

**Grant 0902-MLD: Accelerating Sustainable System Development  
Using Renewable Energy Project**

**TERMS OF REFERENCE**

**Consulting Services for Marine Renewable Energy (MRE) Roadmap and Ocean  
Renewable Energy (ORE) Pilot Project in Maldives**

**A. Introduction**

1. The Government of Maldives has committed to improving energy security, reducing electricity costs, increasing the use of renewable energy, and promoting energy efficiency in its Strategic Action Plan 2019–2023. Also, in Maldives' updated nationally determined contribution (NDC), the Republic of Maldives has made ambitious plans to reduce 26% of greenhouse gas (GHG) emissions by 2030, and furthermore, it will strive to develop renewable energy systems capable of providing 33% of the nation's electrical needs by end of 2028, if it receives adequate international support and assistance. ADB has been supporting such efforts through the Preparing Outer Islands for Sustainable Energy Development Project (POISED) project since 2014.

**B. Background and Objective**

2. To further accelerate actions to achieve the ambitious commitments of the Government of Maldives, ADB has approved the Accelerating Sustainable System Development Using Renewable Energy Project (ASSURE Project). The Project aims to support selected outer islands of Maldives to attain high level of renewable penetration through the following outputs: (i) increasing private sector investments in renewable energy; (ii) de-risking solar independent power producer projects; (iii) increasing renewable energy penetration using new technologies, net metering, and hybrid systems; (iv) strengthening capacity of the relevant governments and utilities; and (v) promoting and pilot-testing productive use of disaster-resilient, innovative, and gender- and socially inclusive renewable energy-based farming technologies.

3. The Project is co-financed by the Japan Fund for the Joint Crediting Mechanism (JFJCM), an ADB's trust fund to provide grants and technical assistance to support the deployment of advanced low-carbon technologies in ADB projects and to support meeting the requirements of the Joint Crediting Mechanism (JCM). The JCM is a project-based bilateral market mechanism between Japan and developing countries, which is considered as a forerunner to cooperative approaches under Article 6 of the Paris Agreement. The Project has secured JFJCM grant funding to support the preparation of a marine renewable energy (MRE) roadmap and the procurement and implementation of an ocean renewable energy pilot.

4. The purposes of this assignment are to help the Project Management Unit of the Project to prepare the MRE roadmap and support the preparation and implementation (aspects of pre-development activities required) of the ocean renewable energy (ORE) pilot.

**C. Scope of Work**

5. The proposed consulting services will facilitate future investment in sustainable MRE development in Maldives by preparing an MRE roadmap and supporting the preparation and implementation (limited to pre-development activities) of an ORE pilot project to be financed by ADB.

6. To promote MRE in Maldives, the consultant will conduct the following activities:

- (i) Review previous and existing studies related to MRE in Maldives and other countries.

- (ii) Review MRE technologies available or under research, development and/or demonstration.
- (iii) Review policy and regulatory requirements needed for promoting MRE in Maldives.
- (iv) Identify policy and regulatory reforms, if necessary, to facilitate post-pilot, medium and large-scale investments in MRE and on mechanisms to accelerate financing for such investments.
- (v) Assess marine resource commercialization prospects (including energy, seafood, and tourism) and identify future investment projects with the potential area/site options.
- (vi) Deployment of sensors and equipment to measure ocean currents at a minimum of four potential locations in the Maldives for a period of at least one year. Process the obtained data and propose the potential of ocean currents in the Maldives.
- (vii) Deployment of sensors and equipment to measure ocean wave energy at a minimum of seven potential locations in the Maldives for a period of at least one year. Process the obtained data and propose the potential of wave energy in the Maldives.
- (viii) Conduct a relevant survey and measurements to assess the potential of OTEC in the Maldives, focusing on at least one potential site. Produce a report on OTEC based on the survey and measurements and propose a potential pilot project.
- (ix) Deployment of sensors and equipment to measure off-shore wind resource at a minimum of seven potential locations in the Maldives for a period of at least one year. Process the obtained data and propose the potential of off-shore wind potential in the Maldives.
- (x) The assessment should prioritise areas with high potential and close to Outer and Resorts islands where synergies in energy consumption can be exploited.
- (xi) Identification of priority projects of at least 10 MW aggregated capacity of different MRE technologies and in different locations for deployment in the next 5 years.
- (xii) Develop a draft long-term roadmap for promoting MRE in Maldives based on the findings of (i)-(xi) above.
- (xiii) Support the Ministry of Climate Change, Environment and Energy (MOCCEE) and FENAKA for the preparation and implementation (limited to pre-development activities) of the ORE pilot project, including conducting remaining surveys to design the pilot project requirements, preparing draft bidding documents, supporting bid evaluation, and supervising the survey, design, and construction work of the selected contractor for the pilot project.
- (xiv) Conduct capacity development activities for MOCCEE and FENAKA to increase their readiness for sustainably operating MRE technologies, including field trips for MOCCEE/FENAKA to an ORE project site(s) under operation.
- (xv) Lead consultations on MRE/ORE development in Maldives with relevant stakeholders.
- (xvi) Contribute to interim/final reports of the project and knowledge products.
- (xvii) Conduct any other tasks required for the purpose of this assignment.

