

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 October – 31 December 2017

* 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, ADB, Project Steering Group, TAU staff CIIC Staff, ADB Mission, (i) Olly Norojono, Director, PATE; (ii) Woo Yul Lee, Energy Specialist, PATE (Mission Leader); (iii) Eun Young So, Energy Specialist, PATE (Co-Mission Leader); and (iv) Taniela Faletau, Safeguards Officer, SPSO (Mission Member). Mpower staff (weekly meetings online) Infratec Staff on island, Entura Environmental Specialist, David Proctor Island Governments of Atiu, Mangaia, Mitiaro and Mauke.
Date of report	December 2017

Key Conclusions and Necessary Actions

This eleventh 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 October (commencement of reporting period) and 30 September 2017 (end of reporting period).

Activities undertaken in this reporting period focused on weekly teleconference meetings with MPower regarding the design and procurement of equipment for the battery energy storage system (BESS) on Rarotonga, concluding 90% of the design phase early December. The PMU continued to monitor site clearance on the islands of Atiu which was completed during this quarter and Mangaia site clearance commenced. Infratec/NETCON Limited turnkey contract work programme for this quarter included Mitiaro

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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

98% civil work complete and Mauke civil works 60% complete. Work on civil construction in Atiu commenced in mid December. Overall design plans and drawings for Phase 1 all islands are complete with electrical design/drawings for Atiu and Mangaia in progress. Atitutaki ITB BER was completed during this period and has been forwarded to ADB and the CI Government Tender Committee for approval. 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 was advertised from 10 November and the Pre Bid Meeting was held on 28 November 2017.

An ADB Mission visited Rarotonga, Cook Islands from 20–24 November 2017 to conduct a project review and hand over mission. After this Mission, Eun young So, Energy Specialist, PATE will be in charge of project implementation replacing Yoo Wu Lee

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. For a short period POE, Team Leader and Engineer, Chris Blanksby used the office during the ADB Mission. Other international staff were working from their home offices.

The PMU is staffed by the Project Manager, Finance Specialist (3 days per week) and PEC Fund Coordinator who are taking on the major responsibility for the project with oversight by the REDD Director in close consultation with the POE.

2. Procurement

The Phase 1 Turnkey contract, 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 the sum of 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. During this quarter the Monthly reports CIRES-003 dated October 2017 and CIRES-004 dated November 2017 was received from Infratec providing programme status and forecast for the next 6 months for each island.

The power distribution network package (grid package) for Mitiaro and Mauke was also awarded to NETCON Limited on the 27 March 2017 for the contract price of NZ\$3,926,941. 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 street lighting, power factor correction, consumer metering and M/LV upgrade additions for Mauke and Mitiaro and these are being considered by REDD and the CI Government Tender Committee.

The Civil Works contract to NETCON (NZ\$3,718,672) was confirmed by ADB No Objection letter dated the 18 May 2017 to be included as part of NETCON Phase 1 Turnkey contract. The confirmed variation to the

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

NETCON Phase 1 Turnkey Contractors scope is expanded to include construction of the power house, roads/tracks, and array foundations and framing.

The BESS contract was awarded to MPower Limited on the 1 June 2017 for a fixed price of US\$3,092,768. During this period POE confirmed 90% design submission is accepted subject to comments. Weekly teleconference meetings were held during this quarter with a number of Mpower technical staff, TAU technical staff and POE. Civil Works is expected to commence in December and completed in January 2018.

The Phase 2 Aitutaki ITB Bid Evaluation Report (BER) was completed this quarter and submitted to ADB for formal No Objection letter and to the CI Government Tender Committee for approval. The funding for this Phase 2 project will come from the CI Government 2017/18 Capital Budget NZ2.8m together with the NZ\$2.29m which is the expected remaining budget savings from current Phase 1 contracts³.

During this quarter the ITB for further BESS project on behalf of TAU to be funded from Green Climate Fund (GCF) was advertised on 10 November 2017 and an extension of two weeks has been granted and the new Closing Date will be Midday, Tuesday 6 February 2018. The Pre-bid meeting was held on Tuesday, 28 November 2017 in the TAU Board Room followed directly by a site visit with TAU staff.

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 14 December 2017 amount paid to date in NZD.

