National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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Registrar

No. NEPRA/DG (Lic)/LAG-527/ 2156-64

February 12, 2024

Mr. Imran Akram
Chief Operating Officer
Foundation Solar Energy (Private) Limited
House No. 143-B, Street-12
Chaklala Scheme-3, Rawalpindi

Subject: **Grant of Generation Licence No. SGC/175/2024**
Licence Application No. LAG-527
Foundation Solar Energy (Private) Limited (FSEPL)

Reference: Your letter No. & dated 03.10.2022

Enclosed please find herewith Determination of the Authority in the matter of application of Foundation Solar Energy (Private) Limited (FSEPL) for the grant of generation licence along with Generation Licence No. SGC/175/2024 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to FSEPL for its 1.00 MWp solar based generation facility located at Nowshera Cantonment Nowshera, Tehsil & District Nowshera in the province of Khyber Pakhtunkhwa, in exercise of the powers conferred upon the Authority under Section-14(B) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 as amended from time to time.

2. Please quote above mentioned Generation Licence No. for future correspondence.

Enclosure: As Above

(Engr. Mazhar Iqbal Ranjha)

Copy to:

1. Secretary, Power Division, Ministry of Energy, 'A' Block, Pak Secretariat, Islamabad
2. Secretary, Ministry of Defence, Government of Pakistan, Adam Jee Road, Saddar, Rawalpindi
3. Secretary, Energy & Power Department, Government of Khyber Pakhtunkhwa, Block-A, 1st Floor, Abdul Wali Khan Multiplex, Civil Secretariat, Peshawar
4. Managing Director, Private Power & Infrastructure Board (PPIB), Ground & 2nd Floors, Emigration Tower, Plot No. 10, Mauve Area, Sector G-8/1, Islamabad
5. Managing Director, National Transmission & Despatch Company (NTDC), 414 WAPDA House, Lahore
6. Chief Executive Officer, CPPA(G), 73 West, Shaheen Plaza, A.K. Fazl-e-Haq Rd, Blue Area, Islamabad
7. Chief Executive Officer, Peshawar Electric Supply Company (PESCO), 166 WAPDA House, Shami Road, Peshawar
8. Director General, Environmental Protection Agency (EPA), 3rd Floor, Old Courts Building, Khyber Road, Peshawar

National Electric Power Regulatory Authority (NEPRA)

Determination of the Authority in the Matter of Application of Foundation Solar Energy (Private) Limited for the Grant of Generation Licence

February 12th, 2024
Case No. LAG-527

(A). Filing of Application

(i). Foundation Solar Energy (Private) Limited (FSEPL) submitted an application on October 14, 2022 for the grant of generation licence in terms of Section-14B of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "NEPRA Act").

(ii). The Registrar examined the submitted application and observed certain discrepancies in the same in terms of the NEPRA (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 (the "Licensing Regulations") and directed FSEPL to submit the missing information/documents. FSEPL provided the said requisite information/ documents on November 03, 2022 and subsequently the Registrar submitted the case for the consideration of the Authority to decide about the Registration of the application or otherwise. The Authority considered the matter in its Regulatory Meeting held on December 19, 2022 and found the same in compliance with Licensing Regulations and decided to register the application.

(iii). Further to the above, the Authority decided to hold a hearing with FSEPL and other relevant stakeholders to deliberate the requirements of the Eligibility Criteria for the Electric Power Supply and Distribution Licences under the newly notified relevant regulations.

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(B). Holding of Hearing

(i). In consideration of the above, the "Issues" for the proposed hearing with stakeholders were framed which included (a). the experience of the FSEPL in the power sector and projects of a similar nature that it has executed (in MW); (b). processing of application for Generation Licence viz a viz the cessation as per Section-14B of NEPRA Act; (c). location of the generation facility and Bulk Power Consumer (BPC); (d). fulfilment of the criteria for BPC as laid down in the NEPRA Act; (e). Is the BPC(s) a consumer of the Utility/DISCO(s)? (f). will BPC continue to take supply from the utility/DISCO or otherwise? (g). will BPC give one (01) year prior notice to DISCO(s) if it plans to stop purchasing electricity? (h). Does BPC fulfill the criteria laid down in the relevant Eligibility Criteria Regulations?

(ii). Accordingly, the hearing in the matter was held on February 15, 2023 wherein the representatives of FSEPL and other stakeholders including Gujranwala Electric Power Company Limited (GEPCO) and Lahore Electric Supply Company Limited (LESCO) participated physically as well as virtually. During the meeting, the representatives of FSEPL expressed in detail the similar projects with a cumulative capacity of more than 25.00 MW that the company has executed during the last nine (09) years. FSEPL in explicit terms submitted that it is bound to follow the regulatory framework and the application for the grant of generation licence has been submitted in line with the same. Therefore, the Authority may process the same and any leftover or subsequent requirement arising out of the generation licence will be fulfilled later.

(C). Processing of Application

(i). In consideration of the above, the Authority considered the matter and decided to proceed further in the matter as stipulated in the Licensing Regulations. Accordingly, the Registrar published a notice of the submitted

application in different newspapers [i.e. in one (01) Urdu and one (01) English newspapers on April 21, 2023, containing a brief/summary of the particulars of the project for which licence has been sought, inviting the general public to submit their comments in the matter.