#### **D. Deliverables and Reporting Requirements**

7. The deliverables according to the above scope of work, will be mutually agreed between the consultant, ADB, MOF and MOCCEE, Government of Maldives.

8. The proposed deliverable and their schedule of delivery are shown in **Table 1** below. The Consultant will submit the following reports described in the deliverables below to the MOCCEE, Government of Maldives and ADB (in English). In addition, soft copies of each report shall be provided in PDF format.

**Table 1: Project Deliverables**

| <b>Deliverable / Milestone</b>  | <b>Delivery Schedule</b>                                       |
|---|--|
| Technical Report that includes: <ol style="list-style-type: none"> <li>a. Summary of previous and existing MRE studies in the Maldives</li> <li>b. Overview of MRE technologies available or under research, development and/or demonstration</li> <li>c. Assessment of policy and regulatory framework in the Maldives for Marine Renewable Energy development and recommendations of reforms if required</li> <li>d. Assessment and recommendations for future investment opportunities in utilizing broader marine resources (not only renewable energy generation, but also possible associated opportunities such as water production with desalination, aquaculture, and marine transport) in Maldives</li> </ol> | Within 16 weeks from commencement of services                  |
| Draft roadmap for promoting MRE in Maldives   | Within 32 weeks from commencement of services                  |
| Assessment of the ORE pilot project during the preparation stage (to be elaborated further)   | Within 56 weeks from commencement of services                  |
| Draft bidding documents for the ORE pilot project   | Within 72 from commencement of services                        |
| Capacity development activities for MOCCEE and FENAKA to ensure sustainable ORE implementation in Maldives  | To delivered one (1) month prior to the completion of services |

## **E. Implementation Arrangements**

9. The above scope of work will require the services of a suitably qualified and reputed consulting firm with solid on-ground presence and demonstrated track record in conducting similar project activities for renewable energy sector projects particularly in the preparation of MRE roadmap as well as the procurement and implementation of an ocean renewable energy pilot project.

10. The selected Consultant which will carry out the above tasks should comprise a competent team of specialists in relevant fields required for the assignment.

11. The services of the Consultant will be rendered intermittently over a period of 24 months. The terms may be modified to reflect consultations between the parties involved in the Project or to incorporate additional requirements identified during implementation. It is expected that the terms will be finalized during contract negotiations with the first-ranked firm.

12. A minimum of 22 person-months of international and national consulting time-inputs is required. The consultants will work in coordination with the ADB project team and the MOCCEE.

## **F. Procurement Methodology**

13. The Consultant will be selected in accordance with ADB Procurement Policy (2017, as amended from time to time) and its associated Staff Instructions (SI) through Quality- and Cost-Based Selection (QCBS) method where the approach and methodology, skills, experience, and

personnel aspects of the proposal will be assigned a weighing of **80%**, while cost is assigned a weighing of **20%**, using a **Simplified Technical Proposal (STP)**.

14. The qualifications of consulting firms for this TOR will be assessed based on eligibility criteria specified in the Expression of Interest (EOI). Only shortlisted firms will be considered for final evaluation. The consulting firm shall ensure the adequacy of staff strength (expertise, number, and duration) for completion of respective tasks within the stipulated time frame.

