



REQUEST FOR PROPOSALS

FOR THE

DEVELOPMENT OF A SOLAR PV PLANT AT BITRI
HEADQUARTERS IN GABORONE, BOTSWANA

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Introduction

Botswana Institute for Technology Research and Innovation (BITRI) is a parastatal under the Ministry of Communications, Knowledge and Technology, established in 2012, to conduct needs-based research and development in focused areas. The Mandate of BITRI is to identify, develop and/or adapt appropriate technology solutions that provide sustainable innovative solutions through co-creation and collaboration in line with national priorities and needs of Botswana.

The Energy Division, under BITRI's Technologies Department, is mandated to develop and adopt Clean Energy Technologies for Botswana, as well as optimize existing ones. Through this project, the Division seeks to showcase retrofits of existing buildings through redesign, incorporation of renewable energy and change of cultural practices to reduce their carbon footprints and lifetime costs of ownership. One of the key areas under consideration in this project is research and development on solar powered solutions, specifically the use of solar to substitute/augment grid electricity for day-to-day electricity use.

Scope of work

BITRI is issuing a Request for Proposals (RFP) for engagement of an experienced Solar Photovoltaic (PV) developer to design, build, finance, operate and maintain (DBFOM) a solar PV plant at the BITRI Headquarters under a Leasing Agreement for a period of 10 years. The project location is Maranyane House, Plot No. 50654, Machel Drive in Gaborone, Botswana.

Eligible companies or consortia should prove their experience in undertaking similar projects. The Bidder shall provide the following works and services:

- i. Design and construct a grid-tied rooftop solar PV plant for BITRI, that will provide the most optimal capacity for the institution considering the available space
- ii. Provide finance for the project
- iii. Operate the plant over a period of 10 years feeding electricity into the Botswana Power Corporation grid under a PPA, Concession Agreements and Grid Connection Agreements following the Rooftop Solar Project Guidelines
- iv. Obtain relevant licenses from the Botswana Energy Regulatory Authority (BERA) with necessary facilitation by BITRI
- v. Allow identified BITRI personnel to partake in the project throughout as a way of capacitating and developing their technical expertise in solar PV
- vi. Hand over the assets to BITRI at the end of the 10-year period of the Agreement.

Only one (1) company or consortium will be selected for this project. The bidder should note that there shall be no Environmental Impact Assessment (EIA) required for this project as a waiver has been obtained for the project.

Disclaimer

BITRI shall not be responsible for any cost incurred by any company in the preparation or submission of any proposal or to procure or contract for any services. Selection does not confer any exclusivity rights nor guarantee that the company will receive business from BITRI.

BITRI reserves the right to accept or reject any and all proposals, to revise this request for Proposal, to request one or more re-submissions or clarification from one or more companies or to cancel the RFP.

1. Invitation

Proposals are required from competent bidders (companies or formal consortia of companies) **to Design Build Finance Operate Maintain (DBFOM) a solar PV Power Plant at BITRI, Botswana under a 10-year Leasing Agreement.** The successful bidder will be expected to Transfer the plant to BITRI at the end of the 10-year leasing period.

Interested bidders should submit proposals in English language presenting a full business case, proposed solution and demonstration of financial capability. Details of the responses will not be shared with other respondents. Bidders should indicate previous experience on solar photovoltaic systems.

The offer must include:

- i. Size of Proposed PV Plant based on the provided BITRI electricity bills and load profile,
- ii. Preliminary Design/Layout of the Proposed Plant restricted to available roof space and car parks
- iii. Bill of Quantities (BOQ),
- iv. A plan to engage and capacitate four (4) BITRI personnel throughout the project phases from the start to the end,
- v. Project Development Timeline and a Gantt Chart format,
- vi. 3 Leasing offers (USD/kWh/year/month) based on the following down payments/contributions by BITRI

Option 1: No Down Payment

Option 2: USD 350, 000.00

Option 3: Down payment amount recommended by developer stating what informed the figure,

- vii. Proof of Solar PV systems development and leasing experience,
- viii. Proof of Financial capability.

