

Te Tarai Vaka Activity Progress Report: ADB Loan 3193/Grant 0415-COO Renewable Energy Sector Project

Summary

Activity information

Activity Title	Cook Islands Renewable Energy Sector Project
Goal	Increased energy security in an environmentally sustainable manner
Intended outcomes	The outcome will be increased access to a higher share of electricity generated from renewable energy sources

Funding information

Start and end dates	9 February 2015 – 31 December 2019 ¹
Total cost	NZD33.22 million* Note that all reported costs will be in NZD millions
Reporting period	1 July – 30 September 2018

* conversion rate (19/6/2015)

Progress report preparation

Prepared by	Entura Team
Others involved or consulted during this reporting period	REDD staff, MFEM, DCD staff, Project Steering Group, TAU staff, CIIC Staff, ADB Eun Young So, Energy Specialist, Member). Mpower staff (weekly meetings online), Infratec Staff on island, Entura Electrical Engineer David Skinner, Aitutaki Power Supply, Powersmart NZ. Island Governments of Atiu, Mangaia, Mitiaro and Mauke.
Date of report	October 2018

Key Conclusions and Necessary Actions

This fourteenth Progress Report has been prepared by Entura, Project Owners Engineers, (POE) in co-operation with the Cook Islands Government (CIG), Project Management Unit (PMU), Project Steering Group (PSG) for the ADB funded Loan 3193/Grant 0415-COO Renewable Energy Sector Project. The Progress Report provides an update to the ADB and all relevant stakeholders on project progress between 1 July (commencement of reporting period) and 30 September 18 (end of reporting period).

Activities undertaken in this reporting period included:

- weekly teleconference meetings with MPower covering the final stage documentation, site works and delivery of the Global Environment Facility (GEF) funded battery energy storage system (BESS) prior to commissioning, planned for November.
- Construction continued on the Phase 1 Infratec/NETCON Limited turnkey contract work programme. This saw completion of Atiu and Mangaia power stations. The Mauke distribution system progressed substantially and is near complete.

¹ ADB Fact-finding Mission in April reached an in principle agreement with the Government to extend the original loan and grant closing date from 31 December 2017 to 31 December 2019

- For the Phase 2 project on Atiutaki, fortnightly teleconferences were held with Powersmart NZ Limited, Aitutaki Power Supply, POE and PMU. Powersmart submitted a 30% design package, which was approved. An 80% design package was also submitted but this is still under review and clarification.
- The Green Climate Fund (GCF) funded Rarotonga Battery Energy Storage System “Airport South” under Phase 2 (Rarotonga) (BESS) was awarded to Vector Limited. Vector has commenced design and a kick-off meeting is planned in October in Auckland.
- The GCF funded Rarotonga BESS “Power Station” under Phase 2 (Rarotonga) is still in negotiation and is expected to be awarded shortly.
- GIS asset management site visits to Atiu, Mauke and Mitiaro

Review of Progress to Date

A. Project Implementation

1. Administration

The POE works directly with the Implementing Agency, REDD, and during this reporting period the POE local team used the REDD office intermittently. The POE, Electrical Engineer, David Skinner visited during August to witness commissioning of the Atiu power stations. The POE test technician Nathan Allie visited Rarotonga to witness high voltage electrical testing on the GEF BESS installation. Other international staff were working from their home offices.

The PMU is staffed by the Project Manager, Finance Specialist (3 days per week). The PMU take on the major responsibility for the project with oversight by the REDD Director in close consultation with the POE.

2. Procurement and Confirmed Contracts

The Phase 1 Turnkey contract (CIRES-001), awarded to NETCON, was signed on the 17th August 2016 and the contract became effective on the 7th October 2016. The negotiated contract price was NZ\$7,708,494.88 and €1,023,208.74². A variation for NZ\$-395,554.41 was agreed on 11 February 2016, removing the HV scope of works from the contract for inclusion in the power distribution network package. The civil works for the power stations was included as a variation to the NETCON contract (NZ\$3,718,672) in May 2017 (including construction of the power house, roads/tracks, and array foundations and framing). Other variations were agreed as follows: NZ\$56,000 in July 2018 for changes to roofing of the powerhouse building; NZD 39,872.00 in July 2018 for inclusion of a historian and local data logging; NZ\$8,615 in September 2018 to provide for assistance with tuning of existing diesel generators on Mangaia.

The power distribution network package (grid package) for Mitiaro and Mauke (CIRES-002) was also awarded to NETCON Limited on the 27 March 2017 for the contract price of NZ\$3,926,941 (equivalent). Under this contract NETCON will install or replace high voltage and low voltage cable and substations/transformers on Mauke and Mitiaro as well as connections to customers and the power station as the existing systems are at the end of life and no longer suitable for the new power system. Infratec has provided a variation proposal for several changes in the scope of works under this contract, including power factor correction, consumer metering and MV/LV upgrade additions for Mauke and

² Contract variation to remove HV system from main contract and transferred to power distribution package to the value of \$395,554.41

Mitiaro. This variation has received a no-objection from ADB and is expected to be executed in October 2018.

The BESS contract was awarded to MPower Limited on the 1 June 2017 for a fixed price of US\$3,092,768 (equivalent). A variation for NZ\$103,000 was agreed in August 2018 to allow a larger transformer sizing to take advantage of latent BESS PCS and battery capacity.

