



Jamaica Public Service Company Limited

Request for Proposal # 951107

TECHNICAL SERVICES

FOR

2022 – 2041 Transmission Analysis and  
Expansion Plan in Support of Jamaica's  
Integrated Resource Plan (IRP) #2

June 5, 2023

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# 1 Background

Jamaica Public Service Company Limited (JPS) is an integrated electric utility company engaged in the generation, transmission and distribution of electricity throughout the island of Jamaica. JPS owns and operates 22 generating units and also purchases power from 10 independent power producers (IPPs). JPS assets include conventional thermal plants (315 MW), hydro (28 MW) and wind (3 MW), IPPs include conventional thermal plants (537 MW), wind (98 MW) and solar (57 MW). JPS assets also include 53 substations, approximately 1200 km of transmission lines and 20,534 km of distribution lines spread across 115 distribution feeders.

Jamaica's Integrated Resource Plan #2 (IRP 2), which is the late stages of completion by the Government of Jamaica, seeks to identify the roadmap to achieve 50% renewable energy by 2030. The generation preferred portfolio output from the IRP 2 identifies the timing, type and sizing of generation resources to achieve this target. In order to achieve this target, there will be a heavy reliance on solar PV and wind renewable sources and long duration (approx. 4-hour duration) Battery Energy Storage Systems (BESS).

This proposal is to provide technical services to JPS in the form of performing transmission analyses to support IRP 2 and developing a least cost transmission plan up to the year 2041. As the country moves to a more sustainable future, it is essential that the stability, security and reliability of the network is maintained as variable renewable sources and battery energy sources become a more dominant feature.

## 2 Scope of Work

### 2.1 Overview

The development of a plan for the transmission network for the period 2022-2041. The project activities will be divided into three (3) tasks as described below and the timeline and schedule are given in section 3.

#### 2.2.1 Task A - Review of IRP #2 Generation Expansion Portfolio

Review the following work performed by the Ministry of Science, Engineering & Technology (MSET) and JPS with regards to the generation preferred portfolio:

- Review of completed generation output for the period 2022 - 2041 (This task has already been completed using Plexos Energy Modelling Software)

## 2.2.2 Task B – Transmission Analysis

This aspect consists of conducting a series of simulations shown below associated with the JPS 69/138 kV network. **All simulations must be performed utilizing the transmission model provided by JPS using DigSILENT Powerfactory version 2022 or higher.** The procedure outlined will encapsulate the analysis process while meeting the requirements of the Jamaica Electricity Sector Book of Codes:

The IRP 2 has proposed the following variable renewable resources to be built in the following windows<sup>1</sup>:

	Wind	Hydro	Solar	BESS	Estimated No. of Study Years <sup>2</sup>
	MW				
<b>2023-2025</b>	<b>60.0</b>	<b>0.0</b>	<b>60.0</b>	<b>75.0</b>	<b>1</b>
<b>2026-2030</b>	<b>300.0</b>	<b>34.3</b>	<b>300.0</b>	<b>300.0</b>	<b>5</b>
<b>2031-2035</b>	<b>210.0</b>	<b>0.0</b>	<b>30.0</b>	<b>75.0</b>	<b>4</b>
<b>2036-2041</b>	<b>300.0</b>	<b>0.0</b>	<b>120.0</b>	<b>150.0</b>	<b>5</b>
<b>Total</b>	<b>870.0</b>	<b>34.3</b>	<b>510.0</b>	<b>600.0</b>	<b>15</b>

Scope of Transmission Analyses will include the following for each study year:

### Normal Conditions

- Modelling of study year with the addition/retirement of all generation and transmission resources/elements
- Steady state analysis
- Contingency Analysis (N-1 of transmission elements & N-G-1 largest thermal unit unavailable)
- Quasi – Dynamic simulation (One week with low, average and peak load profile and variation in RE profile mix)
- Transient Stability (High RE penetration with low, medium and high load, RE intermittency, fault behaviour and clearance)
- Short Circuit Simulations (3Ph & 1Ph Asymmetrical & Symmetrical short circuit at key busbars)
- CFCT (Critical Fault Clearing Time at key stations)

<sup>1</sup> Changes to the capacity of renewables and study windows may vary depending on tuning of Plexos models. However, these will be finalized prior to engagement of consultant.

<sup>2</sup> Assuming a build out of 60 MW of solar and 60 MW of wind in any one particular year.

## **Abnormal Conditions**

Abnormal conditions include 5 days of limited VRE output for each study year.