Completed proposals, **in pdf** format, should be emailed to procurement@bitri.co.bw no later than midnight, Botswana local time (CAT) on **Friday 14th October 2022.** **It is the responsibility of the bidder to ensure that documents are submitted within the deadline.**

Requests for clarification about the contents of this RFP shall be sent via email to erakgati@bitri.co.bw. The requests shall be received no later than 7th October 2022. Phone requests will NOT be accepted.

2. Project Description

This RFP makes part of a project whose purpose is to showcase retrofitting of existing buildings through redesign, incorporation of renewable energy and change of cultural practices to reduce their carbon footprint and lifetime costs of ownership. The core of this project is the deployment of a mini-solar PV plant for provision of clean energy and to act as a prototype experimental site for grid-integrated power and demonstration site for new research ideas on energy, data analytics and policy impacts for BITRI researchers and nationally.

The PV power plant shall take into consideration BITRI's power consumption and financial savings and **shall be used for Research and Development (R&D) on energy storage and other PV technologies**. The envisaged end products of the project include monetary savings from reduced electricity bill, reduced carbon footprint for BITRI, research outcomes including post-graduate qualifications by BITRI associate researchers as well as policy statements to advise the government.

The envisaged PV power plant shall have minimal environmental impact on the BITRI environment. The panels will be mounted on the existing roof structure and in the parking spaces but not on virgin land, with emphasis on innovative use of space. This is to ensure that no other land is disturbed to cater for future developments and/or other uses by BITRI.

The plant should have provision for future addition of storage (batteries). The bidder is also encouraged to include at least two (2) Electric Vehicle (EV) charging stations located in the car parks. This will facilitate BITRI research on storage and e-mobility respectively.

The size and design of the PV system shall be proposed by the bidder using information provided in the attached Annexures:

Annexure 1: Monthly utility bills for a period of three (3) years

Annexure 2: Load measurement data (load profile) over a period of 2 weeks

Annexure 3: Shade report

Annexure 4: Environmental Impact Assessment waiver

BITRI SHALL provide all the facilitations to the bidder for acquisition of relevant materials/documents from various institutions where necessary. Possible requirements include but are not limited to licenses from BERA. The bidder will be responsible for all Legal and Regulatory requirements.

3. Regulatory Requirements

3.1 Feed-in Requirements

Since the proposed PV system will be tied to the existing grid, the bidder shall follow the requirements of the Botswana Roof Top Solar Guidelines (RTS) for system installation. The RTS guidelines enable Botswana Power Corporation (BPC) electricity consumers to generate electricity for their own use while selling any excess to BPC up to the limit as defined by the Ministry.

The Guidelines require that for systems above 100 kW, a license be issued by Botswana Energy Regulatory Authority (BERA) to verify that the system meets the full intent and requirements of the Electricity Supply Act. According to the RTS guidelines, the size of a proposed system may not exceed 110% of the consumer's consumption over the 12-month period immediately preceding the date of application. A system can be mounted on a building roof or be ground mounted. The RTS systems should be designed with Islanding Protection features to detect loss of grid power and automatically (within 2 seconds) shut off the solar inverter irrespective of connected loads to stop feeding power back to the grid.

For this project, **the bidder is required to apply to BPC to install a system of the proposed size at BITRI.** The application is made on the BPC website under the rooftop solar programme and applicants gain access to the Programme on a first come-first served basis. BITRI will facilitate this application. For PV systems greater than 100 kW, the application will be automatically forwarded to BERA for review and issuance of a License to the consumer. The applicant will have a set amount of time as determined by BERA, upon application from BPC, to install and certify the system.

