National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

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

No. NEPRA/R/DL/LAG-467/ 29152-58

September 09, 2020

Mr. Farman Ahmed Khan Lodhi,
Chief Executive Officer,
Solis Charlie Energy (Private) Limited,
3rd Floor, Horizon Vista, Block-4, Clifton,
Karachi.

Subject: **Grant of Generation Licence No. SGC/139/2020**
Licence Application No. LAG-467
Solis Charlie Energy (Private) Limited (SCEPL)

Reference: *SCEPL's application submitted vide letter dated September 13, 2019.*

Enclosed please find herewith Generation Licence No. SGC/139/2020 granted by National Electric Power Regulatory Authority (NEPRA) to Solis Charlie Energy (Private) Limited (SCEPL) for its 03.50 MW Solar Power Plant located at Kohat and D.I Khan Cantonments, in the Province of Khyber Pakhtunkhwa, 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.

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(Syed Safeer Hussain)

Enclosure: As Above

Copy to:

1. Secretary, Ministry of Energy, Power Division, A-Block, Pak Secretariat, Islamabad.
2. Chief Executive Officer, Alternative Energy Development Board (AEDB), 2nd Floor, OPF Building, G-5/2, Islamabad.
3. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
4. Managing Director, NTDC, 414-WAPDA House, Lahore.
5. Chief Executive Officer, Peshawar Electric Supply Company Limited, PESCO 166 WAPDA House, Shami Road, Peshawar.
6. Director General, Environmental Protection Agency (EPA), 3rd Floor, Old Courts Building, Khyber Road, Peshawar.

National Electric Power Regulatory Authority (NEPRA)

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

September 09, 2020
Case No. LAG-467

(A). Filing of Application

(i). Solis Charlie Energy (Private) Limited (SCEPL) submitted an application on September 16, 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 same in compliance with the Licensing Regulations. Accordingly, the Registrar submitted the application for the consideration of the Authority to decide the admission of the application or otherwise. The Authority considered the matter and found the form and content of the application in substantial compliance with Regulation-3 of the Licensing Regulations.

(iii). Accordingly, the Authority admitted the application on October 25, 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 October 31, 2019.

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(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 October 31, 2019, soliciting their comments for assistance of the Authority.

(B). Comments of Stakeholders

(i). In reply to the above, comments were received from two different (02) stakeholders. These included Central Power Purchasing Agency (Guarantee) Limited (CPPAGL) and Ministry of Science and Technology of Govt. of Pakistan (MoST). The salient points of the comments offered by the said stakeholder are summarized below:

(a). CPPAGL submitted that SCEPL is planning to set up Photo Voltaic (PV) cell based generation facilities consisting of two (02) distinct locations with a cumulative installed capacity of 3.50 MW_P for supplying/selling to Military Engineering Services (MES) at DI Khan Cantonment (2.00 MW_P) and Kohat Cantonment (1.50 MW_P). In light of the provisions of the NEPRA Licensing (Generation) Rules, 2000 (the "Rules"), the Authority is required to scrutinize all applications for the generation licence on "Least Cost Option Criteria (LCOC)". According to the existing tariff structure for the end consumer, the more the number of units being sold, less will be the per unit rate for the fixed capacity charges and vice versa. In the view of foregoing, it is suggested that (a). a quantum for Distributed Generation needs to be ascertained in light of the demand projections (against which agreements/procurements have already taken place) while keeping in view the Energy charge avoided by the Distributed Generation consumers/source against which the capacity charge was supposed to be

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recovered (as per existing tariff structure of the end consumers); (b). a uniform tariff required to be introduced (in the existing end consumer tariff setting framework) for the Grid Connected Distributed Generator Consumer (be it for Net-Metering or Self-Consumption) by incorporating a new tariff category in the Schedule of Tariff (SOT); (c). a separate category for Grid-Connected Distribution Generation (be it for Net-Metering or Self-Consumption) needs to be introduced through a Central Planning Mechanism in order to ensure proper registration and charge of respective tariff; (d). The design of the competitive wholesale market i.e. CTBCM has already been submitted by CPPAGL to NEPRA for regulatory approval in March 2018. Unless the design of the competitive wholesale market is approved and the wholesale market become functional, the retail suppliers could not carry out the sales/purchase transactions without any market framework. Therefore, the first prerequisite in this regard is to have an approved model of the competitive wholesale market from the regulator in order to proceed further towards the retail market; and

(b). MoST submitted that installation of 3.50 MW of PV solar based generation facilities will help in reducing the shortfall in the area. The type of technology being deployed for the project is polycrystalline. It is recommended that manufacturer of PV cells should be Tier-I and IEC & UL certified.

