



**Registrar**

# **National Electric Power Regulatory Authority**

## **Islamic Republic of Pakistan**

NEPRA Tower, Attaturk Avenue (East), G-5/1, Islamabad  
Ph: +92-51-9206500, Fax: +92-51-2600026  
Web: www.nepa.org.pk, E-mail: registrar@nepa.org.pk

No. NEPRA/R/DL/LAG-311/14655-59

October 06, 2015

Mr. Khalil Ahmad Hashmi  
Company Secretary  
AJ Power (Private) Limited  
127-S, Quaid-e-Azam Industrial Estate,  
Township, Kotlakhpat,  
Lahore.

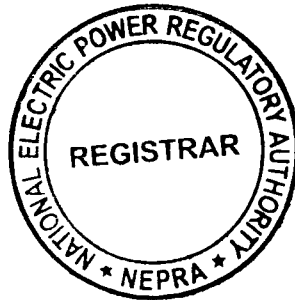
**Subject: Grant of Generation Licence No. SPGL/16/2015  
Licence Application No. LAG-311  
AJ Power (Private) Limited (AJPPL)**


*Reference: Your application vide letter No. 002-AJPPL/15, dated June 03, 2015 (received on June 04, 2015).*

Enclosed please find herewith Determination of the Authority in the matter of Application of "AJ Power (Private) Limited (AJPPL)" for the "Grant of Generation Licence" along with Generation Licence No. SPGL/16/2015 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to "AJ Power (Private) Limited (AJPPL)" for its 12.00114 MW Solar Generation Facility located at Adhi Kot, Tehsil Noorpur, District Khushab, in the Province of Punjab" pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

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

**Enclosure: Generation Licence  
(SPGL/16/2015)**



  
06 x. 15

(Syed Safeer Hussain)

Copy to:

1. Chief Operating Officer, CPPA-G, 107-WAPDA House, Lahore
2. Chief Executive Officer, Alternative Energy Development Board (AEDB), 2<sup>nd</sup> Floor, OPF Building, G-5/2, Islamabad.
3. Chief Executive Officer, Faisalabad Electric Supply Company Limited (FESCO), Abdullahpur, Canal Bank Road, Faisalabad.
4. Director General, Environment Protection Department, Government of Punjab, National Hockey Stadium, Ferozpur Road, Lahore.

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

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

**October 01, 2015**  
**Case No. LAG-311**

**(A). Background**

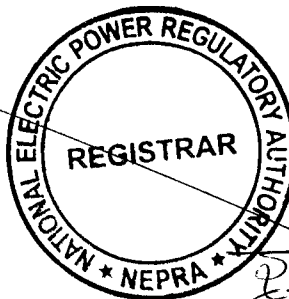
(i). Government of Pakistan has set up Alternative Energy Development Board (AEDB) for harnessing Renewable Energy (RE) resources in the Country. AEDB has issued Letter of Intent (LoI) to various developers for setting up RE projects in the country.

(ii). AEDB issued a LoI to AJ Power (Private) Limited (AJPPL) for setting up an approximately 10.00 MW Photo Voltaic (PV) Cells based Generation Facility/Solar Power Plant (SPP)/Solar Farm (SF) at Adhi Kot, Tehsil Noorpur Thal, District Khushab in the Province of Punjab.

(iii). In order to meet with various milestones given in the LoI for the implementation of the project, the company i.e. AJPPL decided to approach the Authority for the grant of Generation Licence for its above mentioned Generation Facility/SPP/SF.

**(B). Filing of the Application**

(i). In accordance with Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 ("the NEPRA Act"), AJPPL filed/submitted an application on June 04, 2015 requesting for the grant of Generation Licence.

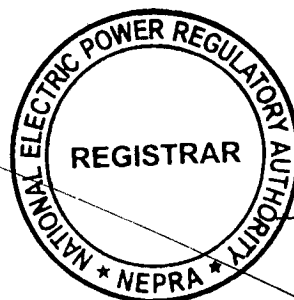


(ii). The Registrar examined the submitted application to confirm its compliance with the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 ("the Regulations"). The Registrar found the application of AJPPL compliant with the Regulations and accordingly submitted the matter for the admission of the application or otherwise. The Authority considered the matter in its Regulatory Meeting (RM-15-543), held on July 28, 2015 and found the form and content of the application in compliance with Regulation-3 of the Regulations. Accordingly, the Authority admitted the application for consideration of the grant of the Generation Licence as stipulated in Regulation-7 of the Regulations. The Authority approved the advertisement [containing (a). the prospectus; (b). a notice to the general public about the admission of the application of AJPPL], inviting the general public for submitting their comments in the matter as stipulated in Regulation-8 of the Regulations. Further, the Authority also approved the list of the relevant stakeholders for informing about the admission of the application of AJPPL and for providing their comments to assist the Authority in the matter. Accordingly, the advertisement was published in one Urdu and one English National Newspaper on July 31, 2015 and August 01, 2015 respectively.

