



Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 19-Dec-2019 | Report No: PIDA28290

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BASIC INFORMATION

A. Basic Project Data

Country Maldives	Project ID P172788	Project Name Accelerating Renewable Energy Integration and Sustainable Energy	Parent Project ID (if any)
Region SOUTH ASIA	Estimated Appraisal Date 02-Mar-2020	Estimated Board Date 27-May-2020	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance	Implementing Agency Ministry of Environment, FENAKA Corporation Limited, State Electric Company Limited (STELCO)	

Proposed Development Objective(s)

The development objective is to increase generation capacity from renewable energy sources and facilitate their integration into the country’s grid infrastructure.

Components

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

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	122.00
Total Financing	122.00
of which IBRD/IDA	1.00
Financing Gap	0.00

DETAILS

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Private Sector Investors/Shareholders

Equity	Amount	Debt	Amount
Non-Government Contributions	45.00	IFI Debt	11.00
Private Sector Equity	45.00	IDA (Credit/Grant)	1.00
		Other IFIs	10.00
		Trust Funds	30.00
Total	45.00		41.00

Payment/Security Guarantee

Financed by Government/SOE Contribution	36.00
IDA Credit Guarantee	36.00
Total	36.00

Environmental and Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Maldives is an island state comprising 1,192 coral islands grouped into 26 atolls, spread across roughly 115,300 square kilometers of Indian Ocean.** The Maldivian population, about 515,696 as of 2018, is widely dispersed across the islands, many of them remote, and physically vulnerable to rising sea levels. Eighty percent of the total land area of the country, which is less than 300 square kilometers, is lower than 1 meter above mean sea level. The country’s exposure to natural hazards and climate variability poses a threat to lives and the economy. In the early 1980s, the Maldives had a population of 156,000 and was one of the world’s 20 poorest countries. Today, it is a middle-income country with GDP per capita of US\$10,224 (2018).

2. **Poverty rates, as measured by the headcount ratio of 15 Rufiyaa per person per day, have fallen steeply, from 21% in 2003, to 8.2% in 2016.** Other human development indicators - infant mortality, maternal mortality, and educational attainment - have registered similar improvements. The country had achieved 5 out of 8 Millennium



Development Goals (MDGs) by 2007, but progress has been relatively slower towards ensuring environmental sustainability (MDG7) and developing a global partnership for development (MDG8). While poverty has declined sharply overall in recent years, vulnerability and inequality are a concern and the disparities between remote islands with small populations and the capital Male' region remain substantial.

3. **The extremely dispersed population and the congested capital city of Malé has led to a high cost of service delivery, increased vulnerability to the impact of climate change, and difficulty in creating jobs that match youth aspirations.** While more than 90 percent of poor Maldivians live in the atolls, away from Malé, there is a general lack of productive employment opportunities across the country. Youth unemployment is high at 15.3 percent with nearly half of all unemployed youth located in the capital city, and almost one in four Maldivian youth not in education, employment or training. To address these challenges, the government is proceeding with the Greater Malé development strategy to promote voluntary migration from Male to the larger islands. Under this strategy, the government is developing infrastructure, housing, and public services, and promoting economic development on the larger islands. The implementation of this strategy is costly and has led to an increase in debt.

4. **Growth in Maldives is narrowly driven by the high-end tourism sector (gross value added of 23% in 2017) which is highly volatile.** Real GDP growth over the past 5 years averaged at 6.3% supported by a mammoth government-led infrastructure investment program and it is expected to gradually decline to 5% over the medium term. In 2018, growth slowed to 6.1 percent from 6.9 percent in 2017 due to a slowdown in construction activity. In 2018, tourism contributed 1.7 percentage points (pp), followed by construction (0.8pp), wholesale and retail trade (0.4pp) and financial services (0.4pp). Infrastructure investments such as the international airport, the opening of new resorts, and an expansion in the guest houses' sector drove increases in both the number of tourist arrivals and bed nights by 6.8 percent and 10.2 percent respectively, year-on-year (y/y).