Once connected to the grid, BIRI will be billed according to the regular billing cycle for kWh. Excess kWh generated and exported to the grid will be credited towards the next billing cycle. The kWh generated less consumed should be clearly represented on each monthly bill. The meter will register the energy imported from BPC and the excess energy exported to BPC. These two, energy imported from and exported to BPC will be reconciled on monthly basis to also reflect the net energy. For every kWh exported to the grid, BITRI will receive a credit of 1kWh. The credit received shall not be in monetary terms but in kWh. Any excess energy exported will be rolled over to the next billing cycle. Only the charges relating to the kWh units, energy part, of the bill will be affected. The fixed charge part, non-energy part of the consumer's bill will not be credited for excess energy exported to BPC.

3.2 Licence requirements

Licence for installation of solar PV plants is obtained from BERA. The process for applying for a RTS license is as outlined below:

- Pre-Licensing Stage - Approach and engage Regulator early.
- License Application Submission
- Site visit where it is necessary

- License Consideration and Award
- Gazetting for public comments for 30 days as per the RTS guidelines
- Issue of standard license within 90 days

3.3 Environmental Impact Requirements

BITRI has obtained a waiver for EIA for this project as the proposed project does not qualify for the undertaking of a detailed environmental impact assessment due to its nature. There will be no need for an EIA but a waste management plan may be required by BITRI to manage any potential waste that may arise from the construction, operation, and maintenance of the system at BITRI.

4. Terms of Reference

Bidders are required to submit their Technical and Financial bids in one (1) document. The Proposal shall follow the format outlined below, making sure that all the contents required in previous pages are covered. It should be noted that the description and contents of the sections given below are not limiting.

- **Cover/Transmittal letter:** Cover letter must be addressed to BITRI CEO and signed by a legally authorized representative of the respondent. Cover letter must summarize key provisions of the proposal and must include name, address, phone and email of the respondent contact.
- **Executive Summary:** Include key provisions of the proposal, including understanding of BITRI's goals, pricing, respondent's role on project, brief description of proposed system, financing, relevant experience of respondent/company, and key timeline dates.
- **Company Profile:** Years in business, description of company background, business licenses, bonding capacity, Health and Safety (H&S) background and safety protocol, Insurance, Quality Assurance/Quality Control documentation.
- **Project Experience:** Include projects completed in the last three (3) years similar in scope and size to the proposed project. Include project name, system size, location, and brief 2-3 sentences project description. Highlight companies permitting and interconnection experience with local utility (if applicable).
- **References:** Provide at least three (3) project references for the bidding company with direct client phone numbers and email addresses.
- **Project Team:** Organizational chart for the project, team members' biographies and/or CVs, and defined roles for project team members. Please only profile individuals who will directly be working on this project. Clearly indicate the project manager.
- **List of all subcontracted Suppliers, Subcontractors and Operation and Maintenance (O&M) Service Provider** that will be contracted for this project, if any.
- **Technical Solution/Scope of Work:** Describe your technical approach to the design and construction of the solar project including:

- Technical Approach, Design, Equipment, Installation
 - Panel, inverter, cables, racking, hybrid components (if applicable), etc. specifications
 - Equipment and workmanship warranties
- Exhibits showing proposed layouts and system single line diagrams. Space for project limited strictly to roof spaces and existing car parks at BITRI Headquarters.
- Detailed report indicating production of the proposed system using PVSYST or any other equivalent simulation software
- Proposed monitoring system/solution.
- Operations & Maintenance Plan offered for the project.
- **Production Guarantee:** Provide at least a 90% kWh guarantee for year 1, degrading by a maximum of 0.5-0.7%/year (specify one or the other) for 10 years. Performance guarantee should be measured, and damages should be paid on an annual basis.
- **Commercial Proposal:**
 - Provide a Leasing Price (USD/kWh/Year/Month) for the system based on the following down payments / contributions by BITRI
 - Option 1: No Down Payment
 - Option 2: USD 350, 000.00
 - Option 3: Down payment amount recommended by developer indicating the down payment amount recommended.
 - Present year one (1) and 10 years financial savings
- **Development of BITRI Personnel (Skills transfer):** include detailed plan on the development of BITRI personnel during the project.
- **Safety:** Please include a description of the safety practices of your company, as well as the H&S Reporting Indicators for the last three (3) years.
- **Proposed Schedule:** Identify key project milestones and include any necessary review periods. Present the Project Timeline in Gantt Chart format outlining the critical project deliverables.
- **Contract Conditions:** To be negotiated between the BITRI and successful bidder.
- **Financial proposal** – The bidder is to provide evidence of financial capability to execute the project.