(iii). Apart from the above, separate letters were also sent to Government Ministries, their Attached Departments, Representative Organizations and Individual Experts etc. on August 05, 2015. The said stakeholders were directed for submitting their views/comments for the assistance of the Authority.

**(C). Comments of Stakeholders**

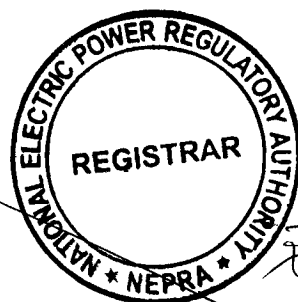
(i). In reply to the above, the Authority received comments from four (04) stakeholders. These included Pakistan Council of Renewable Energy Technologies (PCoRET) of Ministry of Science & Technology Government of Pakistan (MoS&T), local people of Adhi Kot and The Federation of Pakistan Chamber of Commerce & Industry (TFoPCoC&I) and AEDB.



(ii). The salient points of the comments offered by the above stakeholder are summarized in the following paragraphs: -

- (a). PCoRET communicated its No Objection regarding the grant of Generation Licence to AJPPL. However, PCoRET stated that it cannot comment on the financial or other TORs of the project;
- (b). The Residents of Adhi Kot submitted that the project being proposed by AJPPL is first of its kind being set up in the area. The proposed project will not cause any pollution and will be supplying environment friendly electric power in the area. This will not only reduce the load-shedding in the area but will also provide job opportunities for the local population. The residents strongly supported the project;
- (c). TFoPCoC&I commented that in consideration of serious shortage of energy in the country it is recommended that processing of all applications of the power generation projects must be expedited. TFoPCoC&I expressed its No Objection on the issuance of the Generation Licence to the company; and
- (d). AEDB stated that AJPPL is developing a 12.00 MW Generation Facility/ SPP/SF and the grant of Generation Licence is supported.

(iii). The Authority considered the above comments of the stakeholders and found the same in favor of the Grant of Generation Licence to AJPPL. Accordingly, the Authority considered it appropriate to process the application of AJPPL for the grant of Generation Licence as stipulated in the Regulations and NEPRA Licensing (Generation) Rules 2000 (the Rules).

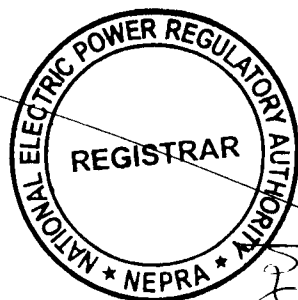


**(D). Grant of Generation Licence**

(i). Energy is fundamental input to economic activity, and thus to human welfare and progress. The importance of electricity in the development of the economy of any country is beyond any doubt. The economic growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of electricity. In view of the said reasons, the Authority is of the considered view that for sustainable development all indigenous resources of power generation must be developed on priority basis in the public and private sector, including Coal, Hydel, Wind, Solar and other RE resources.

(ii). The existing energy mix of the country is heavily skewed towards the thermal power plants, mainly operating on imported fuel (i.e. furnace oil). The import of fuel for electric power generation not only creates a 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 Energy Security Action Plan 2005 (ESAP) approved by the Government of Pakistan, duly recognizes this very aspect of power generation through RE and envisages that at least 5% of total national power generation capacity (i.e. 9700 MW) is met through RE resources by 2030. The Authority considers that the proposed project of AJPPL is consistent with the provisions of ESAP. The project will help in diversifying the energy portfolio of the country. Further, the project will not only enhance the energy security of the country by reducing the dependence on imported oil but will also help in reducing carbon emission by generating clean electricity, thus improving the environment.

(iii). The term of a Generation Licence under the Rule-5(1) of the Rules, is to be commensurate with the maximum expected useful life of the units comprised in a Generation Facility/SPP/SF. The Authority considers that as per the International benchmarks available, the useful life of a typical PV based Generation Facility

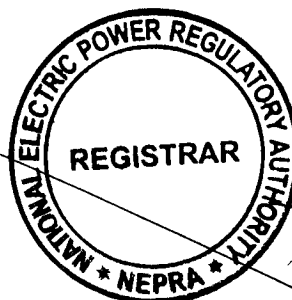


SPP/SF is taken as twenty five (25) years from its operation. Therefore, the Authority fixes the term of the proposed Generation Licence of AJPPL to twenty five (25) years from its Commercial Operation Date (COD).

