



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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Web: www.nepra.org.pk, E-mail: registrar@nepra.org.pk

Registrar

No. NEPRA/R/DL/LAG-459/26287-93

September 01, 2020

Mr. Usman Hamid Malik,
Chief Executive Officer,
Shams Power (Private) Limited,
2nd Floor, Al Maalik, 19 Davis Road,
Lahore.

Subject: **Grant of Generation Licence No. SGC/135/2020**
Licence Application No. LAG-459
Shams Power (Private) Limited (SPPL)

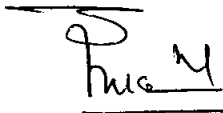
Reference: *SPPL's Application submitted vide Letter No. Nil dated May 23, 2019.*

Enclosed please find herewith Generation Licence No. SGC/135/2020 granted by National Electric Power Regulatory Authority (NEPRA) to Shams Power (Private) Limited (SPPL) for its 0.474 MW Solar Power Plant located at Maxim International, Khanewal, in the province of Punjab, pursuant to Section 14B of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997/Amendment Act, 2018. Further, the determination of the Authority in the subject matter is also attached.

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

Enclosure: **Generation Licence**
(SGC/135/2020)




01 09 20
(Syed Safer Hussain)

Copy to:

1. Secretary, Ministry of Energy (Power Division), A-Block, Pak Secretariat, Islamabad.
2. Chief Executive Office, Alternative Energy Development Board, 2nd Floor, OPF Building, G-5/2, Islamabad
3. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore.
4. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
5. Chief Executive Officer, Multan Electric Power Company Limited (MEPCO), MEPCO Head Quarters, Khanewal Road, Multan.
6. Director General, Environmental Protection Department, Government of Punjab, National Hockey Stadium, Ferozpur Road, Lahore

National Electric Power Regulatory Authority
(NEPRA)

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

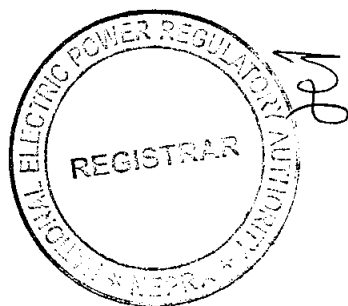
September 01
August , 2020
Case No. LAG-459

(A). Filing of Application

(i). Shams Power (Private) Limited (SPPL) submitted an application on May 29, 2019 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 and Modification Procedure) Regulations, 1999 (the "Licensing Regulations").

(ii). The Registrar examined the submitted application and found that the application was deficient in terms of the Licensing Regulations. Accordingly, the Registrar directed SPPL for submitting the missing information/documents as required under the said regulations. SPPL completed the submission of missing information/documentation by June 17, 2019. After the completion of the missing information/documentation, the Registrar submitted the application for the consideration of the Authority to decide admission of the application or otherwise.

(iii). The Authority considered the matter and found the form and content of the application in substantial compliance with Regulation-3 of the Licensing Regulations. Accordingly, the Authority admitted the application on July 16, 2019 for consideration of the grant of the generation licence as stipulated in Regulation-7 of the Licensing Regulations. The Authority approved an advertisement to invite comments of general public, interested and affected



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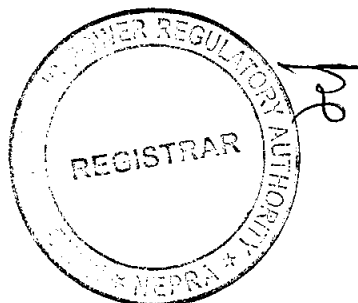
persons in the matter as stipulated in Regulation-8 of the Licensing Regulations. Accordingly, notices were published in one (01) Urdu and one (01) English newspapers on July 20, 2019.

(iv). In addition to the above, the Authority also approved a list of stakeholders for seeking their comments for its assistance in the matter in terms of Regulation-9(2) of the Licensing Regulations. Accordingly, letters were sent to different stakeholders as per the approved list on July 23, 2019, soliciting their comments for assistance of the Authority.

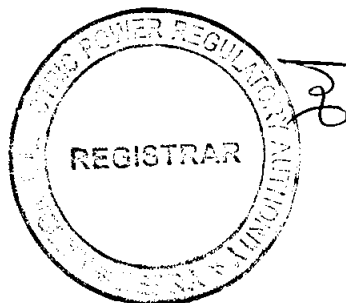
(B). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from three (03) stakeholders which included Central Power Purchasing Agency (Guarantee) Limited (CPPAGL), National Transmission and Despatch Company Limited (NTDC) and Alternate Energy Development Board (AEDB). The salient points of the comments offered by the said stakeholder are summarized below:

(a). CPPAGL submitted that the Authority may consider the provisions of the Least Cost Option Criteria (LCOC) as provided in the relevant rules. CPPAGL also referred to Cabinet Committee on Energy (CCoE) decision which states that all future Renewable Energy (RE) investments will have to be dealt with RE Policy 2019, the same requires considerations in the applicable regulatory framework. Furthermore, it stated that as per the existing tariff structure, the major portion of fixed charges including capacity payments, UoSC, MOF, DM, etc., is being recovered through sale of energy to end consumers. In this regard, any scheme that decreases the energy sale from central pool/ CPPAGL to end consumers may result in an increase in the rate of fixed capacity charges for other consumers and stranded costs at the central pool level;



- (b). In addition to the above, CPPAGL stated that the increase in grid defection, due to rapid deployment of Solar Farm/self-generation, may result in death spiral for the utilities. Accordingly, CPPAGL suggested: (i). the quantum of distributed generation may be ascertained keeping in view the demand projections and energy charge being avoided by distributed generators; (ii). uniform tariff may be introduced for net metering/self-consumption through the introduction of a new tariff category; (iii). a separate category for net metering may be introduced in the central planning mechanism; (iv). the design of competitive wholesale market i.e. CTBCM may be approved; and (vi). Registration mechanism to capture the percentage of grid connected distributed generation may be established;
- (c). NTDC in its comments stated that it is mandated to prepare Integrated Generation Capacity Expansion Plan (IGCEP) on annual basis as per PC-4 and PC-4.1. Therefore, it has submitted IGCEP (2018-40) to NEPRA for review and approval. Further all future procurement of power is subject to quantum ascertained to each technology by IGCEP coupled with evacuation capability of transmission infrastructure. Besides, it also referred to the decision of Cabinet Committee on Energy (CCoE) as mentioned above. Not only this, it further added that RE procurement not included in category I & II will be carried out by AEDB thus it requested to wait for RE Policy for detailed deliberations in this regard. Lastly, it suggested to Authority that impact of demand and power flow needs to be monitored which will be reflected in next IGCEP; and



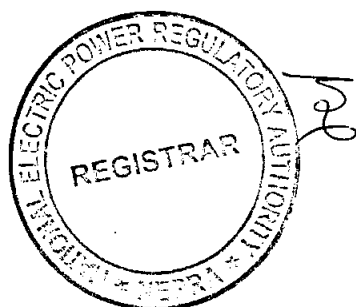
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(d). AEDB supported the grant of generation licence to SPPL for its proposed 0.474MW solar PV project located at Maxim International (Pvt.) Limited, Khanewal.

(ii). The Authority considered the above comments and in view of the observations raised by CPPAGL and NTDC, considered it appropriate seeking perspective of SPPL on the same. On the observations of CPPAGL, it was submitted that documents of paramount importance to be considered by the Authority is the NEPRA Act thereafter comes the Rules, Regulations and subordinate legislation. Regarding the decision of CCoE, it was submitted that the same is applicable for RE projects to be developed as Independent Power Producers (IPP) wherein the current application of SPPL envisages supplying to a Bulk Power Consumer (BPC) under B2B arrangement for which decision of CCoE is not applicable. About the increase in fixed charges and stranded cost, SPPL submitted that its efforts are to reduce the cost for the potential BPC by providing cheap and clean energy using indigenous resources. The quantity to be supplied to BPC is only a fraction of the requirement of the BPC which will not have any significant effect on the revenue of the respective DISCO, therefore, the argument of stranded costs does not apply.