(ii). In addition to the above, the Registrar also sent letters on April 27, 2023 to different stakeholders including but not limited to Govt. Ministries, their attached departments, various authorities/corporations/companies and different representative organizations, soliciting/seeking their views and comments for the assistance of the Authority in the matter in terms of the provisions of the Licensing Regulations.

(D). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from one (01) stakeholder only i.e. Board of Investment (BoI). The salient points of the comments offered by stakeholder are summarized below: -

(a). BoI expressed that it understands that affordable and smooth supply of energy is the backbone for industrial growth in the country. Energy sector is one of the priority sectors of the Government to cater the shortfall of electricity in the country. The grant of generation licence to FSEPL is a purely technical matter therefore, the Authority may proceed further in the matter as per law/rules in vogue.

(ii). The Authority considered the above comments of the stakeholders and in view of the positive observations made, considered it appropriate to process the application for consideration of the grant of generation licence as stipulated in the Licensing Regulations and the NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules").

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(E). Observations/Findings

(i). The Authority considered/examined the submissions of FSEPL including the information provided with its application, comments of the stakeholder and the relevant rules & regulations in the matter. The observations in the matter are explained in the following paragraphs.

(ii). The Authority has observed that the applicant i.e. FSEPL is an entity incorporated under Section-32 of the Companies Ordinance, 1984 (XL VII of 1984), having Corporate Universal Identification No. 0089959, dated September 19, 2014. It is a private limited company with the principal line of business to generate and sell electricity and to carry on all or any ancillary businesses relating to the generation, production, sale, storage, supply and distribution of electricity and to provide such services as associated with or required for the said business activities and completion installation of projects of generation and sale of electricity. Further, the Memorandum of Association (MoA) also envisages to perform all other acts that are necessary or incidental to the business of electricity generation, installation, storage, transmission, distribution, supply and sale subject to permission of concerned authorities. Also, the MoA envisages to establish, construct, install the equipment, operate, use, manage and maintain electricity generation power plants of all types and capacities subject to permission of the relevant authorities.

(iii). The Authority has observed that the applicant company i.e. FSEPL is a group company of the Fauji Foundation (FF) which is a conglomerate active in fertilizer, cement, food, power generation, gas exploration, LPG marketing and distribution, financial services and security services for the past more than seven (07) decades and has built up a good portfolio across the said sectors. In this regard, FF to play its active part in the development of Renewable Energy (RE) technologies incorporated a separate SPV in 2014 as explained above. During the past almost ten (10) years has

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gained rich experience specifically in the installation and operation of RE projects pertaining to PV solar projects with more than 10.00 MW capacity already operational. The company has gained good and sufficient experience in providing adaptable turnkey PV solar energy solutions that enable the customers to generate clean, affordable energy, with low maintenance, tailored to the needs of the project and environment. Further, the company/FSEPL has also gained good repute as an Engineering, Procurement and Construction (EPC) contractor, providing turnkey solutions for the development of highly customized solar PV energy solutions. Over the years, the company has built a solid network of local installers, distributors and maintenance partners across the country, which allows FSEPL to provide tailored solution(s) for each solar project. The company/FSEPL has got expertise to complete any RE project from the development to securing financial solutions. In view of the said, the Authority considers that FSEPL has the required financial and technical capabilities to implement the project.

(iv). The Authority has observed that FSEPL through its current application is pursuing a Generation Licence for setting up a PV based generation facility of 1.002MW$_P$ to be located within the premises of MES/Nowshera Cantonment, located at district Nowshera in the province of Khyber Pakhtunkhwa. In consideration of the said, the Authority observes that FSEPL plans on supplying to the aforementioned entity/MES/Nowshera Cantonment as BPC through cable(s) located on private property owned by the BPC. According to the submitted information, the total cost of the project will be about U.S. $ 0.667 million which will be financed through a combination of Debt (80% of the Total Cost of project-U.S. $ 0.533 million) and Equity (20% of the Total Cost of project-U.S. $ 0.134 million). In this regard, FSEPL has taken up the matter with different banks/lending institutions and there is an interest for the same.

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(v). The sponsor carried out a feasibility study of the project including *inter alia*, solar power plant equipment details, PV-sitting details, power production estimates based on solar irradiation data of the project sites, soil tests reports, technical details pertaining to selected photovoltaic (PV) cells and other allied equipment to be used in the solar power plant, electrical studies, environmental study and project financing etc. The review of the feasibility study reveals that for the proposed location to achieve the capacity of 1.002 MW_P the company will be installing 1856 PV modules/panels/cells each of 540 Watt. In consideration of the said, it is clarified that the company plans to install PV pancels from Tier-I manufacturers including Jinko Solar, JA Solar, Trina Solar, Renesola or LONGI. It is pertinent to mention that the company has confirmed that the deal for purchase of PV Cells of TSM-DE19-540W with Trina Solar has been locked and the manufacturer has assured an average capacity factor of 16.70%.