5. **According to the World Bank-IMF debt sustainability analysis, Maldives remains at high risk of debt distress.** The country faces refinancing risk from international sovereign bonds including the Eurobond issued in 2017 combined with a low level of reserves and financing pressures from amortizations of guaranteed loans for major infrastructure projects. The repayment of outstanding debt from major infrastructure projects is set to pick up starting in 2019. Interest and amortization payments are projected at nearly 5 percent of GDP per year over the medium term with a noted rise in 2022 to 9 percent of GDP, coinciding with the redemption of the maiden US\$250 million sovereign bond. While reserve buffers are presently low and provide limited scope to absorb payments on outstanding debt beyond a year, a Sovereign Development Fund (SDF) has been set up with resources allocated to mitigate anticipated liquidity pressures from increased external debt servicing. Together with the winding down of large-scale infrastructure, debt is assessed sustainable. In addition, the Government is exploring options to retire existing high cost debt, to be replaced with more concessional, longer term borrowing.

6. **The government has been taking a more proactive approach to fiscal and public financial management reforms. In the last two years, the Maldives have implemented measures to strengthen their fiscal position.** Thereby, increasing resources for public investment and containing the debt to GDP ratio. The government has also taken steps to improve budget credibility and transparency. Fiscal out-turns are published monthly by the Ministry of Finance (MoF). MoF is also rolling out a new integrated financial management information system to support commitment controls and improve information and fiscal transparency.

7. **The new government's manifesto laid out an ambitious economic development plan to promote inclusive growth with the aim of providing equitable opportunities and fostering a resilient community and safeguarding environment sustainability.** In particular, the National Development Strategy (NDS) seeks time-bound, multi-year sectoral



plans aimed at prioritizing resource allocation, increasing competitiveness, diversification and inclusiveness. The government is pursuing opportunities for growth and diversification in a variety of activities, including, specifically, the clean energy sector. However, diversification will need be managed gradually to secure appropriate financing, and should focus on SMEs where scope to promote gender equality and women participation is higher. Promoting inclusiveness should seek to enhance transportation links and women's safety when commuting between islands; improve energy reliability across atolls; address skills gaps via improving the quality of education and promote technical and vocational training; encourage the adoption of financial technology; and advance fiscal policies that shift tax policies toward more progressive revenue sources.

Sectoral and Institutional Context

8. **While the Maldives achieved universal electrification in 2008, at 14-50 US cents/kWh¹ it has one of the highest end-user tariffs in South and South-East Asia.** The total installed generation capacity of the inhabited islands is about 247 MW, with the resort islands having an additional 144 MW (which are managed independently of the government) and 20 MW on industrial islands. Total annual electricity consumption was 704 GWh in 2017, about 56 percent of which is accounted for by the Greater Male' region. Electricity consumption per capita was 1840 kWh/year in 2016 and electricity demand is projected to grow 7 percent per annum. Male' has the largest system with an installed capacity of 81 MW, while only four other islands have generation capacity larger than 1 MW and the remaining 30 islands own less than 1 MW capacity. The highly dispersed nature of these systems poses challenges for system operation and flexibility.

9. **The Maldives comprises a number of small, isolated island-based grid systems that pose challenges for security of supply and high costs of electricity service.** Three vertically integrated state-owned utilities STELCO, FENAKA, and MWSC² operate a total of 186 powerhouses on inhabited and industrial islands. STELCO is the utility serving Male, while FENAKA was formed in 2012 as a merger of 6 regional utilities to serve the outer islands, except resort islands. It also handles sewage, water and waste treatment for these islands. STELCO manages 35 powerhouses in 35 islands, while FENAKA operates 148 powerhouses to serve 152 outer island communities. STELCO is responsible for providing electricity to over 35,000 customers in the Greater Male region, which account for 57 percent of the electricity consumption in the country. While FENAKA serves customers constituting the remaining 43 percent and has about 2000 employees spread across various islands.

10. **The sector is almost 95 percent reliant on diesel fuel for power generation and diesel imports range from US\$240-400 million annually, resulting in budget uncertainty and fiscal burden for the Government.** End-user tariffs are insufficient to cover costs and, despite significant budgetary support being provided to utilities by the GoM, the electricity sector is not financially sustainable. Costs for the most efficient diesel generator in the Maldives are estimated to range between 23-33 US cents/kWh, while for many of the outer islands costs can be as high as 70 US cents/kWh. Energy demands have grown exponentially over the past three to four decades as a result of unprecedented economic growth in key sectors and increased demand for electricity generation. The demand for energy generation is still expected to grow annually by 8.5 percent increasing pressure on the budget and balance of payments due to its high dependency on fossil fuel.