(iii). About the issue of the grid defection, SPPL submitted that the world is taking advantage of the technical developments in the RE and it will not be fair that such developments are not allowed in the country. The main reason of the grid defection is the absence of affordability and reliability of electricity that is why SPPL submitted application to meet these parameters. About the fixation of quantum, new category of Tariff and Central Planning Mechanism, SPPL added that these matters do not fall under its purview being policy level decision. However, SPPL submitted that such decisions should no way hinder competition in the sector.

(iv). On the comments of NTDC, it was submitted that SPPL is not selling electricity to grid nor utilizing infrastructure of NTDC/DISCO, therefore,



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the matter of IGCEP and impact of power flow does not hold in this particular case.

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

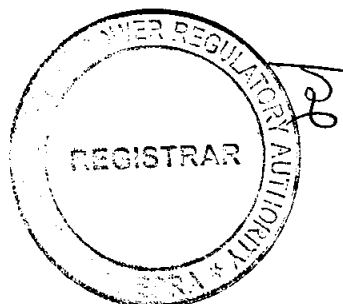
(C). Evaluations/Findings

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

(ii). The Authority has observed that the applicant i.e. SPPL is an entity incorporated under Section 32 of the Companies Ordinance, 1984 (XLVII of 1984), having Corporate Universal Identification No. 0091515, dated January 15, 2015. The registered address of the company is located at Al-Maalik, 19 Davis Road, Lahore. It is a private company with the principal line of business to design, build, own, operate and manage electric power generating facilities of RE.

(iii). The applicant company i.e. SPPL is a joint venture of Saba Power Limited, Orient Operating Company (Private) Limited, and PITCO (Private) Limited. The Joint Venture Partners have extensive experience and exposure of the power sector. Further, SPPL is already involved in installation, operation and maintenance of solar generation facilities at the premises of different clients. In view of the said, the Authority considers that SPPL has sound financial and technical capabilities to execute project as envisaged in its submitted application.

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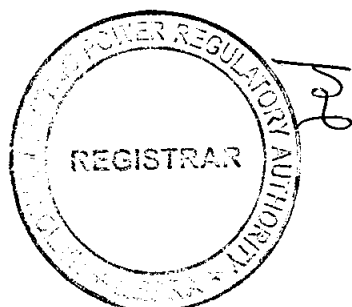


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(iv). The Authority has observed that SPPL, through its current application, is pursuing a generation licence for supplying to Maxim International (Pvt.) Limited (MIPL), Khanewal, as Bulk Power Consumer (BPC). According to the submitted information, the total cost of the project will be about US \$ 315,210 which will be financed through parent companies on 100% equity. In this regard, PITCO, Coastal Saba Power Limited, Orient Operating Company (Private) Limited have shown their willingness to finance the project.

(v). The Authority has considered the submissions of SPPL and observed that the company carried out a feasibility study of the project including, *inter alia*, details of equipment of PV solar plant, PV-sitting details, power production estimates and other allied equipments. The review of the feasibility study reveals that for the proposed location to achieve a total capacity of 0.474MW_p, the company will be installing 1,316 PV polycrystalline cells each of 360 Watt. In consideration of the said, SPPL has submitted that it will be installing Solar PV Plant CS3U-360P model. In this regard, the Authority has observed that these solar PV cells are of Tier-I manufacturer having capacity factor of 18.4%.

(vi). As explained above, SPPL will be supplying electricity to proposed BPC at 220/400V voltage through overhead cables/feeders located on 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. Further, 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, for the purpose of specified means specified by regulations made by the Authority under the NEPRA Act. It is pertinent to mention that the relevant regulation in this regard are still under formation and in the absence of the same the

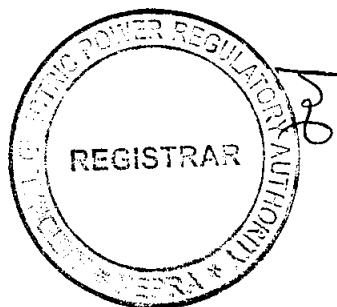


Authority has been allowing even amount of less than 01.00 MW to be treated as BPC.

(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 distribution facility to be used for delivery of electric power to aforementioned entity is located on private property (without involving any public property or third party) will be owned, operated, managed and controlled by the entity being supplied therefore, the supply of electric power to this entity by SPPL does not constitute a distribution activity under the NEPRA Act, and a distribution licence will not be required by the company.

(viii). The grant of a generation licence is governed by the provisions of Rule-3 of the Generation Rules. The Authority has observed that SPPL has provided the details of the proposed generation facility includes (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 (1) 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/Solar Farm proposed in an application for a generation licence are either not suitable on environmental grounds or do not satisfy the LCOC. In this regard, the 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 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

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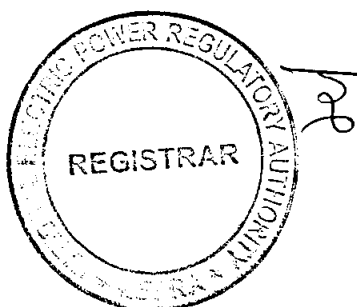
facility/solar power plant/Solar Farm against the preferences indicated by the Authority; (d). the cost and right-of-way considerations related to the provision of transmission and interconnection facilities; (e). the constraints on the transmission system likely to result from the proposed generation 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/Solar Farm; 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 SPPL for setting up solar based generation facility will result in utilization of the RE resources 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 the energy security. As explained in the preceding paragraphs above, the company will be supplying electric power to the BPC 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 issue for the provision of interconnection facilities. In view of the said, the Authority considers that the project of SPPL fulfills the eligibility criteria for 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

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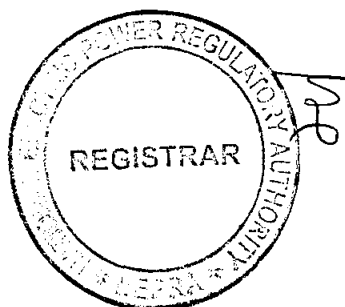
view of the said, the Authority is of the considered opinion that for sustainable development, all indigenous power generation resources especially RE must be developed on priority basis.

(ii). The Authority observes that the existing energy mix of the country is heavily skewed towards the 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 RE resources 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 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, SPPL has approached it for the grant of a Generation Licence for setting up a PV based generation facility with a cumulative Installed Capacity of 0.474 MW_p for supplying to a BPC which is also an existing consumer of its respective DISCO. The Authority considers that the above proposal of SPPL 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 SPPL in diversifying its portfolio but will also enhance its share in the market. Further, the project will also help in reducing the carbon emission by generating clean electricity, thus improving the environment.

(iv). As explained above, SPPL has provided the details of location, technology, size, net capacity/energy yield, interconnection arrangements,

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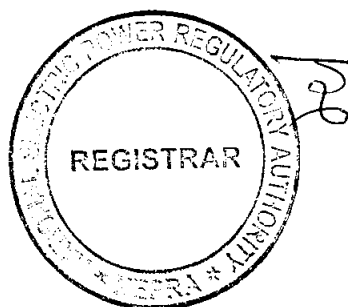
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technical details and other related information for the proposed PV based generation facility/solar power plant. In this regard, the Authority has observed that sponsors of the project have acquired/available with them the required land for setting up the PV based generation facility and the required details are being incorporated in the generation licence.

