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**REQUEST FOR INFORMATION  
FOR RENEWABLE ENERGY PROJECT  
ACROSS TRANSNET PIPELINES**

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## **1. TRANSNET PIPELINES BACKGROUND**

Transnet Pipeline is a business unit of Transnet that provides strategic pipeline infrastructure with associated world class pipeline logistics for the petroleum and gas industries of South Africa. TPL transports an average of 17 billion litres of fuel per annum This is done in partnership with our customers and stakeholders thereby assuring the African sustainable development imperative.

Transnet pipelines pump-stations are widely situated throughout KwaZulu Natal, Mpumalanga, Gauteng, North-West and Free State.

For over the fifty-five years, Transnet Pipelines has played a key role in the security of supply for our clients through a network of 3114km of underground high-pressure petroleum and gas pipelines.

## **2. PROJECT BACKGROUND**

TPL has 40 sites consist of pump stations, booster stations, metering stations, delivery stations as well as workshops. All TPL points of supply across the country are supplied by Eskom and Municipalities. TPL have been experiencing an increase in electricity billing due to the ever-increasing average price percentage of electricity and the number of charges Eskom and local utilities pass on to its customers under the different tariff structures.

The most recent price increase being 13.87% instead of 9.41%, initially recommended by the National Energy Regulator of South Africa (NERSA).

Audit conducted by TPL on most of the Eskom and local utilities tariff structures, shows that Eskom and local utilities has four different charges on one electricity bill:

The information obtained from the above considerations motivated TPL to implement alternative methods to counteract the high electricity billing (due to the electricity prices increase and number of charges imposed on one electricity bill) and contribute to Transnet and Eskom request to reduce electricity consumption.



Due to the above reasons, it is recommended that TPL consider alternative methods (Renewable energy) to counteract the high electricity billing and contribute to Transnet and utilities request to reduce electricity consumption.

The benefit shall be as follows:

- Minimize costs.
- Compliance to Transnet energy policy.
- Reduce company's carbon footprint thus reduce company's carbon tax.
- Reduce company's ash waste hierarchy production.
- Reduce Eskom's grid constrains.

### **3. PURPOSE OF THE SCOPE**

- 3.1 This document covers the Transnet Pipeline's requirements to request for information (RFI) from the open market for renewable energy to compensate across Transnet Pipelines sites.
- 3.2 The specification should provide guidance to TPL renewable energy also contributes positively to the environment and comply with the Transnet energy policy which encourages operating divisions to reduce energy cost and reduce Greenhouse gas (GHS) emission.
- 3.3 The main purpose of this RFI is to have alternative supply methods to ensure that the pipeline sites have reliable, cost effective, low carbon electricity supply and energy security.

### **4. TRANSNET PIPELINES NETWORK**

Below is the Transnet Pipelines network diagram with stations considered for renewable energy as Independent Power Producers (IPP)

The stations selected are of high consumption site with voltages of 6,6kV, 11kV, 22kV, 88kV and 132kV as per table below.

**TRANSNET'S PETROLEUM AND GAS PIPELINE SYSTEM  
INDEPENDENT POWER PRODUCERS**



Fig1: Transnet pipeline's existing network

| TERMINAL/PUMP | AREA            | VOLTAGE | SUPPLY      | AVERAGES      |          |            |               | PRODUCT  |
|---------------|-----------------|---------|-------------|---------------|----------|------------|---------------|----------|
|               |                 |         |             | CONSUMPTION   | NMD      | MAX DENAMD | COST          |          |
| Fynnlands     | Durban          | 11kV    | Ethekwini   | 1167136.33    | 3646     | 2938.711   | R2 367 809.20 | COP      |
| Hillcrest     | Hillcrest       | 11kV    | Ethekwini   | 1048896.889   | 3060     | 1937.311   | R1 092 208.39 | COP      |
| Ladysmith     | Ladysmith       | 11kV    | Alfred Duma | 1 000666.67   | 3841.04  | 2 884,80   | R1 519 043.41 | COP      |
| Alrode        | Alrode/Alberto  | 6.6kV   | EkuRhuleni  | 374773.47.799 | NA       | 1999.04    | R1 045 151.21 | MPP & RP |
| Newcastle     | Newcastle       | 11kV    | Newcastle   | 996555.56     | 2 399,00 | 2238.67    | R1 867 321.21 | COP      |
| Mngeni        | Westmead        | 11kV    | Ethekwini   | 381 250,00    | NA       | NA         | R995 617.73   | COP      |
| Island View   | Durban          | 132kV   | Ethekwini   | 561582.143    | 8000     | 1625.429   | R1 521 666.45 | MPP      |
| Twini         | Umbongintwini   | 132kV   | Ethekwini   | 1276341.33    | 4800     | 3590.667   | R1 709 726.23 | MPP      |
| Hilltop       | Pietermaritzbur | 132kV   | Msunduzi    | 1044786.44    | 7 500,00 | 5 250,00   | R5 690 437.02 | MPP      |

