



## CIF TA Facility for Clean Energy Investments

*First Call for Proposals*

*Support to Scale Up Renewable Energy in the Maldives*

*The World Bank*



## Proposal submission template

### Country/ region

The Maldives

### Project Title

Support to Scale Up Renewable Energy in the Maldives

### Implementing MDB(s)

The World Bank

### MDB client

The Ministry of Environment (ME), a government ministry responsible for formulating policies, procedures and standards to implement laws and regulations related to environment, energy, climate change, water and sanitation and meteorology.

The ME is the implementing agency of the ongoing World Bank operation in the energy sector. The ME will be the main authority in implementing solutions to be informed by the proposed activity. The World Bank will execute the grant to implement the proposed activity, in a close coordination with the ME in developing the scope of work and taking the output of the proposed activity to implementation.

The proposal has been developed in consultation with the ME. The ME has a strong ownership on the proposed activity as it would inform solutions to the immediate challenges faced by the ME in scaling up renewable energy. There is no other ongoing activity to address floating solar PV and the current net metering regulation. Another World Bank operation in the energy sector, which is currently under preparation, will be able to support technical assistance complementary to the proposed activity, once it starts implementation, expected at the end of 2020.

### MDB focal point

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### Description of proposed activity

The Maldives, as one of the key Small Island Developing States (SIDS), is heavily dependent on imported diesel fuel for electricity generation. Diesel imports range from US\$240-400 million annually, resulting in budget uncertainty and fiscal burden for the Government. In addition, due to the high dependence on imported diesel, energy security has been threatened, and air pollution has worsened. To overcome the challenge, the Government of the Maldives (GoM) is committed to increasing the share of renewable energy. The Maldives Energy Policy and Strategy 2016 (the “2016 Energy Policy”) seeks to promote renewable energy in the country and to encourage private sector renewable energy development as one of its nine key policies.

Moreover, the National Strategic Action Plan for the Maldives (2019-2023) (SAP) includes a specific pillar for Clean Energy with clear renewable energy targets to increase the share of renewable energy by 20 percent by 2023, compared to 2018 levels. The Minister of Environment announced a target to increase the share of renewable energy to 70 percent by 2030 at the UN Climate Action Summit in September 2019. This was backed

up by the President of the Maldives, who announced in the February 2020 joint parliamentary session, that the country will have 51 MW of Solar PV capacity by the year 2023. Despite the ambition and targets, there are existing barriers to scaling up renewable energy penetration. Despite significant support from the World Bank, the Asian Development Bank and other development partners, the share of renewable energy remains at around 5 percent of the national energy mix.

This proposal is to support the Government of the Maldives (GoM) in addressing key barriers in policies, regulations and capacity to enable further scale-up of renewable energy and mobilize private sector investment. It is closely aligned with the Solar Risk Mitigation Initiative (SRMI) and complementary to the ongoing World Bank engagement through the Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) Project currently under preparation. There are two key areas where CIF-TAF support would provide assistance:

**Component 1: Enabling offshore floating solar PV and other innovative technologies (US\$150,000).** The TAF support for this component would be as a transaction enabler, especially for offshore floating solar PV (FPV) and other new and innovative tenders. The Maldives, being a small island country, has significant land constraints. Solar PV independent power producers (IPPs) have been so far tendered on limited rooftops or small spaces on the sides of roads. Land availability is highly constrained, especially near large electricity load centers such as Greater Male’ Area or Addu City. To address this challenge, the Government is exploring various technologies and business models. Offshore floating solar PV is one option, but there has been very limited experience in offshore floating solar PV across the world, in both the number of projects and scale in generation capacity. Therefore, the private sector would face significant risks in participating competitive tenders on the offshore application. Other new and innovative technologies and/or business models might be also explored as part of the proposed activity in addressing the challenge. CIF-TAF support would seek effective risk mitigation solutions to enable transactions on such innovative projects. The planned activities would include supporting detailed assessment of the application of such technologies in the context of the Maldives, reviewing and improving policy and regulatory framework to incentivize private sector investors<sup>1</sup>, developing standard contracts for offshore floating solar PV and other innovative technologies to incorporate different risk allocation, creating an investment framework to support local financial institutions in participating in floating solar projects and providing training for the GoM staff to develop in-house capacity on floating solar.