11. **Fuel subsidies and usage subsidies to the electricity sector reached about US\$60 million in 2018, about 1% of GDP.** Both STELCO and FENAKA rely heavily on GoM subsidies to be financial sustainable. The fuel subsidy accounts for the volatility in fuel prices and makes up about 65 percent of the direct subsidy budget in 2018. It is applied if the fuel

¹ ME, "Ministry of Environment, Maldives - Island Electricity Data Book," Male, 2018

² MWSC operates 1 power house on V.Rakeedhoo.



cost per liter is above a threshold baseline rate. Since 2017 the fuel price to utilities has been maintained at a maximum baseline price per liter regardless of the market price, under an agreement between the GoM and the main fuel supplier, State Trading Organization (STO). The difference between the market price and baseline is then paid off directly to STO as a subsidy. The reduction in the 2019 baseline rate has resulted in increasing fuel subsidy. On the other hand, the usage subsidy³ accounts for about 35% of latest direct subsidy budget. In March 2009, an adjustment harmonized the domestic category tariffs across all bands for all islands and a similar harmonization was conducted for business category tariffs across all islands. These adjustments are reflected as a "revenue loss" to the utilities and are paid out to the utilities by GoM as compensation.

12. Increasing renewable energy penetration in the electricity sector is a solution to address the current challenges.

The cost of generation is lower from renewable energy than from diesel. Recent IPP bids in the Greater Male area with STELCO as an offtaker, supported by the Bank-funded Accelerating Sustainable Private Investment in Renewable Energy (ASPIRE) project, have demonstrated that electricity from solar PV independent power producers (IPPs) can be purchased as low as at 10.9 US cents per kWh, as further explained in paragraph 17. The tariff is expected to be further reduced as the market evolves, the scale increases and the investors get confidence. It would not only improve financial performance of the public utilities but also reduce the need for budget support for the electricity sector, thus improving fiscal sustainability. Furthermore, renewable energy would positively impact the cost of electricity service as logistical difficulty of shipping and storing fuel across a large number of islands would decrease. Therefore, it would enhance electricity service reliability and security as well as resilience against natural disasters.

13. Transport sector also accounts for a significant portion of energy and fuel consumption, posing an opportunity for further energy transition and fuel import reduction beyond electricity sector.

The energy use for inland vehicles and inter-island vessels and aircrafts is the second largest following the electricity sector in the Maldives. The transport sector consumes 28-31 percent of total final energy consumption while the electricity sector reaches 38-40 percent.⁴ There is an emerging opportunity to explore electric mobility solutions for cars and ferries to replace currently used diesel with electricity from renewable energy sources. Given the relatively small land area of each island and short distance to neighboring islands, the current range constraint of electric mobility solutions would be less of a concern.

14. The Government of Maldives 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.

Peaceful transition of power after the September 2018 elections has ushered in a new Government that is prioritizing resilience and sustainability of the country. 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% compared to 2018 levels. In addition, the SAP sets out five policy goals under the Clean Energy Pillar, notably Policy 2 necessitates that the Government "Expand and develop the renewable energy sector", while Policy 3 requires the Government to "Increase national energy security through diversification of sources for energy production and expansion of energy storage". The SAP also identifies "Enable the transportation industry to adopt vehicles that use renewable energy" as one of the strategies under the Clean Energy Pillar. Reinforcing the commitments made under the SAP, 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.

³ The usage subsidy is the total amount spent to cover the adjustment (reduction) of the actual tariff for different bands/categories.

⁴ Maldives Energy Authority (MEA), Maldives Energy Supply and Demand Survey, 2010-2012



15. **Despite the Government’s larger clean energy ambitions, the scope for public sector investment is limited due to fiscal constraints.** As referenced above, with accumulating public debt and guarantees, high risk of debt distress and widening fiscal deficit, there are constraints to deploy further public investment to support further increases in renewable energy. Mobilizing private sector investment will therefore be a critical catalyst to achieving the GoM’s renewable energy targets and enabling an energy transition.