- Steady state analysis
- Contingency Analysis (N-1 of transmission elements, N-G-1 largest thermal unit unavailable)
- Quasi – Dynamic simulation (1 week with low, average and peak load profile and variation in RE profile mix)
- Transient Stability (High RE penetration with low, medium and high load, RE intermittency, fault behaviour and clearance)

## **Supporting Analysis**

- Minimum short circuit level that needs to be maintained for grid stability
- Minimum system inertia required
- Minimum level of thermal generation required in each network zone (for both normal and abnormal conditions [periods with low VRE output])
- Bidder also has the option to indicate any studies they think will add value to the transmission analysis and include in Item #2A in Appendix 2.

### **2.2.3 Task C – Documentation / Reporting**

Dissemination of the information during the data acquisition and simulation runs will be conducted as outlined.

- Collaboration with JPS will be conducted during Task A and Task B of this scope to ensure feedback and approval are established before proceeding with Task C.
- Simulation runs as per Task B
- List and quantify all solution options in dollars (USD) and recommend the most feasible solution.
- Conduct cost/benefit analysis for each solution option.
- Establish a schedule to implement the recommended solution option as a project.
- Submission of a preliminary report for feedback and recommendation.
- Submission of a final report that incorporates feedback from JPS review process of the preliminary report.

### 3 Deliverables and Schedules

All responses must be written in English. Your proposal response must be given in two (2) distinct File Folders: Financial/Costing and Technical. Bids must be submitted by **11:59 p.m. on Tuesday, June 27, 2023.**

ITEMS	TASKS AND DELIVERABLES	END DATES	RESPONSIBILITY
01	RFP Transmission Analysis	June 6, 2023	JPS
02	Submit questions about the RFP	June 9, 2023	Consultants
03	Final Date to respond to all queries	June 14, 2023	JPS
04	Bidders provide intension to Bid	June 19, 2023	Consultants
05	Response and upload of bids	June 27, 2023 4:00 pm	Consultant
06	Private opening of bids	June 28, 2023	JPS
07	Award RFP to selected consultants	July 4, 2023	JPS
08	Complete 2022 – 2041 Transmission Analysis & Expansion Plan & Deliver Report	October 27, 2023	Consultant

## 4 General Instructions to RFP Response Consultants

The Bidder should recognize that JPS operates in a sensitive business environment and, for that reason the Bidder must treat the materials and data provided by JPS as confidential. The successful Bidder may be required to agree to and execute a confidentiality agreement.

### 4.1 Points of Contact (POC)

All communications and questions with JPS regarding the RFP must be directed to the following points of contact (POC) via email only.

Name: **Kolonje McKenzie**  
CC: Ms. Dianne Plummer

Email: [komckenzie@jpsco.com](mailto:komckenzie@jpsco.com) cc: [dplummer@jpsco.com](mailto:dplummer@jpsco.com)

Email Subject: JPS RFP # 951107: 2022–2041 Transmission Analysis and Expansion Plan in Support of Jamaica’s Integrated Resource Plan (IRP) #2

### 4.2 Communication Regarding the RFP

- a. Unauthorized communications concerning this RFP with other company employees, executives or contractors may result in immediate disqualification.
- b. Observing the activities in Section 3, all communication and questions should be submitted in writing, electronically to the POC. In order to ensure consistency in the information provided to RFP Response Consultants, responses to questions received will be communicated to all participants without revealing the source of the inquiries.
- c. Only written responses will be considered official and binding. JPS reserves the right, at its sole discretion, to determine appropriate and adequate responses to questions and request for clarification.
- d. Consultant contact information shall be provided for RFP and thereafter contained within all correspondence containing questions and clarifications arising.  
Requirements include:
  - i. Company’s name, company address and phone number, contact person, email address, position

- ii. References to specific points within the RFP using section number as reference
- iii. Clear and concise questions.

### **4.3 RFP Amendment and Cancellation**

At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the Bidding Documents by amendment.

The amendment will be done in writing to all prospective Bidders who have received the Bidding Documents, and will be binding on them.

In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

JPS retains sole right to amend or cancel any portion of the work described herein at any time prior to the deadline for submission. JPS reserves the unilateral right to reissue the RFP at its sole discretion. Bidders will respond to the final written RFP and any exhibits, attachments and amendments.

### **4.4 Written Clarification**

JPS reserves the right, at its sole discretion, to request clarifications of any Proposal or to conduct discussions for the purpose of clarification with any or all vendors. The purpose of any such discussions will be to ensure full understanding of the proposal. Discussions will be limited to specific sections of the proposal identified by JPS and, if held, will be after initial evaluation of the Proposal.

If clarifications are made as a result of such discussion, the vendor will submit such clarifications electronically.

Refusal to respond to JPS request for clarifications may be considered non-responsive and be used as grounds for rejection of the Proposal.



#### **4.5 Oral Clarification**

If requested, the vendor will make an oral presentation to the Proposal Evaluation Team and other designated Company representatives. All expenses for the presentation will be borne by the vendor.

