

## Maldives: Maldives Solar Power Development and Energy Storage Solution

### 1. Project Information

Project ID:	P000377	Instrument ID:	L0377A
Member:	Maldives	Region:	Southern Asia
Sector:	Energy	Sub-sector:	Renewable energy generation-solar
Instrument type:	<input checked="" type="checkbox"/> Loan:20.00 US Dollar million <input type="checkbox"/> Guarantee	Co-financier(s):	World Bank
ES category:	B	Borrowing Entity:	Ministry of Finance and Treasury, Maldives
Implementing Entity:	Ministry of Environment, Maldives		
Project Team Leader:	Amit Kumar		
Responsible DG:	Rajat Misra		
Responsible Department:	INF1		
Project Team Members:	Gerardo Pio Parco, OSD - Environment & Social Development Specialist; Bernardita Saez, Project Counsel; Aditi Khosla, Alternate Counsel; Rui Xiang, OSD - Financial Management Specialist; Yangzom Yangzom, OSD - Procurement Specialist		
Completed Site Visits by AIIB:			
Planned Site Visits by AIIB:	Sep, 2022 Tentatively planned for Q3 2022		
Current Red Flags Assigned:	1		
Current Monitoring Regime:	Regular Monitoring		
Previous Red Flags Assigned:	0		
Previous Red Flags Assigned Date:	2021/12		

### 2. Project Summary and Objectives

Project Summary: The project involves the development of a 36-megawatt (MW) solar power project and 50 megawatt hours (MWh) of battery energy storage solutions across various selected islands in the Maldives. The project also involves grid modernization to integrate variable renewable energy with the grid, which will be financed under the AIIB loan.

The project comprises the following components:

- Component 1. Solar Photovoltaic (PV) Risk Mitigation
- Component 2. Battery Energy Storage System (BESS)
- Component 3. Grid Modernization for Variable Renewable Energy (VRE) Integration
- Component 4. Technical Assistance

Project Objective: To increase generation capacity from renewable energy sources and to facilitate the integration of renewable energy into the grid infrastructure of Maldives

### 3. Key Dates

Approval:	Feb. 25, 2021	Signing:	Mar. 17, 2021
Effective:	Jun. 16, 2021	Restructured (if any):	
Orig. Closing:	Oct. 31, 2025	Rev. Closing (if any):	

### 4. Disbursement Summary (USD million)

Contract Awarded:		Cancellation (if any):	0.00
Disbursed:	0.00	Most recent disbursement (amount/date):	0.00/Oct. 31, 2022
Undisbursed:	20.00	Disbursement Ratio (%) <sup>1</sup> :	0.00

### 5. Project Implementation Update

No contracts awarded until now.

Components	Physical Progress	Environmental & Social Compliance	Procurement
Component 1. Solar Photovoltaic (PV) Risk Mitigation	<p>- 10 MW Floating PV (S. Thithadhoo, S. Maradhoo, S. Hulhumeedhoo): The technical requirement for FPV bid was completed and issued to bidders on May 29, 2022 with a deadline until August 18, 2022 to submit RFB. Pre-bid meeting held on June 27, 2022 and clarifications from bidders responded.</p> <p>- 15 MW PV sub-project (L. Atoll, Lh. Naifaru, GA. Villingili &amp; Sh. Funadhoo): Site visits were made by PMU to Lh. Naifaru, GA. Villingili and L. Atoll project islands and</p>	In compliance	<p>10 MW Floating PV (S. Thithadhoo, S. Maradhoo, S. Hulhumeedhoo)</p> <p>- WB hired FPV consultant is working on detailed site assessments since July 2021. The wave and current assessment device were installed at the floating PV site of Hulhumeedhoo during August 2021 and the first data was downloaded successfully during January 2022. The Consultant submitted the Interim Report for the Second period of 4 months (Jan-May 2022) of the Measurement Campaign on June 9, 2022.</p> <p>15 MW PV sub-project (L. Atoll, Lh. Naifaru, GA. Villingili &amp; Sh. Funadhoo)</p>

<sup>1</sup> Disbursement Ratio is defined as the volume (e.g. the dollar amount) of total disbursed amount as a percentage of the net committed volume.