(ii). The Authority considered the above comments of CPPAGL and MoST and considered it appropriate seeking perspective of SCEPL. On the observations of CPPAGL, it was submitted that *prime facie* the application of

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SCEPL fulfills the LCOC considering the fact that as new transmission facilities are not required therefore, no such costs is involved. There are no constraints for transmission system as the generation facilities are located on the premises of MES, owned by Pakistan Army and the existing infrastructure for supply for electric power will be used. Further to the said, it was submitted that the proposed generation facilities will not be addition in capacity and in fact work to augment the supply for MES by injecting low cost clean energy. It was submitted that the tariff for the proposed Bulk Power Consumer (BPC) will be very competitive as compared to other sources of energy prevailing this time. MES will only be sharing minimum load on solar, while the major bulk of its load shall remain with the relevant DISCO. Since such a minimal load is being shared, that too during a few hours of the day, there should not be that significant of an effect on the fixed capacity charges. The load will remain connected with the local grid and get the electricity supply through its respective DISCO to fulfill the maximum demands of the respective Army Garrisons. On the comments of MoST, it was confirmed that the proposed PV cells will be from Tier-I suppliers having the required certification.

(iii). The Authority considered above submissions of SCEPL and considered it appropriate to proceed further in the matter of the application of SCEPL for the consideration of grant of Generation Licence application as stipulated in the Licensing Regulations and NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules").

(C). Findings/Comments

(i). The Authority examined the submissions of SCEPL including the information provided with its application, comments of the stakeholders, rejoinder submitted by SCEPL, the relevant rules & regulations in the matter. The observations in the matter are explained in the following paragraphs.

(ii). The Authority has observed that applicant i.e. SCEPL is an entity incorporated under Section 16 of the Companies Act, 2017 (XIX of 2017),

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having Corporate Universal Identification No. 0135090, dated June 11, 2019. It is a private limited company having Business Office at D-180, Block-5, Clifton Karachi, South Sindh. According to the Memorandum of Association, the objects of the company, *inter alia*, include business of electric power generation. The main sponsor of the SCEPL is Solis Energy Solutions Private Limited which is involved in providing solar based solutions for different clients. The said company is also certified by AEDB for providing Net-Metering solutions to various household and industrial consumers.

(iii). As explained above, the application for grant of generation licence under consideration envisages setting up generation facilities for MES at two (02) different locations of DI Khan Cantt (2.00 MW_P) and Kohat Cantt (1.50 MW_P). In this regard, it is pertinent to that SCEPL plans supplying to the aforementioned facilities of MES as BPC(s) through cables located on the private property owned by Pakistan Army. According to the submitted information, the total cost of the project will be about PKR. 332.061 million which will be financed through a combination of debt (80% of the total cost of project i.e. Rs. 265.647 million) and equity (20% of the total cost of project i.e. Rs. 66.414 million). In this regard, a number of financial institution/commercial banks have shown their willingness to finance the debt portion of the project.

(iv). The Authority has considered the submissions of SCEPL 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 above mentioned two locations to achieve a total capacity of 3.50 MW_P the company will be installing a total of 10,640 PV cells each of 330 W_P (i.e. 6076 x 330 W_P at DI Khan Cantonment & 4564 x 330 W_P at Kohat Cantonment). In consideration of the said, it is clarified that the company plans installing PV cells from Tier-I manufactures including Jinko Solar, JA Solar, Renesola or Trina Solar Limited. It is pertinent to mention that the company has confirmed that deal for purchase of PV Cells of TSM-330

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PE14A has been locked with Trina Solar where the manufacturer has assured an average capacity factor of 16.88%.

(v). As explained above, the supply from proposed generation facilities will be supplied to different entities of MES. According to the system study of the project, the dispersal to the BPC(s) will be made at 11kV voltage through cables located/ground mounted/private property owned by Pakistan Army not involving any public. In this regard, it is pertinent to mention 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. 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(s) therefore, all the loads of entities explained in the preceding Paras may be considered as BPC(s).

(vi). Further to the above, Section 2(v) of the NEPRA Act defines the term "Distribution" wherein the ownership, operation, management and control of distribution facilities located on the 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 facilities to be used for delivery of electric power to different two (02) locations of MES are located on the private property (without involving any public property or any third party) will be owned, operated, managed and controlled by the respective entity therefore, the supply of electric power to various

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entities by SCEPL does not constitute a distribution activity under the Act, and a distribution licence will not be required by the company.