Component 1 will assist in the proposed floating solar projects in Maldives. The ME has advertised a pre-qualification notice for 10 MW of floating solar project in Addu city. The project will be implemented through an IPP, mobilizing private sector investment. The ARISE project will target on mobilizing a total US\$41 million of private sector investment under the ARISE program installing about 36 MW of solar projects including floating PV.

Floating PV is not tested as a technology in the Maldives and in an aquatic ecosystem that is sensitive because of coral reefs, it becomes important to scope out the potential to enable offshore floating solar. The 10 MW PQ is the first effort that the GoM has undertaken in the space. Based on the ESMAP study on PV and battery storage in 2019, there is significant PV potential in the Maldives and floating PV is a key to scaling up the Maldives renewable aspiration. Component 1 will help in addressing the potential challenges in implementing FPV that the GoM may face.

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<sup>1</sup> Mainly targeting investors in renewable energy IPPs. It has been demonstrated through a recent competitive tender of 4 MW offshore floating solar PV in the Seychelles that there is a strong market interest in offshore floating solar IPPs.

**Component 2: Support the design and implementation of a revised net metering solution: (US\$150,000).**

The GoM adopted Net Metering Regulations<sup>2</sup> to promote solar PV installations on behind-the-meter electricity consumer side. However, since its adoption in 2015 and as of December 2019, only 367 kW of solar PV rooftop systems had been installed. The GoM is interested in developing revised net metering regulations to be piloted in Male with support from the State Electric Company (STELCO). This will be followed up in Hulhumale. The revised net metering regulations hold the potential to open a window to install around 15-20 MW of solar rooftop in the Maldives as estimated by the ME including an immediate window of 5 MW that the GoM is targeting in Greater Male. This component will focus on developing revised net metering regulations for the GoM that: (i) provides guidelines to support large-scale adoption of behind-the-meter solar PV through the utilities STELCO and FENAKA; (ii) provides single window clearance to household, industrial and commercial customers; (iii) provides stapled financing from local financial institutions; (iv) explores various payment mechanisms from the customer side, including upfront cost payment, installed repayment, credit financing, and on-bill financing, etc.; and (v) builds incentives for customers to adopt net metering systems. The TAF support will identify the challenges in implementing the Net Metering Regulations of 2015 and will help frame the new policy towards the creation of pan-Maldives net metering regulations. Working closely with the Ministry of Environment (ME) and utilities (STELCO and FENAKA), the TAF support will also enable the pilot implementation of the new regulations in Male and Hulhumalé. The scope of work will thus include (i) in-depth analysis of the 2015 Regulations, other related legislation and the existing supporting regulatory framework, with a particular focus on gaps in the legislation and reasons for failure of the 2015 Regulations; (ii) formulation of new regulations based on the analysis in (i) and consultations in (iii); (iii) stakeholder consultations and workshops to garner feedback and comments on the proposed new regulations; (iv) a written proposal to the GoM including a path to approval, adoption and implementation of the regulations based on feedback received from consultations in (iii); and (v) pilot implementation of the new regulations STELCO in Male and Hulhumalé.

The CIF-TAF financing will help finalize the regulation and initiate the pilot, which will in turn look to support the GoM in achieving their initial target of having at least 5 MW of solar rooftop with net metering in Greater Male itself. Across both the activities, private sector support will be mobilized. For Component 1, the World Bank will offer guarantee using IDA/MIGA financing to encourage investors to invest in floating solar and other innovative technologies. The ARISE project aims to mobilize Private Capital to the tune of US\$41 million. The World Bank will work closely with developers and investors who are working in the utilities in Maldives to support the implementation of the net metering guidelines during the pilot. Component 1 is expected to help unlock private sector investment in renewable energy IPPs with a risk appetite for offshore floating applications. Similarly, for Component 2, with the net metering regulation in place, the GoM will mobilize additional capital to install the 5 MW with net metering across Greater Male beyond the pilot. The private capital mobilized under both the components of the CIF TAF financing will form a part of the overall target of US\$41 million of private sector investment.