	<p>conducted project information sessions for the Island Council, Women Development Committee (WDC), NGOs of the islands and the site owners of solar PV installation. An information session regarding renewable energy for school students was also held at GA. Villingilli. As per the request from Lh. Naifaru Council some sites were revised and the updated ESSR was finalized and approved by the World Bank team in April 2022.</p> <p>- The grid connection options for the bidding document were finalized in May 2022. Site specification and concept preparation is ongoing and is targeted to be finalized during July 2022.</p>		<ul style="list-style-type: none"> <li>- PQ applications were opened in September 2021 and the evaluation report was approved on December 27, 2021.</li> <li>- The total MW capacity has been increased to 15MW.</li> <li>- Civil Engineer hiring process is completed and ongoing for the structural assessments required for the bid. World Bank provided approval to go ahead with finalizing the bidding document with the inclusion of a clause that indicates that prior to the signing of contracts the due assessments will be completed and the designs would be subject to the findings and the E and S Screenings.</li> <li>- The grid connection options for the bidding document were finalized in May 2022. Site specification and concept preparation is ongoing and is targeted to be finalized during July 2022. Delays were faced in finalizing the bidding document due to inconsistencies noted in the drawings provided by FENAKA during the PMU site visits. Some site specifications require changes upon further confirmation.</li> <li>- The ESSR for ground-mounted PV installation in L.Isdhoo, L. Kalaidhoo, L. Dhambidhoo, L. Maabaidhoo, L/ Gan, L. Fonadhoo, L. Maamendhoo, L. Hithadhoo, L. Kunahandhoo, L. Maavah, Ga. Villingili and Sh. Funadhoo was cleared from the World Bank in March 2022.</li> </ul> <p>Additional Solar PV sub-project</p>
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			<p>- The PMU had been in the process of identifying other potential islands/locations for PV installation for an additional 15MW (balance of the ARISE target). This includes the Male region and other islands proposed by utility companies. Availability of capacity can only be firmed up once the site identification process can be concluded. As done previously, these will also be constrained based on network absorption capacities, and site availabilities as a lot of islands already have solar PV installed, and would be a matter of scaling up.</p>
Component 2. Battery Energy Storage System (BESS)	<p>Technical requirements for the 40MWh battery storage have been completed. The bidding document was emailed to WB on May 23, 2022, and is still pending to be cleared from the team.</p>	<p>- The environmental screening requirement of WB and Environmental Protection Agency Maldives (EPA) of all sites for this component has been completed.                  - The Environmental and Social Code of Practice for Battery Energy Storage System was prepared and approved by WB and AIIB in September 2021.</p>	<p>40 MW/40 MWh BESS                  - PQ was published in June 2021. The evaluation of PQ applicants was completed in December 2021 and as per the recommendation from the Ministry of Environment, Climate Change and Technology (MECCT) to cancel the PQ and initiate a direct bidding process, the report was approved by National Tender Board on February 21, 2022. The World bank provided email clearance to cancel the PQ and go for direct bidding on February 28, 2022. During the month of March, the bid document was reviewed and commented on by the World Bank and PMU kept addressing the received comments. The bid document received the WB's no objection on March 25, however on March 31, 2022, the WB informed PMU that the BESS bidding document requires further review from the WB procurement team in</p>

