REQUEST FOR EXPRESSIONS OF INTEREST
CONSULTING SERVICES

Selection # as assigned by e-Tool: JA-T1191-P001
Selection Method: Simplified Competitive
Country: Jamaica
Sector: Energy
Funding – TC #: ATN/OC-18185-JA
Project #: JA-T1191
TC name: Supporting the Recovery of the Energy Sector in Jamaica from the COVID-19 Pandemic
Description of Services: National Electricity Loss Reduction Plan Consultancy
Link to TC document: Approved TC Document -JA-T1191

The Inter-American Development Bank (IDB) is executing the above-mentioned operation. For this operation, the IDB intends to contract consulting services described in this Request for Expressions of Interest. Expressions of interest must be delivered using the IDB Portal for Bank Executed Operations (http://beo-procurement.iadb.org/home) by ***13 January 2021,*** 5:00 P.M. (Washington D.C. Time).

The consulting services ("the Services") include: i) conducting an independent review and audit of the existing electricity system losses in Jamaica and ii) designing a National Electricity Loss Reduction Plan for Jamaica. The services are expected to be completed by January 31, 2023.

Eligible consulting firms will be selected in accordance with the procedures set out in the Inter-American Development Bank: *Policy for the Selection and Contracting of Consulting firms for Bank-executed Operational Work* - GN-2765-1. All eligible consulting firms, as defined in the Policy may express an interest. If the Consulting firm is presented in a Consortium, it will designate one of them as a representative, and the latter will be responsible for the communications, the registration in the portal and for submitting the corresponding documents.

The IDB now invites eligible consulting firms to indicate their interest in providing the services described below in the intended **draft** Terms of Reference. Interested consulting firms must provide information establishing that they are qualified to perform the Services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Eligible consulting firms may associate in a form of a Joint Venture or a sub-consultancy agreement to enhance their qualifications. Such association or Joint Venture shall appoint one of the firms as the representative.

Interested eligible consulting firms may obtain further information during office hours, 09:00 AM to 05:00 PM, (Washington D.C. Time) by sending an email to: Malaika Masson at malaikac@iadb.org

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IDB Inter-American Development Bank

Draft Terms of Reference
National Electricity Loss Reduction Plan: Consultancy

1. Background and Justification

1.1. The Jamaica Public Service Company Limited (JPS) is the sole vertically integrated electric entity licensed to transmit, distribute, and supply electricity in Jamaica. JPS serves approximately 658,000 customers with the small and medium enterprises (SMEs) and large industries consuming 65 percent of energy supplied, contributing predominantly to JPS's revenue. The Company has an installed capacity of approximately 640MW complemented with firm capacity of 262MW purchased from Independent Power Producers (IPPs) through Power Purchase Agreements (PPAs), including approximately 121MW from renewable energy sources. The Company is an integral player in advancing the National Energy Policy as it invests in fuel diversification, promotes the use of energy efficiency technologies and the on-boarding of renewables.

1.2. Problem: JPS continues to suffer from high electricity losses primarily associated with non-technical system losses. System losses, which is calculated on a twelve-month rolling average performance basis, increased to an all-time high of 27.00% in 2015 of net generation in 2015. There have been marginal improvements since then, with system losses reduced to 26.05% at the end of 2019, of which, primarily attributed by JPS to electricity theft. JPS has undertaken significant investments (US$51.2M from 2014-2019) to loss reduction and initiated various projects that mainly target commercial losses. Some of the initiatives include energy audits and investigations to remove illegal connections, socio-economic intervention through their community renewal program to regularize customers, the deployment of smart technologies such as smart meters and Residential Advanced Metering Infrastructure (RAMI) in high-prone losses residential area. Additionally, all large and industrial commercial customers have full AMI Meter coverage and are audited at least once annually, that is used to analyse and assist in the early detection and arresting of losses[1]. However, these investments yielded less than a 1 percentage point reduction in the losses.

1.3. Similarly, the Office of Utilities Regulation (OUR) has assisted the utility via customer-funded interventions such as The Electricity Efficiency Improvement Fund (EEIF) that provide additional resources to the utility to tackle system losses, such as the Accelerated Loss Reduction Incentive Mechanism (ALRIM) to accelerate the installation of smart meters as a loss reduction strategy. However, these initiatives did not reduce JPS's losses[2].