(iv). Regarding the Tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, the determining of tariff, rate and charges etc. is the sole prerogative of the Authority. The Authority has already admitted the request of AJPPL for unconditional acceptance of Up-front for its Generation Facility SPP/SF which is expected to be decided soon. Notwithstanding the said, the Authority directs AJPPL to charge only such tariff which has been determined, approved or specified by the Authority, as stipulated in Article-6 of the Generation Licence.

(v). The proposed Generation Facility/SPP/SF of AJPPL will be using RE resource for Generation of Electric Power. Therefore, the project may qualify for the Carbon Credit under the Kyoto Protocol (for RE projects coming into operation upto 2020). In view of the said, the Authority directs AJPPL to initiate the process for obtaining Carbon Credits at the earliest so that the proceeds of the same are materialized without any delay. Further, AJPPL shall be required to share the proceeds of the Carbon Credits with the Power Purchaser as stipulated in Article-14 of its proposed Generation Licence.


(vi). The proposed Generation Facility/SPP/SF of AJPPL for which the Generation Licence has been sought, is based on PV Cells using solar radiation for generation of electric power. Solar radiation is a RE resource which does not cause any pollution however, the operation of the Generation Facility/SPP/SF may cause some other type of pollution including soil pollution, water pollution and noise pollution etc. during construction of the Project. The Authority has considered these aspects and has made AJPPL obligatory to comply with the environmental rules and regulations. Further, the Authority directs AJPPL to submit a report on a bi-annual basis confirming that its Generation Facility is operating in compliance with the required Environmental Standards of the Environmental Protection Agency of the Province of Punjab.



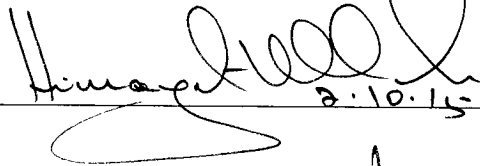
(vii). In consideration of the above, the Authority hereby decides to approve the grant of Generation Licence to AJPPL on the terms and conditions as set out in the Generation Licence annexed to this determination. The grant of Generation Licence will be subject to the provisions contained in the NEPRA Act, relevant rules, regulations framed thereunder and the other applicable documents.

**Authority**

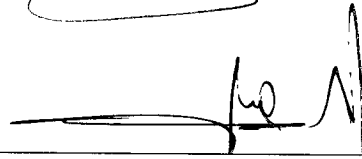
Syed Masood-ul-Hassan Naqvi  
(Member)

  
20/10/15

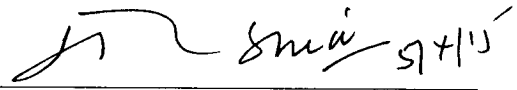
Himayat Ullah Khan  
(Member)

  
20.10.15

Khawaja Muhammad Naeem  
(Member)

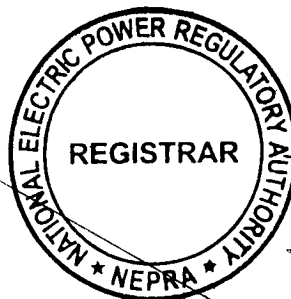
  
05.10.15

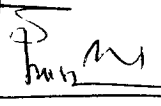
Maj. (R) Haroon Rashid  
(Member)/(Vice Chairman)

  
21/10/15

Brig. (R) Tariq Saddozai  
(Chairman)

ON TOUR ABROAD



  
06.10.15

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

**GENERATION LICENCE**

**No. SPGL/16/2015**

In exercise of the Powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section-15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Authority hereby grants a Generation Licence to:

**AJ POWER (PRIVATE) LIMITED**

Incorporated under the Companies Ordinance, 1984  
Under Corporate Universal Identification No. 0090485  
Dated November 06, 2014

**for its Solar Generation Facility/Solar Power Plant/Solar Farm Located at Adhi Kot, Tehsil Noorpur Thal, District Khushab in the Province of Punjab**

**(Installed Capacity: 12.00114 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 on this 06<sup>th</sup> day of October Two Thousand & Fifteen and expires on 30<sup>th</sup> day of March Two Thousand & Forty One.

