



National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/R/LAG-516/14611-18

July 29, 2022

Mr. Murtazain Nasser

Director

G Solar Power (Private) Limited

13-C, Ittehad Commercial Lane 7

DHA Phase-VI, Karachi

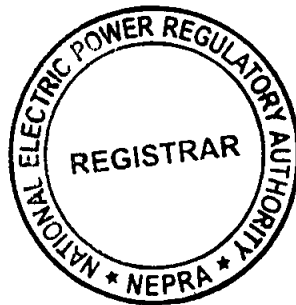
**Subject: Grant of Generation Licence No. SGC/171/2022
Licence Application No. LAG-516
GSOLAR Power (Private) Limited (GSPPL)**

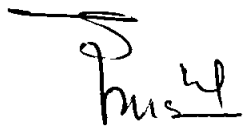
Reference: Your letter No. nil dated 27.10.2020

Enclosed please find herewith Determination of the Authority in the matter of application of GSOLAR Power (Private) Limited (GSPPL) for the grant of generation licence along with Generation Licence No. SGC/171/2022 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to GSPPL for its 4.793 MWp solar based generation located at Crescent Bahuman Limited, Mauza Bahuman, Tehsil Pindi Bhattian, District Hafizabad in the province of Punjab, pursuant to Section-14(B) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (NEPRA Amended Act).

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

Enclosure: As Above




29 07 22
(Syed Safeer Hussain)

Copy to:

1. Secretary, Power Division, Ministry of Energy, 'A' Block, Pak Secretariat, Islamabad
2. Secretary, Ministry of Science & Technology, Government of Pakistan, Evacuee Trust Building, G-5, Islamabad
3. Managing Director, NTDC, 414 WAPDA House, Lahore
4. Chief Executive Officer, CPPA(G), 73 West, A.K. Fazl-ul-Haq Rd, Blue Area, Islamabad
5. Chief Executive Officer, Alternative Energy Development Board (AEDB), 2nd Floor, OPF Building, G-5/2, Islamabad
6. Chief Executive Officer, Gujranwala Electric Power Company, 565-A Model Town, G. T. Road, Gujranwala
7. Director General, Environmental Protection Department, Government of the Punjab, National Hockey Stadium, Ferozpur Road, Lahore

National Electric Power Regulatory Authority
(NEPRA)

Determination of the Authority
in the Matter of Application of GSOLAR Power (Private)
Limited for the Grant of Generation Licence

July ²⁹, 2022
Case No. LAG-516

(A). Filing of Application

(i). GSOLAR Power (Private) Limited (GSPPL) submitted an application on September 10, 2021 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") read with the relevant provisions of the NEPRA Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 (the "Licensing Regulations").

(ii). The Registrar examined the submitted application and found that GSPPL had not submitted some of the essential documents/information as stipulated in Licensing Regulations. Accordingly, the Registrar directed GSPPL submitting the said documentation/information which it submitted on February 03, 2022 thus complying with the requirement of the Regulation-6(2) of the Licensing Regulations. Accordingly, the Registrar allocated Registration No. LAG-516 to the application of GSPPL and published in two daily newspapers [i.e. in one (01) Urdu and one (01) English newspapers] on February 18, 2022, 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 as stipulated in Regulation-7 of the Licensing Regulations.

(iii). In addition to the above, the Registrar sent letters on February 21, 2022 to different stakeholders including but not limited to Govt. Ministries, their attached departments and different representative organizations,

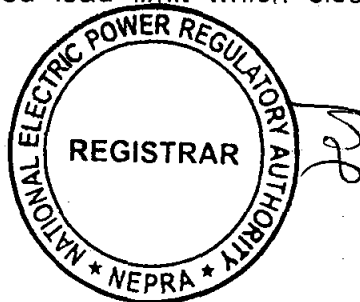


soliciting/seeking their views and comments for the assistance of the Authority in the matter, in terms of Regulation-8(2) of the Licensing Regulations.

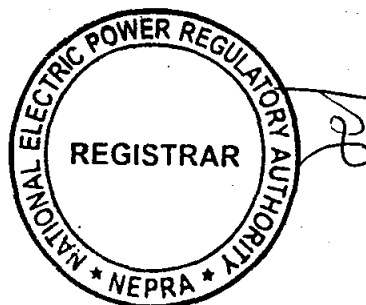
(B). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from three (03) stakeholders including Central Power Purchasing Agency (Guarantee) Limited (CPPAGL), Gujranwala Electric Power Company Limited (GEPCO) and Energy Wing Ministry of Planning, Development & Special Initiates (EWMoPD&SI). The salient points of the comments offered by stakeholders are summarized below: -

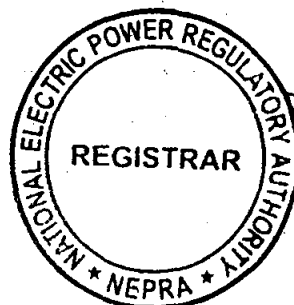
- (a). CPPAGL submitted that GSPPL is planning to set up a Photovoltaic (PV) cell based generation facility of approximately 4.79 MW_p for supplying/selling to Crescent Bahuman Limited (CBL), as its Bulk Power Consumer (BPC). As per the existing tariff structure for the end consumer, the major portion of fixed charge (Capacity, UoSC, MOF, DM) is being recovered through sale of energy to end consumers (i.e. Volumetric Charges). As a result, the more the number of units being sold, the less will be the per unit rate for the fixed capacity charges and vice versa. In the view of foregoing, it is requested that further comments in this matter may be obtained from relevant Distribution Company i.e. GEPCO, because CBL is currently its consumer;
- (b). GEPCO remarked that GSPPL has submitted two separate applications for the grant of generation licences for setting up two different generation facilities of approximately 4.79 MW_p and 1.93 MW_p at CBL as BPC which is its consumer with a sanctioned load of 4.85 MW under B-3 tariff. The actual consumption by the said consumer occasionally surpasses the sanctioned load limit which clearly indicates that the



project of GSPPL shall not only be located within the area already served by GEPCO but also that the project is neither for an unserved load nor for an unserved territory. In this regard, it is pertinent to mention that CBL has never approached GEPCO for insufficiency of supply, therefore, question of insufficient or unreliable supply from the utility does not arise. It is pertinent to mention that the said consumer has recently applied for extension of load for 16.00 MW with a net extension of 11.150 MW and in this regard, the site for grid station has been selected and the matter is in active progress. In view of the said, it is clear that the demand of the consumer is part of the Demand Forecast of GEPCO. In this regard, GEPCO is already committed with a sizeable Capacity Obligation which has in fact arisen from the demand of the consumers, including CBL. Further, based on the recently approved IGCEP, the existing installed capacity of approximately 35.00 GW shall rise to about 53.00 GW in the year 2030 excluding another 10.00 GW of candidate projects. The approximate share of GEPCO on the annual average is approximately 9.30% of the total generation capacity. A part of Capacity Obligation charge, as per tariff(s) approved/determined by the Authority and notified by the Government of Pakistan, is recovered through volumetric tariff Energy Charges. The position taken in each of the application of GSPPL for the grant of licences is not correct and is in fact misleading and deceptive for the fact that the total expected sale of electricity (both applications included) comes out to be 10.054 GWh (7.25 GWh + 2.804 GWh) as against annual electricity consumption of the above mentioned consumer as GSPPL is estimated 9.065GWh in the feasibility study of the project(s). The splitting of the two applications is to protect



false, misleading and deceptive information given in the applications. The said projects will result in an impact of Rs. 161.751 million (calculated @Rs.16.0883/kWh x 10.054 GWh) to the annual revenue (including a loss of Distribution Margin of Rs. 18.901 million @Rs. 1.88 x 10.054 GWh). The grant of licence to GSPPL will circumscribe the right of GEPCO to supply and sell electric power to CBL within its Service Territory and shall tantamount to put other retail regulated consumers of the utility to face higher tariffs or higher burden of subsidy on the and National Exchequer. The application of GSPPL is lacking vital information relating to the price agreed between the parties i.e. seller and the buyer. Therefore, in the name of transparency, healthy competition and abiding by the basic sense of CTBCM, the company may be directed to provide pricing details agreed. Further, the details of subsidies of Government involved in the project, have not been disclosed transparently and the company may be directed to provide the same. There are apparent contradictions within the application at paragraph 2.2.5, 3.1.2, 3.1.5 and 4.1.3. The projects are intended to work in grid-tied mode therefore, the vital studies including Load Flow, Short Circuit, Stability and Power Quality, are required to be conducted strictly in accordance with Grid Code and Distribution Code which are missing in the application of GSPPL. The company plans to make a fortune at the risks and costs of the Government of Pakistan, the customers of GEPCO and the utility itself. The above submissions provide that the application of GSPPL for the grant of licence, if allowed, shall be a classic example of inefficient investment to impair an already existing capacity investment and

