Marshall Islands: Majuro Power Network Strengthening Project

Project Name	Majuro Power Network Strengthening Project
Project Number	49450-007
Country	Marshall Islands
Project Status	Active
Project Type / Modality of Assistance	Grant
Source of Funding / Amount	**Grant 0554-RMI: Majuro Power Network Strengthening Project** concessional ordinary capital resources lending / Asian Development Fund — US$ 2.00 million
Strategic Agendas	Environmentally sustainable growth Inclusive economic growth
Drivers of Change	Governance and capacity development Knowledge solutions Partnerships
Sector / Subsector	**Energy** - Electricity transmission and distribution
Gender Equity and Mainstreaming	No gender elements
Description	2. The Project will support the Republic of the Marshall Islands' (RMI) renewable energy targets and greenhouse-gas (GHG) emissions reduction targets through investments in the Majuro distribution network. The project will install an advanced metering infrastructure (AMI) in the Majuro power distribution network to enable Marshalls Energy Company (MEC) to collect data on physical energy flows within its network, reduce system technical and commercial losses, and improve system reliability. The data provided by the AMI will also inform successive investments in Majuro's power system, including siting of additional renewable energy generation assets on the Majuro power system. Consulting advisory services will be provided to support the AMI implementation, and to prepare a comprehensive capacity-building and business-process reengineering (BPR) roadmap for implementation under successive investment projects.

Project Rationale and Linkage to Country/Regional Strategy	1. Sector Policy and Renewable Energy Targets. The RMI Government has adopted a target of 20% renewable generation for electricity by 2020, and has committed to a 35% reduction of GHG emissions under its UNFCCC Paris Agreement nationally determined contributions (NDCs), as compared to its 2010 baseline. RMI has long-term target of net-zero emissions for its entire economy by 2050 under its NDCs. 54% of RMI's emissions are from power generation. 90% of RMI's total primary energy supply derives from imported petroleum products. 2. Concentration of Power Generation and Consumption on Majuro. MEC, RMI's largest power utility, is responsible for electricity service throughout RMI, except for Ebeye in Kwajalein Atoll. MEC's main system on Majuro Atoll provides universal service to a population of 28,000 persons, and delivers approximately 72% of electric power consumed in RMI (with Ebeye accounting for 24%, and outer islands representing the balance). 3. High Reliance on Imported Petroleum Fuel. Diesel generation accounts for approximately 98% of the Majuro system's annual power generation of approximately 53.7 GWh. While Majuro enjoys an abundant solar resource, and may have an economically viable wind resource, development of additional intermittent renewable generation beyond its current 900 kWp installed solar generation is technically infeasible without investment in network, generation, and control hardware to ensure network stability. 4. High Network Losses and Network Operation Data Gaps. Beyond the constraint on installation of additional solar generation, Majuro exhibits very high technical and non-technical losses, estimated in 2010 approximately 20% of electricity introduced into the distribution network. Reducing Majuro's network losses will significantly contribute to a reduction in diesel consumption and improve MEC's revenue generation by reducing unbilled consumption. The installation of an advanced metering infrastructure will facilitate this, and will also provide required data on the Majuro network's operation to inform further network loss reduction investments, the siting of distributed renewable energy generation, and distribution network upgrades to enable the same without jeopardizing stable system operation. 5. Rapid Loss-Reduction Measures Possible. The project will support the reduction of Majuro's dependence on imported diesel fuel by reducing its distribution network losses, which constitute around 20% of total generated energy in Majuro. The project will (i) install advanced metering infrastructure (AMI) on all distribution transformers on the network, and (ii) install centralized control and metering distribution network center, which will automatically collect and compile metered data from all distribution transformers. The AMI will provide data to MEC to identify network areas suffering high technical or non-technical losses, which will enable MEC to reduce these losses. It is estimated that simple measures requiring little resource investments, such as re-configuration of customer supply connections to distribution transformers and repair of malfunctioning customer meters will enable MEC to rapidly reduce network losses by up to 4% of generated power. 6. MEC Business Process and Organizational Inefficiencies. Deficiencies in MEC's business processes, including budget formulation, asset management and maintenance, cost accounting and reporting, and capital project planning and execution, among others, are cause for concern for the ability of MEC's sustainability as a going concern. To maximize value for investments under this project, and future projects financed by ADB or other donors, a far-reaching capacity-building and institutional strengthening program is essential. 7. Project Preparation and Project Readiness. Consultants under TA-9225 RMI have prepared the Project as a discrete intervention to capitalize on the opportunity to reduce system technical and commercial losses while informing future investments under a renewable energy investment road-map that these consultants are preparing. Consultants have prepared ICB bid documents for a turn-key AMI contract and implementation consultant support. ADB will provide support to MEC during tendering for ICB procurements through TA-9086 REG (Building Project Implementation Capacity in the Pacific), and through SDCC smart-grid experts for technical input in bid evaluation. The RMI Government have agreed to re-delegate to ADB (PARD) procurement of consulting services to assess MEC's business processes and develop business-process reengineering recommendations and action plan. 8. Alignment with development plans. The project is included in ADB's Country Operations Business Plan 2017-2019 and supports RMI's national energy policy and energy action plan to reduce dependence on imported fossil fuels and reduce supply-side losses.
Impact	The impacts will be (i) reduced dependence on imported fossil fuels, (ii) supply-side losses reduced, (iii) renewable electricity generation increased.

