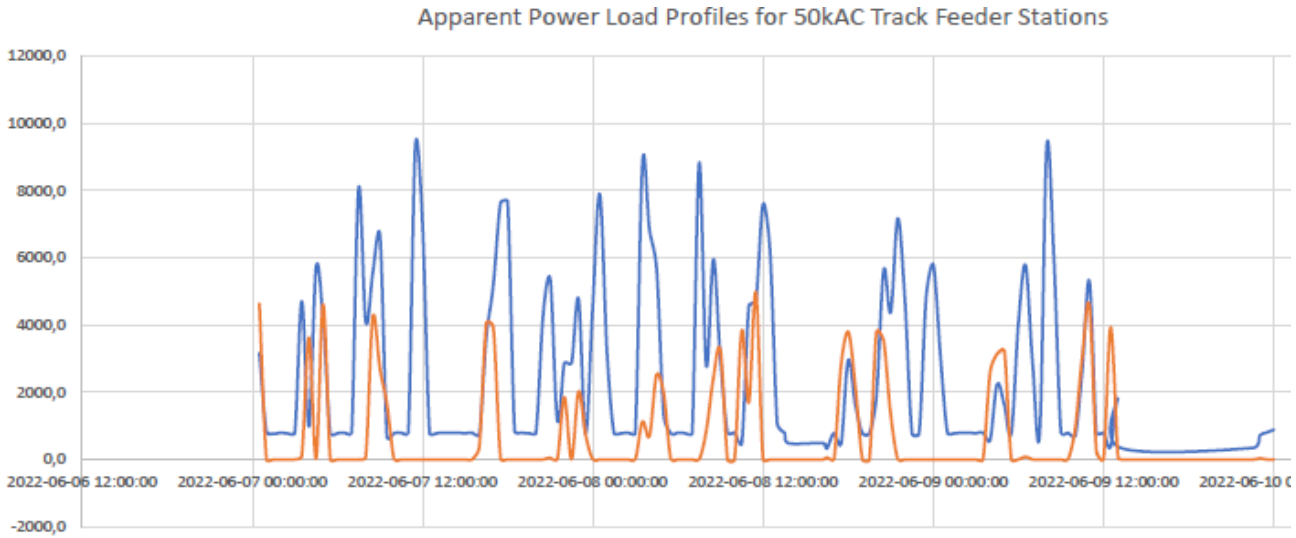
Most of the substations are billed by Eskom with 6 billed by the Municipalities

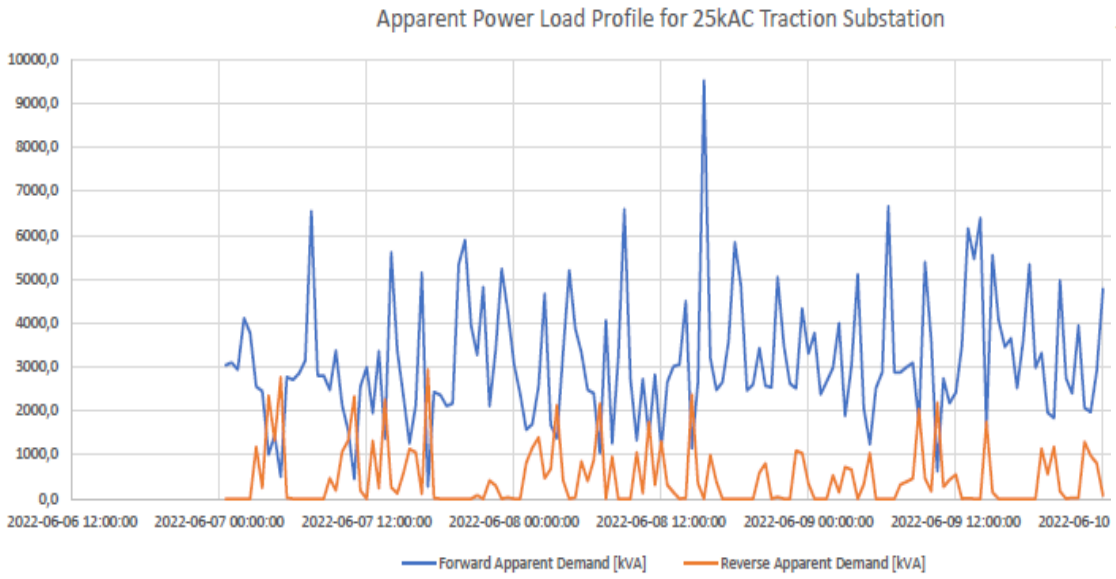
Major Lines	Combined NMD	Average Monthly Consumption
Sishen –Saldanha	285 MVA	36 GWh
Hotazel - Kimberly	119 MVA	10.74 GWh
Ermelo – Richards Bay	166 MVA	26.42 GWh
Witbank-Ogies-Ermelo	65.5 MVA	9.55 GWh
De Aar – Gqerberha	136 MVA	7.72 GWh