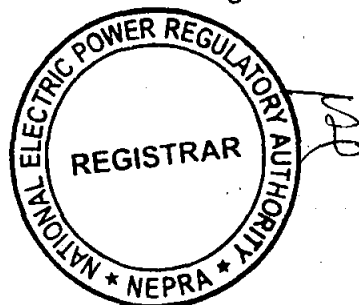


therefore, merits to be dismissed without any further consideration; and

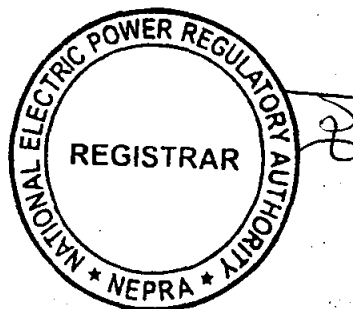
- (c). EWMoPD&SI expressed that the Authority may ensure that BPC/CBL has conveyed its intention in writing to stop purchase of electric power from the relevant Distribution Company (DISCO) and has given the required one year prior notice of stoppage of purchase from the utility as stipulated under Section-22 of the NEPRA Act.

(ii). The Authority considered the above comments and in view of the observations of CPPAGL, GEPCO and EWMoPD&SI, considered it appropriate to seek the perspective of GSPPL on the same. On the observations of CPPAGL, it was submitted that the purpose of installing this project is that the proposed BPC/CBL can avail the benefits of lower cost of generation which will only be a minor part of its consumption considering the fact that it is drawing a load to the tune of 4.80 MW from GEPCO whereas the proposed generation facility will have a capacity factor of around 17% therefore, the reduction in consumption will not be very significant and will not result in an appreciable quantum of reduction from the grid. Actually, any reduction in sale can easily be compensated by supplying to unserved consumers in the same vicinity where considerable connections are pending as revealed in a public hearing that the Authority held on April 19, 2022 involving GEPCO.

(iii). Regarding the comments of GEPCO, it was submitted that GSPPL has entered into an agreement for setting up a PV based solar generation facility of approximately 4.793 MWp at the premises of CBL, for supplying the generated energy to it as a BPC. It is matter of record that CBL is an existing consumer of GEPCO and the proposed generation facility will supplement its requirements from the grid/utility and the proposed arrangement is strictly in line with Section-22 of the NEPRA Act therefore, the question of unserved demand/load or territory does not arise. It is true that honourable Islamabad High Court (IHC) in its judgement



dated July 08, 2021 in WP No. 1592 of 2020 has held that during the term of the existing Distribution Licence for the DISCO(s), a generation company cannot supply to a BPC. However, it is pertinent to mention that exclusivity of GEPCO has already expired on April 22, 2022 and beyond that no such right can be granted according to the amendments made in the NEPRA Act in the year 2018. About the loss/decrease in sale of GEPCO, it is clarified that the proposed generation facility will have a capacity factor of around 17.00% therefore, there will only be a very insignificant impact on the sale of GEPCO and that the same can be compensated by electrifying other vast areas without power supply and supplying to new consumers for which there is a huge backlog as consumers are waiting for connections from GEPCO. In view of the said, the proposal of GSPPL will in fact allow GEPCO to expand its consumer base and there will ultimately be an increase in sales. The observation of GEPCO that GSPPL has deliberately divided the applications into two to avoid expected sale is not correct. In this regard, GSPPL will be developing two different generation facilities including 4.793 MW_p which is ground based whereas the other of 1.93 MW_p is roof top based. The engineering and design of both the applications are different therefore, GSPPL preferred submitting separate applications for both the arrangements. The observation of GEPCO that details of the tariff agreed between the parties may be provided is not tenable considering the fact that it is a B2B arrangement and the Authority has been allowing such arrangements in the past without going into the details of tariff. Also it is clarified that being a B2B arrangement, no subsidy or Govt. support is envisaged and therefore such details cannot be provided. GEPCO has mentioned about some inconsistencies in our application but the details of the same have not been provided and therefore the same cannot be commented on any further. The project will be connected to the lower side of the existing infrastructure/feeder from GEPCO and there will be no feedback to the system of GEPCO therefore the requirement of grid connectivity and interconnection studies do not arise. In view of the above, it is clear that submissions of GEPCO are not in line with the requirements of the NEPRA Act and therefore, the same may be rejected and the generation licence may be granted. Regarding the observations of EWMoPD&SI,



it was submitted that CBL will continue the supply from GEPCO therefore, the question of advance notice does not arise.

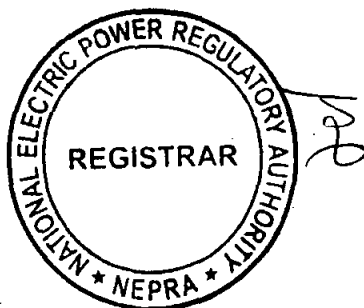
(iv). The Authority considered the above submissions and considered it appropriate to proceed further in the matter of the application of GSPPL for consideration of the grant of generation licence as stipulated in the Licensing Regulations and the Generation Rules.

(C). Evaluations/Findings

(i). The Authority examined the submissions of GSPPL including the information provided with its application for the grant of the generation licence, the comments of the stakeholders, rejoinder submitted by the company/applicant/GSPPL and the relevant rules & regulations in the matter.

(ii). The Authority has observed that the applicant i.e. GSPPL is an entity incorporated under Section-16 of the Companies Act, 2017 (XIX of 2017), having Corporate Universal Identification No. 0181198 dated August 06, 2021. 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 generation, production, sale, storage, supply and distribution of electricity and to provide such services as are 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 which are necessary or incidental to the business of electricity generation, installation, storage, transmission, distribution, supply and sale subject to permission of the concerned authorities. Also the MoA envisages to establish, construct, install, equip, operate, use, manage and maintain electricity generation/power plants of all types and capacities subject to permission of the relevant authorities.

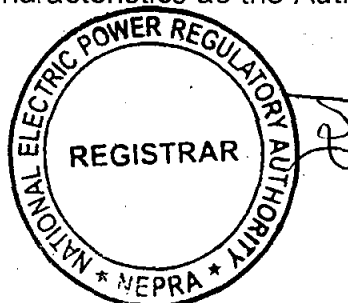
(iii). The Authority has observed that GSPPL through its current application is pursuing a generation licence for setting up a PV-based generation facility of about 4.793 MW_P at CBL located at Pindi Bhattian, district Hafizabad, in



the province of Punjab. In consideration of the said, it is pertinent to mention that GSPPL plans on supplying to the aforementioned entity/CBL 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. \$. 2.492 million which will be financed through 100% equity of the sponsors.

(iv). The sponsors of the project carried out a feasibility study of the project including *inter alia*, solar power plant equipment details, PV-siting details, power production estimates based on solar irradiation data of the project sites, soil tests reports, technical details pertaining to selected photovoltaic (PV) cells/panels 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 about 4.793 MW_P the company will be installing a total of 8904 Panels of 540 W_P and 535 W_P (5908 x 540 W_P + 2996 x 535 W_P). In consideration of the said, the Authority has observed that the company plans on installing PV cells/panels from Tier-I manufactures including Jinko Solar, JA Solar, Renesola or Canadian Solar. It is pertinent to mention that the company has confirmed that a deal for purchase of PV Cells/Modules of CS6W-535MS and CS6W-540MB-AG has been locked with Canadian Solar where the manufacturer has assured an average capacity factor of about 17.27%.

