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**The World Bank**

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Report No: PAD5536

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON A

PROPOSED ADDITIONAL CREDIT

IN THE AMOUNT OF US\$ 15 MILLION IDA CREDIT,

A PROPOSED CLEAN TECHNOLOGY FUND (CTF) LOAN

IN THE AMOUNT OF US\$ 30 MILLION

TO THE

REPUBLIC OF MALDIVES

FOR THE

ACCELERATING SUSTAINABLE CLEAN ENERGY INVESTMENTS FOR NET ZERO TRANSITION (ASCENT)  
PROJECT

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective November 14, 2023)

Currency Unit = Maldivian Rufiyaa (MRV)

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15.25 MVR = US\$1

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SDR1 = US\$1.317470

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## FISCAL YEAR

January 1 – December 31

Regional Vice President: Martin Raiser

Country Director: Faris H. Hadad-Zervos

Regional Director: Pankaj Gupta

Practice Manager: Simon Stolp

Task Team Leader(s): Amit Jain

## ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AIIB	Asian Infrastructure Investment Bank (AIIB)
AM	Accountability Mechanism
ARISE	Accelerating Renewable Energy Integration and Sustainable Energy
ASCENT	Accelerating Sustainable Clean Energy Investments for Net Zero Transition
ASPIRE	Accelerating Sustainable Private Investment in Renewable Energy
BESS	Battery Energy Storage System
CIF	Climate Investment Funds
DA	Designated Account
DG	Diesel Genset
E-Bus	Electric Bus
E-Mobility	Electromobility
EMS	Energy Management System
ESCP	Environmental and Social Commitment Plan
ESMF	Environmental and Social Management Framework
ESMAP	Energy Sector Management Assistance Program
EV	Electric Vehicle
FPV	Floating Solar PV
FY	Fiscal Year
GAP	Gender Action Plan
GoM	Government Of Maldives
GDP	Gross Domestic Product
GRS	Grievance Redress Service
GU	Grid Upgrade
GWh	Gigawatt hours
HDI	Human Development Index
HVRT	High-Voltage Ride Through
IA	Implementation Agreement
IBR	Inverter-Based Resources
IDA	International Development Association
IFC	International Finance Corporation
IPP	Independent Power Producer
IsDB	Islamic Development Bank
JICA	Japan International Cooperation Agency
KWh	Kilowatt-hour
LMP	Labor Management Procedures
LVRT	Low-Voltage Ride Through
MECCT	Ministry of Environment, Climate Change and Technology

MIGA	Multilateral Investment Guarantee Agency
MoCCEE	Ministry of Climate Change, Environment and Energy
MS	Moderately Satisfactory
MTCC	Maldives Transport and Contracting Company
MVR	Maldivian Rufiyaa
MW	Megawatt
NDC	Nationally Determined Contributions
PDO	Project Development Objective
PMU	Project Management Unit
PPA	Power Purchase Agreement
PPSD	Project Procurement Strategy for Development
PV	Photovoltaic
Q2	Second Quarter
SCADA	Supervisory Control and Data Acquisition
SEP	Stakeholder Engagement Plan
SIDS	Small Island Developing States
SREP	Scaling Up Renewable Energy Program
SRMI	Sustainable Risk Mitigation Initiative
STELCO	State Electric Company Limited
STEM	Science, Technology, Engineering and Mathematics
SWAC	Seawater Air-conditioning
TA	Technical Assistance
TWh	Terawatt-hour
UNDP	United Nations Development Program
VRE	Variable Renewable Energy
WBG	World Bank Group

**BASIC INFORMATION – PARENT (Accelerating Renewable Energy Integration and Sustainable Energy - P172788)**

Country	Product Line	Team Leader(s)		
Maldives	IBRD/IDA	Amit Jain		
Project ID	Financing Instrument	Resp CC	Req CC	Practice Area (Lead)
P172788	Investment Project Financing	ISAE1 (9260)	SACMV (7034)	Energy & Extractives

Implementing Agency: Ministry of Environment

Is this a regionally tagged project?				
No				
Bank/IFC Collaboration				Joint Level
Yes				Complementary or Interdependent project requiring active coordination
Approval Date	Closing Date	Expected Guarantee Expiration Date	Environmental and Social Risk Classification	
11-Dec-2020	31-Jan-2026		Moderate	

**Financing & Implementation Modalities**

<input type="checkbox"/> Multiphase Programmatic Approach [MPA]	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input checked="" type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a Non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

**Development Objective(s)**

The development objective is to increase renewable energy generation capacity and enhance the financial and environmental sustainability of the power sector in the Maldives.

**Ratings (from Parent ISR)**

	Implementation				Latest ISR
	26-Jul-2021	03-Feb-2022	04-Sep-2022	14-Mar-2023	19-Sep-2023
Progress towards achievement of PDO	MS	MS	MS	MS	MS
Overall Implementation Progress (IP)	MS	MS	MS	MS	MS
Overall ESS Performance	S	S	S	S	S
Overall Risk	S	S	S	S	S
Financial Management	S	S	S	S	S
Project Management	S	S	S	S	S
Procurement	S	S	S	S	S
Monitoring and Evaluation	S	S	S	S	S

**BASIC INFORMATION – ADDITIONAL FINANCING (ACCELERATING SUSTAINABLE CLEAN ENERGY INVESTMENTS FOR NET ZERO TRANSITION - P180777)**

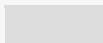
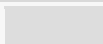
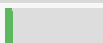
Project ID	Project Name	Additional Financing Type	Urgent Need or Capacity Constraints
P180777	ACCELERATING SUSTAINABLE CLEAN ENERGY INVESTMENTS	Scale Up	No

	FOR NET ZERO TRANSITION		
Financing instrument	Product line	Approval Date	
Investment Project Financing	IBRD/IDA	15-Apr-2024	
Projected Date of Full Disbursement	Bank/IFC Collaboration	Joint Level	
29-Dec-2028	Yes	Complementary or Interdependent project requiring active coordination	
Is this a regionally tagged project?			
No			

**Financing & Implementation Modalities**

<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input checked="" type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a Non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input checked="" type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)
<input type="checkbox"/> Contingent Emergency Response Component (CERC)	

**Disbursement Summary (from Parent ISR)**

Source of Funds	Net Commitments	Total Disbursed	Remaining Balance	Disbursed
IBRD				 %
IDA	12.40		12.39	 0 %
Grants	30.00	1.38	28.62	 4.6 %

**PROJECT FINANCING DATA – ADDITIONAL FINANCING (ACCELERATING SUSTAINABLE CLEAN ENERGY INVESTMENTS FOR NET ZERO TRANSITION - P180777)**

**FINANCING DATA (US\$, Millions)**

**SUMMARY (Total Financing)**

	Current Financing	Proposed Additional Financing	Total Proposed Financing
<b>Total Project Cost</b>	107.40	216.60	324.00
<b>Total Financing</b>	107.40	216.60	324.00
<b>of which IBRD/IDA</b>	12.40	15.00	27.40
<b>Financing Gap</b>	0.00	0.00	0.00

**DETAILS - Additional Financing**

**World Bank Group Financing**

International Development Association (IDA)	15.00
IDA Credit	15.00

**Non-World Bank Group Financing**

Trust Funds	30.60
Clean Technology Fund	30.00
Canada Clean Energy and Forest Climate Facility Trust Fund	0.60
Commercial Financing	106.00
Unguaranteed Commercial Financing	106.00
Other Sources	65.00
Asian Infrastructure Investment Bank	35.00
Islamic Development Bank	30.00

**IDA Resources (in US\$, Millions)**

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
<b>Maldives</b>	15.00	0.00	0.00	0.00	15.00
National Performance-Based Allocations (PBA)	15.00	0.00	0.00	0.00	15.00



<b>Total</b>	<b>15.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>15.00</b>
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## COMPLIANCE

### Policy

Does the project depart from the CPF in content or in other significant respects?

Yes  No

Does the project require any other Policy waiver(s)?

Yes  No

**Environmental and Social Standards Relevance Given its Context at the Time of Appraisal**

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

**NOTE:** For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

**INSTITUTIONAL DATA**

**Practice Area (Lead)**

Energy & Extractives

**Contributing Practice Areas**

**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

## PROJECT TEAM

### Bank Staff

Name	Role	Specialization	Unit
Amit Jain	Team Leader (ADM Responsible)	TTL	ISAE1
Heenaben Yatin Doshi	Procurement Specialist (ADM Responsible)	Procurement and Contract Management	ESARU
Bernadeen Enoka Wijegunawardene	Financial Management Specialist (ADM Responsible)	FM	ESAG1
Kristine Schwebach	Social Specialist (ADM Responsible)	Social	SSAS1
Mokshana Nerandika Wijeyeratne	Environmental Specialist (ADM Responsible)	Environment	SSAEN
Asna Towfiq	Team Member	Consultant	ISAE1
Barbara Ungari	Team Member	Core team, gender	IEES2
Blanca Ximena Talero	Team Member	Alternate legal	LEGAS
Deegoda Gamage Ashini Iwanthik Samarasinghe	Team Member	Transport	ISAT1
Dung Anh Hoang	Team Member	Transport Focal Point	ISAT1
Jae Hyung Kwon	Team Member	Guarantees	MIGAH
Lien Thi Bich Nguyen	Team Member	Admin	ISAE1
Perla Del Carmen Espiel	Team Member	Admin	ISAE1
Raadhika Gupta	Team Member	Legal	LEGAS
Ritika Rodrigues	Team Member	ACS	SACIN
Sreyamsa Bairiganjan	Team Member	Core team	ISAE1

### Extended Team

Name	Title	Organization	Location
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## I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

### Country Context

**1. Maldives is an island state comprising nearly 1,200 coral islands grouped into 26 atolls, spread across roughly 90,000 square kilometers of Indian Ocean.** It is the only upper middle-income country in South Asia with a per-capita income of US\$11,778 as at the end of 2022. The Maldivian population, about 550,000 as of 2022, is widely dispersed across 185 islands, many of which are remote and 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 one meter above mean sea level. The country's exposure to natural hazards and climate variability poses a threat to lives and the economy. More than 30 percent of the local population live in the capital city Malé, while the rest are distributed among other inhabited islands. Basic human development indicators are high in the Maldives. The country's Human Development Index (HDI) score in 2021 was 0.747, adjudged high by the United Nations Development Program (UNDP). Despite poverty rates falling lower than pre-pandemic levels—due to faster than expected economic recovery—high informality of the labor markets remains a real concern, leading to further increasing inequality in the country, especially in the outer atolls.