(v). The Authority has observed that proposed generation facilities of SPPL 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 regulation in this regard are still under formation and in the absence of the same the Authority has been allowing even amount of less than 01.00 MW to be treated as BPC therefore, the Authority allows the above mentioned entity explained in the preceding Paras to be a BPC of SPPL.

(vi). Regarding supply to the BPC, the Authority observes that the BPC and the proposed generation facility of SPPL are located within the same premises and the BPC will be supplied through underground cable/feeder of 220/440 volt. 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 SPPL to sell electricity to BPC. 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 are located within the same premises and no public areas are involved, the supply of power to BPC by SPPL does not constitute a distribution activity under the

Text



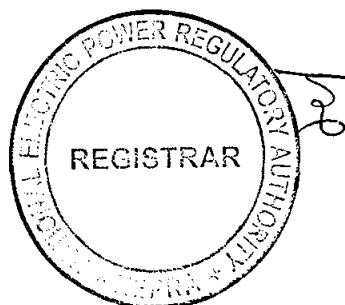
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NEPRA Act, and SPPL will not require a distribution licence for supplying to the BPC.

(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 generation facility. According to the information provided by SPPL, the Commercial Operation Date (COD) of the proposed generation facility/solar power plant will be December 31, 2020 and it will have a useful life of around twenty five (25) years from its COD. In this regard, SPPL 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 SPPL about the useful life of the generation facility/solar power plant/ Solar Farm and the subsequent request of SPPL 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.

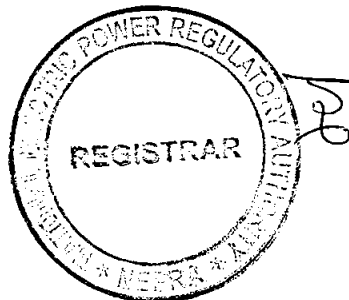
(viii). Regarding compliance with the environmental standards, SPPL has confirmed that it will comply with the required standards during the term of the generation licence. In view of the importance of the issue, the Authority has decided to include a separate article in the generation licence along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

(ix). Regarding the rates, charges and terms and conditions of tariff between SPPL 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 tariff between SPPL and its BPC, does not affect any other consumer or third party. Therefore for the purpose of tariff, the Authority considers it appropriate directing SPPL and its BPC to agree on a bilateral agreement and accordingly SPPL 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 NTDC has raised various concerns including (a). compliance of the LCOC; (b). New tariff for consumers having dual connection; (c). specifying share of distributed generation in the IGCEP; and (f). approval of design of competitive wholesale market.

(xi). In consideration to the above, the Authority hereby confirms that it has duly considered the relevant provisions of related rules to confirm that proposal of SPPL fulfils the requirements prescribed under the relevant rules and regulations including LCOC as explained in above paragraph. About the proposal of CPPAGL to have a new tariff for such consumers having dual supply arrangement (i.e. from the grid through DISCO as well as self-generation/third party source as in the current case), the Authority considers this an important issue but at the same time is of the view that it has no relevance to current case being an application of a generation licence. The Authority is cognizant of the situation and has already included this issue as part of the proceedings for the tariff petitions of the DISCO(s) which is under deliberation and is expected to be decided in due course of time without affecting the grant of generation licence to SPPL. Regarding the suggestion to specify the share of distributed generation in the IGCEP, the Authority considers that planning function needs special consideration to have a true picture of the demand-supply situation of the system. The Authority emphasizes that DISCO(s) and NTDC must refine their process to capture a true picture for the future requirements by revitalizing their planning function by having suitable tools in the matter including the process of registration for entities like SPPL etc. As regards the approval of design of competitive wholesale market, the Authority through its determination NEPRA/DG(Lic)/LAM01-26389-398 dated December 05, 2019, has already approved the same. In consideration of the said, the observations of CPPAGL and NTDC stand addressed and settled.




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(xii). In view of the above, the Authority hereby approves the grant of generation licence to SPPL 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.

Authority:

Rafique Ahmed Shaikh
(Member)


18/8/20

Rehmatullah Baloch
(Member)


21/8/20

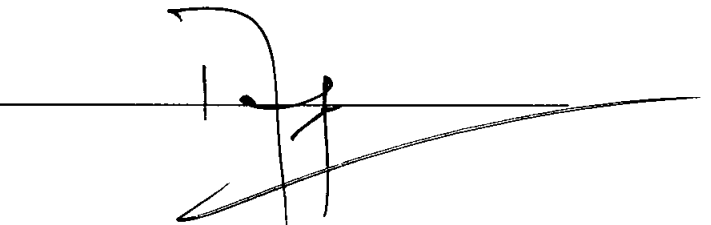
Engr. Bahadur Shah
(Member)

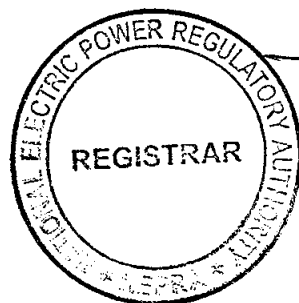


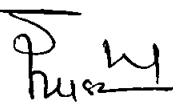
Saif Ullah Chattha
(Member/Vice Chairman)


09.8.2020

Engr. Tauseef H. Farooqi
(Chairman)






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**National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan**

GENERATION LICENCE

No. SGC/135/2020

In exercise of the powers conferred upon under Section 14B 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:

SHAMS POWER (PRIVATE) LIMITED

Incorporated Under Section-32 of the Companies Ordinance, 1984 (XLVII of 1984) Having Corporate Universal Identification No. 0091515, dated January 15, 2015

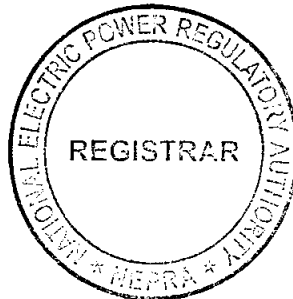
**for its Generation Facility/Solar Farm/Solar Power Plant
Located at Maxim International, Khanewal, in the Province of
Punjab**

(Total Installed Capacity: \approx 0.474 MW_P Gross)

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

Given under my hand this on 01st day of September August Two
Thousand & Twenty and expires on 30th day of December
Two Thousand & Forty-Five.

P. Husayn
01 09 20
Registrar

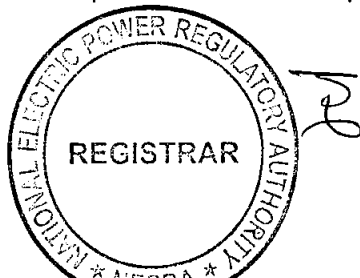


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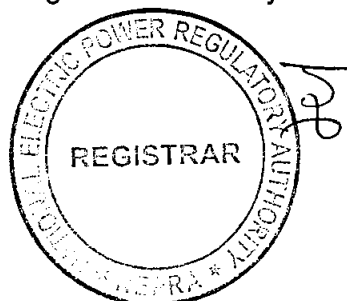
Article-1
Definitions

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;
- (f). "Bus Bar" means a system of conductors in the generation facility/Solar Power Plant 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 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 of the Licensee is Commissioned;
- (i). "Commissioned" means the successful completion of commissioning of the generation facility/Solar Power Plant 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, 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 Power Plant/Solar Farm;



- (o). "Licensee" means **Shams Power (Private) Limited** or its successors or permitted assigns;
- (p). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999 as amended or replaced from time to time;
- (q). "MEPCO" means Multan Electric Power Company Limited or its successors or permitted assigns;
- (r). "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;
- (s). "Power Purchaser" means the BPC which will be purchasing electric power from the Licensee, pursuant to a EPA for procurement of electric power;
- (t). "XW-DISCO" means an Ex-WAPDA distribution company engaged in the distribution of electric power".

