

# Request for Quotation

## RFQ-ICED2-2018-004

### **“Procurement of Automatic Generator Control (AGC) System for Diesel Generators in East Sumba, NTT, Indonesia”**

**Issuance Date: August 13, 2018**

**Deadline for Receipt of Questions: August 24, 2018 at 17:00 Jakarta local time**  
**Closing Date and Time: September 7, 2018 at 17:00 Jakarta local time**

*Issuance of this RFQ does not constitute an award commitment on the Tetra Tech ES, Inc., nor does it commit to pay for any costs incurred in preparation or submission of comments/suggestions of a quotation. Quotations are submitted at the risk of the offerors. All preparation and submission costs are at the offeror's expense.*

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## 1. INTRODUCTION

The purpose of this RFQ is to provide a diesel generation control system within the Scope of Work (SOW) specified in the Attachment A – Technical Specification for the Indonesia Clean Energy Development II (ICED II) funded by US Agency for International Development (USAID) and implemented by Tetra Tech ES, Inc.

## 2. BIDDER'S QUALIFICATIONS

Bidder must provide the following information and references in order to be qualified for the procurement process:

1. Company's information, including official registered title, type of business, address, and contact person information.
2. A short description of the company and of past similar experience in providing the services described in the Attached A -Technical Specification.
3. Overall technical approach to fulfill the specifications defined in Attachment A – Technical Specification.
4. Certification that company is not owned or controlled in total or in part by any entity of any government.
5. Certification by any subcontractor engaged by the company for this project that the subcontractor is not owned or controlled in total or in part by any entity of any other government.
6. The Offeror shall complete and sign the Representation and Certifications found in Attachments C to this document, and include them with the Offeror's quotation. Quotations that do not include these certifications will not be considered.

## 3. SOURCE, ORIGIN AND NATIONALITY RESTRICTIONS

The USAID authorized geographic code for the ICED II project is 937. Offerors must be incorporated in, or nationals of, the United States, a Developing Country, or Indonesia. Source and Nationality rules can be found in USAID regulation ADS 310, available here: <http://transition.usaid.gov/policy/ads/300/310.pdf>

Foreign Policy Restricted countries are currently defined by the US Government (22 CFR 228) as including: Cuba, Iran, Libya, North Korea, and Syria.

## 4. SUBMISSION OF QUOTATIONS

All quotations are due on September 7, 2018 by no later than 17:00 local time in Jakarta, Indonesia. Quotations must be submitted via e-mail at the address [abdissa.workneh@tetrattech.com](mailto:abdissa.workneh@tetrattech.com) in the following formats: Adobe Acrobat and Microsoft Word and/or Excel.

All quotations must fully respond to the Technical Specifications enclosed as **Attachment A**, and must include quotes in the format provided in the **Attachment B - Table 1 – Budget**. Quotations received after the above-stated due date and time will not be considered for this procurement.

## 5. QUESTIONS AND CLARIFICATIONS

All questions or clarifications regarding this RFQ must be in writing and submitted, in English, to [abdissa.workneh@tetrattech.com](mailto:abdissa.workneh@tetrattech.com) on or before August 24, 2018 no later than 17:00 local time in Jakarta. Questions and requests for clarification, and the responses thereto, will be circulated to all RFQ recipients.

Only written answers from Tetra Tech will be considered official and carry weight in the RFQ process and subsequent evaluation. Any answers received outside the official channel, whether received verbally or in writing, from employees or representatives of Tetra Tech, or any other party, will not be considered official responses regarding this RFQ.

Interested bidders are encouraged to register their intention to submit a proposal. Note that the responses to questions, as well as any modification to this RFQ will only be sent to registered interested bidders.

## 6. QUOTATION PREPARATION INSTRUCTIONS

All Bidders must follow the instructions set forth herein in order to be qualified for the procurement process. If a Bidder does not follow the instructions set forth herein, the Bidder's quotations may be eliminated from further consideration or the quotation may be downgraded and not receive full credit under the applicable evaluation criteria.

