ROCKY MOUNTAIN INSTITUTE

Request for Proposal

For

Dominica School Microgrids Project
Engineering, Procurement and Construction for
Rocky Mountain Institute (RMI)

Issue Date: July 19, 2021
Submission Deadline: August 20, 2021

Preface

Rocky Mountain Institute (RMI) has prepared these request for proposals (RFP) documents to invite qualified organizations wishing to submit responses for turnkey Engineering, Procurement, and Construction (EPC) services to be provided for solar PV and battery storage microgrid projects on two schools in the Commonwealth of Dominica.

This document has been produced from information relating to dates and periods referred to in this document. This document does not imply that any information or data is expressly agreed within the written scope of its services.

RMI or any stakeholder providing assistance to RMI shall not be responsible in any way in connection with erroneous information or data provided to it by the Customer or any third party, or for the effects of any such erroneous information or data whether or not contained or referred to in this document.

This information is provided on the basis that it is non-binding to RMI, their staff, or advisors or any other stakeholder providing assistance to RMI. RMI reserves the right to not proceed with the initiative as well as the right not to discuss the initiative further with any respondent.

RMI reserves the right to amend, modify or withdraw this document or any part of it, or to terminate or amend any of the procedures, processes or requirements detailed in this document at any time, without prior notice and without liability to compensate or reimburse any person pursuant to such amendment, modification, withdrawal or termination.

Project Name: Dominica School Microgrids Project

Document Package: Request for Proposals for Dominica School Microgrids Project Engineering, Procurement and Construction Contract for Rocky Mountain Institute (RMI)

Point of Contact RMI: Sidney Jules

Date of Issue: 19 July 2021

Task and Objective: Rocky Mountain Institute (RMI) is issuing this Request for Proposals (RFP) to qualified prospective bidders for two solar PV and battery energy storage microgrids at the Morne Prosper Primary School and Paix Bouche Primary School in the Commonwealth of Dominica.

Contents

1.1 List of tables

1.2 List of appendices

1.3 List of exhibits

List of abbreviations

Abbreviation	Meaning
AHJ	Authority having jurisdiction
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BESS	Battery Energy Storage System
CAD	Computer aided design
CEC	Canadian Electrical Code
CM	Construction Manager
CWR	Carbon War Room
CxA	Third party Commissioning Agent
DHW	Domestic hot water
DOMLEC	Dominica Electricity Services Limited
ECM	Energy conservation measures
EPCC	Engineering, Procurement and Construction Contractor
GoCD	Government of The Commonwealth of Dominica
GPM	Gallons per minute
HMI	Human Machine Interface
HVAC	Heating, ventilating, and air conditioning
ICEA	Insulated Cable Engineers Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
IFC	Issue-for-construction
IPP	Independent power producer
LED	Light emitting diode
MCA	Mutual Confidentiality Agreement
MoE	Ministry of Education, Human Resource, Planning, Vocational Training and National Excellence
NBFU	National Board of Fire Underwriters
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NTP	Notice to proceed
O&M	Operations and maintenance

OMP	Operations and Maintenance Plan
PV	Photovoltaic
Q&A	Question and Answer
RCSC	Research Council for Structural Connections
RFP	Request for Proposals
UBC	Uniform Building Code
UL	Underwriters Laboratory
WGD	Warranties and Guarantees document

1 INTRODUCTION

Rocky Mountain Institute (RMI) is supporting the implementation of solar PV and battery energy storage systems (BESS) at the Morne Prosper Primary School and Paix Bouche Primary School, located in the Commonwealth of Dominica. The systems will create microgrids at the schools, providing capabilities to operate both as a grid-connected and off-grid systems supplying critical loads at the schools. The successful completion of this project will result in considerable electricity cost savings for both schools, enhanced resilience of local distributed energy resources built to withstand category 5 hurricanes, and greater sustainability in line with the mission of the Government of Dominica to become a climate-resilient country across multiple sectors.

RMI is a non-profit organization based in Boulder, Colorado. Through its Islands Energy Program, RMI has been working with utilities and governments in the region to accelerate the transition of regional economies away from fossil fuels to more sustainable forms of energy. In Dominica, RMI has been working with the Government of the Commonwealth of Dominica (GoCD) to implement sustainable energy projects in the country.

RMI has received grant funding to install solar PV systems with battery backup at Morne Prosper Primary School and Paix Bouche Primary School. The project scope includes the installation of a rooftop solar PV system and a battery energy storage system (BESS) at each school integrated with the electrical loads in the two schools.

The Ministry of Education, Human Resource, Planning, Vocational Training and National Excellence (MoE) is the administrative entity for both schools, and RMI is coordinating the installation of solar PV and battery storage systems at the schools with the ministry.

RMI is issuing this Request for Proposals (RFP) for turnkey solar PV and battery energy storage Engineering, Procurement, and Construction (EPC) services to be provided on the primary schools in Morne Propser and Paix Bouche. The objective of this RFP is to solicit competitive proposals from qualified and experienced contractors ("Bidders") to provide RMI with cost-effective solar PV and battery energy storage microgrid systems comprising of:

1. 5.25kWp/4 kW AC (solar PV), 5 kW / 47 kWh minimum (battery energy storage) including power management – **Morne Prosper Primary School**.
2. 4.9 kWp/3.6 kW AC (solar PV), 5 kW / 27 kWh minimum (battery energy storage) including power management – **Paix Bouche Primary School.**

This will be known collectively as the "Project". The Project will be implemented in one phase, starting in 2021.

The desired outcome of this RFP is the successful negotiation and execution of an EPC Contract for the scope of services described herein. **Only one successful bidder shall be awarded a contract. The service provider will be required to undertake detailed engineering, supply all required materials and equipment, secure permits, install and commission the solar PV and battery energy storage systems and maintain the systems for a period of one year after commissioning. In addition, the service provider would be required to transfer knowledge to relevant personnel in the specifics of operating and maintaining the systems through the following:**

1) A written Operations and Maintenance (O&M) Manual for the solar PV and battery energy storage systems installed at the schools
2) **An appropriate training exercise** for personnel of the Ministry of Education and Morne Prosper & Paix Bouche Primary Schools to increase the knowledge capacity and technical experience with solar PV modules and battery energy storage systems

The Ministry of Education, Human Resource, Planning, Vocational Training and National Excellence (MoE) has granted approval for imported project materials to receive a waiver of import duties. The materials need to be imported in the name of MoE to benefit from the waiver, and bidders are advised to consider this concession in their pricing.

