

Si. No	Clause No.	Existing Provision	Clarification Required	Suggested Text for Amendment	Employer's Answers to Questions
1.	Section 61.1.1.2 - Feedstock	The species of biomass to be used for feedstock are as follows: 1. Puluvaio (Ultimate Analysis Provided) 2. Pulumamoe (Ultimate Analysis Provided) 3. Tamaligi (Ultimate Analysis Provided) 4. Elephant Grass (PennisetumPurpureum) 5. Coconut Shells	There is no Ultimate Analysis and Proximate analysis report found in the tender document and thus, request to please provide the same.		I am resending Report prepared by Scientific Research Organization of Samoa on analysis of 8 evasive trees which provides information as requested. Note that analysis of elephant grass has not been done yet. The main species to focus on as feedstock are: puluvaio, pulumamoe, pafiki, and tufaso.
2.	Section 61.1.1.2 - Feedstock		Also you are requested to inform moisture content in green woody biomass that is intended to be used for this project as this is needed as to design biomass drying unit accordingly.		Report did not provide MC of green wood, but only provides MC at '0' or before drying, but We don't know how long wood samples has been cut and lying around before drying. I have asked SROS to provide this information.
3.	Section 61.1.1.2 - Feedstock		Hope the supply chain, sizing of biomass duly sized to the site / drying shed will be done by Employer		Employer will deliver biomass feedstock in chip form to the plant. Bidder to provide size of chip. Dry shed is included as part of bidder to be supplied by successful bidder.
4.	Section 6 1.1.2.5 Mechanical &Electrical Section 6 2.5.1.4 22kV Grid Connection	<ul style="list-style-type: none"> Supply and installation of approximately 100m of overhead 22kV distribution line, and connections to the existing EPC 22kV system. An approximately 500m long over head 22kV line shall be constructed between the powerhouse and the existing EPC 22kV 	Kindly suggest which one is to consider from 100 mtr and 500 mtr.Please specify the Height and Length of the overhead 22 Kv line.		Extension of 22kv powerline to plant is removed from scope of this bid. EPC will extend 22k powerline to plant a termination inside the plant

		transmission network.			to connect HV cable from the plant to. Installation of HV cable and laid underground in conduits will be part of this bid. EPC staff will terminate the cables on pole.
5.	Section 6 1.1.1.1 - 5. Gas Engine	The contractor shall design, procure and install an Internal Combustion Gas Engine with provisions for dual fuel system in the future.	What is the secondary fuel for the dual fuel engine?		Secondary fuel is diesel (light).
6.	Section 6 1.1.1.1 - The key parameters are:-	Employer's Minimum Plant Load Factor – 95%	Where as in Addendum 4 – Attachment 1 (Section 3 - 1.2.4 Functional Guarantees of the facilities) you have mentioned Availability factor, 70% - kindly let us know the co-relation between PLF and Plant Availability Factor		70% Availability factor is a measure of the reliability of plant built and all equipment. Load factor of 95% is average load of the plant. If installed capacity is 750kw, load factor 95% average operating capacity of plant divided by 750. Correlation of the two factors is for determination of total energy kwh production of plant; a figure which is used for economic evaluation of bids.
7.	Section 6 2.1.1.1 Plant Load Factor	The Contractor shall guarantee the LoadFactor of the Plant at 95%. The Load Factor will be calculated in accordance with IEEE762. The Employer may reject the Plant if it fails to achieve 95% of the guaranteed Load Factor.	Kindly provide IEEE762 and IEEE standard.		Wording is hereby changed from here on related to "Guarantee Load Factor". Revised wording is ..."Employer's Minimum Load Factor Requirement is 90%".... Bidder will guarantee proposed plant load factor,

					which should not be less than 90% but equal or higher.
8.	Addendum No. 5 (S.N – 10 clause 3)	Water supply to the plant site will be connected to Samoa Water Authority water well closeby. Employer will issue a separate bid to extend the water line to project site. Contractor for biomass plant shall still supply and install a 0.5 million liters water storage tank in the plant. All roof rainwater will be collected into the tank. Contractor for biomass plant will also connect water line from SWA system to the water tank. Rest of water reticulation inside the plant will also be the responsibility of the Biomass contractor.	What is the distance between SWA water well system to the water tank?		Extension of water line from SWA water system to the biomass plant is now removed from scope of this bid. Extension of water line will be included in 2 nd bid, yet to be advertised, which will include this.
9.	Section 6 1.1.2.4 Powerhouse	Powerhouse and generators shall be designed to meet international environmental and safety standards for noise attenuation. Noise level at the boundary fence shall be no more than 65DB and 50DB to the nearest neighbour house.	<ul style="list-style-type: none"> Noise level specified here at what distance? – please clarify 	In general, the noise level should be less than 75 – 85DB at distance of 1 mtr.	This revised requirement replaces noise requirement in bid. “Noise level shall be no more than 50db at the nearest neighbor and/or 65db at boundary fence of the biomass plant.
10.	Section 6 1.1.2.5 Mechanical &Electrical	Provide a digital VHF radio system for communicating with the Employers control centre.	Is it required as half duplex or full duplex (single directional or bi-directional)?	We may consider 6 to 8 sets to be used by 6 to 8 personnel	This requirement is removed from scope of bid.
11.	Section 6 1.1.2.5 Mechanical &Electrical	Provide technical support and backup for a period of one year following completion.			Yes. Included in the scope of bid is one year long service contract that continue training of Employers’ operation and maintenance staff and provides technical support over the maintenance