The suggested outline for the Quotation is stated below:

### A. Organization's Information

1. Organization's information, including official registered title, type of business, list of offices if applicable, address, telephone, fax and website.
2. Organization's office or appointee in Indonesia.
3. Organization's DUNS number, if proposed price is more than USD \$30,000
4. Authorized point of Contact with phone number(s) and email address
5. Experience of the firm of at least 5 years in the public and private sector related to equipment and/or services related to this procurement

### B. Company Technical Capability

Description of organization, including of activities/qualifications carried out similar to the scope of work requested.

### C. Company Past Performance

Bidders should provide a summary of relevant assignments including the Title, Client, Date and a brief description. The qualifications section is limited to 5 of the most relevant assignments performed in the last 5 years, presented in the following table format. If the client is confidential, simply list "confidential".

Title of Assignment	Description of the assignment and services provided	Client Name	Dates of Execution

#### D. Detailed Budget

Bidder shall complete the **Table 1 of the Attachment B “Detailed Budget”** in order to allow Tetra Tech ES, Inc. to compare all quotes and make a competitive selection. The budget should be provided in Excel format with unlocked cells, and shall not exceed the maximum of 150,000 USD allocated for this project.

A price must be provided for each project component to be considered compliant with this request. Offers must show unit prices, quantities, and total price. All items, services, etc. must be clearly labeled and included in the total offered price. The quotations shall also include a budget narrative that explains the basis for the estimate of every cost element or line item. Supporting information must be provided in sufficient detail to allow for a complete analysis of each cost element or line item. Tetra Tech reserves the right to request additional cost information if the evaluation committee has concerns of the reasonableness, realism, or completeness of an Offeror’s proposed price.

Bidder shall provide unit pricing in USD. Prices quoted in this document shall be valid for a 30-day time period, include all taxes and other costs and the VAT tax originated in Indonesia.

#### E. Technical Approach

The bidder shall provide as minimum the following information:

- A description of the proposed system architecture, functionalities and how the herein described functionalities will be achieved with the proposed system.
- A description of the functionalities described herein for the system that the proposed system can’t provide or would require non-standard works by the bidder; if non-standard works are required, the functionality to be implemented and the associated works shall be shortly described and the cost shall be listed as individual component in the quotation page or pages.
- Price Quotation can be presented in the form of a “list of materials”, comprehending the main components of the system, with a short description of the function of the software module or hardware component, the units required and value of the component, for both software and hardware. This listing shall include all non-standard works as an individual component; associated services, like installation, commissioning, training and other alike, are also considered main components and shall be listed individually.

- Small components, such as cables, connectors, and others alike, can be listed as “BoS” or “Various”.
- If any component of the proposed system, other than locally required third party telecom services, is based on a subscription or periodic fee, it should be clearly mentioned in the description of the component, together with the duration.
- Description of the warranties and after warranty support services, reflecting their associated costs, aligned with the requirements defined in Attachment A.
- Bidder can add, in pages different from the above, any information considered relevant to be known or highlighted about the proposed system.

#### F. Representations and Certifications

These documents can be found in Attachments C of this RFQ and must be submitted as part of the Quotations.

All Quotations must be submitted in English.

### 7. EVALUATION CRITERIA

Award will be made to the bidder representing the best value in consideration of past performance, qualifications and price factors. Prices must be reasonable and will be considered in the evaluation. Bidders are encouraged to provide a discount to their standard commercial rates.

Tetra Tech reserves the right to conduct discussions with selected bidder(s) in order to identify the best value offer. Award of any resulting Subcontract Agreement shall be made by Tetra Tech on a best value basis. Tetra Tech reserves the right to request a test assessment from bidders to assess their qualifications.

Quotations will be scored on a 100 point scale. Available points for each evaluation factor are given below. Offerors must address each evaluation factor.

