Tender for RTU Upgrade for Northern SCADA System

Tender No. MR 16/2017

RTU Upgrade for Northern SCADA System

PUBLICITY

NO PUBLICITY OR DETAILS ABOUT THIS PROJECT ARE TO BE DISCLOSED BY ANY BIDDER OR ANY OTHER ASSOCIATED PARTY WITHOUT THE WRITTEN PERMISSION OF FEA PRIOR TO, DURING OR AFTER THE PROJECT IS AWARDED. IN GENERAL ANY PUBLICITY OR MEDIA ENQUERIES WILL BE DEALT WITH BY FEA.

ALL THOSE WHO REQUEST TO UPLIFT A COPY OF THIS TENDER HAVE AGREED NOT TO DISCLOSURE ANY INFORMATION REGARDING THIS TENDER.

Glossary

i. RTU – Remote Terminal Unit

ii. NCC – National Control Centre

iii. GUI- Graphic User Interface

iv. HMI – Human Machine Interface

Table of Contents

1. GENERAL

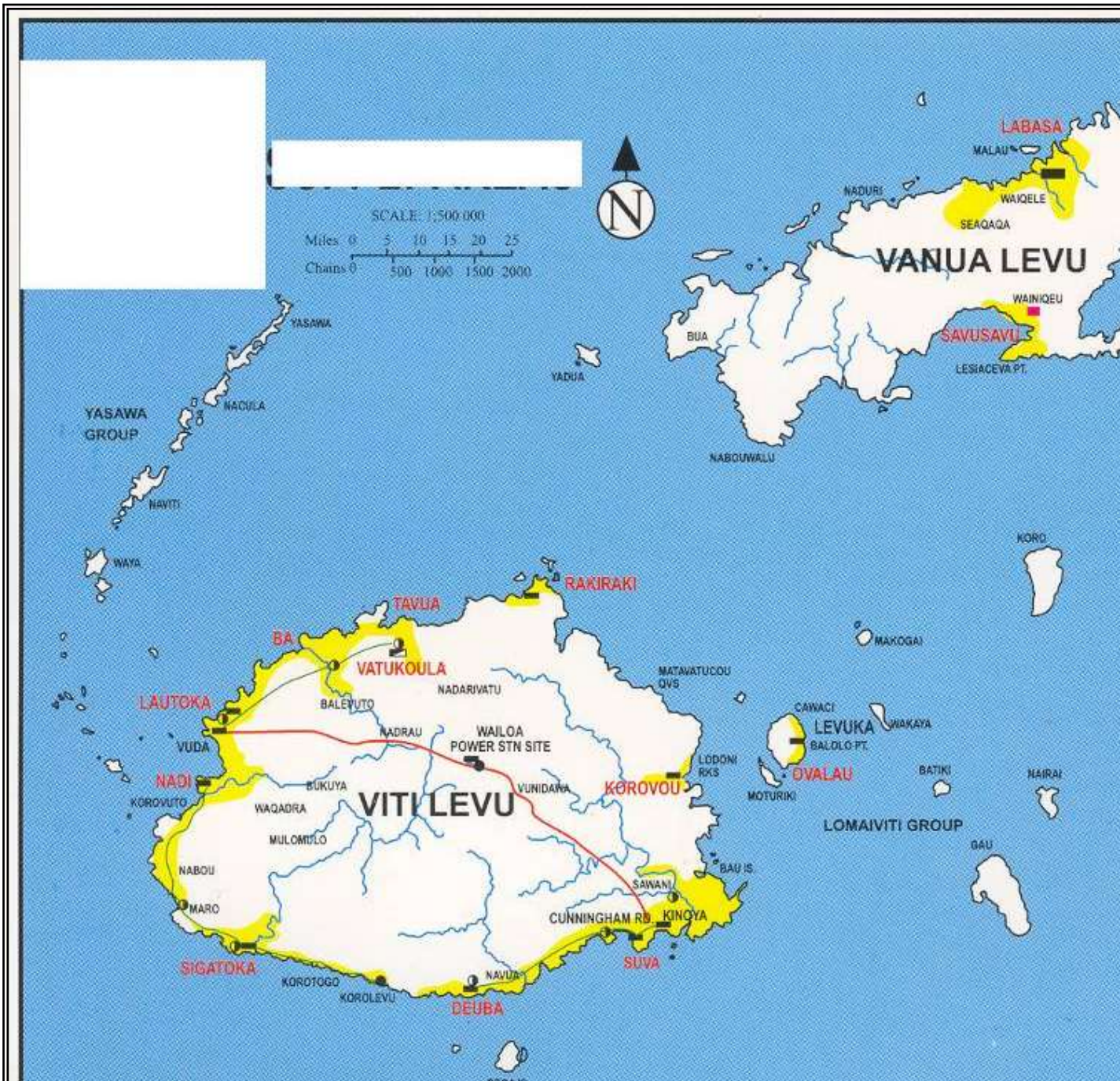
1.1 The Company - FEA

Fiji Electricity Authority (FEA) is a government entity solely responsible for supplying power throughout the Fiji Islands. Power is supplied through Hydro, Diesel and wind mill generators located in different parts of Fiji.

The operations of the company are organized into three geographically defined divisions, which correspond to the national administrative divisions. These divisions are:

- Central Eastern Division based in the capital Suva
  - Suva, Lami, Navua, Tailevu, Levuka and part of the Coral Coast
- Wertern/Nothern Division based in Lautoka
  - Lautoka, Tavua, Ba, Sigatoka, Vatukoula, Northern Division (Labasa, Savusavu, Taveuni)

FEA provides electricity services to most parts of the country especially in the Viti Levu and Vanua Levu area and its electricity grid is shown in the map below.



The company has its National Control Centre at Vuda that manages the entire power grid on a 24/7 basis. There are THREE disparate SCADA system used by FEA to monitor and manage its power grid:

1) The iFIX system - manages the entire Viti Levu power system
2) Vergnet System – runs on Profibus protocol and manages the Butoni Wind Farm.
3) Northern SCADA System – runs on Modbus protocol but its radio link uses a proprietary Motorola MOSCAD RTU to communicate between Vuda and Delaikoro Repeater. The system manages the Vanua Levu and Levuka power systems.