(vii). SCEPL has submitted that it carried out an Initial Environmental Examination (IEE) of the project confirming that there will not be any adverse impact to the environment as solar installation will be carried out on the existing available infrastructure of Kohat and DI Khan Cantonment. SCEPL has informed that the IEE has already been submitted to the Environment Protection Agency of Government of the KPK (EPAGoKPK) for issuance of No Objection Certificate (NOC) and the same is in advance stage. In this regard, SCEPL has also confirmed that the required approval/NOC will be submitted to the Authority, once it is issued.

(viii). The grant of a generation licence is governed by the provisions of Rule-3 of the Generation Rules. It is pertinent to mention that SCEPL 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/ solar farm proposed in an application for a generation licence are either not suitable on environmental grounds or do not satisfy the least cost option criteria. 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 Renewable Energy (RE) or non-RE resources proposed for generation of electric power; (b). the availability of indigenous fuel and other resources; (c). the comparative costs of the construction, operation and maintenance of the proposed generation facility/solar power plant/ solar farm against the preferences indicated by the Authority; (d). the cost and right-of-way considerations related to the provision of transmission and interconnection

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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, it is considered that the proposed project will result in optimum utilization of the RE which was earlier untapped, resulting in pollution free electric power. It is pertinent to mention that solar is an indigenous source and such resources should have a preference for the energy security. As explained in the preceding paragraphs above, the company will be supplying to a BPC(s) directly which only involve laying feeders measuring a few meters which concludes that the project will not face any constraints in transmission of power. Further, being located in the same vicinity 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, it is considered that the project of SCEPL 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.

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(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, SCEPL has approached for the grant of a Generation Licence for setting up a generation facilities with a cumulative Installed Capacity of 3.50 MW_p for supplying to a BPC(s) which is also existing consumer of its respective DISCO. The Authority considers that the above proposal of SCEPL 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 SCEPL in diversifying its portfolio but will also enhance the energy security of the BPC(s). Further, the project will also help in reducing the carbon emission by generating clean electricity, thus improving the environment.

(iv). As explained above, SCEPL 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 facilities/solar power plants/Solar Farms. In this regard, the Authority has observed that sponsors of the project have acquired/available the Project Company (as tenant) has made available with them the required land for 25

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years 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 SCEPL 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(s). 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(s) therefore, the Authority allows all the above mentioned entities explained in the preceding Paras to be BPC(s) of SCEPL.

(vi). Regarding supply to the BPC(s), the Authority observes that the BPC(s) and the proposed generation facilities of SCEPL are located within the same premises and the BPC(s) will be supplied through underground cables/feeder of 11kV. 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(s) located in the service territory of a distribution company. In view of the said, the Authority allows the SCEPL to sell electricity to BPC(s). Further, under Section-2(v) of the NEPRA Act, ownership, operation, management and control of distribution facilities located on the 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(s) is located within the same premises and no public areas are involved, the supply of power to BPC(s) by SCEPL does not constitute a distribution activity under the NEPRA Act, and SCEPL will not require a distribution licence for supplying to the BPC(s).

(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

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the units comprised in a generation facility. According to the information provided by SCEPL, the Commercial Operation Date (COD) of the proposed generation facilities/solar power plants/Solar Farms will be February 28, 2021 and it will have a useful life of around twenty five (25) years from its COD. In this regard, SCEPL has requested that the term of the proposed generation licence may be fixed as per the said useful life of generation facilities/solar power plants/Solar Farms. The Authority considers that said submission of SCEPL about the useful life of the generation facilities/solar power plants/Solar Farms and the subsequent request of SCEPL 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). The Authority considers the environmental issues arising from the installation of any project of prime importance. As explained in the preceding paragraphs, SCEPL has confirmed that it has carried out IEE of the project. Further, SCEPL has also confirmed that the project will not have any adverse impact on the environment and the necessary NOC will be submitted in due course of time. In view of the importance of the matter, the Authority decides to make SCEPL obligatory for compliance of environmental standards. In this regard, the Authority includes a specific article pertaining to compliance of environmental standards in the generation licence. Further, the Authority directs SCEPL to submit the required approval/NOC from EPAGoKPK in due course of time but not later than six months of issuance of this determination.

(ix). Regarding the rates, charges and terms and conditions of tariff between SCEPL 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 SCEPL 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 SCEPL and its BPC(s) to agree on a bilateral agreement and accordingly SCEPL will be

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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 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 SCEPL fulfils the requirements prescribed under the relevant rules and regulations including LCOC as explained at preceding paragraph. About the proposal of CPPAGL to have a new tariff for such consumers having dual supply arraignment (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 not relevant 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 SCEPL. 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 SCEPL 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.

