



# National Electric Power Regulatory Authority

## Islamic Republic of Pakistan

NEPRA Tower, Attaturk Avenue (East), G-5/1, Islamabad  
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Web: www.nepra.org.pk, E-mail: registrar@nepra.org.pk

**Registrar**

No. NEPRA/R/LAG-449/13155-62

May 18, 2020

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

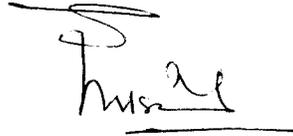
**Subject: Grant of Generation Licence No. SGC/134/2020  
Licence Application No. LAG-449  
Shams Power (Private) Limited (SPPL)**

*Reference: Your letter No. nil dated 11-02-2019*

Enclosed please find herewith Determination of the Authority in the matter of application of Shams Power (Private) Limited (SPPL) for the grant of generation licence along with Generation Licence No. SGC/134/2020 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to SPPL for its 1.897 MWp solar based generation located at Packages Mall, Walton Road, Nishat Town, Lahore in the province of Punjab, pursuant to Section 14B 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



18 05 20

(Syed Saqeer 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 East, A.K. Fazl-ul-Haq Rd, Block H G 7/2 Blue Area, Islamabad
5. Chief Executive Officer, Alternative Energy Development Board (AEDB), 2<sup>nd</sup> Floor, OPF Building, G-5/2, Islamabad
6. Chief Executive Officer, Lahore Electric Supply Company (LESCO), 22-A, Queens Road, Lahore
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 Shams Power (Private)**  
**Limited for Grant of the Generation Licence**

**May 18, 2020**  
**Case No. LAG-449**

**(A). Filing of Application**

(i). Shams Power Private Limited (SPPL) submitted an application on February 27, 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 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 April 08, 2019. Accordingly, the Registrar submitted the matter for the consideration of the Authority to decide the 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 and admitted the application on May 29, 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 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 June 01, 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 June 03, 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), Ministry of Science and Technology of Govt. of Pakistan (MoST) and Lahore Electric Supply Company Limited (LESCO). 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. 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/CPPAGL pool 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 roof top solar/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; and (iv). The design of competitive wholesale market i.e. CTBCM may be approved.

(c). MoST supported the grant of generation licence to SPPL and stated that it would help overcome electricity shortfall in the country. Furthermore, it recommended that Monocrystalline solar panels may be deployed instead of Polycrystalline panels, specifically from tier-I manufacturers. Moreover, it may be ensured that the panels are IEC and UL certified. MoST submitted that it cannot comment on the financial and other TORs of the project.

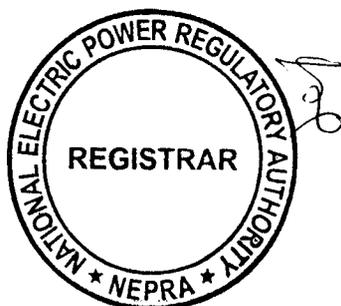
(d). LESCO submitted that Packages Mall being a BPC is bound to give one year prior notice to LESCO in terms of Section 22(2) of NEPRA Act. In this regard, LESCO highlighted that a BPC is not permissible to have electric supply from two independent companies/sources as per Utility Practices or any other law. LESCO also pointed out that the electricity consumption of Packages Mall from LESCO system will reduce which may result in loss of its business. Moreover, LESCO is in the list of Privatization, and therefore steps like sale or transfer of licenses and closing of any line of business cannot be carried out without prior consent of the Privatization Commission. Furthermore,



the comments of CPPAGL in the matter may also be considered. In addition to the said, LESCO submitted that the amendment made in Section 21 of the NEPRA Act is contrary to Section 35 of the Privatization Commission Ordinance.

(ii). The Authority considered the above comments and in view of the observations raised, considered it appropriate seeking perspective of SPPL. On the observations of CPPAGL, it was submitted that documents of paramount importance to be considered by the Authority in the current case is the NEPRA Act and according to which any person can set up a generation facility subject to the conditions specified in the NEPRA Act and conditions imposed by the Authority. In this regard, the Authority has framed the Licensing Regulations prescribing the necessary requirements to be fulfilled for a prospective licensee. SPPL has complied with the requirements of the said regulations and accordingly the Authority has admitted the application for the consideration of the grant of generation licence. About the issues relating to fulfillment of the LCOC, the Authority duly carries out the same without any exception and will do the same in the current case. Regarding matters pertaining to issues of tariff, the same is the prerogative of the Authority and cannot be commented considering the fact that current case is of a generation licence. Further, the issues pertaining to planning and induction of distribution generation are sectoral issues and it is not considered to club such issues with the current case of the company.

(iii). On the comments of MoST, it was submitted that Polycrystalline solar panels are more suitable in this project due to cost constraints. In this regard, a detailed study of Monocrystalline versus Polycrystalline Photovoltaic (PV) Cells was carried out before embarking on the project. The necessary cost benefit analysis revealed only very minor benefit in this regard, and accordingly it was decided to install Polycrystalline PV cells however, it is confirmed that the



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proposed panels will comply with the required standards of IEC and will be UL certified.

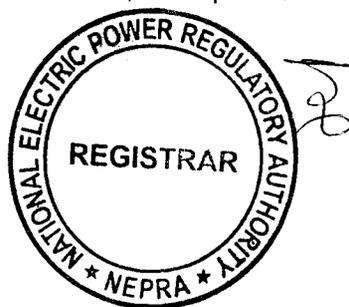
(iv). Regarding the observations of LESCO, it was submitted that SPPL is setting up the generation facility supplying to a Bulk Power Consumer (BPC) in the name of Packages Real Estate (Private) Limited (PREPL) commonly known as the Packages Malls. Due to the nature of the proposed generation facility, BPC will not be disconnecting its supply from LESCO, therefore, the provision of the Section 22 of the NEPRA Act regarding one year notice will not be applicable. About the dual connection, SPPL submitted that no law or Prudent Utility Practices forbids from receiving electricity from distinct sources. It is pertinent to mention that Consumer Service Manual (CSM) does mention that provision of a second source of supply is not a reason for disconnection. The Authority has been allowing dual connection on case to case basis.