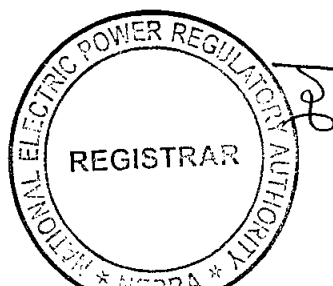
1.2 The words and expressions used but not defined herein bear the meaning given thereto in the Act or rules and regulations issued under the Act.

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 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 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 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, 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

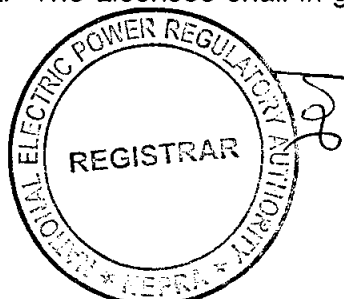
The Licensee shall pay to the Authority the Licence fee as stipulated in the National Electric Power Regulatory Authority (Fees) Rules, 2002 as amended or replaced from time to time.

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. 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.

7.2 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.

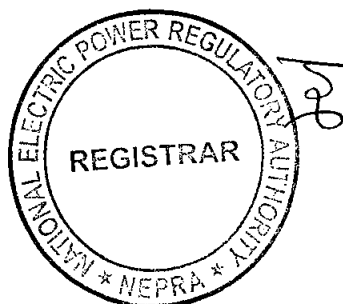
Article-9
Compliance with Performance Standards

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 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 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

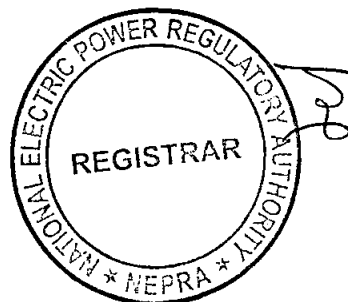
The Licensee shall deliver the electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility/Solar Power Plant. The Licensee shall be responsible for the up-gradation (step up) of generation voltage up to the required dispersal voltage level.

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.

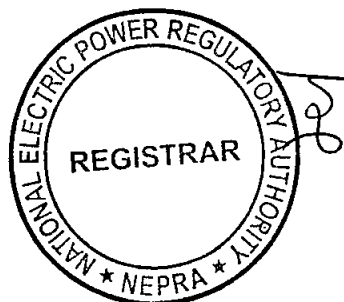


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SCHEDULE-I

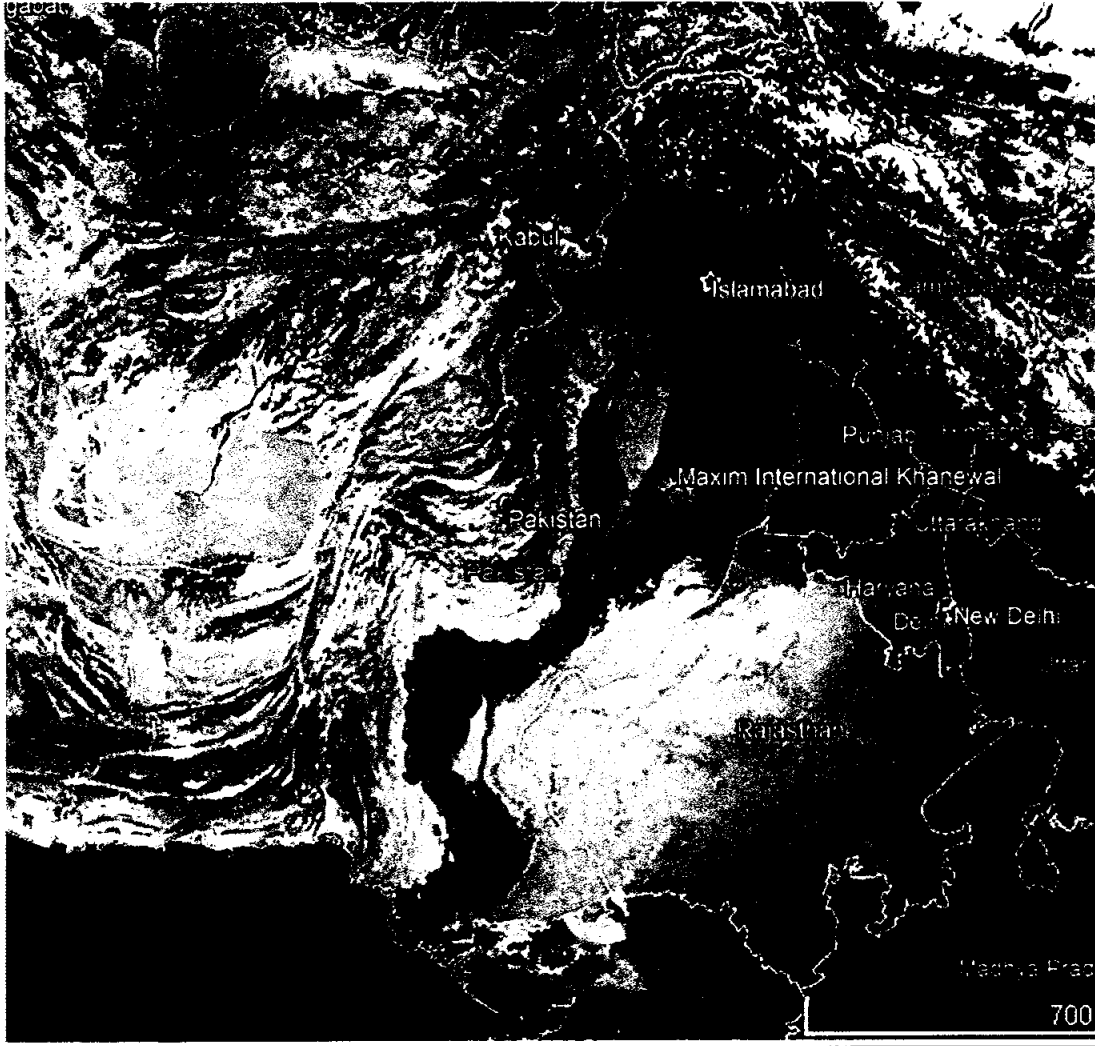
The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule.

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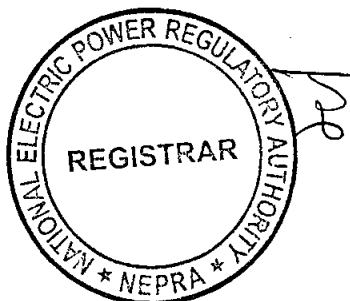


