TERMS OF REFERENCE (TOR)

Solar PV Rooftop Engineering, Procurement, Construction, and Commissioning (EPCC)

for

IPP Kendari-3 Coal Fired Steam Power Plant 2x50 MW

PT DSSP Power Kendari

PT DSSP POWER KENDARI

June 2024

DISCLAIMER

The information contained in this Term of Reference ("**TOR**") or subsequently provided to the selected Company (the "Company"), whether verbally, digitally, electronically, documentary or any other form whatsoever, by or on behalf of DSSP and/or any of their employees and/or advisers, is provided to the Company on the terms and conditions set out in this TOR, and such other terms and conditions on which such information may be provided.

This TOR is an invitation to treat, which contains information that may be useful in the formulation of proposals for the services further described in this TOR and is not to be relied upon as, or construed as being, an offer capable of acceptance by any person or as creating any form of contractual rights (including without limitation, a process contract, quasi-contractual, restitutionary or promissory estoppel rights, or rights based on similar legal or equitable grounds, whether implied or otherwise) whatsoever.

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DSSP is not liable to any Company and/or any third party whatsoever on the basis of any contract or other understanding (including without limitation, a process contract, quasi contractual, restitutionary or promissory estoppel rights, or rights based on similar legal or equitable grounds, whether implied or otherwise) whatsoever howsoever arising, and/or in tort and/or negligence, as a consequence of any matter relating or incidental to this TOR, the procurement of any or all of the services provided in connection with or incidental to this TOR, and/or a Company's participation in this TOR process, including instances where: (i) a Company and/or third party is not invited to participate in any subsequent process as part

of or following completion of this TOR process; (ii) DSSP varies the TOR process; (iii) DSSP elects to enter into a contract/agreement for all or any of the services provided in connection with or incidental to this TOR with any party, whether or not that party was a Company in this TOR process; (iv) DSSP decides to terminate the TOR process or not to contract for all or any of the services to be provided in connection with or incidental to this TOR; or (v) DSSP exercises or fails to exercise any of its other rights under or in relation to this TOR.

DSSP may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment and/or assumptions contained in this TOR. The issue of this TOR does not imply that DSSP is bound to select a Company/third party or to appoint the selected Company, as the case may be, for the services to be provided in connection with or incidental to this TOR, and DSSP reserves the right to reject all or any of the proposals without assigning any reasons whatsoever.

The Company/third party(s) shall bear any and all its costs without limitation, associated with or incidental to the preparation and submission of its proposal, including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by DSSP or any other costs incurred in connection with or relating to its proposal. All such costs and expenses will remain with the Company, and DSSP shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by any Company/third party in preparation or submission of the proposal, regardless of the conduct or outcome of the DSSP TOR selection process.

No submission by any Company and/or third party in connection with this TOR will be taken to have been accepted until a formal contract in a format acceptable to DSSP has been executed by the preferred/selected Company and DSSP. Notice by DSSP to any Company that it is, or is not, a preferred or successful Company will not constitute an acceptance or rejection of any submission whatsoever.

I. General Information

PT DSSP Power Kendari (**"DSSP"**) is an Independent Power Producer that has a Power Purchase Agreement (PPA) with PT PLN (Persero) to build, own, and operate a coal-fired steam power plant with a net capacity of 2x50 MW (the "Plant"). The Plant is located at Desa Tanjung Tiram, Kecamatan Moramo Utara, Kabupaten Konawe Selatan, Sulawesi Tenggara.

The Plant consists of two units boiler and steam turbine generator, auxiliaries equipment, and balance of plant (BOP). In addition, the plant is equipped with a coal jetty for receiving coal and associated facilities, such as a coal conveyor for transporting coal from the jetty to the plant.

II. Objective

Aligning with the government program to accelerate green energy utilization and contribute to reducing CO2 emissions, DSSP plans to install solar PV rooftops in some of the Site buildings. The project scale for the first phase is determined to be 350 kW.

Fig.1 Rooftop Solar PV Installation Layout

Following this purpose, DSSP intends to seek an EPCC (**"Works"**) proposal on a lump sum EPCC turnkey basis, which shall include the cost associated with commissioning and acceptance of the Solar PV Rooftop installation according to related and applicable regulations issued by the government (**"Proposal"**).