Items as per Project Administration Manual Updated	Amount paid to date 09 February 2015 to December 2017	Total cost of Project as per PAM*
	NZD'000,000	
A. Investment Costs	\$25.1	\$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	\$25.23	\$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).

³ Aide Memoire, ADB Review and Handover Mission 20–24 November 2017

Project Spend by Financier for period 01st October to December 2017							
	ADB	EU	GEF	CIG(PEC)	CIG	Total	
	NZD	NZD	NZD	NZD	NZD		
A. Investment costs	\$ 4.21	\$ -	\$ 3.07	\$ -	\$ 1.08	\$ 8.37	
1. Solar PV Module Procurement						\$ -	
2. Turnkey Contract - Solar PV System Development	\$ 4.15	\$ -				\$ 4.15	
3. Turnkey Contract for Battery Energy Storage System development			\$ 3.07			\$ 3.07	
4. Consulting Services - Institutional Strengthening and Project Management	\$ 0.07					\$ 0.07	
5. Land Acquisition						\$ -	
6. Tax and duties					\$ 1.08	\$ 1.08	
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

4. Field work.

Field investigations during this period included:

- A Mission⁴ from the Asian Development Bank (ADB) visited Rarotonga, Cook Islands from 20–24 November 2017 to conduct a review and hand over mission⁵
- POE, Entura, Chris Blanksby visited from 19–24 November 2017 to coincide with ADB Mission.
- Site visit to Mitiaro and Mauke (22 November 2017) by the ADB Mission, POE and PMU. The mission visited Mitiaro and Mauke for site inspection as well as consultations with stakeholders.
- PMU Project Manager, Atiu 12 – 13 Dec 2017, review site clearance and civil works.

5. Safeguards and monitoring

The third Semi-Annual Safeguard Monitoring Report for the CIRESPP 1 July – 31 December 2017 will be submitted on December 31, 2018. The purpose of the report is to document social and environmental safeguard monitoring activities as well as environmental safeguards.

The ADB mission acknowledged the work by all parties in meeting safeguards compliance to date on the project. The mission advised that the successful POE's monitoring activity plan to be continued during the civil works period in the outer islands. In addition the environmental and safety hazard management plan must also be submitted in the next reporting period. In respect of the civil works safety incident that occurred in Mitiaro and officially reported in September 2017, the mission advised that a complete incident closure report be submitted once the compensation and liability discussions have been completed between government and the contractor. The report will detail the full incident, completed compensation if any, responsible parties, and more importantly, the Occupational Health and Safety (OHS) improvements on site in place to avoid a repeat episode. For social and involuntary resettlement safeguards, there is only one outstanding item, which is on the island of Mauke with the transfer of legal titles for several transformer station sites for the project. Although in-principle agreements and signed consents have been obtained from the landowners allowing civil works to proceed, the mission encouraged the project team and government to closely follow-up and ascertain that this process does take place and that land agreements are obtained including compensation payments of NZD1,000 per site as agreed by the landowners to be paid by the Office of the Prime Minister from the current budget allocation.

⁴ The Mission comprised (i) Olly Norojono, Director, PATE; (ii) Woo Yul Lee, Energy Specialist, PATE (Mission Leader); (iii) Eun Young So, Energy Specialist, PATE (Co-Mission Leader); and (iv) Taniela Faletau, Safeguards Officer, SPSO (Mission Member).

⁵ After this mission, Eun young So, Energy Specialist, PATE will be in charge of project implementation.

The November Report from Infratec noted the following Social and Environmental Safeguards that were being carried out on the work sites during this quarter.

Mitiaro:

- Hazardous waste of petrol and diesel – bunding is on route and temporary bunding using old water tank is being used
- Water is being provided by the island council which is pumped from an aquifer on the island and delivered to the site.
- Trenching has been identified as the critical path work stream and Infratec is considering extending the hours trenching will occur with approval from Mayor and EO.
- Empty containers are being used as storage facilities and first aid station, sheltered break area has been established. There is no site toilet but workers are allowed to leave the job site to use toilet facilities

Mauke:

- Hazardous waste – all fuel is kept at the Powerhouse fuel depot.
- Sand for bedding the cables is being procured from Mitiaro as discussed with the EO and Mayor.
- Empty containers are being used as storage facilities and first aid station established and the adjacent ICI office has a toilet which workers are able to use.

