

CARIBBEAN DEVELOPMENT BANK
CDB SOLAR-PV AND BATTERY ENERGY STORAGE SYSTEM
CONSULTANCY AND ADVISORY ROSTER (S-BESSCAR)

TERMS OF REFERENCE AND APPLICATION FORM- S-BESSCAR

1. BACKGROUND

1.01 The Borrowing Member Countries¹ (BMCs) of the Caribbean Development Bank (CDB) have vast renewable energy (RE) potential in the form of solar, wind, geothermal, hydropower, bioenergy², and marine resources, which could deliver electricity at unit prices below fossil fuel options, and with very attractive returns for RE/energy efficiency (EE) investments³. For more than 15 years, however, these countries have been seeking to significantly increase the contributions of RE to their energy matrices, towards transitioning their energy sectors away from the status quo of overreliance on fossil fuels. While there has been some progress, in general, it is observed that the pace and scale of the adoption of RE is much too slow for these countries to meet their 2030 targets.

1.02 Starting from a base of 8% in 2012, CARICOM regional targets for RE capacity for electricity were established by Energy Ministers (through the COTED) in 2013⁴, as 20% by 2017, 28% by 2022, and 47% by 2027 (or extrapolated to 55% by 2030)⁵. At the end of 2020, the RE penetration was approximately 12% (or ~700 MW), well below the 2017 target; the 2022 target has been missed by a large margin; and based on the current trajectory, the 2027 target will likely be missed by a large margin also. *To achieve the targeted RE capacity in 2030, the penetration level (% and capacity) must increase four-and-a-half fold, and the rate of RE capacity installation per year must increase about fourteen-fold, requiring more than US\$1,250,000,000 per year over the next 8 years.*⁶

1.03 This level of investment, necessary for this gap to be filled, can be described as **massive** relative to current levels. Further, to meet the target, the investment must be made in a very short time, requiring that such investments be delivered at an **express pace**, multiple times the current pace of investment. It is therefore clear that the targets cannot be achieved by the current (or the business-as-usual) approach and will require **bold and assertive actions, reflecting urgency in the scaling up of private investment**. Further, given known weaknesses and vulnerabilities, this must be conducted in a manner that also promotes improvement in **resilience**.

1.04 Against this background, the *Accelerated Sustainable Energy and Resilience Transition 2030 (ASERT-2030) Framework*⁷ has been conceived as a key strategy of the Bank's Energy Sector Policy and

¹BMCs are essentially CARICOM Member States and Associate Member States (Except for Bermuda which is not a BMC but an Associate Member of CARICOM).

² Mainly confined to mainland BMCs.

³ Against the backdrop of the prevailing high electricity prices and declining prices of RE technologies.

⁴ As part of the Caribbean Sustainable Roadmap and Strategy (CSERMS) framework within the CARICOM Energy Policy.

⁵ CARICOM Secretariat: www.caricom.org.

⁶ Based on preliminary estimate by CDB.

⁷ The **ASERT-2030 Framework** is a CDB-led approach for encouraging BMCs (with the support of Partners) to implement transformative RE/EE/EI initiatives towards radically increasing the scale and pace of the energy and resilience transition in BMCs. As part of the ASERT-2030 Framework, the Bank seeks to identify (through structured consultations referred to as **ASERT Dialogues**) key barriers to rapid investments in RE and EE, and to develop/adopt relevant transformative initiatives (referred to as **ASERTives**), which can be implemented through strategic partnerships (referred to as **Strategic ASERTive Partnerships**) with BMCs, and regional and international Partners. ASERT-2030 emphasizes: (i) stretch-scenarios and ambitions for the radically increased scale and pace of RE investments, through the dismantling of identified barriers,

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Strategy (ESPS-2022) approved in 2022, for encouraging and supporting Borrowing Member Countries to significantly increase the speed and scale of sustainable energy (SE) investments to meet their 2030 Climate targets and energy-related sustainable development goals. It aims to facilitate the Bank’s leadership role in promoting bold decision-making in relation to pursuing **transformative initiatives (ASERTives)** for scaled RE investments projects. In this regard, the Bank is embracing the challenge to play an increased leadership and coordination role in the sector, leveraging its unique position of having the widest set of borrowing members in the Caribbean, and also being the only multilateral development bank with a focus entirely on the Caribbean (all CARICOM Members and most Associate Members).