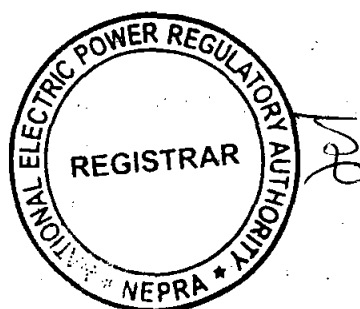
(v). The Authority has considered the submissions of GSPPL and has observed that supply from the proposed generation facility will be supplied to a BPC in the name of CBL as explained in the preceding paragraphs. According to the system study of the project, the dispersal to the BPC will be made at 220/400 volts 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 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, "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 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.

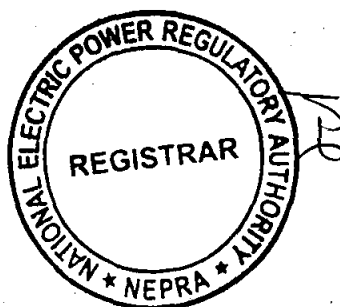
(vi). Further to the above, Section-2(v) of the NEPRA Act defines the term "Distribution" wherein the ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power to the person owning, operating, managing and controlling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

(vii). Further, the Authority has also considered the submissions of GSPPL that necessary due diligence has been completed and there will be no environmental impact of the proposed arrangement as PV cells/Panels/Modules will be utilizing only the existing infrastructure and there is no requirement to have Initial Environmental Examination (IEE). In this regard, GSPPL has confirmed that it will comply with the concerned environmental standards. In view of the said, the Authority considers that GSPPL is made obligatory to comply with the relevant environmental standards for which a separate article will be included in the proposed generation licence.



 (viii). The grant of generation licence is governed by the provisions of Rule-3(2) of the Generation Rules. The Authority has observed that GSPPL 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 stipulated in Rule-3 (2) of the Generation Rules. According to the 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 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, the Rule-3(5) of the Generation Rules stipulates the conditions pertaining to LCOC which include (a). sustainable development or optimum utilization of the Renewable Energy (RE) or non-RE resources proposed for 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/Solar Farm 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/Solar Farm 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; 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.

(ix). In view of the above, the Authority considers that the proposal of GSPPL for installing PV based generation facility will result in optimum utilization of RE which is currently untapped, resulting in pollution free electric power. It is pertinent to mention that solar power is an indigenous resource and such

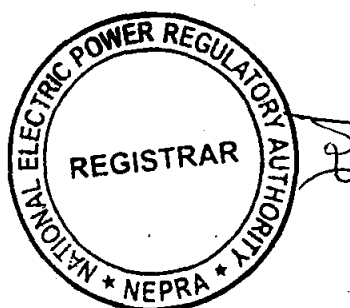


resources should be given preference to ensure energy security. As explained in the preceding paragraphs, the company will be supplying electric power to BPC(s) directly which only involve laying small feeder(s), this concludes that the project will not face any constraints in transmission of electric power. Further, being 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 GSPPL fulfills the eligibility criteria for the grant of generation licence as stipulated in the NEPRA Act, rules and regulations and other applicable documents.

(D). Grant of Licence

(i). The Authority considers that sustainable and affordable energy/electricity is a key prerequisite for 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 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 Govt. of Pakistan is planning to enhance the share of RE from its current level of 5% of the installed capacity to 30% of the total

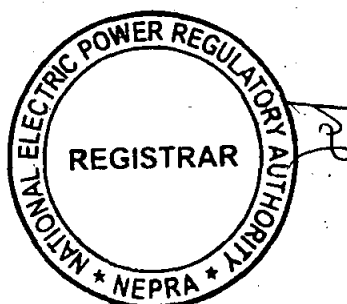


installed capacity by 2030. Furthermore, a number of initiatives are also being undertaken in the private sector in this regard.

(iii). The Authority has observed that in the current case, GSPPL has approached for the grant of a generation licence for setting up a PV based generation facility with a cumulative installed capacity of approximately 4.793 MW_p for supplying to CBL/BPC which is also an existing consumer of the local utility i.e. GEPCO. The Authority considers that the above proposal of GSPPL is in line with the provisions of the NEPRA Act, relevant rules and regulations framed thereunder and vision of the Govt. of Pakistan to enhance the contribution of RE in generation of electric power. The project will not only help GSPPL in diversifying its portfolio but will also enhance the energy security of the CBL/BPC. Further, the project will also help in reducing carbon emissions by generating clean electricity, thus improving the environment.

(iv). As explained above, GSPPL 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. The said details are being incorporated in the generation licence.

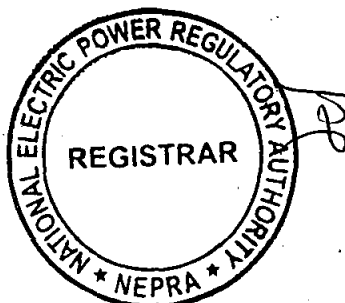
(v). The Authority has observed that proposed generation facility of GSPPL will be used for supplying to a BPC. According to Section-2(ii) of the NEPRA Act, a consumer which purchases or receives electric power at one premises, in an amount of one megawatt or more or in such amount and voltage level 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/CBL as explained in the preceding Paras to be BPC of GSPPL.

(vi). Regarding supply to the BPC, the Authority observes that the BPC and the proposed generation facilities of GSPPL are located within the same premises and the BPC will be supplied through underground cable/feeder of 220/440 volts. Pursuant to 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 GSPPL to sell electricity to the BPC/CBL. 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 GSPPL does not constitute a distribution activity under the NEPRA Act, and GSPPL will not require a distribution licence for supplying to the BPC/CBL.

(vii). The term of a generation licence under Rule-5(1) of the Generation Rules is required to match with the maximum expected useful life of the units comprised in a generating facility. According to the information provided by GSPPL, the Commercial Operation Date (COD) of the proposed generation facility/solar power plant will be September 30, 2022 and it will have a useful life of around twenty five (25) years from its COD. In this regard, GSPPL 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. The Authority considers that said submission of GSPPL about the useful life of the generation facility/solar power plant and the subsequent request of GSPPL to fix the term of the generation licence is consistent with international benchmarks; therefore, the Authority fixes the term of the generation licence to twenty five (25) years from COD of the project.

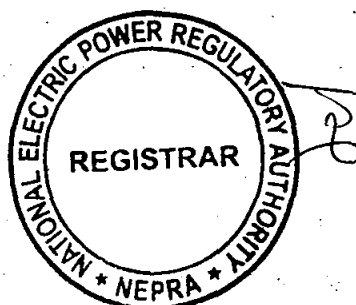


(viii). Regarding compliance with the environmental standards, GSPPL has confirmed that it will comply with the required standards during the term of the generation licence. In view of the importance of the issue, the Authority has decided to include a separate article in the generation licence along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

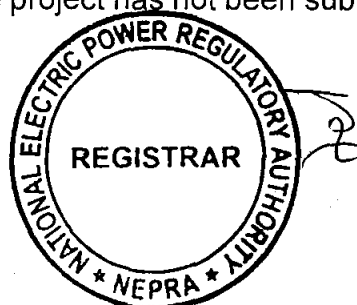
(ix). Regarding the rates, charges and terms and conditions of tariff between GSPPL and its BPC, it is reiterated that under Section-7(3)(a) of the NEPRA Act, determining tariff, rates and charges etc. is the sole prerogative of the Authority. However, the Authority observes that tariff between GSPPL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

(x). The Authority has duly considered the comments of different stakeholders as explained above. In this regard, the Authority has observed that CPPAGL and GEPCO have raised various concerns on the proposal of GSPPL of supplying the proposed BPC/CBL including (a). the proposal will adversely impact the tariff and will be detrimental to the consumers; (b). GSPPL cannot sell electric power to BPC under Section-22 of NEPRA Act; (c). GSPPL has deliberately divided the applications in two; (d). the tariff agreed by the parties has not been disclosed; (e). the details of subsidies by the Govt. has not been disclosed; and (f). grid interconnection study of the project has not been submitted.