The project is intended to:

- Increase renewable energy penetration in Dominica by the installation of rooftop solar PV with battery energy storage systems at Morne Prosper and Paix Bouche Primary Schools.
- Reduce each school's consumption of electricity from the grid which is expected to lower the energy costs of the facilities while improving the comfort of students and faculty.
- Provide an environmentally friendly source of energy to the schools.
- Integrate RE and existing technologies in a seamless manner to improve the quality and reliability of electricity services at the two schools while maximizing the efficiency of the joint systems.
- Increase the energy resilience of the two schools, thereby minimizing interruptions to school operations due to electricity outages from the utility, Dominica Electricity Services Ltd. (DOMLEC).
- Enhance hurricane-related services by providing electricity to the Morne Prosper Primary School and Paix Bouche Primary School when used as hurricane shelters.
- Contribute to Dominica's climate change mitigation strategies, outlined as part of Dominica's draft National Energy Policy, which aims to achieve 100% renewable energy generation by 2030.

Site Descriptions

MORNE PROSPER PRIMARY SCHOOL
Morne Prosper Primary School is a small, multi-building facility located in Morne Prosper, Roseau Valley, Dominica. The school was recently renovated in 2019 due to damage sustained from Hurricane Maria in 2017. Morne Prosper Primary School is the only public primary school in the Morne Prosper village, with 39 pupils and teaching occurring throughout the academic year from September to July. The school is occasionally in use during the summer for a two week period for Summer School.

The electricity supply to the compound is single-phase 230 V 50 Hz provided by DOMLEC. There is no source of backup power currently provided for the school.

Figure 1-1: Morne Propser Primary School, New Building

Figure 1-2: Morne Prosper Primary School, Old Building

PAIX BOUCHE PRIMARY SCHOOL

Paix Bouche Primary School is a small primary school serving the community of Paix Bouche. The facility includes the main school building (which serves as a hurricane shelter in the event of a natural disaster), the library and stage building, separate bathroom building, as well as the adjacent Paix Bouche Pre-School building. The primary school has a count of 67 students, and operates during the school year (September to July) and occasionally during the summer for Summer School.

The electricity supply to the school is single-phase 230 V 50 HZ provided by DOMLEC. There is no source of backup power currently provided for the school.

Figure 1-3: Paix Bouche Primary School, Main Building

Figure 1-4: Paix Bouche Primary School, Bathroom Building

Over the past several years energy usage at each school has varied widely from year to year for various reasons. Electricity rates are expected to increase year-on-year. Table 1-1 and 1-2 respectively shows the monthly electricity consumption figures for Morne Prosper and Paix Bouche Primary Schools for 2019 and 2020.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	321	346	365	230	270	243	272	155	397	515	589	626
2019	464	447	403	464	535	515	361	385	335	235	255	222

Table 1-1 Morne Prosper Primary School Monthly Electricity Consumption (kWh) for 2019 – 2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	277	299	338	179	191	205	260	181	417	607	519	534
2019	266	296	273	275	304	305	180	146	250	357	315	244

Table 1-2 Paix Bouche Primary School Monthly Electricity Consumption (kWh) for 2019 – 2020

2 RFP OVERVIEW AND GENERAL INFORMATION

The scope of this RFP is for EPC contracting services to deliver detailed engineering, supply all required materials and equipment (procurement), secure permits, install and commission the solar PV and battery energy storage systems and maintain the systems for a period of one years after commissioning. In addition, the service provider would be required to transfer knowledge to relevant personnel in the specifics of operating and maintaining the systems through an appropriate training exercise. The installation locations are Morne Prosper Primary School and Paix Bouche Primary School. The Project will be delivered to the Government of the Commonwealth of Dominica (GoCD).

Before construction, all designs shall be reviewed and approved by RMI.

During project execution, regular construction administration and progress meetings shall be held which would include the appropriate representatives from the EPC contractor, RMI and the GoCD. Final project completion will be signed off by the GoCD.

Bidders shall provide a high-level project schedule as part of the bid package to support the project milestones. The major milestones for the RFP and Project are listed in Table 2-1 below.

Date	Event
19-July 21	RFP for school microgrids released to potential bidders (Published Date)
23-July-21	RFP Solicitation Receipt confirmation deadline
26-July-21	Site visit Acknowledgment Form submission deadline
28-July-21	Mandatory site visits conducted **(AT BOTH SCHOOLS)**
9-August-21	Request for clarification submission deadline
16-August-21	Final responses to request for clarification issued
20-August-21	**Proposal submission deadline**
	Bid clarification meetings (if required)
	Submission of bid evaluation report with award recommendation
13-September-21	Award notification and contract negotiations initiated
27-September-21	Contract execution and Limited Notice to Proceed (LNTP) granted
Per EPC contractor schedule	Mobilization and detailed designs development
Per EPC contractor schedule	Detailed designs approval and Full Notice to Proceed
Per EPC contractor schedule	Procurement of equipment and materials
Per EPC contractor schedule	EPC start on site
Per EPC contractor schedule	EPC substantial completion (commercial operation)
Per EPC contractor schedule	Contract close-out

Table 2-1 Proposed Project Schedule

2.3.1 Guidelines

Each Bidder shall provide a comprehensive proposal for the full scope of works in accordance with the instructions and submittal requirements provided herein. Proposals that do not address all scope items may be rejected.

2.3.2 Submission of proposals

All proposals shall be delivered electronically via email to sjules@rmi.org and fneverson.contractor@rmi.org, and must be received by the proposal submission deadline as listed in Table 2-1 above. Proposals received after this date will not be considered. It is the responsibility of the Bidder to ensure that the bid has been received prior to the deadline. Proposals shall include all proposal deliverables described in Section 4. All files shall be organized in a folder called "Dominica School Microgrids EPC RFP - *Bidder Name,*" where "*Bidder Name*" is the name of the company submitting the proposal.

No Bidder may modify or amend its proposal after the Proposal Submission Deadline.

Each Bidder shall complete and submit the Schedule of Pricing Bid Form, Appendix C in both excel and PDF formats, with its technical proposal for all services.

2.3.3 Binding offer

Proposals submitted in response to this RFP shall constitute binding offers and must be signed by a duly authorized representative of the Bidder.

2.3.4 Proposal validity period

Proposals submitted in response to this solicitation shall state that the proposal is valid for a minimum period of one hundred and twenty (120) days beyond the proposal deadline.

Table 2-2 RFP Procurement Schedule

Date	Event
19-July 21	RFP for Solarization Tender released to potential bidders
23-July-21	RFP Solicitation Receipt confirmation deadline
26-July-21	Site visit Acknowledgment Form submission deadline
28-July-21	Mandatory site visits conducted **(AT BOTH SCHOOLS)**
9-August-21	Request for clarification submission deadline
16-August-21	Final responses to request for clarification issued
20-August-21	**Proposal submission deadline (ELECTRONIC via emails as per 2.3.2 above)**
13-September-21	Award notification and contract negotiations initiated
27-September-21	Contract execution and Limited Notice to Proceed(LNTP) granted

2.3.5 Bidder expenses

Bidders are solely responsible for their own costs in preparing responses and for subsequent negotiations with RMI, if any. RMI will not be liable to any Bidder for any claims, whether for costs or damages incurred by the Bidder in preparing the response, loss of anticipated profit about any final contract, or any other matter whatsoever.