#### **4.6 Late RFP Response**

Any RFP Response received by the Company after the deadline for submission of RFP Responses prescribed by the Company will be rejected and/or returned unopened to the RFP Response Consultants.

#### **4.7 RFP Response Submission**

Only Electronic submissions will be accepted, using ShareFile by Citrix. All uploads will be confidential.

RFP Activities are guided by the dates stated in the Calendar highlighted in Section 3 of this RFP. Observing these dates:

- 1) A combined response to questions will be shared at the time specified in the RFP.
- 2) Respondents must confirm their intention to bid in order to be setup in JPS ShareFile folder
- 3) Access to individual vendor folders will be given within 1 week after the RFP is shared to eliminate any issues for bid upload by RFP deadline.
- 4) Files must be accurately labelled/named. Commercial Information must be a separate file from your Technical Response.
- 5) ShareFile Access will be removed when the bid closes.

## **5 RFP Response Format**

### **5.1 RFP Response Prices**

The RFP Response Consultants shall indicate the unit prices and total RFP Response Prices of the service it proposes to supply under the Contract.

The consultant shall propose the payment terms, and a detailed element of cost for each activity for undertaking the RFP response.

Agreed prices for the selected consultant shall be fixed in the contract for calendar year 2023. If subject to adjustment thereafter, kindly state.

- i. The variables that will affect the price
- ii. The reference index that will govern movement of prices and
- iii. The base price index.

### **5.2 RFP Response Withdrawal**

The RFP Response Consultants may modify or withdraw its proposal after submission, provided that written notice of the modification or withdrawal is received by the Purchaser/JPS prior to the deadline prescribed for submission of proposals. To withdraw a proposal, the RFP Response Consultants must submit a written request electronically or signed document to the authorized representative of JPS in the RFP before the deadline for submitting proposals. After withdrawing a previously submitted proposal, the RFP Response Consultants may submit another proposal at any time up to the deadline for submitting proposals.

### **5.3 Cost of Proposal Preparation**

The RFP Response Consultants shall bear all costs associated with the preparation and submission of its RFP Response, and JPS will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the RFP Response process.

### **5.4 Period of Validity of RFP Responses**

RFP Responses shall remain valid for 90 days after the date of RFP Response opening prescribed by the Purchaser/JPS. A RFP Response valid for a shorter period may be rejected by the Purchaser/JPS as non-responsive.

## 5.5 RFP Response

The Bidders shall prepare Bid submissions in two (2) packages –Technical and Commercial.

**TECHNICAL PROPOSALS** must include the following:

- Demonstration of qualifications for the work including, evidence of detailed projects for which consultancy was appropriated/offered in at least five projects with similar requirements.
- Proposed approach / Project Plan for the project
- Other information in the contractor’s view that is fit for technical consideration

## 5.6 Commercial Response

The Bidders shall indicate the unit prices and total RFP Response Price of the service it proposes to supply under the Contract. This should include, but is not limited to, hourly rates, estimated travel and accommodation costs and estimated total man-hours (and costs).

The Bidders shall propose the payment terms, and a detailed element of cost for each activity for undertaking the RFP response.

Agreed prices for the selected Bidder shall be fixed in the contract up to calendar year 2023.

**COMMERCIAL PROPOSALS** must include above and the following:

- A proposal for each Task/area to be provided
- Task/Areas commercial proposal
- Completed Cost Breakdown (See Appendix for form)

## 6 Evaluation Criteria

The evaluation of Proposal will be carried out for each technical proposal, taking into account (a) the consultant relevant experience for the assignment, (b) the quality of the methodology proposed (c) the qualifications of the key staff proposed. (d) technical capability, cost of service and ability to meet target dates deadlines.

### 6.1 Award Criteria

JPS will evaluate proposals using an internal scoring method that weighs various parameters to give the evaluation team insight into the strengths of each proposal relative to JPS needs. JPS internal scoring method values the following proposal attributes (Order of presentation here does not reflect priority)

TECHNICAL CRITERIA	Score (%)
Technical Proposal (Team experience, team resources, major projects and overall technical competence)	Pass/Fail
Proficiency with DigSILENT Powerfactory Modelling Software	Pass/Fail
Technical experience in performing transmission level analysis (69 kV level and above) and making requisite recommendations with grid scale integration of large percentages of variable renewable energy (preferably greater than 30% VRE by energy)	Pass/Fail

COMMERCIAL CRITERIA	Score (%)
Cost of Services	90
Payment Terms	5
Execution Time	5

## **6.2 Clarification of RFP Response**

To assist in the examination, evaluation and comparison of RFP Responses, the Purchaser/JPS may, at its discretion, ask the RFP Response Consultant for a clarification of its RFP Response. The request for clarification and the response shall be in writing and no change in the price or substance of the RFP Response shall be sought, offered or permitted, except as required to confirm the correction of arithmetic errors.