  
Registrar



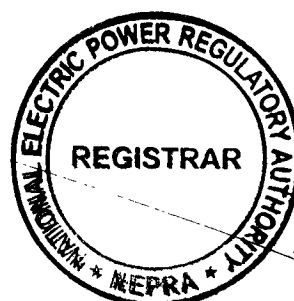




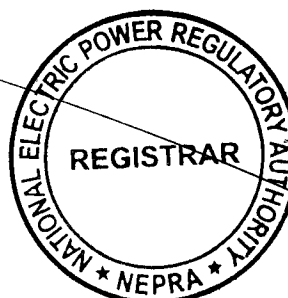
**Article-1**  
**Definitions**

**1.1 In this Licence**

- (a). "Act" means "the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997";
- (b). "Authority" means "the National Electric Power Regulatory Authority constituted under Section-3 of the Act";
- (c). "Bus Bar" means a system of conductors in the generation facility/Solar Farm of the Licensee on which the electric power of all the photovoltaic cells is collected for supplying to the Power Purchaser;
- (d). "Carbon Credits" mean the amount of Carbon Dioxide (CO<sub>2</sub>) and other greenhouse gases not produced as a result of generation of energy by the generation facility/Solar Farm and other environmental air quality credits and related emissions reduction credits or benefits (economic or otherwise) related to the generation of energy by the generation facility/Solar Farm, which are available or can be obtained in relation to the generation facility/Solar Farm after the COD;
- (e). "Commercial Operations Date (COD)" means the Day immediately following the date on which the generation facility/Solar Farm of the Licensee is Commissioned;
- (f). "CPPA-G" means "Central Power Purchasing Agency (Guarantee) Limited" or any other entity created for the like purpose;



- (g). "Distribution Code" means the distribution code prepared by FESCO and approved by the Authority, as it may be revised from time to time by FESCO with any necessary approval by the Authority;
- (h). "Energy Purchase Agreement" 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 Farm, as may be amended by the parties thereto from time to time;
- (i). "FESCO" means "Faisalabad Electric Supply Company Limited" and its successors or permitted assigns;
- (j). "IEC" means "International Electrotechnical Commission" or any other entity created for the like purpose and its successors or permitted assigns;
- (k). "IEEE" means the "Institute of Electrical and Electronics Engineers" and its successors or permitted assigns;
- (l). "Licensee" means "AJ Power (Private) Limited" and its successors or permitted assigns;
- (m). "Policy" means "The Policy for Development of Renewable Energy for Power Generation, 2006 of Government of Pakistan" as amended from time to time;
- (n). "Power Purchaser" means the CPPA-G purchasing power on behalf of XW-DISCOs or FESCO;



- (o). "Regulations" mean "the Licensing (Application & Modification Procedure) Regulations, 1999 as amended or replaced from time to time";
- (p). "Rules" mean "the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000";
- (q). "Solar Farm" means "a cluster of photovoltaic cells in the same location used for production of electric power";
- (r). "XW DISCO" means "an Ex-WAPDA distribution company engaged in the distribution of electric power".

1.2 Words and expressions used but not defined herein bear the meaning given thereto in the Act or in the Rules.

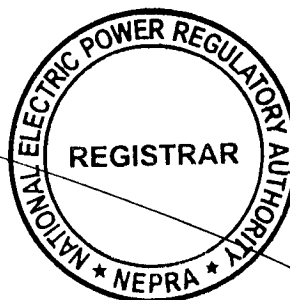
**Article-2**  
**Application of Rules**

This Licence is issued subject to the provisions of the Rules, 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 and functional specifications and other details specific to the generation facility/Solar Farm of the Licensee are set out in Schedule-I to this Licence.

3.2 The net capacity of the generation facility/Solar Farm of the Licensee is set out in Schedule-II hereto.



3.3 The Licensee shall provide the final arrangement, technical and financial specifications and other specific details pertaining to its generation facility/Solar Farm before its commissioning.

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

4.1 This Licence is granted for a term of twenty five (25) years from the COD of the generation facility/Solar Farm.

4.2 Unless suspended or revoked earlier, the Licensee may apply for renewal of the Licence within ninety (90) days prior to the expiry of the term of the Licence, as stipulated in the Regulations.

**Article-5**  
**Licence fee**

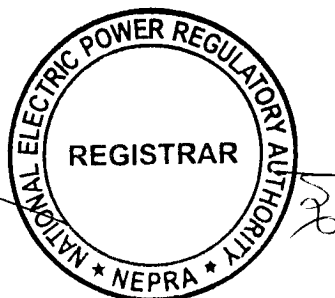
After the grant of the Generation Licence, the Licensee shall pay to the Authority the Licence fee, in the amount and manner and at the time set out in the National Electric Power Regulatory Authority (Fees) Rules, 2002.