(vi). The Authority has considered the submissions of FSEPL and has observed that the supply from proposed generation facility will be supplied to a BPC in the name of MES/ Nowshera Cantonment as explained in the preceding paragraphs. According to the system study of the project, the dispersal to the BPC will be made at 6.30 KV or 11KV through cables located/placed on the private property owned by the BPC not involving any public or third party. In this regard, it is pertinent to mention that BPC is a defined term as stipulated in Section-2 (ii) of the NEPRA Act. According to the said, a BPC is a consumer which purchases or receives electric power, at one premises, in an amount of one megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may specify and the Authority may specify different amounts and voltage levels and with such other characteristics for different areas. In terms of Section-2 (xxva) of the NEPRA Act, the term "specified" means specified by regulations made by the Authority under the NEPRA Act. It is pertinent to mention that the relevant regulations in this regard are still under formation and in the absence of the same the Authority has been

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allowing even less than 1.00 MW to be treated as BPC therefore, the load of the above mentioned entity explained in the preceding Paras can be considered as BPC.

(vii). Further to the above, Section-2(v) of the NEPRA Act defines the term "Distribution" wherein the ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power to the person owning, operating, managing and controlling those facilities or to tenants thereof is not included in the definition of "distribution". As explained above, the facilities to be used for the delivery of electric power to the above BPC are located on private property (without involving any public property or any third party) and will be owned, operated, managed and controlled by the BPC therefore, the supply of electric power to MES/Nowshera Cantonment by FSEPL does not constitute a distribution activity under the NEPRA Act, and a distribution licence will not be required by the company.

(viii). Further, the Authority has also considered the submissions of FSEPL that necessary due diligence has been completed and there will be no environmental impact of the proposed arrangement as PV cells/panels will be utilizing only the existing infrastructure of Roof Top of buildings. In this regard, FSEPL has confirmed that it will comply with the concerned environmental standards. In view of the said, the Authority considers that FSEPL is made obligatory to comply with the relevant environmental standards for which a separate article will be included in the proposed Generation Licence.

(ix). The grant of Generation Licence is governed by the provisions of Rule-3 of the Generation Rules. The Authority has observed that FSEPL has provided the details of the proposed generation facility about (a). location; (b). size; (c). technology; (d). interconnection arrangement; (e). technical limits; (f). technical functional specification and (g). other specific/relevant details as

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stipulated in Rule-3 (1) of the Generation Rules. According to Rule-3(5) of the Generation Rules, the Authority may refuse to issue a generation licence where the site, technology, design, fuel, tariff or other relevant matters pertaining to the proposed generation facility/solar power plant/Roof Top Solar proposed in an application for a generation licence are either not suitable on environmental grounds or do not satisfy the Least Cost Option Criteria (LCOC). In this regard, Rule-3(5) of the Generation Rules stipulates the conditions pertaining to LCOC which includes (a). sustainable development or optimum utilization of the RE or non-RE resources proposed for the generation of electric power; (b). the availability of indigenous fuel and other resources; (c). the comparative costs of the construction, operation and maintenance of the proposed generation facility/solar power plant/Roof Top Solar against the preferences indicated by the Authority; (d). the cost and right-of-way considerations related to the provision of transmission and interconnection facilities; (e). the constraints on the transmission system likely to result from the proposed generation facility/Solar Power Plant and the costs of the transmission system expansion required to remove such constraints; (f). the short-term and the long-term forecasts for additional capacity requirements; (g). the tariff resulting or likely to result from the construction or operation of the proposed generation facility/solar power plant/Roof Top Solar; and (h). the optimum utilization of various sites in the context of both the short-term and the long-term requirements of the electric power industry as a whole.

(x). In view of the above, the Authority considers that the proposal of FSEPL for installing PV based generation facility will result in optimum utilization of the RE which is currently untapped, resulting in pollution free electric power. It is pertinent to mention that solar is an indigenous resource and such resources should be given preference for energy security. As explained in the preceding paragraphs above, the company will be supplying electric power to BPC(s) directly which only involves laying small feeder(s), this concludes that the project will not face any constraints in the transmission of electric power. Further, being

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located in the same vicinity as that of the BPC, the project will not result in cost and right-of-way issues for the provision of interconnection facilities. In view of the said, the Authority considers that the project of FSEPL fulfills the eligibility criteria for the grant of the Generation Licence as stipulated in the NEPRA Act, rules and regulations and other applicable documents.

(F). Grant of Licence

(i). The Authority considers that sustainable and affordable energy/electricity is a key prerequisite for the socio-economic development of any country. In fact, the economic growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of energy/electricity. In view of the said, the Authority is of the considered opinion that for sustainable development, all indigenous power generation resources especially RE must be developed on a priority basis.

(ii). The Authority observes that the existing energy mix of the country is heavily skewed towards thermal power plants, mainly operating on imported fossil fuels. The continuous import of fossil fuels not only creates pressure on the precious foreign exchange reserves of the country but is also an environmental concern. Therefore, in order to achieve sustainable development, it is imperative that indigenous resources especially RE, are given priority for power generation and their development is encouraged. The Authority is really encouraged to observe that with each passing day, the cost of RE technologies is showing a downward trend making the same affordable for commercial use. The Authority is also encouraged to observe that the GoP is planning to enhance the share of RE from its current level of 5% to 30% of the total installed capacity by 2030. Furthermore, a number of initiatives are also being undertaken in the private sector in this regard.

(iii). The Authority has observed that in the current case, FSEPL has approached for the grant of Generation Licence for setting up a PV based

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generation facility with a cumulative installed capacity of 1.002 MW_P for supplying to MES/Nowshera Cantonment /BPC(s) which is also an existing consumer of the local utility i.e. PESCO. The Authority considers that the above proposal of FSEPL is in line with the provisions of the NEPRA Act, relevant rules and regulations framed thereunder and vision of the GoP to enhance the contribution of RE in generation mix. The project will not only help FSEPL in diversifying its portfolio but will also enhance the energy security of MES/Nowshera Cantonment/BPC. Further, the project will also help in reducing carbon emissions by generating clean electricity, thus improving the environment.