Prior to the detailed evaluation, the Purchaser/JPS will determine the substantial responsibilities of each RFP Response to the RFP Responding Documents. For purposes of these Clauses, a substantially responsive RFP Response is one which conforms to all the terms and conditions of the RFP Responding documents without material deviations or reservations. A material deviation or reservation is one which affects in any substantial way the scope, quality or performance of the contractual obligations or which limits in any substantial way or inconsistent with the RFP Response documents and the rectification of which deviation or reservation would affect unfairly the competitive position of other RFP Response Consultants presenting substantially responsive RFP Responses. The Purchaser/JPS determination of a RFP Response's responsiveness is to be based on the contents of the RFP Response itself without recourse to extrinsic evidence.

A RFP Response determined as not substantially responsive will be rejected by the Purchaser/JPS and may not subsequently be made responsive by the RFP Response Consultants by correction of the non-conformity.

The Purchaser/JPS may waive any minor informality or non-conformity or irregularity in a RFP Response, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any RFP Response Consultants.

## **6.3 RFP Response Inconsistencies**

Any deviation in a RFP Response Consultant's proposal that are inconsistent with the provisions of this RFP Response, unless expressly described in the proposal as being exceptions or alternates, are deemed waived by the RFP Response Consultants. In the event that the Contract is awarded to the RFP Response Consultants, any claim of inconsistency between the proposal and this RFP Response will be resolved in favour of this RFP Response unless otherwise agreed in writing.

## **6.4 RFP Response Currency**

Prices quoted by the RFP Response Consultants and further negotiated and agreed between the RFP Response Consultants and JPS shall be fixed during the RFP Response Consultant's performance of the contract and not subject to variations on any account. Prices should be quoted in JMD for local suppliers and USD for overseas suppliers.

## **6.5 Award of Contract**

### **6.5.1 Award or Rejection**

The Purchaser/JPS will award the contract to the successful RFP Response Consultant(s) whose RFP Response has been determined to be substantially responsive. The Purchaser/JPS reserves the right not to accept the lowest RFP Response if it does not meet JPS requirement.

Issuance of this RFP Response does not constitute a commitment by JPS to award any contract or purchase services offered in response to this RFP Response.

### **6.5.2 Purchaser Right to Accept or Reject Any or All RFP Responses**

The Purchaser/JPS reserves the right to accept or reject any RFP Response, and to annul the RFP Responding process and reject all RFP Responses at any time prior to award of Contract, without thereby incurring any liability to the affected RFP Response Consultants or RFP Response Consultants or any obligation to inform the affected RFP Response Consultants or RFP Response Consultants of the grounds for the Purchaser/JPS's action.

## **6.6 Notification of Award**

Prior to the expiration of the period of RFP Response validity, the Purchaser/JPS will notify the successful RFP Response Consultant in writing by email, that its RFP Response has been accepted. Upon the successful RFP Response Consultant(s) signing a contract with JPS for the subject RFP, the Purchaser/JPS will promptly notify each unsuccessful RFP Response Consultants.

## **7 Confidentiality and Non-Disclosure**

The contents of this RFP shall be kept confidential. No information including the contents shall be disclosed to third parties without prior consent from the Owner. The RFP Response Consultant/s agrees to preserve the confidential nature of any information received from JPS or developed during the performance of the work and shall not disclose such Confidential Information to any person or entity during or subsequent to the performance of the services, except as required by law.





## 9 Appendix 2 - Summary Schedule

Item No.	Description	Duration (Weeks)	Start Time (Week #)	End Time (Week #)	Unit Price (USD/JMD)	Total Price (USD/JMD)
1	Task A – Review of IRP #2 Generation Preferred Portfolio					
2	Task B – Transmission Analysis					
2A	Task B – Transmission Analysis Additional Recommendations (Please list additional studies below not included in bid document:) a. b. c.					
3	Task C – Documentation/Reporting					
4	<b>Tax (If applicable)</b>					
5	<b>Grand Total (USD/JMD)</b>					

## 10 Appendix 3 – Technical Proficiency and Experience

Item No.	Description	Response
1	Proficiency utilizing DigSILENT Powerfactory	Indicate your level of proficiency in utilizing the software with a ranking of 1- 10 with 10 being highly proficient.  Response:
2	List of top 5 grid scale studies utilizing DigSILENT Powerfactory	1. 2. 3. 4. 5.
3	List of top 5 transmission grid impact studies with emphasis in integrating large percentages of variable renewable energy	1. 2. 3. 4. 5.

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