15. The Consultant should be a reputed consulting firm with a high degree of technical, managerial, and financial capability in complying with the minimum experience and qualification criteria set forth in this TOR as stated below:

- (i) The bidding firm must have at least 5 years of significant consulting experience in the renewable energy sector with well-regarded background in conducting similar projects, solid on-ground experience, and demonstrated track record operating in ADB DMCs (particularly in Maldives or in Pacific Island countries).
- (ii) Experience in environment and social safeguard management of infrastructure projects. The consultant must have worked on environment and social safeguard aspects of projects funded by multilateral/bilateral funding agencies, including preparation of Resettlement Action Plans and Forest Clearance proposals with experience in environment and social safeguard management in at least 1 (one) renewable energy sector project funded by multilateral/bilateral funding agencies.
- (iii) Extensive work experience in collaborating and conducting consultations with local communities.
- (iv) Must have relevant work experience in working with similar project authorities/agencies of at least one (1) renewable energy sector project outside Maldives.
- (v) The bidding firm should showcase sufficient man-years of cumulative experience in energy sector consulting/renewable energy sector projects to be met by in-house/full-time experts employed by the bidding firm either as a single entity or Joint venture. Thus, the proposing entity should have the capability to provide sufficient full-time human resources, a strong team of experts, and facilities essential for the provision of technical support services for the project.

16. The proposing entity may associate with other consultants in the form of a Joint Venture or Sub-consultant (consortium) to enhance their qualification, subject to maximum of three (3) total members in a consortium. The submission should clearly state the nature of association (Joint Venture/Sub-consultant) and one member should be identified as the Lead consultant. However, experience of sub-consultant may be shown separately if required.

17. The details of the selection are accessible from ADBs Consulting Services Recruitment Notice (CSRN) and interested consultants are encouraged to submit their EOI through ADBs Consultant Management System (CMS). Information that shows experience and qualification in the related field for EOI and terms of reference can be found on the ADB website. The interested consultants must substantiate, provide a description of completed similar assignments, work experience in related areas, etc. to show their managerial, technical, and geographical competence to perform the services. Also, additional information in the form of brochures,

description of completed similar assignments, work experience in the specified areas, availability of appropriate skills among staff, etc. to show their technical, managerial and financial competence to perform the services should be provided. Such information must also include a brief description of the firm together with the organization.

18. Curriculum Vitae (CVs) of experts should not be submitted at the EOI stage. No evaluation will be conducted on the experts' CVs during the shortlisting phase.

19. **Table 2** summarizes the minimum time-inputs of international and national key experts.

**Table 2: Team Composition**

| Position/Expertise  | Source        | Person-Mos. |
|---|---------------|-------------|
| Marine Renewable Energy Expert / Team Leader  | International | 6           |
| Low Carbon Technology Expert  | International | 1.5         |
| Blue Economy / Sustainable Development (for Islands and/or Coasts) Expert               | International | 1.5         |
| Marine Renewable Energy Engineering (Field / Survey and Systems Integration) Specialist | International | 4           |
| <i>Subtotal Person-Months (Key Experts – International)</i>                             |               | <b>13</b>   |
| Development Specialist/Expert   | National      | 3           |
| Environmental Specialist/Expert   | National      | 3           |
| Power and Energy Specialist/Expert  | National      | 3           |
| <i>Subtotal Person-Months (Key Experts – National)</i>                                  |               | <b>9</b>    |
| <b>TOTAL Minimum Person-months Inputs (International + National)</b>                    |               | <b>22</b>   |

**G. Qualifications and Requirements / Tasks and Responsibilities**

20. The team will be required to demonstrate high-level technical capacity in the ocean RE including pre-development activities, site suitability assessment, technology identification, ocean renewable energy device assessment, techno-economics, and other pre-development studies/assessments (e.g., environmental and social impact assessment).

21. Based on the above scope of work, the experts identified by the consulting firm shall have the minimum qualification requirements in undertaking the following tasks.