1.4. The effects of coronavirus have exacerbated the impact of electricity prices and non-technical losses in Jamaica. While under lockdown, residential customers have experienced a significant increase in energy usage and high electricity bills which resulted in a 200% increase in complaints[3] to the OUR. JPS also reported a 44% increase in queries due to similar reasons between March and April compared to 2019 and asserted that the main drivers for the spike were the depreciation of the dollar, increase in energy usage, and fuel costs[4]. The Ministry of Science, Energy and Technology (MSET) and customers have challenged the utility to be more transparent in addressing commercial losses and implementing sustainable loss reduction initiatives.

1.5. Solution: To tackle losses effectively, identifying the genesis and drivers of the loss are important as well as to develop loss reduction roadmap that identify initiatives and define the role of key stakeholders with specific investments and targets over a defined period to ensure a systematic management and control of losses within sector.

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[1] JPS Annual Tariff Adjustment Submission for 2018
[2] JPS 2018 Annual Tariff Adjustment Determination
[3] OUR Investigating Complaints of High Electricity Bills
[4] JPS Denies Fault for Shocking Light Bills

1.6. The IDB is facilitating a Technical Corporation (TC), JA-T1191, to support the GOJ to recover from the effects of the COVID-19 pandemic, as it relates to providing reliable access to electricity and assisting vulnerable communities. The specific objectives of the TC are to (i) support the development of a National Electricity Loss Reduction Plan (NELRP) for Jamaica, (ii) facilitate the definition and early identification of projects associated with the NELRP and (iii) support interventions for the vulnerable communities, through a reliable and affordable electricity service.

2. Objectives

2.1. The general objective is to support the Government of Jamaica by providing an independent review of the existing electricity system losses in Jamaica and designing a National Electricity Loss Reduction Plan for Jamaica to effectively reduce electricity system losses.

2.2. **Specific Objective 1**: Provide an independent audit and review of the existing electricity system losses to identify the drivers of commercial losses; measure and accurately allocate the level of energy losses percentage due to theft by non-customers, and the utility's customers by rate type and voltage levels.

2.3. **Specific Objective 2**: Design and develop a National Electricity Loss Reduction Plan (NELRP) for Jamaica to provide a roadmap of initiatives including inter alia defined roles for key stakeholders with specific investments and targets over a defined period in order to effectively reduce electricity system losses in Jamaica.

3. Scope of Services

3.1. The scope of services is as follows: i) provide an energy loss independent report (ELIR) and ii) design a National Electricity Loss Reduction Plan (NELRP) for Jamaica.

3.2. The Energy Loss Independent Report (ELIR) will provide an independent review and audit of the electricity system losses landscape in Jamaica that will define the key areas of focus when designing the NELRP. The aim is to achieve consensus with all key stakeholders on the accuracy of JPS' energy loss percentage attributable to non-customers illicitly connected to the grid, the utility's customer types (residential, commercial, industrial) and voltage levels.

3.3. The NELRP will factor the ELIR analysis and design a detailed plan to include but not be limited to loss reduction initiatives, actions from key stakeholders, timelines, regulations and policies, investments and technologies required, communication plan. The NELRP will include an economic cost benefit analysis to reduce system losses to an acceptable level.

4. Key Activities

4.1. The key activities to support the outputs are:

4.2. For the **Energy Loss Independent Report (ELIR)**:

(a) The consultant is responsible for conducting a comprehensive review and audit of existing studies, projects, laws, regulations, rate applications and determinations related to electricity loss by JPS, OUR, and GOJ agencies.

(b) Provide an assessment of the economic impact of electricity losses to the country, the

utility, and customers' tariffs.

(c) Based on proven methodology, accurately quantify electricity system losses by circuit and customer types.

(d) Review JPS commercial management systems and identify measures to improve inter alia the customer database and its link to the electricity network-based upon the Geographic Information System (GIS).

(e) Review current relevant legal regulations and the effectiveness of the legislative, enforcement and judicial framework to deter and enforce existing laws against electricity theft. Recommend amendments and actions required for consideration and implementation by the GOJ to strengthen enforcement of the laws against electricity theft.

(f) Identify and explain the main factors contributing to the failures of successive loss reduction programmes in Jamaica to achieve and sustain the desired outcomes. This shall include inter alia a review of the causes, effects, issues, and challenges which have led to, and continue support the high unsustainable non-technical losses within the electric system as a whole and in specific geographic and demographic zones.

(g) Prepare a preliminary investment plan to reduce Non-technical Losses (NTL), including the implementation of advance metering infrastructure (deploying smart meters), and recommendations to improve commercial activities such as (i) software and hardware used in the business cycle (regular metering, billing, and collection); (ii) servicing customers at commercial agencies or phone (call centers); (iii) disconnection and reconnection of electricity supply related to commercial dents and (iv) connection of new customers.