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

The Licensee shall charge only such tariff which has been determined, approved or specified by the Authority in terms of Rule-6 of the Rules.

**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 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**

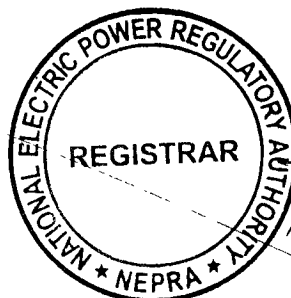
The Licensee shall comply with the relevant provisions of the National Electric Power Regulatory Authority Performance Standards (Generation) Rules 2009 as amended from time to time.

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

The Licensee shall comply with the environmental standards as may be prescribed by the relevant competent authority from time to time.

**Article-11**  
**Power off take Point and Voltage**

The Licensee shall deliver power to the Power Purchaser at the outgoing bus bar of its grid station. The up-gradation (step up) of generation voltage up to required dispersal voltage level will be the responsibility of the Licensee.



**Article-12**  
**Performance Data of Generation Facility/Solar Farm**

The Licensee shall install properly calibrated automatic computerized solar radiation recording device(s) and a compatible communication/SCADA system both at its generation facility/Solar Farm and control room of the Power Purchaser for transmission of solar radiation data and power output data to the control room of the Power Purchaser for recording of data.

**Article-13**  
**Provision of Information**

13.1 The obligation of the Licensee to provide information to the Authority shall be in accordance with Section-44 of the Act.

13.2 In addition to 13.1 above, the Licensee shall supply information to the Power Purchaser regarding solar data specific to the generation facility of the Licensee and other related information on a regular basis and in a manner required by the Power Purchaser.

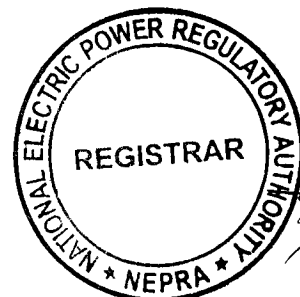
13.3 The Licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or has been in the control or possession of the Licensee.

**Article-14**  
**Emissions Trading /Carbon Credits**

The Licensee shall process and obtain emissions/Carbon Credits expeditiously and credit the proceeds to the Power Purchaser as per the Policy.

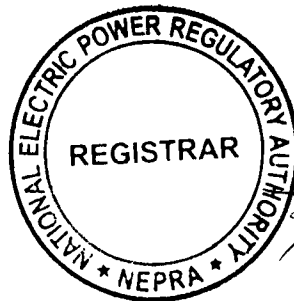
**Article-15**  
**Design & Manufacturing Standards**

Solar photovoltaic cells shall be designed, manufactured and tested according to the latest IEC, IEEE or any other equivalent standards. All plant and equipment shall be unused and brand new.



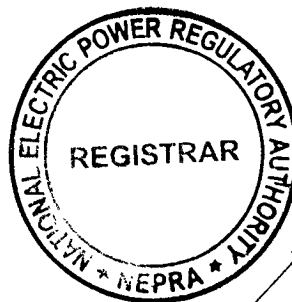
**Article-16**  
**Power Curve**

The power curve for the individual solar photovoltaic cell provided by the manufacturer and as mentioned in this Generation Licence shall form the basis in determining the cumulative power curve of generation facility/Solar Farm.