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

Rehmatullah Baloch
(Member)

Engr. Bahadur Shah
(Member)

Saif Ullah Chattha
(Member/Vice Chairman)

Engr. Tauseef H. Farooqi
(Chairman)

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National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. SGC/139/2020

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:

SOLIS CHARLIE ENERGY (PRIVATE) LIMITED

Incorporated Under Section-16 of the
Companies Act, 2017 (XIX of 2017) Having Corporate Universal
Identification No. 0135090, dated June 11, 2019

for its Generation Facility/Solar Farm/Solar Power Plant Located at Kohat and D.I. Khan Cantonments in the Province of KPK

(Total Installed Capacity: ≈ 03.50 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 09th day of September Two Thousand & Twenty and expires on 27th day of February Two Thousand & Forty-Six.

09 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

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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;

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

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

(s). "Solar Farm" means a cluster of photovoltaic cells installed on the ground or any other suitable place in the same location used for production of electric power";

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

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

Article-2
Applicability of Law

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

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Article-3
Generation Facilities

3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facility/Solar Power Plant 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.

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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.

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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 sta

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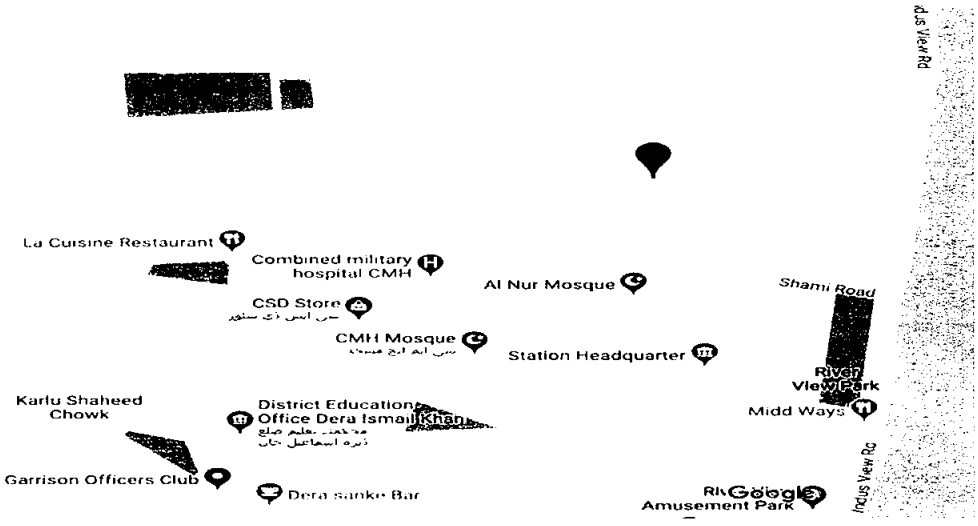
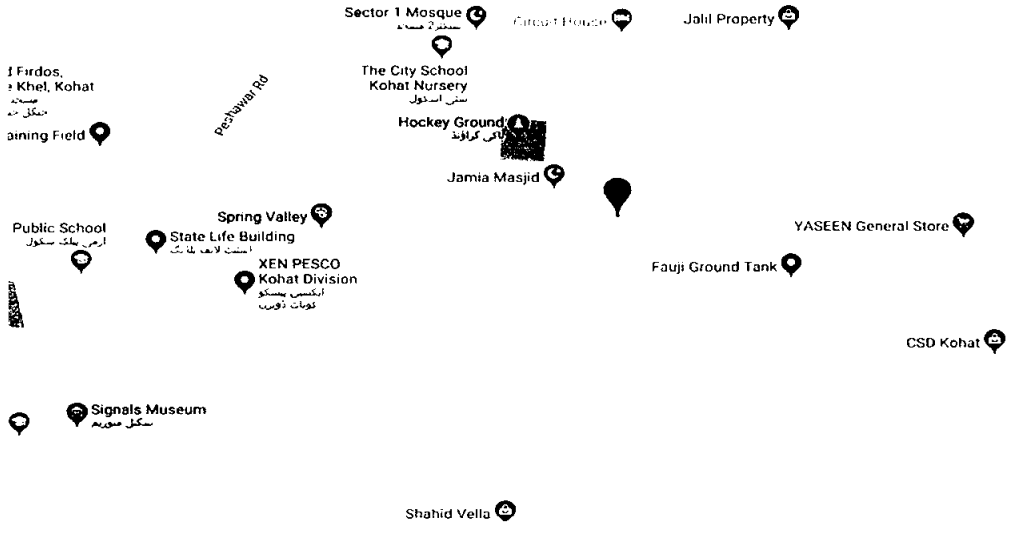
Location of the Generation Facility/ Solar Power Plant/ Solar Farm of the Licensee