1.05 Solar energy is the most common and ubiquitous RE resource present in all BMCs. Therefore, all BMCs have prioritized the solar energy projects. It has also been established (based on experience over the last 10 years) that it is necessary that battery energy storage systems (BESS) be installed in conjunction with solar PV systems to optimize performance of these systems and minimize negative impacts on the grid. To achieve the desired level of scaling-up of RE across BMCs until 2030, solar-PV and BESS is projected to make a major contribution going forward. Further, these systems have a relative short lead time for installation and therefore can be deployed fairly quickly to meet energy gaps and to yield early energy savings to meet targets. CDB therefore intend to promote (in collaboration with partners), some ‘early-harvest’ ASERTives (programmes/interventions) which focus on solar-PV and BESS; as a means of significantly ramping-up RE contributions to the energy matrices of BMCs.

1.06 In order for this to be realized, CDB and BMCs need to have access to requisite expertise which are on-call to make the relevant contribution to develop and implement the projects in timely manner. In some cases, the opportunities require that BMCs are provided with immediate support, and CDB may also need to have qualified and experienced professionals ready at hand to support project appraisals. To this end, **CDB is seeking to establish a Solar-PV and BESS Consultancy and Advisory Roster (S-BESSCAR)** of professionals and specialists to support the thrust for scaled-up and expedited deployment of solar-PV and BESS systems across BMCs. Where relevant, CDB will draw on the S-BESSCAR for candidates for technical assistance being pursued directly by CDB or CDB-sponsored programmes as a part of the Bank’s solar-PV and BESS ASERTive.

2. INVITATION

2.01 The Caribbean Development Bank (CDB) wishes to invite interested and eligible individuals being solar-PV and battery energy storage project professionals and specialists working as independent practitioners or employees to submit an Expressions of Interest (EOI) to be included in CDB’s solar-PV and battery energy storage consultancy and advisory roster (S-BESSCAR) under a framework agreement to provide services for future potential assignments.

while mobilising the appropriate resources to facilitate the investments; and (ii) complementarity, building on existing and ongoing initiatives/efforts at national and regional levels.

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3. GOALS AND OBJECTIVES

3.01 The establishment of S-BESSCAR will allow CDB to provide a fast-response support to assist governments and utilities to develop, plan and design solar-PV and BESS projects to expand the contribution of RE to the national energy supply mix. This will be achieved through the provision of consultancy support, including the preparation of analysis and assessment of individual projects.

3.02 Experts who will be included in the S-BESSCAR may be contracted for specific assignments in the context of CDB and partners' interventions, as well as for engagements by BMCs, and utilities based on the experts' special skills and preferences. The Specific Terms of Reference (TORs) for each individual assignment will be prepared to detail the scope of works. These assignments may include one or a combination of the task or sub-task⁸ areas below, but are not limited to only these key tasks or sub-tasks:

Key Tasks

3.03 The key tasks are categorized under utility-scale tasks and distributed energy resources tasks, and include but not limited to the following:

Utility Scale Solar-PV and BESS

1. Provide project management services to BMC (among the key stakeholders), including to develop project charter, workplan and schedule; and identify key stakeholders and coordinate relevant meetings while facilitating documentation and communication
2. Develop objective and scope of proposed solar-PV and BESS system and initial sizing of the potential solar and storage assets, taking into consideration the IRRP;
3. Gather relevant data and conduct technical and economic analyses on the electricity system in the country to establish benefit and cost trajectories, and relevant risks for integrating solar-PV and energy storage options;
4. Support process for selection of potential sites including providing due consideration for natural disaster and climate risks;
5. Conduct pre-feasibility study: including relevant technical, economic, and financial analyses
6. Develop high-level information on technical issues of integration, upgrades required, and potential operational challenges for the electricity system;

⁸ The scope of an assignment could range from a single sub-task, to multiple sub-tasks, to series of tasks.