## Justification and theory of change

Despite the Government's larger clean energy ambitions, the scope for public sector investment is limited due to fiscal constraints. Mobilizing private sector investment will therefore be a critical catalyst to achieving the Government's renewable energy targets and enabling an energy transition. However, the current investment

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<sup>2</sup> Regulation No: 2015/R-231

climate for the private sector, especially for renewable energy, is in its nascent stage and private developers and lenders still face challenges investing in the sector and country.

**Component 1** will support the GoM to undertake a detailed assessment of the various applications of offshore floating solar PV technology alongside other new and innovative technologies and/or business models (such as, EV charging stations; vehicle-to-grid technologies and associated infrastructure; green hydrogen for energy storage and transportation; potential energy efficiency policies and engagement) to overcome the significant challenges in land availability. Without such innovative solutions, the GoM's renewable energy target is not likely to be achieved on time. The TAF support will result in the improvement of policy and regulatory framework and incentive structures and the development of standard contracts to better accommodate risk allocations between the government and the private sector. It will clearly inform potential developers of the opportunities and risks to be faced in their investment decision making, leading to effective risk mitigation and higher investment interest despite new and innovative approaches with limited experience in the Maldives. This component will also seek to mobilize local financial institutions such as the Bank of Maldives and the State Bank of India- Maldives branch- to support such transactions.

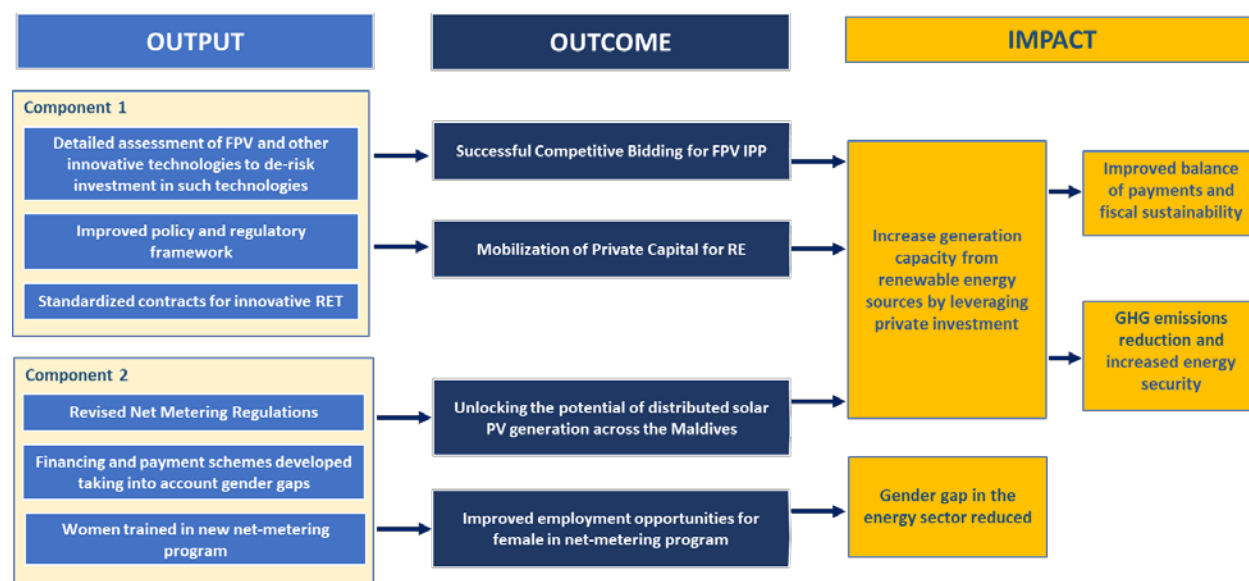
**Component 2** will initially help unlock the potential of rooftop solar for large scale solar PV installations across the key inhabited islands of Male and Hulhumale, this will be followed by replication across other inhabited islands. Scaling up behind-the-meter solar PV installations is essential to harness the potential of renewable energy in the Maldives where land availability is highly limited. However, the existing net metering regulation has not been effective in promoting end users to adopt solar PV on their premises. CIF-TAF support will help GoM first identify challenges under the current regulations. Based on the identified challenges, it will support the review and revision of the current net metering regulations with the aim to more effectively promote behind-the-meter solutions. Financing and payment structure will also be developed, together with the GoM, the utilities and local financial institutions, to find an effective financing solution for net metering. TAF support would then assist in promoting the revised net metering regulations to end consumers, through workshops and stakeholder consultations, involving the existing customers, small businesses and the utilities. This component will look forward to working with universities across Maldives to create a training module-in collaboration with the ME and Utilities- on technical and financial modules to implement the net metering regulations. Female students will be encouraged to participate in this program and will be incentivized by the GoM – through creation of new job profiles at the utilities focused on implementing the new net metering regulations.