Atiu and Mangaia

- Community engagement and first aid training has been carried out on Atiu and Mangaia in November.

Health and Safety Equipment

All workers have been provided PPE including high vis vest, safety boots, hard hat, ear plugs, safety glasses and gloves. A site induction has been carried out and a safety manager and deputy safety manager have been appointed. Daily briefings are carried out to assess job safety hazards and a breathalyser has been provided to the site manager to help mitigate any abuse of alcohol.

6. Phase 1 Turnkey Contract and HV/LV distribution contract status

Infratec are now providing monthly reports, with the first report dated July 2017. The October and November Report provides a summary of design, procurement and logistics and civil construction progress, which is included below. The Indicative Project Implementation Action Plan below takes into account the timelines as provided in the November Report.

Design:

- The CIRES-001 electrical design/drawings for Atiu and Mangaia is currently in progress
- Commissioning report and Initial Testing Procedures (ITP's) have been submitted

Procurement and logistics:

- All Civil/building materials are now on Atiu
- All cables for MV-LV are on Mitiaro and Mauke
- Mangaia building materials are at the wharf in Rarotonga.
- 400 pre-cast foundation blocks for Mangaia have been delivered to the Mangaia.

Civil Construction

Mitiaro

- Powerstation completed aside from the following tasks:
 - External concrete pads to be poured (underway)
 - Painting (underway)
 - Fencing (underway)

Mauke

- Roof of the powerstation is now on. Internal walls and AI joinery underway.
- Electrical services pre-wire to occur during week of Dec 11.

Atiu

- A team has arrived in Atiu to commence the civil works. Footing and foundation started the week of Dec 11th.

Electrical Construction (CIRESP-001)

Mitiaro

- Batteries have received a full charge via the solar
- Generators installed
- Work to be completed includes 150kVA Tx installation and Comms panel, and PV array cable management.

Mauke

- None to date

Electrical Construction (CIRESP-002)

- HV trench is largely completed aside from final 60m to substation site.
- HV and LV cables have been laid along this route

Overall the November report highlights progress as good on Mitiaro, Mauke and Atiu. The Mitiaro powerhouse is near completion and just undertaking minor snagging of any defects. Most of the HV cable in Mitiaro is trenched, laid and backfilled. LV trenching is in progress. The walls, roof and much of the internal fit out of the Mauke building is complete. The Atiu site is now ready for pouring of the slab which we expect to occur mid-December.

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. Finalisation of a Results Measurement Table is identified as an action for further discussion at PSG meetings.

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 June 2018.

Changes to Activity Context in the Reporting Period

ADB has officially removed the Rarotonga solar subproject during the last quarter.

Relationship between Implementing Agencies, Beneficiaries and Other Stakeholders

Pacific Environmental Community (PEC) Procurement

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	Jul 2017	Oct 2017
Mauke Island	234.26	884	Aug 2017	Nov 2017
Atiu Island	424	1,600	Oct 2017	Jan 2018
Mangaia Island	482.3	1,820	Dec 2017	Mar 2018
Aitutaki Island	1,026.61	3,874	TBA	TBA
TOTAL		8,798		

The panels allocated to the Phase 1 solar sites have been delivered to the respective islands . The panels for Aitutaki will be transported once the tender evaluation of the Aitutaki ITB has been completed and the contract awarded. Installation Plan for Rarotonga by Te Aponga Uira (TAU) will be carried out after the commissioning of the BESS at the Rarotonga Airport. Proposed plan is as follows:

Rarotonga	Total Solar Panel Capacity Allocated (kWp)	Total No. of Solar Panels Allocated
- BCI Stadium	67.045	253
- TSA Stadium	195.04	736
- Avatiu Port	139.92	528

- Rarotonga Airport Runway	919.285	3,469
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.⁶ 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 to date includes:

- Civil Works commenced in the second week of December and if weather permits it is hoped to have this work completed early in the next quarter.
- 90% Design submitted and accepted in December 2017: 1 MW 4 MWh modular/containerized BESS to be installed at Rarotonga airport
- Site works due to commence in December 2017 and completion by May 2018
- Progress is about 6 weeks behind schedule

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. The Employer wants to take advantage of the additional power capacity of the inverter as this offers good value and so sought to remove the transformer constraint by requesting a larger transformer – a variation is currently being sought and the contractor is now in final stages of design.

Co-financing from the Green Climate Fund (GCF)

The Project received additional financing of a US\$12 million grant from the Green Climate Fund (GCF) in December 2016 and ADB’s president approved 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 agreement between ADB and GCF, and the project agreement between ADB and TAU, are both expected to be signed after the Fund Activity Agreement (FAA) between ADB and GCF by mid-December 2017.

BESS ITB was advertised on the 10 November 2017 with closing date extended by two weeks to 6 February 2018. The Pre bid meeting was held on the 28 November 2017.

A minor change in scope will be processed at the later stage of the project implementation but before the contract is being awarded. The modified specification includes two units as above, totaling 2 MW and 8 MWh BESS, for load shifting to be located at the existing power at the Rarotonga Airport, and 4 MW and 1 MWh BESS to be located in TAU’s sub-station for grid stability support. The new design includes 6 MW and

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⁶ ADB. 2015. *Country Operations Business Plan: Cook Islands, 2016–2018*. Manila.

9 MWh of BESS systems in total across two locations. The specification change represents a refinement that provides the following benefits:

- The airport located system (two units totaling 2 MW and 8 MWh BESS) is consistent with the original specification, with application focused on load shifting of solar generation planned to be installed adjacent to the airport or connected to the corresponding electrical feeder.
- The power station system provides dedicated grid stability capabilities as follows:
 - Direct high-speed connection to monitor power balance with direct access to all feeders on the network, allowing near instantaneous response to support system imbalance;
 - Provision of frequency control as well as voltage control;
 - Provision of spinning reserve⁷; and
 - Provision of grid forming capability in the event of loss of diesel generation.
- The power station system has high power capability (4 MW) to support power station operation in the event of (potentially multiple) generator or feeder trips (or rapid changes in renewable generation), including sufficient reserve to provide frequency control support. Such events are typically short-term; hence a relatively small storage capacity is required (1 MWh) to provide full functionality.

Updates to Key TTV Activity Management Documents

The Activity Results Framework is replaced with the Indicative Implementation Plan for this section. The updated Indicative Implementation Plan for the next 18 months 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 Q4 2017		
Quarterly Progress Report 11	PMU/Entura	Dec-17
Supply of Final detailed designs and documents. Mauke	Infratec/NETCon	Nov-17
Supply of Final detailed designs and documents. Atiu	Infratec/NETCon	Nov-17
Supply of Final detailed designs and documents. Mangaia	Infratec/NETCon	Nov-17
Semi-annual Safeguard Monitoring Report Complete	PMU/Entura	Dec-17
Monitoring and Safeguards Management Plan provided and updated	Infratec/NETCon	Dec-17
ADB Mission	PMU/Entura	Nov 20 – 24
GCF Bess ITB submission to ADB and Tender Committee	PMU/Entura/ADB/TAU	Nov- 17
GCF Bess ITB Advertisement	PMU/Entura/ADB/TAU	Nov-17
GCF Bess Site Visit	PMU/Entura/ADB/TAU	Nov-17

⁷ Spinning reserve is the generation capacity that can be brought to use immediately.

Activity	Responsibility	Target Date/Completed
Civil Works Phase 1 Mitiaro Powerhouse	PMU/Contractor/Entura/NETCon	Nov-17
Civil Works Phase 1 Mitiaro PV Array	PMU/Contractor/Entura/NETCon	Oct-17
Civil Works Phase 1 Mitiaro Generator	PMU/Contractor/Entura/NETCon	Dec-17
Aitutaki Phase 2 - ADB confirm funding	PMU/Entura/ADB	Nov-17
Aitutaki Phase 2 – BER completed	PMU/Entura/ADB	Dec-17
Q1 2018 Next Reporting Period		
Power distribution upgrade Mitiaro	Contractor/PMU/NETCon	Feb-18
Civil Works Phase 1 Mitiaro commissioning	PMU/Contractor/Entura/NETCon	Feb-18
Power distribution upgrade Mauke	Contractor/PMU/NETCon	Jan-18
Civil Works Phase 1 Mauke Powerhouse	PMU/Contractor/Entura/NETCon	Jan-18
Civil Works Phase 1 Mauke PV Array	PMU/Contractor/Entura/NETCon	Jan-18
Civil Works Phase 1 Mauke Generator	PMU/Contractor/Entura/NETCon	May-18
Civil Works Phase 1 Mauke commissioning	PMU/Contractor/Entura/NETCon	Apr-18
Civil Works Phase 1 Atiu Powerhouse	PMU/Contractor/Entura/NETCon	Apr-18
Civil Works Phase 1 Atiu PV Array	PMU/Contractor/Entura/NETCon	Apr-18
Civil Works Phase 1 Atiu Electrical Installation	PMU/Contractor/Entura/NETCon	Apr-18
Civil Works Phase 1 Atiu Commissioning	PMU/Contractor/Entura/NETCon	Mar-18
Site clearance commences on Mangaia	PMU/Island Governments	Jan-18
Variation for Mangaia Reticulation	PMU/Contractor/Entura/NETCon	Jan-18
Civil Works Phase 1 Mangaia Powerhouse	PMU/Contractor/Entura/NETCon	Jan-18
Civil Works Phase 1 Mangaia PV Array	PMU/Contractor/Entura/NETCon	Feb-18
Civil Works Phase 1 Mangaia Electrical Installation	PMU/Contractor/Entura/NETCon	Mar-18
Civil Works Phase 1 Mangaia Commissioning	PMU/Contractor/Entura/NETCon	May-18
GEF BESS commissioning	TAU/PMU/Contractor	Apr-18
GCF Bess Variation	PMU/Entura/ADB/TAU	Jan-18
GCF BESS Closing Date	PMU/Entura/ADB/TAU	Feb-18

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 June 2018 which has been provided by the contractors.

	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	January to March 2018		April to June 2018		July to September 2018		October to December 2018	
NETCON	NZD	EURO	NZD	EURO	NZD	EURO	NZD	EURO
1. Solar PV	0.29	0.05	0.54	€ 0.10				
2. Distribution	1.43							
3. Civil Contract								
4. BESS (Mpower)								
ENTURA								
4. Consulting Services	0.13		\$ 0.07					
Romani's Designs								
5. Project Management	\$ 0.13		\$ 0.13					
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 primary change in risk relates to outstanding change orders. There are several change orders submitted by contractors that remain pending after 3-6 months. This represents a risk to schedule and additional cost if the variations and work are not approved in time to be coordinated with existing work.

Infratec in the November Report has identified the following risks:

Each month, the delays caused by the barge, and difficulty in moving materials and machinery from Rarotonga to Mitiaro and Mauke continues to cause risk to the programme.

While labour resourcing continues to be a challenge, Infratec is utilising significant internal resources in securing the additional labour and machinery to bring forward the programme from previous estimates. Infratec has had favourable responses from subcontractors and looking to have a large scale mobilisation in the New Year when all four islands will be in construction. This is reflected in many of the major tasks reducing in duration and completion date. Only a small volume of materials are awaiting procurement. Most of the Mangaia materials are either in Rarotonga or on island. The following risks were identified for each of the islands under construction.

Mitiaro

- Delays are due to Transformer and Kiosk delivery
- Practical completion delayed due to LV and kiosk works.

Mauke

- Small delay due to finalising labour resource to undertake works
- This has delayed powerhouse build

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 (Energy Commissioner), Tangi Tereapii (REDD), Garth Henderson (MFEM), Apii Timoti (TAU), Michele Aisake (DCD), Tamarii Tutangata (CIIC) and Romani Katoa (PMU), Chris Blanksby (Entura), Woo Lee (ADB), Charmaine Dolan (ADB Cook Islands Office), Bredina Drollet (Chief of Staff). NZHC has yet to appoint a new representative to the PSG.

The Project Manager of the PMU is responsible for the fortnightly PSG meetings. One PSG meeting was held in this quarter. The PMU and Entura provides secretariat services for the PSG.

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

BREDINA DROLLET

Full Name (in block capitals)

Title / Position



Signature

Date

Appendices

This report includes the following appendices:

- Appendix A: Progress Against Agreed Work-plan and Actuals (not required for this Quarterly Report)
- Appendix B: Progress against Results Framework (table)
- Appendix C: Risk Matrix (table)
- Appendix D: Project specific covenants - as displayed in legal agreements (table)

Appendix A: Progress Against the Amount paid and Cost and Financing






Appendix B: 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.