16. **However, the current investment climate for the private sector is in its nascent stage and private developers and lenders still face challenges investing in the sector and country.** In the case of the Maldives, the market perceives off-taker risk to be high, primarily due to its reliance on Government subsidies. Furthermore, the retail tariff of electricity is not cost-reflective. An additional hurdle to private sector investment is the lack of track record that utilities have as counterparts to PPAs with IPPs. Furthermore, currency inconvertibility risk exists for PPAs denominated in US Dollar and payable in Maldivian Rufiyaa, and require, as a result, Government intervention to make the USD available to the private sector. Finally, grid availability risk also exists, as the small island grid systems are not sufficiently flexible to integrate significant variable renewable energy (VRE). As such, additional investment in grid systems will be required to scale up the penetration of renewable energy to prevent curtailment of solar or grid instability. As a result of the above-mentioned constraints, renewable energy accounts for only about 4 percent of the energy mix to date. The use of IDA guarantees will help address these risks, particularly the risk of offtaker non-payment, in order to increase private sector interest and reduce the total financing costs for renewable energy IPPs in the Maldives.

17. **To start addressing these barriers, the World Bank has been engaging with the Government through diverse operations.** The Bank-financed ASPIRE project (P145482) has been under implementation since its approval in 2014. Phase 1 sub-project of 1.5 MW of rooftop solar PV in Hulhumale’ has been operational since March 2018. Phase 2 sub-project for 5 MW in Greater Malé is under tendering. By putting in place a robust risk mitigation package to address the concerns of IPPs and offering technical assistance to the PMU, the ASPIRE Project has started to improve the investment climate in the renewable energy sector. This is clearly evidenced by the dramatic tariff reduction seen between Phase 1 and Phase 2 bidding; falling from 21 US cents per kWh in Phase 1 to 10.9 US cents per kWh⁵ in Phase 2. The ASPIRE Project also mobilized private sector investment in the areas served by the public utilities for the first time ever in the Maldives. However, the achievements of the Project have been limited to the Greater Male’ area where the grid is large, and no technical constraints exist to integrating a total of 6.5 MW of solar PV. Furthermore, as part of a broader World Bank engagement with the Maldives, in particular through a series of development policy operations (DPOs), the GoM is working on improving fiscal sustainability and, specifically, energy sector financial sustainability, by supporting the revision of tariff setting methodologies/structures and relevant policy and regulatory frameworks. Over time, the financial sustainability of the energy sector and the creditworthiness of the utilities are expected to be further improved with continuous support and engagement from the Bank.

C. Proposed Development Objective(s)

PDO Statement

18. The development objective is to increase generation capacity from renewable energy sources and facilitate their integration into the country’s grid infrastructure.

⁵ Reflecting the impact of US\$2 million of tariff buydown grant



Key Results

PDO Level Indicators

19. Project Development Results Indicators are:
- (i) Installed Generation Capacity of Solar PV;
 - (ii) Installed Capacity of BESS; and
 - (iii) Private Capital Mobilized.

D. Project Description

20. The proposed Project would mobilize private sector investment in solar PV generation capacity, support BESS deployment and grid modernization to enable VRE integration and provide technical assistance for institutional capacity building and pipeline development. The project design would allow to increase renewable energy penetration in island grid systems with technical constraints to absorbing renewable energy, and thus further scale up investment in renewable energy.

21. The proposed project is consisted of four components as described below.

22. **Component 1 – Solar PV Risk Mitigation (US\$36 million IDA Guarantee).** This Component aims to leverage the success of the previous World Bank programs in the Maldives (including the ASPIRE Project (P145482)) to support the government in increasing the solar PV capacity through private sector participation from independent power producers (IPPs). Component 1 will provide risk mitigation package to private sector IPPs to cover off-taker risks including PPA payments delays and termination payments.⁶ Given the weak financial performance and the dependence on government subsidy of the offtakers, the private sector would view the provision of a credit enhancement to mitigate the offtaker risk critical in investment decision making. IPPs will be selected through competitive tendering to install and operate solar PV generation facilities. This component is expected to cover various solar PV applications for IPPs that will be identified over time, including rooftop PV, land-based PV, and floating PV, across various islands (not only Greater Malé and larger islands, but also outer islands and atolls), targeting about 36 MW of installed capacity in aggregate.

23. This Component will support multiple IPPs in phases during the implementation period. Given the severe land constraints in the Maldives, following the ASPIRE approach, the PMU will in advance identify suitable spaces for installing and operating solar PV, either on rooftop, ground or waterbed such as lagoon, and aggregate a number of spaces for each bidding phase. The bidding package, including a feasibility study and environmental and social safeguards assessments, will be prepared by the PMU.