The geography of the Maldives can support on-land/rooftop and floating photovoltaic technologies. According to the Global Solar Atlas of the World Bank, the Global Total Irradiance is around 2000 kWh/m<sup>2</sup> per year and offers significant solar potential. Because of the limitations of the available space mentioned earlier, floating PV and net metering arrangements are feasible options to help achieve the GoM's ambitious renewable energy goals, including the 5 MW from Greater Male through the net metering scheme. As per the IRENA RE Roadmap for Maldives, the solar potential for just the Greater Male region is upwards of 40 MW. The report also mentions a floating PV potential of 150 MW for Maldives.

Both Components will support the energy transition toward renewable energy and therefore help unlock climate change mitigation potential in the Maldives. The proposed activity is key for risk mitigation and private investment mobilization for renewable energy. With support of the proposed activity, the ARISE project targets to support 36 MW of solar PV generation capacity. It is projected to reduce greenhouse gas (GHG) emission by 670,000 tCO<sub>2</sub>eq. The mitigation potential would be much higher if the proposed activity contributes to meeting the more ambitious renewable energy target by 2030. Moreover, the Maldives is well positioned to pioneer

innovative approaches in scaling up renewable energy in the context of SIDS, which can be replicated in other SIDS and further catalyze greater mitigation potential.

The Theory of Change for the proposed activity is reflected in the diagram below:



### Consistency with selection criteria

The proposed TAF support requested is aligned with the Governments’ national low carbon priorities, the Paris Agreement and the SDGs. In the Maldives, the Government is committed to harnessing renewable energy resource and increasing its use. Reducing dependence on imported fuel and investing in renewable energy is a key priority of the Government. The proposed activities will support the GoM to overcome the various constraints and achieve the targets on renewable energy. The proposal supports SDGs 7 (Affordable and Clean Energy), 11 (Sustainable Cities and Communities) and 13 (Climate Action) directly, along with an extended support to SDGs 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation and Infrastructure).

The proposal is aligned with, and complementary to the World Bank engagement in the energy sector of the Maldives. The World Bank has been supporting the GoM in providing risk mitigation solutions to the private sector and effectively mobilizing private sector investment in renewable energy through the Accelerating Sustainable Private Investment in Renewable Energy (ASPIRE) Project under implementation and the ARISE Project under preparation. In further scaling up renewable energy investment, this TAF proposal would address key constraints in policy and regulatory framework and local capacity, in particular offshore floating solar PV, net metering, and other new and innovative approaches in the country. The proposal as well as the current World Bank engagement is in close coordination with the Asian Development Bank (ADB) Preparing Outer Islands for Sustainable Energy Development Project (POISED) project.

This TAF proposal would significantly contribute to increasing the mobilization of private sector investment and finance in renewable energy. Due to the fiscal constraints in the country, the approach in developing renewable energy generation capacity has been through the private sector, especially under the World Bank engagement. Building on the experience with the World Bank, the proposal would lay a firm foundation to further increase private sector investment in offshore floating solar PV and other innovative technologies and

business models. In addition, the revised net metering regulation, once proven effective, would mobilize electricity consumer financing in setting up behind-the-meter solar PV systems at scale. While the World Bank-funded ARISE project is expected to mobilize a total of US\$45 million of private sector investment in the clean energy space, there would be an even larger potential of private sector investment, to be enabled by the proposed activities, in behind-the-meter systems and transactions beyond ARISE to help GoM achieve its renewable energy target.