1.2 Background - Northern Scada System

The Northern SCADA system was implemented in 1998 to cater for the following sites:

1) Cawaira (Labasa) Power Station (Vanua Levu)
2) Levuka Power Station (Vanua Levu)
3) Savusavu Power Station (Vanua Levu)
4) Wainiqeu Hydro Station (Vanua Levu)

Dreketi & Seaqaqa substation, were also been added to the Northern SCADA system after it was commissioned in 2013

The communication layout is shown in the figure below. Each site apart from Dreketi and Seaqaqa uses the proprietary Motorola MOSCAD RTU while at Delaikoro repeater; the Motorola radio employs a store and forward concept when communicating between the Master Station (HMI) and the remote site. The local operators at Cawaira (Labasa), Savusavu Power Station, and Levuka Power Station can take control of their system through the use of a local HMI when the need arise. The RTU communicates with the Master station (HMI) using the Modbus protocol.

The radio link and the client radios used for the Northern SCADA System was replaced in 2015 and the layout is shown in the figure 1 below.

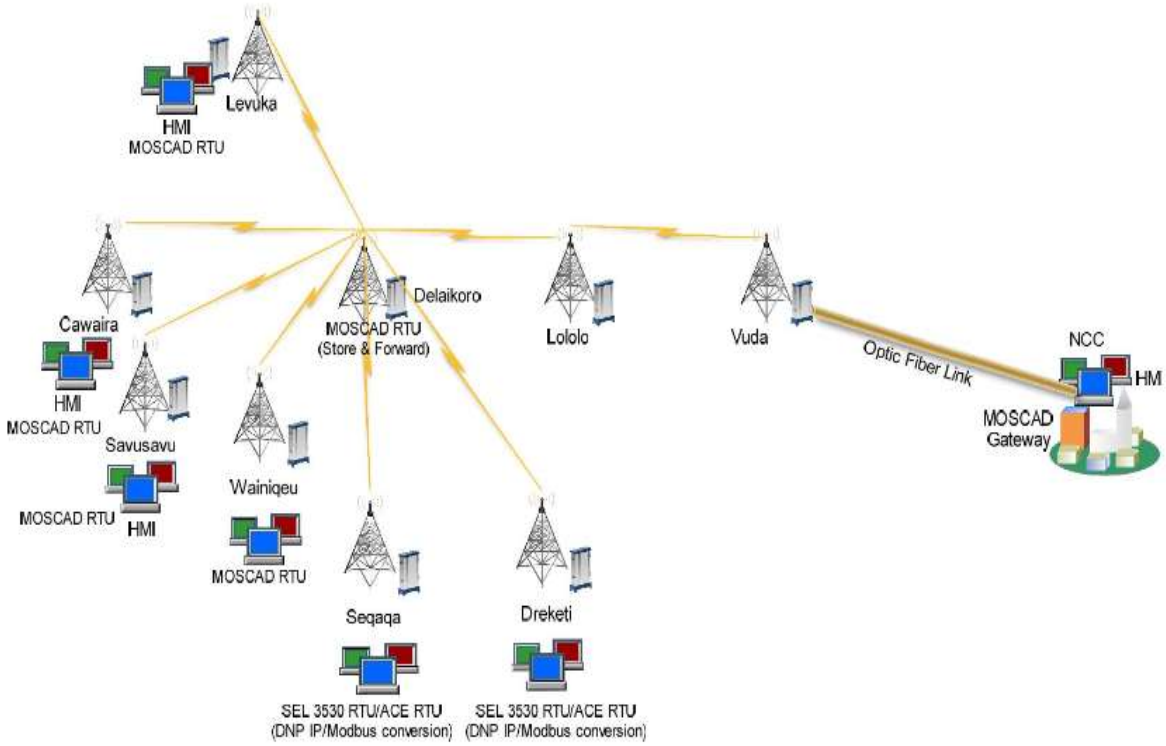


Figure 1: Northern SCADA System communication setup.

2. PURPOSE AND DESCRIPTION OF THE TENDER

The Fiji Electricity Authority (FEA) is requesting for bids from reputable Companies for the supply, install, test and commissioning of the new SEL RTU to replace the obsolete MOSCAD RTU used at the followings sites:

1) Levuka Power Station
2) Savusavu Power Station
3) Wainiqeu Hydro Station
4) FSC Labasa Substation
5) Delaikoro Repeater site

Bidders are also advised that the Wainiqeu Hydro station and the Savusavu Power station are configured in a way through PLC programming to ensure that Wainiqeu Hydro station is given the priority to generate power when the weir level is above the minimum threshold. Bidders must ensure that this configuration shall remain whilst upgrading the RTU at these two sites.

Bidders are also required to replace the existing hardware and software (Cimplicity) of the HMI PC at Savusavu, Levuka and Cawaira Power station with the latest version of the SEL or iFIX HMI.

Timeline to complete this project is 31st November, 2017

Detail project scope is outlined in section 13.

3. ELIGIBILITY / SELECTION CRITERIA OF THE BIDDER

The vendors shall submit the names/contacts of utilities or projects previously undertake.

All relevant test reports, product standard certificates, and product specification as a table form / drawings are required to be supplied in the tender as part of their bid.

Other information to be provided by the Bidder as part of the proposal is:

1. Manufacturer's / Vendor's warranty on the product.
2. Method of replacement or reimbursement of faulty / defective or damaged goods
3. Lead time including manufacturing time and shipping duration.
4. Previous FEA experience with the Bidder and supplier DIFOTIS (Delivery in Full on Time in Spec)
5. It is mandatory for the Bidders to provide full specification of the RTU as part of the bid.

4. DELIVERY

All required equipment & accessories shall be delivered to the sites mentioned in the scope of the project section. The overall project shall be completed by 31st November, 2017

5. BIDDER DETAILS

The Bidder shall provide all the necessary information specified in the tables below:

General
The registered name of the Bidder:
Business address for correspondence: ***(****Location, Street , Locality City, Pin Code, Country, Telephone, Facsimile, Email Other)*
Contact name of the Authorised Person:
Contact's position: ***Contact addresses if different from above*** *Locality City, Pin Code* *Location, Street, Country, Telephone, Facsimile, Email, Web address*
Business structure:

Include the organisations years of experience in this field and reputation in the market place.