24. As part of the bidding package for each IPP to be identified, one or more IDA Guarantees will be provided. An IDA Guarantee⁷ will be offered for two potential purposes: (i) to backstop short term payment delays by STELCO or FENAKA under Power Purchase Agreements (PPAs), and/or (ii) to partially cover termination events⁸ caused by defaults for which STELCO, FENAKA or the Government of Maldives is responsible or in certain cases to cover GoM force majeure events. With respect to the termination event coverage, in the very rare cases where there are very serious and chronic utility

⁶ IDA coverage of termination to be further discussed subject to MIGA involvement

⁷ Subject to the internal approval on the scope of coverage. For example, an L/C backed payment guarantee, subject to availability of reputable L/C issuing banks or a direct payment guarantee with a [12] months standstill period to replace the SREP grant funded escrow account previously structured under the ASPIRE program

⁸ A direct payment guarantee under the same model as the ASPIRE program



and GoM non-performance issues, contract termination proceedings under PPAs could be initiated. If such proceedings result in a termination payment obligation due to the private sector IPPs, and if such termination payment obligation is not honored, then, once all other modalities have been exhausted, the IDA Guarantee would be used to backstop a portion of the funds due to the IPPs.

25. The coverage under the risk mitigation package will be revisited at each round of bidding. Subject to market sounding, the coverage may be adjusted, i.e. the number of months of PPA payment and/or the portion of the termination payment to be covered. As the market develops and private sector gets confidence in investment opportunities in the Maldives, the coverage provided in the risk mitigation package is also expected to be reduced in parallel while still incentivizing private sector investment.

26. A “one” WBG approach is being considered in order to provide the most flexible financing solution for the private sector. There are ongoing discussions with International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA) to potentially collaborate on the Project. IFC is considering providing financing to the winning bidders of each round, subject to its own due diligence. While MIGA may provide further support for risk mitigation where expanded risk mitigation coverage is required. The Bank will continue to coordinate with IFC and MIGA to improve the investment climate in the Maldives and assist the government in its efforts to scale up renewable energy generation in the country.

27. **Component 2 – Battery Energy Storage Systems (BESS) (US\$25 million CTF Loan).** This component will support deployment of BESS in Addu City and other islands to enable a high penetration of solar PV in the power system while ensuring reliable supply in a cost-efficient manner. As the share of renewable energy in the power system continues to grow, with support under Component 1, particularly rapidly in islands with a smaller grid, integrating variable renewable energy (VRE) while maintaining or improving quality of service poses significant challenges to STELCO and FENAKA. The Project will support a comprehensive assessment of each island grids where solar PV IPPs are invited under Component 4 and determine proper solutions to integrate proposed solar PV capacity in a cost-efficient manner. In case that BESS is required for VRE integration, it will be introduced to provide ancillary services, load shifting and other benefits. The Component targets to support about 50 MWh of BESS in the selected grid systems, subject to market price trends.

28. A CTF concessional loan of US\$17 million will be provided to procure and operate BESS. The CTF loan will be provided to the Government of Maldives with 40-year maturity, 10-year grace period and 0.25 percent of service charge on the disbursed and outstanding loan balance. There will be an MDB fee equivalent to 0.45 percent of the total loan amount, payable in a single lump sum amount, which will be paid by the borrower out of its own resources or capitalized from the loan proceeds following the effectiveness of the loan. The concessional nature of CTF loan is essential to introduce such an innovative technical solution of which the price could be prohibitive on commercial basis, as indicated in the financial analysis later in the PAD.

29. The ME, through its PMU, will lead a procurement process through a competitive bidding procedure for the BESS. STELCO and FENAKA will coordinate with the PMU and closely coordinated throughout the preparation and implementation of the procurement process. To ensure a proper life cycle management of the BESS deployed under the Project, the contract with suppliers will include provisions on safety infrastructure during operation and used battery management and disposal in accordance with international standards. Operation and maintenance (O&M) of the BESS may pose some challenges for the utilities as they have limited experience in operating longer-duration BESS. During the preparation of tendering, different options on O&M arrangement will be explored to ensure that BESS functions as intended and that the utilities are equipped with sufficient O&M capacity over a long run.