Location-I: DI Khan Cantonment



Location-II: Kohat Cantonment

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

Location-I: Land Coordinates of DI Khan Cantonment

Location-II: Land Coordinates of Kohat Cantonment

Serial Number	Location	Latitude	Longitude
1.	DI Khan Cantonment (Location-I)	31°49'45.78"N	70°55'28.54"E
2.	Kohat Cantonment (Location-II)	33°35'40.37"N	71°27'35.89"E

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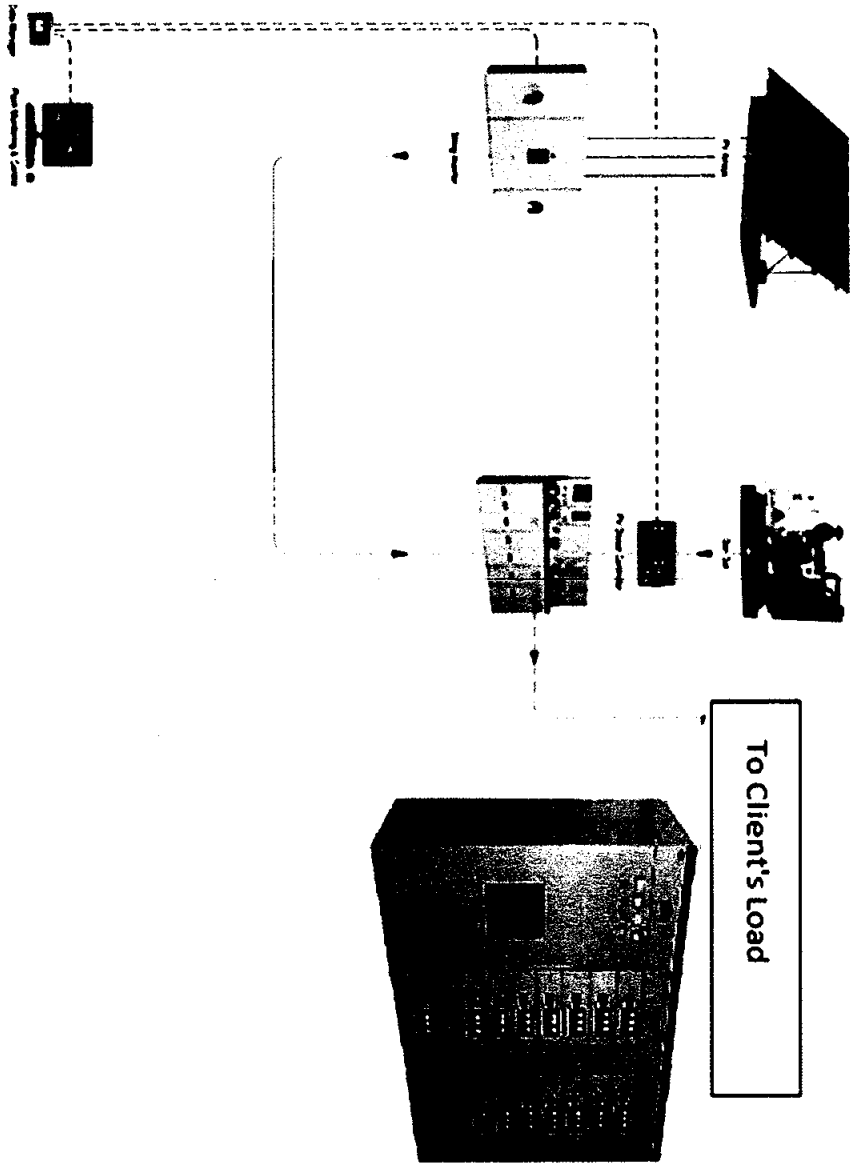
Process Flow Diagram of the Generation Facility/Solar Power Plant/Solar Farm of the Licensee