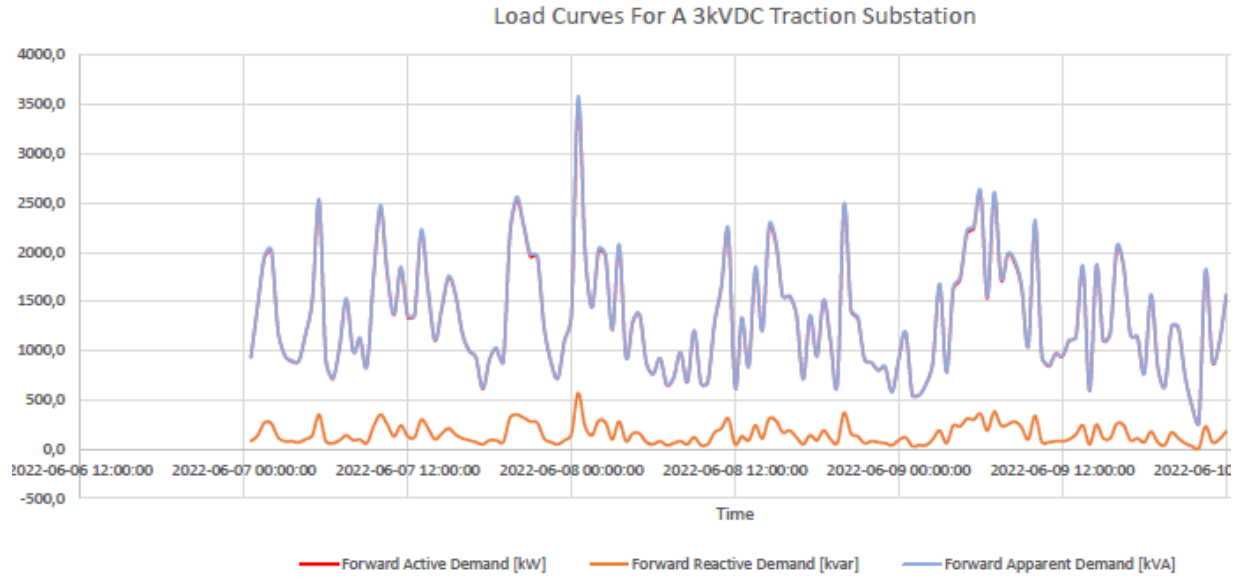


Traction Electricity Current State

- Traction loads are cyclic in nature. They have large peak demands and low base loads
- AC traction networks are capable of returning regenerative energy back to the utility
- Regenerative energy is in the order of 6 to 12% of consumed energy







Key Information Requested

- Respondents experience with renewable energy project
  - The main business of the Respondent, with regards to the energy project e.g., trader, generator of energy or investor
  - Whether the Respondent has previously undertaken a renewable energy project for traction loads?

- Information on proposed project
  - Provide overview of the project scope, background and estimated upfront capital cost and estimated O&M cost per year over the proposed PPA period.
  - Proposed renewable energy technology and indicate the maturity/readiness level of technology
  - Describe the proposed project location and land size. Details to be provided where relevant, on the status of discussions / agreements for land security purposes
  - Propose energy storage technology for traction loads which are intermittent e.g., batteries, super-capacitors, flywheel, etc. and indicate the maturity/readiness level of the technology
  - Estimate the potential carbon emission savings for TFR per MWh generated due to the usage of the proposed plant.

Key Information Requested

- Information relevant to TFR's Renewable Energy Power Purchase Programme RFP
  - Provide the anticipated time (in months) that is required to prepare and submit a bid response for the p following proposed project:
    - i. Joint investment & development project (Self generation).
    - ii. Wheeling project (Pure power purchase).