The Phase 2 Aitutaki Contract was awarded to Powersmart NZ on 31 May 2018 for a fixed price of NZ\$3,352,090 (equivalent).

The GCF Grant funded Rarotonga BESS "Airport South" under Cook Islands Renewable Energy Sector Project (COO46453-002) – Phase 2 (Rarotonga) (BESS) contract was awarded on 30 September 2018 to Vector Ltd, for a fixed price of US\$5,094,130.

3. Financial disbursements.

The financial disbursements recorded below provides an update to the ADB and all relevant stakeholders for the CIRESF from February 2015 to September 2018 amount paid to date in NZD.

Items as per Project Administration Manual Updated	Amount paid to date 09 February 2015 to September 2018.	Total cost of Project as per PAM*
	NZD'000,000	
A. Investment Costs	\$29.72	\$47.60
B. Contingencies	\$0.00	\$1.22
C. Financing Charges during implementation	\$0.06	\$0.73
D. Administration Charges	\$0.00	\$0.99
Total Project Cost	\$29.78	\$50.53

*All these amounts are exclusive of VAT

In addition to the above the following Table is the project spend by Funding Partner for the same quarter in New Zealand Dollars (NZD).

Project Spend by Financier for period July to September 2018							
	ADB	EU	GEF	CIG(PEC)	CIG	Total	
	NZD	NZD	NZD	NZD	NZD		
A. Investment costs	\$ 0.84	\$ -	\$ 0.11	\$ -	\$ 0.13	\$	1.08
1. Solar PV Module Procurement						\$	-
2. Turnkey Contract - Solar PV System Development	\$ 0.65	\$ -				\$	0.65
3. Turnkey Contract for Battery Energy Storage System development			\$ -			\$	-
4. Consulting Services - Institutional Strengthening and Project Management	\$ 0.19		\$ 0.11			\$	0.30
5. Land Acquisition						\$	-
6. Tax and duties					\$ 0.13	\$	0.13
B. Contingencies						\$	-
C. Financing Charges during Implementation						\$	-
D. Administration Charges						\$	-

Note:

a. Numbers in ADB column may be different from Ministry of Finance and Economic Management Quarterly report

b. Exchange rates used to convert from NZD to USD is on the date that the transaction occurred 1.43. PAM used 1.16.

Source: LFIS/GFIS, DCD and PMU data

3.1 Delayed Disbursements

Contractor NETCON under G415 G16224 has been experiencing major delays in receiving payments from ADB. Due to funds from EU being transferred to ADB at a later than normal date. One of the invoices from June has now been delayed for over three months. ADB and the donor EU are working closely to ensure that the time delays are reduced.

4. Field work

Field investigations during this period included:

- POE, Entura, David Skinner visited in August for commissioning of the Atiu solar plants.
- POE, Entura, Teariki Rongo visited Atiu following commissioning of the solar plant
- POE, Entura, Nathan Allie visited Rarotonga during HV testing of the GEF BESS
- Cook Islands Govt. delegation and other representatives visited Atiu for the opening of the solar plant.

5. Safeguards and monitoring

The Fifth Semi-Annual Safeguard Monitoring Report for the CIRESPP for the period 1 January – 30 June 2017 was submitted in July 2018. The purpose of the report was to document social and environmental safeguard monitoring activities as well as environmental safeguards. This includes responses to questions raised by ADB from the previous Semi Annual report.

The POE, Local Environmental Specialist completed visits to Atiu to monitor conditions at completion. Potential for erosion was the main issue identified, with coir mats not yet installed along the solar panel dripline and some potential for erosion under heavy rain conditions due to channelling of stormwaters at the middle of the site. These will be raised with the Island Council and Contractor for resolution.

There is an outstanding action to complete land acquisitions of transformer / substation sites on Mauke, which is pending the next Land Court hearing (schedule not yet confirmed).

6. Phase 1 Turnkey Contract and HV/LV distribution contract status (CIRESPP-001 and CIRESPP-002)

During this quarter three Monthly reports CIRESPP-001 and CIRESPP-002 dated June, July and August 2018 were received from Infratec. They provide an update of project progress that includes a summary of design, procurement and logistics and civil construction progress.

Design & construction:

- The CIRESPP-001 & 002 designs and construction are now complete, with exception of some minor works on Mauke distribution grid.

Test and completion:

- Inspection and test reports were submitted and approved for Atiu and Mangaia solar plants.
- Functional guarantee test reports were submitted and approved (provisional) for Atiu and Mangaia solar plants as part of commissioning.

Other:

- A number of variations were outstanding relating to additional work for the MV LV project. ADB issued a no objection for variations relating to network equipment, power factor correction, metering and extension of the Mauke network.

Summary overview of percentage completed as per Infratec August Report

Work Stream	Mitiaro	Mauke	Atiu	Mangaia
Community Engagement	Completed	Completed	Completed	Completed
Civil – Powerstation	Completed	Completed	Completed	Completed
Civil – Array	Completed	Completed	Completed	80%
CIRESP-001 Electrical	Completed	Completed	Completed	Completed
CIRESP-002 Civil and Electrical	Completed	85%	NA	NA

All islands are now fully running on the new renewable power systems.