2.3.6 Acceptance of responses

This RFP is not an agreement to purchase goods or services. RMI is not bound to enter into a contract with any Bidder. Responses will be assessed considering the proposal review criteria and other factors. RMI will be under no obligation to receive further information, whether written or oral, from any Bidder.

2.3.7 Modification of terms

RMI reserves the right to modify the terms of this RFP at any time at its sole discretion. RMI also reserves the right to cancel this RFP at any time.

RMI reserves the right to request additional information from any or all Bidders.

2.3.8 Ownership of responses

All proposals and other documents submitted to RMI become the property of RMI. Responses will be treated with confidentiality. Bidders shall enter into a multi-party Mutual Confidentiality Agreement (MCA) with RMI and the Government of the Commonwealth of Dominica (GoCD) through the Ministry of Education (MoE) by completing Appendix F Mutual Confidentiality Agreement. Responses may be shared with MoE for the purposes of assistance in evaluating proposals, managing a Question and Answer (Q&A) log, communicating with Bidders, and similar activities related to the RFP process.

RMI shall determine the timing and content of any and all announcements or public statements relating to any part of this RFP process. No Bidder shall make any public statements or release any information regarding this process without the prior approval in writing of RMI.

2.3.9 Receipt confirmation

Bidders are requested to acknowledge receipt of this solicitation by responding via email to sjules@rmi.org and fneverson.contractor@rmi.org by the deadline for RFP Solicitation Receipt Confirmation, by completing Appendix A RFP Solicitation Receipt Confirmation Form. This response should include primary and secondary (if applicable) points of contact for all future RFP-related communication. **Please include "Dominica School Microgrids EPC RFP RSVP" in the subject line**. All subsequent information regarding this RFP, including changes made to this document, addenda, responses to questions, and any notifications will be directed only to Bidders who acknowledge receipt of this RFP.

2.3.10 Site visit

A mandatory site visit will be held on 28th July 2021. Bidders are required to acknowledge their intention to attend the site visit by completing Appendix B Notice of Site Visit Acknowledgement Form and responding via the email to sjules@rmi.org and fneverson.contractor@rmi.org , the deadline for receipt confirmation is 26th July 2021.

2.3.11 Proposal evaluation, review and award

A Proposal Evaluation Committee would be set up to evaluate all eligible bids. The committee would assess all proposals using the evaluation criteria outlined in subsection 5.4 and would select a Preferred Bidder based on the results. A contract would be awarded upon completion of successful negotiations with the Preferred Bidder.

2.3.12 Q&A log

RMI will manage a Q&A log for the benefit of Bidders. Please submit questions to sjules@rmi.org and fneverson.contractor@rmi.org; include "Dominica School Microgrids EPC RFP Q&A" in the subject line.

Responses to questions will be sent periodically to all Bidders who have confirmed receipt of the RFP, and have attended the site visit, as described above, with the identity of the Bidder remaining anonymous. Responses shall not be construed as in any way amending, modifying or altering the meaning and intent of this RFP, unless the RFP is amended in accordance with Section 2.3.7 above.

2.3.13 Language

All proposal deliverables, confirmations, requests for clarification, and other communications associated with this RFP shall be in the English language.

2.3.14 Anti-Corruption

Bidders shall make no overtures, gifts, commission payments or any other form of inducement, whether pecuniary or non-pecuniary, direct or indirect, in an effort to gain an advantage in this process or seek any information on the status of the process or their bid, to any officer or official of RMI, or any project partner to RMI on any matter related to the process outlined herein.

Any breach or attempt to breach this clause will result in immediate disqualification from further participation in this RFP process. The Bidder must not, either within its Proposal or otherwise in any correspondence, conversation, meeting or otherwise, disclose to the Proposal Evaluation Committee, any official of or advisor to RMI, any information regarding the amount which the Bidder is prepared to commit, except as required within that process. Any such disclosure will result in disqualification of the Bidder's Proposal.

3 SCOPE OF SERVICES

3.1 General

The Bidder's scope of supply shall include all materials and services for the implementation of solar PV and battery energy storage microgrids as defined within this RFP at the Morne Prosper Primary School and Paix Bouche Primary School in the Commonwealth of Dominica. The Project shall be implemented through EPC contracts with a single EPCC having the role to guarantee completion of the microgrids within an agreed schedule and budget. The EPCC shall be responsible for the performance of all subcontractors.

3.2 Description of school microgrids and technical requirements

The following sections provide specifications for proposed microgrids at the schools.

3.2.1 | Morne Prosper Primary School Microgrid

The Morne Prosper Primary School microgrid shall consist of a 5.25 kWp/4 kW AC grid-tied solar PV system and a 5 kW / 47 kWh (minimum) BESS. The installation would reduce the school's electricity consumption from the grid while providing a source of backup power for the school during a grid power outage.

The operating philosophy for the solar PV and BESS when connected to the grid is that during the day the solar PV system will prioritize supply of energy to the school loads with any excess energy going to the charging of batteries first and export to the grid second. At night the BESS should be used to supply the school loads until the batteries reach a minimum state of charge (SOC) of 20%. Thereafter, the loads should be supplied entirely from the grid. The grid should not be used to recharge the batteries.

During a grid outage the solar PV and BESS must disconnect from the grid and operate in stand-alone mode to supply the load of the school.

At present the school is supplied electricity via two separate service connections from DOMLEC. These will need to be combined into a single supply so that the entire facility can benefit from the solar PV and BESS. Some additional internal wiring would be required in order to achieve this.

Figure 3-1 shows a block diagram of the proposed Morne Prosper Primary School microgrid.