Project Outcome	
Description of Outcome	MEC's consumption of diesel fuel for power generation reduced.
Progress Toward Outcome	Activities to achieve the outcome is in progress / on track.
Implementation Progress	
Description of Project Outputs	Advanced Metering Infrastructure on Majuro distribution network MEC business process reengineering and management improvement action plans
Status of Implementation Progress (Outputs, Activities, and Issues)	A supervision consultant has been engaged in August 2018 to monitor and support the procurement and execution of the Advanced Metering Infrastructure (AMI) supply and delivery contract. MEC Business process reengineering and management improvement action plans are scheduled in 2019.
Geographical Location	Nation-wide

Safeguard Categories	
Environment	C
Involuntary Resettlement	C
Indigenous Peoples	C

Summary of Environmental and Social Aspects
Environmental Aspects
Involuntary Resettlement
Indigenous Peoples
Stakeholder Communication, Participation, and Consultation
During Project Design
During Project Implementation

Business Opportunities	
Consulting Services	An international supervision consultant (12 person-months) has been engaged in August 2018 to monitor and support the procurement and execution of the AMI supply and delivery contract. Ongoing.
Procurement	Supply, Installation and Commissioning of Smart Meters (package 1) - IFB was published on 5 June 2018. BER is being finalized.

Responsible ADB Officer	Trainor, James Michael
Responsible ADB Department	Pacific Department
Responsible ADB Division	Transport, Energy and Natural Resources Division, PARD
Executing Agencies	*Asian Development Bank* *6 ADB Avenue,* *Mandaluyong City 1550, Philippines* *Marshalls Energy Company* *Majuro, Republic of the Marshall Islands* *MH 96960* *Ministry of Finance* *P.O. Box D, Majuro* *MH 96960* *Republic of the Marshall Islands*

Timetable	
Concept Clearance	-
Fact Finding	18 Jul 2017 to 26 Jul 2017
MRM	06 Sep 2017
Approval	27 Nov 2017
Last Review Mission	-
Last PDS Update	28 Sep 2018

Grant 0554-RMI

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
27 Nov 2017	07 Dec 2017	07 May 2018	31 Jul 2020	-	-

Financing Plan		Grant Utilization			
	Total (Amount in US$ million)	Date	ADB	Others	Net Percentage
Project Cost	2.25	Cumulative Contract Awards			
ADB	2.00	27 Nov 2017	0.19	0.00	10%

Counterpart	0.25	Cumulative Disbursements			
Cofinancing	0.00	27 Nov 2017	0.00	0.00	0%

Project Page	https://www.adb.org/projects/49450-007/main
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