7. Cook Islands Renewable Energy Chart Implementation Plan (CIRECIP)

The CIRECIP is a document that continues to guide the work of the REDD office.

Progress against Results Measurement Table

The Results Measurement Table Appendix B shows progress of the activity against the intended outcomes and outputs and has been updated to mirror the changes in the Project Administration Manual (PAM) April 2016 carried out during the ADB Fact-Finding mission in April 2016. Results Measurement Table is provided as Appendix B.

Project Specific Covenants

Appendix D are those covenants that have been included in specific legal agreements, the Loan Agreement between the Government of the Cook Islands and ADB. The ADB Mission 20 – 24 November 2017 undertook a compliance review and all covenants are either being complied with or are not yet due. ADB is expected to field a next project review mission for the completion of the Phase I project, if all projects are completed as planned. Tentative time of mission will be in November 2018.

Changes to Activity Context in the Reporting Period

GCF Grant effectiveness was achieved in this quarter.

Relationship between Implementing Agencies, Beneficiaries and Other Stakeholders

Pacific Environmental Community (PEC) Procurement

Reporting is being prepared for PEC regarding the solar PV modules acquired under the project. To date, only those modules installed on Phase 1 islands (Mitiaro, Mauke, Atiu and Mangaia) are tested and fully capable of operation. No defects in modules were observed at these sites and testing showed performance characteristics of modules were in line with specifications. No additional activity with regard to PEC occurred during this reporting period, however the PEC fund solar panel allocation has been confirmed as follows:

Solar Panel Recipient	Total Solar Panel Capacity Allocated (kWp)	Total No. of Solar Panels Allocated	Construction Start Date	Construction Completion Date
Mitiaro Island	164.3	620	Aug 2017	April 2018
Mauke Island	234.26	884	Sep 2017	May 2018
Atiu Island	424	1,600	Nov 2017	August 2018
Mangaia Island	482.3	1,820	Jan 2018	August 2018
Aitutaki Island	1,026.61	3,874	Jan 2019	June 2019
TOTAL		8,798		

The panels allocated to the Phase 1 solar sites have been delivered to the respective islands except for Aitutaki. The panels for Aitutaki will be transported by the Aitutaki turnkey Contractor.

The remaining panels identified in the table below were previously considered for installation on Rarotonga. Further discussions are in progress by Government as to the most appropriate distribution.

	Total Solar Panel Capacity Allocated (kWp)	Total No. of Solar Panels Allocated
TOTAL	1,321.29	4,986

Co-financing from GEF

The co-financing from GEF has supported the government's effort to increase power generation from renewable sources and enhance the government's institutional capacity for implementing the Cook Islands Renewable Energy Chart Implementation Plan (CIRECIP), 2012–2020, which sets a target of supplying electricity from renewable energy sources on all inhabited islands by 2020. The additional

financing is included as a firm project in ADB's country operations business plan, 2016–2018 for the Cook Islands.³ GEF has funded the contract for the battery energy storage system (BESS) to be installed at the Te Mana Ra Solar PV facility at the Rarotonga Airport for integration into the existing power system infrastructure.

Progress of the BESS contract awarded to MPower Limited on the 1 June 2017 has been slow. During this quarter, the BESS was installed on site and most pre-commissioning tests have been successfully completed but are yet to be approved by the POE. Commissioning of the BESS, Contracted for April, is now scheduled for November.

Weekly teleconference meetings continued to be held during this quarter with a number of Mpower technical staff, TAU technical staff and POE. Inspections of the site works were undertaken by POE in August.

The BESS will be connected to the electricity grid that is managed by Te Aponga Uira (TAU). The BESS will provide flexible response to fluctuating Solar PV output in the TAU network. The main function of BESS is to:

- Minimise the severity and frequency of events that cause low load at the Power Station
- Minimise any curtailment of Solar PV facilities that may be necessary to maintain grid stability

The BESS is a containerised energy storage and power conversion platform, utilising a flexible open architecture communication. The supplied Battery System has a total energy rated capacity of 6.4MW hours at Beginning of Life (BOL) but is expected to de-rate over the 10 year period End of Life (EOL) to 4MW hours.

The initial tender for the BESS was for a 1MW power output. MPower offered a 1.5MW power output at the inverter however this was constrained back to 1MW at the transformer. A variation has now been agreed with MPower to include a larger transformer that allows the Employer to utilize up to 1.35 MW power from the BESS.

Co-financing from the Green Climate Fund (GCF)

The CIRES Project received additional financing of a US\$12 million grant from the Green Climate Fund (GCF) in December 2016 and ADB's President approved the GCF grant on 30 October 2017. The GCF grant will be used for the procurement of equipment and materials, civil works, related transportation, insurance, and installation costs for the installation of three additional units of BESS. TAU is the implementing agency for this subproject to be funded by GCF. The grant became effective during this quarter.

The Rarotonga Battery Energy Storage Systems "Power Station" and "Airport South" under Cook Islands Renewable Energy Sector Project (COO46453-002) – Phase 2 (Rarotonga) (BESS) ITB closed on 20 February 2018 with Bid Opening commencing at midday on the same day. Lot 2 (Airport South) was awarded to Vector Ltd in September. Lot 1 (Power Station) is not yet awarded.