III. General Scope of Works

The Proposal is a direct purchase scheme and shall include but not be limited to as follows:

a. Engineering cost
   All costs associated with engineering works, site survey, design calculation, interconnection scheme to the existing power distribution system, and any other related studies. The sizing of the rooftop PV shall be calculated using appropriate engineering software, such as Pvsyst, HelioScope, and other applicable software.
b. Procurement cost
   All costs associated with the procurement of rooftop PV main equipment and accessories. The specification of all the goods shall comply with the applicable Standards and Codes and DSSP preference.
c. Construction cost
   All costs associated with the construction works include civil, mechanical, electrical, instrument & control, and other works. All the construction works quality acceptance shall follow the Inspection Test Plan and Quality Plan, which will be determined after the Contract is awarded.
d. Commissioning cost
   All costs associated with the commissioning works include reporting, system testing, and commissioning acceptance, but are not limited to the Operation Worthiness Certificate issued by the authorities.
e. License & Permit and Miscellaneous cost
   All costs associated with the license and permit are required for the Solar PV Rooftop installation, and other costs related to the Works are defined as necessary by the contractor.

The quotation (**"Price Proposal"**) shall include the tax imposed by the government, and a price breakdown shall be provided for each item mentioned above.

The technical specification, as quoted, shall include, but not be limited to, the equipment product catalog or brochure, guarantee of the Works, and after-sales service during the warranty period (**"Technical Proposal"**).

The Proposal shall include a brief introduction to the Project Execution Plan and information on the required construction period for the Works ("Project Schedule"). The schedule must be specified until level 2 activities and provided weekly from the Notice to Proceed until Commissioning Acceptance.
The complete and detailed Project Execution Plan must be submitted within one week after the Project Kick-off Meeting.

The Proposal will be acknowledged as complete and acceptable if all the above price and technical proposal requirements have been fulfilled. DSSP has the right to request additional information and clarification as necessary.

The price and technical proposal will be reviewed and evaluated by DSSP, and a clarification meeting will be arranged accordingly after the proposal has been completely received. The nature of the bidding process outlined in this TOR is a closed scheme.

IV. General Technical Requirements

a. The equipment and materials used in this project shall be brand new, technologically advanced, and mature so that the photovoltaic power generation has a good performance and is reliable.
b. The equipment and materials used in this project shall have the Quality Certificate from the Original Equipment Manufacturer (OEM).
c. The systems and equipment must be mature and have good practical results. The equipment and technical data provided by the bidders shall meet the requirements of this technical specification.
d. The bidders shall carry out the design, equipment and material procurement, and construction following the data and documents provided by DSSP and the results of the bidder's Site survey. A site survey is mandatory to obtain a detailed and precise proposal.
e. The design, procurement, and installation of the equipment and materials shall be carried out according to the applicable Codes and Standards and other Regulations issued by the Government of Indonesia, including but not limited to Peraturan Menteri Energi dan Sumber Daya Mineral Republik Indonesia Nomor 2 Tahun 2024.
f. In general, the equipment and system supplied shall be able to meet the limits of the Site-specific natural environment, including but not limited to factors such as ambient temperature, wind, rainfall, etc.
g. During construction, all works shall comply with the Occupational Health and Safety (OHS) Regulations, which the Government of Indonesia requires.
h. During construction, all works shall be carried out in accordance with the Quality Project Management System. All project quality activities shall operate according to the system's requirements.
i. The Inspection Test Plan (ITP) and Site Acceptance Test shall be provided for approval as a reference for quality acceptance of the works.
j. The Works shall fulfill the following Performance Guarantee as the minimum requirements, including but not limited to:

i. The performance ratio of the solar rooftop PV during the warranty period proposed by the bidders shall be not less than 85%.
ii. The PV module product warranty shall be at least twelve (12) years, and the PV module linear power warranty at least twenty-five (25) years.
iii. The inverter product warranty shall be at least ten (10) years.
iv. The degradation rate of PV module components shall not exceed 2% in the first year and 0.55% annually during the lifetime performance warranty (Guaranteed Power Performance).
The components shall also meet the requirements of applicable Codes and standards and be certified by an internationally recognized certification agency.
v. The string inverter shall have a protection level of at least IP65, and the maximum total harmonic current shall be less than 3%.
The inverter shall have a protection system, including, but not limited to, anti-islanding, AC overcurrent, DC and AC surge arrester, PV-array string fault monitoring, DC insulation resistance detection, DC reverse polarity protection, residual current monitoring, etc.
The components shall also meet the requirements of applicable Codes and standards and be certified by an internationally recognized certification agency.
vi. The AC combiner box must have a protection level of IP65 or higher.
It must allow for the collection of power from 2 to 6-string inverters and shall have optimal short-circuit and over-voltage protection.
The output side must be equipped with an AC circuit breaker or load switch. When connecting input and output copper bars and terminals, it is crucial to consider the ease of installation, reliability of cables on site, and specific environmental conditions. Additionally, the AC combiner box must have a surge protection device.