(iv). As explained above, FSEPL has provided the details of location, technology, size, net capacity/energy yield, interconnection arrangements, technical details and other related information for the proposed PV based generation facility/solar power plant. In this regard, the Authority has observed that sponsors of the project have acquired/available with them the required premises/space for setting up the distinct PV based generation facilities and the same are being incorporated in the Generation Licence.

(v). The Authority has observed that the proposed generation facility of FSEPL will be used for supplying to a BPC. According to Section-2(ii) of the NEPRA Act, a consumer which purchases or receives electric power at one premises, in an amount of one megawatt or more or in such amount and voltage level and with such characteristics as the Authority may determine/specify is treated as BPC. It is pertinent to mention that the relevant regulations in this regard are still under formulation and in the absence of the same the Authority has been allowing even amount of less than 1.00 MW to be treated as BPC therefore, the Authority allows the above mentioned entity/MES/Nowshera Cantonment as explained in the preceding Paras to be BPC of FSEPL.

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(vi). Regarding supply to the BPC, the Authority observes that the BPC and the proposed generation facilities of FSEPL are located within the same premises and the BPC will be supplied through underground/overhead cable/feeder of 6.30 KV or 11KV. Pursuant to the proviso to Section-21 of the NEPRA Act, the Authority is empowered to allow a generation company to sell electric power to a BPC located in the service territory of a distribution company. In view of the said, the Authority allows the FSEPL to sell electricity to BPC subject to obtaining Electric Power Supply Licence under Section-23E of the NEPRA Act. Further, under Section-2(v) of the NEPRA Act, ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power to the person owning, operating, managing and controlling those facilities or to tenants thereof has not been included in the definition of "distribution". Based on the said considerations that the proposed BPC is located within the same premises and no public or third party properties are involved, the supply of power to BPC by FSEPL does not constitute a distribution activity under the NEPRA Act, and FSEPL will not require a distribution licence for delivering to the BPC.

(vii). The term of a Generation Licence under Rule-5(1) of the Generation Rules is required to match the maximum expected useful life of the units comprised in a generating facility. According to the information provided by FSEPL, the Commercial Operation Date (COD) of the proposed generation facility/solar power plant/Roof Top Solar will be February 29, 2024 and it will have a useful life of around twenty five (25) years from its COD. In this regard, FSEPL has requested that the term of the proposed Generation Licence may be fixed as per the said useful life of generation facility/solar power plant/Roof Top Solar. The Authority considers that said submission of FSEPL about the useful life of the generation facility/solar power plant/Roof Top Solar and the subsequent request of FSEPL to fix the term of the generation licence is consistent with international benchmarks; therefore, the Authority fixes the term

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of the generation licence to twenty five (25) years from COD of the project subject to Section-14B(5) of the NEPRA Act.

(viii). Regarding compliance with the environmental standards, FSEPL has confirmed that it will comply with the required standards during the term of the Generation Licence. In view of the importance of the issue, the Authority has decided to include a separate article in the Generation Licence along with other terms and conditions making it obligatory for FSEPL to comply with relevant environmental standards at all times.

(ix). Regarding the rates, charges and terms and conditions of tariff between FSEPL and its BPC, it is reiterated that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. However, the Authority observes that the tariff between FSEPL and its BPC, does not affect any other consumer or third party. Therefore for the purpose of tariff, the Authority considers it appropriate to direct FSEPL and its BPC to agree on a bilateral agreement and accordingly FSEPL will be allowed to charge the agreed tariff subsequent to the grant of the Generation Licence and Electric Power Supply Licence.

(x). In consideration of the above, the Authority hereby approves the grant of Generation Licence to FSEPL on the terms and conditions set out in the generation licence annexed to this determination. The grant of Generation Licence will be subject to the provisions contained in the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents. The grant/approval is restricted to the generation of electric power from the generation facility of FSEPL and not for sale supply of electric power to the BPC. In order to supply to BPC the Authority further directs FSEPL to apply for the Electric Supplier Licence under Section-23E of the NEPRA Act within a period ninety (90) days of this determination.

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Authority:

Engr. Maqsood Anwar Khan
(Member)

Engr. Rafique Ahmed Shaikh
(Member)

Engr. Mathar Niaz Rana
(Member)

Ms. Amina Ahmed
(Member)

Engr. Waseem Mukhtar
(Chairman)

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22/02/24

National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION LICENCE
No. SGC/175/2024

In exercise of the powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section-14(B) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, as amended or replaced from time to time, the Authority hereby grants a Generation Licence to:

FOUNDATION SOLAR ENERGY (PRIVATE) LIMITED

Incorporated under Section-32 of
the Companies Ordinance, 1984 (XLVII of 1984) having Corporate Universal Identification No. 0089959, dated September 19, 2014

for its PV based Generation Facility/Solar Power Plant/Roof Top Solar located at Nowshera Cantonment Nowshera, Tehsil & District Nowshera in the province of Khyber Pakhtunkhwa

(Installed Capacity: ≈ 1.00 MW_P)

to engage in generation business subject to and in accordance with the Articles of this Licence.