					period.
12.	Section 6 2.1.6.1 Lifetime Requirements	The design of the civil, and structural features shall provide a 100-year service life, while the electrical and mechanical systems shall be designed for a service life of at least 40 years.	Is it applicable to electronic components like software, PLC, VFD, Computers etc.?	Ideally the electronic items should be excluded due to fast generation changes	Expected life of the plant and all equipment is reduced from 100 to 25 years
13.	Section 6 2.1.3.2 Employer Supplied Materials	There are no Employer Supplied Materials	Hope the biomass supply chain duly sized to Gasifier specifications to the site / drying shed to be done by Employer		Yes, it is responsibility to supply chipped biomass feedstock to the plant. Drying of feed stock will be done ones materials reach the plant.
14.	Section 6 2.1.5.8 Working Hours	Normal working hours are Friday to Saturday 9am to 5pm. However, the Contractor is free to vary working hours provided there is no disruption to the adjacent villages outside normal working hours. Any work on Sundays or at night must be approved beforehand by the Project Manager. It is the Contractors responsibility to understand, and comply with, all local labour rules and laws.	We understand that this is typing error – kindly clarify.	Ideally the working hours should be from Monday to Saturday	Yes working days if Monday to Saturday. For construction, total normal number of working hours per day is 8 but contractor can work longer, that is up to contractor. For operation, plant is expected to operate 24 hours per day..
15.	Section 6 2.1.6.2 Standards	All design and construction work, including the materials used and methods applied, shall be in accordance with one or more internationally recognized standards of practice. By definition, such standards comprise organizations such as the AS (Australian Standards), NZS (New Zealand Standards), ASTM (American Society for Testing and Materials), ISO (International Organization for Standardization), DIN (German Code), BS (British Standard), SS (Swedish Standard), EN (European Standard), or equivalent.	Is equivalent Indian Standard (IS) acceptable?	For example ASTM A36 is equivalent to IS-2062.	Yes, international standards to use is ones as named or equivalent. Yes, Indian equivalent standards is acceptable.
16.	Section 6 - 2.1.6.3.3 Design Documents and Construction Drawings	All construction drawings shall be produced using the latest version of AUTOCAD	We are using licensed version of CAD software known as ZW CAD which	The prepared drawings can be viewed, edited in Auto CAD also.	This is acceptable.

			is a equivalent to Auto CAD		
17.	Section 6 - 2.1.10.19 Manufacturer Field Service Reports	All manufacturers' field representatives shall provide field inspection reports upon completion of each Site visit. Contractor shall submit these reports to Project Manager.	Kindly clarify which site visit is referred here in?		Not applicable. We are planning pre bid meeting and field visit to site of plant and forest where wood will be harvest from. This is only for fact finding of bidders.
18.	Section 6 – 2.3.1	Demolition and Site Clearance	We understand that as per Addendum No. 5 (S.N. 10 Change in scope of work in bid dated 20th Mar 2018) the entire clause 2.3 will not be applicable		Yes. This is right. EPC will prepare site under a separate bid and contract. Under this separate bid and contract, 3 acres land for plant will be cleared, leveled and graded, build security fence with two gates, and extend water pipelines to plant site. In house EPC will extend powerline to plant site.
19.	Section 6 - 2.5.1.1 Generator Parameters	The Employers minimum expected generator rating is 938kVA. The preferred generator speed is 600 rpm.	Can we supply the genset at 1500 rpm also?	Normally, our existing vendors supply Genset with 1500 rpm	Yes, gas engine spec is changed from 600rpm to up to 1500 rpm. Capacity of generator is 750kw at terminals of the alternator or at the control panel of generator. Generator voltage to be 4154 volts and then stepped up to 22kv for connecting to EPC grid. Included in this bid is supply and installation of