30. **Component 3 – Grid Modernization for VRE Integration (US\$1 million IDA Credit, US\$2 million CTF Loan and approx. US\$10 million from other IFI co-financing).** This component will support grid upgrades and reinforcement to accommodate an increasing volume of renewable energy and BESS, especially for longer duration, in selected grid systems. The current grid systems in many islands are obsolete and insufficient to integrate a high share of solar PV and BESS and optimize grid operation among multiple sources of generation or supply. An increasing use of electric vehicles (EVs) and the need for EV charging stations are expected to pose additional challenges to the power system.

31. The main scope will include strengthening network capacity, deploying supervisory control and data acquisition (SCADA) systems and optimizing interactions among renewable energy generation, BESS and existing conventional power plants. As the penetration of solar PV and renewable energy increases, interconnection among islands will be also considered to improve system balancing and flexibility, which helps integration of solar PV. Associated infrastructure with electric mobility can be also supported subject to detailed assessment under Component 4. The existing grids across the Maldives will be first assessed for investment requirements, considering a potential growth in electricity demand, renewable energy and EVs. The ME will lead implementation of this Component, in close coordination with STELCO and FENAKA.

32. Terms of CTF concessional loan will be same with Component 2. Co-financing from other sources would be critical to meet the increasing investment need under the Component. The Bank is in discussion with other international financial institutions (IFIs) including Asian Infrastructure Investment Bank (AIIB) and Cassa Depositi e Prestiti (CDP) to provide loans to co-finance this Component.

33. **Component 4 – Technical Assistance (US\$3 million CTF Grant).** This Component will provide technical assistance (TA) support to be implemented by the ME, through its PMU. It will support the following areas:

- (i) Institutional capacity building: It will provide technical capacity support and training to the ME, STELCO, FENAKA and other relevant stakeholders for power system planning incorporating renewable energy, BESS and EVs and operating improved power systems with renewables, battery storage, EMS and SCADA. It will also support capacity building to strengthen a policy and regulatory framework for BESS risk management.
- (ii) Pipeline development: This will cover identification of appropriate subproject sites, pre-feasibility and feasibility studies, preparation of safeguard instruments, and technical advisory for the tendering process.
- (iii) Other sustainable energy development: To exploit renewable energy potential beyond solar PV and develop sustainable energy sector, this area will support technical assistance on, but not limited to, offshore wind potential assessment, policy and regulatory frameworks and system planning for scaling up the use of EVs, feasibility assessment and roadmap for EV charging stations, vehicle-to-grid technologies and associated infrastructure, feasibility assessment of green hydrogen for energy storage and transportation, potential energy efficiency policies and engagement, and improving financial sustainability of the power sector.
- (iv) Project management and implementation support: This will cover hiring consultants necessary for the PMU functions, including technical experts, financial management, environmental and social safeguards, procurement as well as incremental operating expenses and office supplies.



Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Assessment of Environmental and Social Risks and Impacts

34. The proposed project activities include conversion to solar energy to produce electricity via establishment of floating, land and roof top solar energy generation systems, which will reduce the fossil fuel-based energy production dependency in the Maldives. The energy storage systems and grid upgradation work to the existing grid, can provide social and environmental benefits through the improvements of energy resilience and efficiency and the increased use of clean electricity from renewable sources. Although the specific information on subprojects such as exact location and scale are unknown at this stage, the proposed subprojects are not likely to be complex, and their footprints are expected to be small to medium. Majority of the sites, including sites for land based solar installation, BESS system installation and power houses and grid infrastructure will be on inhabited islands and in areas where anthropogenic activities have been conducted. Areas such as harbors, jetty areas and docks, are being explored as sites for the establishment of floating solar systems to ensure they are located away from sensitive lagoon and marine areas and other environmentally sensitive locations.

35. Negative environmental impacts that have moderate risks are associated with the solar energy generation system investments, future decommissioning of the solar energy systems at the end of their lifetime, and the grid upgradation works; but these are expected to be localized in nature and arise only during the construction/upgradation works in the form of civil works related impacts such as localized dust, noise and worker and public health and safety as well as waste generation.