Fig: 2 TPL site that are supplied by Local Municipalities

| TERMINAL/PUMP/BOOST | AREA              | VOLTAGE | AVERAGES    |           |           |               | PRODUCT             |
|---------------------|-------------------|---------|-------------|-----------|-----------|---------------|---------------------|
|                     |                   |         | CONSUMPTION | NMD       | MAX DENAM | COST          |                     |
| Coalbrook           | Sasolburg         | 88kV    | 279949.99   | 2 250,00  | 1324.76   | R466 828.56   | COP,AVTUR & REFINED |
| Tarltou/Vlakplaats  | Krugersdorp       | 11kV    | 115053.59   | 1 500,00  | 384.55    | R478 658.463  | REFINED             |
| Secunda             | Secunda           | 11kV    | 498 989,00  | 2 000,00  | 2618.     | R983 962.64   | GAS & REFINED       |
| Quagga              | Volksrust         | 88kV    | 965044.43   | 2 800,00  | 2781.33   | R 1 431788.67 | COP                 |
| Meyerton/PTN        | Meyerton          | 11kV    | 164868.64   | 800,00    | 525.72    | R305904.94    | AVTUR               |
| Duzi - PS2          | Pietermaritzburg  | 11kV    | 334464.8    | 1 500,00  | 1169.196  | R528 801.22   | COP                 |
| Mooi River - PS3    | Mooi River        | 11kV    | 228227.86   | 1 500,00  | 1169.31   | R789 464.21   | COP                 |
| Ft Mistake - PS4    | Ft Mistake        | 22kV    | 303537.06   | 1 500,00  | 1119.36   | R767 500.12   | COP                 |
| Wilge/Frankfort     | Frankfort         | 22kV    | 262209.44   | 1900.00   | 1408.28   | R499 243.51   | COP                 |
| Mnambithi PS5       | Ladysmith near N3 | 132kV   | 913809.60   | 7 000,00  | 2954.63   | R1 432 976.79 | MPP                 |
| Jameson Park        | Heidelberg        | 88kV    | 958981.69   | 15 000,00 | 3813.81   | R2 026 780.88 | MPP & REFINED       |
| Howick              | Howick            | 88kV    | 1058931.14  | 3 013,00  | 2827.60   | R1 538943.53  | COP                 |

Fig:3 TPL sites with Eskom supply

Request for Information: Transnet Pipelines Renewable Energy (IPP)

## **5. RENEWABLE ENERGY REQUIREMENTS**

5.1 The proposed Renewable energy must meet the following requirements:

5.2 Responses to this request should include the following information, Proposed solution design including product details:

- Method statement
- Licencing information and compliance details.
- Future upgrades of the proposed solutions and financial implications
- Project Implementation plan with timelines
- Maintenance and support plan specifying costs associated with the system upkeep.
- cost estimates for implementation
- Additional required information that is not covered

## 6. TECHNICAL REQUIREMENTS

- 6.1 TPL requests information on the design, installation and maintenance of a solution to address the requirements outlined the renewable energy for each site
- 6.2 Bidders may propose more than one technology or design and must be of good quality, recent technology and well proven.
- 6.3 TPL is enquiring for a renewable energy IPP company that will supply electricity to TPL at a low cost as opposed to current utility supplies to all sites listed. Refer to fig 1, table 1 and 2
- 6.4 Bidders must show the reduction in the current existing TPL NMD and their cost per kWh
- 6.5 The Company IPP renewable energy supply must be in company must show how will their power supply be integrated to the TPL power supply
- 6.6 Bidders must show how their meters will be integrated to the TPL main electricity supply to charge TPL and the utilities if their excess energy feeds back to the grid
- 6.7 Bidders must show how they will meet the current TPL consumption in all seasons, if not at what percentages they will be achieving of the TPL consumption in all seasons
- 6.8 On sites where TPL has its own or will be considered to have its own Embedded Generation (solar), the company must show how their power supply will be integrated with the current TPL EG plant without disrupting the power production and utilisation of the TPL EG power plant.
- 6.9 Although many of the sites are similar, they are not exactly the same requiring sites specific design and equipment planning. The details will need to be approved by TPL Operations
- 6.10 There is a requirement to standardize on equipment as far a is possible to reduce spares holding as well as staff familiarity with equipment. Existing compliant installations could be used as a benchmark for equipment specifications.
- 6.11 Respondents must present, demonstrate and provide proof of concept of their proposed solution at the respondent's own cost TPL reserve the right to also request a site visit in accordance to assess an already installed solution.