**2. Despite having been described as the world's leading tourism destination, Maldives is extremely vulnerable to external shocks due to its economy's high dependence on both tourism and fossil fuel imports.** In 2022, the Maldives was recognized as the 'World's Leading Destination' for the third consecutive year, at the World Travel Awards. Famous for its natural beauty, coral and marine life, the archipelago attracts almost 1.7 million tourists every year. Tourism and associated services constitute one-third of the economy, half of government revenues and most private sector jobs. The COVID-19 pandemic negatively impacted the country's tourism sector, but an efficient vaccination program and the dispersed nature of resort islands supported by the "one island, one resort" concept helped restart tourism following a four-month lockdown in 2020. The pandemic underlined the need to accelerate economic diversification in the country, but opportunities outside of tourism will be limited in the near term. Limited natural resources and scarcity of land lead to heavy reliance on imports, especially fuel and construction materials. Despite strong economic recovery in the aftermath of the pandemic, high global commodity prices, a blanket subsidy program on fuel, electricity, and other consumption items, and accelerated implementation of ambitious mega infrastructure projects have led to a widening fiscal deficit, to around 15 percent of GDP. Public and publicly guaranteed debt also climbed to 150 percent of GDP during the pandemic and remained high at around 113 percent of GDP by 2022, double the pre-pandemic annual average in both cases. Insufficient measures to mitigate fiscal and debt vulnerabilities coupled with a looming high debt repayment requirement in 2026 have led to the Maldives facing high external and overall debt distress.

**3. Maldives was hit by the surge in global commodity prices, putting pressure on domestic inflation, the government's fiscal position, and the balance of payments.** Inflation started to rise in 2022 Q2 following the impact of Russia's invasion of Ukraine on global commodity prices. The rise in prices was largely driven by food, nonalcoholic beverages, and transport, while the government managed to curtail housing and utility price rises through blanket subsidies. Due to the historical provision of blanket subsidies on energy, food, and other items, the government is facing significant pressure to continue the subsidy program in its current form. The merchandise trade deficit is estimated to have widened considerably in 2022—by 35 percent—to US\$2.9 billion due to the sizeable fuel import bill (up to 13 percent of GDP). As the overall import bill increased to US\$3.5 billion in 2022 from US\$2.6 billion in 2021, official reserves fell by 40 percent since the end of 2021, declining to US\$500 million in October 2022. This was their lowest level since 2018 and only sufficient to cover 1.8 months of imports, a

significant drop from 3.8 months of coverage at the end of 2021. The high fuel import bill puts extra pressure on the country's already strained fiscal space. The optimal way to reduce fiscal risks, reduce electricity costs—and protect this pristine island paradise—is to move from a fossil-based system toward one based on renewable energy.

**4. Significant gaps persist in terms of gender equality in the country.** For instance: 1) the share of women in professional and technical roles is increasing very slowly, and the development of related skills is not progressing fast; 2) the level of awareness and participation in Science, Technology, Engineering and Mathematics (STEM) is lower among women than among men; and 3) the number of women working in the energy sector is still extremely low. Women account for approximately 15 percent of total employees, but less than one percent of technical employees, in the Maldives power sector. Despite an improved Human Development Index (HDI) for Maldives, the HDI score for females was lower than that for males in 2021/22. In 2021, the HDI value for females in Maldives was only 0.709, compared to 0.766 for males (the dimension with the largest gap is the gender inequality index). This gender gap indicates that more work is needed to ensure that human development gains are made in an inclusive manner. (See Annex 2 for more details on Gender Mainstreaming).

### Sectoral and Institutional Context

**5. Electricity in the Maldives is generated and distributed through independent island-based grid systems. Each island has its own powerhouse and distribution setup, functioning as an isolated power grid.** There are 184 powerhouses on inhabited islands with a combined generation capacity of 247 megawatts (MW), excluding industrial and exclusive resort islands. The industrial and resort islands are independently managed, having 20 MW and 144 MW of installed capacity respectively. Two primary state-owned utilities, State Electric Company Limited (STELCO) and FENAKA Corporation Limited (FENAKA), manage the distribution. STELCO serves Greater Malé with 35 powerhouses on 35 islands, having 108 MW of electricity generation capacity. Of these, only four islands exceed 1 MW capacity. FENAKA, formed in 2012 by merging six regional utilities, operates 149 powerhouses for 153 outer island communities (excluding resorts). Of these, the electricity generation capacity of 14 islands surpasses 1 MW, with an average load of 450 to 500 kW. FENAKA also oversees sewage, water, and waste treatment for these communities. The dispersed nature of these systems presents operational challenges.

**6. Demand for electricity has risen steadily in the Maldives over the past decade, reflecting robust economic growth, but its end-user tariffs rank among the highest in South and South-East Asia, ranging from US\$0.14 to US\$0.50 per kilowatt-hour (kWh).** Maldives achieved universal electrification in 2008. The per capita energy consumption in Maldives increased from 15,108 kWh in 2015 to 18,410 kWh in 2019—much higher than other countries in the region but lower than the average upper-middle-income country. The increase in energy demand partly reflects the growth of the tourism sector, the mainstay of the Maldivian economy. In 2021, the output of all electricity-producing facilities totaled 0.66 TWh, and per capita electricity consumption was 1,266 kWh.

**7. Maldives relies on imported diesel to meet almost all its energy needs.** COVID-19 and the Russian invasion of Ukraine have increased global oil prices, resulting in US\$63 million in petrol imports, US\$431 million in diesel, and US\$12.4 million in cooking gas. The cost of fuel imports will thus exceed US\$507 million in 2022, representing almost 20 percent of total imports in the Maldives. Approximately half of the fuel imports (diesel) are used for electricity generation. With an estimated demand of 1,591 GWh in 2020, electricity demand is expected to increase to 2,666 GWh by 2030. Correspondingly, diesel consumption for electricity production is expected to

increase from 377,000 tons to 677,000 tons, resulting in about 2,000 kilotons of CO<sub>2</sub> equivalent in 2030.<sup>1</sup> The transport system in the Maldives runs predominantly on fossil fuels. Malé is becoming increasingly congested and polluted due to the rapid increase in the number of private vehicles and poor management of existing road space. This leads to high levels of pollution and contributes to the growing current account deficit arising from high fuel imports. Given the short travel distance within islands, Maldives is uniquely positioned to benefit from electric mobility. From existing research, electric solar ferries to decarbonize the maritime transport sector have been identified as a potential solution.

**8. The Government of Maldives has set an ambitious target to reach net-zero emissions by 2030.** Projected to lose 80 percent of its land over the next few decades to rising sea levels, Maldives strengthened its commitment toward climate change and renewable energy targets at the United Nations (UN) Climate Ambition Summit in December 2020 when Government of Maldives announced the country's ambition to achieve net-zero emissions by 2030. In its revised Nationally Determined Contribution (NDC) submitted in December 2020, Maldives adopted a conditional emissions reduction target of 26 percent by 2030 compared to business as usual. Many of the ongoing initiatives, such as the Climate-Smart Resilient Island Initiative, demonstrate the Maldives' commitment to achieving resilient development. At COP 28 the new President of Maldives, Dr Mohamed Muizzu declared the government's commitment to developing renewable energy systems capable of providing 33% of the nation's electrical needs within the next five years.

**9. Decarbonization of the electricity sector will play a critical role in reducing emissions and contribute to the Maldives' 2030 net-zero target.** Decreasing costs of renewables, battery storage and other clean technologies not only provide an option to decarbonize the sector, but also provide an opportunity to address crucial issues of energy security, affordability, employment generation, and so forth. A range of options can be considered for the electricity sector, which may include a mix of mature, as well as emerging technologies to help mitigate emissions. This may include solar PV (including floating solar), offshore wind and ocean energy, biomass energy, battery storage, green hydrogen trade, and other energy efficiency measures.

**10. As well the decarbonization of the transport sector in Maldives. More than 40 percent of the fuel imports in Maldives are utilized in the transport sector. Diesel and petrol are the two prominent fuels used in the sector.** This sector is expected to see an increase in emissions from about 600 kilotons of CO<sub>2</sub> equivalent in 2020 to about 1,100 kilotons of CO<sub>2</sub> equivalent in 2030. The transport sector accounts for 30 percent of the country's total GHG emissions, with marine transport being the major contributor, responsible for about 52 percent of transport emissions. Under the proposed additional financing, the project will support the government to pilot business models for deployment of e-mobility solutions, in the context of a broader roadmap for full decarbonization of the transport sector. Given the short travel distance within islands, Maldives is uniquely positioned to benefit from electric mobility and the opportunity to provide first- and last-mile connecting transport solutions. Electric buses and ferries integrated with zero-emission charging operations are the most promising pathways to accelerate net-zero emissions in the public transportation sector.

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

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<sup>1</sup> Maldives Investment Framework for Net Zero.

**12. Two World Bank-funded sustainable energy projects—Accelerating Sustainable Private Investment in Renewable Energy (ASPIRE) and Accelerating Renewable Energy Integration and Sustainable Energy (ARISE)—are currently supporting the government’s ambition to achieve net-zero by 2030.** ASPIRE and ARISE will deploy more than 50 MW of solar capacity and 40 MWh of battery energy storage systems (BESS), reducing diesel consumption and reducing the Maldives’ import bill by roughly US\$30 million annually, with a total project lifetime saving of US\$750 million over 25 years. Essentially, this saving will act as quasi-budgetary support for the government. Based on the experience of ASPIRE<sup>2</sup> and ARISE<sup>3</sup>, three key risks have been identified: A) Technical Risks B) Limited Capacity Building and Innovation C) Financing Risks.

**13. Technical Risks:** Grid availability risk remains an issue, as the small island grid systems are not sufficiently flexible to integrate a significant input of variable renewable energy (VRE). As such, additional investment in energy storage and grid systems will be required to scale up the penetration of renewable energy to prevent grid instability or curtailment of solar. As a consequence of all those constraints, renewable energy accounts for only a very limited share of the energy mix (around four percent, according to the government).

**14. Capacity building:** Attracting private investment in the infrastructure sector has proven to be challenging, as private-sector investors are typically reluctant to invest due to the lack of a transparent legal and regulatory framework for the sector. Further compounding the issue is a shortage of local technical skills and expertise in areas like engineering and planning, logistics, and supply chain management. Targeted, and inclusive, educational and training programs are needed to build local capacity and make the market more attractive for private sector participation.