Evaluation Criteria	Points
<b>I. Detailed Price Quotation</b>	30%
<b>II. Past Performance</b>	30%
<b>III. Technical Approach</b>	40%
<b>TOTAL</b>	<b>100%</b>

Bidder should submit a **Detailed Budget** reflecting the cost of completing the scope. Bidders shall complete the **Attachment B – Detailed Budget**.

### 8. TERMS OF PAYMENT

Payment terms for the awarded Subcontract Agreement shall be net forty-five (45) days after satisfactory completion and acceptance and of services and deliverables. Payment shall be made by Tetra Tech ES, Inc. (Arlington, VA, USA) via bank wire transfer. No advance payments will be provided.

### 9. DUNS NUMBER AND SAM.GOV REGISTRATION



If the proposed price is above \$30,000, the successful bidder will be required to furnish a DUNS number and proof of SAM.gov registration within 24-48 hours of notice of award. Information regarding obtaining a DUNS number may be found here: <https://fedgov.dnb.com/webform>

## **10. NEGOTIATIONS**

Best offer quotations are requested. It is anticipated that a subcontract will be awarded solely on the basis of the original offers received. However, Tetra Tech reserves the right to conduct discussions, negotiations and/or request clarifications prior to awarding a subcontract. Furthermore, Tetra Tech reserves the right to conduct a competitive range and to limit the number of offerors in the competitive range to permit an efficient evaluation environment among the most highly-rated proposals. Highest-rated offerors, as determined by the evaluation committee, may be asked to submit their best prices during a competitive range.

## **11. MULTIPLE AWARD/NO AWARD**

Tetra Tech ES, Inc. reserves the right to issue multiple awards. Tetra Tech ES, Inc. also reserves the right to issue no awards.

## ATTACHMENT A – TECHNICAL SPECIFICATION

### TECHNICAL SPECIFICATION

**SCOPE OF WORK:** Supply, installation and commissioning of an automatic generation control system capable of monitoring, manage and dispatch the integrated generators in a defined sequence according to the grid dynamic load changes.

**PERIOD OF PERFORMANCE:** October – November 2018

**PLACE OF PERFORMANCE:** Sumba, Nusa Tenggara Timur, Indonesia

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#### Background

Tetra Tech is the implementing contractor for the U.S. Agency for International Development (USAID) funded Indonesia Clean Energy Development II (ICED II) Project. ICED II is assisting PLN, the national electric utility, implementing a pilot Automatic Generating Control/Automatic Dispatching System controls (grid controls). The current Standard Operating Practice (SOP) is manual generator dispatching. The grid control system is intended to improve power quality, minimize fuel consumption and allow for the maximum amount of solar PV generation on the grid.

Sumba island is located in the Nusa Tenggara Province, in Eastern Indonesia. The electric utility service on the island currently consists of two mini-grid systems of East Sumba and West Sumba. The East Sumba mini-grid system consists of a 20 kV distribution infrastructure supplying the electricity to the demand (via low voltage transformers near to consumers centers, which are mostly located around the North and East coastal areas of the East Sumba region. The central and South coastal areas of East Sumba are still un-electrified.

The demand in East Sumba is served by 8 feeders with peak-load of 6.8 MW at 19.00, and a minimum load of 3.4 MW at 06.00 (as by grid status on 26 October 2017). During the weekend, the peak-load is 6.5 MW, while minimum load is 4 MW. During a week's cycle, the daytime load, concurrent with the maximum Solar PV generation, fluctuates between at 3.7 MW – 4.8 MW.

There is one grid connected 1 MWp solar pv plant, which variability requires a generation ramp rate < 5% per minute, or not to exceed 50 kW per minute; and the plant is already equipped for remote management by web platform and has industry standard data integration capabilities through the SMA inverters and SMA communications platform. It is optional to integrate this solar plant into the system.

The grid is supplied from two (2) diesel power plants, located near the city of Waingapu, both plants 20 kV outgoing busbars are linked by a 20 kV feeder with a length of 7 Km.