Given under my hand on 12th day of February Two Thousand & Twenty Four and expires on 28th day of February Two Thousand & Forty-Nine

Registrar

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Article-1
Definitions

1.1 In this Licence

(a). "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, as amended or replaced from time to time;

(b). "Applicable Documents" mean the Act, the rules and regulations framed by the Authority under the Act, any documents or instruments issued or determinations made by the Authority under any of the foregoing or pursuant to the exercise of its powers under the Act, the Grid Code, the applicable Distribution Code, the Commercial Code if any, or the documents or instruments made by the Licensee pursuant to its generation licence, in each case of a binding nature applicable to the Licensee or, where applicable, to its affiliates and to which the Licensee or any of its affiliates may be subject;

(c). "Applicable Law" means all the Applicable Documents;

(d). "Authority" means the National Electric Power Regulatory Authority constituted under Section-3 of the Act;

(e). "Bulk Power Consumer (BPC)" means a consumer which purchases or receives electric power, at one premises, in an amount of one (01) megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may specify and the Authority may specify different amounts and voltage levels and with such other characteristics for different areas;

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(f). "Bus Bar" means a system of conductors in the generation facility/Solar Power Plant/Roof Top Solar of the Licensee on which the electric power from all the photovoltaic cells is collected

for supplying to the Power Purchaser;

(g). "Commercial Code" means the commercial code prepared under the National Electric Power Regulatory Authority (Market Operator, Registration, Standards and Procedure) Rules, 2015 as amended or replaced from time to time;

(h). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility/Solar Power Plant/Roof Top Solar of the Licensee is Commissioned;

(i). "Commissioned" means the successful completion of commissioning of the generation facility/Solar Power Plant/Roof Top Solar for continuous operation and despatch to the Power Purchaser;

(j). "Distribution Code" means the distribution code prepared by the concerned XW-DISCO and approved by the Authority, as may be revised from time to time with necessary approval of the Authority;

(k). "Energy Purchase Agreement-EPA" means the energy purchase agreement, entered or to be entered into by and between the Power Purchaser and the Licensee, for the purchase and sale of electric energy generated by the generation facility/Solar Power Plant/ Roof Top Solar, as may be amended by the parties thereto from time to time;

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(l). "Generation Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 as amended or replaced from time to time;

(m). "Grid Code" means the grid code prepared and revised from time to time by NTDC with necessary approval of the Authority;

(n). "Licence" means this licence granted to the Licensee for its

generation facility/Roof Top Solar;

(o). "Licensee" means **Foundation Solar Energy (Private) Limited** or its successors or permitted assigns;

(p). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 as amended or replaced from time to time;

(q). "Net Delivered Energy" means the net electric energy expressed in kWh that is generated by the generation facility/Solar Power Plant/Roof Top Solar of the Licensee at its outgoing Bus Bar and delivered to the Power Purchaser;

(r). "Power Purchaser" means the BPC which will be purchasing electric power from the Licensee, pursuant to a EPA for procurement of electric power;

(s). "Roof Top Solar" means a cluster of photovoltaic cells/panels installed on the roof top of a building or any other suitable place in the same location used for production of electric power";

(t). "XW-DISCO" means an Ex-WAPDA distribution company engaged in the distribution of electric power".

1.2 The words and expressions used but not defined herein bear the meaning given thereto in the Act or rules and regulations issued under the Act.

Article-2
Applicability of Law

This Licence is issued subject to the provisions of the Applicable Law, as amended or replaced from time to time.

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Article-3
Generation Facilities

3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facility/Solar Power Plant or Solar Farm of the Licensee are set out in Schedule-I of this Licence.

3.2 The net capacity/Net Delivered Energy of the generation facility/Solar Power Plant or Solar Farm of the Licensee is set out in Schedule-II of this Licence. The Licensee shall provide the final arrangement, technical and financial specifications and other specific details pertaining to its generation facility/Solar Power Plant or Roof Top Solar before it is Commissioned.

Article-4
Term of Licence

4.1 This Licence shall become effective from the date of its issuance and will have a term of twenty five (25) years from the COD of the generation facility/Solar Power Plant or Solar Farm, subject to the provisions of Section-14(B) of the Act.

4.2 Unless suspended or revoked earlier, the Licensee may apply for renewal of this Licence ninety (90) days prior to the expiry of the above term, as stipulated in the Generation Rules read with the Licensing Regulations.

Article-5
Licence fee

The Licensee shall pay to the Authority the Licence fee as stipulated in National Electric Power Regulatory Authority (Fees) Regulation, 2021 as amended or replaced from time to time.

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Article-6
Tariff

The Licensee is allowed to charge the Power Purchaser/BPC a mutually agreed tariff.

Article-7
Competitive Trading Arrangement

7.1 The Licensee shall participate in such manner as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement.

7.2 The Licensee shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority. Provided that any such participation shall be subject to any contract entered into between the Licensee and another party with the approval of the Authority.

7.3 Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

Article-8
Maintenance of Records

For the purpose of sub-rule (1) of Rule-19 of the Generation Rules, copies of records and data shall be retained in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

Article-9
Compliance with Performance Standards

The Licensee shall comply with the relevant provisions of the National Electric Power Regulatory Authority Performance Standards (Generation) Rules 2009 as amended or replaced from time to time.