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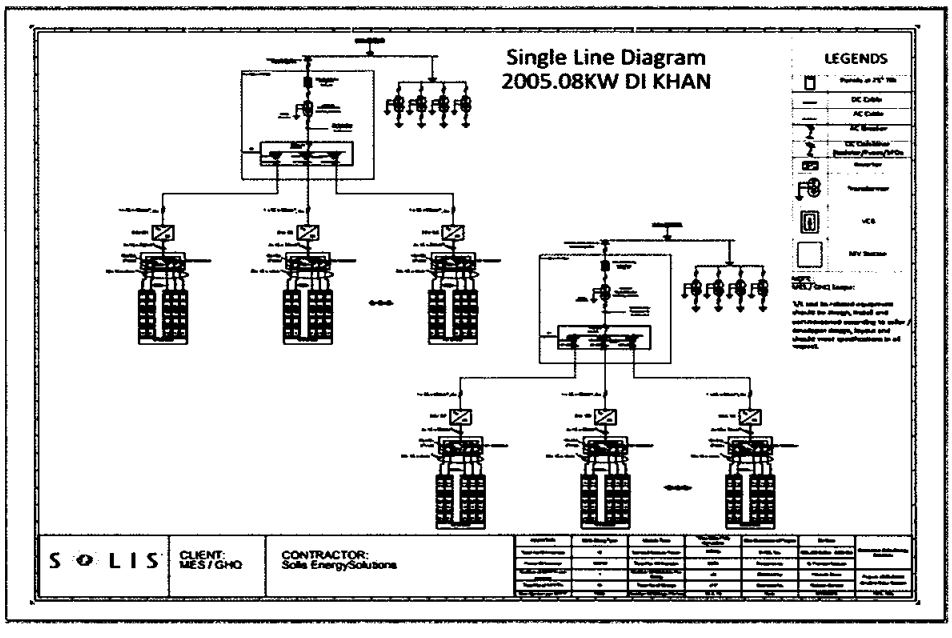
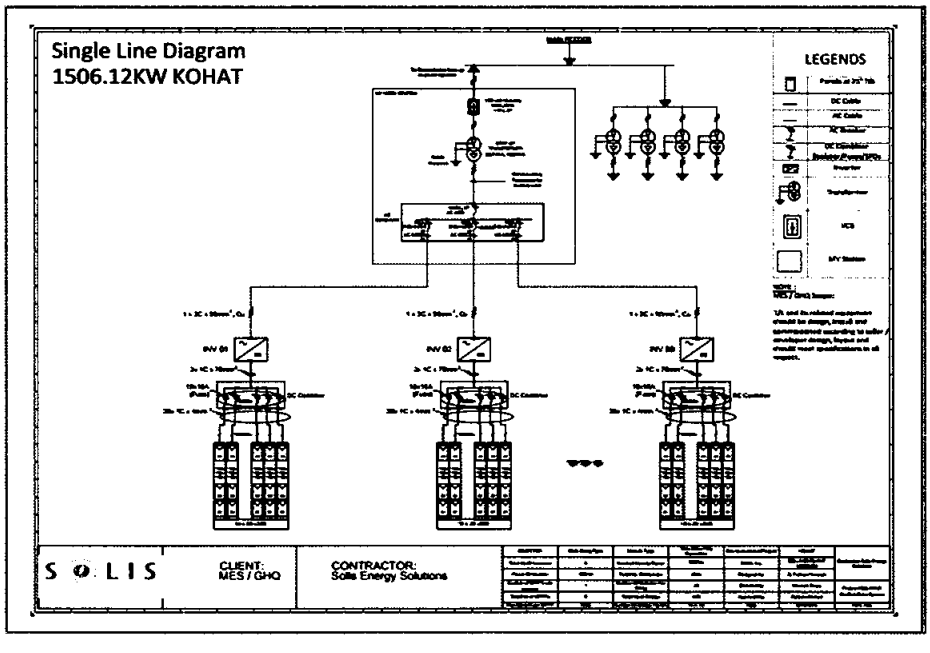
Single Line Diagram of the Generation Facility/Solar Power Plant/Solar Farm of the Licensee



Location-I: DI Khan Cantonment



Location-II: Kohat Cantonment

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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 of the Licensee will be delivered/supplied to a Bulk Power Consumer (BPC) in the name of Military Engineering Services (MES) located at Kohat Cantonment, Kohat, DI Khan Cantonment, DI Khan in the province of Khyber Pakhtunkhwa.

(2). The details pertaining to BPC, supply arrangement and other relating information is provided in the subsequent description of this Schedule. Any change in said, shall be communicated to the Authority in due course of time.

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Details of Generation Facility/Solar Power Plant/ Solar Farm

(A). General Information

(i).	Name of the Company/Licensee	Solis Charlie Energy (Private) Limited	
(ii).	Registered/ Business office of the Company/Licensee	D-180, Block 5, Clifton Karachi, in the Province of Sindh	
(iii).	Location of the generation facility Solar Power Plant/ Solar Farm	Location-I	MES for its DI Khan Cantonment, DI Khan, in the province of Khyber Pakhtunkhwa
		Location-II	MES for its Kohat Cantonment, Kohat, in the province of Khyber Pakhtunkhwa
(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	On Grid	
(iii).	Installed Capacity of the generation facilities/ Solar Power Plants/ Solar Farms (MW_P)	Location-I	02.00 MW_P
		Location-II	01.50 MW_P
		Total	**03.50 MW_P**
(iv).	Number of Panel/Modules	Location-I	6076×330 Watt