The total aggregated rated power of diesel units supplying in East Sumba grid is 7 MW, consisting of 3.4 MW from rental and PLN owned diesel units, located in the Waingapu 1 & 2 buildings and, another 3.6 MW from rental and PLN owned diesel units, which are located in the Kambajawa site building.

The gensets listed herein to be integrated in the system, two (2) are located in Waingapu-2, and, another two (2) units in Kambajawa.

### Description.

The system is to be installed in the Indonesian island of Sumba. Within that island, the system will manage the power plant and subsequent behavior of the “East Grid”.

The basic functionality described herein, real-time management of generation units to assure grid stability while meeting dynamic load changes, should be readily available upon completion of the System installation and its subsequent programming. The bidder’s proposed solution shall be suitable for future incorporation of other technically suitable generators and, if possible, to be upgraded with additional control functionalities over switchgears, reclosers and transformers.

The definitions, criteria, values and names used herein are only for descriptive purposes. The supplier may use alternative names, definitions, criteria, values, processes and operations to achieve the “Platform functionality” according to the characteristics of his proposed solution.

### Glossary and Definitions

ADS	Automatic Dispatching System, alternative wording for AGC.
AGC	Automatic Generator Control, alternative wording for ADS.
CGU	Capacitive Generator Unit/s (solar pv, storage banks, wind type 3 & 4...)
DAU	Data Acquisition Unit
DDC / AGC	Diesel Dispatch Control system. Subsystem which dispatches DG’s (see AGC)
DG	Diesel Generator
GMU	Generator Management Unit. Also known as genset controller; it reads and actuates over all available genset data and is the data interface with the ADS or AGC.
EMS	Energy Management System. Is a high level full functionality grid management system, which integrates the automated and remote operation of all grid components and nodes.
GO	Grid Operator, the entity responsible for managing the grid and dispatch the generation capacity.
GRID	The High Voltage grids, either the transmission and/or distribution system of interconnected feeders, substations, and related facilities.
GUI	Graphic User Interface
HV	High Voltage. Voltage levels equal or above 1 kVac up to 400 kVac.
IGU	Inductive Power Generator Unit/s (spinning generators in general, diesel, gas, hydro...)
LV	Low Voltage. Voltage levels below 1 kVac. Three phase, 400 V, Single, 230 V.
PoC	Point of Connection: the point at which Power Plant is connected to the Grid. This corresponds to the border point between the Power Plant and the Grid.
SWGR	Switchgear, either Low or High voltage, as defined by context.

## Grid Control System Requirements and Specifications

### Platform functionality

The real-time dispatching, monitoring, management of the generation units connected to the ADS/AGC platform, in a way which actively responds to unscheduled variances of load and grid conditions, with the overall objective of maintaining grid stability and power quality. The units to be connected are listed in the "Connected Units" section below. The "Operation Modes" described below are for explanation purposes, the bidder can propose a different approach.