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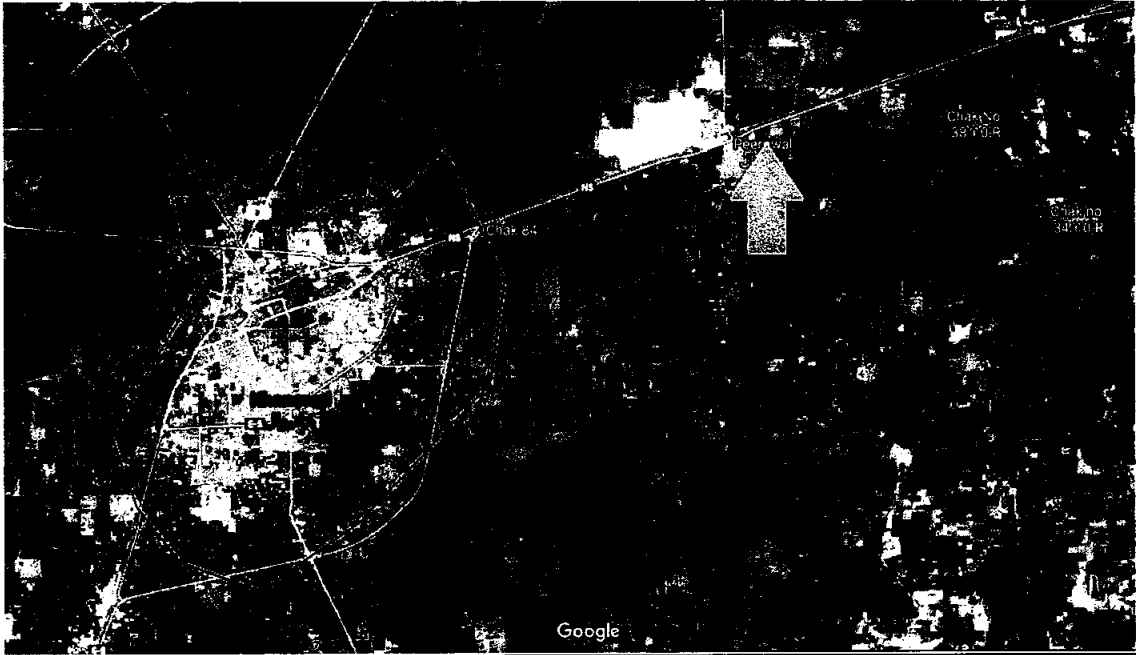
**Location of the
Generation Facility/Solar Power Plant/Solar Farm
of the Licensee**



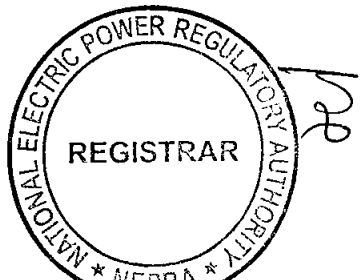
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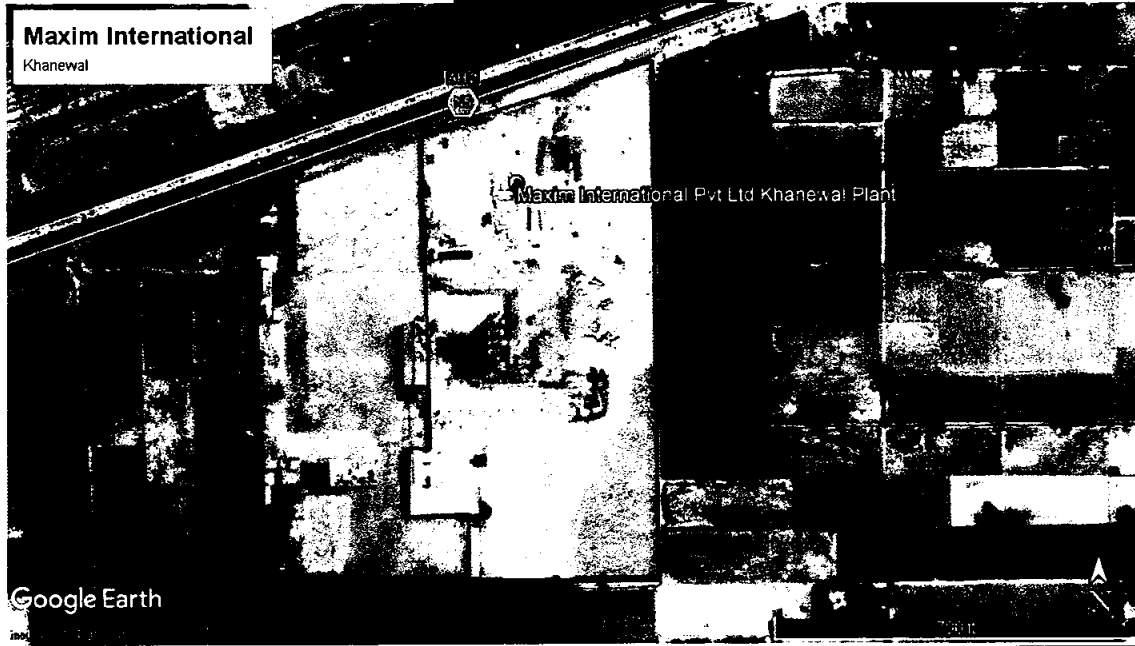


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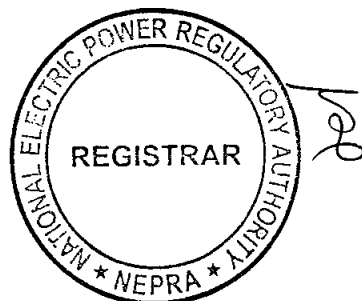
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**Land Coordinates of the
Generation Facility/Solar Power Plant/Solar Farm
of the Licensee**



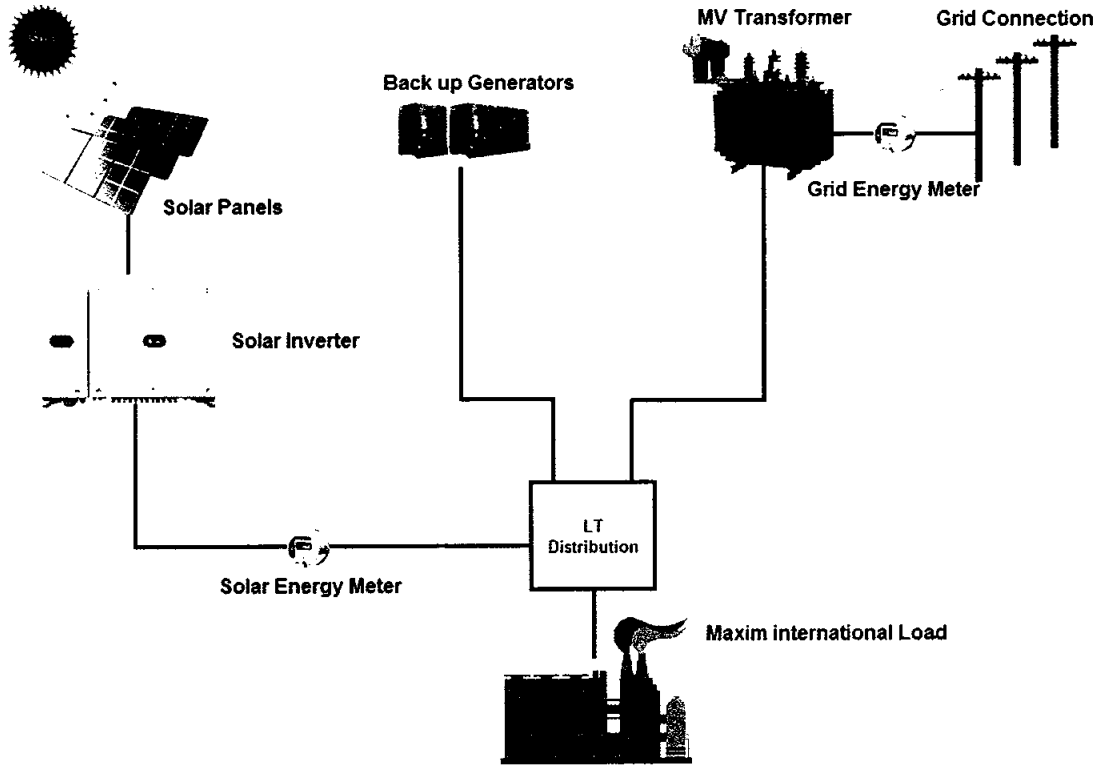
<u>Sr. No.</u>	<u>Latitude</u>	<u>Longitude</u>
Site	30°20'39.22"N	72° 2'55.19"E