**Table 3: Minimum Qualification Requirements and Responsibilities**

**Key Expert Positions –**

| Position / Expertise   | Experience and Qualifications  | Tasks / Responsibilities   |
|--|--|--|
| <b>Marine Renewable Energy Expert / Team Leader</b><br>(International)<br><i>6 person-months, intermittent</i> | <b>As Team Leader:</b> <ul style="list-style-type: none"> <li>• Expertise in policy development;</li> <li>• At least a master's degree in engineering or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years</li> </ul> | <b>As Team Leader:</b> <ul style="list-style-type: none"> <li>• Lead the project and conduct activities outlined in the scope of work to complete the Project Deliverables outlined in Table 1.</li> </ul> |

| Position / Expertise   | Experience and Qualifications  | Tasks / Responsibilities  |
|--|--|---|
|  | <p>should be policy-related work in the energy sector;</p> <ul style="list-style-type: none"> <li>• Strong policy analysis skills with experience in preparing technology roadmaps in the energy sector;</li> <li>• Relevant experience in Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul> <p><b>As Marine Renewable Energy Expert:</b></p> <ul style="list-style-type: none"> <li>• Should have an in-depth knowledge of MRE technologies;</li> <li>• At least a master's degree in engineering or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years should be on MRE/ORE projects;</li> <li>• Deep technical knowledge of MRE/ORE and their application in small islands;</li> <li>• Relevant experience in Maldives or other small island developing states or similar context; and</li> </ul> <p>Excellent oral and written communication skills in English.</p> | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Coordinate with other consultants/experts to complete the deliverables.</li> </ul>     |
| <p><b>Low Carbon Technology Expert</b><br/>(International)<br/><i>1.5 person-months, intermittent</i></p>  | <ul style="list-style-type: none"> <li>• Should have knowledge and experience in the Japan Fund for the Joint Crediting Mechanism (JFJCM);</li> <li>• At least a master's degree in engineering or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years should be in renewable energy and low-carbon technologies;</li> <li>• Experience in developing at least one JFJCM project proposal;</li> <li>• Relevant experience in Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul>   | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Provide inputs to the team leader to assist in completing the deliverables.</li> </ul> |
| <p><b>Blue Economy / Sustainable Development (for Islands and/or Coasts) Expert</b><br/>(International)<br/><i>1.5 person-months, intermittent</i></p> | <ul style="list-style-type: none"> <li>• At least a master's degree in engineering or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years should be in Project Development for Islands and/or Coasts;</li> <li>• Experience in developing projects that include Renewable Energy (RE) and/or productive uses of Energy;</li> </ul>  | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Provide inputs to the team leader to assist in</li> </ul>                              |

| Position / Expertise   | Experience and Qualifications  | Tasks / Responsibilities  |
|--|--|---|
|  | <ul style="list-style-type: none"> <li>• Relevant experience in Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul>   | <p>completing the deliverables.</p>   |
| <p><b>Marine Renewable Energy Engineering (Field / Survey and Systems Integration) Specialist</b><br/>(International)<br/><i>4 person-months, intermittent</i></p> | <ul style="list-style-type: none"> <li>• At least a Bachelor’s degree in Energy Engineering or Electrical Engineering or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 7 years should be in Marine RE Field Surveys, renewable energy development activities for islands and/or coasts);</li> <li>• Experience in development and deployment of Marine Renewable Energy Systems;</li> <li>• Relevant experience in Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul>  | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Provide inputs to the team leader to assist in completing the deliverables.</li> </ul> |
| <p><b>Development Specialist/Expert</b><br/>(National)<br/><i>3 person-months, intermittent</i></p>  | <ul style="list-style-type: none"> <li>• At least a master’s degree in Development Studies or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years should be in a combination of policy, local governance, community development and/or social development related work in the energy and adjacent blue economy sectors;</li> <li>• Strong socio-economic, policy analysis, strategic planning skills with experience in working with government and preparing roadmaps in the energy and adjacent sectors;</li> <li>• Relevant Experience/Involvement in developing and/or implementing power/energy projects in the Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul> | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Provide inputs to the team leader to assist in completing the deliverables.</li> </ul> |
| <p><b>Environmental Specialist/Expert</b><br/>(National)<br/><i>3 person-months, intermittent</i></p>  | <ul style="list-style-type: none"> <li>• At least a master’s degree in environmental science or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years should be in a combination of environmental &amp; social aspects, ecological assessments, environment-relevant work in the renewable energy and adjacent blue economy sectors;</li> <li>• Experience in Ecological assessments, marine science, biodiversity and</li> </ul>   | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Provide inputs to the team leader to assist in</li> </ul>                              |