The Bank has been in close coordination with the Ministry of Finance (MoF) and ME as well as both the utilities State Electric Company Pvt Ltd (STELCO) and FENAKA corporation in designing the proposed activities. The proposal will also engage with local and regional financial institutions such as the Bank of Maldives and the State Bank of India- Maldives branch to seek opportunities to finance renewable energy transactions going forward. The proposed activities will also engage with the ME and the utilities in capacity building across multiple segments of the project including the access to best practices on net metering around the region. The internal capacity building will help the ME in drafting and proposing the proposed revision to the net metering framework and the utilities in supporting the implementation of the same in the project.

The proposed program will work with the universities in the Maldives to create and implement a training module for women in the new net metering regulation. This training module will be aimed towards encouraging women to take up career profiles with both the utilities, STELCO and FENAKA. In addition to that, the Women Development Committees (WDCs) across the islands will be used as nodal centres to implement the new net metering regulation across the Maldives.

### Main focus area(s)

- Energy sector policy and regulation with investment relevance
- Financial sector policy and regulation with energy relevance
- Transaction enablers

### Complementarity and additionality

The proposal is aligned with, and complementary to the World Bank engagement in the energy sector of the Maldives. The World Bank has been supporting the GoM in providing risk mitigation solutions to the private sector and effectively mobilizing private sector investment in renewable energy through the ASPIRE Project under implementation and the ARISE Project under preparation. Specifically, the ARISE project, focuses on increasing the internal capacity at the PMU to implement solar and BESS projects. The key components of the ARISE program include i) Solar PV Capacity Development; ii) BESS Capacity Development; iii) Grid Upgrades for VRE integration; and iv) Technical Assistance (TA) Support. This TAF proposal is aligned to support the GoM mission of moving towards energy independence from diesel and building internal capacity to support the deployment of solar and BESS across the island nation. That is also the aim of the World Bank ARISE project.

The TA component under ARISE will focus on four aspects: (i) Institutional capacity building: Technical capacity and training support to project stakeholders, (ii) Pipeline development: Pipeline development and technical advisory support for the tendering process, (iii) Other sustainable energy development: Technical assistance on, policy and regulatory frameworks and system planning for scaling up the use of EVs, feasibility assessment and roadmap for EV charging stations, (iv) Project management and implementation support: This will cover PMU functions as well as incremental operating expenses.

The support from CIF TAF will focus on the two elements that are directly aligned to the ARISE project but are not covered under the ARISE TA. (i) Enabling offshore floating solar PV – the results of this component would be crucial to inform the ARISE project in developing pipeline and implementing offshore Floating Photo Voltaic

(FPV). The TAF support will begin ahead of the actual implementation of the ARISE project, expected in August-September 2020, in order to provide timely guidance to the ARISE project; and (ii) Support the design and implementation of a revised net metering solution – the support is towards unlocking the potential of rooftop solar installation across the Maldives, with the framing and implementation of a revised net metering regulation. This CIF TAF component is complementary to the ARISE project. However, the ARISE does not have earmarked financing for revision of the net metering regulation which the CIF TAF will help in.

In further scaling up renewable energy investment, this TAF proposal would address key constraints in policy and regulatory framework and local capacity, in particular offshore floating solar PV, net metering, and other new and innovative approaches in the country. The proposal as well as the current World Bank engagement is in close coordination with the Asian Development Bank (ADB) Preparing Outer Islands for Sustainable Energy Development Project (POISED) project. The ADB work focuses on installing solar-diesel hybrid grids on outer islands primarily. The World Bank ARISE project focuses on solutions that support the existing work that has already been done in the Maldives by ADB. The World Bank ARISE program will also potentially see co-financing support from the Asian Infrastructure Investment Bank (AIIB) for Component 3- Grid Upgradation for VRE Integration.

The activities proposed have been requested by the GoM, following the target to move from fossil fuel-based power generation to renewables. The ongoing work in the Maldives does not directly focus on floating solar facilities, which will be done under the scope of work under the proposed TAF Component 1. Similarly, the net metering proposal is being requested by the utilities and is a priority for the GoM but no other project is currently focused on the same.

### Transformational change and knowledge sharing.

As highlighted in the previous sections, the Government of Maldives, has announced an interim target of reaching 51 MW of solar installations by 2023 and an overall coverage of over 70 percent power from renewables by 2030. In order to reach this capacity, the GoM needs to create a pipeline that includes floating solar as well as rooftop, given the land constraints in the Maldives. The two components of the CIF TAF will unlock the potential to achieve these targets set out by the GoM, with the revised net metering regulation itself unlocking anywhere between 10-15 MW of solar rooftop potential.