(xi). In consideration to the above, the Authority has observed that GSPPL has submitted rejoinders to the observations of the stakeholders as explained in the preceding paragraphs which are considered tenable. However, the Authority considers it appropriate to give its findings on the above mentioned observations and address the same in the current determination in the matter of



application for the grant of generation licence of GSPPL. Regarding the impact on the tariff of allowing the arrangement for BPC(s) to have supply from generation companies, the Authority considers that due to the current structure of tariff the observations of CPPAGL and GEPCO carry significance. The Authority in its determination dated May 31, 2022 for the tariff for DISCO(s) has decided that for such BPC(s) having connection from DISCO as well as some generation company, to change the mechanism for levying of monthly fixed charges and the same shall now be charged, based on 50% of the sanctioned load or actual MDI for the month, whichever is higher thus compensating DISCO(s) for the potential loss of revenue, if any. About the observation of GEPCO that GSPPL cannot sell electric power under Section-22 of NEPRA Act to CBL/BPC, the Authority clarifies that the interpretation is not in line with the provisions of the NEPRA Act and a generation company is allowed supplying to BPC in terms of the provisions of the said Section. Regarding the comments of GEPCO of deliberately dividing the applications into two, GSPPL has rejected the same. In this regard, the Authority has observed that both the applications envisage different scope. The application for grant of generation licence for 4.79MW_p envisages setting up a ground based generation facility whereas the other application of 1.93MW_p is meant for the development of a roof top facility. The Authority observes that the NEPRA Act and the relevant rules and regulations framed do not prohibit any such arrangement. Further, the Authority has also observed that both the facilities have different type of design and modules therefore, dealing the same under separate licences may be appropriate. About the observation of GEPCO that the tariff agreed by the parties has not been disclosed, the Authority clarifies that the proposal of GSPPL for supplying to CBL is a B2B arrangement which does not affect any third party therefore, disclosing the details of the same to any entity is not considered appropriate/pragmatic. Regarding the observations that details of subsidies of the Govt. have not been disclosed, the Authority reiterates that the scheme/arrangement that GSPPL has proposed is B2B arrangement and does not involve any concessions and subsidies of the Govt. About the observation of GEPCO that the grid study of the project has not been submitted, it is clarified that

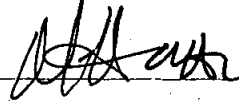


the project will be connected to LT side of the connection of CBL from GEPCO and will only be supplying to the said consumer without feeding to the utility, therefore, the question of carrying out the grid study may not be appropriate however, GSPPL and CBL are directed to deploy proper protection arrangements to avoid any situation resulting in reverse flow to the grid or any other unwanted incident. Accordingly, the Authority considers that the observations of CPPAGL and GEPCO stand addressed and settled.

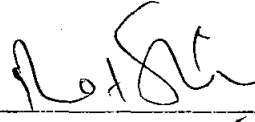
(xii). In consideration of the above, the Authority hereby approves the grant of generation licence to GSPPL on the terms and conditions set out in the generation licence annexed to this determination. The grant of generation licence will be subject to the provisions contained in the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents. Further to the said, the Authority directs GSPPL to apply for a Supplier Licence under Section-23E of the NEPRA Act, as stipulated in the relevant regulations.

Authority:

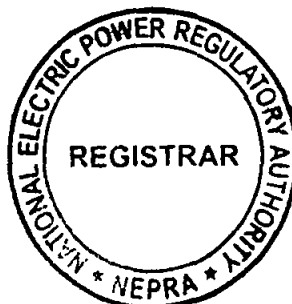
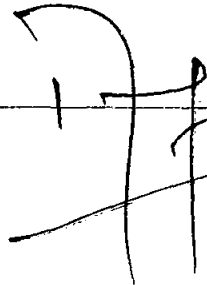
Engr. Maqsood Anwar Khan
(Member)



Engr. Rafique Ahmed Shaikh
(Member)



Engr. Tauseef H. Farooqi
(Chairman)



29 07 22

**National Electric Power Regulatory Authority
(NEPRA)**

Islamabad – Pakistan

GENERATION LICENCE

No. SGC/171/2022

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:

GSOLAR POWER (PRIVATE) LIMITED

Incorporated under Section-16 of
the Companies Act, 2017 (XIX of 2017) having Corporate Universal Identification
No. 0181198, dated August 06, 2021

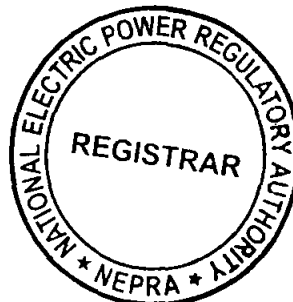
for its PV based Generation Facility/Solar Power Plant/Solar Farm
located at Crescent Bahuman Limited, Mauza Bahuman, Tehsil
Pindi Bhattian, District Hafizabad in the province of Punjab

(Installed Capacity: \approx 4.793 MW_P)

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

Given under my hand on 29th day of July Two Thousand & Twenty
Two and expires on 29th day of September Two Thousand & Forty-
Seven

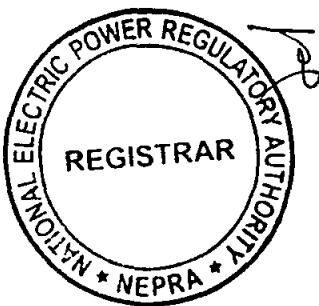

Registrar 29 07 22



Article-1
Definitions

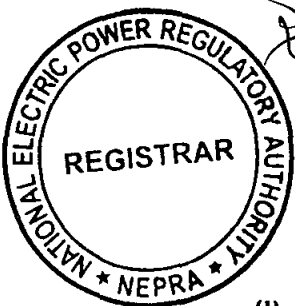
1.1 In this Licence

- (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;
- (f). "Bus Bar" means a system of conductors in the generation facility/Solar Power Plant/Solar Farm of the Licensee on which the



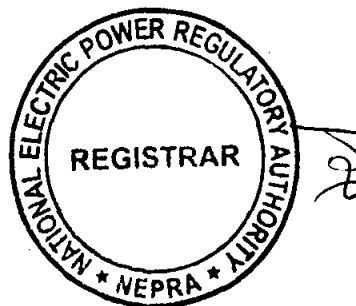
electric power from all the photovoltaic cells is collected for supplying to the Power Purchaser;

- (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/Solar Farm of the Licensee is Commissioned;
- (i). "Commissioned" means the successful completion of commissioning of the generation facility/Solar Power Plant/Solar Farm 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/Solar Farm, as may be amended by the parties thereto from time to time;
- (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/Solar Farm;
- (o). "Licensee" means **GSOLAR Power (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/Solar Farm 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). "Solar Power Plant/Solar Farm" means a cluster of photovoltaic cells located on ground 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.

Article-3
Generation Facilities

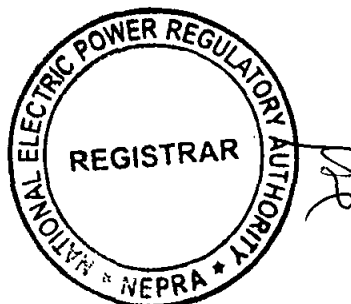
3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facility/Solar Power Plant or Solar Farm of the Licensee are set out in Schedule-I of this Licence.

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 Solar Farm 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 the National Electric Power Regulatory Authority (Fees) Regulation, 2021 as amended or replaced from time to time.

Article-6
Tariff

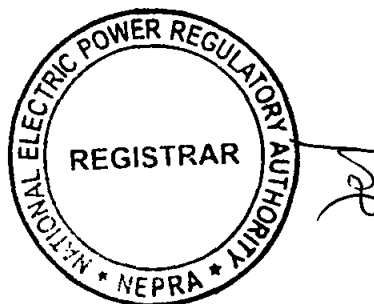
The Licensee is allowed to charge the Power Purchaser/BPC a mutually agreed tariff.

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.

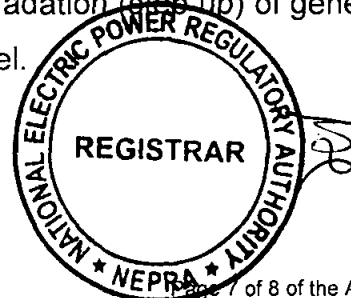
Article-10
Compliance with Environmental & Safety Standards

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

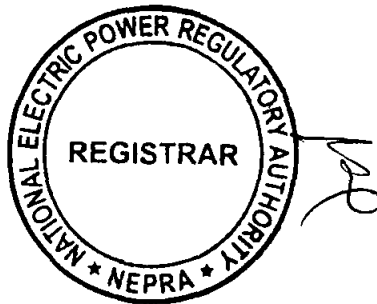
In accordance with provisions of Section-44 of the Act, the Licensee shall be obligated to provide the required information in any form as desired by the Authority without any exception.