| Position / Expertise  | Experience and Qualifications   | Tasks / Responsibilities  |
|---|---|---|
|   | Environmental and Social Impact Assessments (ESIA); <ul style="list-style-type: none"> <li>• Relevant Experience/Involvement in developing and/or implementing power/energy projects in the Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul>  | completing the deliverables.  |
| <b>Power and Energy Specialist/Expert</b><br>(National)<br><i>3 person-months, intermittent</i> | <ul style="list-style-type: none"> <li>• At least a bachelor's degree in engineering or other relevant discipline;</li> <li>• At least 15 years of professional experience, of which around 10 years should be in power/energy sector, with at least 5 years of renewable energy and/or relevant low-carbon technologies;</li> <li>• Experience in power/energy engineering, techno-economic assessments in the power/energy sector, and systems-thinking;</li> <li>• Relevant Experience/Involvement in developing and/or implementing power/energy projects in the Maldives or other small island developing states or similar context; and</li> <li>• Excellent oral and written communication skills in English.</li> </ul> | <ul style="list-style-type: none"> <li>• Assess various technology options and their feasibility relevant to the area of expertise for the given scope.</li> <li>• Develop relevant documentation/reports outlined in the deliverables.</li> <li>• Provide inputs to the team leader to assist in completing the deliverables.</li> </ul> |

## H. Information and Facilities to be Provided by the EA/IA

22. The EA/IA shall provide the following to facilitate the smooth implementation of the consultancy assignment:

- (i) facilitate local meetings,
- (ii) assist in arranging local travels, and
- (ii) assist in obtaining required approval and permission from local agencies.

## I. Preparation of Proposals (For Shortlisted Consulting Firms at RFP stage)

23. Proposing entities are requested to prepare a detailed description of how they propose to deliver the outputs of the contract in the section of the proposal called "Approach and Methodology". In this narrative, entities should be explicit in explaining how they will achieve the outputs and include any information on their existing activities upon which they may eventually build as well as the details of the experts that will comprise the project team.

24. Proposing consulting firms have the flexibility to structure and organize the project team involved in the implementation of the consulting assignment. The firms can determine the number and nature of any additional team members required to deliver the objectives and outputs while maintaining the required Key and Non-Key Experts positions including the person-months inputs assigned to the respective experts in this position-based TOR.



25. Only one curriculum vitae (CV) must be submitted for each key and non-key expert included in the proposal. Only the CVs of key experts will be scored as part of the technical evaluation of proposals. The CVs of additional experts (Key and Non-Key) will not be scored but will still be assessed on a Pass/Fail basis.

26. All expert positions under the contract (Key and Non-key) must be included and budgeted for in the financial proposal in accordance with the person-month allocation required in the RFP for each expert, including reimbursable/out-of-pocket expenses as defined by the proposing entity. **Further, the proposing entities should ensure that the costs in their financial proposals are within market rates or at least deemed reasonable/realistic in conducting the proposed services.**

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*Additional questions to be included in the CSRN pertaining to the firm's qualifications and experience (not specifically covered by/but relevant to the 3 main criteria, i.e., Technical, Geographical, and Management Competencies - in EOI form) as part of the shortlisting criteria.*

1. Describe your firm's consulting experience (including the number of years) in conducting similar project activities in renewable energy sector for projects particularly in Maldives or overseas (similar geography like other Pacific Island countries). Please support this claim by citing completed projects as well as project location. Indicate specific activities undertaken.
2. Describe your firm's experience in environment and social safeguard management of infrastructure projects including preparation of Resettlement Action Plans and Forest Clearance proposals in a renewable energy sector project funded by multilateral/bilateral funding agencies (if applicable).
3. Describe your firm's experience in working with similar project authorities/agencies in at least one (1) renewable energy sector project outside Maldives.
4. Do you have available international and national experts/expertise to undertake the responsibilities in the terms of reference? Please explain how you propose to provide the required personnel. Please DO NOT attach CVs of experts.