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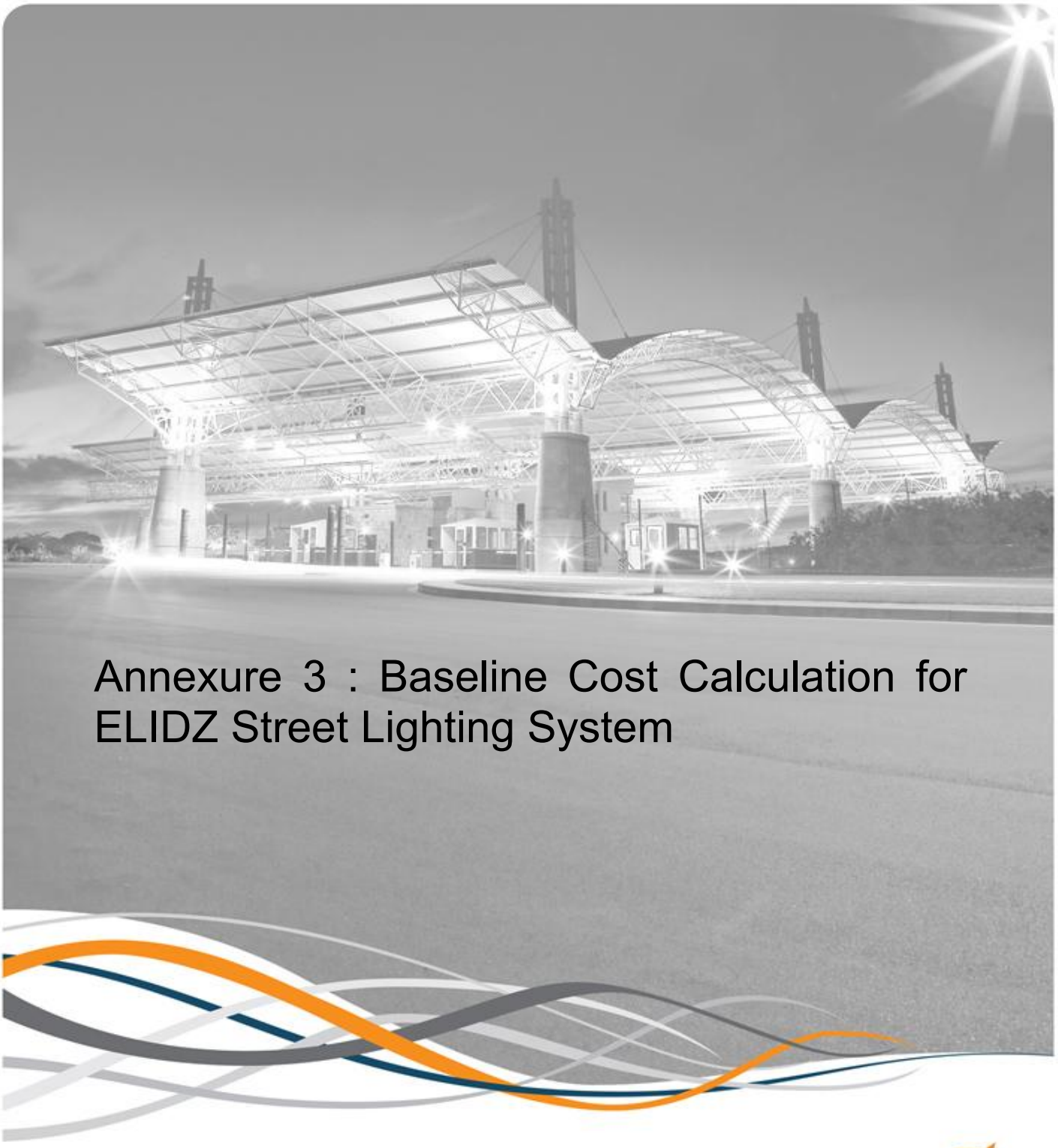

Annexure 3 : Baseline Cost Calculation for ELIDZ Street Lighting System

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Annexure 3: Baseline Cost Calculation for ELIDZ Street Lighting System

1. Introduction and Scope

This annexure serves to establish the official baseline cost for the existing street lighting infrastructure located at the East London Industrial Development Zone (ELIDZ). The primary objective of this document is to provide a standardized financial and operational reference point for all tenderers participating in the upcoming benefit-sharing Energy Performance Contract (EPC).