(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 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.

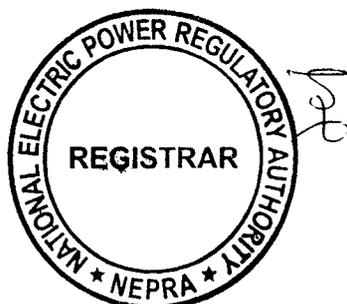
(ii). The Authority has observed that the applicant i.e. SPPL is an entity incorporated under Section 32 of the Companies Ordinance, 1984 (XLVII of 1984), having Corporate Universal Identification No. 0091515, dated January 15, 2015. It is a private company with the principal line of business to design, develop, construct, complete, own, possess, manage, operate and maintain



solar electric power generation plant(s) in country at such location(s) as the applicable laws/policies permit and in connection therewith to engage in the business of rental or sale of solar and other power generation equipment, generation, transmission, sale, supply and distribution of electricity within country and to do all and everything necessary, suitable to the accomplishment of this object.

(iii). The Authority has duly considered the provisions of the Memorandum of Association and Article of Association of the company and has observed that 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, both in the power sector, and the commercial oriented business. It is pertinent to mention that SPPL is already involved in owning, operation and maintenance of a 0.07956MW<sub>p</sub> solar generation facility at the roof-top of Al-Maalik building, Lahore. Besides, SPPL has also secured MoU of solar generation with Metro-Habib Group and AkzoNobel Pakistan totaling 3.0195MW<sub>p</sub> and 0.45804MW<sub>p</sub> respectively. SPPL is one of the strongest companies in terms of financial and technical capabilities which now plans to extend its share in the market of Renewable Energy (RE).

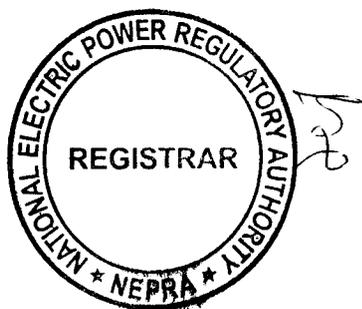
(iv). As explained above, SPPL plans supplying to Packages Real Estate (Private) Limited (PREPL) as a BPC through nine (09) number 230/400V single circuits individually on nine separate bus bars of existing L.T. distribution panel of said consumer. According to the submitted information, the total cost of the project will be about U.S \$ 1.26 million which will be financed through parent companies either through 100% equity or by arranging debt from the lending institutions on mutually agreed terms and conditions.



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(v). The sponsor carried out a feasibility study of the project including, *inter alia*, solar power plant equipment details, PV-sitting details, power production estimates based on solar irradiation data of the project sites, soil tests reports, technical details pertaining to selected photovoltaic (PV) cells and other allied equipment to be used in the solar power plant, electrical studies, environmental study and project financing etc. The review of the feasibility study reveals that for the proposed location to achieve a total capacity of 1.897MW<sub>p</sub>, the company will be installing 5,270 PV polycrystalline cells each of 360 Watt. In consideration of the said, it is clarified that the company plans installing PV cells from Tier-I manufacturer namely CS3U-360P model. It is pertinent to mention that the company has confirmed that deal for purchase of PV Cells has been locked with Canadian Solar which is one of the top PV manufacturing company of the world. In this regard, SSPL has confirmed that above mentioned manufacturer/supplier has assured a capacity factor of 17% will be achieved.

(vi). As explained above, the supply from proposed generation facilities will be supplied to PREPL. According to the system study of the project, the dispersal to the BPC will be made at 230/400V nine single circuits individually on nine separate bus bars of existing LT distribution panel of Packages Mall through existing LT distribution panel located on private property owned by the respective BPC not involving any public or third party. In this regard, it is pertinent to mention that BPC is 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, for the purpose of specified means specified by regulations made by the Authority under the NEPRA Act. Therefore, PREPL may be considered as BPC of SPPL.

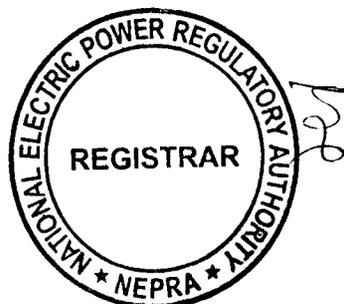


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(vii). Further to the above, Section 2(v) of the NEPRA Act defines the term "Distribution" wherein the ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power 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 any 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 Act, and a distribution licence will not be required by the company.

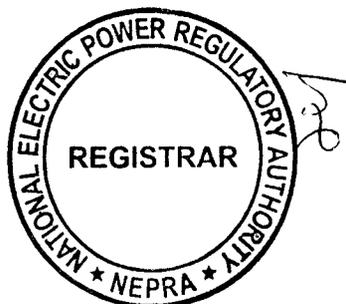
(viii). Further, the Authority has also considered the submissions of SPPL that necessary due diligence has been completed and there will be no environmental impact of the proposed arrangement as PV cells will be utilizing only the existing infrastructure of roof top of buildings. SPPL has confirmed that it will comply with the concerned environmental standards and accordingly the company is being made obligatory to comply with the relevant environmental standards for which a separate article is being included in the proposed generation licence.