### Operation Modes proposed:

- Normal Mode. Instructions to the generation units shall delivered and checked, aimed at maintaining the **nominal values** defined by user **for Normal operation**: maximum and minimum voltage, frequency and power factor, as well as the time allowed for values excursion before the Support Mode is activated. The values and times will reflect the standard and balanced operational window of the grid. There will be allowance for the user to send manual instructions to the GMU's of the IGU's while values are within the defined limits, aside from the pre-defined dispatching sequencing, such as manual activation of another generation unit, or change the minimum and maximum setpoints of an IGU.
- Support Mode, as absolute values entered by user for Support operation, maximum and minimum voltage, frequency and Pf limits exceeding a defined time. The values and time will reflect maximum tolerances of the operational window outside the normal or nominal values. There will be instructions sent to the GMU's of the IGU's to compensate the values to return the grid to Normal values range. Upon lack of response from the grid values within a defined time, pre- selected CGU's will be instructed to change the output to pre-set values in absolute kWac. User pre-set Normal mode values are overwritten by this mode specific pre-sets, until Normal values are achieved for a pre-set time, when Normal Mode will be resumed and CGU's will be instructed to ramp to adequate instant capacity. User shall receive a "Warning" alert when the system enters in this operation mode.
- Abnormal Correction, as absolute values entered by user for Abnormal operation correction, maximum and minimum voltage, frequency and Pf limits within a pre-set time, intended to avoid entering in Reset mode or blackout. There will be instructions sent to the GMU's of the IGU's to compensate the values to return to the Normal Mode range. User Normal and Support pre-set values are overwritten by mode specific pre-sets, until Normal values are achieved for a pre-set time, when Normal Mode will be resumed and CGU's will be instructed to ramp in pre-set steps of kWac and time and reconnect until they reach adequate capacity without further Normal value excursions. If excursions are detected in the process, the Abnormal correction mode will be recycled and the proper alarms issued. Alarm "GRID FAILURE" shall be issued to user when this mode is activated.
- Grid Reset Mode, activated after Abnormal/Recovery mode had no effect in a pre-set time. All IGU's and CGU's will be shut down. The Grid Start sequence (or Normal Operation Mode) has to be Manually activated by authorized user. This situation is equivalent to a black start mode, where initial grid forming is required. When this mode is activated a "BLACKOUT" alert shall be issued to user.

**Normal Operation Settings and operation.**

- Dispatching priority, as user definition of the order in which the IGU's will be dispatched, to meet the load at any given moment.
- IGU's setpoints, as user definition of the maximum and minimum operation range for each IGU integrated in the platform. The operation range values can be either entered as a percentage of capacity or as absolute kWac values.
- Individual switchover load, as a parameter pre-defined by user for a pre-selected IGU after General switchover values are applied; target values expressed as absolute value or percentage of load, which, when reached for a certain period of time, will automatically activate the next IGU in the dispatching priority list.
- Individual switchover time, as a parameter by pre-defined by user for a pre-selected IGU after switchover load and General switchover time has been applied; target value expressed as absolute value, which, when reached, will automatically activate the next IGU in the dispatching priority list.

**System Information Capability.**

Below we define the Real-Time information and related capabilities desired from the platform. The supplier can propose his own alternative to achieve similar results.

Active Monitoring Dashboard:

- For each IGU, the platform shall present, at minimum:
  - Model, type, capacity in kW, location.
  - Status, present operation mode.
  - Minimum and maximum pre-set values. Key present values (Active & Reactive load, voltage, frequency, power factor, rpm, power output in % and/or kW).
  - Present fuel usage as Lt per kWh.
  - Alerts & messages (1 week history minimum).
  - Operational hours remaining for next maintenance cycle.
  - Aggregated or summarized data from all units:
    - Key present values (Active & reactive load, voltage, frequency, rpm, power output in % and/or kW).
    - Present fuel usage as Lt per kWh.
    - Alerts & messages (1 week history minimum).

Historic data, by date & time:

- Operation modes, if incorporated as such.
- Operation values (V, Hz, Pf, kW, kW%, fuel usage per kWh, ...).
- Fuel usage Lt/kWh.
- Alerts & messages, if accessible.

Data export capacity:

- All fields and data, shall be exportable to xls and/or csv, of other alternative format.

Platform GUI minimum requirements:

- Web based, with access control to individual level and registered device.
- Desktop and mobile versions.
- Mobile version with functionality restricted to live monitoring.
- HTML 5 or above. Avoid flash if possible.
- SuperUser and system administrator logins.
- The platform should be able to easily register and incorporate new generation units and other suitable data acquisition devices under SuperUser or Administrator logins.