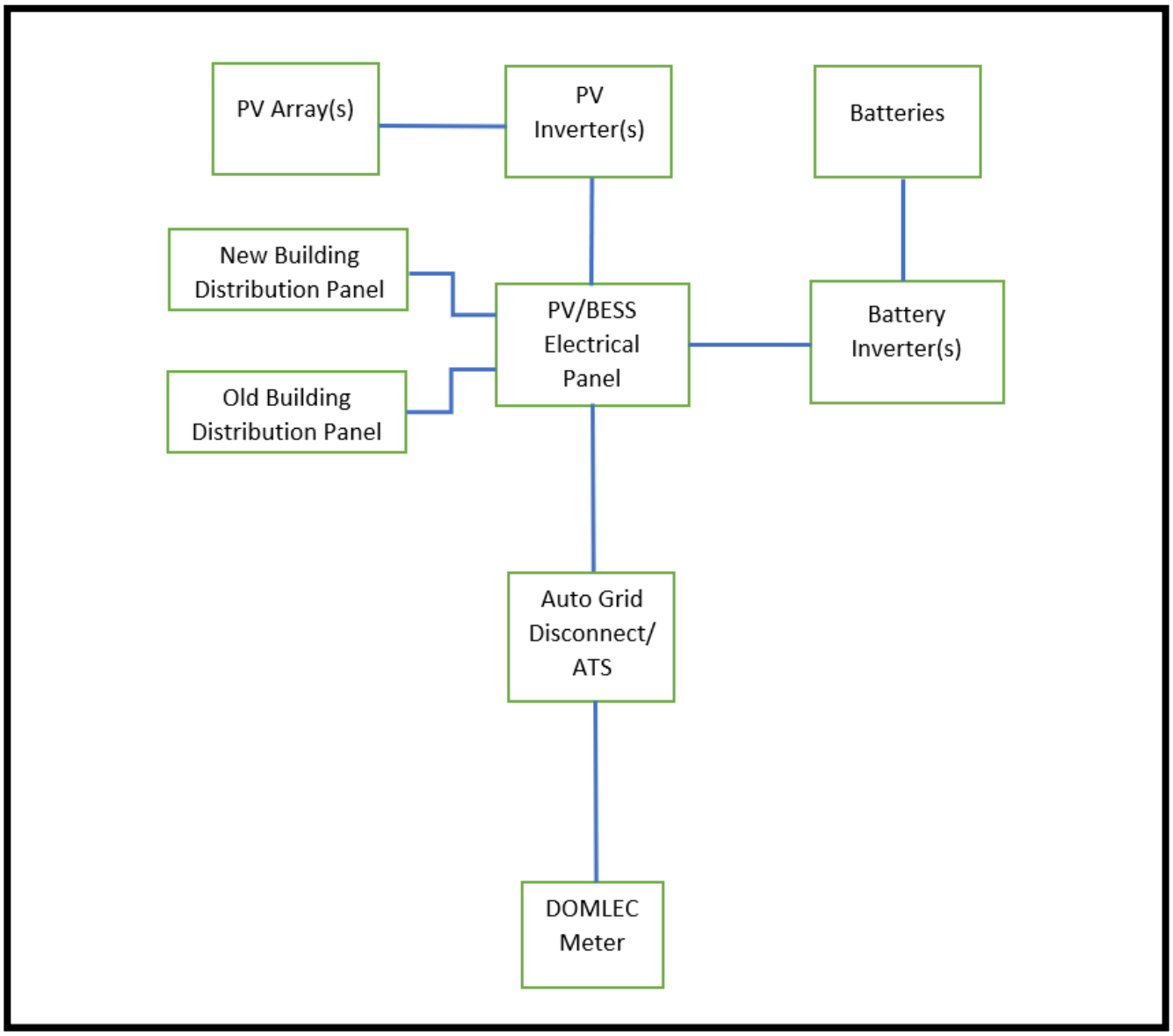

Figure 3-1. Block diagram of proposed Morne Prosper Primary School microgrid

3.2.2 | Paix Bouche Primary School Microgrid

The Paix Bouche Primary School microgrid shall consist of an 4.9 kWp/3.6 kW AC grid-tied solar PV system and a 5 kW / 27 kWh (minimum) BESS. The installation would reduce the school's electricity consumption from the grid while providing a source of backup power to the facility during a grid power outage.

The operating philosophy for the solar PV and BESS when connected to the grid is that during the day the solar PV system will prioritize supply of energy to the school loads with any excess energy going to the charging of batteries first and export to the grid second. At night the BESS should be used to supply the school loads until the batteries reach a minimum state of charge (SOC) of 20%. Thereafter, the loads should be supplied entirely from the grid. The grid should not be used to recharge the batteries.

During a grid outage the solar PV and BESS must disconnect from the grid and operate in stand-alone mode to supply the load of the school. Figure 3-2 shows a block diagram of the proposed microgrids for Paix Bouche

Primary School.