(ix). 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 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 (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/Roof Top Solar



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 facility/solar power plant/Roof Top Solar against the preferences indicated by the Authority; (d). the cost and right-of-way considerations related to the provision of transmission and interconnection facilities; (e). the constraints on the transmission system likely to result from the proposed generation facility/solar power plant/Roof Top Solar and the costs of the transmission system expansion required to remove such constraints; (f). the short-term and the long-term forecasts for additional capacity requirements; (g). the tariff resulting or likely to result from the construction or operation of the proposed generation facility/solar power plant/Roof Top Solar; and (h). the optimum utilization of various sites in the context of both the short-term and the long-term requirements of the electric power industry as a whole.

(x). In consideration of the above, the Authority considers that the proposal of SPPL for installing different PV based generation facilities will result in optimum utilization of the RE which is currently untapped, resulting in pollution free electric power. It is pertinent to mention that solar is an indigenous resource and such resources should be given preference for the energy security. As explained in the preceding paragraphs above, 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(s), 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



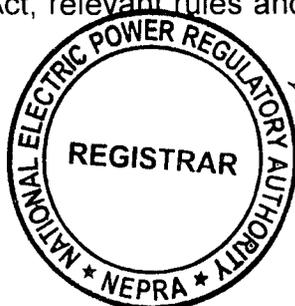
generation licence as stipulated in the NEPRA Act, rules and regulations and other applicable documents.

**(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 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 for the grant of a Generation Licence for setting up a generation facilities with a cumulative Installed Capacity of 1.897MW<sub>p</sub> for supplying to a BPC which is also 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 the energy security of the BPC. 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, technical details and other related information for the proposed PV based generation facility/solar power plant/ Roof Top Solar. In this regard, the Authority has observed that sponsors of the project have acquired/available with them the required land 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 facilities of SPPL will be used for supplying to different BPC(s). 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 1.00 MW to be treated as BPC therefore, the Authority allows all the above mentioned entities explained in the preceding Paras to be BPC of SPPL.

(vi). Regarding supply to the BPC, the Authority observes that the BPC and the proposed generation facility of SPPL is 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 is 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 NEPRA Act, and SPPL will not require a distribution licence for supplying to the BPC.

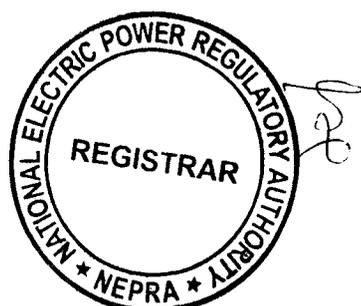
(vii). The term of a generation licence under Rule-5(1) of the Generation Rules is required to match with the maximum expected useful life of the units comprised in a generation facility. According to the information provided by SPPL, the Commercial Operation Date (COD) of the proposed generation facility/solar power plant/ Roof Top Solar will be March 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/ Roof Top Solar. The Authority considers that said submission of SPPL about the useful life of the generation facility/solar power plant/ Roof Top Solar 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 subject to Section-14 B of the NEPRA Act.

(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(s), 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(s), 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(s) 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 LESCO has raised various concerns including (a). compliance/consideration of the LCOC for the grant of Generation Licence; (b). introduction of a new tariff for consumers having dual connection as being proposed in the current case; (c). the quantum of distributed generation may be ascertained keeping in view the demand projections and energy charge being avoided by distributed generators; (d). uniform tariff may be introduced for net metering/self-consumption through the introduction of a new tariff category; (e). a separate category for net metering may be introduced in the central planning mechanism; (f). The design of competitive wholesale market i.e. CTBCM may be approved; (g). the BPC may give LESCO one year notice before switching over to other supply; (h). BPC is not permissible to have electric supply from two independent companies/sources as per Utility Practices or any other law; (i). the supply from SPPL to Packages mall will result in reduction in consumption from LESCO which may result in loss of its business; (j). LESCO is in the list of Privatization, and therefore steps like sale or transfer of licenses and closing of any line of business cannot be carried out without prior consent of the Privatization Commission; (k) the amendments made in Section 21 of the NEPRA Act is contrary to Section 35 of the Privatization Commission Ordinance.



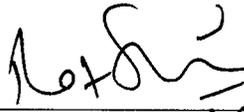
(xi). In consideration to the above, the Authority has observed that proposal of SPPL is P2P arrangement and does not form the part of the central planning as being carried out now. As explained in the preceding paragraphs, the Authority hereby confirms that it has duly considered the relevant provisions of related rules to confirm that proposal of SPPL clarifies that SPPL fulfils the requirements prescribed under the relevant rules and regulations including LCOC. About the introduction of a suitable tariff for consumers having dual connection, the Authority considers that current case is that of the grant of a generation licence and not related to tariff. If CPPAGL or DISCO has any issue in this regard then the same may be taken up through a suitable petition to determine the same. Regarding determining the quantum of distributed generation, the Authority considers that the integrated plan for generation of electric power is still in the stage of formulation and if NTDC and DISCO(s) considers that the quantum of Distribution Generation is likely to affect their future forecasted then quantum of such generation may be duly considered in the future plan in the matter. About the approval of CTBCM, the Authority through its determination NEPRA/DG(Lic)/LAM01-26389-398 dated December 05, 2019, has already approved the same. About BPC giving notice to LESCO, the Authority has considered the submissions of SPPL and agrees to the same. Further, about the dual connection, the Authority has been allowing such proposals in the past on a case to case basis and considers that such an arrangement viable subject to having suitable protection system in place. The Authority directs SPPL and its BPC to deploy suitable protection scheme. The Authority hereby confirms that grant of generation licence to SPPL will not have any impact on the assets of LESCO and will not have any effect on its future privatization. In view of the said, the observations of CPPAGL stands addressed and settled.