**Integration requirements:**

- For the AGC/ADS platform to perform the functional requirements, it must be able to acquire the concerned data and send adequate instructions to, at least, the following controllers or GMUs of the IGUs units:
  - Deep Sea Electronics 8610
  - Deep Sea Electronics 8610 MK II
  - DEIF AGS 200
  - Cummins PowerCommand 3.3

**Locations:**

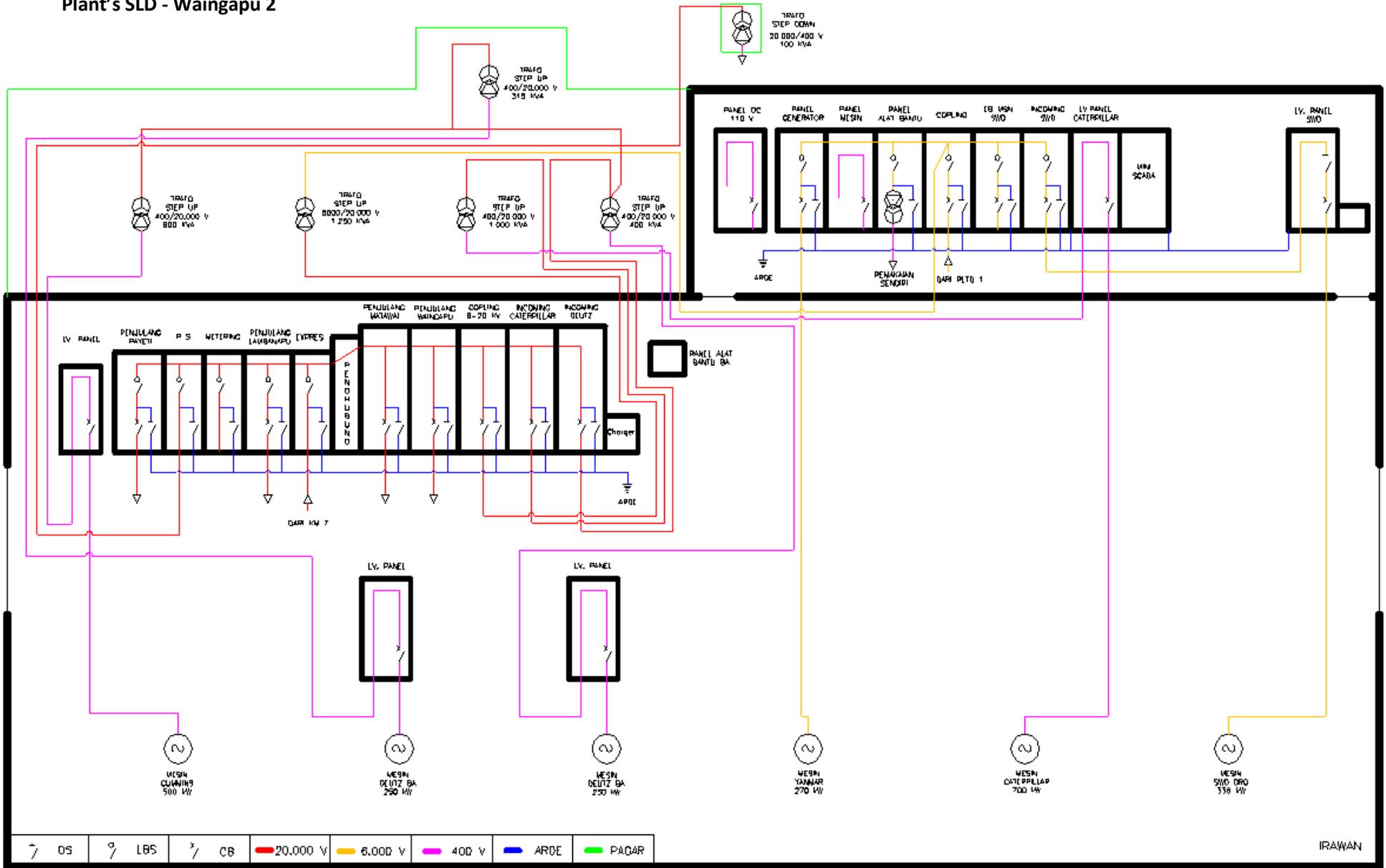
Specific site and generation mix on which the platform is to be deployed are:

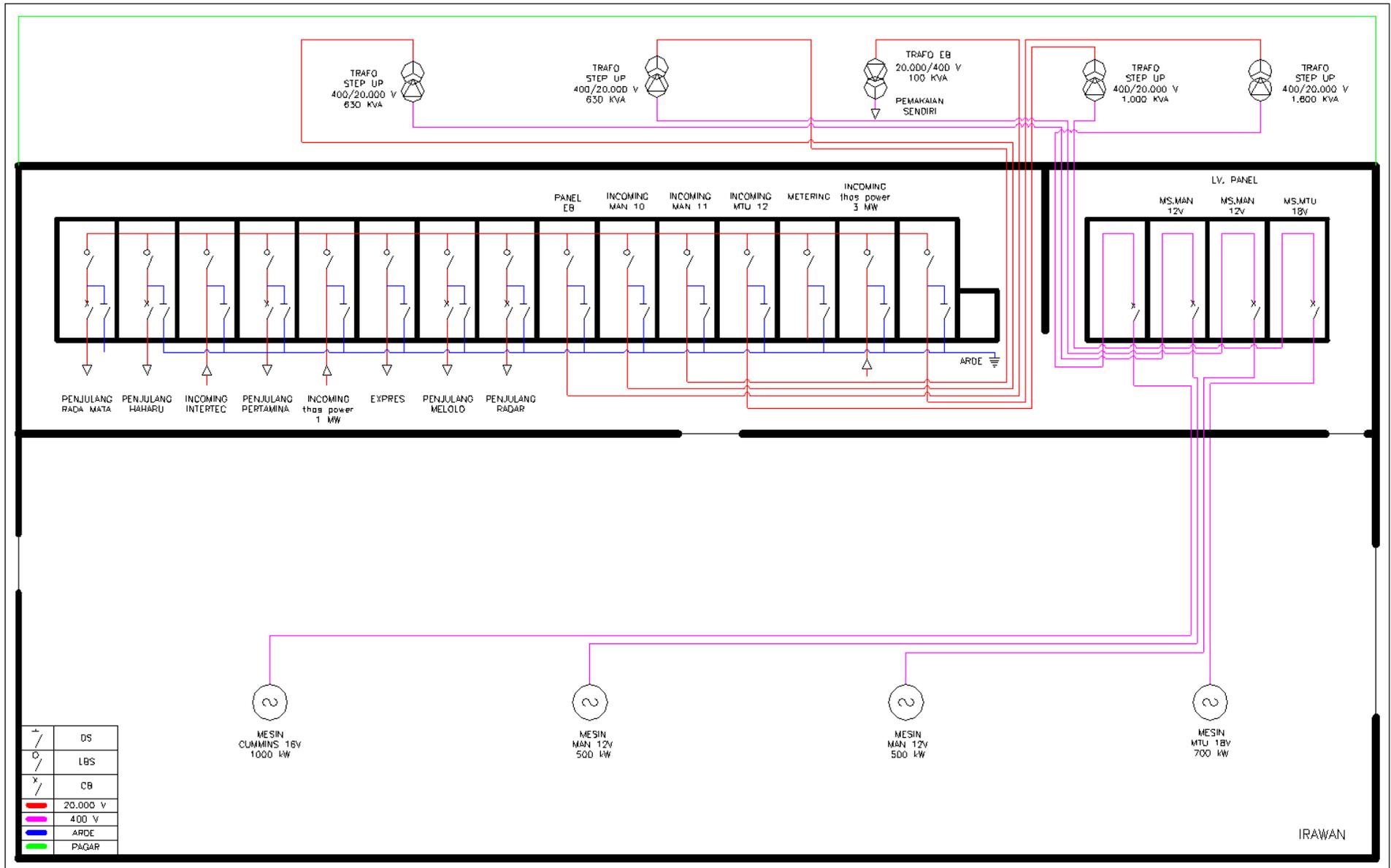
Location :                      Suba Island, East Grid, Waingapu area.