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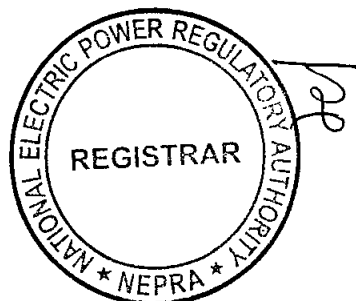


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Process Flow Diagram
of the Generation Facility/Solar Power Plant/Solar Farm
of the Licensee

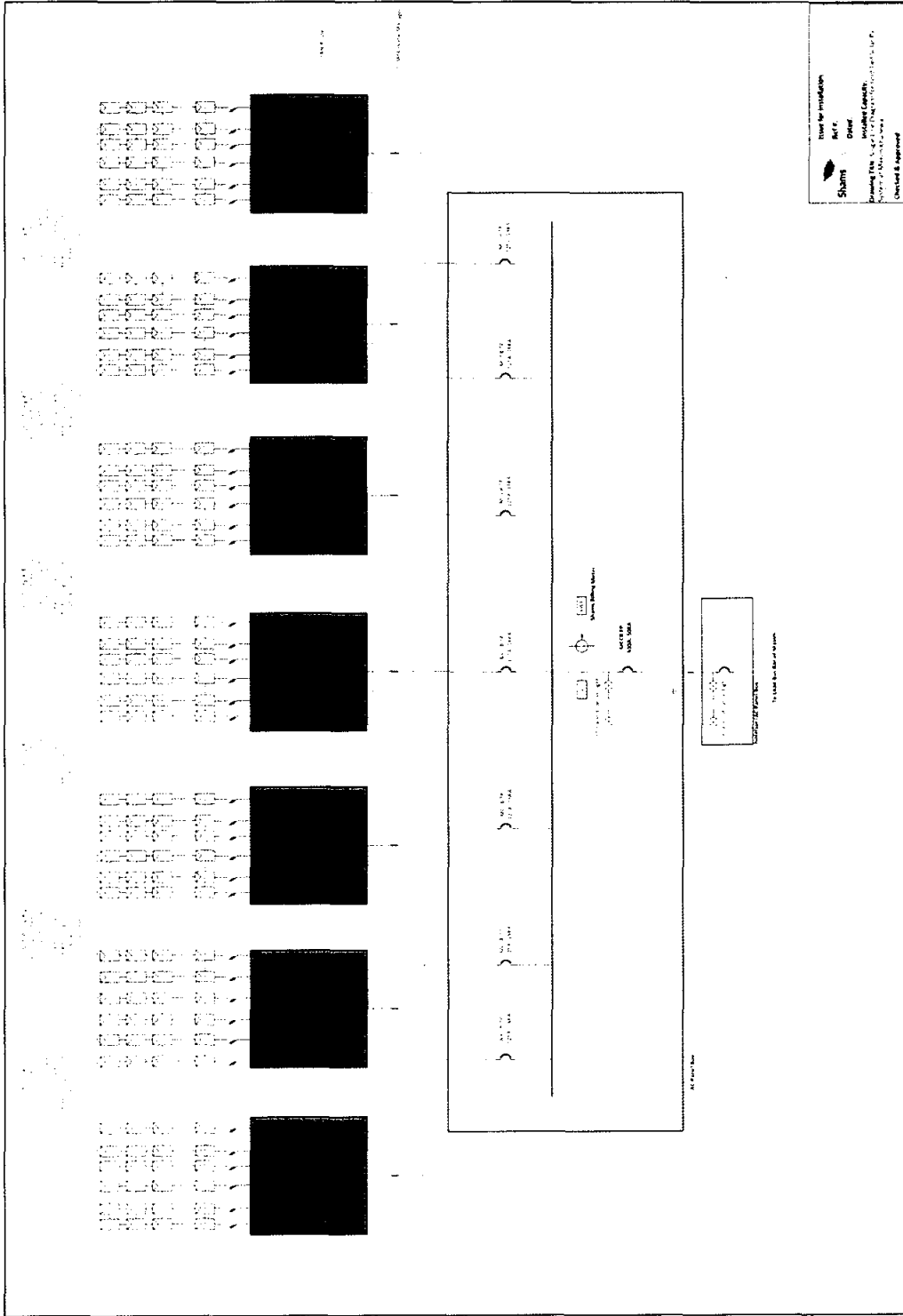


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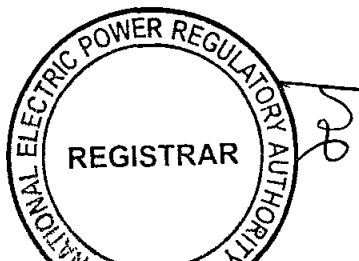


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Single Line Diagram
of the Generation Facility/Solar Power Plant/Solar Farm
of the Licensee



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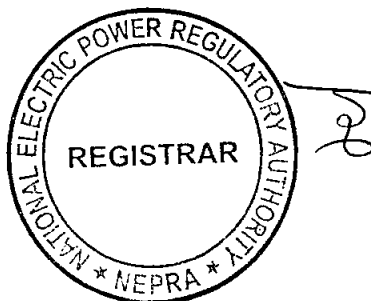


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**Interconnection Arrangement/Transmission Facilities
for Dispersal of Power from the Generation Facility/Solar
Power Plant/Solar Farm of the Licensee**

The electric power generated from the generation facility/Solar Power Plant/Solar Farm/SPPL will be delivered/supplied to a Bulk Power Consumer (BPC) in the name of Maxim International (Pvt.) Limited (MIPL), Khanewal, in the province of Punjab.

(2). The details pertaining to BPC, supply arrangement and other relating information is provided in the subsequent description of this Schedule-I. Any change 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	Shams Power (Pvt.) Ltd.
(ii).	Registered/ Business office of the Company/Licensee	2 nd Floor, Al-Maalik Building 19-Davis Road Lahore
(iii).	Location of the generation facility Solar Power Plant/ Solar Farm	Chak # 80/10-R, 62-km Multan to Lahore Road, Near Adda Peero-wal adjacent Ahmad Cotton Mills, Khanewal
(iv).	Type of the generation facility/ Solar Power Plant/ Solar Farm	Solar Photovoltaic (PV)

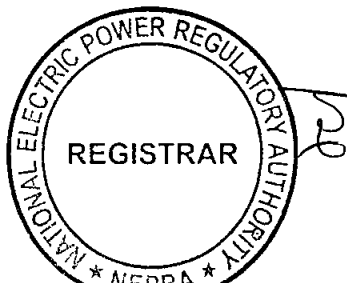
(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photovoltaic (PV) Cell
(ii).	System Type	Grid Tied
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Solar Farm (MW)	0.474 MW _P DC

(C). Technical Details of Equipment

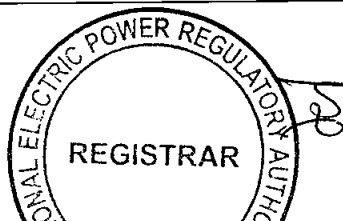
(a).	<u>Solar Panels – PV Modules</u>	
(i).	Type of Module	Polycrystalline - PV Type Module CS3U-360P
(ii).	Type of Cell	Polycrystalline

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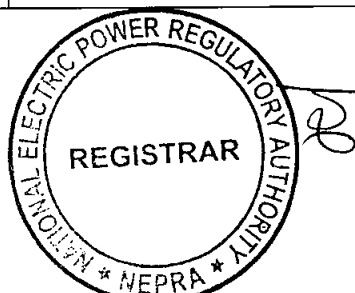