**15. Financing Risks and Innovation: Despite the success of ARISE and ASPIRE, the current investment climate for the private sector is still at a nascent stage and private developers and lenders face challenges investing in the energy sector.**

- A hurdle to private sector investment is utilities’ poor track record, who are counterparts to Power Purchase Agreements (PPAs) with Independent Power Producers (IPPs). The perceived off-taker risk in the electricity sector is high, primarily due to its reliance on government subsidies. Furthermore, the retail electricity tariff is not cost-reflective.
- STELCO and FENAKA have faced rising debts, hampering their financial sustainability. STELCO's capital expenditures depend on government support despite profits. FENAKA has posted operational losses 3 years straight, relying heavily on direct subsidies and grants. Ongoing World Bank and ADB projects aim to enhance the efficiency and sustainability of both utilities.
- The risk of currency inconvertibility across Maldives threatens PPAs denominated in US dollars and payable in Maldivian rufiyaa (MVR). As a result, government intervention is required to make the US dollar available to the private sector.
- Additionally, conducting localized technical studies on the viability of RE and e-mobility and similar innovations could open new opportunities for investment and partnerships.

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<sup>2</sup> World Bank. (n.d.). Maldives - Accelerating sustainable private investments in renewable energy: ASPIRE project - Supplement to the Project Appraisal Document. The World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/939571581994906489/maldives-accelerating-sustainable-private-investments-in-renewable-energy-aspire-project-supplement-to-the-project-appraisal-document>

<sup>3</sup> World Bank. (n.d.). Project detail: Maldives Accelerating Sustainable Private Investments in Renewable Energy - ARISE Project (P172788). World Bank Projects & Operations. <https://projects.worldbank.org/en/projects-operations/project-detail/P172788>

16. **The five components outlined in the description section under the Additional Financing are aligned to mitigate these risks.**

#### **Current Status of the ongoing project**

17. **ARISE was approved by the World Bank Board of Executive Directors on December 11, 2020, with an original closing date of January 31, 2026.** The ARISE project comprised four components—Component 1: Solar PV Risk Mitigation; Component 2: Battery Energy Storage System; Component 3; Grid Modernization for VRE Integration; and Component 4: Technical Assistance. The total project costs at appraisal were estimated at US\$107.4 million, of which US\$12.4 million were provided by the World Bank. The ARISE project will leverage over US\$140 million in co-financing, including guarantees from the Multilateral Investment Guarantee Agency (MIGA) and co-financing from the Climate Investment Fund (CIF), the Asian Infrastructure Investment Bank (AIIB), Energy Sector Management Assistance Program (ESMAP), Sustainable Risk Mitigation Initiative (SRMI), and the private sector. ARISE has four components, and all have progressed at a Moderately Satisfactory (MS) level since the launch of the project.

18. **The ARISE project's technical assistance (TA) component concluded several studies in 2022 to aid the government.** These encompassed a floating solar assessment for near-shore projects, global best practice case studies for renewable energy integration, and a campaign measuring solar and wind resources. Furthermore, 2022 saw efforts on Power System Planning and an E-Mobility Framework to pinpoint investments for Maldives' net-zero ambitions. All the studies culminated in reports approved by the Ministry of Environment, Climate Change and Technology (MECCT) – now the Ministry of Climate Change, Environment and Energy (MoCCEE), as of January 2024. Please see additional details on these studies in Annex 3 and 4.

19. **Multiple clean energy projects are in the advanced stages of bidding.** Around 80 percent of the funds under ARISE have already been committed as a result of various ongoing procurement activities. Overall, four tenders under ARISE Component 1 (Solar PV Risk Mitigation) are in the advanced stages: (i) 10 MW floating solar PV (FPV), and (ii) 15 MW ground-mounted PV are under preparation; meanwhile, under Component 2, (iii) a 40 MWh BESS project was signed on 17 August 2023, and, under Component 3, (iv) a grid upgrade awarded on 19 December 2023.

20. **The project disbursements for Components 2 and 3 (Battery Energy Storage System (BESS) and Grid Modernization for VRE Integration, respectively) are lined up for Q4 of 2023 and Q1 and Q2 of 2024.** Both projects have been awarded and the BESS contract has been signed as well. For BESS, the disbursements will start in February 2024. The delay in the disbursement was caused by delays on procurement aspects due to COVID-19 in 2021. However, the government is committed to disbursing the financing shortly.

21. **Similarly to ASPIRE and ARISE, where Multilateral Investment Guarantee Agency (MIGA) guarantees were offered to cover the risk of termination of purchase power agreements (PPAs), ASCENT will also leverage the One World Bank approach,** including MIGA and IFC participation and leverage. Under ASCENT, incentives will be offered to investors through a comprehensive three tier risk mitigation package, which includes tariff buydown grants and a secured payment mechanism, and investment guarantees. For ARISE, MIGA guarantee in the range of US\$40 million for the solar Independent Power Producer (IPP) pipeline, was leveraged.



## 22. ARISE key results to date, including Intermediate Results Indicators by component

Project Data ARISE Project	US\$ (millions)
Original Project Amount	107.40
Total Disbursement	1.37
Disbursement in FY24	0
Closing Date	31-Jan-2026

Results Area ARISE	PDO Indicator	End Target
Increase renewable energy generation capacity	Generation capacity of energy constructed or rehabilitated	36.00 MW
	Renewable energy generation capacity ( <i>other than hydropower</i> ) constructed under the Project	36.00 MW
Enhance financial and environmental sustainability	Cost of renewable energy per unit of electricity (kilowatt-hour) achieved through competitive bidding	US\$0.09
	Annual diesel consumption avoided through power generation from renewable energy	15.60 liters (million)
	Net annual greenhouse gas (GHG) emissions reduced	33,500.00 Metric tons/yr.

Component Name ARISE	Intermediate Indicator	End Target
Solar PV Risk Mitigation	Private Capital Mobilized	US\$45 million
Battery Energy Storage System (BESS)	Installed capacity of BESS (MWh)	50
Grid Modernization for VRE Integration	Electrical transmission and distribution lines (medium- and low-voltage) constructed and/or rehabilitated (Kilometers)	140.0
Technical Assistance	Number of new renewable energy jobs created (Number)	18
	Number of new renewable energy jobs created (female) (Number)	12
	Number of individuals entering Project-funded renewable energy (RE) job training (Number)	44
	Number of individuals entering Project-funded renewable energy job training (female) (Number)	22

Project Ratings ARISE Project	Previous ISR as of 04-Sep-2022	Current ISR as of 19-Sept-2023
PDO	Moderately Satisfactory	Moderately Satisfactory
IP	Moderately Satisfactory	Moderately Satisfactory
Component 1: <i>Solar PV Risk Mitigation (Cost US\$55.20 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Component 2: <i>Battery Energy Storage System (BESS) (Cost</i>	Moderately Satisfactory	Moderately Satisfactory

<i>US\$23.00 million)</i>		
Component 3: <i>Grid Modernization for VRE Integration (Cost US\$26.20 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Component 4: <i>Technical Assistance (Cost US\$3.00 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Project Management	Satisfactory	Satisfactory
Procurement	Satisfactory	Satisfactory
Financial Management	Satisfactory	Satisfactory
Monitoring and Evaluation	Satisfactory	Satisfactory
<b>Project Ratings ARISE Project</b>	<b>Previous ISR as of 04-Sep-2022</b>	<b>Current ISR as of 19-Sept-2023</b>
PDO	Moderately Satisfactory	Moderately Satisfactory
IP	Moderately Satisfactory	Moderately Satisfactory
Component 1: <i>Solar PV Risk Mitigation (Cost US\$55.20 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Component 2: <i>Battery Energy Storage System (BESS) (Cost US\$23.00 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Component 3: <i>Grid Modernization for VRE Integration (Cost US\$26.20 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Component 4: <i>Technical Assistance (Cost US\$3.00 million)</i>	Moderately Satisfactory	Moderately Satisfactory
Project Management	Satisfactory	Satisfactory
Procurement	Satisfactory	Satisfactory
Financial Management	Satisfactory	Satisfactory
Monitoring and Evaluation	Satisfactory	Satisfactory

## II. DESCRIPTION OF ADDITIONAL FINANCING

23. **The proposed Additional Financing (AF) project Accelerating Sustainable Clean Energy Investments for Net Zero Transition (ASCENT) (the Project), with a total project cost of US\$ 216.6 million, aims to support the energy transition in the Maldives from fossil fuel dependency to renewables and thereby support the government to achieve its net-zero ambition.** The ASCENT project will support the Maldives' broader energy transition through grid upgrades, added capacity for renewables and storage, and a pathway to market-based tariffs and renewable energy procurement that is independent of public support and subsidy (through de-risking and tariff buydown, amongst other forms of support). The additional financing is designed to address the three risks identified in paragraph 13-15, while integrating gender mainstreaming and promoting fiscal benefits for the island nation.

24. **The ARISE project was conceived to scale up the ASPIRE project by adding BESS and grid modernization as part of the project design, and ASCENT integrates additional dimensions into the ARISE model.** ASPIRE and ARISE have both contributed to building a strong foundation for further scale up and innovation through ASCENT in Maldives. The proposed additional financing ASCENT project goes one step further to help save on diesel imports and electrify the country's transport sector by increasing solar PV generation to support charging stations and increase the number of e-buses and e-ferries. The proposed project will support the GoM in achieving these targets by helping mobilize approximately US\$106 million in private capital to support the net-zero transition.

25. **The ASCENT project is aligned with the Global Challenges Program – Energy (GCP – E) which aims to address to global energy challenge by expanding programmatic approaches, boosting client capacity, and targeting concessional finance towards addressing global public goods and affordability.** ASCENT covers the focus areas of GCP – E, Energy Access, Energy Efficiency, Renewable Energy and Network Integration and Decarbonizing Transport through its five components. The success of ASPIRE, ARISE and now the scale up through ASCENT is a great example of how World Bank’s integrated and innovative approaches are working in SIDS and SAR region especially given the investment climate and private sector challenges.

26. **ASCENT will install 55 MW of solar and 90 MWh of BESS. This will support the Maldivian economy by reducing the import bill by approximately US\$25 million annually and by over US\$625 million over the project lifetime of 25 years.**

### ASCENT Project Components

#### A. Mitigating Financing Risks

27. **Component 1: Risk Mitigation Framework (IDA Loan – US\$9 million).** Under this component, ASCENT will install 55 MW of solar mostly in Greater Male Region, mobilizing approx. US\$61 million of private sector financing. As described in above sections, a three-tier risk mitigation framework is offered to independent power producers selected for deploying sustainable subprojects, and this component will provide support through tariff buy down and payment security mechanism as follows:

- **Component 1.A: Tariff Buydown (TBD) Grant (IDA loan - US\$3 million).** The GoM will pay the tariff buydown grant to IPPs in accordance with the PPAs and Implementation Agreement (IA), and the amount will be linked with the performance of the IPPs in commissioning and operating the renewable energy projects especially floating solar projects.
- **Component 1.B: Payment Security Mechanism (IDA Loan – US\$6 million).** Payment security funds will go into an escrow account at an Escrow Bank (Bank of Maldives) and will cover delay in payments by utilizes. It will cover 3-6 months of PPA payments for projects implemented under component 1.