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 to time.

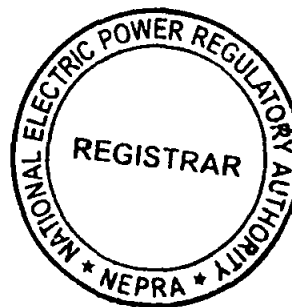
Article-14
Corporate Social Responsibility

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



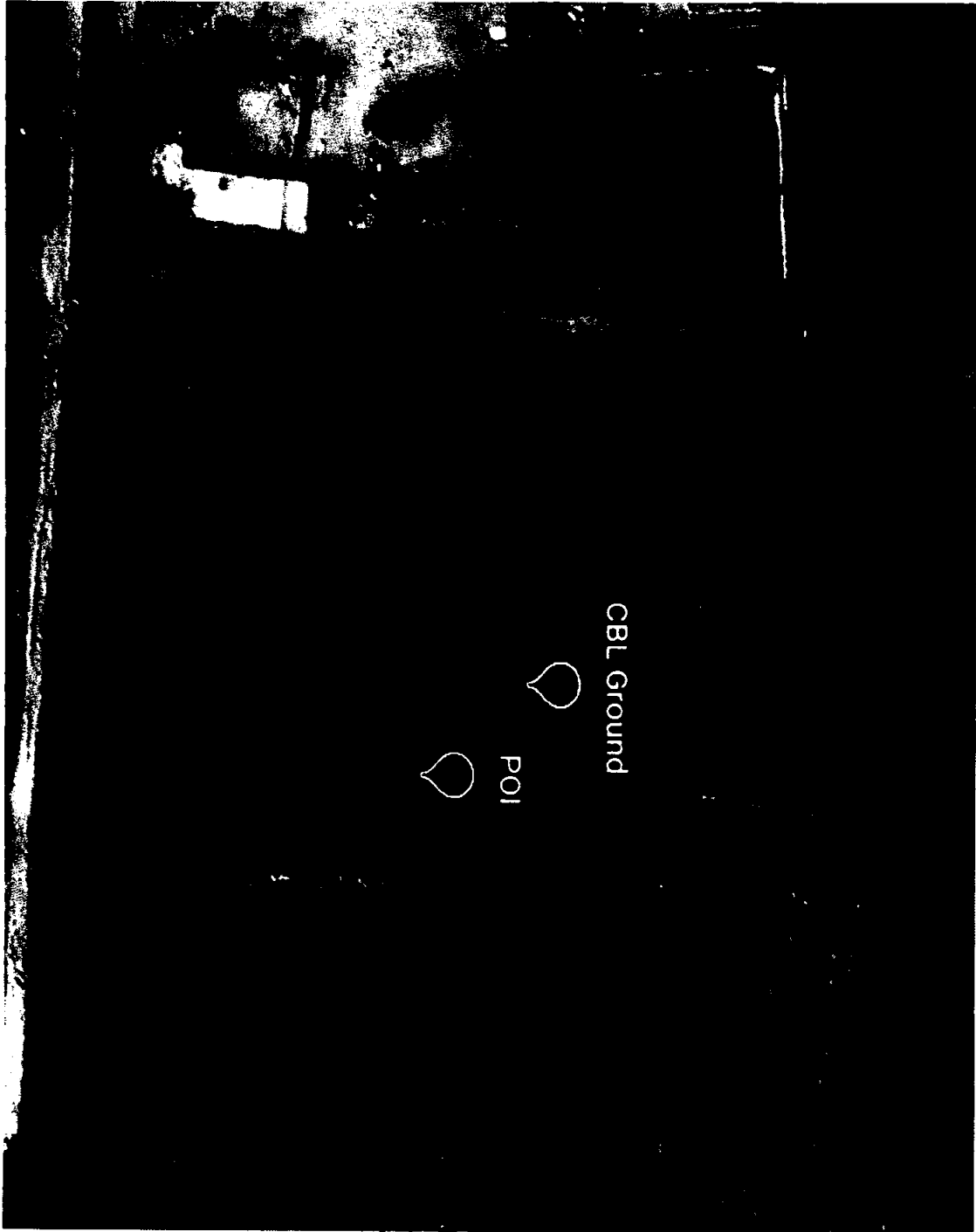
SCHEDULE-I

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.



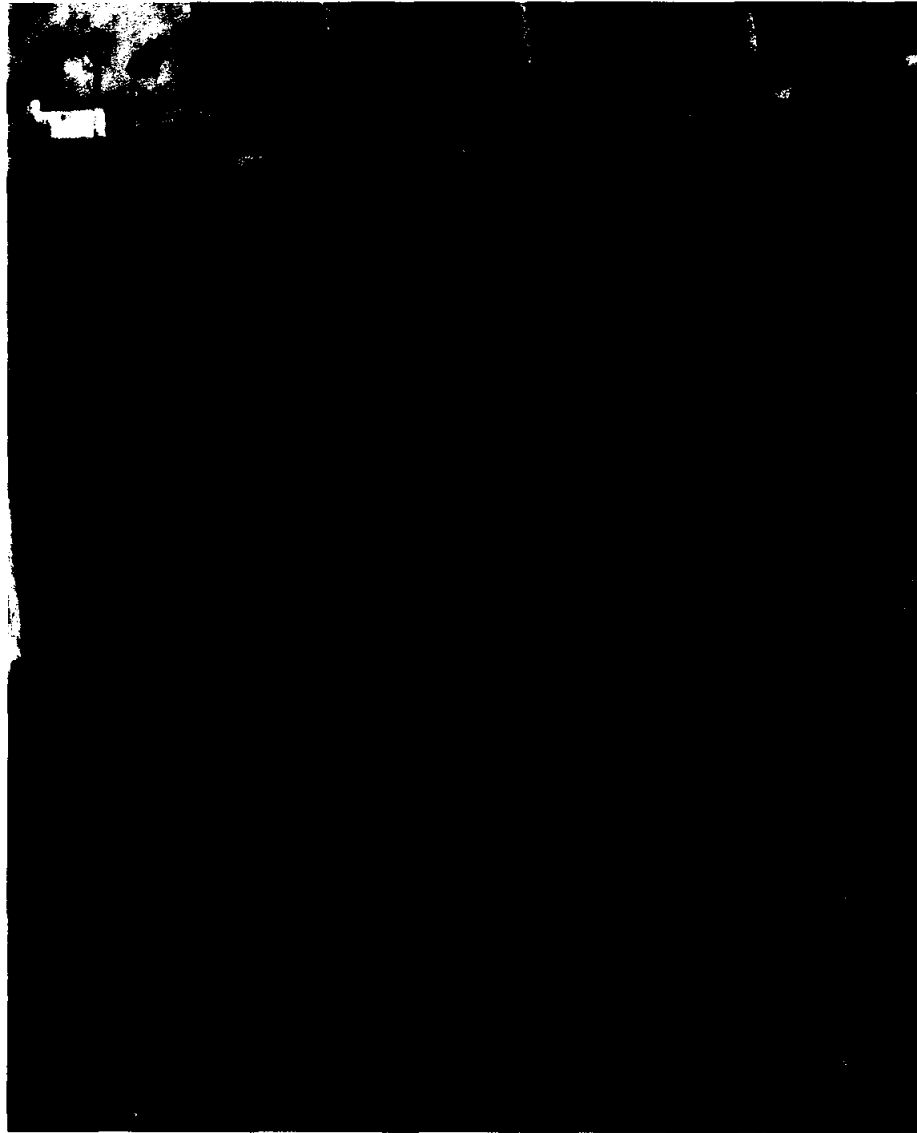
Generation Licence
GSOLAR Power (Private) Limited
for its PV based Generation Facility located at
Crescent Bahuman Limited
Mauza Bahuman, Tehsil Pindi Bhattian
District Hafizabad in the province of Punjab