Updates to Key TTV Activity Management Documents

The Activity Results Framework is replaced with the Indicative Implementation Plan for this section.

³ ADB. 2015. *Country Operations Business Plan: Cook Islands, 2016–2018*. Manila.

The updated Indicative Implementation Plan for the remainder of this project is provided in the Table below.

The Table 1 includes key deliverables due during the next reporting period (highlighted) with the activities above having been completed during this reporting period

Table 1: Indicative Project Implementation Action Plan for the Next 12 Months

Activity	Responsibility	Target Date/Completed
Completed Q3 2018		
Commissioning: Atiu and Mangaia power stations	PMU/Entura/Infratec	Sep 18
Aitutaki Phase 2 – design submission and review (30%)	PMU/Entura/Powersmart	Aug 18
Performance monitoring of Phase 1 projects	PMU/Entura/Infratec	Ongoing
Contract award: GCF BESS Lot 2	PMU/Entura	Sep 18
Planned Q4 2018		
Commissioning: GEF BESS	TAU/PMU/MPower/Entura	Nov 18
Aitutaki Phase 2 – design submission and review (80%)	PMU/Entura/Powersmart	Oct 18
Commissioning: Mauke distribution	PMU/Entura/Infratec	Oct 18
Commence Phase 1 variations (metering and Mangaia power factor correction)	PMU/Entura/Infratec	Oct 18
Performance monitoring of Phase 1 projects	PMU/Entura/Infratec	Ongoing
Contract award: GCF BESS Lot 1	PMU/Entura	Oct 18
GCF BESS Lot 1– design submission and review	PMU/Entura	Nov 18
Q1 Next Reporting Period		

Estimated Contract Payments

A preliminary detailed costed workplan was provided in previous quarterly reports but is now considered not to be very useful. There were too many discrepancies between what was implemented and the projected estimated cost. The following Table therefore replaces the costed workplan which provides estimates of contract payments for the next three quarters to Dec 2018 which has been provided by the contractors.

	Quarter 4		Quarter 1		Quarter 2		Quarter 3	
	October to December 2018		January to March 2019		April to June 2019		July 2019 to September 2019	
NETCON	NZD	EURO	NZD	EURO	NZD	EURO	NZD	EURO
1. Solar PV								
2. Distribution			0.69		\$ 0.52			
3. Civil Contract	\$ 0.60							
4. BESS (Mpower)								
ENTURA								
4. Consulting Services	\$ 0.27							
Romani's Designs								
5. Project Management	\$ 0.23							
NB: This is an estimated future spend.								
Source: Payment Schedules provided by Contractors								

Risk management

Key risks identified for the project, including current actions, are identified in Appendix C Risk Matrix Table. The previous primary risk of delays in variations is now reduced (approval to proceed with these variations has been provided). Other delay risks remain, including implementation of these variations, contracting for GCF, and ongoing delays in the commissioning of the GEF BESS and finalization of the Mauke distribution grid.

Some of the requested variations (Street lighting variation for all Phase 1 project sites, maintenance vehicles and additional cable) are on-hold pending budget availability (impacted by the ADB requirement to hold a reserve of the project budget for currency risk – as more disbursements are made as projects reach completion, reserved funds will likely become available).

Governance and Management Arrangements

The PSG oversees the implementation arrangements of the Southern Group Renewable Energy Project. The members of the PSG were confirmed as Chair, Elizabeth Wright-Koteka (Acting Energy Commissioner), Tangi Tereapii (Director, REDD), Garth Henderson (Financial Secretary, MFEM), Apii Timoti (CEO, TAU), Michele Aisake (DCD), Tamarii Tutangata (CIIC) and Romani Katoa (PMU), Chris Blanksby (Entura), Eun young So (ADB), Charmaine Dolan (ADB Cook Islands Office), Ben Ponia (Chief of Staff, OPM). NZHC has yet to appoint a new representative to the PSG.

The Project Manager of the PMU is responsible for the PSG meetings. One PSG meeting was held in this quarter, in August, and minutes distributed to all members.

Authorisation

I declare that the information contained in this report is true and correct and confirm:

- Funds were received and used only for the agreed purpose(s); and
- All conditions attached to Funding have been met; and

- Funds have been fully utilised for the intended purpose

Full Name (in block capitals)

Title / Position

Signature

Date

Appendices

This report includes the following appendices:

- Appendix A: Progress against Results Framework (table)
- Appendix B: Risk Matrix (table)
- Appendix C: Project specific covenants - as displayed in legal agreements (table)

Appendix A: Progress Against Results Framework

This table shows progress of the Activity against the intended outcomes and outputs defined in the (draft) Results Framework and has been updated from the Project Administration Manual (PAM) April 2016. Note that this framework still requires finalisation with the Steering Group Committee.

Note: Planned and actual indicators and targets should be sex-disaggregated where possible.