#### B. Mitigating Technical Risks

28. **Component 2: Battery Energy Storage Systems (BESS) (CTF Loan – US\$12 million – TO BE CONFIRMED).** This component is scaled-up from the ARISE project and includes deployment (procurement and operation) of BESS and related equipment in selected grid systems. Additional investment in energy storage and grid systems will be required to scale up the penetration of renewable energy to prevent grid instability or curtailment of solar. BESS can also act as grid support (a stand-alone deployment), particularly for smaller islands facing saturation of private net-metering systems. This component will support approximately 90 MWh of BESS in the selected areas, subject to market price trends. The 90 MWh storage capacity will utilize around 20 MWh from public sector procurement, including US\$12 million from the CTF. The remaining 70 MWh will be bid out in an IPP/PPA mode (including IFC and MIGA financing instruments) and will mobilize approximately US\$45 million from the private sector.

**27. Component 3: Grid Modernization for Variable Renewable Energy Integration<sup>4</sup> (US\$50 million, co-financed by CTF Loan – US\$15 million – TO BE CONFIRMED; AIIB loan – US\$35 million).** The total investment in this component is US\$90 million in critical grid infrastructure modernization. This includes financing urgently needed upgrades to enhance capacity, stability, and reliability; smart grid technology such as advanced metering and automation; and interconnections to facilitate integration of new renewable energy projects by strengthening transmission networks and substations.

### C. Enhancing Capacity Building and Innovation

**29. Component 4: Technical Assistance (CCEFCF Grant – US\$0.6 million).** Provision of technical assistance to support: (a) institutional capacity building of the stakeholders relevant for renewable energy integration, e-mobility, and net-metering regulation; (b) project management and implementation; and (c) gender mainstreaming. The component will provide technical assistance (TA) to be implemented by the Ministry of Climate Change, Environment and Energy, MoCCEE, through the PMU. More details on the subcomponents are provided below.

**30. Gender mainstreaming activities from the ARISE project will continue and be scaled-up under ASCENT using the same framework.** This subcomponent aims to enhance women's roles and bridge the gender gap in the energy sector, particularly related to skills and employment in renewable energy and decarbonization, aligned with the ARISE Gender Action Plan (GAP). Activities under ASCENT for gender inclusion will encompass: i) technical skills training for utility and government staff; ii) skill-building for women entrepreneurs in islands, promoting energy ventures; iii) STEM workshops for female students; iv) a gender consultant to address workplace biases in utilities; and v) 12-month utility apprenticeships for women. The success of these efforts depends on consistent stakeholder engagement and commitment to gender equality. Please see more details on gender mainstreaming in Annex 2.

**31. Component 5: New Technologies and Innovation (US\$39 million, co-financed by IDA Loan – US\$6 million; CTF Loan – US\$3 million – TO BE CONFIRMED; IsDB Loan – US\$30 million).** This is a new component under the additional financing project ASCENT. This component aims to support new technologies and innovations in the renewable energy sector including e-mobility.

**32. Component 5.A: E mobility.<sup>5</sup> The GoM has a vision for e-mobility, and it is delineated in its Net-Zero Plan. Within a framework of promoting public transportation, this new component is designed to support the implementation of an e-mobility program for Maldives.** Activities envisaged are described in detail in Annex 6 and include:

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<sup>4</sup> A recent study under the ARISE project shows that current operational practices may not be adequate to efficiently manage high VRE penetration levels. A comprehensive, up-to-date grid code or technical standards are required to establish minimum capability of VRE including Low-Voltage Ride Through (LVRT), High-Voltage Ride Through (HVRT), synthetic inertia, spinning reserves, active and reactive power control, amongst other aspects, to ensure grid stability. This plays an essential role in successfully integrating large-scale VRE into the grid network. MoCCEE is leading the implementation of this component, in close coordination with STELCO and FENAKA.

<sup>5</sup> A recent study, financed by the World Bank undertaken by Ernst & Young (EY) under the guidance of MoCCEE, as well as in consultation with MTCC and MoT, was undertaken to understand the techno-economic viability of electric mobility transition in the context of the Maldives through a multi-options analysis. The study estimated an investment need of up to US\$ 31.5 Million to finance the decarbonization drive in the Maldives across verticals like solar electric ferries, diesel electric hybrid ferries, electric buses, and a micro mobility pilot project. This also includes the cost for development of solar rooftop projects required to decarbonize the e-bus operations by Maldives Transport and Contracting Company (MTCC). The study considered the existing and potential demand for EV, socio-economic and environmental impacts (for example, emissions, air pollution reduction, job creation, and so forth). The study also gave special attention to social aspects and gender-disaggregated data that would make the e-mobility transition inclusive and empowering in the Maldives.

- i. Procurement and deployment of public transportation options managed operated by MTCC in selected and optimized bus routes in the Greater Malé Region: investment will focus on replacing 28 diesel buses with 53 e-buses (depending on actual budget and market price) on high-occupancy routes in Greater Male, leading to significant operational savings,
- ii. Infrastructure including solar rooftop/PV systems and charging stations: necessary infrastructure facilities will be developed to support the operations of e-buses, ensuring a reliable supply of renewable energy of approximately 4000 kwp for the e-buses and e-ferries.
- iii. Procurement and deployment of 3 Solar Electric ferries and 3 Diesel electric hybrid ferries (depending on actual budget and market price) to be managed and operated by MTCC is selected routes, identified as adequate based on the distance of the route and speed required for such route(s).
- iv. Electric micro-mobility solutions within the Greater Malé Region: a pilot program introducing up to 300 electric scooters across 15 hubs in Greater Male. This investment aims to enhance last-mile connectivity, offering an eco-friendly and convenient transport alternative. The deployment of these scooters will be complemented by a battery-swapping infrastructure to ensure continuous services, and
- v. Technical assistance to improve the urban transport management in the Greater Male Region, Operation and Maintenance capacity building and support in designing the policy and regulatory framework to incentivize e-mobility uptake in the Maldives, with a focus on attracting private sector investment.

**33. Component 5.B: Innovative Technology Pilots (Green Hydrogen /Wave/Tidal/Solar Desalination/Seawater Air-Conditioning/ net metering/ 100% RE island).** Maldives Net-Zero Investment framework emphasizes the opportunities of cutting-edge clean energy technologies to support Maldives' net-zero goals. Based on the technical assistance under ARISE, this project component aims to support technology feasibility studies for green hydrogen and fuel cell technology, wave, tidal and seawater air-conditioning (SWAC), to help the government to weigh up the scope for such technologies. This component will also support piloting a small 100% RE island to understand the techno-economic aspects fully, through experimentation. Given that the Maldives is an island nation, it may possess significant potential for these technologies.<sup>6</sup> The ACSENT project will also support in developing a new net metering system in Maldives. Net metering will allow customers to generate their own electricity and export the excess to the grid to reduce their future electricity bills<sup>7</sup>. This work will support the GoM in developing and revising the net metering regulations as necessary to be deployed 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.

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<sup>6</sup> For example, a recent initial assessment by the World Bank indicates that Hulhumale has an extremely high potential for SWAC. The assessment found all major parameters for SWAC are favorable in the Maldives—bathymetry, high and consistent load, and high-power price. Green Hydrogen will need to be imported but the cost of electrolysis has seen a steep decline since 2010, falling by about 60 percent; this has resulted in a decline in green hydrogen prices from USD 10–15/kg to as low as USD 4/kg, with further significant falls expected in future. The costs of hydrogen tankers and fuel cells are also expected to drop by roughly 70 percent by the end of the decade. Hence, green hydrogen and fuel cells-based electricity can be piloted to test their overall viability. That combination can also be deployed along with solar + battery to provide an economically and technologically optimized solution, especially for vulnerable island states such as the Maldives. Due to its geographic location, the Maldives receives an uninterrupted series of waves that have traveled across the Indian Ocean from Antarctica. The fact that wave power provides a continuous stream of energy gives it a major advantage over other types of renewable energy, which require pilots and assessments to determine viability. If these technologies are explored and utilized, they can potentially help Maldives in its overall Net Zero goals and overcome the challenges associated with land capacity for solar PV installations.

<sup>7</sup> The GoM adopted Net Metering Regulations to promote solar PV installations on the behind-the-meter electricity consumer side. However, since its adoption in 2015 and as of February 2023, only 900 kW of solar PV rooftop systems have been installed. Under this component the existing net-metering regulation will be reviewed and analyzed and compared with best practices in implementing a robust net-metering solution in an island nation.

**Table 1: Project Components and Financing**

	Component		Instrument	IDA	CTF (TO BE CONFIRMED)	Cofinancing from AIIB	Cofinancing from IsDB	Canada Clean Energy and Forest Climate Facility Trust Fund	Private Sector	Project TOTAL
Mitigating Financing Risks	1. Solar PV (Including FPV)	Tariff Buydown	Loan	3.0	—	—	—	—		70
		Payment Security	Loan	6.0	—	—	—	—		
		Investment	Equity/Debt	—	—	—	—	—	61	
Mitigating Technical Risks	2. Battery Energy Storage System (BESS) including hybrid projects	Loan			12.0	—	—			57
		Equity/Debt		—	—	—	—	—	45	
	3. Grid Modernization for VRE Integration (Including smart grid systems for Male and network upgrades)	Loan		—	15.0	35.0	—	—	—	50
Enhancing Capacity Building and Innovation	4. Technical Assistance	Grant						0.6		0.6
	5. Innovative Technology Pilots (EMobility/Green Hydrogen/Wave/Tidal)	Loan		6.0	3.0	—	30	—		39
	<b>TOTAL</b>		—	<b>15.0</b>	<b>30.0</b>	<b>35.0</b>	<b>30</b>	<b>0.6</b>	<b>106</b>	<b>216.6</b>

**34. Mitigating Financing Risks: ASCENT will de-risk investments in the renewable energy sector and mobilize private sector investments for both renewable energy infrastructure and e-mobility.** Emphasizing the One World Bank Approach,<sup>8</sup> this comprehensive infrastructure program aims to leverage resources and expertise from IFC, MIGA and other financial institution partners and the private sector, enhancing resilience against climate risks and ensuring the financial sustainability of Maldives. There are ongoing collaborations to mobilize capital with MIGA and the IFC to support ASCENT, in a similar modality to that underpins ARISE. IFC will engage with the winning

<sup>8</sup> Over the past 20 years, successive World Bank Group (WBG) policy and operational initiatives have sought to increase the number of joint (World Bank, IFC and MIGA) projects in order to work as a cohesive institution. According to a report by the Independent Evaluation Group (IEG) reviewing two decades of WBG joint projects, nearly three-quarters of those which were approved (83 out of 112) supported investment projects through a blend of IFC investments, MIGA guarantees, or World Bank Investment Project Financing (IPFs) and guarantees. Joint projects with IFC consisted mostly of investments, primarily loans. The main region where these projects came to fruition was Africa, followed by the Middle East and North Africa. The study also found that 46 percent of the World Bank Group's co-financed projects supported the infrastructure sector, mainly in the energy area. Their added value includes aspects such as facilitating investment in high-risk situations, supporting pioneering investments in member countries, paving the way for foreign direct investment for first-time cross-border investors and advancing complex and complicated transnational projects.

bidders of each round to provide financing support, subject to its own due diligence, and MIGA will consider further guarantees where expanded risk mitigation coverage is required. In addition to the risk mitigation instruments financed under the project, MIGA, subject to internal approval, has agreed to propose its guaranteed products to the IPP subprojects as a further layer of project risk mitigation. Indicative guarantee terms from MIGA would be included as part of the bidding package. These would propose coverage of noncommercial risks as follows: (a) termination risk through its breach of contract coverage, (b) transfer restriction, (c) expropriation, and (d) war and civil disturbance risk. The private sector bidders will decide whether or not to opt for MIGA guarantees. Once the winning bidder is selected, if interested, MIGA would conduct its own due diligence for decision-making. 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.