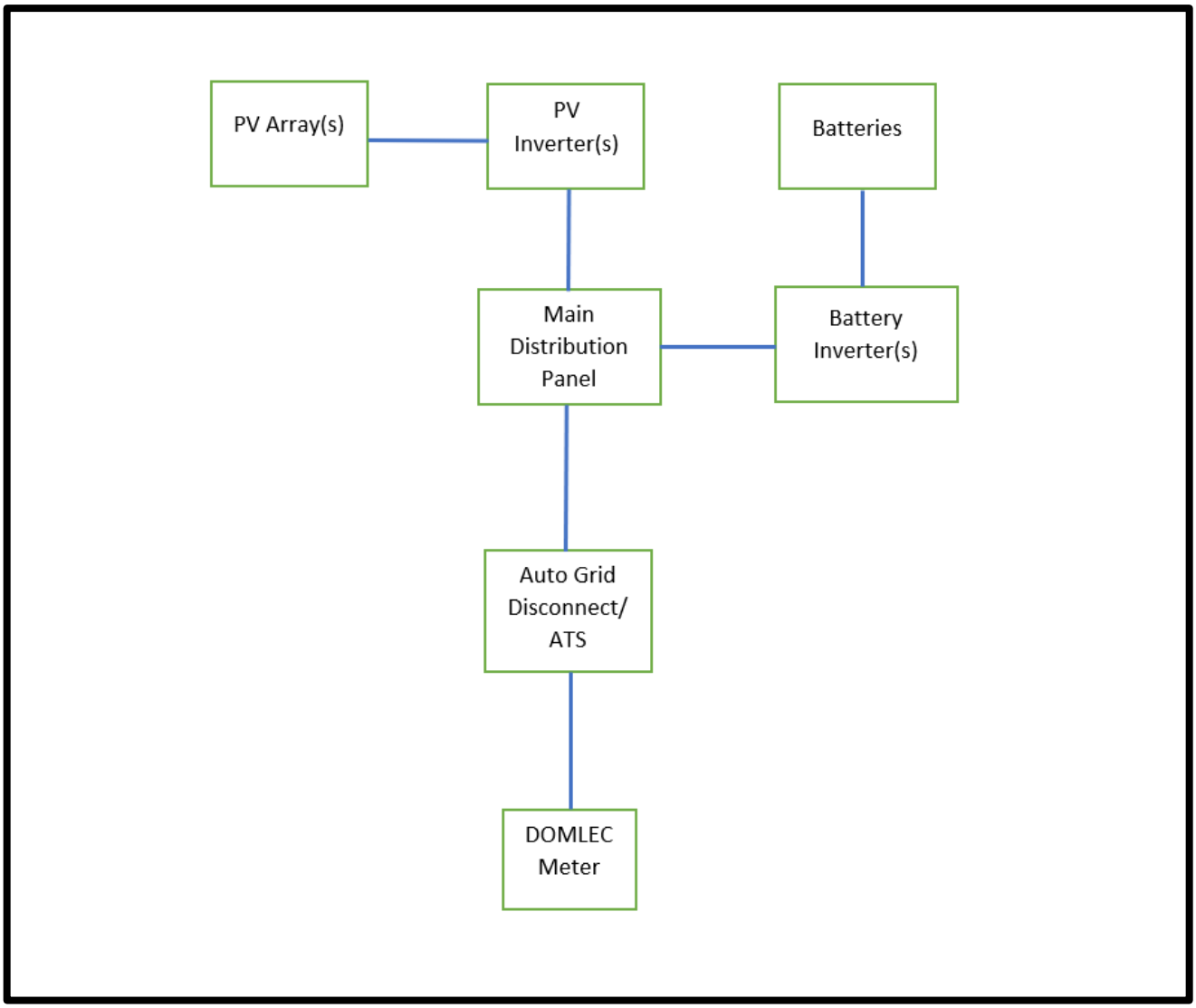

Figure 3-2. Block diagram of proposed microgrid for Paix Bouche Primary School

3.2.3 | | Solar PV system technical requirements for all schools

The solar PV system shall comprise of photovoltaic modules from Exhibit 6 – Solar PV Modules Tier 1 Manufacturer List. The Tier 1 manufacturer will be selected in accordance with the 'Bloomberg New Energy Finance PV Module Maker Tiering System' for Q1 2021. Modules, racking, wiring, inverters, connection to grid, meters, local and remote monitoring devices, waterproofing, and all equipment associated with the PV system shall be provided by the Bidder as part of the EPC scope. The complete PV system shall meet the following requirements:

- Designed and constructed to withstand without damage all applicable environmental conditions as defined by the local building codes appropriate for the project area, including but not limited to wind loads, corrosion, precipitation, flooding, and temperature and humidity extremes. UL-listed and IP-66/NEMA 4X labelled for wet location use, protected against powerful water jets.
- Solar PV arrays shall be installed on roof sections at the school with good solar access that do not contain skylights. Figures 3-3 and 3-4 show the proposed solar array layouts for each school.
- PV arrays shall be tilt-mounted at the Morne Prosper Primary School and flush-mounted at the Paix Bouche Primary School and optimized to produce the most kWh per year based on the locale's annual insolation, while maintaining resistance to hurricane-force winds often experienced in the region. Bidders shall provide output file(s) demonstrating estimated annual kWh production for the proposed PV system (included as a proposal deliverable – see Section 4.5).
- Any PV modules with differing tilts or solar azimuth shall be connected to separate inverter MPP trackers to ensure maximum output per kW of PV located at the site.
- Inverter(s) and/or optimizers designed to minimize impact of shading on annual energy production.
- Metering: EPCC shall install a metering system so that energy produced by the PV system can be determined on site.
- All structures shall be designed in accordance with the applicable local building code.
- The complete generating system, support structure, and ancillary structures shall be designed to with Category V hurricane wind speeds (minimum of 180mph wind speed) or greater requirements of the local building code.
- The structures shall resist both static and dynamic wind loading without damage due to resonance or fatigue. The structures shall be designed to withstand gravitational loads and combined loads as required by applicable codes. The structures shall consider expected thermal expansion and contraction and thermal cycling.
- The EPCC will be required to provide structural details in engineering drawings stamped by a licensed structural engineer as part of the design and permitting process. Structural details include but are not limited to the PV module mounting fasteners, support structures, roof structural members, material specifications, grades and finishes, inverter pads, DOMLEC and independent metering sections, monitoring and disconnect facilities, and array layout drawings.
- Conductor size is to be determined in accordance with the local electrical code (**BS 7671**) or approved equivalent, including conditions of use with particular consideration of temperature rise due to solar exposure, terminal ratings, and consideration of over-current protection and all possible current sources.
- PV modules shall be installed in conformance with the manufacturer's relevant published data sheet(s) and installation manual(s).
- The average of the power ratings of all modules shipped, based on the manufacturer's flash test data, shall be greater than or equal to the nominal rating of the module as specified in the published data sheet.
- Modules shall be tested and listed to Underwriters Laboratory (UL) or International Electro-technical Commission (IEC) standards for the application.
- Utility disconnect switch (if required) shall be located at or near the utility point-of-interconnection.

- PV Modules shall have a minimum 10-year manufacturer's warranty covering defects and workmanship.
- PV Modules shall have a minimum 25-year manufacturer's warranty covering product performance that incorporates a linear degradation guarantee with peak power rating at year 25 not less than 80% of the original peak power rating identified on the product nameplate.
- PV modules shall have a minimum efficiency of 19%. Preference will be given to modules with rated efficiency greater than 20%.
- PV Modules shall have wind pressure uplift rating of at least 4,000 Pa and shall be installed so as to achieve the stated wind load requirements.
- PV Module mounting structures shall be aluminum and fasteners shall be aluminum or stainless steel.
- Where nuts and bolts are used as means of fastening PV Modules to mounting structure the nuts shall be vibration resistant.
- The PV Module mounting structures shall have a minimum 5-year manufacturer's warranty covering defects and workmanship.
- Inverters shall meet the requirements of DOMLEC.
- Inverters shall have an efficiency of at least 97%.
- Inverters shall have a minimum 10-year manufacturer's warranty covering defects and workmanship.
- The entirety of the PV system shall be performance tested and commissioned prior to handover to GoCD.
- The design and installation shall meet the requirements of DOMLEC and the electrical inspectorate.
- Real-time PV system data shall be provided, accessible through both the remote and local Human Machine Interface (HMI).

The EPCC shall work with the Government and the local utility company, DOMLEC, to ensure no interconnection issues occur. RMI shall be given the opportunity to review and approve construction plans/documents prior to construction and inspect the entire installation prior to final sign-off.

This proposed installation will be evaluated based on the following evaluation criteria (see Section 5):

- Capital cost
- Quality of products specified
- System design
- Compliance with technical specifications