36. While the proposed Battery Energy Storage System (BESS) are not complex and are small in installation footprint, the environmental risks associated with this activity will be moderate in nature. In particular, potential fire and explosion risks and environmental hazards related to the disposal of used batteries containing hazardous waste will be mitigated via risk management measures that will include product specifications and “cradle to grave” provisions in the contracts of supplier for batteries used in the BESS and solar cells in accordance with International best practice. Due to these reasons the overall environmental risks and impacts have been assessed as moderate at the concept stage.

37. The project is expected to have positive social impacts through the promotion and use of renewable energy technology which has been identified as the best solution in terms of cost-benefits and socio-environmental needs of the country. Risks associated with land acquisition and involuntary resettlement are not expected under the project but installation of solar panels in port areas, residential and commercial areas, poses risks in terms of disturbances to commercial activities, restriction on access to land or use of other resources. Other social risks such as exclusion of vulnerable groups from consultations and decision-making processes, insufficient coordination and engagement with different stakeholders, influx of labor, particular migrant workers and the concomitant issues of GBV, social tensions, burden on community resources and public utilities, are also important considerations for the project. At this stage, since the exact nature and location of the sub-projects is not known, the precise risks and impacts will be known only after the environment and social screening is carried out, as per the due diligence procedure mentioned in Section B.1.

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38. The performance standards under OP4.03 will be applicable to the Guarantee Component of the project where interventions will be implemented by private sector investments. Funding for this component will be used to provide capital subsidy for projects being developed under the program. This will be delivered to the private sector project developers who will bring in the remainder of the investment of each respective project when they are developed. The ME already has experience under ASPIRE on operating a project which included OP4.03 for guarantee and Bank safeguards and thus will be able to manage the World Bank Environmental and Social Framework (ESF) requirements and OP4.03. OP4.03 will facilitate to streamline preparation of safeguards instruments by private sector developers who have better experience and knowledge to the use of this system and will in turn ensure stringent due diligence in line with World Bank group environmental and social requirements.

39. The Ministry of Environment (ME) has demonstrated good capacity and experiences for successfully implementing World Bank safeguards and WBG ESHS Guidelines for over a decade. Sector specific E&S risks have also been successfully managed under the ASPIRE project. Further capacity is required on E&S due diligence, in line with the ESF, and associated supervision, via the project intervention with a specific focus on BESS system management which is being piloted via this operation. Significant capacity building during project implementation will have to be undertaken with STELCO and FENAKA the other two implementing agencies as well. A PMU has been set up at the ME and included an experience Environmental and Social Specialist who has gained experience on implementing World Bank Safeguards policy and OP4.03 requirements over a course of 5 years.

E. Implementation

Institutional and Implementation Arrangements

40. The ME will be the implementing agency of the Project. ME has been collaborating in several World Bank projects such as Maldives Clean Energy for Climate Mitigation Project (P128268), Maldives Environmental Management Project (P108078), Maldives Ari Atoll Solid Waste Management Project (P130163) and Maldives Accelerating Sustainable Private Investment in Renewable Energy (P145482). This previous exposure to Bank projects will assist in implementing and coordinating activities under the current Project. The existing PMU under the ME for the Bank-funded ASPIRE project will continue to manage the guarantee component and the technical assistance component under the Project.

41. Given the scope of work that is closely related to grid systems, the ME will ensure close coordination with State Electric Company Limited (STELCO) and FENAKA throughout implementation. The PMU will establish a Project Steering Committee, comprised of the ME, STELCO, FENAKA and any other relevant parties. The Project Steering Committee will review implementation progress and make key decisions on project implementation, such as clearance of bidding documents for solar PV IPPs, BESS and grid modernization. The details will be further laid out during preparation.

42. The IPP subprojects to be supported under Component 1 will be implemented by the private sector that will have overall responsibility for designing, financing, constructing, and operating solar PV generation facilities for the duration of power purchase agreements (PPAs). Each IPP will be selected through competitive tendering, through which credentials of the bidders would be vetted and approved. PPA agreements between the IPP special purpose vehicle (SPV) and off-takers (STELCO and FENAKA) will lay out the responsibility of each party in detail. The IDA Guarantee to be offered to IPPs will be managed directly by World Bank staff.



43. Ministry of Finance will be the borrower of IDA Credit and CTF Loan and the recipient of CTF Grant. In addition, the Ministry of Finance will have to sign an Indemnity Agreement to support the IDA Guarantee Agreement that the Bank enters into with private sector beneficiaries under Component 1.

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APPROVAL

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