Location of the
Generation Facility/Solar Power Plant/Solar Farm
of the Licensee

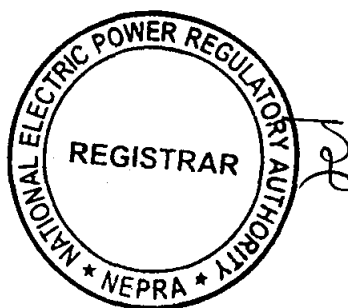


Generation Licence
GSOLAR Power (Private) Limited
for its PV based Generation Facility located at
Crescent Bahuman Limited
Mauza Bahuman, Tehsil Pindi Bhattian
District Hafizabad in the province of Punjab

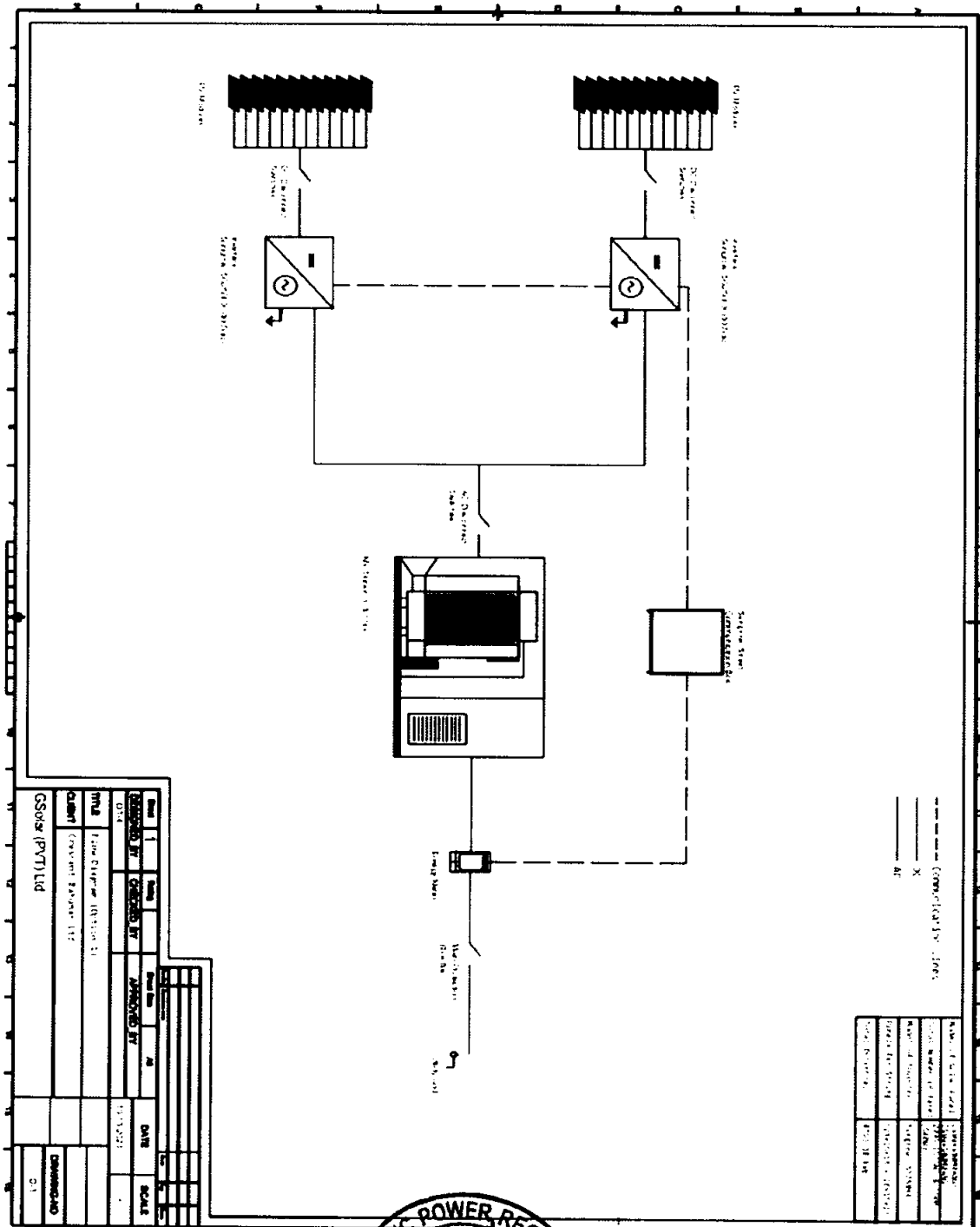
Land Coordinates of the
Generation Facility/Solar Power Plant/Solar Farm
of the Licensee



| <u>Sr. No.</u> | <u>Location</u> | <u>Site Coordinates</u> | |
|----------------|--------------------------|-------------------------|---------------|
| 1. | Crescent Bahuman Limited | Latitude | 31°88'36.5" N |
| | | Longitude | 73°36'97.8" E |

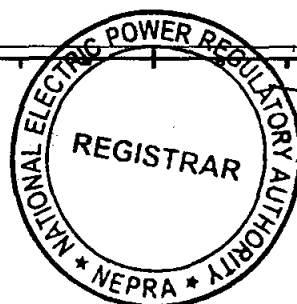
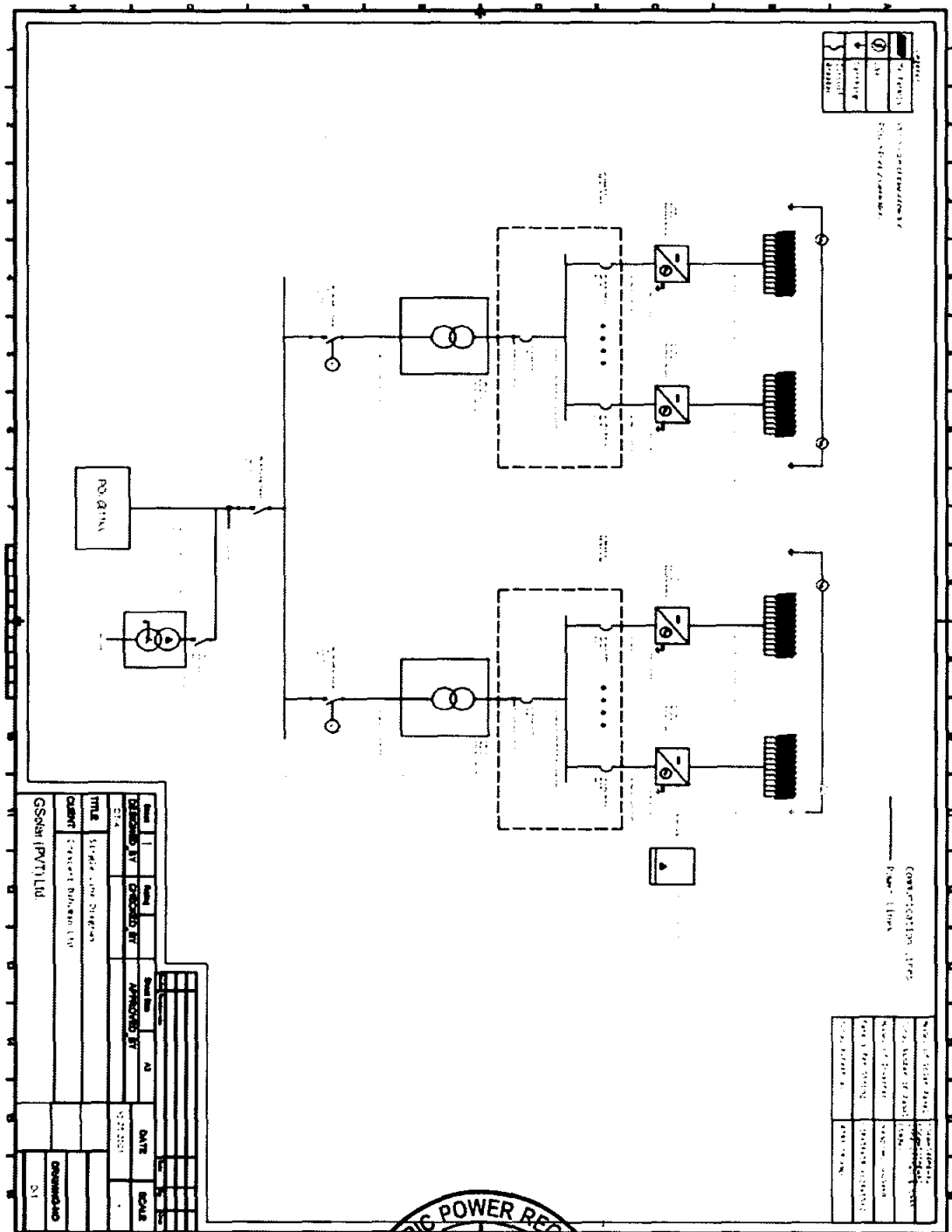


Process Flow Diagram of the Generation Facility/Solar Power Plant/Solar Farm of the Licensee



Generation Licence
 GSOLAR Power (Private) Limited
 for its PV based Generation Facility located at
 Crescent Bahuman Limited
 Mauza Bahuman, Tehsil Pindi Bhattian
 District Hafizabad in the province of Punjab

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

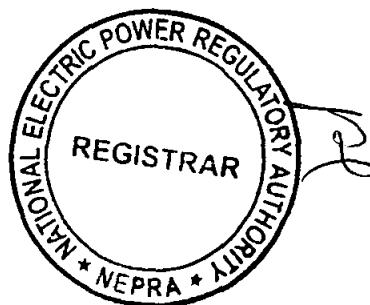


**Interconnection Arrangement/Transmission Facilities for
Dispersal of Power from the Generation Facility/Solar Power
Plant/Solar Farm of the Licensee**

The electric power generated from the generation facility/Solar Power Plant/Solar Farm of the GSOLAR Power (Private) Limited-GSPPL/Licensee will be delivered/supplied to Crescent Bahuman Limited-CBL 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.



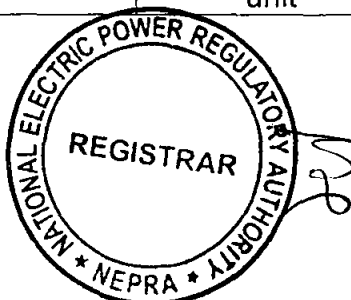
Details of Generation Facility/Solar Power Plant/ Solar Farm

(A). General Information

| | | |
|--------|--|--|
| (i). | Name of the Company/Licensee | GSOLAR Power Private Limited |
| (ii). | Registered/ Business office of the Company/Licensee | Building No. 13-C Ittehad Commercial Lane-7, DHA Phase-VI, Karachi, 7550 |
| (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 | Crescent Bahuman Limited, Mauza Bahuman, tehsil Pindi Bhattian, district Hafizabad in the province of Punjab |

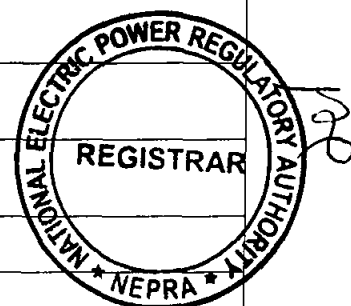
(B). Solar Power Generation Technology & Capacity

| | | | |
|--------|---|-------------------------|-------------|
| (i). | Type of Technology | Photovoltaic (PV) Cell | |
| (ii). | System Type | On-Grid | |
| (iii). | Installed Capacity of the generation facility Solar Power Plant/ Solar Farm (MW/KW) | 4.79318 MW _p | |
| (iv). | No. of Panel/Modules | 2,996 * 535 | 5,908 * 540 |
| (v). | PV Array | Nos. of Strings | 318 |
| | | Modules in a string | 28 |
| (vi). | Inverter(s) | Quantity | 20 |
| | | Make | Sungrow |
| | | Capacity of each unit | 20*250 kW |

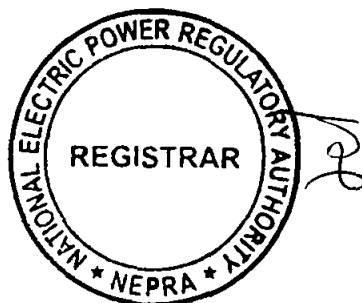


(C). Technical Details of Equipment

| | | | |
|---------|---|-------------------------------------|--------------------|
| (a). | Solar Panels – PV Modules | | |
| (i). | Type of Module | CS6W-535MB-AG | CS6W-540MB-AG |
| (ii). | Type of Cell | Bi-Facial (Mono-crystalline) | |
| (iii). | Dimension of each Module | 2,264 x 1134 x 35 mm | |
| (iv). | Total Module Area | 2.567376 m ² | |
| (v). | Frame of Panel | Anodized aluminum alloy | |
| (vi). | Weight of one Module | 32.4 kg | |
| (vii). | No of Solar Cells in each module | 144 [2 x (12 x 6)] | |
| (viii). | Efficiency of module | 20.8% | 21.0 % |
| (ix). | Maximum Power (P _{max}) | 535 W _P | 540 W _P |
| (x). | Voltage @ P _{max} | 40.8V | 41.0 |
| (xi). | Current @ P _{max} | 13.12A | 13.18A |
| (xii). | Open circuit voltage (V _{oc}) | 49.0V | 49.2V |
| (xiii). | Short circuit current (I _{sc}) | 13.85A | 13.90A |
| (xiv). | Maximum system open Circuit Voltage | 1500VDC | |
| (b). | Inverters (Sungrow, SG250HX-250KW) | | |
| (i). | Input Operating Voltage Range | 500 V to 1500 V | |
| (ii). | Efficiency of inverter | 99.0 % | |
| (iii). | Max. Allowable Input voltage | 1500V | |
| (iv). | Max. Current | 30 A / Short Circuit Current is 50A | |
| (v). | Max. Power Point Tracking Range | 500 V to 1500 V | |
| (vi). | Output electrical system | 3 Phase AC + N + PE | |
| (vii). | Rated Output Voltage | 800V | |
| (viii). | Power Factor (adjustable) | > 0.99 / 0.8 leading – 0.8 lagging | |
| (ix). | Power control | MPP tracker | |
| (x). | Rated Frequency | 50 Hz | |
| (xi). | Environmental Enclosures | Relative Humidity | 0-100% |

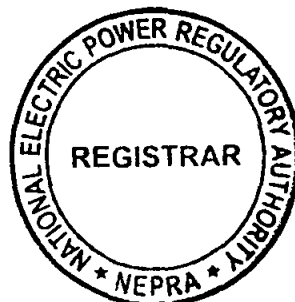


| | | | |
|--------|---|---|---------------------------------|
| | | Operating Elevation | 5000 m (> 4000 m derating) |
| | | Operating temperature | -30 to 60 °C |
| (xii). | Grid Operating protection | A | DC Fuses (Built-in) |
| | | B | AC circuit breaker |
| | | C | DC overload protection (Type 2) |
| | | D | Overheat protection |
| | | E | Grid monitoring |
| | | F | Insulation monitoring |
| | | G | Ground fault monitoring |
| (c). | <u>Data Collecting System</u> | | |
| (i). | System Data | Continuous online logging with data logging software to portal. | |
| (d). | <u>Transformer (2.8MVA delta-delta)</u> | | |
| (i). | Cooling Type | ONAN (Oil Natural Air Natural) | |
| (ii). | Rated MV Voltage | 11000V | |
| (iii). | Rated LV Voltage | 800V | |
| (iv). | Temperature Rating | 55 degree C | |
| (e). | <u>Auxiliary Transformer (50kVA Dyn11)</u> | | |
| (i). | Cooling Type | ONAN (Oil Natural Air Natural) | |
| (ii). | Rated MV Voltage | 11000V | |
| (iii). | Rated LV Voltage | 400V | |
| (iv). | Temperature Rating | 55 degree C | |