From agreed Results Measurement Table in the Activity Design Document				Data up to and including this reporting period	
Outcomes and outputs	Planned indicators	Planned targets	Planned methodology and data sources	Actual measurement against targets (using indicators)	Actual methodology and data sources
Impact Increased energy security in an environmentally sustainable manner	100% of islands convert energy system from diesel fuel to renewable energy source. (baseline: 0% in 2012)	By 2020	Government Statistics	13 of 15 islands commissioned with renewable energy generation systems	Project completion reports held by REDD
Medium-term outcome Increased access to a higher share of electricity generated by renewable energy sources	Four islands in the Southern group fully convert energy system from diesel fuel to renewable energy. (Baseline: 0% in 2012)	By end of 2018	Government statistics Project Completion Report	4 Islands complete	Project completion report held by REDD
Short-term outcome					
Output 1. Solar PV power system for four (4) subprojects developed on Mangaia, Mauke, Mitiaro and Atiu islands.	Solar PV power system of Phase 1 subprojects (with 1.24 kW installed capacity) connected to the existing power grid on Mangaia, Mauke, Mitiaro and Atiu islands. (Baseline: 0% in 2012)	By the end of 2017	Project Progress Reports Project Completion Report	4 Islands complete	Project completion report held by REDD
Output 2. Solar PV power system for Phase 2 subprojects developed on Aitutaki, and Rarotonga. Installation of a battery energy storage system (BESS) with a preliminary capacity of the 1.0 MW and 4.0 MWh	Solar PV power system of non-core subprojects (2400kW) connected to the existing power grid on Aitutaki, and Rarotonga islands. (Baseline 0% in 2012) About 2.0 MW of additional solar PV without negatively affecting the grid. This will result in fuel savings and carbon dioxide reduction of about 0.575 million liters and of 1,370 tons per annum	By end-2017 By end – 2018	Project Progress Reports Project Completion Report		
Output 3. Institutional and project management capacity strengthened.	Energy efficiency policy implementation plan is developed (2012 baseline 0%) Capacity of OEC and REDD (10 staff in total) for renewable energy technology assessments and tariff setting in private sector-funded developed (2012 baseline: 0%) The updated CIRECIP which incorporates load demand update, viable renewable technology choice, and least-cost investment plan, developed. (2012 baseline: 0%) Project management support for REDD and TAU to implement core and non-core subprojects (6 in total) completed (2012 baseline: 0%	By end-2019	Project Progress Reports Project Completion Report	CIRECIP 2016 update approved and published by CIG	Published CIRECIP 2016 (MFEM website)

Appendix B: Project Risk Table

1	Project management	Time management	Land payment confirmation report cannot be completed due to delays in land acquisition payments. Impact on preparation of site and civil works and turnkey contract timing (and liquidated damages)	C. Possible	2. Minor	L	Only Mauke substations remaining—continue to monitor	C. Possible	2. Minor	L		↓	1/10/2018
2	Project management	Integration management	Interface issues between scope of different turnkey projects	C. Possible	2. Minor	L	All Phase 1 contracts now sit under single Contractor, with single responsibility including all interfaces. Phase 2 contracts are largely independent and less affected by this risks	C. Possible	2. Minor	L		↓	1/10/2018
3	Engineering	Civil	Island clearing works not completed to satisfactory standard. (note: Mangaia site issues now addressed)	C. Possible	2. Minor	L	Aitutaki project is only remaining risk and is a simple site that is largely complete.	C. Possible	3. Moderate	M		↓	1/10/2018
4	Project management	Time management	Phase 1 Project schedule is continually slipping due to a) barge delays b) weather delays c) dispensation to local workers to participate in local events d) optimistic schedule. Likely to push out construction past time to completion. GEF BESS has slipped considerably and likely will continue.	B. Likely	2. Minor	M	This risk is being borne out, particularly with respect to the distribution contract and GEF BESS. Limited remaining mitigation	A. Almost Certain	2. Minor	M		→	1/10/2018
5	Science	Political	Communication difficulties mean different expectations between locals, Employer and Contractor.	B. Likely	2. Minor	M	Continue a diligent approach with REDD or PMU representatives meeting with Island Council regularly and communicating closely with Contractor	C. Possible	2. Minor	L		↓	1/10/2018

6	Science	Political	Local contractors do not have sufficient opportunity to participate in works	C. Possible	3. Moderate	M	Existing Phase 1 contractor has effectively achieved high level of local participation on Phase 1 islands. Same for GEF-BESS contractor. Indications are this approach will continue on Aitutaki. Continue to monitor.	D. Unlikely	3. Moderate	L	 ↓	1/10/2018
7	Project management	Contract procurement management	Scoping work for distribution rehabilitation not included in ICT process due to schedule constraints	B. Likely	2. Minor	M	Discuss and agree with contractor for minor change orders to complete scope – COMPLETE	C. Possible	2. Minor	L	✓ ↓	-
8	Science	Political	Manea Games held in October do not have power supply available.	C. Possible	3. Moderate	M	Use of new diesel generator in existing powerhouse for 1 month to address issue – COMPLETE	D. Unlikely	2. Minor	L	✓ ↓	-
9	Project management	Cost management	Overall project budget approaching limits - possibility to exceed or need to drop planned project.	C. Possible	3. Moderate	M	Continue to assess budget and ensure minimum contingency amount remains. Risk reduced now a number of packages are locked in and Aitutaki tender opening completed. CI Govt allocation of \$2.8M significantly relieves any potential shortfall.	C. Possible	3. Moderate	M	 ↓	1/10/2018
10	Project management	Contract/procurement management	Time taken to process change orders means validity lapses or costs increase.	B. Likely	3. Moderate	H	Key variations now approved. Need to work closely with contractor to avoid any further delays. 3 proposed variations remain for approval	C. Possible	3. Moderate	M	 ↓	1/10/2018