**35. The project is expected to mobilize US\$106 million of private sector investment by IPPs (US\$ 61 million from solar and US\$ 45 million from storage. The ASCENT project will also leverage the below two-tier risk mitigation framework (Component 1),** which has been successful under ASPIRE and ARISE projects. Market sounding indicates that providing risk mitigation framework is critical for mobilizing private sector investment from IPPs in the Maldives, given the financial difficulties of STELCO and FENAKA and the private sector's perceived off-taker risk. The three tiers will comprise of:

- **Tariff buy down grants**, even if financed by an IDA loan, will be extended by MoCCEE as a grant to the selected investors, based on criteria agreed with the Bank, to support the reduction of the overall cost of the subprojects in the project. This will especially help the floating solar PV applications that are expected to be more costly. This tariff buydown will also help reduce the financial costs that independent power producers (IPPs) pass on to consumer retail tariffs.
- **A payment security mechanism** allowing developers to draw unpaid PPA invoices from an escrow account in case there is a delay in payments from utilities.

**36. Mitigating Technical Risks (Component 2 and 3): ASCENT aims to support deployment of energy storage to enable a higher penetration of solar PV in the power system while ensuring reliable supply in a cost-efficient manner.** This also involves significant public financing for critical grid upgrades and automation that will enable additional solar PV capacity expansion. The grid improvements will be financed through loans from AIIB and CTF. By upgrading the grid and increasing interconnection, the project will facilitate larger-scale integration of solar PV and improve power system stability and efficiency. Additionally, the battery storage and grid upgrades will allow for increased integration of variable renewable energy while maintaining grid reliability and resilience. Investments in battery storage capacity specifically help to smooth the variability from solar PV and wind generation.

**37. Enhancing Capacity Building and Innovation (Component 4 and 5):** ASCENT will create a stronger enabling environment through improved institutional capacity, a pipeline of innovative technology projects, and increased job creation in the sector. A key area of enhancement will be the Gender Mainstreaming subcomponent of ARISE, currently being implemented under, and guided by, the ARISE Gender Action Plan (GAP). The ARISE GAP supports the government's commitment to inclusivity and women's employment and empowerment within the sector and the project will support technical trainings, technical internship/apprenticeship placements for women in the utilities, STEM awareness and will continue supporting the creation of 12 new jobs for women in the sector (out of 18 new jobs created). The Project will also investigate pioneering clean energy technologies, such as harnessing wave and tidal energy and the development of green hydrogen and fuel cell technology. Assistance will also be provided to improve the capacity in urban transport management and in designing the policy and regulatory

framework to incentivize e-mobility uptake in the Maldives, with a focus on attracting private sector investment.

### III. KEY RISKS

38. As per guidelines, this is the SORT key risks table:

Risk Category	Latest ISR Rating	Current Rating
Political and Governance	Moderate	Moderate
Macroeconomic	High	High
Sector Strategies and Policies	Moderate	Moderate
Technical Design of Project or Program	Substantial	Substantial
Institutional Capacity for Implementation and Sustainability	Substantial	Substantial
Fiduciary No Fiduciary risk rating has been completed to date	Substantial	Substantial
Environment and Social No environment risk rating has been completed to date No social risk rating has been completed to date	Moderate	Moderate
Stakeholders	Moderate	Moderate
Other	Moderate	Moderate
<b>Overall</b>	<b>Substantial</b>	<b>Substantial</b>

### IV. APPRAISAL SUMMARY

#### A. Corporate Commitments

39. **Paris alignment.** The activities under this Additional Financing are aligned with the goals of the Paris Agreement for mitigation, adaptation, and resilience. The project is also consistent with the country's Nationally Determined Contribution (NDC). In the latest NDC submitted to the United Nations Framework



Convention on Climate Change (UNFCCC), and the President's declaration of a net-zero emissions goal by 2030 at the UN Climate Ambition Summit, the country commits to 26% reduction of emissions in 2030<sup>9</sup> on mitigation, and to increase the proportion of climate-resilient infrastructure projects to 70% by 2030 on adaptation<sup>10</sup>. The project contributes to the NDC by contributing to the Maldives' ambitious climate targets. The project is consistent with the Maldives Investment Framework for Net Zero by 2030<sup>11</sup>. In essence, the ASCENT project is a model of how island nations can align their development goals with the Paris Agreement's objectives.

**40. Similarly to ARISE, the activities under ASCENT are universally aligned with the goals of the Paris Agreement for mitigation, adaptation, and resilience.** By financing new solar power generation capacity and battery energy solar systems and promoting e-mobility through electric buses and ferries, the project supports some of the most effective means of reducing Maldives' overall dependency on fossil fuels, in line with global decarbonization efforts. Further, the ASCENT project is designed to build resilience against climate risks in the Maldives, a region particularly vulnerable to climate-related hazards. In this respect, the project has proactively integrated the several measures<sup>12</sup> to reduce material risks from climate hazards to an acceptable level.

**41. Citizen engagement. The project explored opportunities to engage beneficiaries based on lessons learned under the ASPIRE Project.** A SEP has been compiled and specific citizen engagement activities have been built into the design of the project to cover different types of stakeholders including vulnerable groups within the community (that is, outer island communities, women, and migrant populations) over the life cycle of the project. With regard to Components 1–3, these include (a) extensive stakeholder consultation during the design and implementation of activities; (b) extensive public consultation and annual satisfaction surveys during site selection and preparation of an Environmental and Social Impact Assessment (ESIA)/Environmental and Social Management Plan during feasibility assessment work, during ESIA monitoring, and during project implementation; (c) special targeted consultations to support minority groups within the community; and (d) development of a robust GRM to address complaints related to the project. Consultations were undertaken with Maldives Transport and Contracting Company (MTCC) and Ministry of Transport and Civil Aviation regarding formulation of Component 5 of the project. The project will ensure all persons impacted by project implementation are aware of various avenues by which to provide feedback to the project, including the GRM system, by utilizing MTCC spaces such as bus stands and terminals.

**42. Stakeholder consultations will continue to take place throughout project implementation to obtain feedback in order to minimize the adverse impacts of the project.** The ESMF includes a Stakeholder Engagement Framework to guide consultations during preparation of ESIA's of individual subprojects under Component 1. It

<sup>9</sup> Under a Business-As-Usual (BAU) scenario in a conditional manner, in the context of sustainable development, supported and enabled by availability of financial resources, technology transfer and capacity building. The Government of Maldives believes that it has a responsibility to take a transformational economic and environmental path to development and aims to reach net-zero by 2030 provided on condition that it gets the extensive support and assistance from the international community.

Unconditional Target: Reduce greenhouse gas (GHG) emissions by 10% by 2030 compared to a business-as-usual (BAU) scenario. This represents a significant reduction effort for a developing island nation with limited resources.

Conditional Target: Further reduce GHG emissions by an additional 14% by 2030, leading to a total reduction of 24%, contingent upon receiving international support. This ambitious additional target demonstrates the Maldives' commitment to tackling climate change with international assistance.

<sup>10</sup> Coastal Zones: The NDC aims to restore 10% of degraded mangrove areas by 2030. The NDC also aims to increase the area of coastal protection infrastructure by 20% by 2030.

Disaster Risk Management: The NDC aims to develop and implement early warning systems for all major climate hazards by 2030. The NDC also aims to increase the number of people covered by disaster insurance to 50% by 2030.

<sup>11</sup> Net-Zero Target: The Maldives also aspires to achieve net-zero emissions by 2030, provided it obtains extensive international support and assistance. This ambitious target highlights the country's long-term vision for a carbon-neutral future.

<sup>12</sup> i) Environmental and Social Impact Assessments (ESIAs): ESIA's have been conducted to identify and assess potential environmental and social risks associated with the project's activities. These assessments provide a foundation for developing mitigation strategies. ii) Environmental and Social Management Plans (ESMPs): ESMPs have been formulated to address identified risks and incorporate measures for their effective management. These plans encompass a wide range of aspects, including waste management, community health and safety, and emergency response. iii) Material Management: The project places a strong emphasis on managing hazardous materials, especially those related to batteries and e-vehicles. This includes implementing 'cradle to grave' provisions in contracts with suppliers to ensure responsible handling of these materials. iv) Community Health and Safety: Measures are in place to safeguard the health and safety of the community, considering potential risks and impacts. These measures are essential for the well-being of the local population. v) Emergency Response Plans: The project has established comprehensive emergency response plans to address various scenarios, including pollutant release and fire accidents. These plans ensure a swift and effective response in case of unforeseen incidents.

also includes the SEP to guide consultations during implementation. Citizen engagement under the proposed project will also be ensured through a multi-tier GRM. A three-tier GRM has been established under ASPIRE, adopted for ARISE and will continue to be utilized for ASCENT, to provide a time-bound, early, transparent, and fair resolution of any grievances of affected parties. The GRM system utilized a shared reporting platform so that all This provides a forum for resolving grievances and disputes quickly, facilitate effective communication between the project and affected parties, mitigate adverse impacts of the project on communities, and facilitate appropriate corrective or preventive action. The impact of the citizen engagement will be measured through dedicated beneficiary feedback indicators including the percentage of received grievances that are resolved. This will be measured and reported semiannually by the PMU.

43. **Gender mainstreaming** is described in length throughout the project document, as part of Component 4 (Technical Assistance), and in Annex 2. The project has been reviewed for gender tagging by the SEA/SH team who have confirmed that the ASCENT project will receive gender tagging once it is approved.