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(iii).	Dimension of each Module	2000 mm x 992 mm x 35mm
(iv).	No. of Panel/Modules	1,316
(v).	Total Module Area	1.984 m ²
(vi).	Frame of Panel	Anodised Aluminium Alloy, Crossbar enhanced
(vii).	Weight of one Module	22.5 kg
(viii).	No of Solar Cells in each module	144 Cells
(ix).	Efficiency of module	18.15 %
(x).	Maximum Power (P _{max})	360 W
(xi).	Voltage @ P _{max}	39.6 V
(xii).	Current @ P _{max}	9.1 A
(xiii).	Open circuit voltage (V _{oc})	47.0 V
(xiv).	Short circuit current (I _{sc})	9.67 A
(xv).	Maximum system open Circuit Voltage	893 V
(b).	<u>PV Array</u>	
(i).	Nos. of Strings	72
(ii).	Modules in a string	19,18, 17 each
(c).	<u>Inverters</u>	
(i).	Capacity of each unit	60 kW



(ii).	Manufacturer	Huawei	
(iii).	Input Operating Voltage Range	200-1000 V	
(iv).	Number of Inverters	7	
(v).	Efficiency of inverter	98.5%	
(vi).	Max. Allowable Input voltage	1100 V DC	
(vii).	Max. Current	22x6 = 132 A	
(viii).	Max. Power Point Tracking Range	200-1000 V	
(ix).	Output electrical system	3 phases, 4 wires	
(x).	Rated Output Voltage	400 V	
(xi).	Power Factor (adjustable)	0.8 leading – 0.8 lagging adjustable	
(xii).	Power control	MPP Tracker (6 MPPT/Inverter)	
(xiii).	Rated Frequency	50/60 Hz	
(xiv).	Environmental Enclosures	Relative Humidity	0-100%, condensing
		Audible Noise	
		Operating Elevation	4000 m



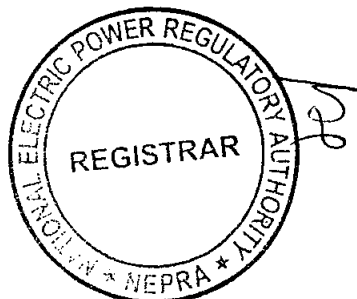
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		Operating temperature	-25 to +60°C
(xv).	Grid Operating protection	A	DC Disconnect Switch
		B	Anti-Islanding
		C	DC SPD
		D	AC SPD
		E	Residual Current Monitoring Unit
		F	DC Reverse Polarity Protection
		G	PV-array String Fault Monitoring
(d).	<u>Data Collecting System</u>		
(i).	System Data	Continuous online logging with Huawei Smart Logger.	

(D). Other Details

(i).	Expected COD of the generation facility Solar Power Plant/Solar Farm	December 31, 2020
(ii).	Expected useful Life of the generation facility Solar Power Plant/Solar Farm from the COD	25 years

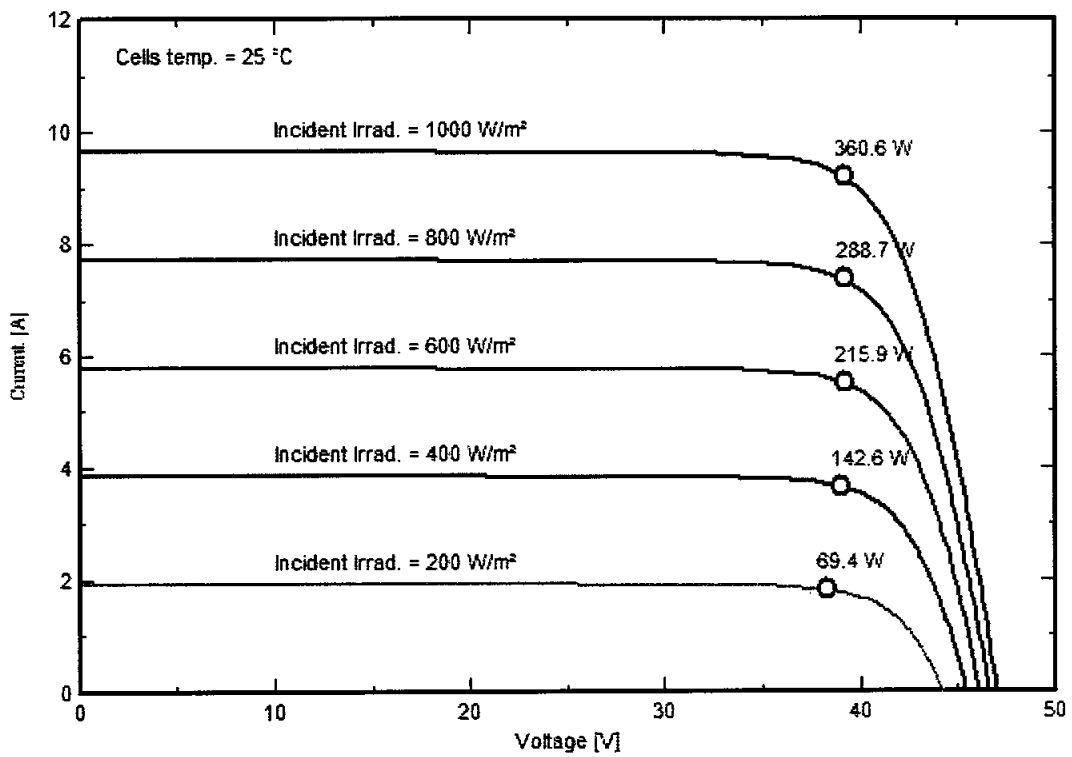
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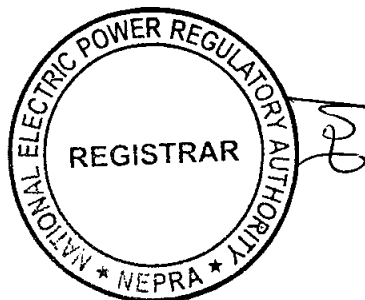
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V-I Curve of Solar Cell of Generation Facility/Solar Power Plant/ Solar Farm

PV module: Canadian Solar Inc., CS3U-360P HE



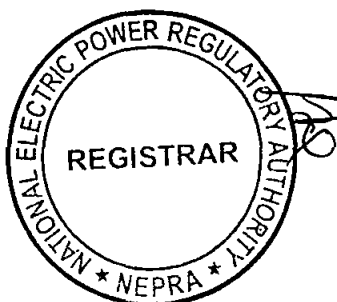
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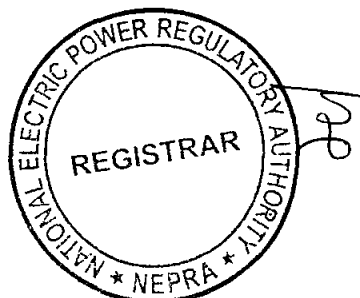
Information
Regarding Bulk Power Consumer/BPC/MIPL to be
Supplied by the Licensee/SPPL

(i).	No. of Consumers	One (01)	
(ii).	Location of consumer/MIPL (distance and/or identity of premises)	Chak # 80/10-R, 62-km Multan to Lahore Road, Near Adda Peerwal adjacent Ahmad Cotton Mills, Khanewal	
(iii).	Contracted Capacity and Load Factor for consumer	0.42 MW _P AC (0.474 MW _P DC) with capacity factor of 18.4 %	
(iv).	Specify Whether		
	(a).	The consumer is an Associate undertaking of the SPPL -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 SPPL.	SPPL will construct and operate Solar plant and provide electricity to MIPL
(b).	Consumer and MEPCO.	Industrial Consumer / 500 kW	
(vi)	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA	