## **7. CLIMATIC**

- 7.1 The proposed solution must be well proven for outdoor use considering the harsh condition and environment that they will be subjected to.
- 7.2 Unless otherwise specified, all control equipment, peripherals and ancillary equipment shall be capable of operating in an uncontrolled environment, and at ambient temperatures, which vary between -10 degrees Celsius and 50 degrees Celsius.
- 7.3 Bidders must state the heat, power and environment requirements for all equipment offered in the tender.
- 7.4 The equipment must operate satisfactorily between sea level and 2000 metres above sea level.

## **8. REFERENCE DOCUMENTATION**

### **8.1 STANDARDS AND SPECIFICATIONS**

- 8.1.1 The requirements of the materials, design, installation, commissioning, examination, inspection and testing of equipment and facilities on these sites shall be in accordance with the relevant sections of the below mentioned codes.
- 8.1.2 Where Government, Local authorities and other statutory body's regulations, laws and requirements are more stringent than those specified hereunder, the aforementioned regulations, laws and requirements shall take precedence.
- 8.1.3 Where no specific rules, regulations, codes or requirements are contained in this specification nor covered by the below mentioned codes, the respondent shall, in consultation with TPL, adhere to internationally accepted engineering practices or original manufacturers specification.

For the purpose of understanding these Standards, the following abbreviations apply.

- SANS - South African National Standards
- SABS - South African Bureau of Standards
- BS - British Standards
- IEC - International Electrotechnical Commission
- IEEE - Institute of Electrical and Electronics Engineers
- NRS - National Regulatory Standards

**General:**

| TITLE                                                                                                                                                         | SABS            | IEC | BS | OTHER           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|----|-----------------|
| Code of Practice for Wiring of Premises and incorporated standards                                                                                            | SANS<br>10142-1 |     |    |                 |
| Protection against lightning: Physical damage to structures and life hazard                                                                                   | SANS<br>10313   |     |    |                 |
| Protection against lightning                                                                                                                                  | SANS<br>62305   |     |    |                 |
| Protection against lightning (EMI)                                                                                                                            | SANS<br>61312   |     |    |                 |
| Basis of structural designs and actions for buildings and industrial structures                                                                               | SANS<br>10160   |     |    |                 |
| Grid interconnection for embedded generation: Small-scale embedded generation (Utility interface)                                                             |                 |     |    | NRS<br>097-2-1  |
| Grid connection code for renewable power plants (PPR's) connected to the electricity transmission system (TS) or the distribution system (DS) in South Africa |                 |     |    | NERSA           |
| Grid interconnection for embedded generation: Small-scale embedded generation (Simplified utility connection criteria for low voltage connected generators)   |                 |     |    | NRS<br>097-2-3: |
| Quality of supply part 4: Application guidelines for utilities                                                                                                |                 |     |    | NRS<br>048-4    |

| TITLE                                                                                                  | SABS | IEC       | BS | OTHER     |
|--------------------------------------------------------------------------------------------------------|------|-----------|----|-----------|
| Quality of supply part 2: Voltage characteristics, compatibility levels, limits and assessment methods |      |           |    | NRS 048-2 |
| IEEE Standard for interconnecting distributed resources with electric power systems                    |      |           |    | IEEE 1547 |
| Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval     |      | IEC 61215 |    |           |
| Conditions of Contract                                                                                 |      |           |    | NEC       |

## **9. DOCUMENTATION AND DRAWING REQUIREMENT**

- 9.2 Drawing in an A3 PDF format (3 copies) and Auto CAD format shall be provided.
- 9.3 The drawing should be in accordance with TPL standards and written in English.
- 9.4 The following documentation shall be provided ie datasheets and detailed design documentation (Electrical, Mechanical and Civil).

## **10. DETAILED COMPANY PROFILE**

- 10.1 Company profile and experience designing and implementing similar projects.  
Information to be included Company Profile:



- Brief projects description
- Values of the respective projects
- Planned completion period and actual completion period.

## **11. COSTING**

- 11.1 Bidders may propose more than one technology or design solution and each proposed solution must include detailed cost estimates.
- 11.2 Bidders to note that the request for quote is for budget purposes only and that no business will be awarded against this invitation.
- 11.3 Bidders must submit detail technical specification and Bill of Material for each solution proposed.
- 11.4 An all-inclusive cost budget is required with transparency of detail costs breakdown include the implementation of the solution and the support and maintenance thereof.