44. **Private Capital Mobilization (PCM):** The ASCENT project for renewable energy development across three phases will install a total of 55MW of solar PV capacity and 90MWh of battery energy storage system capacity through \$106 million in private sector financing.

## **B. Economic and Financial (if applicable) Analysis**

45. **An economic and financial analysis was conducted for the project with the pilot in Addu.** The ASCENT program entails various subprojects across the Maldives, however the flagship investment identified is developing an extensive floating solar photovoltaic system with storage in Addu City. An in-depth economic and financial analysis was conducted for the renewable energy project proposed in Addu City. This project encompasses developing an expansive 40 MW floating solar photovoltaic system installed across lagoon surfaces, complemented by a sizable 20-25 MW / 80-100 MWh battery energy storage system. The total capital expenditure for these major components adds up to \$106.8 million. This includes the \$58.8 million estimated cost for the floating solar PV system, \$48 million budget for the battery storage, and a further \$19.2 million allotment for essential upgrades to the existing electrical grid infrastructure in Addu City. The integration of large-scale floating solar PV generation, battery storage for excess power absorption, and strategic grid enhancements will be instrumental in sustainably meeting the rising electricity demand in Addu City.

46. **The economic and financial analysis of the Addu City renewable energy project reveals a robust financial model. The Economic Internal Rate of Return (EIRR) is calculated at 20.5%, and the Economic Net Present Value (ENPV) stands at \$78.5 million, indicating strong financial viability. Notably, these calculations have been made without considering any subsidies, underlining the project's inherent profitability and feasibility.** The calculations also use the unsubsidized tariff for diesel. This demonstrates the project's capability to attract private sector investment, even in the challenging geography of the Maldives. While the financial analysis confirms the project's viability without subsidies, the strategic use of initial subsidies is planned to enhance its attractiveness to private sector investors. This approach is aligned with the long-term goal of reducing and eventually eliminating subsidies as the project becomes financially self-sustainable, fostering a more robust and sustainable renewable energy sector in the Maldives.

47. **The initial capital expenditure (CAPEX) for the project is US\$106.8 million. This includes the cost of the solar PV panels, the battery storage system, and the grid enhancement.** The 40 MW floating solar PV system budget

is \$58.8 million, covering costs of installation, and project management. The 20-25 MW / 80-100 MWh battery storage system budget is \$48 million. Strategically sized and located adjacent to the PV system, it will store excess solar generation and provide grid stability. The grid infrastructure upgrade budget is \$19.2 million, including new substations, 11 kV cables, voltage stabilization units, and centralized grid controls to facilitate increased renewable energy integration.

**48. Over its 25-year project lifespan, the floating solar-storage system in Addu City is projected to generate total revenue of approximately \$317.5 million.** The \$317.5 million 25-year revenue projection is underpinned by two income streams. First, solar power sales to the utility guaranteed under a 25-year PPA at a contracted tariff of \$0.15 per kWh. Initial annual generation estimates are 66,576 MWh, averaging 62,730 MWh yearly. Second, trading the asset's greenhouse gas credit earnings by displacing over 19 million liters of high-cost diesel generation annually, contributing to a reduction of over 1.01 million metric tons of emissions over 25 years. Factoring both revenue components, the total projected average annual earning is around \$12.7 million, driving the \$317.5 million aggregate projection across the asset's lifespan.

### C. Financial Management

**49. Financial Management (FM) risk is assessed as Substantial. An FM assessment carried out by the Bank concluded that the proposed FM arrangements for the project fulfill IDA's fiduciary requirements according to the World Bank policy and directive for Investment Project Financing.** The MoCCEE will be the implementing agency and the spending agency for the project. For the financing of Components 1–5 of the project, the fiduciary responsibilities will be with the PMU under MoCCEE, which is currently implementing the ASPIRE Project and the ARISE Parent Project. MoCCEE is well-versed in handling World Bank-financed/managed operations and is familiar with all procedures and requirements related to the Bank's fiduciary policies.

**50. For the financing of Components 1–5, six Designated Accounts (DAs) in US dollars will be set up with the Maldivian Monetary Authority, to receive funds from the Bank and other co-financing partners.** The Bank will advance an amount to the DAs to meet the estimated expenditures for the six-month period, as forecasted in the IUFs. From these DAs, payments will be made to suppliers, vendors, consultants, and for incremental operating costs. With respect to large international payments, the PMU will have the option of requesting the Bank to make direct payments to the supplier. The financial reporting for the project funds will be carried out through the submission of IUFs. Once the project becomes effective, the PMU will prepare quarterly IUFs in the prescribed format which would be submitted to the Bank within 45 days from the end of the quarter and will also form the basis for disbursement by the Bank. The project will be subject to a regular internal audit by the Internal Audit Unit at the MoCCEE. Furthermore, financial statements of the project, prepared by the PMU, will be audited annually by the Auditor General's Office of the Maldives. The audited financial statements, included in the auditor's report and Management Letter, will be submitted to the Bank within six months of the end of the Maldivian Fiscal Year. Currently, there are no overdue audit reports or ineligible expenditure pertaining to projects implemented by the PMU.

### D. Procurement

**51. Procurement risk is rated as High.** A procurement assessment has been updated by the Bank, covering the procurement function in the country, sector, and the institution level, particularly to identify the procurement risks and capacity to determine the appropriate mitigation measures to overcome the implementation challenges.

The focus of the assessment was primarily on the MoCCEE, as the implementing agency. Previous engagements with the country through Bank-financed projects posed implementation challenges—specifically in procuring Goods, Works, Non-Consulting Services and hiring of consultants locally. The Implementing Agency has updated the Project Procurement Strategy for Development (PPSD), which is under review by the Bank. The PPSD discusses the procurement in general and specific issues in the country and at the institutional level along with a detailed analysis of prevailing market conditions and how to strategize the procurements of the project accordingly. The Procurement Plan has been updated based on the PPSD’s findings. Considering the risks identified and the mitigation measures, the procurement risk is rated High mainly due to delays in decision-making in some of the current procurement under the ARISE project. The role and responsibility of the National Tender Board and the independent Review Committee should be clarified to avoid delays in project procurement. The procurement performance will be reviewed during the project implementation period and the procurement risk rating will be adjusted accordingly.

**E. Legal Operational Policies**

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

## F. Environmental and Social

**52. The Environmental and Social (E&S) risk category for the additional financing will remain moderate. The scale of the new project interventions under the new components remains small to medium and will include pre-analytics and piloting.** The majority of interventions and associated risks weighted against client capacity and performance on the Environmental and Social Framework (ESF) implementation under the ARISE program thus far have been considered in the assessment of the risk category. The following Environmental and Social Standards (ESS) will remain relevant for ASCENT: ESS 1 on Assessment and Management of Environmental and Social Risks and Impacts, ESS2 on Labor and Working Conditions, ESS3 on Resource Efficiency and Pollution Prevention and Management, ESS4 on Community Health and Safety, ESS5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, ESS6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources, ESS8 on Cultural Heritage, and ESS10 on Stakeholder Engagement and Information Disclosure.

**53. The World Bank's ESF and relevant documents will be the overarching due diligence criteria on Environmental and Social for the project.** A standalone Environmental and Social Commitment Plan (ESCP) has been prepared by the client team and will be relevant to the additional financing. The project's existing Stakeholder Engagement Plan (SEP), and Environmental and Social Management Framework (ESMF) will be supplemented with amendments to present any new additional financing-associated risks and additional due diligence requirements to avoid or mitigate and manage the risks associated with the new components and project interventions. The Labour Management Procedures (LMP) will remain unchanged. Associated analytical work and piloting of any new technology at a small scale will be subject to environmental and social review and assessment criteria in line with the ESSs and National Environmental Regulations of the GoM. All other components will follow the original due diligence procedures laid out under the ARISE Project. The ESCP and addendums to the ESMF and SEP were disclosed. MoCCEE has demonstrated good capacity and performance on successfully implementing World Bank safeguards and WBG Environmental, Social, Health and Safety (ESHS) Guidelines for over a decade; furthermore, this is in the context of robust implementation of the ESF under the parent project and the ASPIRE project on managing sector specific environmental and social aspects. The PMU Team has been trained on the Bank's ESF and also received specific training on the ESSs. Any additional capacity needs pertaining to the new component on e-mobility will be included in ESCP and the addendum to the ESMF.