The existing lighting system under assessment consists of 415 units of 150W High-Pressure Sodium (HPS) luminaires. The baseline costs presented herein encapsulate the total historical electricity consumption and current maintenance requirements associated with these assets. Tenderers are instructed to utilize this baseline as the foundation for their energy efficiency proposals, cost-saving projections, and the development of performance-based incentive structures.

Scope of Baseline Data:

- **Electricity Consumption:** Historical usage data spanning the period from November 2024 to October 2025, detailing energy demand requirements for the specified HPS lighting inventory.
- **Tariff Application:** 2025 tariff structures, including peak, standard, and off-peak rate classifications, inclusive of blended tariff calculations and maximum demand charges.
- **Maintenance Expenditure**: Fixed annual maintenance costs attributed to the ongoing preservation and repair of the current 415-unit HPS configuration.

2. Electricity Consumption Baseline (November 2024 - October 2025)

The electricity consumption baseline for the ELIDZ street lighting system, comprising 415 units of 150W High-Pressure Sodium (HPS) luminaires, has been derived from verified metering data recorded over a twelve-month period. This data reflects the energy requirements of the current lighting infrastructure under existing operational conditions.

The following table provides a month-by-month breakdown of energy usage measured in kilowatt-hours (kWh). This historical data is fundamental to the benefit-sharing model, as it represents the energy expenditure baseline against which future performance and potential energy savings will be measured.

Month	Consumption (kWh)
November 2024	15,075.696

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December 2024	14,405.996
January 2025	14,181.440
February 2025	15,459.706
March 2025	19,046.144
April 2025	19,554.218
May 2025	21,269.057
June 2025	19,348.049
July 2025	18,941.208
August 2025	19,349.463
September 2025	17,188.890
October 2025	16,041.781
Total Annual Consumption	**209,861.648 kWh**

3. Applicable Tariff Structure (2025)

To accurately calculate the financial impact of electricity consumption, this baseline utilizes the 2025 electricity tariff structure. This framework incorporates a Time-of-Use (ToU) model, which allocates consumption across specific periods to reflect the varied costs of power supply throughout the day.

3.1 Time-of-Use Consumption Allocation

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The following table outlines the percentage of total electricity consumption attributed to each specific Time-of-Use category. Tenderers must apply these ratios to the historical consumption data provided in Section 2 to model their cost-saving projections.

Category	Allocation Percentage
Peak time	16%
Standard time	19%
Off-Peak time	65%

3.2 Tariff Rates and Demand Charges

The rates below define the cost per kilowatt-hour (R/kWh) based on seasonal variations and usage time. Additionally, the baseline incorporates a Maximum Demand charge, which is a critical component of the overall electricity cost structure for the ELIDZ site.

Tariff Component	Summer Rate (R/kWh)	Winter Rate (R/kWh)
Peak	3.4272023	8.3489209
Standard	2.0600824	2.3559638
Off-Peak	1.5587580	1.7290909
Blended Rate	1.945595178	2.876908129

Maximum Demand Tariff: In addition to the energy consumption charges, the baseline includes a Maximum Demand charge of **R 86.96 per kVA**. Tenderers must account for this fixed-variable cost in their financial modeling to ensure a comprehensive representation of total baseline costs.

4. Annual Baseline Cost Summary (2025)

This section consolidates the financial data established in the preceding sections to provide a definitive Annual Baseline Cost for the existing ELIDZ street lighting system.

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This comprehensive total serves as the primary benchmark against which energy savings and operational performance improvements will be evaluated under the benefit-sharing Energy Performance Contract (EPC).

The total annual cost is comprised of two distinct financial components: the aggregate cost of electricity consumption (factoring in 2025 seasonal tariffs and demand charges) and the fixed annual maintenance expenditure required to sustain the current 415-unit HPS luminaire configuration.

Cost Category Annual Amount (ZAR)

- Total Electricity Consumption Cost (2025) R 524,933.76
- Annual Maintenance Cost (Existing System)R 430,000.00

Total Annual Baseline Cost R 954,933.76

5. Financial Reference for Proposal Submission:

The calculated **Total Annual Baseline Cost of R 954,933.76** constitutes the financial ceiling and the reference point for the benefit-sharing arrangement.

Tenderers are reminded that any proposed technical solution must target measurable reductions in these specific operational costs. All savings projections submitted in the tender proposal must be validated against these baseline figures, ensuring that the net financial benefit is clearly identified and attainable throughout the contract term.

By accepting this baseline, tenderers acknowledge that the provided figures accurately reflect the current operational status of the ELIDZ street lighting network. Any material changes to the system infrastructure post-implementation must be adjusted within the financial model to maintain the integrity of the benefit-sharing agreement.

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