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Article-10
Compliance with Environmental & Safety Standards

10.1 The generation facility/Solar Power Plant or Solar Farm of the Licensee shall comply with the environmental and safety standards as may be prescribed by the relevant competent authority as amended or replaced from time to time.

10.2 The Licensee shall provide a certificate on a bi-annual basis, confirming that the operation of its generation facility/Solar Power Plant or Solar Farm is in conformity with required environmental standards as prescribed by the relevant competent authority as amended or replaced from time to time.

Article-11
Power off take Point and Voltage

The Licensee shall deliver the electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility/Solar Power Plant or Solar Farm. The Licensee shall be responsible for the up-gradation (step up) of generation voltage up to the required dispersal voltage level.

Article-12
Provision of Information

In accordance with provisions of Section-44 of the Act, the Licensee shall be obligated to provide the required information in any form as desired by the Authority without any exception.

Article-13
Compliance with Applicable Law

The Licensee shall comply with the provisions of the Applicable Law, guidelines, directions and prohibitory orders of the Authority as issued from time

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to time.

Article-14
Corporate Social Responsibility

The Licensee shall provide the descriptive as well as monetary disclosure of its activities pertaining to corporate social responsibility (CSR) on an annual basis.

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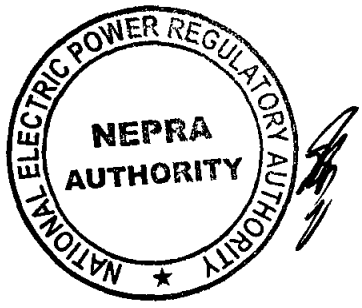
SCHEDULE-I

The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule.



Location of the Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee

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Land Coordinates of the Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee

Sr.No.	Location	Site Coordinates		
1.	Nowshera Cantonment Nowshera	Latitude	34.0051282 N	34.0044517 N
		Longitude	72.0007791 E	71.9935574 E

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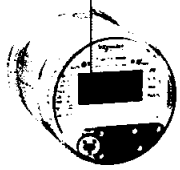
Process Flow Diagram of the Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee

PV Module

INVERTER



Electrical Meter

Existing Cantt Load

Main 11KVA MV Panel

DEDICATED 11KV Grid Line

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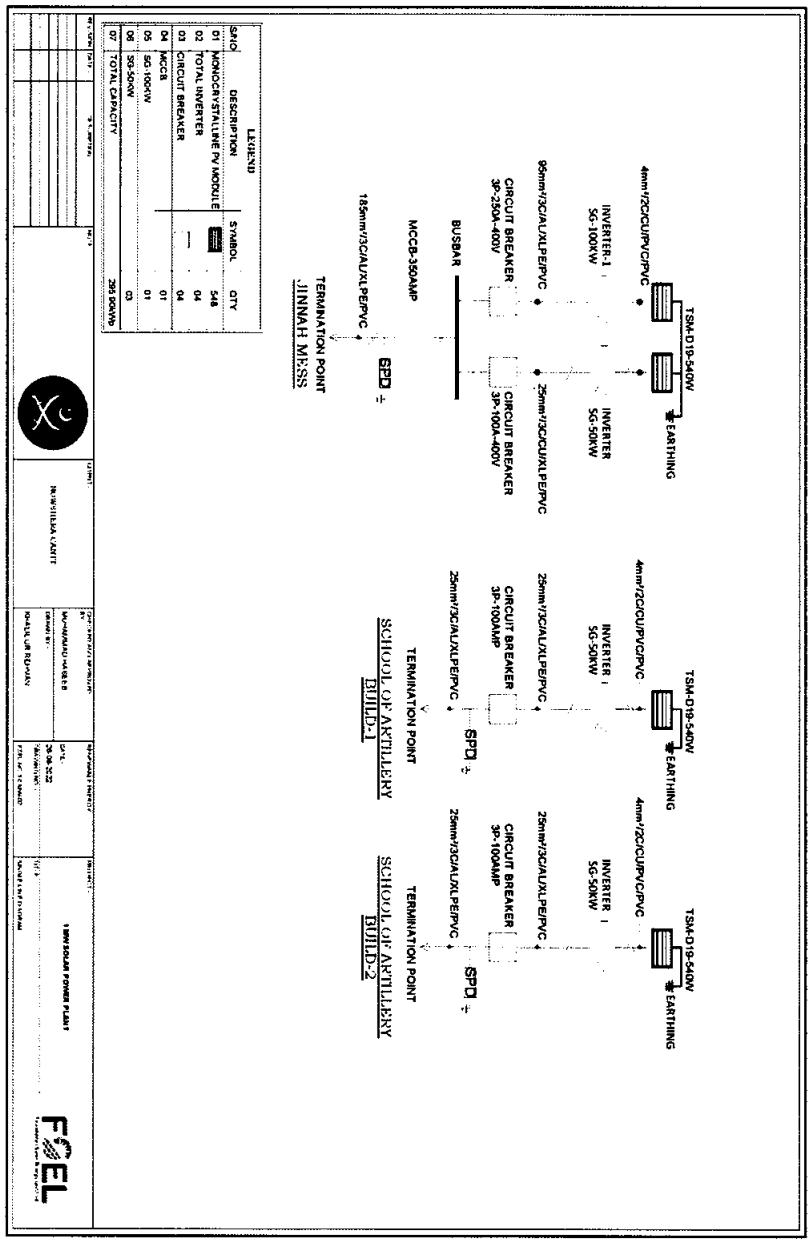
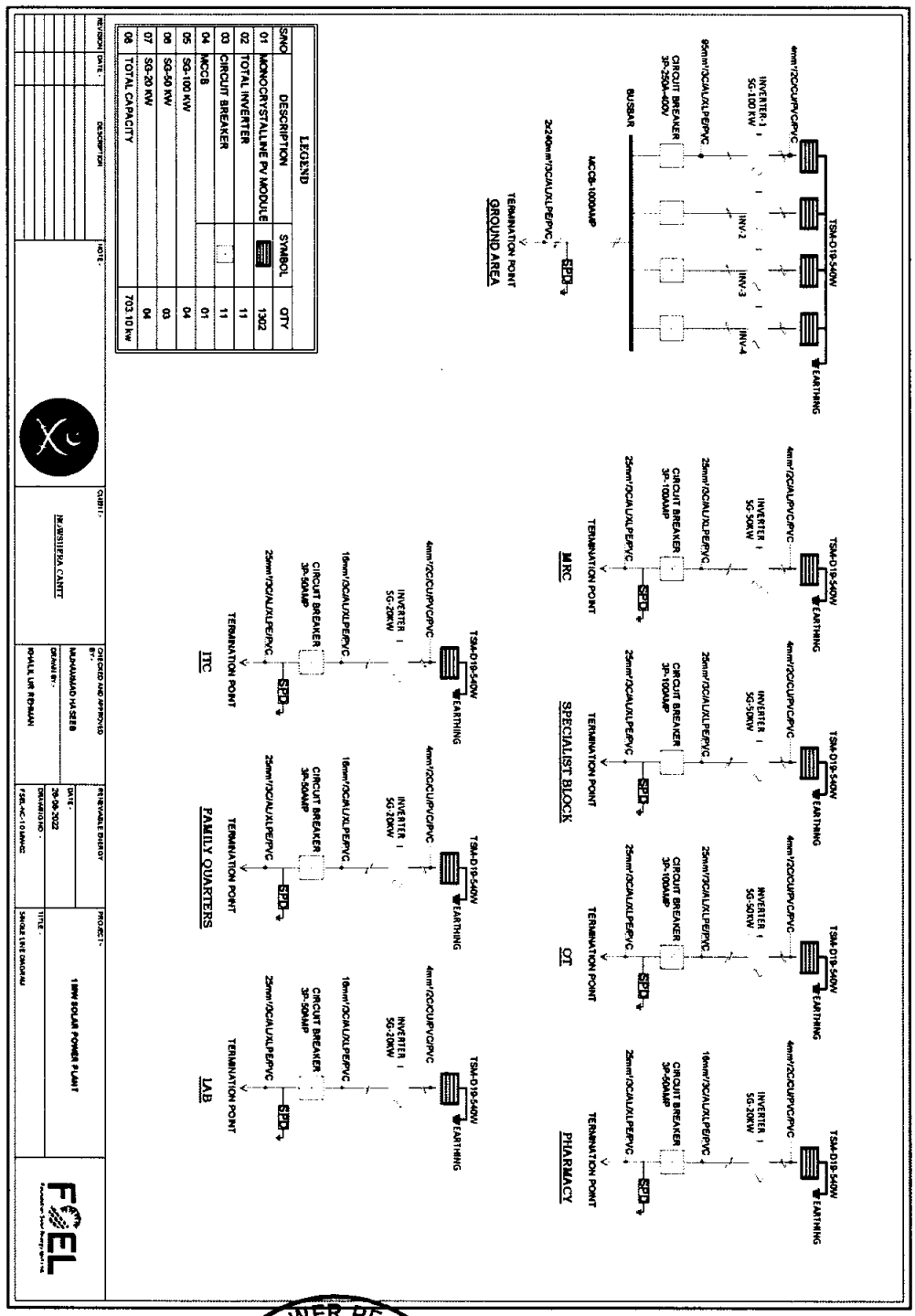
Single Line Diagram of the Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee



Single Line Diagram of the Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee



Interconnection Arrangement/Transmission Facilities for Dispersal of Power from the Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee

The electric power generated from the generation facility/Solar Power Plant/Solar Farm of the Foundation Solar Energy (Private) Limited-FSEPL/Licensee will be delivered/supplied to Nowshehra Cantonment as a Bulk Power Consumer (BPC).

(2). The details pertaining to BPC, the supply arrangements and other relating information are provided in the subsequent description of this schedule. Any changes in the said, shall be communicated to the Authority in due course of time.

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Details of Generation Facility/Solar Power Plant/ Solar Farm

(A). General Information

(i).	Name of the Company/Licensee	Foundation Solar Energy (Private) Limited
(ii).	Registered/ Business office of the Company/Licensee	Building No 143B, Street 12, Chaklala scheme 3, Rawalpindi.
(iii).	Type of the generation facility/Solar Power Plant/Solar Farm	Photovoltaic (PV) Cell
(iv).	Location(s) of the generation facility Solar Power Plant/ Solar Farm	Nowshera Cantonment Nowshera, Tehsil & District Nowshera in the province of Khyber Pakhtunkhwa