6. OTHER VALUE ADDED SERVICES

The bidder is open to include any other information that may add value to their product or after installation and commissioning services.

7. TECHNICAL SUPPORT

i. Bidder should provide details of what technical support is available to FEA to make better use of product.
ii. Include relevant manuals and instructions for proper care and handling of the equipment and accessories, and operations.

8. PRODUCT OR OTHER INFORMATION

Bidders must include the following document together with their Bid:

- Full Product Specification
- Relevant Test Certificates
- **Detail Project Plan with timelines**

9. PACKAGE SIZE

The successful bidder will be required to pack and dispatch the item as per FEA's requirement. The package size and quantity will be determined by FEA unless the product is a standard factory package. All packages must be clearly marked with the quantity content in the crate or pallet. The bidder must ensure proper and suitable packing of the item before dispatch to avoid damages during transit.

10. DEFECTS WARRANTY PERIOD

All goods shall be supplied with a Warranty Period of not less than 12 months from the date of the receipt of the Goods by FEA. During the Warranty Period, defective parts shall be returned to the supplier for replacement on a pick-up exchange and return-delivery basis.

11. PRICE VALIDITY

The price shall remain valid for acceptance within 120 working days from the date of opening of bids and bidders shall not withdraw or amend their proposal prior to the expiration of the validity period. In exceptional circumstances prior to expiry of the original validity period, the Authority may request the supplier for an extension in the period of validity. The request and the response thereto shall be in writing. A supplier agreeing to the request will not be permitted to amend his tender price.

12. PAYMENT TERMS

FEA shall pay the invoice amount in foreign currency to the overseas bank account nominated by the successful supplier within 30 days of receipt of the invoice subject payment terms as per the contractual agreement. The local bidders will be paid in Fijian dollars.

13. TECHNICAL SPECIFICATION AND REQUIREMENT

13.1 Scope of the Project

The main aim of this project is to link NCC directly to the RTU sites in Vanua Levu.

13.1.1 Delaikoro Repeater Station

The following works are to be carried out at Delaikoro Repeater Station:

i. Supply and replace the Moscad RTU, 12 V DC with a SEL2240 AXION 24V RTU.

ii. Install SEL2240 AXION 24V RTU and 24V power supply. The SEL2240 AXION 24V RTU to be installed in the Rittal Cabinet with half swing interior door and transparent front door. The battery bank of the power supply should last 48 hours.

iii. Carry out wiring with proper labelling on the RTU end.

iv. Interface SEL2240 AXION with the newly installed radio (RipEX radio modem).

v. Test and commissioning the I/O points with the Master Station.

vi. Submit the as-built drawings and detail commissioning report to FEA.

13.1.2 Cawaira Power Station

The following works are to be carried out at Cawaira Power Station:

Part 1:

i. Interface the 3 (three) SEL3530 RTAC with the newly installed radio (RipEX radio modem) or to other modes of communication such as leased line.

ii. Test and commissioning the I/O points with the Master Station in Vuda.

iii. Submit the as-built drawings and detail commissioning report to FEA.

Part 2:

i. Supply and install HMI (either SEL or iFIX) for the I/O points for Cawaira Power Station.

ii. Programme I/O points for Cawaira Power Station, Delaikoro Repeater Station, Savusavu PS and Wainiqeu Power Station. Draw GUI for Cawaira Power Station, Delaikoro Repeater Station, Savusavu PS and Wainiqeu Power Station points. Ensure all tags are match correctly onto the GUI.

iii. Test and commissioning the I/O points from the newly installed HMI. A thorough user and troubleshooting manual to be provide after the commissioning works.

iv. Submit the as-built drawings and detail commissioning report to FEA.

13.1.3 FSC Labasa Power Station

The following works are to be carried out at FSC Labasa Power Station:

i. Interface SEL3530 RTAC with the newly installed radio (RipEX radio modem) or with other modes of communication such as leased line.

ii. Test and commissioning the I/O points with the Master Station in Vuda.

iii. Submit the as-built drawings and commissioning report to FEA.

13.1.4 Savusavu Power Station

The following works are to be carried out at Savusavu Power Station:

Part 1:

i. Supply and replace the Moscad RTU, 12 V DC with a SEL2240 AXION 24V RTU.

ii. Install SEL2240 AXION 24V RTU and 24V power supply. The SEL2240 AXION 24V RTU to be installed in the Rittal Cabinet with half swing interior door and transparent front door. The battery bank of the power supply should last 12 hours.

iii. Carry out wiring with proper labelling on the RTU end.

iv. Interface SEL2240 AXION with the newly installed radio (RipEX radio modem) or with other modes of communication.

iv. Test and commissioning the I/O points with the Master Station in Vuda.

Part 2:

i. Supply and install HMI (either SEL or iFIX) for the I/O points for Savusavu Power Station.

ii. Programme I/O points for Cawaira Power Station, Delaikoro Repeater Station, Savusavu PS and Wainiqeu Power Station. Draw GUI for Cawaira Power Station, Delaikoro Repeater Station, Savusavu PS and Wainiqeu Power Station points. Ensure all tags are match correctly onto the GUI.

iii. Wainiqeu Hydro station and the Savusavu Power station are configured in a way through PLC programming to ensure that Wainiqeu Hydro station is given the priority to generate power when the weir level is above the minimum threshold. This configuration shall remain whilst upgrading the RTU at these two sites.

iv. Test and commissioning the I/O points from the newly installed HMI.

iv. Submit the as-built drawings and detail commissioning report to FEA.

13.1.5 Wainiqeu Hydro Station

The following works are to be carried out at Wainiqeu Power Station:

i. Supply and replace the Moscad RTU, 12 V DC with a SEL2240 AXION 24V RTU.

ii. Install SEL2240 AXION 24V RTU and 24V power supply. The SEL2240 AXION 24V RTU to be installed in the Rittal Cabinet with half swing interior door and transparent front door. The battery bank of the power supply should last 12 hours.

iii. Carry out wiring with proper labelling on the RTU end.

iv. Interface SEL2240 AXION with the newly installed radio (RipEX radio modem) or with other modes of communication.

v. Test and commissioning the I/O points with the Master Station in Vuda.

vi. Submit the as-built drawings and a detail commissioning report to FEA.