(xii). In consideration 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)

  
8/5/20

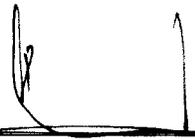
Rehmatullah Baloch  
(Member)

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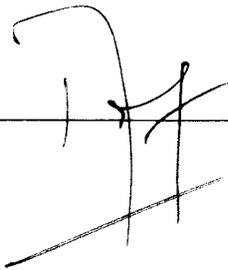
Saif Ullah Chattha  
(Member)

  
18.5.2020

Engr. Bahadur Shah  
(Member/Vice Chairman)

  
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Engr. Tauseef H. Farooqi  
(Chairman)

  
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18.05.20



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

**GENERATION LICENCE**

**No. SGC/134/2020**

In exercise of the powers conferred upon the National Electric Power Regulatory Authority (NEPRA) 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**

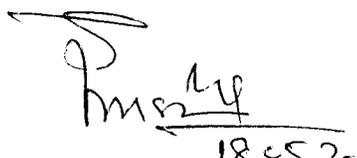
Incorporated Under Section-32 of the Companies Ordinance 1984 (XLVII of 1984) Having Corporate Universal Identification No. 0091515, dated January 15, 2015

**for its Generation Facility/Solar Farm/Solar Power Plant  
Located at Packages Mall, Walton Road, Nishter Town, Lahore, in  
the Province of Punjab**

(Total Installed Capacity:  $\approx$  1.897 MW<sub>P</sub> Gross)

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

Given under my hand this on 18<sup>th</sup> day of May Two Thousand & Twenty and expires on 30<sup>th</sup> day of March Two Thousand & Forty-Five.

  
18 05 20  
Registrar



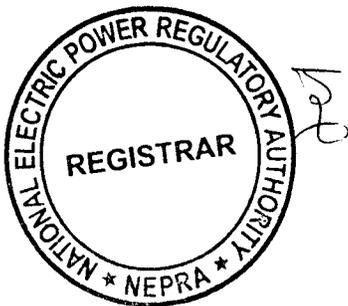




**Article-1**  
**Definitions**

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/Roof Top Solar of the Licensee on which the electric power from all the photovoltaic cells is







collected for supplying to the Power Purchaser;

- (g). "Commercial Code" means the National Electric Power Regulatory Authority (Market Operator Registration, Standards and Procedure) Rules, 2015 as amended or replaced from time to time;
- (h). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility/Solar Power Plant/Roof Top Solar of the Licensee is Commissioned;
- (i). "Commissioned" means the successful completion of commissioning of the generation facility/Solar Power Plant/Roof Top Solar for continuous operation and despatch to the Power Purchaser;
- (j). "Distribution Code" means the distribution code prepared by the concerned XW-DISCO and approved by the Authority, as may be revised from time to time with necessary approval of the Authority;
- (k). "Energy Purchase Agreement-EPA" means the energy purchase agreement, entered or to be entered into by and between the Power Purchaser and the Licensee, for the purchase and sale of electric energy generated by the generation facility/Solar Power Plant/ Roof Top Solar, as may be amended by the parties thereto from time to time;
- (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;

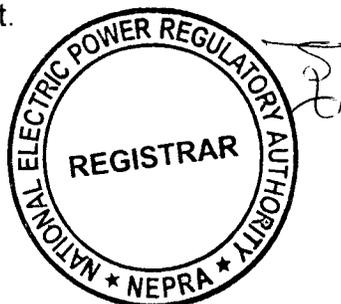


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- (n). "Law" means the Act, relevant rules and regulations made there under and all the Applicable Documents;
- (o). "Licence" means this licence granted to the Licensee for its generation facility/Solar Power Plant/Solar Farm;
- (p). "Licensee" means Shams Power (Private) Limited or its successors or permitted assigns;
- (q). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999 as amended or replaced from time to time;
- (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 PPA for procurement of electric power;
- (t). "Roof Top Solar" means a cluster of photovoltaic cells installed on the roof top of a building or any other suitable place in the same location used for production of electric power";
- (u). "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**

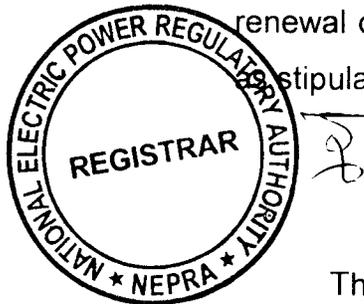
3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facility/Solar Power Plant or Roof Top Solar of the Licensee are set out in Schedule-I of this Licence.

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

**Article-4**  
**Term of Licence**

4.1 This Licence shall become effective from the date of its issuance and will have a term of twenty five (25) years from the COD of the generation facility/Solar Power Plant or Roof Top Solar, 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.

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**Article-6**  
**Tariff**

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

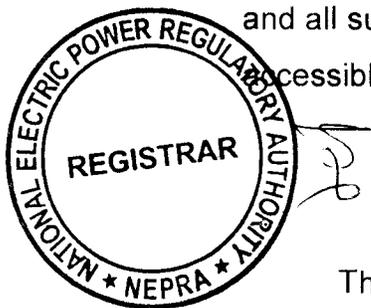
**Article-7**  
**Competitive Trading Arrangement**

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

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**Article-10**  
**Compliance with Environmental & Safety Standards**

10.1 The generation facility/Solar Power Plant or Roof Top Solar 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 Roof Top Solar 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**

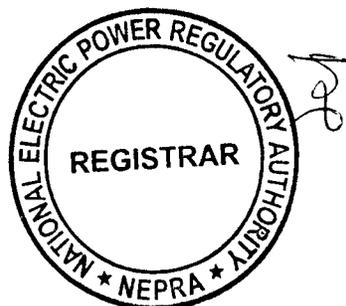
The Licensee shall deliver the electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility/Solar Power Plant or Roof Top Solar. The Licensee shall be responsible for the up-gradation (step up) of generation voltage up to the required dispersal voltage level.