11	Engineering	Electrical – Primary	Connection of solar PV hybrid systems to remote grids has unforeseen technical difficulties. Substantially reduced with commissioned projects.	C. Possible	3. Moderate	M	Ensure grid assessment reviews the issues and risks and ensure contractual clauses in place for these eventualities in Turnkey contract. Reduced substantially based on commissioned projects	C. Possible	2. Minor	L	✓	→	1/10/2018
12	Engineering	Renewable energy	Turnkey contractors designs, construction and commissioning have unforeseen difficulties on site. Substantially reduced with commissioned projects.	C. Possible	3. Moderate	M	Ensure sites assessment reviews the issues and risks and ensure contractual clauses in place for these eventualities in contract for Turnkey suppliers	C. Possible	2. Minor	L	🕒	→	1/10/2018
13	Project management	Scope management	Environmental & Social Safeguards scope or site visits highlights significant issues arising or mitigation required.	C. Possible	3. Moderate	M	Ensure sites assessment reviews the issues and risks early, and mitigations are put in place through EMP. Review of Phase 1 projects to date have shown high level of compliance with safeguard requirements.	C. Possible	3. Moderate	M	✓	→	1/10/2018
14	Technical	Environment	Environmental issues are not identified resulting in environmental impacts	D. Unlikely	4. Major	M	Use local expert support through the POE; follow NES and ADB requirements	D. Unlikely	2. Minor	L	✓	→	1/10/2018
15	Project management	Contract procurement management	REDD and TAU has sufficient capacity to implement and maintain the project.	C. Possible	3. Moderate	M	The government adopts policy actions recommended under the institutional strengthening and project management that will support the performance and service delivery of TAU and REDD.	D. Unlikely	3. Moderate	L	🕒	↓	1/10/2018
16	Project management	Human resources management	To deliver project may require assistance from others outside of the project team that is not currently costed .	C. Possible	3. Moderate	M	PMU and financial capacity support in place. POE support implemented progressively as the overall project scope changes.	D. Unlikely	2. Minor	L	🕒	→	1/10/2018
17	Project management	Cost management	GCF grant has no technical support funding allocation.	B. Likely	3. Moderate	H	GEF allocation approved.	D. Unlikely	3. Moderate	L	✓	↓	1/10/2018
18	Technical	Electrical	Power BESS sought under GCF is a highly sensitive component that needs to be carefully designed and implemented to achieve desired grid stability. Possible issues may reduce renewable contribution achievable.	C. Possible	3. Moderate	M	Utilise tightly controlled procurement specification and comprehensive technical review during design process.	D. Unlikely	3. Moderate	L	✓	↓	1/10/2018
19	Engineering	Renewable energy	Benefits of BESS rely on continued implementation of larger scale, locally located solar PV, however, delays in securing land for	B. Likely	2. Minor	M	Review alternative Airport site. Continue to seek contingency options for PEC panels	C. Possible	2. Minor	L	🕒	↓	1/10/2018

			this purpose (and PEC panels) may mean BESS benefits are not initially realised									
20	Engineering	Renewable energy	PEC panels installed beyond their initial guarantee period - warranty claims may be impacted. Substantially reduced by results of commissioning tests	E. Rare	4. Major	L	Modules from a reputable supplier with 20 year warranty, though initial functional guarantee likely to be compromised	E. Rare	4. Major	L	↓ ✓	1/10/2018

KEY

Risk status (column L)

Symbol	Definition
✓	Satisfactory - everything necessary and possible is being done
🔄	Some concerns - actions are in place but are not fully implemented or effective - close monitoring required
✗	Unsatisfactory - current actions are not sufficient, or actions still to be commenced - immediate attention required

KEY

Risk trend (column M)

Symbol	Definition
↓	Risk is likely to reduce
→	Risk is likelty to remain the same
↑	Risk is likely to become moderately worse
↑	Risk is likely to become significantly worse

Appendix C: Project specific covenants - as displayed in legal agreements

Product	Schedule	Para No.	Description	Remarks/Issues	Type
Loan 3193	Article IV	1	(a) The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound applicable technical, financial, business, and development practices.	Being complied with.	Others
Loan 3193	Article IV	2	The Borrower shall make available, or cause to be made available, promptly as needed, and on terms and conditions acceptable to ADB, the funds, facilities, services, land and other resources, as required, in addition to the proceeds of the Loan, for the carrying out of the Project.	Being complied with.	Others
Loan 3193	5	2	The Borrower shall ensure, and shall cause the Implementing Agencies and other involved agencies to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project, and that all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment; (b) the Environmental Safeguards as set out in the SPS; and (c) all measures and requirements set forth in the IEE, the EMP, the EARF, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report, or (ii) as subsequently agreed among ADB, the Borrower, and the Implementing Agencies.	Being complied with.	Safeguards
Loan 3193	Article IV	3	The Borrower shall ensure that the activities of its departments and agencies with respect to the carrying out of the Project and operation of the Project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.	Being complied with.	Others
Loan 3193	5	3	The Borrower shall ensure and cause the Implementing Agencies to ensure that all land and all rights-of-way required for the Project are made available to the Works contractors in a manner and within timeframes compliant with the RP, the RF and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of	Being complied with.	Safeguards