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Power plants:                      Waingapu-2 (W2) and Kambajawa (KA)                      2 buildings linked by a 7 Km 20 kV line

Controller/ / GMU	Units	Unit kW	W2/KA	Engine/Brand	Model
Power Comm 3.3.	1	500	W2	Cummins	C 900 D5 – QSK 23
DSE 8610	1	1,000	- ? -	MAN	D 2842 – LE 201
Power Comm 3.3	1	1,000	KA	Cummins	C 1675 D5 – KTA 50 G8
DSE 8610 MK II	1	1,000	- ? -	Mitsubishi	S 16 R – PTA – S

**Plant's SLD - Waingapu 2**


**Plant's SLD – Kanbajawa**


**Additional Services required:**

In addition to the installation and commissioning of the system, training in the operation and management of the system and platform is to be provided. The length of the training shall not exceed 3 working days and will be held either in Jakarta or Kupang island, NTT (the location of the electric utility's regional office). The bidder is to bear travel and lodging expenses of his personnel.

**Warranties, Support and Future Expansions:**

The overall warranty of the system and its components shall be equal or greater than 5 years and be clearly defined, together with any restrictions or conditions that may be applicable. Additionally, the proposed system shall include an on-site warranty of, at least 2 years, which shall cover all failures of the supplied components either software or hardware from fault finding to re-commissioning, including all necessary site attendance costs and component shipments, if such were required.

A support service for users shall be available, either and by phone, skype or email during the warranty period. After the extinction of the warranty period, bidder may propose extended support services. The various options and costs of the proposed support services shall be reflected in the specific "Warranties & Support" page/pages of the proposal.

For the possible future expansions of the system, the procedure to quote them and estimated associated cost structure shall be described within this section of the proposal.

**ATTACHMENT B – DETAILED BUDGET****PROPOSED DETAILED BUDGET**

The proposal shall include the below described TABLE 1, where the bidder shall reflect the total amounts equivalent to the percentages defined in TABLE 1 by adding 1 column to the defined format.

**TABLE 1- Overall Subcontract Payment Schedule [SAMPLE]**

No.	Milestone / Deliverable	Percentage
1	Completion of Commissioning.	60%
2	Completion of Operations Training.	10%
3	Satisfactory and uneventful operation of the entire system during 30 continuous days.	30%
	<b>Total</b>	<b>100%</b>

Prices quoted must be valid for 30 days, and account for ALL remuneration, per diem, travel, communications, report reproduction and other out-of-pocket expenses, taxes and other costs, but including the VAT tax that may be originated in Indonesia. On this basis Tetra Tech will issue a Fixed-Price Subcontract, and payment shall be based upon acceptance of deliverables described in the Attachment A.

**ATTACHMENT C- REPRESENTATIONS AND CERTIFICATIONS**


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**Bidder Representations and Certifications**


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**1. Organizational Conflict of Interest Representation**

The offeror represents, to the best of its knowledge and belief, that this award:  
 does [ ] or does not [ ] involve an organizational conflict of interest.

*Please see FAR 52.209-8 for further explanation.*

**2. Data Universal Numbering System (DUNS) Number** *(required if cost proposal is more than USD \$30,000)*

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*(please use one box per number or dash)*
**3. Source and Nationality of Goods and Commodities**

(i) This is to certify that the Bidder is:

- a. an individual who is a citizen or legal resident of\_\_\_\_\_.
- b. a corporation of partnership organized under the laws of\_\_\_\_\_.
- c. a controlled foreign corporation of which more than 50% of the total combined voting power of all classes of stock is owned by United States shareholders; or
- d. a joint venture or incorporated association consisting entirely of individuals, partnerships or corporations. If so, please describe separately the citizenship or legal status of the individuals, the legal status of the partnership or corporations, and the percentage (%) of voting power of the corporations.

(ii) This is to certify that the **Source** (the country from which a commodity is to be shipped from) of the Equipment to be supplied under this Order is:

*name of country or countries*

By signing below, the Bidder certifies that the representations and certifications made, and information provided herein, are accurate, current and complete.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Name of and title of authorized signature: