ADB GEF PROJECT IMPLEMENTATION REPORT (PIR)
(This report covers implementation period from July1,2023 to June30,2024 including recently closed projects covering the reporting period)

ADB Official Project Title: Renewable Energy Sector Project
ADB Project Number: 46453-002

I. GEF PROJECT SUMMARY

Project Ratings:
Development Objective Rating (DO): Satisfactory, (S)

Implementation Progress Rating (IP): Satisfactory (S)

Risk Rating: Low Risk (L)

Information on Progress, challenges and outcomes on project implementation activities
Overall implementation progress is satisfactory, and the project is not facing any major risk that may threaten the successful delivery of expected outputs. As of 31 August 2024, (i) cumulative contract award for the current project is at $30.94 million, or 95.32% of financing administered by ADB; and (ii) cumulative disbursements for the current project has reached $29.21 million, or 89.97% of financing administered by ADB. The project is currently rated on track in the project performance rating system.

All planned project infrastructure work has been completed, and the final stages of operations and maintenance training are nearing completion.

The Rarotonga Airport Battery Energy Storage System (BESS) developed under the project to support additional solar PV installation, and funded by GEF, was installed and completed in September 2019 and has been operational since then (excepting minor faults and shutdowns).

In January 2024, the Cook Islands Government sought a minor change in scope to utilize project savings from the GEF funded BESS, for the purpose of upgrading the Te Aponga Uira (electric utility) SCADA system. This minor change offers improved connectivity with distributed energy resources on Rarotonga (the main island of the Cook Islands), and is expected to result in more efficient utilization of renewable energy and reduced diesel generation. Procurement for this SCADA upgrade was undertaken in Q2, 2024, and is currently pending award.

Information on Progress, challenges and outcomes on Environment and Social Safeguards
The installation of the GEF funded BESS was completed in 2019. This included preparation of suitable safety, emergency and environmental management plans, and hazardous material management plans), which have been in place since site work commenced. During normal operations, the site is not staffed. Noise levels are within limits as per design.

During the reporting period, no stakeholder engagement has occurred, there have been no grievances raised and no incidents identified.

Notably, during 2022/23, LGChem who is the manufacturer of the battery modules within the BESS, undertook a voluntary global replacement program. They sent new modules (with an improved, lower risk design) and replaced the old modules in the BESS. The old modules were put into shipping containers in safe storage at the wharf for return to LGChem and disposal / recycling. However, due to challenges finding a shipping provider associated with

the dangerous goods status of the modules, the containers have not yet been dispatched. LGChem has stated that it has now identified a suitable freight company and will remove the containers in the near future.

Information on Progress, challenges and outcomes on stakeholder engagement

No stakeholder engagement was undertaken during the reporting period.

Information on Progress on gender-responsive measures

There are no gender elements under this project.

Knowledge activities/ Products

- Applied Energy Symposium and Forum, REM2016: Renewable Energy Integration with Mini/Microgrid Conference Proceedings of "*Cook Islands: Planning 100% Renewable Energy in Different Guises*" was published in December 2016 (http://www.sciencedirect.com/science/ article/pii/ S1876610216314849).
- Asia Clean Energy Forum, *"The Promise of Storage: Implementing Renewable Energy in Mini-grids"* was presented in June 2018 (https://d2oc0ihd6a5bt.cloudfront.net/wp-content/uploads/sites/837/2018/06/Chris-Blanksby-and-James-Mason-The-Promise-of-Storage-Integrating-Renewable-Energy-in-Mini-Grids.pdf
- Asian Development Bank, Hybrid and Battery Energy Storage Systems: Review and Recommendations for Pacific Island Projects, August 2022 (Hybrid and Battery Energy Storage Systems: Review and Recommendations for Pacific Island Projects | Asian Development Bank (adb.org))