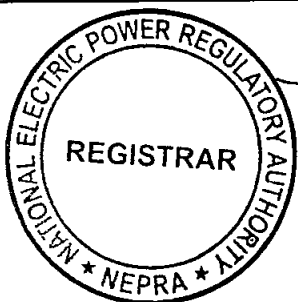
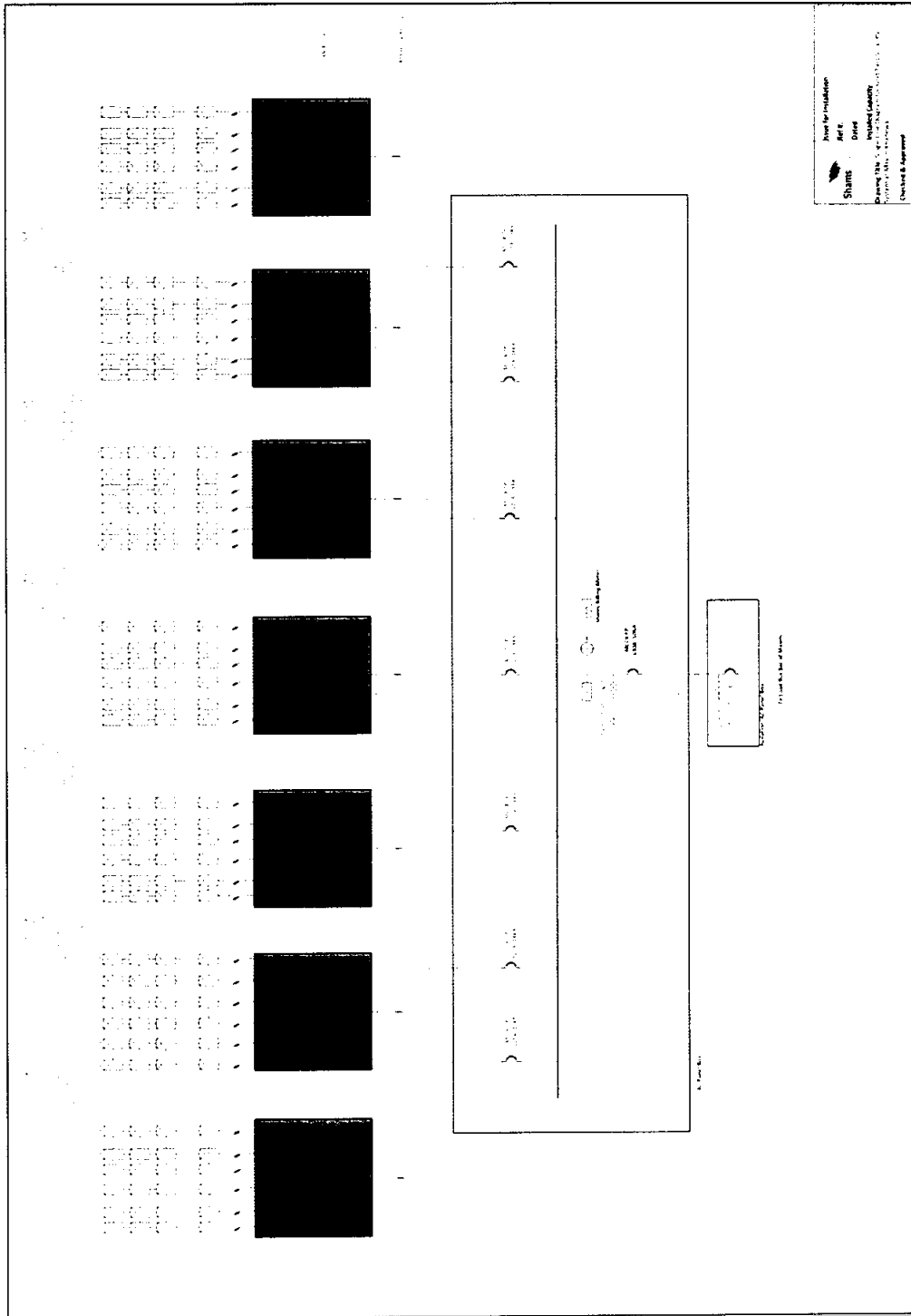


Information
Regarding Distribution Network for Supply of
Electric Power to BPC/MIPL

(i).	No. of Feeders	One (01)
(ii).	Length of Each Feeder (Meter)	75m
(iii).	Length of Each Feeder to each Consumer	75m
(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 LT feeder supplying power to MIPL is located on private property owned by BPC itself, without crossing of any public or third-party private property etc.
(v).	Whether owned by SPPL, Consumer or MEPCO-(deal with each Feeder Separately)	Feeders Owned by MIPL
	(a). If owned by MEPCO, particulars of contractual arrangement	NA
	(b). Operation and maintenance responsibility for each feeder	MIPL
(vi).	Whether connection with network of MEPCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)	Industrial Consumer / 500 kW
(vii).	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA



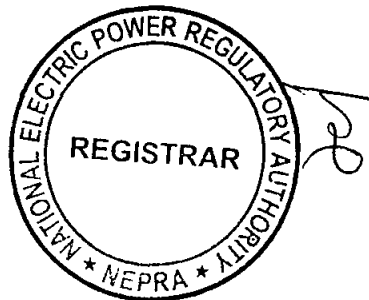
Schematic Diagram
for Supply of Power to the BPC from the Generation
Facility/Solar Power Plant /Solar Farm of the Licensee



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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.



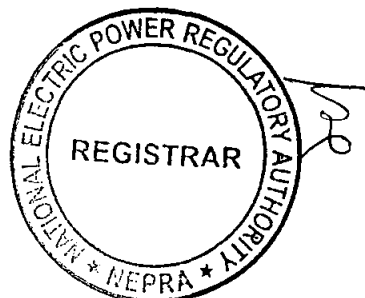
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SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm	0.474 MWp DC 0.420 MWp (Inverter Output)
(2).	Average Sun Hour Availability/Day (Irradiation on Inclined Surface)	5-6 Hours
(3).	No. of days per year	365
(4).	Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation)	677 MWh
(5).	Total expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the twenty five (25) years term of this licence	15,675 MWh
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	3,679.2 MWh
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	18.4%

Note

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



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Authorization of
Authority to Shams Power (Private) Limited (SPPL)



**Incorporated under Section-32 of the
Companies Ordinance, 1984 (XLVII of 1984) Having
Corporate Universal Identification No. 0091515, dated
January 15, 2015**

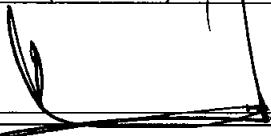
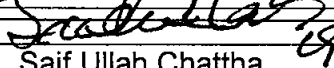
**GENERATION LICENCE No. SGC/135/2020
For
Sale to Bulk Power Consumer**

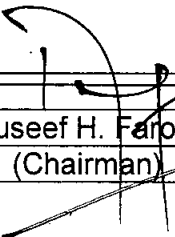
Pursuant to Section-22 of the Act and Rule-7 of the Generation Rules, the Authority hereby authorizes the SPPL (the Licensee) to engage in Second-Tier Supply business, limited to the consumer as follows:

- (1). Maxim International (Pvt.) Limited, Khanewal in the province of Punjab.


Authority

	
Engr. Rafique Ahmad Shaikh (Member)	Rehmatullah Baloch (Member)

	
Engr. Bhadur Shah (Member)	Saif Ullah Chattha (Member)/Vice Chairman


Tauseef H. Farooqi (Chairman)




01/09/20

Second Tier Supply
Authorization
for the Bulk Power Purchaser