**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.

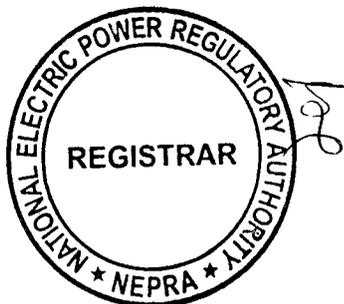
**Article-13**  
**Compliance with Applicable Law**

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.

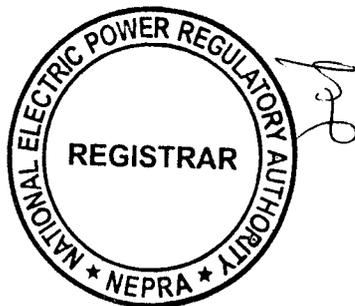


## SCHEDULE-I

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



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



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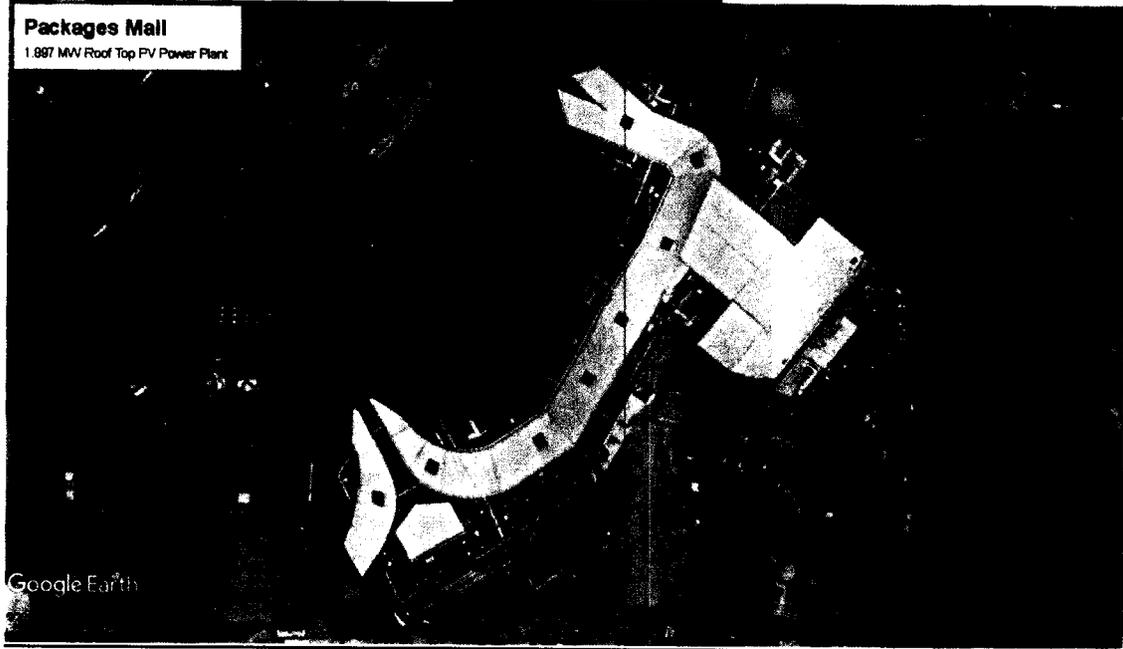
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**Land Coordinates of the  
Generation Facility/Solar Power Plant/Solar Farm  
of the Licensee**



**Sr. No.**

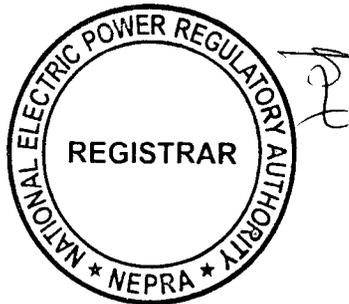
**Latitude**

**Longitude**

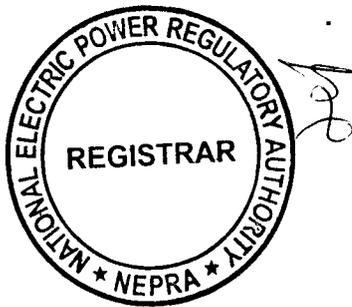
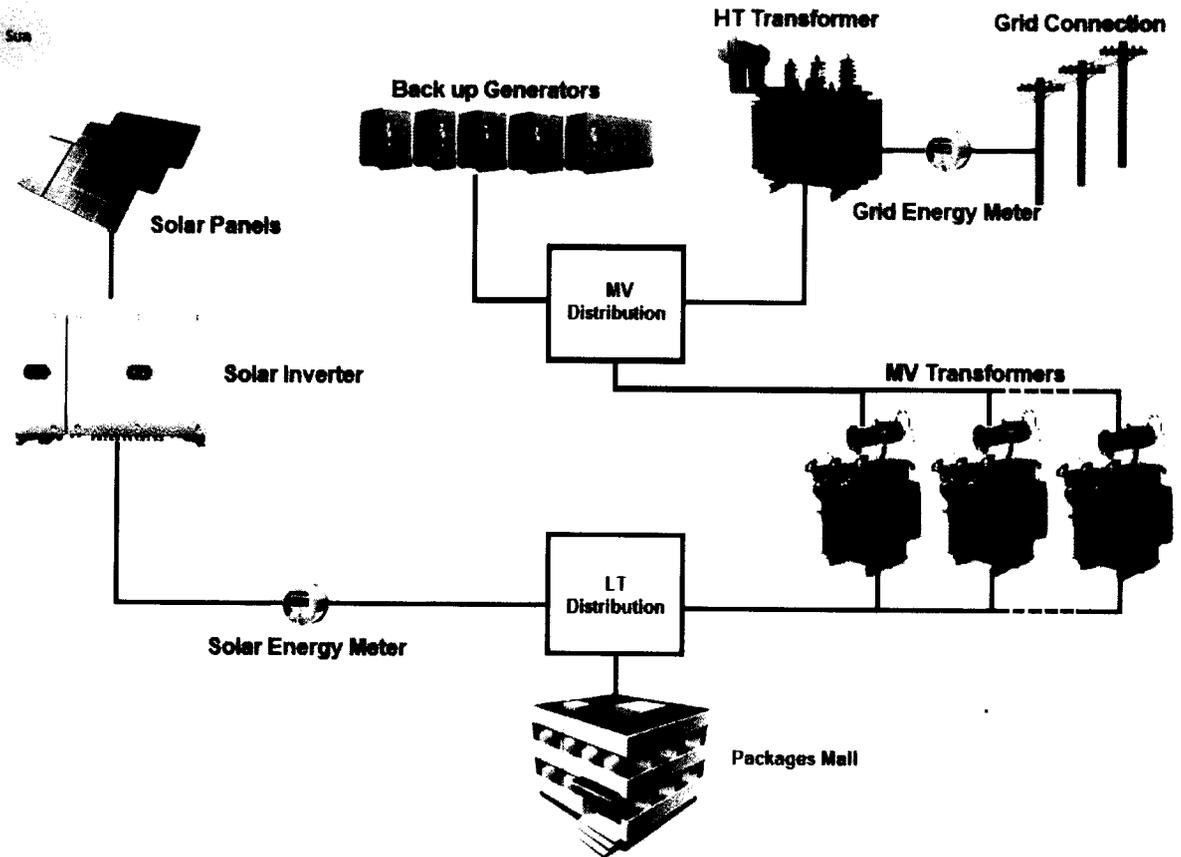
Site

31°28'16.37"

74°21'21.45"

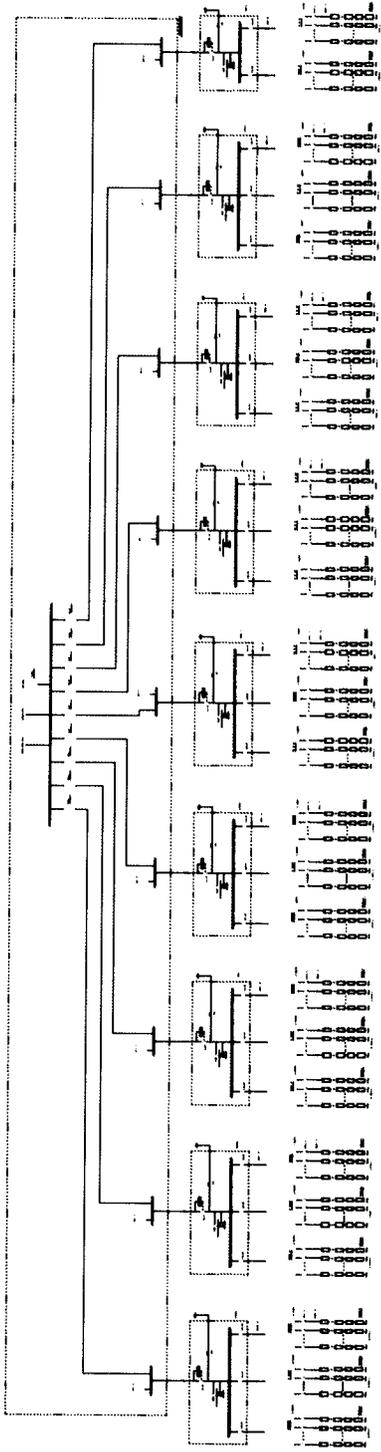


**Process Flow Diagram**  
**of the Generation Facility/Solar Power Plant/Solar Farm**  
**of the Licensees**



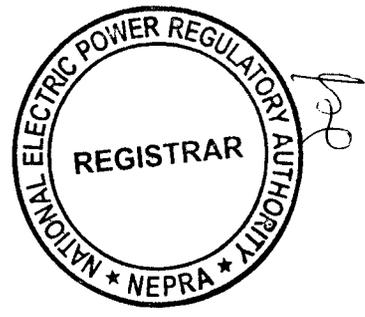
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**Single Line Diagram**  
**of the Generation Facility/Solar Power Plant/Solar Farm**  
**of the Licensee**



Single Line Diagram of  
1.897 MW Grid Tied PV Power Plant for Packages Mall, Lahore

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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 of the Licensee/SPPL will be delivered/supplied to a Bulk Power Consumer (BPC) in the name of Packages Real Estate (Private) Ltd for its Mall i.e. Packages Mall, located at Walton Road, Nishter Town Lahore, 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 above Interconnection Arrangement/Transmission Facility duly agreed by Licensee/SPPL and Packages Real Estate (Private) Ltd, 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	2nd Floor, Al-Maalik Building 19-Davis Road Lahore
(iii).	Location of the generation facility Solar Power Plant/ Solar Farm	Packages Mall, Walton Road, Nishter Town Lahore, Punjab
(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)	1.897 MW <sub>p</sub> DC

**(C). Technical Details of Equipment**

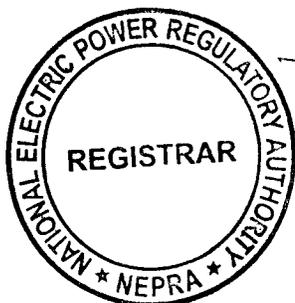
<b>(a).</b>	<b>Solar Panels – PV Modules</b>	
(i).	Type of Module	Polycrystalline - PV Type Module CS3U-360P
(ii).	Type of Cell	Polycrystalline