Government of Maldives led a coalition of countries and development partners at the UNSG climate summit in September 2019. The GoM tried to address all aspects of climate change for SIDS nations through the initiative titled: “Climate Smart Resilient Islands (CSRI)”- A holistic approach for SIDS in a changing climate. The CSRI initiative works towards greener transport and connectivity, investments in green tourism practices and climate proofing of all future infrastructure investments in small island nations.

The primary objective of this initiative is to provide a holistic approach for islands to address climate change in the context of sustainable development, through utilising natural solutions, promoting innovation and new technologies with associated capacity building, and enhancing access to finance. The implementation of this initiative requires bringing in MDBs, development partners and various other stakeholders through active knowledge exchange and sharing. The activities the Bank is undertaking in the Maldives could be replicated in other SIDS countries through the CSRI initiative. The various elements of the new project including floating solar, grid upgradation and other efforts will be showcased to various countries that are a part of the CSRI initiative, to be replicated in their countries. The knowledge exchange will happen through case studies and reports, as well as facilitating other CSRI country delegate visits to the sites of floating solar in the Maldives.

The GoM is an active member of the International Solar Alliance’s (ISA), that facilitates cross country learning and adoption of best practices in the solar and renewable space. Through the ISA, the project will engage other



SIDS countries in getting a first-hand exposure to the solar initiative across the Maldives and help replicate the success of the program.

The World Bank Solar Risk Mitigation Initiative is mobilizing US\$500 million of concessional finance to unlock the potential of renewables in developing countries by 2025 with an eye on replicating success across SIDS. The SRMI application, saw the 5 MW solar rooftop project at airport Male awarded to Ensys (Thai company) at a historic low PPA price of 10.9 UC cents. This will be replicated across SIDS.

The ARISE program is closely aligned to the World Bank global battery storage program. Under ARISE, the GoM is targeting to install 50 MWh of storage solutions across the island. This will be replicated by the WB global battery storage program as well.

The proposed program will also work with the CSRI initiative, which is linked to the UNDP "Climate Promise" and engages in replicating and scaling-up this technology using some of the risk-bearing solutions developed under this proposal across the region by both SIDS and other nations.

Similarly, the program will also engage with the IRENA Small Island Developing States (SIDS) Lighthouses initiative (LHI), a framework for action to support SIDS in the transformation from a predominantly fossil-based to a renewables-based and resilient energy system. Both the components in the proposed project will have replicability across SIDS.

## Budget

Indicative itemized budget, incl. co-financing if any

US\$300,000 from CIF-TAF on consultants' services, local training, workshops, and seminars to support GoM (ME, STELCO and FENAKA).

Budget Breakdown (Indicative):

Component 1:

1. Consultancy for Floating Solar Studies: US\$ 100,000 (potential co-financing of about US\$ 250,000 from the Energy Sector Management Assistance Program)
2. Workshop and training with ME, STELCO, FENAKA and MoF: US\$ 35,000;
3. Report and Framework Finalization: US\$ 15,000.

Component 2:

1. Consultant firm to study to understand the challenges in the current net metering regulation: US\$ 60,000
  - a. Meeting and discussion on existing net metering guidelines with ME.
  - b. Interviews with existing net metered clients.
2. Workshops and Training of graduate/undergraduate students (female) for recruitment at utilities to implement the new net metering program: US\$ 50,000
3. Finalization of the new net metering regulation and guideline: US\$ 40,000

## Implementation plan and timeline

### Component 1: Enabling offshore floating solar PV and other innovative technologies

- Hiring of consultants for the floating solar studies- Male and Addu (August 2020)
  - Island council focus group discussions.
  - Gender focus: Women development council focus group discussions.