13.1.6 Seaqaqa Substation

The following works are to be carried out at FSC Labasa Power Station:

i. Interface the SEL3530 RTAC with the newly installed radio (RipEX radio modem) or with other modes of communication such as leased line.

ii. Test and commissioning the I/O points with the Master Station in Vuda.

iii. Submit the as-built drawings and a detail commissioning report to FEA.

13.1.7 Dreketi Substation

The following works are to be carried out at FSC Labasa Power Station:

i. Interface the SEL3530 RTAC with the newly installed radio (RipEX radio modem) or with other modes of communication such as leased line.

ii. Test and commissioning the I/O points with the Master Station in Vuda.

iii. Submit the as-built drawings and a detail commissioning report to FEA.

13.1.8 Levuka Power Station

The following works are to be carried out at Levuka Power Station:

<u>Part 1:</u>

i. Supply and replace the Moscad RTU, 12 V DC with a SEL2240 AXION 24V RTU.

ii. Install SEL2240 AXION 24V RTU and 24V power supply. . The SEL2240 AXION 24V RTU to be installed in the Rittal Cabinet with half swing interior door and transparent front door. The battery bank of the power supply should last 12 hours.

iii. Carry out wiring with proper labelling on the RTU end.

iv. Interface SEL2240 AXION with the newly installed radio (RipEX radio modem) or with other modes of communication such as leased line.

v. Test and commissioning the I/O points with the Master Station in Vuda.

vi. Submit the as-built drawings and a detail commissioning report to FEA.

Part 2:

i. Supply and install HMI (either SEL or iFIX) for the points I/O points for Savusavu Power Station.

ii. Programme I/O points for Savusavu Power Station. Draw GUI for Savusavu Power Station points. Ensure all tags are match correctly onto the GUI.

iii. Test and commissioning the I/O points from the newly installed HMI.

iv. Submit the as-built drawings and a detail commissioning report to FEA.

13.1.9 Vuda Repeater Station

The following works are to be carried out at Vuda Repeater Station:

i. Remove the MOSCAD RTU and link the radio directly to NCC, Vuda

ii. Test and commissioning the link to all the sites in the North.

iii. Submit the as-built drawings and a detail commissioning report to FEA.

13.1.10 NCC, Vuda

The following works are to be carried out at NCC, Vuda:

i. Remove the MOSCAD RTU and link the radio directly to the Cisco Switch.

ii. Test and commissioning the link to all the sites in the North.

iii. Submit the as-built drawings and a detail commissioning report to FEA.

14. Tender Evaluation

After the bids are received, it will go through a normal tender evaluation process as per FEA's Tender Policy and Procedures. The successful and unsuccessful bidders will be advised of the outcome after completion of the Tender evaluation process.

The evaluation of the tender submissions will be weighted as such:

No.	Components	Weighting (%)
1	Financial Components	40 %
2	Technical capability	25 %
3	Delivery timeframe. Refer to section 4 & 16.7	15 %
4	Proven background on SEL or iFIX HMI , SEL RTU's and DC Power Supplies	10 %
5	Backup service and spare parts. Refer to section 6.	5%
6	Ability to meet the project deadline (31st November, 2017)	5%

15. Submission of Tenders

It is mandatory for Bidders to upload a copy of their bid in the **TENDER LINK** Electronic Tender Box no later than **4:00pm, on Wednesday, 15th February, 2017.**

To register your interest and tender a response, view 'Current Tenders' at:
https://www.tenderlink.com/fea

For further information contact The Secretary Tender Committee, by e-mail
TDelairewa@fea.com.fj

In additional, hard copies of the tender, one original and one copy must be deposited in the tender box located at the FEA Head Office, 2 Marlow Street, Suva, Fiji no later than **4:00pm, on Wednesday, 15th February, 2017 -** Addressed as

Tender – MR 16/2017 – Remote Terminal Unit Upgrade for Northern SCADA System

The Secretary Tender Committee
Fiji Electricity Authority
Head Office
Suva
Fiji

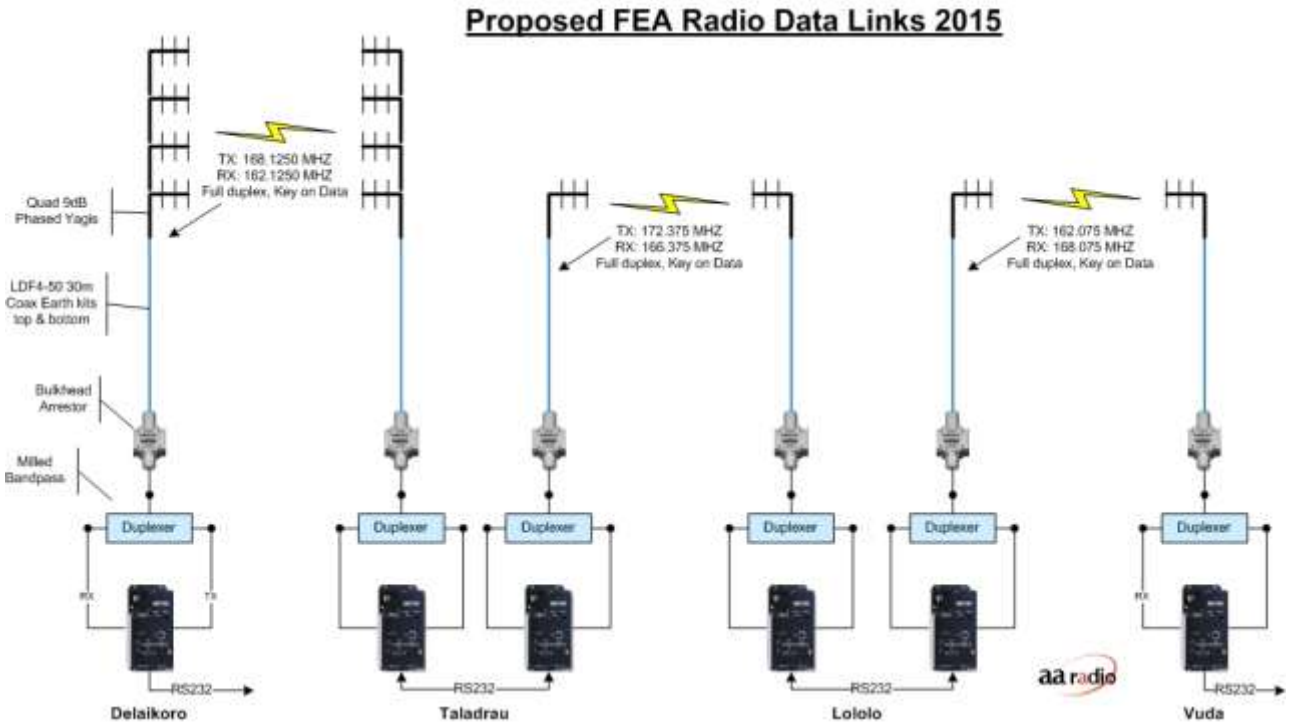
- **Hard copies of the Tender bid will also be accepted after the closing date and time provided a soft copy is uploaded in the e-Tender Box and it is dispatched before the closing date and time.**