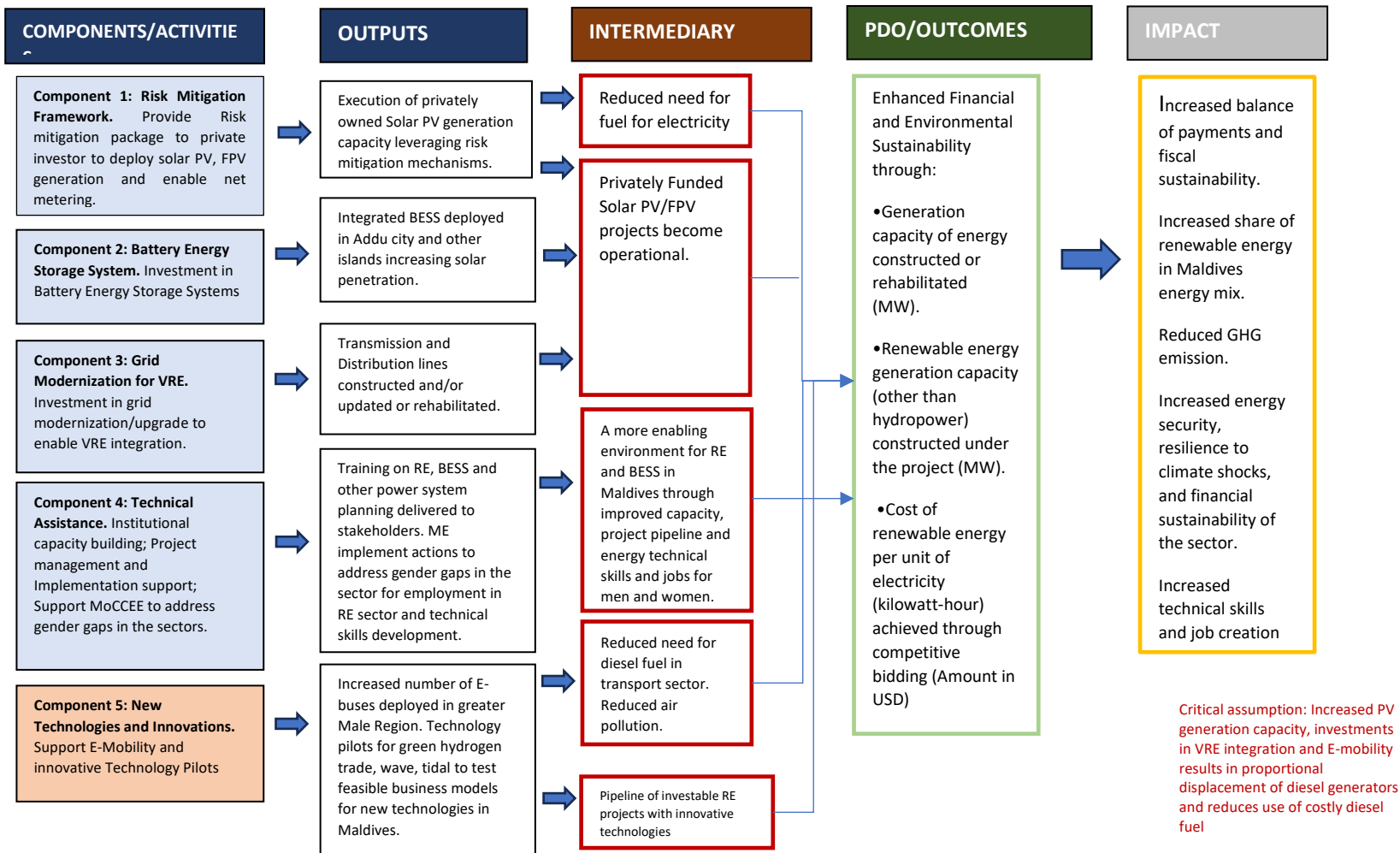
## V. WORLD BANK GRIEVANCE REDRESS

**54. Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank noncompliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit <https://accountability.worldbank.org>.



### Annex 1: Theory of Change (TOC) for ASCENT

The figure below is the Theory of Change showing the different components, outputs, intermediary outcomes, PDO and impact of the ASCENT project.



**Results Chain and Theory of Change:** The ASCENT Project aims to help the energy system in the Maldives to transition to renewable energy from the existing fossil-fuel-based system. The ARISE project was aimed at scaling up the work under the Bank-financed ASPIRE Project by including BESS and grid modernization as part of the project design. The ASCENT project goes one step further to help the Maldives save on diesel imports and electrify its transport sector by increasing solar PV generation to support charging stations for the transport sector and increase the number of e-buses and e-ferries. The government has ambitious renewable energy targets including commitment toward reaching net-zero emissions by 2030. The proposed project will support the GoM in achieving these targets by helping mobilize private capital for solar PV generation capacity while at the same time supporting improved system capacity for increased renewable energy penetration. The ARISE additional financing, through the five components, will reduce need for fuel for energy generation, reduce fuel needed for the transport sector, make privately funded PV projects operational and create a stronger enabling environment through improved capacity, with a pipeline of innovative technology projects and increased job creation in the sector. The proposed project will assist in increasing resilience to climate risks for the small island nation while ensuring financial sustainability.

**Project Development Objectives (PDO)/Outcomes:** The project outcomes of ASCENT remain mostly the same as for the ARISE Project. The ASCENT Project will increase the generation capacity of existing and new energy constructed or rehabilitated in Maldives through increased solar PV generation, storage capacity and system reliability. It will increase the share of renewable energy for the Maldives' energy mix and reduce the cost of renewable energy per unit of electricity. The ARISE additional financing components will also result in reduced consumption of diesel fuel in the energy and transport sector and reduce the country's import bills. The diesel import savings will act as a quasi-economic support to the Maldives' vulnerable balance of payments. Finally, reduced diesel consumption and increased renewable energy generation will reduce the net annual greenhouse gas emissions, increase energy security, and make the Maldives more resilient to climate shocks. The Project outcomes are summarized below:

- Generation capacity of energy constructed or rehabilitated (MW);
- Renewable energy generation capacity (other than hydropower) constructed under the project (MW);
- Cost of renewable energy per unit of electricity (kilowatt-hour) achieved through competitive bidding (amount, US\$);
- Annual diesel consumption avoided by power generation from renewable energy (million liters per year);
- Diesel imports savings (US\$); and
- Net annual greenhouse gas (GHG) emissions reduced (metric tons per year).

**Gender Indicators:** In addition to the project outcomes, the ASCENT project will also monitor the progress of the planned gender activities and the PMU will measure and report indicators semiannually as part of the ASCENT progress reporting. The indicators as follows:

- 30 mid-career professionals acquiring technical skills via technical training, of whom 20 women and 10 men (CANADA FACILITY INDICATOR: Number of beneficiaries (m/f) receiving renewable energy job training);
- 22 women in the outer islands acquiring renewable energy entrepreneurs' skills development for productive uses (CANADA FACILITY INDICATOR: Number of women-led businesses accessing business development or related services);





- 150 students have awareness about employment and educational opportunities in the renewable-energy/energy-transition/decarbonization sector, of whom 75 women and 75 men;
- Eight women undertake a remunerated 12-month entry-level apprenticeship program in the utilities (CANADA FACILITY INDICATOR: Number of beneficiaries (m/f) participating in facility-funded STEM education);
- TOTAL beneficiaries: 210, of whom 125 women; and
- One HR assessment of the utilities (STELCO and FENAKA) and recommendations, completed.



## Annex 2: Gender Mainstreaming in the ASCENT Project

**Despite an improved Human Development Index (HDI) for Maldives, the HDI value for females was lower than that for males in 2021/22.** In 2021, Maldives' HDI value was 0.747—which put the country in a high human development category—positioning it at 90 out of 191 countries. The increase in the HDI value for the Maldives in 2021 is a result of improvements in key HDI measurement indicators: life expectancy at birth from 78.9 to 79.9 years, expected years of schooling from 12.2 to 12.6 years, mean years of schooling from 7 to 7.3 years. Gross National Income (GNI) per capita experienced a reduction from US\$17,417 to US\$15,448 following the economic contractions of the pandemic.

**Despite a strong increase in the Maldives' overall HDI index in 2021, the HDI value for females was only 0.709 compared to 0.766 for males (the dimension with the largest gap is the gender inequality index).**

This gender gap indicates that more work is needed to ensure that human development gains are made in an inclusive manner. The share of women in professional and technical roles in Maldives has regressed since 2021, and the number of women working in the energy sector remains extremely low. According to the World Economic Forum, and its Global Gender Gap Index 2022 rankings, Maldives is placed 117th globally (at 0.648). Maldives ranks 89th for Educational Attainment (at 0.984, with more women enrolling in tertiary education in health, education, and public administration sectors, yet not seeing the benefits of formal employment), and 114th for Political Empowerment (at 0.121, with enormous gaps between the number of men and women in parliament and in ministerial positions), and 127th for Economic Participation and Opportunity (at 0.531, and a gap of 33.17 percentage points in labor force participation rates between males and females).

**In the energy sector, the employment gap is much higher than 33.17 percentage points, with only 12 percent of employees in the energy sector being female. This is much lower than the global average of 22 percent of women employed in the energy sector overall, and 32 percent employed in renewables. Women continue to be underrepresented in Science, Technology, Engineering and Mathematics (STEM) fields compared to men.** The percentage of female graduates from STEM Programs in Tertiary Education is among the lowest globally, at 10.56 percent, compared to men at 89.44 percent, and at 9.68 percent in information and communication technology, compared to men at 90.32 percent (2021/22). The share of women in engineering, manufacturing and construction is 10 percent. Gender roles and biases may deter Maldivian women from applying to jobs. The persistence of traditional gender roles and the narrow scope of occupations deemed acceptable by young women—and especially their parents—have limited the female labor supply. The combination of a lack of skills, social norms, and perceptions deter Maldivian women from applying for the jobs. Maldivians also tend to have a high level of job turnover relative to foreign labor.

Many gender gaps still persist in the country, namely: 1) the share of women in professional and technical roles is increasing too slowly, and the development of related skills is not progressing fast enough; 2) the level of awareness and participation in Science, Technology, Engineering and Mathematics (STEM) is lower among women than among men; and 3) the number of women working in the energy sector is still extremely low. Specific actions, as part of this work, will try to address these gender gaps.



MECCT, Fenaka and Stelco have all been engaged with the South Asia Women in Power Sector Professional Network (WePOWER) to help address these gender gaps. Fenaka is a WePOWER Partner.

**The development objective of “Maldives Gender Mainstreaming” is to increase women’s employment, opportunities, and participation in the energy sector, including its transition to renewable energy and decarbonization.** Specific activities include:

- **Technical trainings for direct job placement in the utilities and ministry:** Design, test and deliver a technical skills development training (three-weeks duration) for 30 mid-career professionals (in the utilities and MoCCEE), of whom 20 women and 10 men, including study tour in fields related to the project, namely solar, battery storage, innovative technologies, grid modernization, e-mobility, and so forth;
- **Skills development for women entrepreneurs in an outer island:** Skills development course for 22 women in an outer island (one-week intensive course), focusing on renewable energy job training for productive uses of energy.
- **STEM education outreach workshops for (female) students:** Undertake two science, technology, engineering, and math (STEM) outreach workshops, targeted for female students (ideally targeting a total of roughly 150 students, finishing secondary school and in the process of choosing tertiary education/specialization) to raise awareness about employment and educational opportunities in the renewable-energy/energy-transition/decarbonization sector.
- **Gender consultant to support the utilities (STELCO and FENAKA):** Hire a gender consultant to support the utilities for a six-month period, to undertake an HR assessment of the utilities (STELCO and FENAKA) and to address unconscious biases in workplace culture and shift gender biases from men within utilities, via regular capacity-building and awareness activities.
- **Remunerated 12-month Entry-Level Apprenticeship Program for women in the utilities (STELCO and FENAKA):** Undertake a remunerated 12-month entry-level apprenticeship program for eight women to have a technical employment opportunity in the utilities (STELCO and FENAKA), to create direct employment opportunities for young professionals to accumulate adequate technical working experience in the utilities.

### Annex 3: Financial Management

1. **FM risk is assessed as Substantial.** The FM arrangements proposed for the project are compliant with the World Bank policy and directive for IPF; and MECCT has adequate experience with FM procedures for IPF. The parent project consists of multiple financing partners and financing sources. The additional financing is expanding further with even more financing sources and financing partners, which will result in additional administrative/accounting work that needs to be carried out by the PMU. The FM assessment concludes that the PMU can manage the additional work with contributions from additional FM Staff. The PMU will manage all project expenditure. It shall be the only accounting center for the project. Payments will be centralized at the PMU.
2. For the financing of Components 1 to 5, the fiduciary responsibilities of the project will be with the PMU under the MECCT. FM performance of the Bank projects handled by this PMU has been rated Satisfactory in most occasions.
3. **Fund flow/disbursement process.** Since several sectoral agencies/institutions are expected to be involved in planning, coordinating, and implementing project activities, the project will involve several flows of funds with multiple accounts that will need to be established. FM will be centralized at the PMU, and all payments will be made directly by the PMU with the supporting documents attached. It is agreed that no other entity will get involved in handling project funds and executing payments. The MoF has already provided a list of authorized signatories across all World Bank operations in the portfolio; therefore, the MoF will have authorizing rights for requesting disbursements against grant or loan proceeds from the Bank. All relevant documentation for such requests will come from the PMU to the MoF. The number of designated accounts (DAs) that may need to be managed by the PMU and the corresponding IUFRs schedule is given in below Table 1.1.