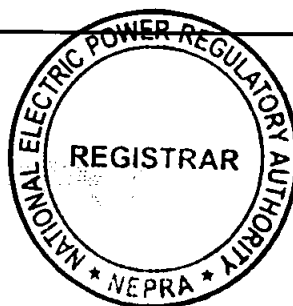
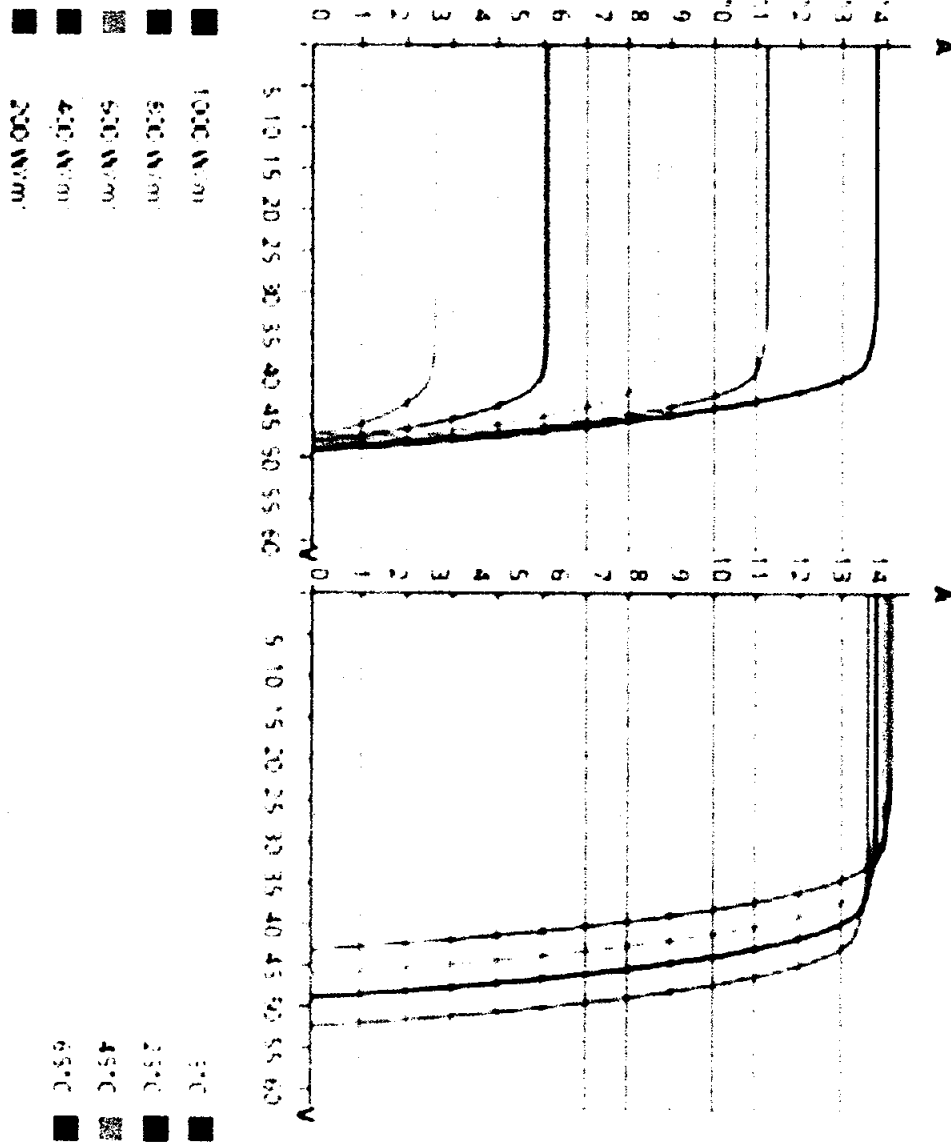
(D). Other Details

| | | |
|-------|---|--------------------|
| (i). | Expected COD of the generation facility Solar Power Plant/ Roof Top Solar | September 30, 2022 |
| (ii). | Expected useful Life of the generation facility/Solar Power Plant/Roof Top Solar from the COD | 25 years |



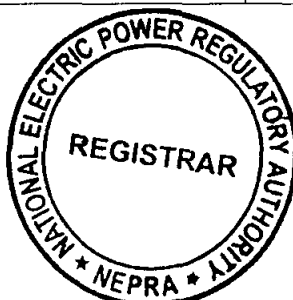
V-I Curve
Generation Facility/Solar Power Plant/Solar Farm
of the Licensee

CS6W-S30MB-AG / I-V CURVES



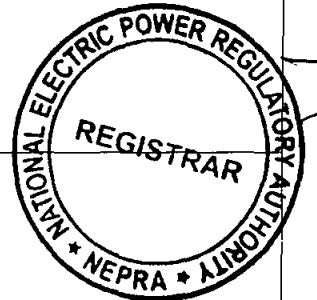
Information Regarding Bulk Power Consumer(s)/BPC(s) to be Supplied by the Licensee

| | | |
|--------|--|--|
| (i). | No. of Consumers | One(01) |
| (ii). | Location of consumers (distance and/or identity of premises) | Crescent Bahuman Limited-CBL, Mauza Bahuman, Tehsil Pindi Bhattian, District Hafizabad in the province of Punjab |
| (iii). | Contracted Capacity and Load Factor for consumer | 4.79318 MW _P /25-30% |
| (iv). | Specify Whether | |
| | (a). | The consumer is an Associate undertaking of the Licensee -If yes, specify percentage ownership of equity; No |
| | (b). | There are common directorships: No |
| | (c). | Either can exercise influence or control over the other. No |
| (v). | Specify nature of contractual Relationship | |
| | (a). | Between each consumer and Licensee. Licensee will construct, own and operate the solar generation facilities and provide electricity to BPC. |
| | (b). | Consumer and Distribution Company. CBL is an existing consumer of the utility i.e. GEPCO |
| (vi) | Any other network information deemed relevant for disclosure to or consideration of the Authority. | Not Applicable |



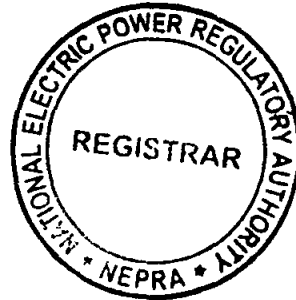
Information
Regarding Distribution Network for Supply of Electric
Power to BPC

| | | |
|--------|--|--|
| (i). | No. of Feeders | One (01) |
| (ii). | Length of Each Feeder (Meter) | 30-50 meter |
| (iii). | Length of Each Feeder to each Consumer | -do- |
| (iv). | In respect of all the Feeders, describe the property (streets, farms, Agri land, etc.) through, under or over which they pass right up to the premises of customer, whether they cross-over. | The underground cable supplying to BPC from the generation facility will be located on private property owned by BPC |
| (v). | Whether owned by Licensee, Consumer or Distribution Company -(deal with each Feeder Separately) | |
| | (a). | If owned by Distribution Company, particulars of contractual arrangement |
| | (b). | Operation and maintenance responsibility for each feeder |
| (vi). | Whether connection with network of Distribution Company exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual) | Yes |
| (vii). | Any other network information deemed relevant for disclosure to or consideration of the Authority. | NA |



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.

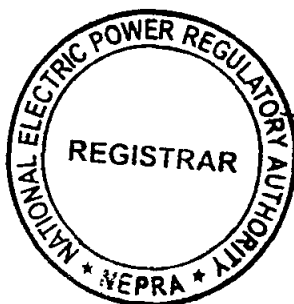


SCHEDULE-II

| | | |
|------|---|-------------------------|
| (1). | Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm | 4.79318 MW _p |
| (2). | Average Sun Hour Availability/Day (Irradiation on Inclined Surface) | 5 to 6.0 Hours |
| (3). | No. of days per year | 365 |
| (4). | Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation) | 7250 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 | 166.025 GWh |
| (6). | Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working | 7250 MWh |
| (7). | Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm | 17.27 % |

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).




Authorization
by National Electric Power Regulatory Authority (NEPRA) to
GSOLAR Power (Private) Limited

Incorporated under Section-16 of
the Companies Act, 2017 (XIX of 2017) having Corporate Universal Identification
No. 0181198, dated August 06, 2021

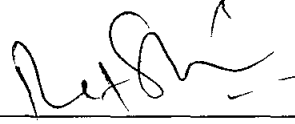
NEPRA GENERATION LICENCE No. SGC/171/2022
For Sale to Bulk Power Consumer(s)

Pursuant to Section-22 of the Act and Rule-7 of the NEPRA Licensing (Generation) Rules-2000, the Authority hereby authorize GSOLAR Power (Private) Limited-GSPPL (the Licensee) to engage in second-tier supply business, limited to the following consumers:-

- (a). Crescent Bahuman Limited, Mauza Bahuman, Tehsil Pindi Bhattian, District Hafizabad in the province of Punjab



Engr. Maqsood Anwar Khan
(Member)



Engr. Rafique Ahmed Shaikh
(Member)



Engr. Tauseef H. Farooqi
(Chairman)



29 07 22