(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photovoltaic (PV) Cell	
(ii).	System Type	On-Grid	
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Ground and rooftop Mount Solar	≈1.00 MW_P	
(iv).	No. of Panel/Modules	1850 x 540 Watt	
(v).	PV Array	Nos. of Strings	43x24 35x22
		Modules in a string	24 & 22
(vi).	Invertor(s)	Quantity	15
		Make	Sungrow
		Capacity of each unit	100 KW 50 KW 20 KW

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(C). TECHNICAL DETAILS OF EQUIPMENT

(a).	Solar Panels - PV Modules	
(i).	Type of Module	Trina Solar TSM-DE19-540W
(ii).	Type of Cell	Mono crystalline
(iii).	Dimension of each Module	2384 mm x 1096 mm x 35 mm
(iv).	Total Module Area	2.612 m^2
(v).	Frame of Panel	Anodized aluminum alloy
(vi).	Weight of one Module	28.6 kg
(vii).	No of Solar Cells in each module	110 cells
(viii).	Efficiency of module	21.2%
(ix).	Maximum Power (Pmax)	540 Wp
(x).	Voltage @ Pmax	31.2 V
(xi).	Current @ Pmax	17.33 A
(xii).	Open circuit voltage (V_{oc})	37.5 V
(xiii).	Short circuit current (I_{sc})	18.41 A
(xiv).	Maximum system open circuit voltage	1500V DC (IEC)

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(B).	Inverters		
(i).	Type of Module	100 KW (5) 50 KW (6) 20 KW (4)	
(ii).	Type of Cell	SG250HX SG50HX SG20HX	
(iii).	Input Operating Voltage Range	500 V to 1500 V	
(iv).	Efficiency of inverter	99 %	
(v).	Max. Input voltage	1500V	
(VI).	Max. Short Circuit Current per MPPT	Dc 50A	
(viii).	Output electrical system	3 Phase AC	
(ix).	Rated Output Voltage	800 V	
(x).	Power Factor (adjustable)	0.99 / 0.8 leading – 0.8 lagging	
(xi).	Power control	MPP tracker	
(xii).	Rated Frequency	50 Hz	
(xiii).	Environmental Enclosures	Relative Humidity	0-100% non-condensing
		Audible Noise	50 DB @ 1m
		Operating Elevation	4000 m
		Operating temperature	-30 to +60°C

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(xiv).	Grid Operating protection	A	DC Fuses
		B	AC circuit breaker
		C	DC overload protection (Type 2)
		D	Overheat protection
		E	Grid monitoring
		F	Insulation monitoring
		G	Ground fault monitoring
(c).	Data Collecting System		
(i).	System Data	Continuous online logging with data logging software to portal.	

(D). Other Details

(i).	Expected COD of the generation facility Solar Power Plant/ Roof Top Solar	February 29, 2024
(ii).	Expected useful Life of the generation facility/Solar Power Plant/Roof Top Solar from the COD	25 years

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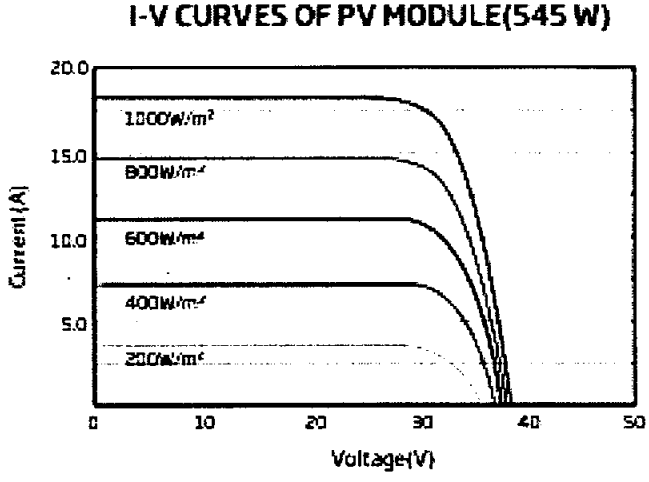
V-I Curve
Generation Facility/Solar Power Plant/Roof Top Solar of the Licensee

Back View



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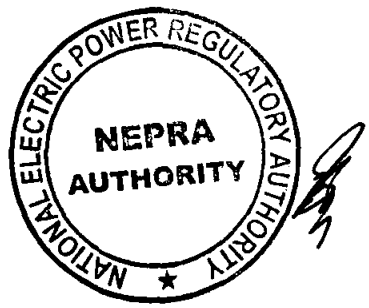
SCHEDULE-II

The Total Installed Gross ISO Capacity of the Generation Facility/Power Plant/Solar Plant (MW), Total Annual Full Load (Hours), Average Sun Availability, Total Gross Generation of the Generation Facility/Solar Farm (in kWh), Annual Energy Generation (25 years Equivalent Net Annual Production-AEP) KWh and Net Capacity Factor of the Generation Facility/Solar Farm of Licensee are given in this Schedule.



SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm	≈1.00 MW_P
(2).	Average Sun Hour Availability/ Day (Irradiation on Inclined Surface)	5 to 5.5 Hours
(3).	No. of days per year	365
(4).	Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation)	1385 MWh
(5).	Total (approximated) expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the twenty five (25) years term of this licence	34,625 MWh
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	8720 MWh
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	16.70%

Note

All the above figures are indicative as provided by the Licensee. The Net Delivered Energy available to Power Purchaser for dispatch will be determined through procedures contained in the Energy Purchase Agreement (EPA) or the Applicable Document(s).

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