When preparing the bid, the following shall be considered.

❖ **Design and Engineering Services**

- Timeline/Project Schedule
- System description
- Equipment details, descriptions (PV Modules, Inverters, Cables, Racks, Batteries, etc.), (specifications/data sheets)
- PV module layout plan
- Equipment installation location plan
- All engineering associated with structural and mounting for the PV system
- Performance of equipment components, and subsystems

- Integration of solar photovoltaic system with existing power source(s)
- Electrical grid interconnection requirements (if applicable)
- Controls, monitors, and instrumentation, including on demand web access
- Remote System performance monitoring
- Security for the system

❖ **Procurement and Construction works**

- List of all equipment, materials, and labour necessary to install the solar power plant.
- Bill of Materials (BoM) and Bill of Quantities (BOQ)
- Logistics and staging plan
- Install the solar power plant
- Testing and commissioning of the power plant and transfer to O&M

❖ **Operation and Maintenance**

- Provide as-built drawings as pdf documents and the O&M Manual.
- These requirements shall be delivered prior to acceptance of the solar power plant.
- Detailed Monitoring and Maintenance plan of the power plant

❖ **Leasing & O&M Contract Conditions**

- The leasing and O&M Contracts will be discussed and agreed on with the selected bidder. The Leasing Agreement must be drafted by a local legal advisor in order to cover all local requirements, risks and liabilities.

5. Eligibility criteria

The following shall be stipulated in the bidding Documents

<p>1. Company Documents for Pre-Qualification</p>	<ul style="list-style-type: none"> • Company Profile • Valid business Registration • Organizational structure: The bidder must demonstrate that the proposed core staff adequately cover design, construction and operation of solar power plants. • Local representatives: Official Letter of Appointment as local representative, if the bidder is submitting on behalf of an entity located outside the country. • Quality Management: ISO or equivalent standards accreditation for Quality Assurance System, Environmental Management Systems, Occupational Health and Safety and any other Organizational Management System. Provide copy of certifications if applicable.
<p>2. Technical experience – Staff Competency</p>	<p>A minimum of five (5) years of experience, of which two (2) years must be in Sub Saharan Africa in civil construction, equipment supply and erection, turnkey delivery of solar power project. Provide list and individual capacity suitable for the project.</p> <ul style="list-style-type: none"> • Experience of construction of Renewable energy systems of similar nature (Hybrid-Systems). Provide list of three (3) projects, which the individuals participated in. • A minimum of five (5) years of experience in Operations and Maintenance (O&M) of solar power project. Provide list and individual capacity of each project, including countries of installation. • Experience with working as a Leasing and O&M contractor is essential and obligatory. • Familiarity with the internationally recognized health and safety regulations and social & environmental safeguards procedures. Please submit the relevant certificates.
<p>3. Technical Experience - Company/consortium competency</p>	<p>Demonstrable success in building and operating similar projects, especially in Sub-Saharan Africa</p> <p>A list of solar PV projects undertaken in the past 10 years with cumulative capacity of at least 10 MW in which the applicant was either or all the following:</p> <ul style="list-style-type: none"> • Engineering, Procurement, Construction (EPC) contractor • Operations & Management (O&M) contractor • Independent power producer (i.e., equity sponsor with operational control of the asset)