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7. Conduct various elements of the preliminary design:
 - a. assessment of the solar-PV, battery energy and capacity needed for the dispatch;
 - b. refine sizing of the potential solar and storage assets through the use of appropriate analytical tools;
8. Develop Request for Proposals and Support Evaluation Process
 - a. Prepare complete components of engineering, procurement and construction solicitation documents: such as draft TORs, Requests for Qualifications (RFQ), and Requests for Proposals (RFPs),
 - b. Evaluate proposals submitted through the RFP process and complete evaluation report;
9. Support BMC government, utilities or regulators in contract negotiations;
10. Provide supervision and monitoring of performance of projects;
11. Provide various capacity strengthening and technical advisory roles to BMCs, utilities and CDB;
12. Support CDB's investment project appraisal process, including conducting risk assessment of projects;
13. Provide various services and functions within the scope of the Consultant's expertise to support utility scale solar-PV and BESS project analysis, design, selection, management, implementation supervision, etc.

Distributed Energy Resources Systems (DERS)

14. Provide end-to-end project management services for preparation/development, installation, monitoring of DERS projects;
15. Conduct energy audit of government/institutional buildings and facilities:
 - a. Develop plan/strategy and engage key stakeholders
 - b. Conduct Levels 1-3 energy audit (in line with relevant ISO Standards)
16. Gather relevant data and conduct technical and economic analyses and scope distributed generation PV systems with/without BESS for public sector facilities;
17. Conduct pre-feasibility study: including relevant technical, economic, and financial analyses;
18. Conduct various elements of the preliminary design including an assessment of the solar-PV, BESS and capacity needed for the dispatch; refine sizing of the potential solar-PV and storage assets through the use of appropriate analytical tools;
19. Develop Request for Proposals and Support Evaluation Process:

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- a. Prepare complete or components of engineering, procurement and construction solicitation documents: such as draft TORs, Requests for Qualifications (RFQ), and Requests for Proposals (RFPs),
 - b. Evaluate proposals submitted through the RFP process and complete evaluation report;
20. Support BMC government, utilities or regulators in contract negotiations;
21. Provide supervision and monitoring of performance of projects;
22. Provide various services and functions within the scope of the Consultant's expertise to support distributed scale solar-PV and BESS project analysis, design, selection, management, implementation supervision, etc;
23. Provide various capacity strengthening roles for institutional facilities as well as for groups of stakeholders .

4. KEY REQUIREMENTS

4.01 In the assessment of submissions, consideration will be given to the following qualifications and experience possessed by applicants for inclusion in the S-BESSCAR:

(a) ***Education and Training***

A bachelor's degree in electrical engineering or similar areas of study; and
Post graduate degree in engineering, business, economics, finance, or renewable energy or project management.

(b) ***Experience and Knowledge***

- (i) A minimum of five years of experience in the design, specification and/or installation of battery storage for grid-connected solar-PV system;
- (ii) Demonstrated knowledge of the key characteristics of implementing solar-PV installations, including grid-connected, off-grid, and hybrid installations with and without battery storage;
- (iii) Managed, supervised, designed, or installed at least 2 significant solar-PV projects;
- (iv) Experience in implementation of solar energy system design, specification and/or installation of battery storage for grid-connected solar-PV system; or installations (engineering, procurement, and commissioning, solar plant audits, project management);
- (v) Strong analytical skills and exceptional ability in communication and report writing;

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(vi) Regional (Caribbean) experience is considered an asset.

5. APPLICATION SUBMISSION STEPS:

7.01 To submit application, candidates should::

- (a) Complete the attached Application Form (Appendix 1) covering relevant information.
- (b) Submit the completed Application Form, together with an updated CV covering relevant information. The Application Form and the CV shall be submitted following the modalities prescribed in the Request for Expression of Interest.