In the event that the entire process fails to meet the requirements described in the performance guarantee, the bidder is responsible for repairing or replacing some parts or all materials, equipment, or other components to meet the operation guarantee requirements as mentioned in point (j) (i).
To ensure that such rectification is carried out during the warranty period, a warranty bond of xx% from the Contract value will be implemented.

After the repair or replacement is completed, the process should be retested according to the contract's terms. In addition, under design conditions, the

bidder must ensure that the main equipment meets the corresponding technical indicators.

The recommended and standard requirements for the main equipment and accessories of the photovoltaic system are as follows. This preference should be considered as a minimum functional specification requirement. **Bidders may propose any other brands with the equivalent or better performance**.

No.	Description	Standards and Codes	Recommended Brand
1	Monocrystalline photovoltaic panels	a. SNI IEC 61215-1:2016 b. SNI IEC 61215-2:2016 c. SNI IEC 61215-1-1:2016 d. Other international mandatory standards	Lesso, Trina Solar, Jinko Solar
2	Inverter	The product complies with IEC standards, and the technical parameters at least meet the following requirements: Minimum security protection features: - Anti-islanding effect - Over/under frequency - Over/under voltage - Overheating protection - Surge protector - Wider protection range - DC ground fault detector	Huawei, Sungrow, Growatt
3	Photovoltaic Cable	SNI 0225:2020, and requires the production process to have an irradiation anti-aging process	Voksel, Jembo, JJLAPP
4	AC & DC cable	SNI 0225:2020	Voksel, Jembo, JJLAPP
5	Switch	SNI 0225:2020	Schneider, ABB, Siemens
6	Bracket	Made of aluminum alloy, with pouring sink	Just meet the technical requirements, no brand is specified
7	Distribution Box	SNI 0225:2020	Just meet the technical requirements, no brand is specified

V. Bidders Qualification

The company shall demonstrate its capabilities as a contractor who carries out the works of Engineering, Procurement, Construction, and Commissioning of Solar PV rooftops and shall fully comply with the following requirements:

a. The bidders shall have all required permits and licenses to carry out the Works, including but not limited to Surat Izin Usaha Jasa Konstruksi, Sertifikat Badan Usaha Jasa Penunjang Tenaga Listrik, and Izin Usaha Jasa Penunjang Tenaga Listrik, and any other licenses according to the applicable Laws and Regulations.
b. The bidders shall be adequately qualified and possess experience in Solar PV rooftop EPCC with a minimum installed capacity of 100 kW.
c. The bidders shall provide the Project Reference List and reference Letters from their previous employers describing project size and scope, project completion, and opinion/recommendation to the company.
d. Following the Contract signing, the contractor shall provide design drawings and technical support documents, assist DSSP in completing relevant project approvals, and be responsible for handling PLN/ESDM construction applications, ESDM licenses, and SLO certifications.

VI. Deliverables

The submission of the Proposal shall include but not be limited to the following:

a. Lump sum price of Engineering, Procurement, Construction, and Commissioning of the Solar PV rooftops.
b. The calculation of power generated for each building (kWp), preferably using appropriate software such as Pvsyst, HelioScope, or other applicable software.
c. The installation layout for each building and interconnection to the existing power distribution.
d. Electrical connection layout for each building.
e. Brochure and product catalog for all equipment provided for the solar PV rooftop.
f. Project schedule.
g. Statement of after-sales technical services.
h. Statement of the Warranty Article and Period.
i. Brief Introduction of Project Execution Plan.

APPENDIX

Following the Non-Disclosure Agreement (NDA), the documents below are submitted to the Bidders as a “REFERENCE ONLY” to prepare the proposals outlined in this ToR.

Rooftop Solar PV Installation Planning and Boundary
General Description of Civil Detail Design (for Steel Structure)
General Description of Civil Detail Design (for Concrete Structure)
Catalog of Detail Civil Drawing of Office Building
Catalog of Detail Civil Drawing of Dormitory Building 1
Catalog of Detail Civil Drawing of Dormitory Building 2
Catalog of Detail Civil Drawing of Canteen and Function Hall
Catalog of Detail Civil Drawing of Indoor Sport House
Catalog of Detail Civil Drawing of 150 kV Control Building
Catalog of Detail Civil Drawing of Mosque
Description of Basic Design for Electrical Part
Rooftop Drone View (photo and video)