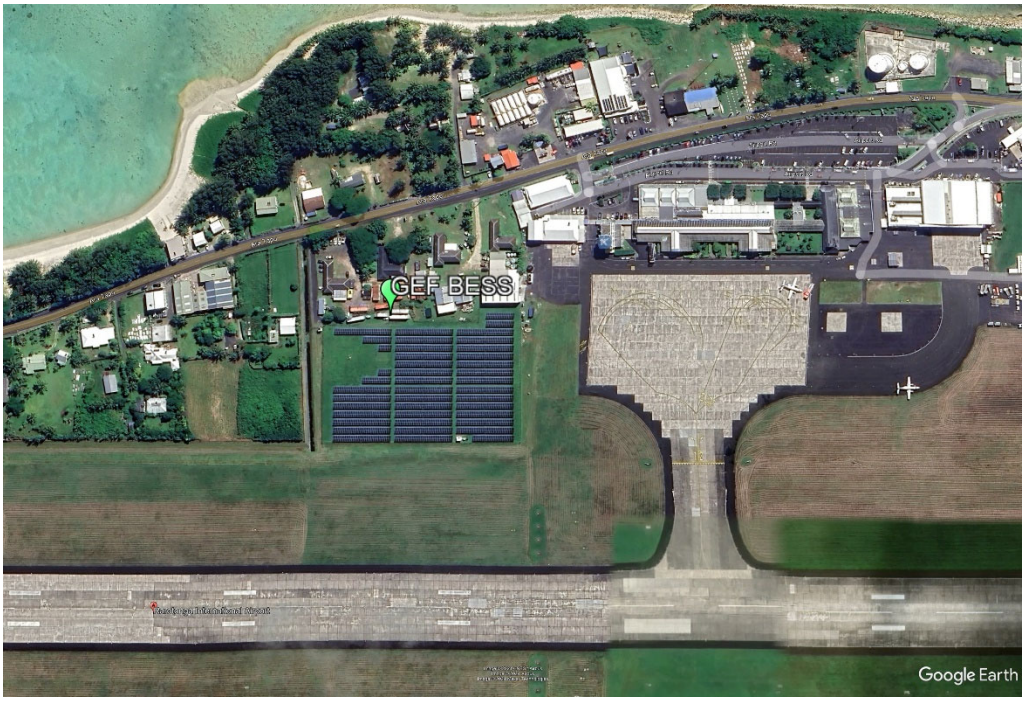
Grievances

None reported.

GEO LOCATION INFORMATION

Location Name	Latitude (WGS84 Format)	Longitude (WGS84 Format)	GEO Name ID	Location Description	Activity Description
Rarotonga Airport, Cook Islands	-21.200743°	-159.800344°	GEF BESS	BESS installed withing existing solar PV compound at the Rarotonga International Airport	Installing a BESS to support additional solar PV installation, by storing excess solar PV generation during the day for use at night

Project map and coordinates



PROJECT MINOR CHANGE IN SCOPE/MINOR AMMENDMENTS

- [ ] Results framework
- [X] Components and cost
- [ ] Institutional and implementation arrangements
- [ ] Financial management
- [X] Implementation schedule
- [ ] Executing Entity
- [ ] Executing Entity Category
- [X] Minor project objective change
- [ ] Safeguards
- [ ] Risk analysis
- [ ] Increase of GEF project financing up to 5%
- [ ] Co-financing
- [X] Location of project activity
- [ ] Other

In January 2024, the Cook Islands Government sought a minor change in scope to utilize project savings from the GEF funded BESS, for the purpose of upgrading the Te Aponga Uira (electric utility) SCADA system. This minor change offers improved connectivity with distributed energy resources on Rarotonga (the main island of the Cook Islands), and is expected to result in more efficient utilization of renewable energy and reduced diesel generation. The proposed SCADA upgrade will:

- Be located at the Rarotonga Power Station and interface to the GEF BESS, and other BESS and renewable generators on Rarotonga
- Will support improved real-time information communication, and the implementation of a control scheme to optimize dispatch of renewable energy
- Be completed by June 2025
- Utilise up to $400,000 of savings from the GEF Grant

During the reporting period, the SCADA upgrade tender was issued and closed. Two bids were received, which are currently under evaluation.

Description of the SCADA project

The upgrade of SCADA system is set to improve the efficiency and effectiveness of monitoring and controlling the generators, feeders, and new renewable generation especially the PV generation system in the network. There are several photovoltaic (PV) installations around the island ranging from small domestic 1 to 2kW units to larger 21 to 100kW sites connected to the low voltage network and a 900kW PV installation and two battery storage units at the Airport connected to the TAU HV network. The airport BESS is monitored and controlled by the SCADA and the airport south BESS and power station BESS are to be incorporated into the TAU SCADA for monitoring and control. The existing control system in MV Switchboard located in Switchroom 1 is unable to accommodate the new renewable systems. Since, it was commissioned in 1990s it fails to meet with the current supply requirements to

include new renewable systems. It also no longer supports spares and is at its end of its economic life. Additionally, upgrade works are also carried out in Switchroom 2 since 2019 to further improvise the connection and controls of the network. Hence, these replacements will improve operational reliability and efficiency of the overall control system with existing and new renewable generating system into the network. This section outlines the key installation steps requires for Network connections and SCADA system upgrades for modification in Switchroom 1 and Switchroom 2, which comprise the proposed change to the project description.