Tenders received after **4:00pm** on the closing date of **Wednesday, 15th February, 2017.**

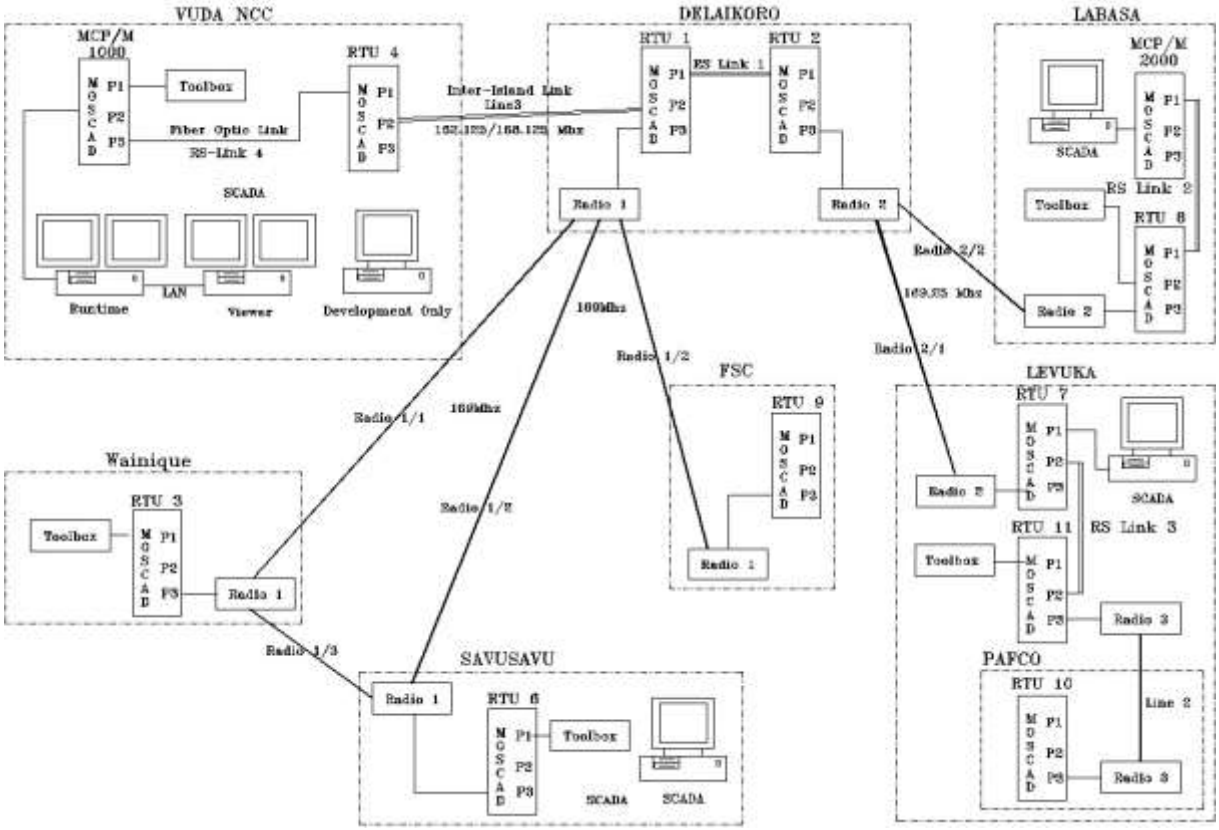
- will not be considered.
- Lowest bid will not necessarily be accepted as successful bid.
- **It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission including any Duties/Taxes. Hard copies of the Tender submission via Post Box will not be considered.**