					pad mount transformer
20.	Section 6 - 2.6.8.3.4 Product Quality and Advanced Technology	The control system PLC hardware and software must be from a recognised global supplier of such equipment.	Could we request you to please suggest any specific make for HMI, PLC and SCADA?		Suggested international brand PLC names are: Allen Bradley, Schneider, and GE. EPC uses these in some of generators plants. EPC prefer Modbus or DNP3 protocol to integrate to EPC SCADA system.
21.	2.6.8.4.1 General Requirements	a) Unit Controllers (Unit PLC) shall be PLC based, and shall include main and auxiliary memory, HMI with keyboard/pad and optical mouse, interfaces with intelligent devices and Process LAN interface. One Unit PLC shall be provided for each turbine generator.	Could we request you to please suggest any specific make for HMI, PLC and SCADA?		See above in answer in 20
22.	Section 6 - 2.6.8.6 Human Machine Interface 2.6.8.6.1 General	The Human Machine Interfaces (HMIs) shall consist of an integrated SCADA/HMI PC-based graphic display system to support an interactive dialogue between the operator and the power plant equipment.	Could we request you to please suggest any specific make for HMI and SCADA?		For SCADA, EPC uses Schneider Clear SCADA software.
23.	Section 6 - 2.6.12 Ventilation Systems 2.6.12.1 Scope	Where specified the Contractor shall provide ductwork and louvres to vent hot air from the generators outside the powerhouse. In addition, louvres shall be fitted at a high level on the powerhouse wall to provide a return air flow.	We understand that this type of ventilation system is for hydro power stations and pumping stations.	As per the specifications we can provide a shed which has a simple roof ventilator.	Unforced ventilation is fine but need to be designed as such to fit direction of tradewind, which south easterly is predominant.
24.	Section 6 - 2.6.13.5.3 Welding Qualifications	The qualification of welding procedures, welders, and welding operators for all welding of pressure-containing components, including weld repairs and other high stressed components, shall conform to standards at least equal to Section IX of the ASME "Boiler and Pressure Vessel Code".	We understand that this welding procedure is for very high pressure critical boilers and its related piping.	In our Gasifier system the pressure is very low in mm water column (mmwc) therefore, this clause may be excluded. Our Welding qualification is as per BS EN ISO 9606-1:2013.	All welding MUST meet standards for type of application offered.

				1- WPS as per EN ISO 15609-1:2004	
25.	Section 6 - 2.6.13.6.2 Examination of Welds	Supplemental radiographic examination shall include examination of critical high-stressed areas where interpretations of other methods are unclear, or where the integrity of the weld is doubtful. All butt welded joints exposed to significant stress levels shall be given a 100% radiographic or ultrasonic inspection accompanied by a 100% magnetic particle or liquid penetrant inspection.	Is liquid penetrant inspection method in critical areas acceptable?	We have been supplying the systems with liquid penetrant inspection method in critical areas. Kindly confirm if Radiography and UT is mandatory in butt joints. Also, Does X-ray means gamma ray examination.	No, it is not. But installation must meet international standards for application proposed.
26.	Section 6 - 2.6.13.12 Water Piping	Water piping shall be of welded 316L stainless steel pipe. Piping connection shall be of welded joints for embedded water piping and welded joints and flanged fittings for exposed water piping.	Can we supply GI pipes for potable water?	Normally, IS1239/ IS3589 for water piping are used.	All portable water here uses DN12 PVC pipes. Preferred that this is used. But EPC will be contracting out separately the extension of SWA water system to the plant site.
27.	Section 6 - 2.6.13.13 Oil Piping	Pressure piping for servomotors shall be 316L stainless steel, of appropriate strength, with stainless steel compression type fittings and steel bodied valves.	Our system does not have any oil piping requirements.	Thus, we believe this clause should be excluded.	This Clause is not applicable.
28.	Section 6 - 2.6.13.14 Instrument Piping	Piping exposed to river water shall be 316L stainless steel tubing with stainless steel compression type fittings and shut-off valves	Can we supply GI pipes for compressed air piping?	Normally, IS1239/ IS3589 for compressed piping for hard piping and PU tube for flexible piping for compressed air.	There is no river close tot plant site. GI pipe for compressed air pipe is acceptable.
29.	2.3.6.14.3 Corrosion Protection, Painting, and Galvanizing	Items in contact with concrete, friction connection surfaces, machined surfaces, surfaces to be field welded and galvanised items shall not be primed. One shop coat of red oxide primer should be applied to all non-galvanised steelwork items. Minimum film thickness should be 50 mm. After grinding of rough welds and sharp edges, surfaces to be painted should be blast cleaned to Commercial SSPC SP6.	The thickness should be 50 microns and not 50 mm. – kindly clarify	Ideally this should be around 25 to 50 microns.	50mm is replaced with 50 micron in this Clause.

30.	2.3.6.14.3 Corrosion Protection, Painting, and Galvanizing	Surfaces to be painted should be blast cleaned to Commercial SSPC SP6.	We are not familiar with SSPC SP6 standard – kindly provide SSPC SP6 standard for our reference.		What this means is sand blast if required.
31.	2.3.6.14.3 Corrosion Protection, Painting, and Galvanizing	Corrosion Protection, Painting, and Galvanizing	The surface preparation, paints type, specifications and thickness varies depending upon metal / substrate and area of application (normal or high heat resistant etc.)	We request that the manufacturer be given the flexibility to follow suitable surface preparation method and application of high performance / heat resistance coatings as per their standards. These specifications, if needed, can be circulated to the employer for their approval.	Suitable surface preparation acceptable to EPC is acceptable. Bidders must allow in this in their bid and provide details of surface preparation they intend to use.