The first stage involves a complete design of all hardware, software supply, engineering development, software development, installation, and commissioning of SCADA system. This is then followed by preparing Quality Assurance Manual (based on AS/NZS ISO 9001 or approved equivalent) and Operation and Maintenance Manual.
The next stage will focus on Software development. We will develop generator and breaker screens. The generator page provides an overview of how each generator and engine are preforming. There is a separate screen for each generator. The breaker status is shown and animated. Each breaker has a separate screen and displays the status of the breaker and the actual power, real power voltages and status information. The power station controller screen, power meter screen, airport BESS screen, airport overview screen, airport data screen, system screen and fuel system screen will be developed as remaining screen. The new BESS screen will have three controllers which are accessed over the network to allow control and monitoring from SCADA system. It will consist of BESS plant control which integrates multiple BESS units to a single plant controller, an external monitoring of BESS plant, BESS unit control, control BESS site. The SCADA screens will provide Airport south System Overview, system monitoring and alarms, battery controls, display dispatch control, 11kV feeder control communication alarms and ethernet communications. The reporting system will be redeveloped with a new layout and data prestation incorporating the new data and improving reliability of the data. For communication network the existing site automation network infrastructure, bandwidth and data poling rates will be investigated and modified to ensure the integrity of all the data.

SCADA screens will provide a modern presentation of the existing and new layouts and the operating data with drill down selections to each device's detailed operational conditions.
The next stage comprises installation and commissioning. In this stage we will download new application onsite and commission. After this we will perform remote software modifications for each stage of the changeover. And the final step involves commissioning of SCADA and reporting. This will be followed by SCADA integration based on Factory acceptance test and Site Acceptance Test along with handover.
Next part involves SCADA system training and support. Training such as operation, maintenance, technical, engineering will be provided. Along with that offsite training for technician or engineer will be provided during factory acceptance test.

Impact potential of the SCADA Project

Expected tonnes of carbon dioxide equivalent:

Use of the SCADA system will add to the benefits of the existing renewable energy systems by providing more efficient operation. In particular, visibility of all systems through the SCADA will allow improved management of diesel generating operating schedules under variable renewable energy conditions. This will allow less diesel generators to run as operators can rely on capacity of the BESS to provide spinning reserve. With less generators operating, loading increases and efficiency improves.

Compared to current operations, modelling has been undertaken and shows the number of operating generators are expected to be reduced by one (1) on average, increasing loading of other generators by approximately 20%, and conservatively improving their fuel efficiency approximately 2.2%.

With average gross generation of 3.4 MW, this will effectively save 650 MWh of generation annually. With an emissions factor of 753 (https://unfccc.int/sites/default/files/resource/IFI%20Default%20Grid%20Factors%202021%20v3.1_unfccc.xlsx), this equates to 480t annually or 9,600t over the 20 year expected life of the SCADA.

Beneficiaries: The benefits are measured as the population utilizing the TAU electricity grid (10,898 – population of Rarotonga), of which 50% are female. This represents 72% of the total population of Cook Islands.

FOR SCCF/LDCF INDICATORS:

CORE INDICATOR 1: Total Number of Direct Beneficiaries	13,044 (population of Rarotonga – 2016 census, 100% electrification ensures that benefits of the project flow to the whole population) Male: 50% Female: 50%
CORE INDICATOR 2: Area of land managed for climate resilience (ha)	
CORE INDICATOR 3: Total no. of policies/plans that will mainstream climate resilience	
CORE INDICATOR 4: Total number of people trained	Male: 18 Female:1

II. Project Profile

1. General Information	1	GEF ID	9067
	2	Focal Area(s)	Climate Change
	3	Region	Pacific
	4	Country	Cook Islands
	5	GEF Project Title	Cook Islands Renewable Energy Sector Project
	6	Project Size (FSP; MSP)	$43.65 million
	7	Trust Fund (GEFTF; SCCF; LDCF)	$4.26 million
2. Milestone Dates	8	GEF CEO Endorsement Date (mm/dd/yy)	07/13/16
	9	ADB Approval Date if the GEF Fund (mm/dd/yy)	08/29/16
	10	GEF Grant Signing of the GEF Fund (mm/dd/yy)	09/14/16
	11	Implementation Start Date of the Project and of the GEF Component (mm/dd/yy)	10/18/16
	12	Date of 1st GEF Grant Disbursement (mm/dd/yy)	09/01/17
	13	Final date of GEF Grant Disbursement (mm/dd/yy)	12/31/21
	14	Proposed/Revised Implementation End (mm/dd/yy)	06/30/25
	15	Actual/Proposed Implementation End (mm/dd/yy)	To be determined
	16	Actual/Proposed Financial Closure Date (mm/dd/yy)	To be determined
	17	Actual/Proposed Financial Closure Date (mm/dd/yy)	To be determined
3. Funding	18	PPG/PDF Funding (USD)	N/A
	19	GEF Grant (USD)	$4.26 million
	20	Total GEF Fund Disbursement as of 30 June 2024(USD)	$3.73 million
	21	Confirmed Co-Finance at CEO Endorsement (USD)	$4.26 million
	21	Materialized Co-Finance at project mid-term (USD)	N/A
	22	Materialized Co-Finance at project completion (USD)	N/A
4. Evaluations	23	Actual/Proposed Mid-term date (mm/dd/yy)	06/25/20
	24	Actual Mid-Term date - if applicable (mm/dd/yy)	06/25/20 – 07/03/20
	25	Proposed Terminal Evaluation date (mm/dd/yy)	N/A
	26	Actual Terminal Evaluation Date (mm/dd/yy)	N/A

III. Project Implementation

A. Project Description:

On 21 November 2014, the Board of Directors of ADB approved a loan (L3193) of NZ$12.98 million ($11.19 million) from ADB's ordinary capital resources (OCR) and the administration of a grant (G0415) not exceeding €5.30 million ($7.26 million) provided by the European Union for the original Renewable Energy Sector Project (original project). The Government of the Cook Islands (government) provided a contribution equivalent to $5.83 million to bring the total investment cost to $24.28 million. The loan and grant became effective on 9 February 2015 and were expected to close on 31 December 2017.

On 19 November 2014, the government appointed ADB as the agency to administer a grant (G0493) of $4,264,654 from the Global Environment Facility (GEF) to expand the scale of the original project and deliver greater benefits. On 29 August 2016, ADB approved the first additional financing from GEF administered by ADB, which became effective on 18 October 2016. The first additional financing with the additional contribution from the government of $1.31 million has increased the overall project investment from the current $24.28 million to $29.85 million.

The first additional financing allows installation of a battery energy storage system (BESS) with a capacity of 1.0 MW and 4.0 MWh, which will provide load shifting to offset renewable generation at the existing 1.0 MW solar photovoltaic (PV) facility at the Rarotonga Airport. The BESS, funded by GEF, will allow 2.0 MW of additional solar PV generation, which is about 8% progress towards the total estimated renewable generation.

The impact of the current project will be increased energy security in an environmentally sustainable manner. The outcome will be increased access to a higher share of electricity generated by renewable energy sources. The current project will: (i) construct up to five solar photovoltaic (PV) power plants with a total installed capacity of about 2-megawatt peak (MWp) coupled with batteries to store electricity from solar energy; (ii) rehabilitate the existing distribution network for Phase 1 subprojects; and (iii) provide institutional strengthening to the government to develop the energy efficiency policy implementation plan. The project owner's engineer (POE) has been providing project management support to the implementing agencies to help implement the current project.

In December 2016, GCF's Board approved a grant of $12,000,000, which was processed as the second additional financing (G0548) to the project. The grant was approved on 30 October 2017 and is administered by ADB. The additional GCF grant, plus the additional contribution from the government of $1.80 million, has increased the overall project investment to $43.65 million. The grant was declared effective on 30 July 2018.

B. Implementation Progress (IP) Rating:

Overall implementation progress is satisfactory, and the project is not facing any major risk that may threaten the successful delivery of expected outputs. As of 30 June 2020, (i) cumulative contract award for the current project is at $28.64 million, or 82% of financing administered by ADB; and (ii) cumulative disbursements for the current project has reached $22.11 million, or 64% of financing administered by ADB. The current project is currently rated

on track in the project performance rating system. The latest implementation status of the current project is summarized in Table 1.

Table 1. Summary of Implementation Status

Site	Implementation Progress
Phase 1	
Mangaia	The power station and distribution upgraded, completed, and commissioned in October 2018.
Mauke	The power station and distribution upgraded, completed, and commissioned in May 2018, but the distribution network rehabilitation was only completed in 2019.
Mitiaro	The power station and distribution rehabilitation completed and commissioned in March 2018.
Atiu	Added in July 2018 under Phase 1. The power station and distribution rehabilitation completed and commissioned in September 2018.
Phase 2	
Aitutaki	Completed in June 2019. The system has been operational since 2019. Original subprojects include Aitutaki, Atiu, and Rarotonga. Atiu subproject was included in Phase 1 and Rarotonga subproject was removed at the request of the government in February 2017.
Rarotonga	Rarotonga BESS at the Rarotonga Airport Solar Array Site (GEF Funded) Completed in September 2019. BESS was constructed and installed at the existing Rarotonga Airport solar PV array at the Te Mana Ra Solar PV facility in the island of Rarotonga and connected to the electricity grid. SCADA upgrade (GEF Funded – minor scope change) Tender issued and closed. Award expected in Q3, 2024 for completion in Q2, 2025.
Rarotonga	Load shifting BESS and grid stability BESS in Rarotonga (GCF funded) Completed in February 2020. BESS was constructed and installed at the Airport South, Rarotonga, and connected to the grid. (Lot 2) (load shifting). Completed in June 2022. BESS was constructed and installed at the TAU Power Station, Rarotonga, and connected to the grid. (Lot 1) (grid stability).

a. GEF Grant Disbursement

On 1 June 2017, the battery energy storage system (BESS) turnkey contract of $3.06 million (about NZ$4.37 million) funded by GEF was awarded and as of 31 August 2024, disbursements totaled $3.73 million.

A variation to the project owner's engineers' contract to include support for the BESS implementation was also made and awarded in the amount of $387,289.66. Disbursements as of 30 June 2020 totaled $276,963.66.

GEF funds also partially funded Phase 1 Solar Photovoltaic Plants (for islands Atiu, Mangaia, Mauke and Mitiaro) when the EU component of the project suffered a shortfall due to foreign currency fluctuation. $771,796.16 was awarded for this, of which $619,681.28 have been disbursed as of 30 June 2020.

b. Stakeholders Engagement

No stakeholder engagement was planned or undertaken during this reporting period.

c. Gender Action Plan Implementation Status

N/A – no gender elements were included for this project under GEF financing.

d. Social and Environmental Safeguard Plan Implementation Status

Overall status of Safeguards implementation - The GEF component is classified as category B for environment, and C for both involuntary resettlement and indigenous peoples. No significant environmental impacts are envisaged from the onsite installation of the BESS system. The initial environmental examination was updated to include the additional project scope and necessary mitigation measures for the on-site installation, operation and decommissioning of the BESS. A due diligence report was also prepared and proved that no land acquisition or displacement will result and that the people of the project area do not meet the ADB criteria (distinctiveness and vulnerability) of indigenous peoples. All safeguard documentation was prepared in accordance with the Government of Cook Islands national laws, policies and guidelines and ADB's Safeguard Policy Statement (2009). Semi-annual safeguard monitoring reports since the GEF component became effective up to date have been submitted and have identified no issues during construction or operations.

Status of loan covenant compliance related to Safeguards – The grant covenants related to safeguards are all being complied with.

Corrective action, if any – N/A

C. Global Environmental Benefits (GEB) Objective/ Development Objective (DO) Rating:

Satisfactory. The project has achieved most of the key indicators set out in the DMF as of 30 June 2020.

The project feasibility identified potential direct greenhouse gas savings from the GEF financed component of 1,37 0 t(CO2e) per year. This was based on enablement of additional 2 MW solar PV installation that would not otherwis e be possible. To date, this additional installation has not yet been achieved, although planning is underway and pr ogressing. A comprehensive monitoring program has not currently been carried out. However, indicative metrics ar e available for the project benefits to date. Based on TAU data, approximately 700 kW additional solar PV was insta lled since the GEF financed BESS was commissioned, allowing load shifting of the airport solar PV to make way for t his additional solar. The approximate benefit is therefore 480 t(CO2e) per year for each of the four years since com missioning.

The reasons why additional solar PV has not been installed yet are multi-faceted:

- TAU had not yet installed its planned Control System to compliment the BESS and provide curtailment ser vices for distributed solar
- COVID-19 response redirected utility resources and finances towards supporting and maintaining immedia te local community interests, allowing little capacity to progress developments
- TAU has experienced delays in attracting local interest in private sector solar PV projects, and a TAU 2MW equity solar PV project planned for the Rarotonga airport has been delayed due to revised civil aviation se curity requirements.

TAU is addressing these issues through:

- Tendering for the Control System in 2024.
- Completing, in 2022, preparation of a feed-in-tariff rate, contract and technical specifications for connecti on of new private sector solar PV, including communication and information sections with key private sect or stakeholders
- Issuing a public call for expressions of interest in private sector solar PV in 2023, and refining the submissi ons through a technical evaluation process to identify approximately 1MW of private sector solar IPP that can be contracted during 2024.
- Investigating an alternate site for the 2MW equity solar PV project (site geotechnical studies are now com pleted and negotiations on the landowner agreement is underway.)

D. Risk Rating:

The BESS turnkey contract has been awarded in June 2017 and then the awarded contractor has commenced works, which have since been completed with minor defects since resolved. Moreover, no additional land acquisition is required. Therefore, the GEF component is not facing any major risk that may threaten the successful delivery of expected outputs.

E. Overall Rating of the Project:

Overall Rating:

Overall implementation progress since effectiveness is satisfactory and the overall project is not facing any major risk that may threaten the successful delivery of expected outputs. The overall project is currently rated on track in the project performance rating system. The latest implementation status of the current project is summarized in Table 1.

F. Good Practices And Lessons Learned:

Key lessons learned are described in detail in the Knowledge activities and products, item 3 (below). In particular, potential improvements were identified and implemented in subsequent projects for:

- sequencing of BESS installation with additional solar PV supported by the BESS, to deliver lower risk and decreased time to achieve mutual benefits of these technologies.
- procurement and contract management of BESS, including means of managing complex factory testing requirements in COVID-19 travel restrictions.

G. Knowledge activities / products:

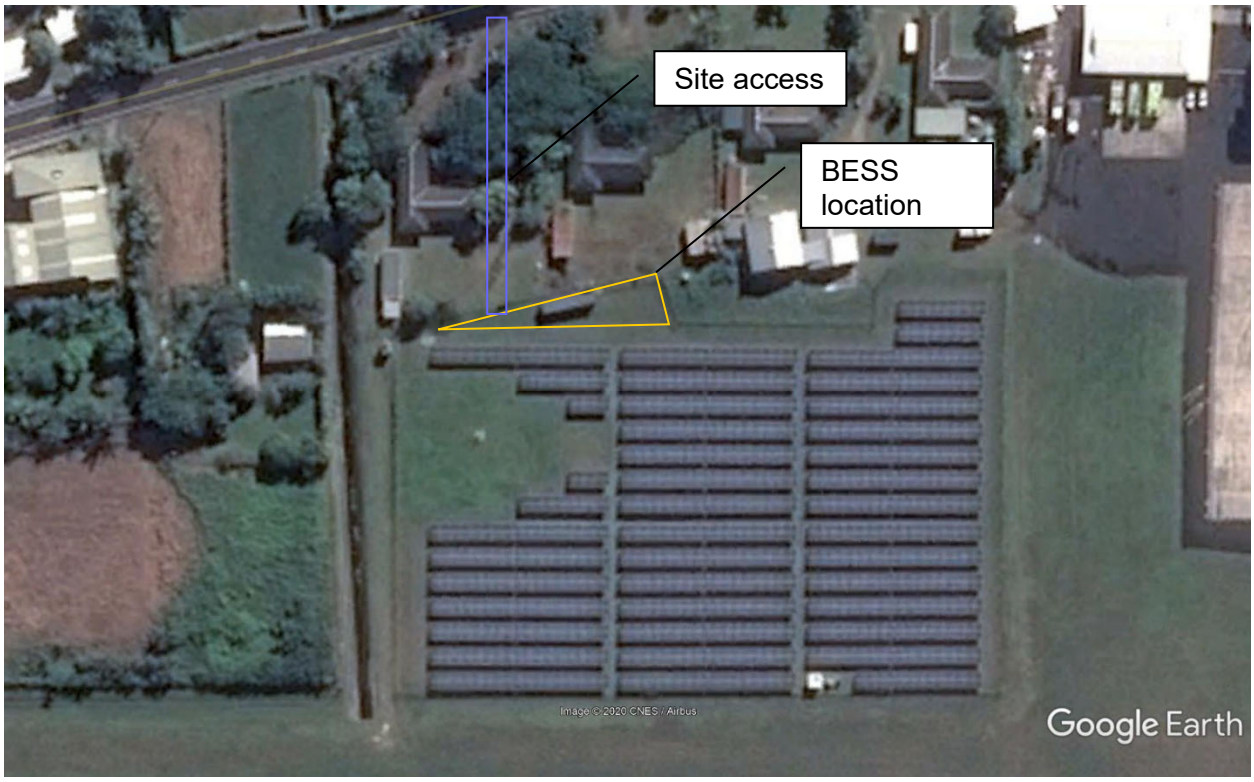
1) Applied Energy Symposium and Forum, REM2016: Renewable Energy Integration with Mini/Microgrid Conference Proceedings of "*Cook Islands: Planning 100% Renewable Energy in Different Guises*" was published in December 2016 (http://www.sciencedirect.com/science/ article/pii/ S1876610216314849).
2) Asia Clean Energy Forum, *"The Promise of Storage: Implementing Renewable Energy in Mini-grids"* was presented in June 2018 (https://d2oc0ihd6a5bt.cloudfront.net/wp-

content/uploads/sites/837/2018/06/Chris-Blanksby-and-James-Mason-The-Promise-of-Storage-Integrating-Renewable-Energy-in-Mini-Grids.pdf

3) Asian Development Bank, Hybrid and Battery Energy Storage Systems: Review and Recommendations for Pacific Island Projects, August 2022 (Hybrid and Battery Energy Storage Systems: Review and Recommendations for Pacific Island Projects | Asian Development Bank (adb.org)

H. Location Data:

The project was completed at the Rarotonga International Airport, (latitude 21.20075°S longitude 159.8003°E), as shown below:



This is consistent with the proposed location as per the extract from the social safeguards due diligence report below. Note that the SCADA upgrade will be installed primarily at the TAU powerstation (latitude -21.221199°, longitude -159.794670°) and networked to other sites, however, all physical infrastructure will be cabinets, racks, workstations and servers installed within the powerstation and replacing existing infrastructure, with no new construction.

The plan for the GEF-funded subproject on Rarotonga was to install a Battery Energy Storage System (BESS) into the Rarotonga grid. The BESS was to be housed in containers positioned on one of two potential sites located on government-owned freehold land at the Rarotonga airport on the northwest coast of Rarotonga. Access to both sites would be from public roads across the parcels in question. Storage of materials and staging during construction would be on the same respective parcels.

The preferred and most likely site for the BESS is on the airport property inside the security fence encircling the existing solar photovoltaic (PV) array just southwest of the terminal building (see Figure 1, right).