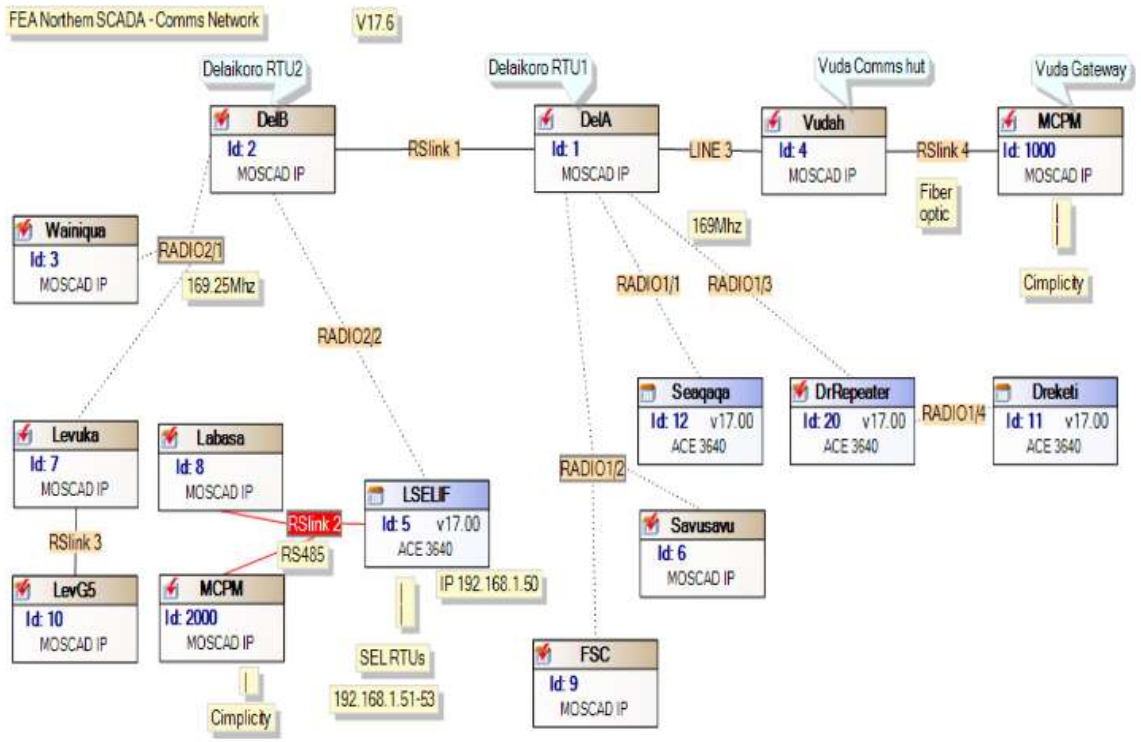
16. Appendix

16.1 Northern SCADA Main Link

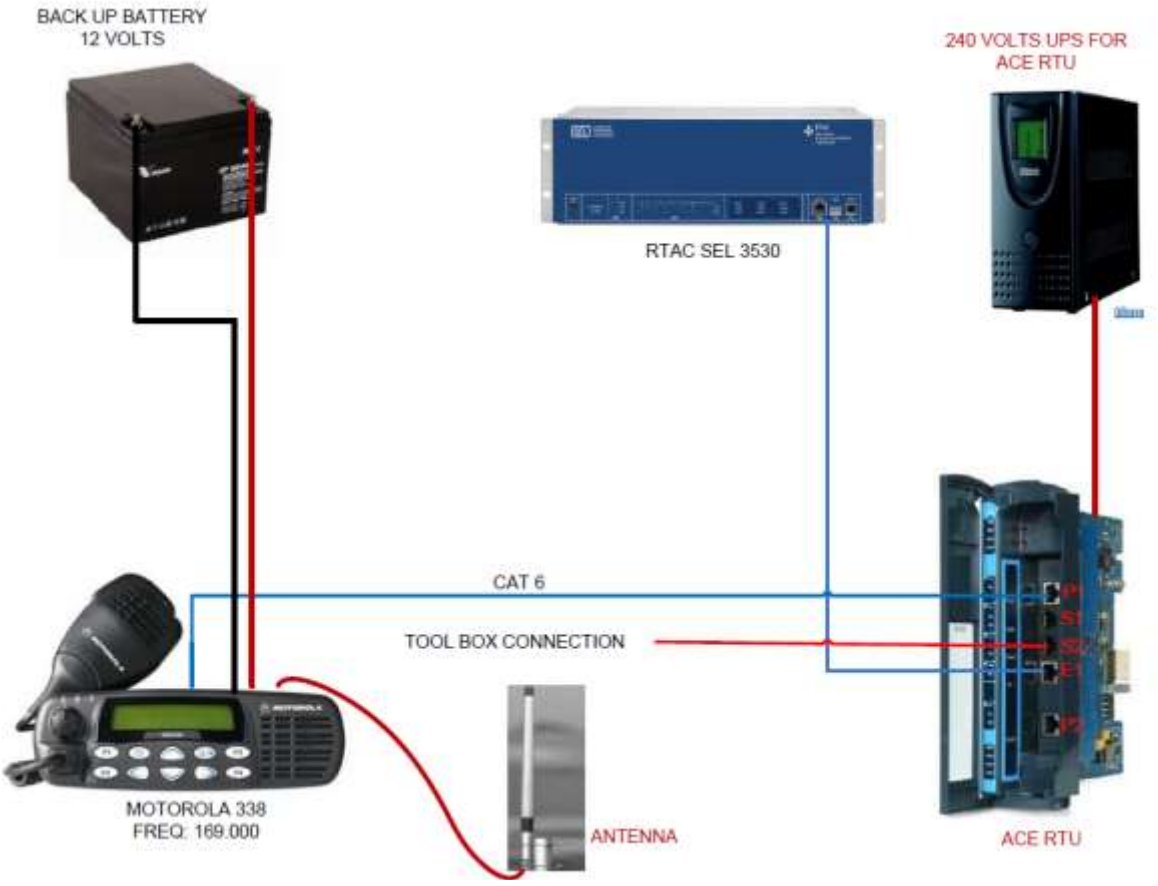


16.2 Northern SCADA Communication Set Up