- ME discussions and feedback.
- Draft report on floating solar in the Maldives (October 2020) that includes:
  - Review of any existing policy framework on solar in the Maldives to include the scope of floating solar.
  - Review and adoption of best practices in floating solar from SIDS countries.
- Circulation of the draft floating solar report across ME (Relevant stakeholders), sector experts and World Bank team for feedback (November 2020)
- Finalization of the floating solar studies (January 2021)
- Share updates with CIF AU (January 2021)
- Workshop on the findings for relevant GoM entities, including but not limited to ME, STELCO, FENAKA and MoF (February 2021)
- Training of ME/STELCO and FENAKA on floating solar project across different modules (March 2021)
  - Technical Module
  - Financial Module
  - Environmental and Social Module
- Standardization of the tender documents (including standardized bankable project agreements) with ME/STELCO and FENAKA including bankable risk sharing arrangements for both GoM and developer (May 2021)
- Using the new standardized tender documents to tender out the first floating solar project in the Maldives (August 2021)
- Creating and investment framework to engage one/two local banks to offer a L/C for floating solar projects. (August 2021)
- Share updates and results with CIF AU (September 2021)

## **Component 2: Support the design and implementation of a revised net metering solution**

- Engagement with utilities on the new net metering regulation (STELCO and FENAKA) August 2020 - September 2020
- Study to understand the challenges in the current net metering regulation (October 2020)
  - Meeting and discussion on existing net metering guidelines with ME.
  - Interviews with existing net metered clients.
- Stakeholder engagement for the new/revised regulations to understand adoption priorities and conduct demand side assessments for payment and duration preferences (December 2020)
  - Household consumers and Commercial consumers
  - Island councils and Utilities
- Gender preferences: Demand-side assessments will be conducted to understand the payment type/duration to reduce gender gaps (May 2021)
- Drafting of new/amendment to existing regulations including any amendments required in the supporting legislative framework (March 2021).
- Final Regulatory Proposal to GoM including path to approval and adoption by the GoM, and an implementation strategy including a detailed pilot phase in Male and Hulhumalé. (May 2021)
- Structure and implement a pilot to reduce gender gaps in repayment rates and burdens on customer types, such as SME owners in comparison to larger industrial or commercial customers. (June 2021)
- Share updates with CIF AU (January 2021)
- Draft updated regulation (July 2021)
- Finalization of the new regulation (August 2021)
- Gender Mainstreaming: Training graduate and undergraduate female students on the regulation to support their recruitment at the utilities (From July 2021)
- Approval of the new regulation by the GoM (October 2021)
- Implementation of the regulation by STELCO and FENAKA (Post November 2021)
- Share updates and results with CIF AU (November 2021)

## Stakeholder engagement and partnerships

The proposal has been prepared in consultation with the Ministry of Environment, STELCO and FENAKA. During the implementation, the proposed activity will further identify relevant stakeholders and conduct proper stakeholder engagement. It will be complemented by a wider stakeholder engagement planned under the World Bank-funded ARISE project during implementation.

## Results framework

<i>Results</i>	<i>Indicators</i>	<i>Baseline</i>	<i>Targets</i>	<i>Data source and verification</i>
<b>TRANSFORMATIONAL IMPACT</b>				
Accelerated investments and market development of floating solar projects.	Additional private capital mobilized through new MW floating PV capacity installation	0	10 MW of floating solar awarded for installation by Dec 2021.	Investment pipeline and projects. Private sector investment mobilized USD 10 Million.
Maldives: Moving closer to 51 MW target of solar PV as announced by the GoM.	Energy policy/regulatory change to the net metering framework.	367 Kw of Net Metering achieved till Dec 2019	3 MW by 2023	Households and commercial establishments installing Solar PV through the new net metering regulation.
<b>OUTCOMES</b>				
<p><b>OUTCOME 1:</b></p> <p>Floating solar focused studies, investment framework and engagement with local financial institutions to support floating photo voltaic (FPV) installation.</p> <p>Mobilize US\$ 10 million in private sector investments through the 10 MW floating solar project, which forms a part of the overall US\$ 41 million of private investment targeted through the ARISE project.</p>	<p>Include scope of floating solar in the RE framework of Maldives and standardized tender document for FPV.</p>	0	<p>2 Studies assessing potential for floating solar in Male and Addu.</p> <p>6 training workshops to support ME staff as well as STELCO and FENAKA on assessing potential for floating solar.</p> <p>L/C from local bank for floating solar project</p> <p>Tender documents (including standardized bankable project agreements) for floating solar projects.</p>	<p>Studies published and disseminated</p> <p>Trainings conducted</p> <p>2 local banks offer L/C for the floating solar project.</p> <p>ME uses the document to tender out new floating solar projects in 2021.</p> <p>US\$ 10 million mobilized out of the overall ARISE target of US\$ 41 million private sector investment targeted.</p>
<p><b>OUTCOME 2:</b></p> <p>New Net Metering Framework comes into regulation.</p>	<p>Regulations adopted/gazette, updated, or amended to support private sector investment - with TAF assistance.</p> <p>Beneficiary satisfaction rates among pilot area residents</p>	0	<p>Net Metering Regulation updated and adopted/gazetted the GoM.</p> <p>Stakeholder meetings conducted. (5)</p> <p>Training at least 50 women (graduates/undergraduates) studying engineering programs at the university on the new net metering module.</p> <p>Percentage of beneficiary satisfaction (Disaggregated by male and female)</p>	<p>Updated net metering regulations are implemented by STELCO and FENAKA.</p> <p>Conduct 1 pilot with STELCO and/or FENAKA on the revised regulation.</p> <p>Percentage of women from the training program engaged at the utilities for implementing the new net metering regulation.</p> <p>Surveys (Gender disaggregated)</p>