(iii).	Dimension of each Module	2000 mm x 992 mm x 35mm
(iv).	No. of Panel/Modules	5,270
(v).	Total Module Area	1.984 m <sup>2</sup>
(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	914 V
<b>(b).</b>	<b>PV Array</b>	
(i).	Nos. of Strings	72
(ii).	Modules in a string	18, 17 each
<b>(c).</b>	<b>Inverters</b>	
(i).	Capacity of each unit	60 kW



(ii).	Manufacturer	Huawei	
(iii).	Input Operating Voltage Range	200-1000 V	
(iv).	Number of Inverters	26	
(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)	0.8leading – 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
<b>(d).</b>	<b>Data Collecting System</b>		
(i).	System Data	Continuous online logging with Huawei Smart Logger.	
<b>(e).</b>	<b>Unit Transformer</b>		
(i).	Rating	N/A	
(ii).	Type of transformer	N/A	
(iii).	Purpose of transformer	N/A	
(iv).	Output Voltage	N/A	

**(D). Other Details**

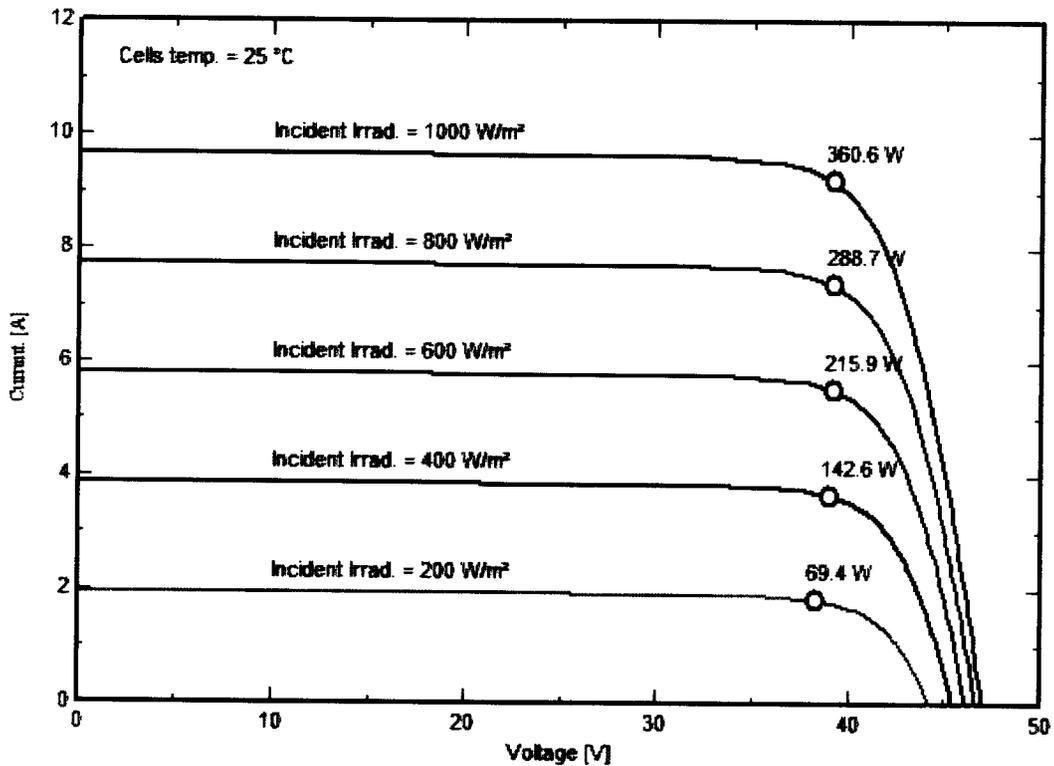
(i).	Expected COD of the generation facility Solar Power Plant/ Solar Farm	March, 2020
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(ii).	Expected useful Life of the generation facility Solar Power Plant/ Solar Farm from the COD	25 years
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**V-I Curve**  
**of Solar Cell of Generation Facility/Solar Power Plant/**  
**Solar Farm**

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



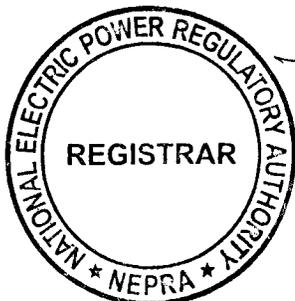
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**Information**  
**Regarding Bulk Power Consumer(s)/BPC(s) i.e. Packages Real Estate**  
**(Private) Ltd to be Supplied by the Licensee i.e. SPPL**

(i).	No. of Consumers	One (01)	
(ii).	Location of consumers (distance and/or identity of premises)	Packages Mall, Walton Road, Nishter Town Lahore, Punjab	
(iii).	Contracted Capacity and Load Factor for consumer	1.897 MWp DC (1.56 MWp AC) / 16.9 % (based on Estimated Solar Generation)	
(iv).	Specify Whether		
	(a).	The consumer is an Associate undertaking of the SPPL -If yes, specify percentage ownership of equity;	SPPL has no direct association with Packages Real Estate (Private) Ltd
	(b).	There are common directorships:	Currently, there are no common directors of Packages Real Estate (Private) Ltd and SPPL.
(v).	(c). Either can exercise influence or control over the other.		No
	Specify nature of contractual Relationship		
	(a).	Between each consumer and SPPL.	SPPL will construct and operate Solar plant and provide electricity to Packages Real Estate (Private) Ltd
	(b).	Consumer and LESCO.	Commercial Consumer / 8000 kW
(vi)	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA	