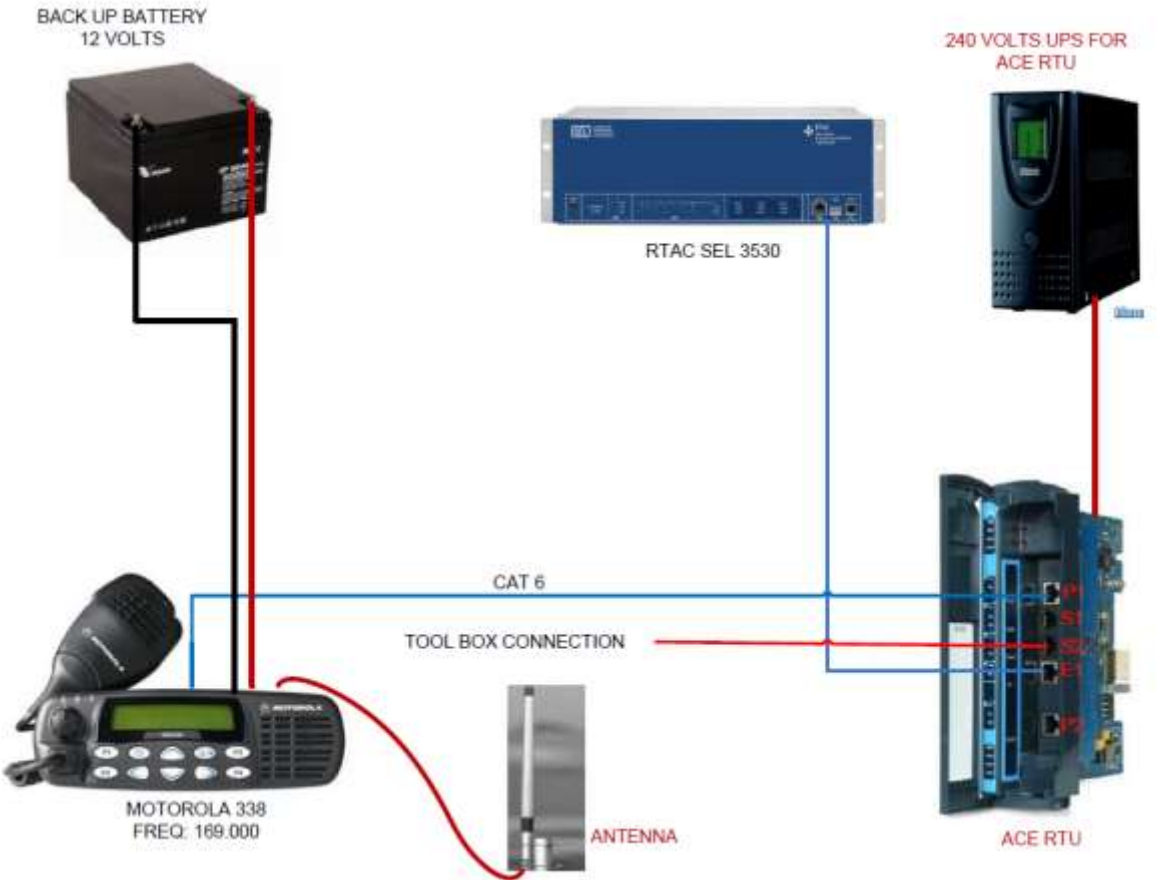




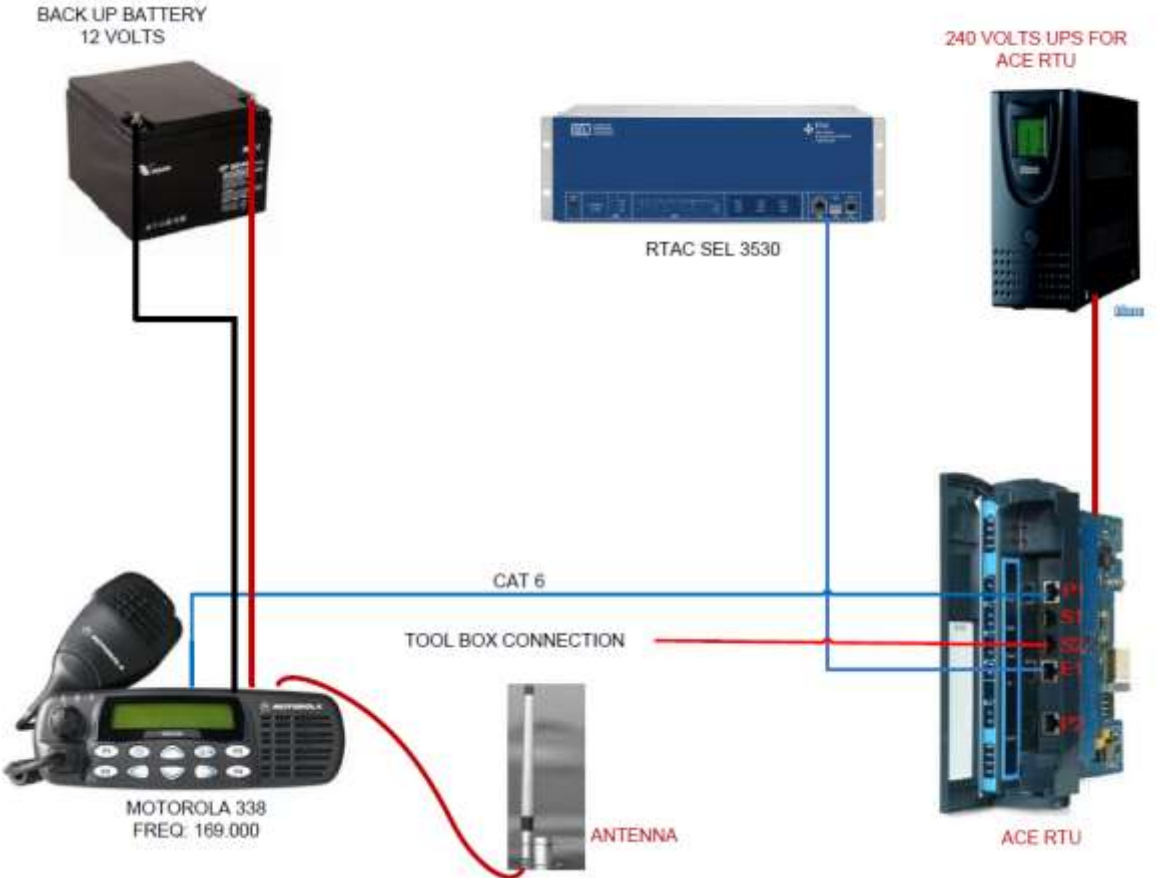
16.3 Dreketi Substation Station Existing Set Up