Figure 1. Photo taken in 2016 showing existing PV installation (inside yellow ring).

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Figure 3 (below) shows an aerial photo of the area with GIS overlays of coastal hazard zones (red, blue, and yellow fill) and cadastral boundaries (dashed white lines). The boundary shown in fluorescent-green marks the preferred BESS location inside the security fence surrounding the existing PV array. The alternate site at the Te Aponga Uira o Tumu Te Varovaro (TAU) substation is marked by an olive-green dot on the south side of the runway.

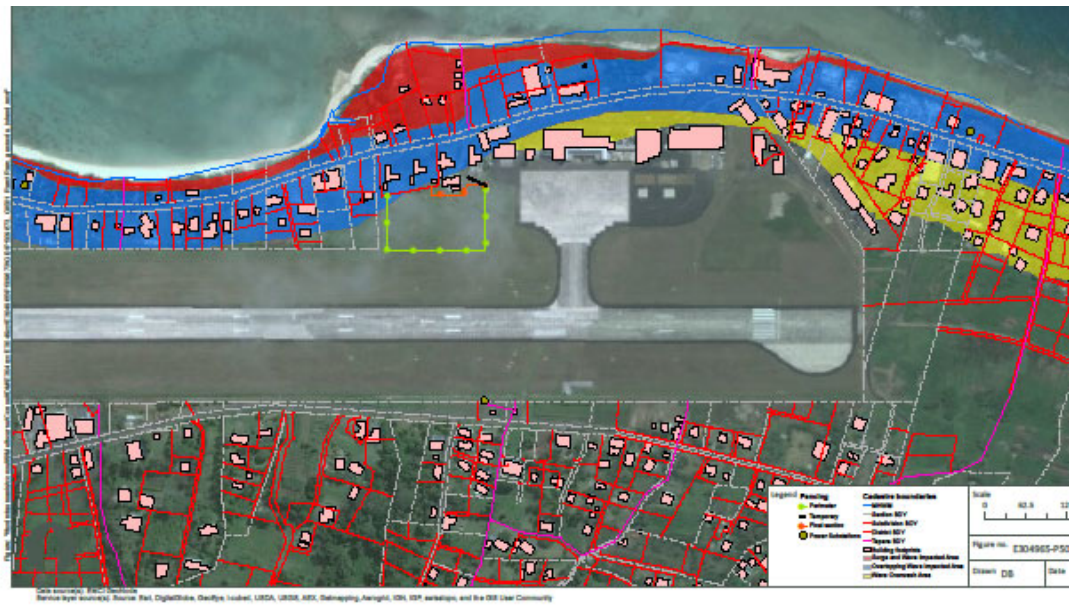

Figure 3: The preferred location of the BESS is inside the security fence (marked in green) that encircles the perimeter of the existing solar array. The alternate site is at the TAU substation (marked by an olive-green dot on the south side of the runway).

For Projects that have conducted Midterm Review Mission (from 1 July 2023 to 30 June 2024)

IV. Midterm Review

Midterm Project Ratings:
Development Objective Rating at MTR (IP): Satisfactory, (S)

Implementation Progress Rating at MTR (DO): Satisfactory, (S)

Risk Rating at MTR: Low Risk (L)

Information on Progress, challenges and outcomes on stakeholder engagement (based on the description of the Stakeholder engagement plan included at CEO Endorsement/Approval)
N/A

Information on Progress on gender-responsive measures as documented at CEO Endorsement/Approval in the gender action plan or equivalent
N/A

Knowledge activities / products (based on the Knowledge management approach approved at CEO Endorsement / Approval) and lessons learned (if available)

- Applied Energy Symposium and Forum, REM2016: Renewable Energy Integration with Mini/Microgrid Conference Proceedings of "*Cook Islands: Planning 100% Renewable Energy in Different Guises*" was published in December 2016 (http://www.sciencedirect.com/science/ article/pii/ S1876610216314849).
- Asia Clean Energy Forum, *"The Promise of Storage: Implementing Renewable Energy in Mini-grids"* was presented in June 2018 (https://d2oc0ihd6a5bt.cloudfront.net/wp-content/uploads/sites/837/2018/06/Chris-Blanksby-and-James-Mason-The-Promise-of-Storage-Integrating-Renewable-Energy-in-Mini-Grids.pdf
- Asian Development Bank, Hybrid and Battery Energy Storage Systems: Review and Recommendations for Pacific Island Projects, August 2022 (Hybrid and Battery Energy Storage Systems: Review and Recommendations for Pacific Island Projects | Asian Development Bank (adb.org)

Main Findings of the MTR

Minor changes to reallocate GEF and GCF grant proceeds were approved in Q1 and Q2 2019, including the extension of closing date for all funding sources up to 31 December 2021. The PAM Detailed Cost Estimate by Financier and by Year were also revised accordingly. Government's comments and confirmation of proposed amendments to GEF and GCF grant agreements have been done.