- Information relevant to the proposed project Power Purchase Agreement
  - Indicate which of the below proposed PPAs would the Respondent be more likely to enter and provide a motivation for the preferred structure of the PPA.

PPA pricing structure	Description
Fixed price nominal	Fixed electricity price (with no inflation) for the duration of the PPA contract
Fixed price with escalation (stepped)	Starting electricity price that rises according to a contractual profile. The steps may be in nominal terms (without inflation) or in real terms with inflation indexation on top
Fixed price with inflation indexation	Starting electricity price that rises annually with inflation, typically measured by changes in a consumer price index (CPI)
Other (please specify)	Please describe the proposed PPA pricing structure

KEY INFORMATION REQUESTED

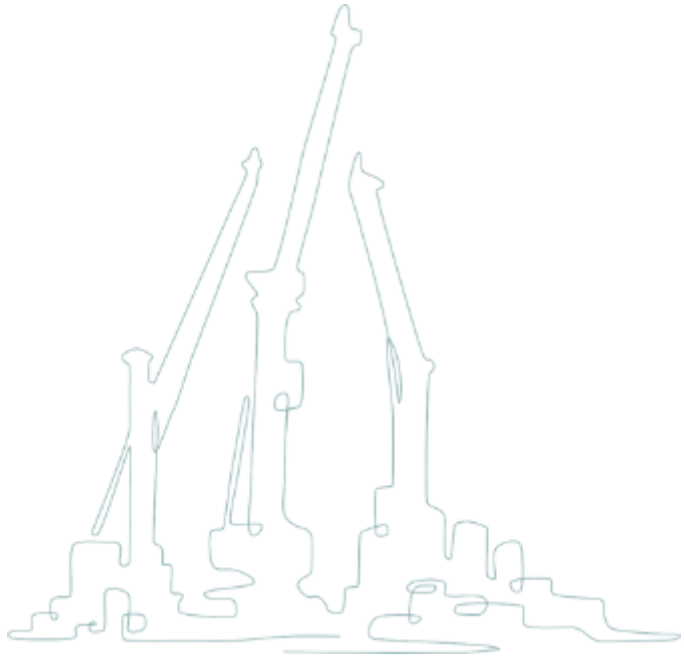
- Information relevant to the proposed project Power Purchase Agreement continues …
  - If the PPA pricing structure is not fixed nominal or fixed price with inflation indexation, what will affect the PPA price escalations.
  - Possible PPA term

- Information relevant to proposed project financing
  - How the Respondent proposes to finance the project, whether self-financing or borrowing from investors. If borrowing what will be the anticipated debt/equity split?
  - Indicate proposed project model.

KEY INFORMATION REQUESTED

Proposed project model	Transnet own generation	Wheeling (With the option of transfer)	Wheeling (Without the option of transfer)
Project scope	Joint venture partnership, equity/debt split, develop, design, build, operate, maintain and transfer to TFR or concession after the PPA period	Generator connection, wheeling agreement, PPA and the option to transfer the facility to TFR or concession after the PPA period	Generator connection, wheeling agreement and PPA without the option of transfer of the facility to TFR after PPA period
Conceptual Description	New generation facility to be located within Transnet land or land owned by a third party that could be acquired and incorporated into the Transnet land reserves. The Respondent embarks on a joint venture with Transnet to develop the project, finance project, EPC the project and operates the facility for a period equal to the PPA period, including training of TFR staff before transferring facility to TFR. Both TFR and the partner will cover the capital cost. TFR will pay back the partner's cost and debt through the PPA. TFR is the off-taker.	Existing generation facility with spare capacity is located outside TFR servitude and is operated and maintained by the Respondent. Energy is sold back to TFR at an agreed upon tariff with the project transferred to TFR after the PPA period. The capital cost of the plant shall be covered in the PPA. TFR is the energy off-taker. Training of TFR staff to be undertaken by the Respondent.	Existing generation facility is located outside TFR servitude and might be outside the respective municipal boundaries and is operated and maintained by the Respondent. Energy is sold back to TFR at an agreed upon tariff and the project will remain the ownership of the developer after the PPA period. TFR is the primary energy off-taker.

Q&A SESSION



THANK YOU

TRANSNET

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