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		Location-II	4564×330 Watt	
(v).	PV Array	Location-I	No. of Strings	217
			Modules in a string	28
		Location-II	No. of Strings	163
			Modules in a string	28
(vi).	Invertor (s)	Location-I	Quantity	12
			Make	SMA Sunny High-power 150-20
			Capacity of each Unit	150 kW
		Location-II	Quantity	09
			Make	SMA Sunny High-power 150-20
			Capacity of each Unit	150 kW

(C). Technical Details of Equipment

(a).	**Solar Panels – PV Modules**	
(i).	Type of Module	TSM-330 PE14A
(ii).	Type of Cell	Polycrystalline
(iii).	Dimension of each Module	1956×992×40mm
(iv).	No. of Panels	10,640

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(v).	Total Module Area	1.94 m^2	
(vi).	Frame of Panel	Silver Anodized Aluminium Alloy	
(vii).	Weight of one Module	22.5 kg	
(viii).	No of Solar Cells in each module	72	
(ix).	Efficiency of module	17%	
(x).	Maximum Power (P_{max})	330	
(xi).	Voltage @ P_{max}	37.3	
(xii).	Current @ P_{max}	8.87	
(xiii).	Open circuit voltage (V_{oc})	46.1	
(xiv).	Short circuit current (I_{sc})	9.38	
(xv).	Maximum system open Circuit Voltage	1500 V	
(b).	**PV Array**		
(i).	No. of Strings	Location-I	217
		Location-II	163
(ii).	Modules in a string	Location-I	28
		Location-II	28
(c).	**Inverter**		
(i).	Capacity of each unit	150 kW	
(ii).	Manufacturer	SMA Sunny High-power 150-20	

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(iii).	Input Operating Voltage Range	800 - 1450 V	
(iv).	Number of Inverters	Location 1: 12	
		Location 2: 9	
(v).	Efficiency of inverter	99.1% (Max.), 98.8% (Euro.)	
(vi).	Max. Allowable Input voltage	1500 V DC	
(vii).	Max. Current	180 A	
(viii).	Max. Power Point Tracking Range	880 - 1450 V	
(ix).	Output electrical system	3P + PE, 350 / 600 V	
(x).	Rated Output Voltage	600 V	
(xi).	Power Factor (adjustable)	> 0.99; 0.8 leading – 0.8 lagging adjustable	
(xii).	Power control	MPP tracker	
(xiii).	Rated Frequency	50/60 Hz	
(xiv).	Environmental Enclosures	Relative Humidity	0-100%, condensing
		Operating temperature	-25 to +60°C
(xv).	Grid Operating protection	A	DC switch
		B	AC short circuit protection

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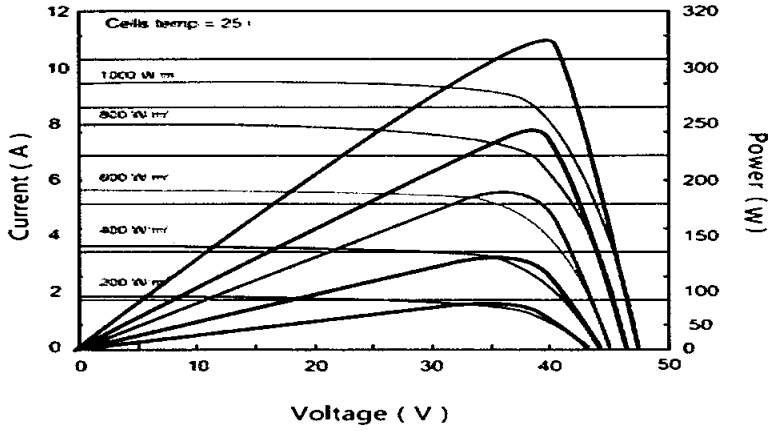
		C	DC overvoltage protection (Type 2)
		D	Anti-Island Protection
		E	DC Reverse connection protection
(d).	**Data Collecting System**		
(i).	System Data	Continuous online logging with data logging software to portal.	