## Assumptions and risks/ risk management

**Component 1:** As a result of the COVID-19 pandemic, the Bank team anticipates that activities under Component 1 may suffer a delay. In particular, the following activities may be at risk of potential delays:

- Hiring of the consultants;
- Site assessments; and
- Conducting focus group discussions and in person meetings.

**Component 2:** The new net metering regulation will have to be presented by the ME to the Attorney General for final approval. As a result of the COVID-19 pandemic, the team anticipates a slight delay in achieving the final approval of the regulations. The World Bank will work closely with the ME to keep relevant stakeholders from the GoM updated on the new regulations.

The World Bank team will work closely with the GoM and the utilities to account for the slightly revised timelines that may arise as a result of COVID-19 related delays. Wherever possible, the Bank team together with the appointed consultant, will work remotely to gather data from the utilities and ME, including GIS maps from existing sources. Where possible, physical meetings will be conducted remotely and frequently. Similarly, for Component 2, the initial assessment will be conducted using existing data from the utilities. For site visits, the team will follow guidance from GoM to wait until the current pandemic crisis slows down to allow travel.

## Co-financing, if any

Co-financing from the Energy Sector Management Assistance Program (ESMAP), tentatively for about US\$250,000, is being sought to collectively support the detailed assessment of floating solar PV in the context of the Maldives. There will be complementary World Bank-funded ARISE project to be implemented in parallel. The proposed activities will be closely coordinated with the World Bank and ADB engagement in the country.

## Gender considerations and expected results

The World Bank counterpart in the Maldives (MoF and ME) have a significant women representation at senior positions. Similarly, the proposed project will have the scope to mainstream women in the utilities sector across the Maldives. The program will work closely with STELCO and FENAKA to create training modules that are implemented through the universities in the Maldives. These training programs will encourage women to take up specific roles and offer training support to integrate them in the new net metering regulation that will be implemented. It is expected that the program will be able to train over 50 university students in the net metering module and will also work with STELCO/FENAKA to offer the trainees jobs that are related to the net metering space.

Limited career guidance during the early years of schooling has also left students unaware of the available opportunities and earning capacity in the energy sector. The program will separately provide career talks on “Women in Energy”, targeted at secondary school children and university students who are in the process of selecting a stream and course work for their post-secondary school studies.

In addition to the above, the Women Development Committees (WDCs) across the islands will serve as the nodal agency to implement the new net metering regulation across the islands. Their training and support to enable the WDCs to be able to serve as the nodal agency will be done through STELCO and FENAKA.

Demand-side assessments will be conducted to look at the payment type and duration preferences of male and female customers, and this will be taken into account in development of guidelines and pilot model, in order to help reduce gender gaps in repayment rates and/or undue burdens on women and men, as well as other customer types, such as (M)SME owners in comparison to larger industrial or commercial customers.

The pilot will track these differences in customer type (by gender, firm size) during implementation of the net metering in Male to help ensure the widest uptake across all groups, before finalizing related regulatory guidelines to GoM.