## **SCHEDULE-I**

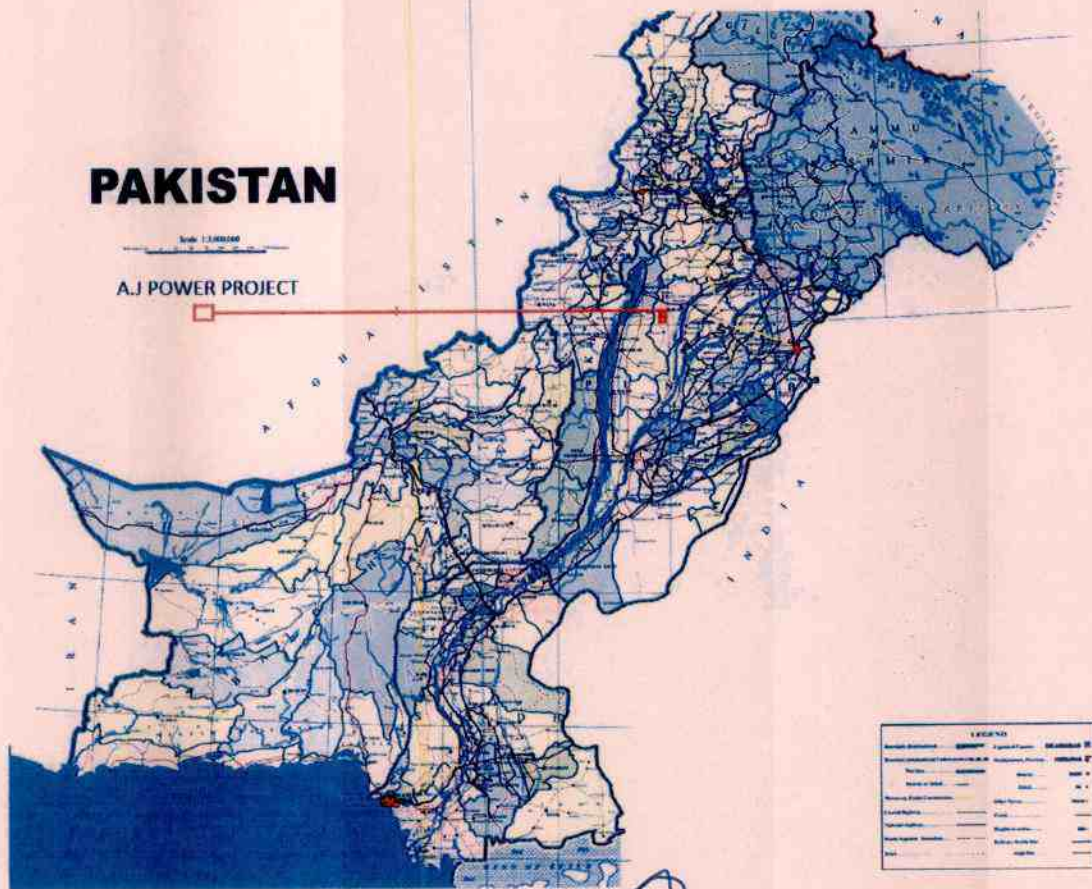
The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule.





Generation Licence  
AJ Power (Private) Limited  
Adhi Kot, Tehsil Noorpur Thal  
District Khushab  
in the Province of Punjab

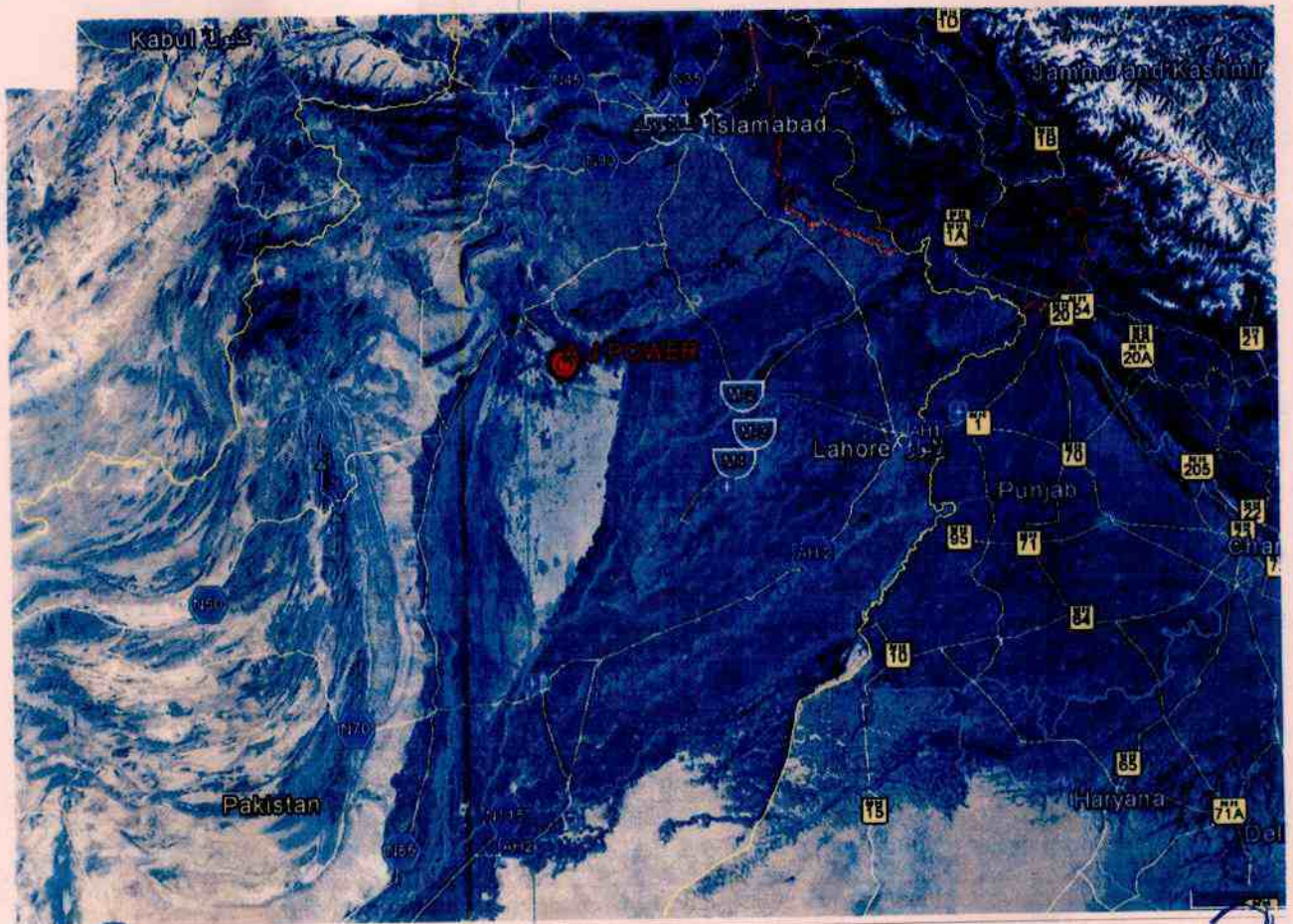
Location of the Generation Facility/Solar Power Plant/  
Solar Farm on Map of Pakistan