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			the Borrower relating to land acquisition and involuntary resettlement; (b) the Involuntary Resettlement Safeguards; and (c) all measures and requirements set forth in the RP and the RF, and any corrective or preventative actions (i) set forth in the Safeguards Monitoring Report, or (ii) as subsequently agreed among ADB, the Borrower, and the Implementing Agencies.		
Loan 3193	5	4	Without limiting the application of the Involuntary Resettlement Safeguards or the RP, the Borrower shall ensure, or cause the Implementing Agencies to ensure, that no physical or economic displacement takes place until: (a) compensation and other entitlements have been provided to the displaced persons under Involuntary Resettlement Safeguards as described in and in accordance with the RP and the RF, and (b) a comprehensive income and livelihood restoration program has been established in accordance with the RP and the RF.	Being complied with.	Safeguards
Loan 3193	Article IV	4	The Borrower shall enable ADB's representatives to inspect the Project, the Goods and Works, and any relevant records and documents.	Being complied with.	Others
Loan 3193	Article IV	5	(b) ADB shall disclose the annual audited financial statements for Parts B and C the Project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website.	waiver on requirement approved as no financial disbursements in financial year ending 30 June 2015. 2016 audit report underway.	Financials
Loan 3193	5	5	The Borrower shall ensure and cause the Implementing Agencies to ensure that the provisions of the IEE, EMP and RP as well as any requirements under the SPS also apply to the portion of the Project to be financed by the Borrower.	Being complied with.	Safeguards
Loan 3193	Article IV	5	(c) The Borrower shall enable ADB, upon ADB's request, to discuss the financial statements for Parts B and C of the Project and the Borrower's financial affairs where they relate to Parts B and C of the Project with the auditors appointed pursuant to subsection (a)(iii) hereinabove, and shall		Financials

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of the Borrower, unless the Borrower shall otherwise agree.		
Loan 3193	Article IV	5	(a) The Borrower shall (i) maintain accounts and records for Parts B and C of the Project (separate from those for Part A, which will be maintained by TAU); (ii) prepare annual financial statements for Parts B and C of the Project in accordance with accounting principles acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report (which includes the auditors' opinion on the financial statements and use of the Loan proceeds) and a management letter (which sets out the deficiencies in the internal control of Parts B and C of the Project that were identified in the course of the audit, if any); and (v) furnish to ADB, no later than 6 months after the end of each related fiscal year, copies of such audited financial statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.	Being complied with	Financials
Loan 3193	4	6	The Borrower shall ensure that the Implementing Agencies shall not award any Works contracts until all land and related rights for the construction of the Project facilities, to be handed over to the contractor before construction commences, have been acquired or rights to access and use the land for the purposes of constructing and operating the Project facilities on an ongoing basis have been secured by the Borrower. (d) reinstate pathways and other local infrastructure to at least their pre-project condition as soon as possible and no later than the completion of construction.	Being complied with.	Safeguards
Loan	Article IV	7	(a) The Borrower shall exercise its rights under the Subsidiary Loan	No subsidiary loan	Others

Product	Schedule	Para No.	Description	Remarks/Issues	Type
3193			Agreement in such a manner as to protect the interests of the Borrower and ADB and to accomplish the purposes of the Loan. (b) No rights or obligations under the Subsidiary Loan Agreement shall be assigned, amended, abrogated or waived without the prior concurrence of ADB.	needed.	
Loan 3193	4	8	(a) The Borrower shall cause the Implementing Agencies to ensure that all Goods and Works procured (including without limitation all computer hardware, software and systems, whether separately procured or incorporated within other goods and services procured) do not violate or infringe any industrial property or intellectual property right or claim of any third party. (b) The Borrower shall cause the Implementing Agencies to ensure that all contracts for the procurement of Goods and Works contain appropriate representations, warranties and, if appropriate, indemnities from the contractor or supplier with respect to the matters referred to in subparagraph (a) of this paragraph.	Being complied with.	Others
Loan 3193	5	8	The Borrower shall do, or cause the Implementing Agencies to do, the following: (a) submit Safeguards Monitoring Reports to ADB: (i) in respect of implementation of and compliance with Environmental Safeguards and the EMP, annually during construction and the implementation of the Project and the EMP until the issuance of ADB's project completion report unless a longer period is agreed in the EMP; and (ii) in respect of implementation of and compliance with Involuntary Resettlement Safeguards and of the RP, semi-annually during the implementation of the Project, and the RP until the issuance of ADB's project completion report unless a longer period is agreed in the RP; and disclose relevant information from such reports to respective affected people under Environmental Safeguards, Involuntary Resettlement Safeguards, and Indigenous Peoples Safeguards promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation, or operation of the Project that were not considered in the IEE, the EMP and the RP, promptly inform ADB of	Being complied with.	Safeguards