			Washington. Upon receiving the comments from World Bank on April 17, 2022, the bidding document and PPSD were updated as requested during April and May and the final PPSD was submitted on May 18.
Component 3. Grid Modernization for Variable Renewable Energy (VRE) Integration	The technical requirements of the bidding documents for the grid modernization component were finalized in March 2022 and the RFB was published on March 16, 2022.	<ul style="list-style-type: none"> <li>- The environmental and Social Code of Practice for this component was shared with WB and AIIB in November 2021 and has been approved.</li> <li>- The environmental screening requirement of WB and EPA of all sites for this component has been completed.</li> </ul> <p>In compliance.</p>	<ul style="list-style-type: none"> <li>- The technical requirements of the bidding document were finalized in March 2022 and the RFB was published on March 16, 2022, with the deadline until June 1, 2022. Clarification 01 was published on April 20, 2022 and the Addendum 01 was issued to bidders on May 29, 2022, extending the deadline for bid submission to June 23, 2022. The clarification 02 and addendum 02 were sent for World Bank approval on June 2, 2022. Addendum 02 was published on June 19 extending the bid submission deadline to July 21, 2022. Addendum 03 and Clarification 02 have been sent to WB on June 22 for their clearance prior to publishing.</li> </ul>
Component 4. Technical Assistance	<ul style="list-style-type: none"> <li>- The owner's engineer is finalized and onboarded to support the preparation of components 2 and 3.</li> <li>- MECCT has hired a Financial Management Officer.</li> <li>- MECCT also conducted technical training via TATA Power DDL during March 2022.</li> </ul>	in compliance	<ul style="list-style-type: none"> <li>- MECCT has hired a Financial Management Officer.</li> <li>- MECCT conducted technical training via TATA Power DDL during March 2022. Under the ARISE project Gender Action Plan, it has been identified to create 18 job opportunities, and among the 18, 12 jobs are to be provided for women. It also includes training these 18 individuals for the job. Before choosing TATA power as the training partner for these individuals as recommended by the World Bank, a trial training</li> </ul>

			with 6 participants was conducted. The training participants included a combination of technical and non-technical staff from MECCT and FENAKA (Technical 4, non-technical 2).
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**Financial Management:**

The Project Management Unit (PMU) under the Ministry of Environment, Climate Change, and Technology for the ASPIRE project (previous World Bank project) shall continue to function as the PMU for the project. The planning, budgeting, funds flow, accounting, reporting, internal controls, and audit arrangements shall be aligned with the government's system. The PMU prepared the annual work plan and budget for the year 2021-2022 and was shared with WB in August 2021. The PMU is staffed with a project director, procurement management specialist, environment and social safeguards specialist, communications specialist, monitoring and evaluation specialist, sustainable energy specialist, senior energy specialist, and financial management officer.

**6. Status of the Grievance Redress Mechanism (GRM)**

The GRM for the project has been formulated and included in the project safeguards documents including Stakeholder Engagement Plan (SEP), Environmental and Social Management Framework (ESMF), and Environmental and Social Commitment Plan (ESCP). As per project safeguards documents, prior to implementation of any physical activities, GRM details will be displayed on the project sites, moreover, this information will be made available physically and through the website of the Ministry and the council.

**7. Results Monitoring**

It is early for actual results. The development objective of the Project is to increase generation capacity from renewable energy sources and to facilitate the integration of renewable energy into the grid infrastructure of Maldives.

**Project Objective Indicators #1**

I. Renewable energy generation capacity constructed or rehabilitated under the project (MW).

Year	Target	Actual	Comments, if any
Dec. 31, 2025	36	0	Awarding of solar PV projects under bidding process

**Project Objective Indicators #2**

Private capital mobilized (USD Million)

Year	Target	Actual	Comments, if any
Dec. 31, 2025	45	0	Awarding of solar PV projects under bidding process

**Project Objective Indicators #3**

Electrical transmission and distribution lines constructed (medium- and low-voltage) and/or rehabilitated (in km)

Year	Target	Actual	Comments, if any
Dec. 31, 2025	100	0	Implementation of grid up-gradation is expected to start later in 1Q 2023.

**Project Objective Indicators #4**

Annual greenhouse gas (GHG) emission reduction (metric tons of CO2)

Year	Target	Actual	Comments, if any
Dec. 31, 2025	33500	0	Indicator shall be calculated closer to project commissioning.

**Project Objective Indicators #5**

Installed capacity of BESS (MWh)

Year	Target	Actual	Comments, if any
Dec. 31, 2025	50	0	under bidding process

**Intermediate Result Indicators #1**

1. Number of new renewable energy jobs created for women

Year	Target	Actual	Comments, if any
Dec. 31, 2025	12	0	Jobs creation shall happen closer to project commissioning in 2023

**Intermediate Result Indicators #2**

2. Number of women entering project-funded renewable energy job training

Year	Target	Actual	Comments, if any
Dec. 31, 2025	22	0	Jobs creation shall happen closer to project commissioning in 2023

**Remarks:**

The Project components are at different stages of preparation and bid tendering. Progress on the procurement part for each component is updated above in section 7 to reflect the current status.