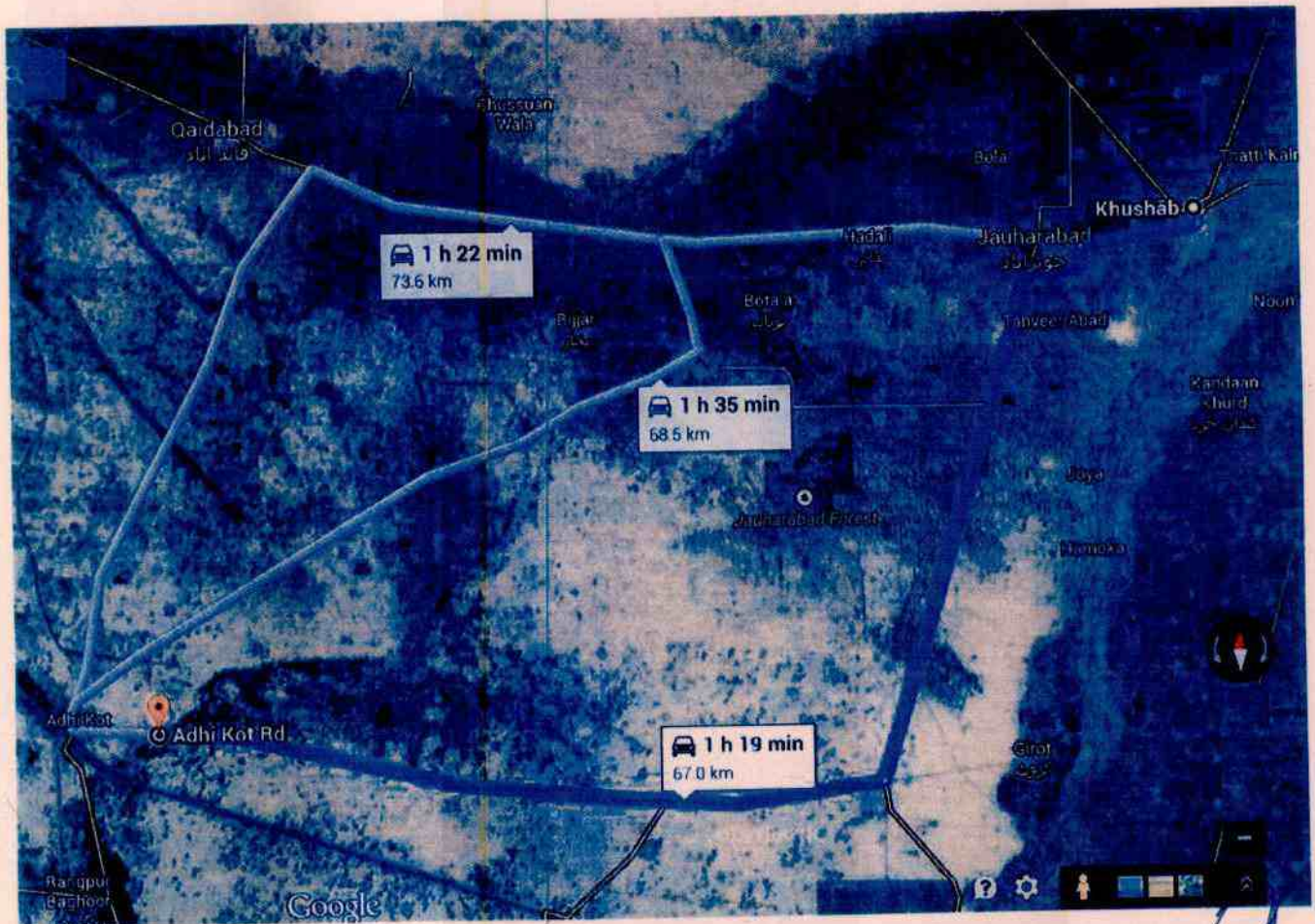
Generation Licence  
AJ Power (Private) Limited  
Adhi Kot, Tehsil Noorpur Thal  
District Khushab  
in the Province of Punjab