Figure 3-3. Proposed layout for Morne Prosper Primary School rooftop PV system

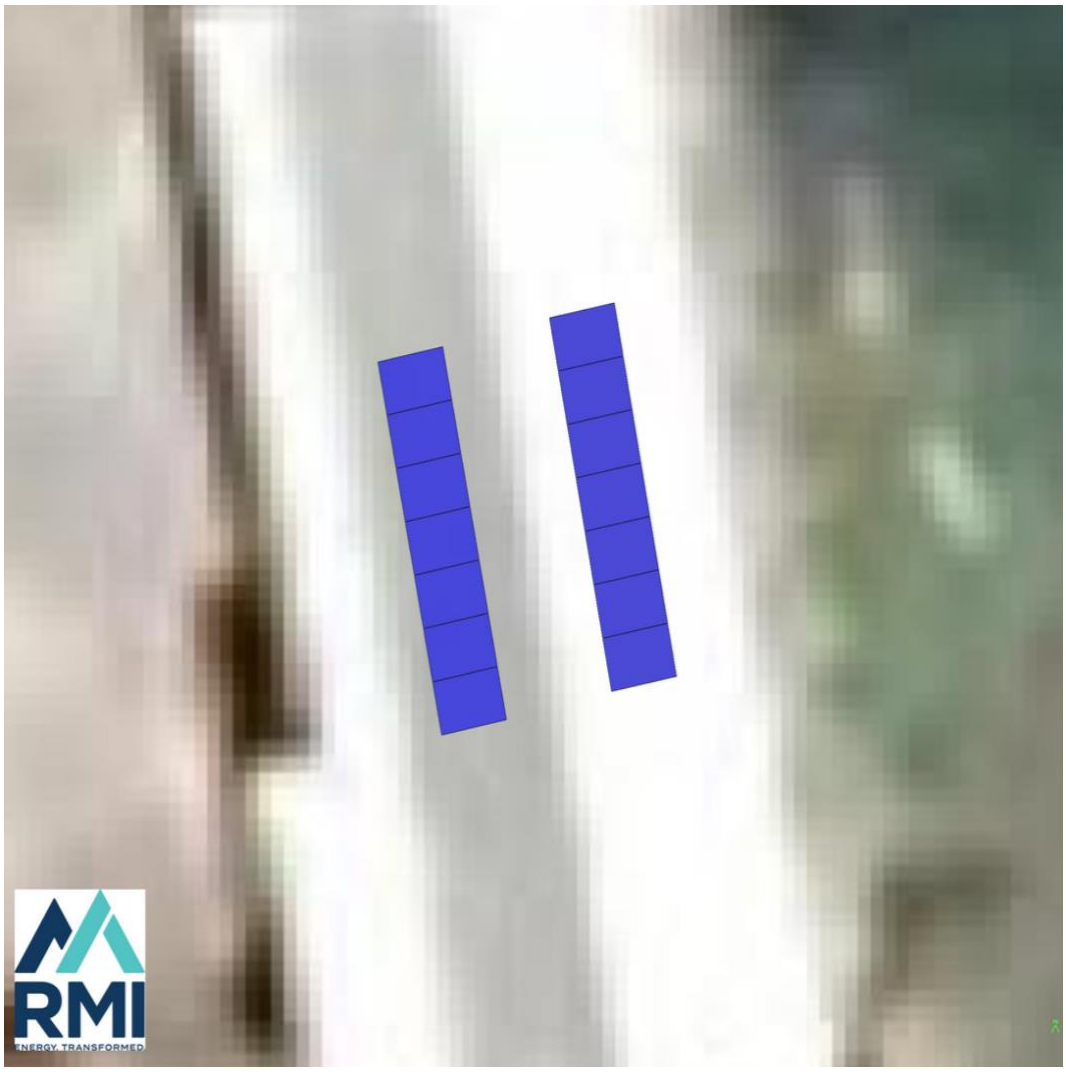

Figure 3-4. Proposed layout for Paix Bouche Primary School rooftop PV system (Main Building)

3.2.4 | | BESS technical requirements for all schools

The BESS shall be comprised of Lithium-Ion batteries from a reputable manufacturer. All BESS equipment shall be capable of normal operation without the need for air conditioning. Active heat extraction would be permitted but load requirements must be factored into solar PV and BESS design. Batteries, racks, wiring, inverters, connection to grid, meters, local and remote monitoring devices, and all equipment associated with the BESS shall be provided by the Bidder as part of the EPC scope. The complete BESS shall meet the following requirements:

- The BESS shall be designed and constructed in a manner to minimize DC-DC and DC-AC conversion losses.
- Battery installation shall conform to the manufacturer's published data sheet(s) and installation manuals.
- Battery string configuration and charging/discharging requirements must be compatible with the proposed inverter.
- All conductors for the BESS, both DC and AC, shall be copper.

- Conductors shall be appropriately sized to minimize voltage drop to <2% for the voltage and current of the expected load, and in accordance with the requirements of the BS 7671. Connectors shall be mechanically crimped and soldered to provide a low resistance connection, reducing the heat build-up at the connecting junction.
- Battery inverters shall be commercial grade, bi-directional, pure sine wave, grid forming/grid interactive inverters for islanded applications, and specifically designed for battery storage installations.
- Preference shall be given to inverters which require minimum levels of annual maintenance.
- Inverter voltage, current, and frequency capability are to be selected in accordance with the battery technology and chemistry, and conditions local to the installation site.
- Inverters shall be capable of providing reactive (VAR) power when necessary.
- All batteries shall be of the same brand and model, with the same capacity and voltage.
- If batteries are installed in an enclosure or building, Selected Bidder shall ensure that there is lighting sufficient to provide maintenance personnel levels of light necessary to perform routine maintenance tasks.
- When racks are used for the support of batteries, they should be made of materials nonconductive to spark generation or be coated or covered to achieve this objective.
- Racks and trays shall be designed and constructed in such a way as to allow for easy removal and replacement of individual battery modules.
- Real-time BESS data shall be provided, accessible through both the remote and local HMI.
- Minimum battery warranty shall be 2 years, with preference given to batteries having warranties of 5 or more years. The warranty shall state the Cycle Lifetime and the Expected Lifetime (years).
- Minimum inverter warranty shall be 10 years.

This proposed installation will be evaluated based on the following evaluation criteria (see Section 5):

- Capital cost
- Quality of products specified
- System design
- Compliance with technical specifications

3.3 Structural requirements

The EPCC shall seek guidance from the roof structure assessment report completed for both schools and included in Exhibits 4 & 5. Prior structural assessments of the roofs at Morne Prosper Primary School and Paix Bouche Primary School assessed the areas on which solar arrays would be mounted at each school to determine if the roofs can adequately support the solar arrays under normal and high wind conditions.

The structural assessments include:

i A thorough inspection of all roofs to be utilized for solar array installation at the schools.
ii Calculation of array loads with wind speeds of up to 180mph and determining if any roof reinforcement and/or repair is necessary to ensure adequate support of the arrays.
iii Provision of detailed descriptions of the work required and estimated costs where roof reinforcement and/or repair is needed.

Please reference Exhibit 4 & 5 for full details of the roof structure assessment completed for the schools.

3.4 Mechanical requirements

All components, structures, hardware, conduits, wire management, enclosures, shade structures and the like shall be protected from corrosion due to known or expected atmospheric conditions local to the project area. Consideration shall be given to humidity, salinity, acidity, condensation, air particulates, or other conditions likely to cause or accelerate corrosion of materials.

Contact of dissimilar metals and finishes shall be avoided or intentionally managed to prevent premature galvanic corrosion.

Aluminium shall not be in direct contact with concrete or copper.

Areas of exposed ferrous metals (i.e., cuts, field welds, butt ends, and similar) shall be aggressively treated with multiple applications of an appropriate corrosion protection coating.

Mechanical wire and cable management shall be provided to prevent all opportunities for strain, abrasion, disconnection, accidental grounding, and similar avoidable hazards. Mechanical wire management components shall be rated for long-term sunlight exposure.

3.5 Disconnects

Disconnects shall be listed to the appropriate UL standard for the application.

Disconnects shall be provided at locations required by the BS 7671.

3.6 Design and applicable codes

The EPCC shall be fully responsible for the sufficiency of the work. The EPCC shall be responsible for the complete design as well as code compliance.