Other Details

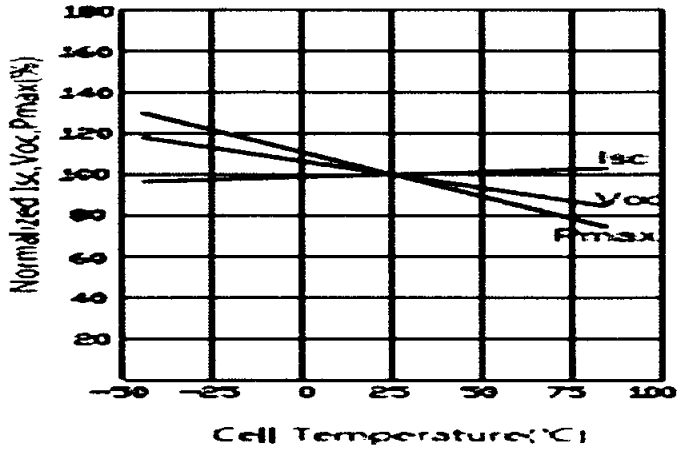
(i).	Expected COD of the generation facility Solar Power Plant/ Solar Farm	February 28 , 2021
(ii).	Expected useful Life of the generation facility Solar Power Plant from the COD	25 years

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

Current-Voltage & Power-Voltage Curves (315W)



Temperature Dependence of Isc,Voc,Pmax



Information
Regarding BPC i.e. MES to be Supplied by the Licensee i.e. SCEPL

(i).	No. of locations		Two units (02) of MES	
(ii).	Location of consumers (distance and/or identity of premises)		Location-I	MES for its DI Khan Cantonment, DI Khan, in the province of Khyber Pakhtunkhwa
			Location-II	MES for its Kohat Cantonment, Kohat, in the province of Khyber Pakhtunkhwa
(iii).	Contracted Capacity		Location-I	02.00 MW_P
			Location-II	01.50 MW_P
			Total	**03.50 MW_P**
(iv).	Specify Whether			
	(a).	The consumer is an Associate undertaking of the SCEPL -If yes, specify percentage ownership of equity;	MES does not have direct association with SCEPL.	
	(b).	There are common directorships:	Currently, there are no common directors of MES and SCEPL.	
	(c).	Either can exercise influence or control over the other.	No	
(v).	Specify nature of contractual Relationship			
	(a).	Between the consumer and SCEPL.	SCEPL will construct and operate solar plant and provide electricity for MES operations.	

			Location-I	Location-II
	(b).	Consumer and PESCO.	DI Khan Cantonment	Kohat Cantonment
			Yes Existing Consumer of PESCO with Sanctioned Load of 2210 kW	Yes Existing Consumer of PESCO with Sanctioned Load of 4360 kW

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Information
Regarding Distribution Network for Supply of Electric Power to BPC in the name of MES

(i).	No. of Feeders		Two (02)	
(ii).	Length of each Feeder		Location-I	Location-II
			195m	175m
(iii).	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.		Location-I	11kV feeder without crossing of any public or third party private property
			Location-II	
(iv).	Whether owned by SCEPL, Consumer or PESCO -(deal with each Feeder Separately)			
	(a).	If owned by PESCO, particulars of contractual arrangement	NA	
	(b).	Operation and maintenance responsibility for each feeder	MES	
(v).	Whether connection with network of PESCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)		Location-I	C-2b(29)T
			Location-II	C-2b(29)T
(vi).	Any other network information deemed relevant for disclosure to or consideration of the Authority.		NA	

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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

		Location-I	Location-II
		DI Khan Cantonment	**Kohat Cantonment**
(1).	Total Installed Capacity of the Generation Facility	2.00 MW_P	1.50 MW_P
(2).	Average Sun Hour Availability/Day (Irradiance on Inclined Surface)	7 to 7.5 Hours	7 to 7.5 Hours
(3).	No. of days per year	365	
(4).	Annual generating capacity of Generation Facility (As Per Simulation reports of 2 units)	2,960.509 MWh	2,233.559 MWh
(5).	Total expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the twenty five (25) years term of this license	68,116.828 MWh	51,390.810 MWh
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	17,564.500 MWh	13,193.611 MWh
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	16.85%	16.92%

Note

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

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Authorization of Authority to Solis Charlie Energy (Private) Limited (SCEPL)

Incorporated under Section-16 of the Companies Act, 2017 (XIX of 2017) having Corporate Universal Identification No. 0135090, dated June 11, 2019

GENERATION LICENCE No. SGC/139/2020
For
Sale to Bulk Power Consumer(s)

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

(1). MES for its Kohat Cantonment in the province of KPK (Location-I)

(2). MES for its D.I. Khan Cantonment in the province of KPK (Location-II)

Authority

Engr. Rafique Ahmad Sheikh (Member)	Rehmatullah Baloch (Member)
Engr. Bhadur Shah (Member)	Saif Ullah Chattha (Member)/Vice Chairman

Tauseef H. Farooqi
(Chairman)

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