<i>From agreed Results Measurement Table in the Activity Design Document</i>				<i>Data up to and including this reporting period</i>	
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	6 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		
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		
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		

Appendix C: Project Risk Table

ID	Discipline	Category	Risk description	Prior to implementing mitigating actions			Mitigation	After mitigating actions implemented			Risk Status
				Likelihood	Consequence	Risk ranking		Likelihood	Consequence	Risk Ranking	
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	4. Major	H	Emphasis on completing negotiations and discovery process asap. Travel to islands as required to facilitate. Complete Mauke substations by February 2017	C. Possible	2. Minor	L	
2	Project management	Integration management	Interface issues between scope of different turnkey projects	C. Possible	3. Moderate	M	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 risk	C. Possible	2. Minor	L	
3	Engineering	Civil	Island clearing works not completed to satisfactory standard	C. Possible	3. Moderate	M	PMU to oversee site preparation and engineering implementation plans. Include procurement of local civil engineer Island councils are consulted and understand requirements. Work on islands to date has been satisfactory, but Mangaia remains a concern due to complex conditions	C. Possible	3. Moderate	M	
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	B. Likely	3. Moderate	H	Work closely with stakeholders to manage expectations. Continue to work with Contractor to alleviate any obstacles or hold-ups that may affect progress	C. Possible	3. Moderate	M	
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	

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 Mitiaro. Encourage this approach to continue for other islands.	D. Unlikely	3. Moderate	L	
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	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	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	4. Major	H	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	
10	Project management	Contract/procurement management	Time taken to process change orders means validity lapses or costs increase.	B. Likely	3. Moderate	H	Minimise and package variations for administrative processing where possible. Ensure increased communication and coordinating of processing departments.	C. Likely	3. Moderate	H	
11	Engineering	Electrical - Primary	Connection of solar PV hybrid systems to remote grids has unforeseen technical difficulties	C. Possible	4. Major	H	Ensure grid assessment reviews the issues and risks and ensure contractual clauses in place for these eventualities in Turnkey contract.	C. Possible	3. Moderate	M	
12	Engineering	Renewable energy	Turnkey contractors designs, construction and commissioning have unforeseen difficulties on site	C. Possible	4. Major	H	Ensure sites assessment reviews the issues and risks and ensure contractual clauses in place for these eventualities in contract for Turnkey suppliers	C. Possible	3. Moderate	M	

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	✓
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	✓
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	🌀
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	🌀
17	Project management	Cost management	GCF grant has no technical support funding allocation.	B. Likely	3. Moderate	H	Allocation sought from within broader budget to provide required procurement and implementation support	D. Unlikely	3. Moderate	L	✓
18	Technical	Electical	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	✓

19	Engineering	Renewable energy	Benefits of BESS rely on continued implementation of larger scale, locally located solar PV, however, delays in securing land for this purpose (and PEC panels) may mean BESS benefits are not initially realised	B. Likely	2. Minor	M	Review alternative Airport site. Continue to seek contingency options for PEC panels In tender specifications, require modularity in case of connection of multiple PV sites.	C. Possible	2. Minor	L	
20	Engineering	Renewable energy	PEC panels installed beyond their initial guarantee period - warranty claims may be impacted	D. Unlikely	4. Major	M	Modules from a reputable supplier with 20 year warranty, though initial functional guarantee likely to be compromised	D. Unlikely	4. Major	M	

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 likely to remain the same
↑	Risk is likely to become moderately worse
↑	Risk is likely to become significantly worse

Appendix D: 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

Product	Schedule	Para No.	Description	Remarks/Issues	Type
Loan 3193	Article IV	7	(a) The Borrower shall exercise its rights under the Subsidiary Loan 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.	No subsidiary loan needed.	Others
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	Being complied with.	Safeguards

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			<p>considered in the IEE, the EMP and the RP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(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.</p>		
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	Being complied with.	Financials

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			shortfall of funds or cost overruns. The Borrower shall also ensure to ensure 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	Being complied with.	Others

Product	Schedule	Para No.	Description	Remarks/Issues	Type
			Project-related agreements executed between ADB or the Borrower and the 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

Product	Schedule	Para No.	Description	Remarks/Issues	Type
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
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