At a minimum, fifty percent (50%) and issue-for-construction (IFC), and as-built design documents shall be prepared by the EPCC and submitted to RMI for approval.

- 50% design documents shall be provided as a single comprehensive submittal. To the extent possible, all PDFs shall be combined into a single file. These documents shall include (at minimum):
    - Design basis

- Electrical package
- Mechanical package
- Structural package
-

- IFC design documents shall be intended to provide all required information for subcontractors to construct the Project. IFC design documents shall be provided as a single comprehensive submittal. IFC design documents shall include, at minimum, complete and fully detailed submittals (all applicable drawings and calculations) for the following:
  - An updated version of the 50% design documents with revisions and additional detail where applicable;
  - Equipment ratings for all power systems equipment, bus work, enclosures, protective devices, etc.; and
  - All detailed information required to obtain all necessary construction permits from the authority having jurisdiction (AHJ).

- As-built design documents shall be intended to reflect design changes after the release of the IFC design documents and to document the design of the as-constructed facility.

All designs shall be in accordance with all applicable laws, standards, permits, and industry best practices. Any departure from the referenced codes shall be fully described and submitted for RMI's review.

The designs shall meet or exceed the minimum requirements of the applicable sections of the most recent following codes and standards (or approved equal) in effect at the time of the agreement:

- American National Standards Institute (ANSI)
- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME) Performance Test Guidelines
- American Society for Testing and Materials (ASTM)
- DOMLEC Interconnection Guidelines
- IET Wiring Regulations (BS 7671)
- Institute of Electrical and Electronic Engineers (IEEE)
- Insulated Cable Engineers Association (ICEA)
- International Building Code (IBC)
- International Electro-technical Commission (IEC)
- National Board of Fire Underwriters (NBFU)
- National Institute of Standards and Technology (NIST)
- National Electrical Manufacturers Association (NEMA)
- National Fire Protection Association (NFPA)
- InterNational Electrical Testing Association (NETA)
- Research Council for Structural Connections (RCSC)
- Underwriters' Laboratories (UL)
- Uniform Building Code (UBC)

3.7 Warranties and guarantees

Upon award notification and prior to execution of the final Design-Build contract between the EPCC and RMI, the Selected Bidder shall prepare and submit to RMI for review/approval a comprehensive Warranties and Guarantees document (WGD). The approved WGD shall be included as an exhibit to the Design - Build contract. At a minimum, the WGD shall include warranties and guarantees for materials, workmanship, and long-term

performance of all major components of the systems, including, but not limited to:

- Solar panels (25 years minimum)
- Inverters (10 years minimum)
- Mounts and hardware (5 years minimum)
- Batteries (2 years minimum)
- Automatic grid disconnect/automatic transfer equipment (10 years minimum)
- Remote monitoring & control equipment (2 years minimum)

Additionally, a one-year defects liability period shall be in effect commencing from the date of Project substantial completion during which time the EPCC shall be responsible for all preventative and corrective maintenance on the PV system and BESS at no cost to the Owner.

3.8 Technical support and training

Upon completion of the PV system and BESS at each site the EPCC shall prepare and submit to RMI for review/approval a comprehensive Operations and Maintenance Plan (OMP). At a minimum, the OMP shall include the following:

- Number of staff typically required to perform O&M activities and schedule of activities.
- Quantities and description of spare parts required and whether the parts are included in the cost proposal.
- Quantities and descriptions of special tools required and whether the tools are included in the cost proposal.

4 PROPOSAL DELIVERABLES

This section outlines the requirements for the Proposal submission. Bidders are requested to use a folder structure aligned with the following subsections and sort the bid reference documentation accordingly. The reference section number (e.g. 4.1) must be used to identify the relevant section.

4.1 Binding offer

Bidders shall include a cover letter signed by a duly authorized representative of their respective company. The letter shall clearly identify the company and its contact person for future communications regarding their proposal.

4.2 Confidential information

During the term of this RFP, Bidder may receive or have access to data and information that is confidential and proprietary to the Government of the Commonwealth of Dominica or RMI (the Parties). All such data and information (Confidential Information) made available to, disclosed to, or otherwise made known to Bidder about this RFP shall be considered the sole property of the Parties. Confidential Information may be used by Bidder only for the purposes of performing the obligations of the Bidder hereunder. Bidder shall not disclose Confidential Information to any third party without the prior written consent of the Parties. Bidder shall not use or duplicate any proprietary information belonging to or supplied by the Parties except as authorized by the Parties. These obligations of confidentiality and non-disclosure shall remain in effect for a period of five years following the expiration or earlier termination of this RFP. The Bidder agrees that this RFP and any response and discussion related thereto shall be considered Confidential Information.

4.3 Technical information

Bidders shall provide the following technical information with their proposal (at a minimum):

- Specification sheets for all proposed components including, but not limited to:
  - Solar PV panels
  - Inverters
  - Racking
  - Batteries
  - Automatic grid disconnect/automatic transfer equipment
  - Remote monitoring & control equipment
- UL or equivalent listing from the manufacturer for all proposed components (if not included in the specification sheets).
- System/component warranty and guarantee information.

4.4 Project summary execution plan

Bidder shall provide a Project Summary Execution Plan for the full scope of services to be provided, including but not limited to the following:

- Project Organizational chart with roles and responsibilities, including major subcontractors. This chart shall show lines of authority and responsibility. Number of personnel to be utilized on the job shall be indicated in appropriate organizational elements. If significant changes in the organization are expected to occur during the life of the Project or phases of construction, these shall be described.
- Key personnel with resumes (design/engineering, project management, procurement, site supervision, etc.) as per Organization Chart
- Major subcontractors with qualifications/experience information, as per Organization Chart
- Construction workforce, number of crew, vehicles, and equipment.
- Basic construction sequence description.
- Overall Project schedule with key design, EPC, and commissioning milestones.
- Typical start-up plans.
- Conceptual site layout. The conceptual site layout should include consideration for all Project requirements.
- Conceptual single-line diagram for proposed solar power and BESS systems.
- Estimated energy production for proposed solar power systems (i.e. output file(s) demonstrating estimated annual kWh).
- Specification sheets for major equipment.
- Equipment warranties.
- Security plan.
- Safety plan.
- Environmental compliance plan.
- Quality control and assurance plan.
- Communication Plan
- Project management plan.

4.5 Schedule of pricing

Itemized Schedule of Pricing forms shall be submitted as part of the proposal, consistent with the format provided in Appendix C Proposal Form and Pricing Schedule. The approved/executed Schedule of Pricing forms shall also be included as an exhibit to the Design – Build Contract.

Bidder shall complete and provide Appendix E Draft Payment Schedules to accompany the payment schedule forms. This will be included as an exhibit to the Design – Build Contract.

Bidder shall propose liquidated damages applicable to delayed schedule milestones for each bid variant. Agreed-upon liquidated damages provisions will be included in the final EPC Agreement.