7.02 CDB reserves the right to request (as deemed necessary) proofs of relevant academic achievements/trainings, as well as reference letters.

6. REMUNERATION

8.01 CDB shall conclude framework agreements, with agreed daily fee rates, with candidates deemed to have the necessary qualifications and experience and these consultants shall form part of the S-BESSCAR. CDB will compare and select consultants from the S-BESSCAR for specific assignments and “call down” services under their framework agreements. CDB reserves the right to consider the use of individual consultants outside of the S-BESSCAR, as necessary, and to share details of consultants on the S-BESSCAR with CDB client agencies who are seeking to contract individual solar-PV and BESS consultants in their own right under CDB financed projects.

7. NOTE:

- (a) Indicating a low level of experience for a particular area of specialization and experience in the form (Appendix 1) **does not** mean that experts will not qualify. A realistic ranking gives CDB the opportunity to establish an exact profile and engage experts according to their specialist area and level of experience.
- (b) Depending on the submitted information CDB may request further material or proof of information.

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APPENDIX 1: Application Form

1. Personal Information									
Name	First name	Nationality			Date of Birth				
Permanent Address									
Email		Phone							
2.. Education: Educational Institutions (Please add additional rows as necessary)									
Name, Place and Country		Dates Attended (Start to End)		Degrees / Diplomas Obtained		Main Course of Study			
3.. Education: Post-Qualification Training Courses / Learning Activities / Certifications									
Name, Place and Country		Dates Attended (Start to End)		Degrees / Diplomas Obtained		Main Course of Study			
4.. Education: Professional and Other Certifications (Please add additional rows as necessary)									
Specialization		Certification/Award		Institution		Year Awarded		Countries Eligible	
5.. Experience: Employment Record (Please add additional rows as necessary)									
Dates (Start to End)		Employer's Name and Address		Country		Position and Description of Duties (Max. 50 Words Per Record)			
6..Sector Experience						Level⁹			
Main Areas (Applicants may select a single one or any number of areas deemed relevant)						Low¹⁰	Medium	High	
1. Prefeasibility/feasibility studies for solar-PV and BESS									
2. Solar-PV and BESS project analysis (business case development)									

⁹ Each applicant is required to indicate the degree/level of experience he/she has in the relevant main areas of expertise. This indication is based on the applicant's own judgement about his/her experience in the particular areas selected. CDB reserves the right to request further information from the applicant if deemed necessary, to support/validate the assessment of his/her level of experience for the particular area.

¹⁰ Selecting a low score for a particular area of specialization and technology experience in the form (Appendix 1) **does not** mean that experts will not qualify. A realistic ranking gives CDB the opportunity to establish an exact profile and engage experts according to their specialist area and level of experience.

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3. Design of Solar-PV Systems (including scoping, and equipment specification/selection)			
4. Design of BESS Systems (including equipment specification/selection)			
5. Development of RFPs for Solar-PV and BESS			
6. Evaluation of Bids for solar-PV and BESS			
7. Site selection and assessment for solar PV and BESS			
8. Solar PV and BESS project management			
9. Supervision of installation, commissioning (including system inspection)			
10. Appraisal of solar-PV and BESS projects for funding agency			
11. Conducting building energy audits (levels 1, 2,3: ie deemed low, medium, or high respectively: <i>Indicate in appropriate box to the right</i>			
12. Other ¹¹ :			
13. Other:			

Summary: General Comments on Areas of Strength (Max. 600 words)

I certify that the information I have provided in the present document is true, complete and correct to the best of my knowledge.

DATE: _____ SIGNATURE: _____

Permission for CDB to share applicant's information:

I give permission to CDB to make available my information captured as part of the S-BESSCAR, to other international agencies, or to BMCs' projects/programmes, to be used as the basis for invitation for me to possibly provide services to them.

(Indicate YES or NO): _____

¹¹ Please list up to two other areas as deemed necessary; this is not necessarily a requirement; Only requested to allow candidates the option to communicate other areas of experience not listed above, but which they consider relevant to the objective.

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APPENDIX 2: CV