(h) Develop Jamaica Socio-Economic Plan subsection based on international best practices and practical recommendations to guide social interventions aimed at reducing electricity losses for the vulnerable communities and improved legitimate access to electricity. This section should analyze the existing regulatory framework and make recommendations related to possible targeted economic subsidy schemes and other social interventions to improve legitimate access to electricity consumption for economically vulnerable residential customers.

(i) Prepare a preliminary investment plan to reduce Technical Losses (TL) based on international best practices

(j) Facilitate discussions, inputs, and agreements between all stakeholders regarding findings. Solutions, and commitments (individually and collectively).

(k) Summarize and prepare an Energy Loss Independent Report (ELIR) on the analysis conducted and provide recommendations on the methodology to accurately account for system losses, including resources, regulations and legislative requirements, preliminary financial and investment requirement, implementation schedules and cost benefits that will facilitate the achievement of sustainable electricity system losses reduction in Jamaica.

4.3. For the **National Electricity Loss Reduction Plan (NELRP) for Jamaica:**

(a) Based on the ELIR analysis, design a detailed National Electricity Loss Reduction Plan (NELRP) to include, but not limited to: (i) identifying the loss reduction initiatives; (ii) defining the role of key stakeholders; (iii) quantification of investments in transmission and distribution to reduce TL; (iv) quantification of investments to reduce the NTL; (v) requirements (software and hardware) to ensure optimal operation of the commercial system; (vi) recommendations of regulations and policies that need to be implemented or revised (tariffs/subsidies); (vii) communication, public education and social plan to engage the community based on international experiences. The NELRP should include an economic cost benefit analysis to reduce system electricity losses to an economical feasible level.

(b) Organize workshops with key stakeholders to present the draft findings of the National Electricity Loss Reduction Plan. Collect comments from stakeholders to incorporate into the Final NELRP.

5. Expected Outcome and Deliverables

5.1. **Deliverable 1:** Prepare a Workplan in accordance with the scope of work;
5.2. **Deliverable 2:** Energy Loss Independent Report;
5.3. **Deliverable 3:** Draft National Electricity Loss Reduction Plan for Jamaica
5.4. **Deliverable 4:** Final National Electricity Loss Reduction Plan for Jamaica, which incorporates comments from key stakeholders

6. Project Schedule and Milestones

6.1. The duration of the Consultancy will be 18 months:

	Deliverables	Estimated Duration to complete
a)	Workplan	Within 20 days of contract signing
b)	Energy Loss Independent Report	Within 6 months of contract signing
c)	Draft National Electricity Loss Reduction Plan for Jamaica	Within 14 months of contract signing
d)	Final Electricity Loss Reduction Plan for Jamaica	Within 18 months of contract signing

7. Reporting Requirements

7.1. All reports must be completed in English. Reports should contain a contents page and an executive summary.

8. Acceptance Criteria

8.1. Deliverables will be accepted based on agreements on scope and approach reached with Consultants at inception. Additionally, deliverables will be reviewed and approved by Dr. Malaika Masson, Senior Regional Energy Specialist. As per the scope of the Consultancy, and as appropriate, Dr. Masson will also consult with key sector stakeholders regarding their level of satisfaction in relation to deliverables targeting them and for which they have provided input.

9. Other Requirements

9.1. The consulting firm must have at least ten (10) years' international experience in energy grid modelling and similar projects to design plans to reduce system losses. The team members should include, at least, a Team Leader with a Master's degree in Electrical Engineering, an expert in Transmission and Distribution modelling, and expert in Smart Infrastructure, an Economist or related expert in regulatory frameworks (tariffs and subsidies), and a social specialist. The consultancy should have knowledge of Jamaica's energy sector, regulations and familiar with DIgSLIENT and PLEXOS software.

10. Supervision and Reporting

10.1. The Energy Portfolio is supervised by Dr. Malaika Masson, Senior Regional Energy Specialist (INE/ENE) based in CJA. The Consultancy will be supervised and report to Dr. Malaika Masson.

11. Schedule of Payments

11.1. Payments will be made in United States Dollar (USD) and will be paid based on the submission of the following

	Deliverables	**%**
a)	Workplan	15%
b)	Energy Loss Independent Report	25%
c)	Draft National Electricity Loss Reduction Plan for Jamaica	30%
d)	Final National Electricity Loss Reduction Plan for Jamaica	30%
	TOTAL	**100%**