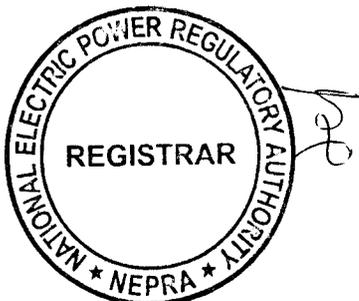


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**Information**  
**Regarding Distribution Network for Supply of Electric Power to BPC in**  
**the name of Packages Real Estate (Private) Ltd**

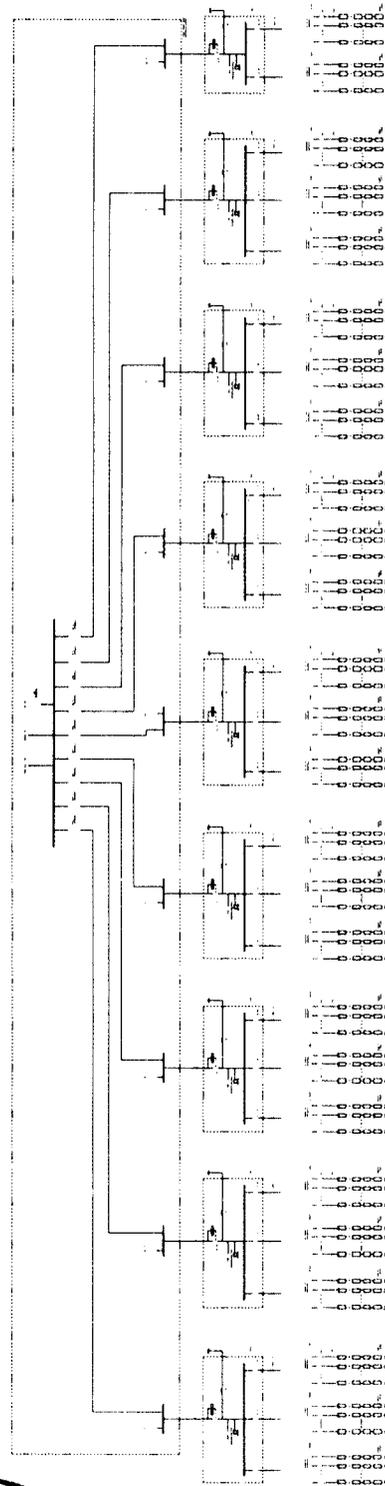
(i).	No. of Feeders	9
(ii).	Length of Each Feeder (Meter)	15m
(iii).	Length of Each Feeder to each Consumer	15m
(iv).	In respect of all the Feeders, describe the property (streets, farms, Agri land, etc.) through, under or over which they pass right up to the premises of customer, whether they cross-over.	The LT feeder supplying power to Packages Real Estate (Private) Ltd is located on private property owned by the Packages Real Estate (Private) Ltd itself, without crossing of any public or third party private property etc.
(v).	Whether owned by SPPL, Consumer or LESCO-(deal with each Feeder Separately)	Feeders Owned by Packages Real Estate (Private) Ltd
	(a) If owned by LESCO, particulars of contractual arrangement	NA
	(b) Operation and maintenance responsibility for each feeder	Packages Real Estate (Private) Ltd
(vi).	Whether connection with network of LESCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)	Commercial / 8000 kW
(vii).	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA

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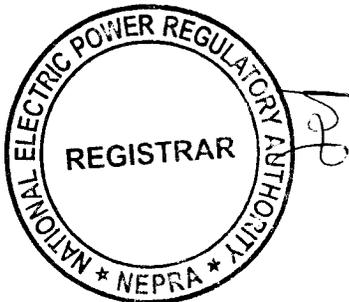
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**Schematic Diagram**  
**for Supply of Power to the BPC from the Generation**  
**Facility/Solar Power Plant /Solar Farm of the Licensee**



Single Line Diagram of  
1.897 MW Grid Tied PV Power Plant for Packages Mall, Lahore

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## SCHEDULE-II

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

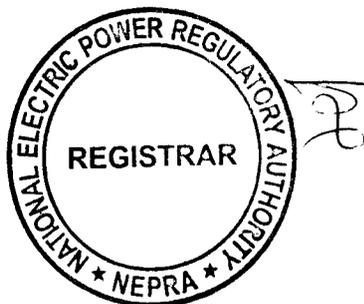


## SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm	1.897 MWp DC 1.560 MWp (Inverter Output)
(2).	Average Sun Hour Availability/Day (Irradiation on Inclined Surface)	5.18 Hrs
(3).	No. of days per year	365
(4).	Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation)	2,310 MWh
(5).	Total expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the twenty five (25) years term of this licence	52,775 MWh
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	13,665.6 MWh
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	16.9%

**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 Power Purchase Agreement (PPA) or the Applicable Document(s).



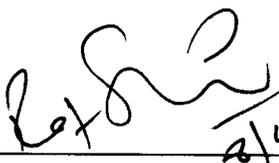
**Revised/Modified Authorization**  
**by National Electric Power Regulatory Authority (NEPRA) to**  
**Shams Power (Private) Limited**

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

**NEPRA GENERATION LICENCE No. SGC/134/2020**  
**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 Shams Power (Private)  
Limited-SPPL (the Licensee) to engage in second-tier supply business, limited to  
the following consumer:

- (a). Packages Real Estate (Private) Limited, Walton Road, Nishter Town,  
Lahore, in the province of Punjab.

  
2/5/20

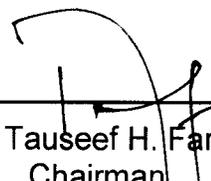
Engr. Rafique Ahmed Shaikh  
(Member)

Engr. Rehmatullah Baloch  
(Member)

  
Saif Ullah Chattha  
(Member) 8.5.2020

Engr. Bahadur Shah  
(Member)/Vice Chairman



  
Engr. Tauseef H. Farooqi  
Chairman