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and (c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP or the RP promptly after becoming aware of the breach.		
Loan 3193	4	9	The Borrower shall cause the Implementing Agencies to ensure that all ADB-financed contracts with consultants contain appropriate representations, warranties and, if appropriate, indemnities from the consultants to ensure that the Consulting Services provided do not violate or infringe any industrial property or intellectual property right or claim of any third party.	Being complied with.	Others
Loan 3193	5	10	The Borrower shall cause the Implementing Agencies to ensure that Works contracts include provisions to require the contractors (a) not to discriminate against people seeking work on the basis of age, provided they are capable of doing such work; (b) to provide equal pay for equal work, regardless of gender or ethnicity; (c) to comply with core labour standards and the applicable labour laws and regulations, including stipulations related to employment, such as health, safety, welfare, the workers' rights and anti-trafficking laws; (d) not to force the labour to work against their will; and (e) not to employ child labour.	Being complied with.	Social
Loan 3193	5	11	The Borrower shall cause the Implementing Agencies to ensure that the Works contractors (a) implement HIV/AIDS and STIs awareness and prevention training for all employees; (b) provide necessary measures to ensure the safety and health of their employees; and (c) together with the local centers of disease control, disseminate information on the risks, hazards, impacts and prevention know-how on HIV/AIDS and STIs among the staff, workers on the construction sites and the local community by means of information disclosure, education and consultation.	Being complied with.	Social
Loan 3193	5	12	The Borrower shall ensure to provide Counterpart Funds in a timely manner, including any additional Counterpart Funds required for any shortfall of funds or cost overruns. The Borrower shall also ensure to ensure	Being complied with.	Financials

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			that O&M of all Project facilities is fully funded without any delay.		
Loan 3193	5	13	The Borrower shall, and shall cause the Implementing Agencies to, establish and maintain sound financial management systems in accordance with ADB's Financial Management and Analysis of Projects (July 2005), including the establishment of separate Project accounts.	Being complied with.	Financials
Loan 3193	5	14	The Borrower shall, and shall cause the Implementing Agencies to, (a) comply with ADB's Anticorruption Policy (1998, as amended to date); (b) acknowledge ADB's right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; and (c) agree to cooperate, and shall cause the Implementing Agencies and all other government offices, organizations and entities involved in implementing the Project to cooperate, fully with any such investigation, and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation. In particular, the Borrower shall ensure, or cause to be ensured, that (i) periodic inspections of the Project contractors' activities related to fund withdrawals and settlements are carried out; (ii) relevant provisions of ADB's Anticorruption Policy (1998, as amended to date) are included in all bidding documents for the Project; and (iii) contracts, financed under the Project, include provisions specifying the right of ADB to audit and examine the records and accounts of the Implementing Agencies, contractors, suppliers, consultants, and other service providers as they relate to the Project.	Being complied with.	Others
Loan 3193	5	15	In the event of (a) any change in ownership of the Project facilities, or (b) any sale, transfer or assignment of shares or interest or other change of control in the Implementing Agencies is anticipated, the Borrower shall consult with ADB at least 6 months prior to the implementation of such change. The Borrower shall ensure that such change be carried out in a lawful and transparent matter. The Borrower shall further ensure that the new controlling management of Implementing Agencies complies with (a) all Project-related agreements executed between ADB or the Borrower and the	Being complied with.	Others

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			Implementing Agencies; and (b) the policies of ADB relevant to the Project.		
Loan 3193	5	16	Within 90 days following effectiveness of the Loan Agreement and Grant Agreement, the Borrower shall establish and maintain a Project website which will be regularly updated to include information on the following general matters: (a) bidding procedures, bidders and contract awards for Works, Goods, and Consulting Services; (b) physical progress of the Works and procurement of Goods; and (c) audited Project financial accounts, Project review reports (e.g. mid-term review), and quarterly progress reports, consolidated annual reports and post-completion report, in each case promptly after submission to ADB (unless, in the case of Project review reports and quarterly progress reports, ADB considers these to be exempt from disclosure under ADB's Public Communications Policy (2011)).	Project website established Government procurement website utilised (www.procurement.gov.ck)	Others
Loan 3193	5	17	The Borrower shall cause the Implementing Agencies to ensure that (a) the Project facilities are installed in accordance with design specifications and construction norms; and (b) construction supervision, quality control and contract management are performed in accordance with best international industry practices. The Borrower shall cause the Implementing Agencies to install, equip, operate, maintain and manage the project facilities in compliance with applicable standards and best international practices. The Borrower shall cause the Implementing Agencies to operate and maintain, and continue to operate and maintain, the Project facilities in accordance with an O&M framework that is satisfactory to ADB.		Sector
Loan 3193	5	18	The Borrower shall cause the Implementing Agencies to do the following: (a) acquire all rights necessary to use the parcels of land constituting the Project site at least 30 days prior to the award of the turnkey contract; and (b) install or otherwise secure road access sufficient for the purposes of the Project at least 30 days prior to the award of the turnkey contract.	Being complied with.	Sector
Loan 3193	5	19	The Borrower shall ensure ongoing operational financial sustainability of the Project, either through adjustment of electricity tariffs, or budgetary allocations.	Being complied with.	Sector

Product	Schedule	Para No.	Description	Remarks/Issues	Type
Loan 3193	5	20	The Borrower shall cause the Implementing Agencies to ensure that adequate staffing will be planned and allocated for the implementation and O&M of the Project facilities, and that relevant staff members will attend training provided under the Project in relation to O&M.	Being complied with.	Sector