<p>4. Development and involvement of BITRI personnel in project</p>	<p>Provide a detailed plan showing how BITRI personnel will be developed throughout the project noting that there will be no more than 4 technical personnel provided. All costs associated with this training will be borne by the bidder. The training shall cover, but not limited to the following.</p> <ul style="list-style-type: none"> • Design of the system • Documentation of the system • Development of the system • Maintenance of the system
<p>5. Financial Statements</p>	<p>Audited Financial Statements: The Company/JV shall submit turnover figures for financial years (2019, 2020 & 2021). Figures provided should be audited and verifiable. Audited financial statements for the last three years must be inclusive of: consolidated Balance sheet, Profit & Loss, and Cash flow statements.</p> <p>The minimum required average annual turnover for the Bidder for the last 3 years shall be minimum half (50%) of the total project cost. If Reference works contracted and invoiced/ billed in the name of a joint venture or consortium are included; the turnover shall be counted on the percentage share of the bidder in the subject joint venture or consortium. The document shall be certified by registered independent auditors or experts.</p> <p>Companies or entities are expected not to be in disputes with the local authorities in relation to taxes, duties and levies.</p> <p>PLEASE NOTE: The Bidder can request for Financial Information from the client. Please send your request to:</p> <p>Email: erakgati@bitri.co.bw</p>
<p>6. References</p>	<p>Provision of three references in relation to the experience quoted in response to attributes (a) to (d). The references should outline:</p> <ul style="list-style-type: none"> • Name of project • Client • Contract Value • Period of activity • Types of activities undertaken • Status or Date Completed • References Contact Details (Name, Phone, Email)

6. Evaluation and Award

6.1 Evaluation criteria

The client will evaluate the proposals according to the project requirements. The following criteria will be used:

Evaluation criteria		Maximum points
1.	Administrative	100
	1. Company profile	15
	2. Company experience	20
	3. Adequacy and Experience of proposed Staff	20
	4. Organisational Structure	10
	5. Quality Management System	15
	6. Leasing Project experience	20
2.	Technical	100
	1. Proposed layouts	15
	2. Simulated production report	10
	3. Equipment and workmanship guarantees	10
	4. Proposed monitoring system	10
	5. Operations and Maintenance plan	10
	6. Production guarantee	10
	7. Innovative use of space	10
	8. Leasing price for the 3 stated options	15
	9. Implementation plan	10
3.	Skills Transfer (inclusion and development of BITRI personnel in the project)	100
	1. Design of the system	25
	2. Documentation of the system	25
	3. Development of the system	25
	4. Maintenance of the system	25
4.	Financial capability	100
	1. Audited Financial Statements	30
	2. Financing Commitment (Own Resources or Financiers)	70

6.2 Ratings

Weightings for the different elements shall be as follows;

Administrative:	20%
Technical:	50%
Skills Transfer:	10%
Financial capability:	20%

After evaluation, BITRI shall notify the bidder(s) with proposals which are deemed acceptable. **These are bidders who score more than 75.** These bidders shall be notified and expected to present their proposals to BITRI within two (2) weeks of the notification. The presentations shall either be physical or virtual as preferred by the respective bidders. Bidders should note that at this stage, **BITRI may choose to visit previous projects of a similar nature developed by the bidders as part of the evaluation.**

Once the successful bidder(s) has been notified of the conditional acceptance of its Proposal, BITRI may enter negotiations with the bidder(s) to conclude an agreement on which basis the Bidder will be awarded the contract. Only one (1) bidder shall be awarded the contract.

7. Annexures

- Annexure 1: Monthly BITRI electricity bills for a period of three (3) years
- Annexure 2: Load measurement data (load profile) over a period of 2 weeks
- Annexure 3: Shade report
- Annexure 4: EIA Waiver from Department of Environmental Affairs
- Annexure 5: Aerial pictures of BITRI Headquarters