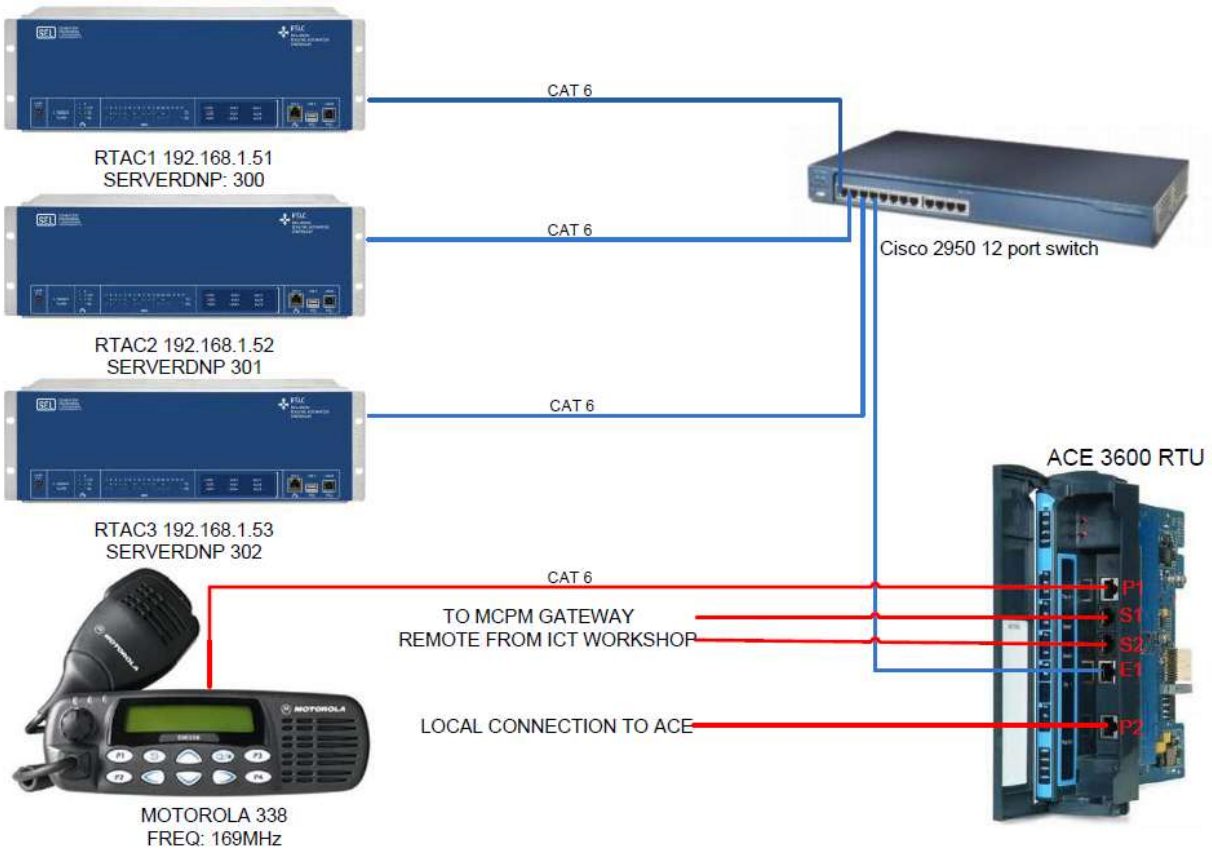
16.4 Seaqaqa Substation Station Existing Set Up



16.5 FSC Labasa Substation Station Existing Set Up



16.6 Cawaira Power Station Existing Set Up



16.7 Submission Forms

The following information has to be filled by the bidder and submitted with Tender Documents:

1. Company Name:_____
2. Director/Owner(s):_____
3. Postal Address:_____
4. Email Address:_____
5. Phone Number:_____
6. Fax Number:_____
7. Office Location:_____
8. Facsimile & Skype: _____
9. Web Address: _____
10. After Sales Contact details: _____

    _____
11. TIN Number (local bidders only):_____
12. Company Registration Number(local bidders only):_____
13. FNPF Employer Registration Number (local bidders only):_____
14. Number of Branches & locations:_____
15. Years of Experience & reputation in the market :_____

    _____
16. Area of business Specialization: *[Please tick where*
    - ☐ Manufacturer & Supplier
    - ☐ Retailer
    - ☐ Licensed Agent
    - ☐ Others, please specify _____

      _____
17. Business Structure :

I hereby, declare that all the above information is correct.

Sign: _____
Name: _____
Position: _____
Date: _____

General Requirement

#	**General Requirement**	**Please Tick (✓)**	**Describe in detail**
a).	Warranty – not less than 12 months		
b).	Specifications of RTU provided		
c).	Specifications of 24V Power Supply provided		
d).	Specifications of HMI & Hardware provided		
e).	Yearly license for HMI, if any		
f).	Details for Software upgrade in future provided		
g).	Willing to accept Purchase Order		
h).	Willing to provide a minimum of 30 days account		
i).	After sales service and support.		

The bidders are to provide the breakdown of the cost in the following format:

Name of Site:		
Duration to Complete the Work:		
Currency:		
Costs	**Cost , VIP**	**Comments** (List the items such as HMI, RTU, Power supply etc., with cost breakdown)
Materials	$	
Labour	$	
Travel & Accommodation	$	
Testing & Commissioning	$	
Profit	$	
Total	**$**	

Overall Cost	
Currency:	
Sites	**Cost , VIP**
Site 1: Delaikoro Repeater Station	$
Site 2: Cawaira Power Station	$
Site 3: FSC Labasa Power Station	$
Site 4: Savusavu Power Station	$
Site 5: Wainiqeu Hydro Station	$
Site 6: Seaqaqa Substation	$
Site 7: Dreketi Substation	$
Site 8: Levuka Power Station	$
Site 9: Vuda Repeater Station	$
Site 10: NCC, Vuda	$
Overall Total	**$**

HMI

Name of Software:	
Future software upgrade will be free or charged:	
If charged, state approximate cost of upgrade:	
After sales service and support.	

Timeline

Sites	**Start Date**	**End Date**	**Duration** Months/Weeks/Days
Site 1: Delaikoro Repeater Station			
Site 2: Cawaira Power Station			
Site 3: FSC Labasa Power Station			
Site 4: Savusavu Power Station			
Site 5: Wainiqeu Hydro Station			
Site 6: Seaqaqa Substation			
Site 7: Dreketi Substation			
Site 8: Levuka Power Station			
Site 9: Vuda Repeater Station			
Site 10: NCC, Vuda			
		Total Duration	