Procurement of two GCF-funded BESS packages are significantly delayed. Lot 2 was awarded in September 2018, after 8 months of delay. Lot 1 contract negotiations failed after over 6 months and is now for rebidding. The invitation for bids was posted on 27 May 2019 and bid submission deadline was 7 August 2019. This has been finally awarded in May 2020. Commissioning of GEF BESS is 6 months delayed. Recent technical issues with the battery and continued absence of

the contractor's personnel on site are among the reasons for delay. Except for the proposed new consulting package for O&M services, all contracts have been awarded.

Demand-side issues arose in some outer islands, particularly in Atiu where the island council has requested additional BESS capacity. It was discussed and agreed among ADB and the EA, that the O&M services contract will include awareness raising and capacity building on demand-side management and energy efficiency, subject to approval by ADB.

The project is assessed as "in compliance" with all 11 safeguard covenants and with the PMU operating with good safeguards capacity, the project is rated as satisfactory for safeguard compliance. As of January 2020, all semi-annual safeguard monitoring reports have been submitted.

Overall implementation progress is satisfactory and On Track based on the five indicators in ADB's project performance rating system: Outputs, Contract Awards, Disbursements, Financial Management, and Safeguards. The project is not facing any risk that may threaten delivery of expected outputs. All outer islands subprojects are completed, commissioned and running on about 95% renewable energy.

For Projects that have conducted Completion Mission/Completed TA or PCR Report and GEF TER (from 1 July 2023 to 30 June 2024)

V. Terminal Evaluation Report

Not applicable

Terminal Evaluation Ratings:
Development Objective Rating at MTR (IP):

Implementation Progress Rating at MTR (DO):

Risk Rating at MTR:

Information on Progress, challenges and outcomes on stakeholder engagement

Information on Progress on gender-responsive measures, indicators and intermediate results

Knowledge activities / products and lessons learned

Main Findings of the TE

Core Indicators:

VI. Materialized Cofinancing

Sources of Co-financing1	Name of Co-financer	Type of Co-financing2	Amount Confirmed at CEO endorsement / approval	Actual Amount Materialized at Midterm	Actual Amount Materialized at Closing
GEF Agency	Asian Development Bank	Loan	11,190,000.00*	11,190,000.00	N/A
Donor Agency	European Union	Grant	7,260,000.00**	7,260,000.00	N/A
Donor Agency	Green Climate Fund	Grant	12,000,000.00	12,000,000.00	N/A
		TOTAL			

*Equivalent to NZ$12.98 million.
**Equivalent to EUR5.30 million.

Signature:
Name of Project Officer:
Position:
Date:

[1] Sources of Co-financing may include: Bilateral Aid Agency(ies), Foundation, GEF Agency, Local Government, National Government, Civil Society Organization, Other Multi-lateral Agency(ies), Private Sector, Other.
[2] Type of Co-financing may include: Grant, Soft Loan, Hard Loan, Guarantee, In-Kind, Other

ANNEX B. Project Contacts

ADB Project Officer	Eun Young So, Energy Specialist
Division and Department	Energy Division, Pacific Department
Email	eyso@adb.org
EA Project Officer	
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ANNEX C: DEFINITION OF RATINGS

Implementation Progress Ratings

Highly Satisfactory (HS): Implementation of **all** components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as "good practice".
Satisfactory (S): Implementation of **most** components is in substantial compliance with the original/formally revised plan except for only a few that is subject to remedial action.
Moderately Satisfactory (MS): Implementation of **some** components is in substantial compliance with the original/formally revised plan with **some** components requiring remedial action.
Moderately Unsatisfactory (MU): Implementation of **some** components is not in substantial compliance with the original/formally revised plan with **most** components requiring remedial action..
Unsatisfactory (U): Implementation of **most** components is not in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU): Implementation of **none** of the components is in substantial compliance with the original/formally revised plan.

Global Environment Objective/Development Objective Ratings

Highly Satisfactory (HS): Project is expected to achieve or exceed **all** its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".
Satisfactory (S): Project is expected to achieve **most** of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS): Project is expected to achieve **most** of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve **some** of its major global environmental objectives or yield some of the expected global environment benefits.
Moderately Unsatisfactory (MU): Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only **some** of its major global environmental objectives.
Unsatisfactory (U): Project is expected **not** to achieve **most** of its major global environment objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU): The project has failed to achieve, and is not expected to achieve, **any** of its major global environment objectives with no worthwhile benefits.

Risk Rating

Risk ratings will assess the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risks of projects should be rated on the following scale:
High Risk (H): There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S): There is a probability of between 51% and 75% that assumptions may fail to hold and/or the project may face substantial risks.
Modest Risk (M): There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/ or the project may face only modest risks.
Low Risk (L): There is a probability of up to 25% that assumptions may fail to hold or materialize, and/ or the project may face only modest risks.