The Ministry of Education, Human Resource, Planning, Vocational Training and National Excellence (MoE) has granted approval for imported project materials to receive a waiver of import duties. The materials need to be imported in the name of MoE to benefit from the waiver, and bidders are advised to consider this concession in their pricing.

Additional options being offered by the Bidder should be included where relevant, clearly identified as such. Pricing assumptions, exclusions, or limitations should be clearly identified where relevant. All prices shall be valid for a period of 120 days or greater as detailed in the binding offer letter.

4.6 Form of contract – EPC Agreement

An EPC Agreement is provided as Appendix G consisting of Appendix G Draft Agreement/Contract.

Bidder shall provide a red-line to the EPC Agreement and to any EPC exhibits which the Bidder wishes to modify. Bidder is encouraged to provide a brief term sheet summarizing any changes made to the EPC Agreement and/or exhibits.

The Evaluation Committee will nominate a "Preferred Bidder" who will be notified as such.
Notification to all unsuccessful bidders will take place after contract award and signing (contract execution).

Bids shall be priced to include, and will be expected to comply with, the requirements in all the Project contracts, agreements, and documentation included herein and attached hereto. This includes but is not limited to: permits, product manuals, and any un-modified terms to the agreement and associated exhibits, and the Q&A log.

4.7 Conflicts of interest

The Bidder shall disclose any known or potential conflicts of interest.

4.8 Key project risks

The Bidder shall identify key risks that may impact the project and propose measures to mitigate said risks.

4.9 Proposal checklist

The Bidder shall provide a completed checklist of the proposal deliverables. The checklist is provided in Appendix D Proposal Checklist.

4.10 Financial Standing

NB: Any company whose financial information are provided would have to be a party to the EPC contract with RMI
The Bidder shall provide a copy of:

1. A Banker's Statement and Bank reference
2. An Accountant's Statement and reference, inclusive of:
    a. Overall Business Annual Turnover for the last 3 years

4.11 EPC Solar PV plus BESS Microgrid Project Experience and References

Bidders must demonstrate their solar PV + BESS Experience by completing and submitting as part of the proposal, four (4) completed & commissioned projects consistent with the format provided in Appendix H EPC Solar PV + BESS Microgrid Project Experience.

Bidder shall provide references from two of the four reference solar PV+BESS project clients.

5 EVALUATION CRITERIA AND SELECTION PROCESS

5.1 Proposal selection process

All proposals will be reviewed to determine whether they are responsive or non-responsive to the requirements of this RFP. Proposals that are determined to be non-responsive will be rejected. The remaining proposals will be evaluated and rated based on the evaluation criteria prescribed below. RMI reserves the right to conduct Bid Clarification Meeting(s) as appropriate. Bidders may be requested to clarify the contents of their Proposal. Other than as provided, no Bidder will be allowed to alter its Proposal or add new information after the Proposal due date.

5.2 Bid Clarification Meeting(s)

In the process of evaluating the responses, Bid Clarification Meeting(s) may be required by teleconference. Scheduling of any such Bid Clarification Meeting(s) will be performed at the discretion of RMI. A minimum notice of three (3) business days will be given.

5.3 Notice of award

The conclusion of the bid evaluation process will result in the notification of the "Preferred Bidder". Upon successful conclusion of the subsequent negotiations a notification of award to the Preferred Bidder will be made. All unsuccessful bidders will be notified of the outcome after contract signing.

5.4 Evaluation criteria

5.4.1 Administrative Compliance [Pass/Fail]

All proposals will be reviewed to determine whether they are responsive or non-responsive to the requirements of this RFP, i.e. administrative compliance. The following factors will be considered when evaluating the administrative compliance of proposals:

1. Has the RFP Bid been delivered as per the Submission of Proposal Instructions? **Yes/No**
2. Has the RFP Bid been delivered by the submission deadline? **Yes/No**
3. Does the RFP Bid meet the threshold of 80% submission of ALL Deliverables as per Appendix D – Proposal Checklist? **Yes/No**

A responsive bid is one that scores "Yes" for all three (3) factors above.

5.4.2 Technical Evaluation Criteria [55-points]

The technical evaluation of the Proposals will assess and document the Bidder's technical response to the RFP. The following factors will be considered when evaluating the technical aspects of the proposals:

1. ***Technical Evaluation: 30-points***
    - Understanding and compliance with requirements:
        - The proposal should address each work area in sufficient detail to demonstrate a clear understanding of the Scope of Services.
        - The solutions and equipment proposed should be compliant with the technical specifications provided.
        - The equipment proposed should be of good quality from reputable manufacturers
        - The proposal should provide evidence of sufficient planning to show that work will be accomplished as required and on schedule.
    - The proposal must clearly indicate that the Bidder has performed adequate planning to accomplish the tasks as defined in the Scope of Services:
        - Does the approach appear to be thorough and organized?
        - Do they demonstrate the ability and proven expertise in the execution of such projects?
        - Do they demonstrate a solid grasp of the proposed project, body of work and issues likely to be raised?

2. ***Organization and Personnel Experience and Expertise: 20-points***
    - Have they demonstrated an ability to mobilize and organize a project team?
    - Do their key personnel support their ability to perform the work?
    - Do the resumes of key personnel support their stated expertise?
    - EPC Solar PV + BESS Microgrid Experience
    - Who is their proposed Project Manager, Project Engineer, Site Supervisor? Has he/she worked on similar projects for each professional disciple?

3. ***Past Performance: 5-points***
    - Did the contractor provide references from past clients?
    - Has the contractor demonstrated they have the flexibility to adapt to changing schedules while controlling costs and balancing workloads?

5.4.3 Proposal Completeness and Structure Criteria [10-points]

The following factors will be considered when evaluating the completeness and structure aspects of the proposals:

- The inclusion of all information required in order to undertake a thorough and complete assessment of the proposal.
- The layout of the proposal including section identification and order of the information presented allows for ease of finding the requisite information.

5.4.4 Financial Evaluation Criteria [35-points]

The following method will be used when evaluating the financial aspects of the proposals:

- The percentage for this criterion will be calculated proportionately in comparison the RMI internal price estimate, based on past bids received for similar projects locally and in the region.
- All bidders financials within +/- 5% of the RMI internal Cost/Price estimate would score maximum 35-points.
- Other bids outside +/- 5% of RMI internal Cost/Price estimate would receive points based on 35 minus 1 point for every 2 percent difference from the RMI internal Cost/Price Estimate +/- 5%.
- Any bids whose price is more than 70 percent higher than the RMI internal Price Estimate would receive no points.

5.4.5 Most Economically Advantageous Bid/Proposal Score

The following method will be used when evaluating the Most Economically Advantageous Bid to be nominated as the Preferred Bidder:

- The bidder that is Administrative Compliance RESPONSIVE.
- The bidder that scores the highest number of points after summing the Technical, Employment Practices, Proposal Completeness and Financial scores

Note: Bidders must achieve a minimum Most Economically Advantageous score of 65% overall to be considered for award of contract