**Table 1.1. Financial Management for ARISE Additional Financing project.**

	Source of funds	Financing type	DA numbe	DA type	IUFR number
For component 1A & 1 B	IDA Credit	single	DA1	Segregated	IUFR 1
For component 2	CTF loan	single	DA2	Segregated	IUFR 2
For component 3	CTF loan/AIIB	Joint	DA3	Pooled	IUFR 3
For component 4	Canada CEFCTF	single	DA4	Segregated	IUFR 4
For component 5	IDA credit/CTF loan/IsDB	Joint	DA5	Pooled	IUFR 5

4. The DAs of Components 3 and 5 (DA3 and DA 5) will be pooled DAs operating on a joint co-financing approach with the relevant financing partners.
5. **Expenditure recognition.** Actual expenditures will be tracked for all payments carried out under each Component and the expense recognition will be based on end use of funds that will be reported by PMU in the respective IUFRs.
6. **Budgets.** The implementing agency will prepare annual workplan-based budgets. The budget shall be prepared through a consultative process with the PSC. The annual work plan and budgets will be submitted to the World Bank for review and approval will be assumed in the absence of objections. Any significant change envisaged in the annual workplan, and budgets may be communicated to the Bank by PMU. The IUFR will also capture the budgeted and actual financial progress on a yearly basis and provide



explanations for significant variances if any.

7. **Accounting.** At present, the MECCT follows the government accounting system. This system is well documented in government financial rules. Government accounting is currently being carried out in accounting software SAP and because of its limitation (for example, no separate chart of accounts can be created and recording of expenditure is on accrual basis), the PMU will record and maintain project books of account using off-the-shelf, well-established accounting software like QuickBooks, which is quite well accepted in the Maldives. The PMU will maintain a fully integrated voucher-based computerized double entry accounting system incorporating ledgers, registers, books, and cash-based accounting. The project accounting records would be maintained on cash basis where all the receipts and expenditure will be on cash basis. All project expenditure inclusive of taxes and duties, as applicable, must be recorded at the actual US dollar expenditure at the date of the payment.
8. **Internal audit.** The project will be subject to a regular internal audit by the Internal Audit Unit at the MECCT. The internal audit will assess whether funds have been disbursed on time and reached the intended recipients and whether transactional controls and proper procedures have been maintained and used effectively and efficiently for the intended purposes. The internal audit reports will be shared with the Bank.
9. **Financial reports.** The financial reporting for the project funds will be carried out through the submission of IUFs. Once the project becomes effective, the PMU will prepare quarterly IUFs in the prescribed format, which would be submitted to Bank within 45 days from the end of the quarter and will also form the basis for disbursement by the Bank. The IUFs will disclose receipt and utilization of project funds during the quarter, year to date, and project to date. The IUFs will be based on project accounts and supported with the required reconciliations and bank statements.
10. **External audit.** Consolidated financial statements (including all sources and uses of funds) of the project will be prepared by the PMU and will be audited annually by the Auditor General's Office of the Maldives, which is acceptable to the Bank. This statutory audit report will provide the consolidated audited project financial statements along with audit observations. The consolidated audited financial statements included in the auditor's report along with the response from the project on the audit observations, if any, will be submitted to the Bank within six months (that is, June 30 each year) of the end of the Maldivian Fiscal Year. According to the Bank's Access to Information Policy, the audit report will be disclosed publicly on the Bank's website.
11. **Joint co-financing partners:** Under Components 3 and 5, all co-financed funds & also under component 2, the CTF loan funds, under component 4 CEFCFTF funds will be channeled through the Bank and hence all project disbursements would be handled by the Bank according to the Bank disbursement procedures using the Bank's Client Connection system. All FM arrangements would also be as per the Bank requirements and design. Co-financed funds would fund part of the common expenditures in stipulated percentages. Accordingly, there will IUFs prepared for each component as relevant. All joint co-financing partners would rely on the consolidated Audit Report and common internal audit arrangements and so forth. There will not be any separate reports for joint co-financed partners and their expenditure would not be separately tracked. At the time of documenting expenditure through a Withdrawal Application, the expenditures would be approved as per the established procedures and processed accordingly. In a joint co-financing approach, simultaneous availability of co-financed funds and Bank funds will be essential for seamless project implementation.
12. **FM Supervision:** Consistent with the risk-based approach, FM supervision would consist of visits by the Bank FM specialist to the PMU, desk reviews of internal and external audit reports, review of IUFs, and other relevant reviews as required to periodically assess and monitor the adequacy of the project's

fiduciary arrangements. The Bank intends to carry out a field-level FM supervision mission at least once every six months. However, due to the prevailing pandemic situation that is expected to continue during the early stage of project implementation, the FMS will conduct virtual FM implementation support activities.

13. Incremental operating costs means the reasonable costs incurred by the Borrower, for purposes of the management and supervision of the Project, including costs of office utilities and supplies, communication, printing services, bank charges, advertising expenses, vehicle rental, operation and maintenance of vehicles, office equipment and facilities, travel, lodging and per diem expenses, and salaries and allowances of contractual staff for the Project; but excluding salaries and salary top-ups of the Recipient’s civil servants or other regular government staff.

	Source of funds	Financing type	DA number	DA type	IUFR number
For component 1A	IDA Grant	Paralell	DA 1	Segregated	IUFR 1
For component 1B	IDA Credit	Paralell	DA2	Segregated	IUFR 2
For component 2	CTF loan/ISDB	Joint	DA3	Pooled	IUFR 3
For component 3	CTF loan/CDP loan	Joint	DA4	Pooled	IUFR 4
For component 4	IDA Grant/Canada	Joint	DA5	Pooled	IUFR 5
For component 5	IDA Grant/IDA credit/CTF loan/CDP loan/CDP grant	Joint	DA6	Pooled	IUFR 6

#### **Annex 4: E-mobility: detailed description of Component 5A: E-Mobility**

Details on Component 5A are elaborated below as follows:

- **Procurement and deployment of public transportation options operated by MTCC in selected and optimized bus routes in the Greater Malé Region:** The Maldives Transport Contracting Company (MTCC) is currently operating a fleet of 53 buses on 12 routes across the Greater Male region. Five (05) routes (#1, #2, #5, #7 and #8) that have higher passenger.km and also higher average occupancy (passengers/trip) are selected for the first phase of roll-out, with 28 e-buses (1 spare bus) to be procured. Total funding required for these 28 e-buses is USD 8.75 million. Gross Cost Contract structure (GCC) (or Opex model), which is widely followed across the globe for e-bus procurement, can be followed based on agreement with GoM. MoCCEE can enter into an MoU with MTCC which can bind them to operate for a certain period of years at a given tariff, and project funds can cover the viability gaps. MoCCEE will tender out and be responsible for the procurement, and then transfer ownership to MTCC to run operation and maintenance of the e-buses to the bus operator. MTCC will pay to the bus operator on a per km rate of bus mileage after assuring a guaranteed years of operation every year to facilitate the service operator to recover his costs. The details of the exact model of implementation will be finalized based on discussions and agreement with GoM.
- **Infrastructure including solar rooftop/PV systems and charging stations:** Project funds will cover three charging stations (one station for ten buses) with electric connection compatible to the e-buses, e ferries to be procured, one bus depot plus connecting roads (the current MTCC depot can be used if available to reduce land acquisition), and the solar rooftop systems across the MTCC properties with total capacity of approximately 4000 kWp and the associated investment requirement. MTCC will open the tender for construction of this infrastructure.
- **Electric micro-mobility solutions within the Greater Malé Region:** A pilot micro mobility program has been designed considering a private operator as the service provider and Greater Male' as the project area. Greater Male area is proposed to be covered by 15 hubs, each one serving an area of 0.56 sq.km. The estimated distance between two adjacent hubs is 0.75km. 300 electric scooters are proposed to be deployed with 20 scooters available at each hub. Battery swap model is recommended to increase the uptime of the e-scooters. The quantum of batteries required will be 1.5x times the number of electric scooters and accordingly amounts to 450. One e-scooter is estimated to cost USD 750 and one battery is about USD 313. An estimated amount of USD 10,000 is to be spent per hub towards setting up of the infrastructure at hub, development of parking area and sheltered cubicle. A single charging hub with 150 slots is required to charge the batteries and cost of setting up the charging hub is about USD 56,250.
- **Integrated approach towards EV and energy transition investments will drive long term value and net-zero emissions in Maldives.** Given Maldives is a small island nation, transitioning to electric ferries can further support its net zero plans. Fleet operators derive value from EV transition largely based on OPEX savings, particularly fuel and maintenance costs and from a total cost of ownership standpoint, lifecycle OPEX costs for E ferries are typically ~3 times of CAPEX for public ferry operators. The project will therefore support a pilot of e ferries through procurement and deployment of 3 Solar Electric ferries and 3 Diesel electric hybrid ferries to be managed and operated by MTCC is selected routes, identified as adequate

based on the distance of the route and speed required for such route(s).

- Other cost components include the cost of IT infrastructure (USD 100,000), Repair & Maintenance hub for repairing the bikes (USD 3000) and procurement cost for a truck (USD 13,750) that will help with relocation of the bike. This cost includes the cost of IT infrastructure as well. An Apps will be developed by MTCC to manage the micro-mobility operations. A single part tariff structure is recommended which is based on per KM run during the trip. A 1.75 MVR tariff per KM (0.114 USD per KM) can be considered for the pilot during a 5-year operation based on an agreement with GoM. Considering the capex as discussed above, the opex and tariffs adopted, the project is envisaged to give attractive project returns of 11% and equity returns of 20%. The total cost for this activity is USD 1 million which will be financed from the project funds.
- **Technical assistance** will be provided: (a) to the GoM for improvement of urban transport management, (b) to MTCC for improvement of the public transport operations in the Greater Male region, (C) Capacity building for Operations and Maintenance and (c) to build capacity for the relevant stakeholders to design the policy and regulatory framework to incentivize e-mobility uptake in the Maldives, with a focus on attracting private sector investment.