Location of the Generation Facility/Solar Power Plant/  
Solar Farm on Map of the Province of Punjab



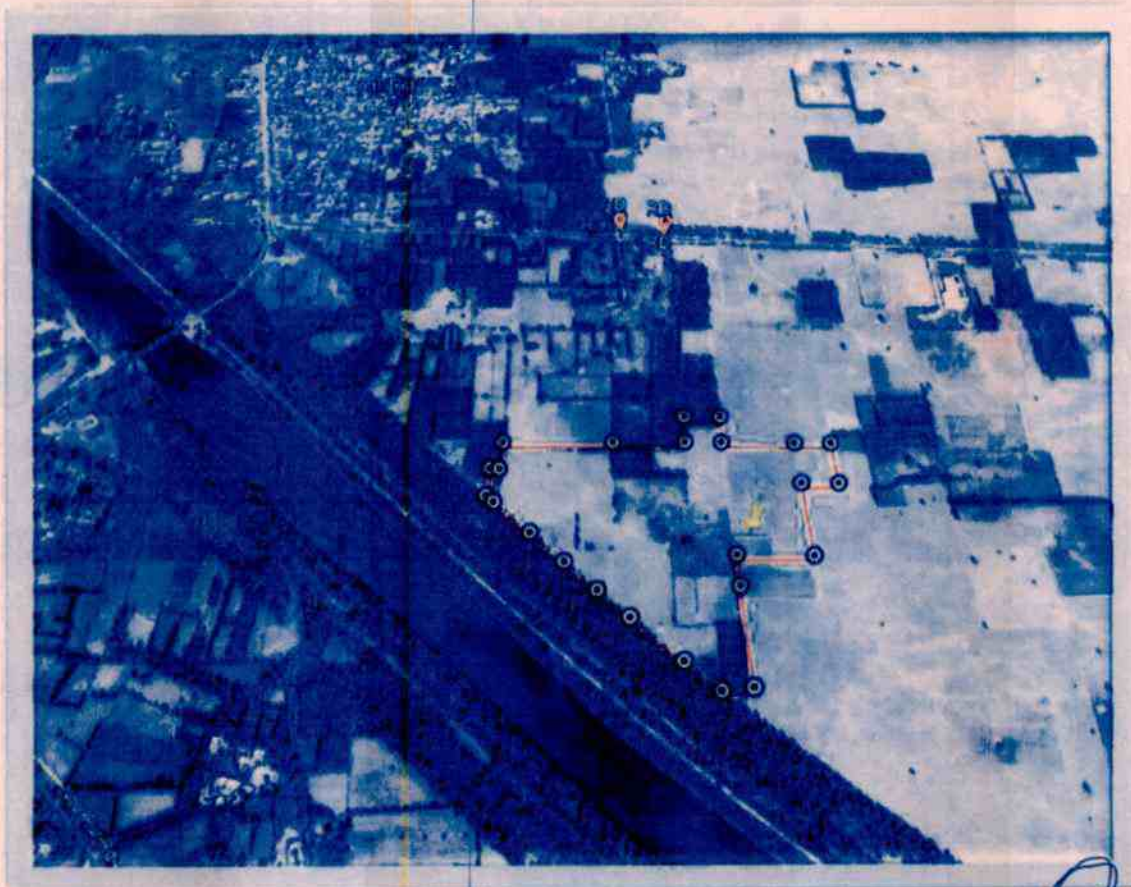


Access Road/Link of the Generation Facility/Solar Power  
Plant/ Solar Farm

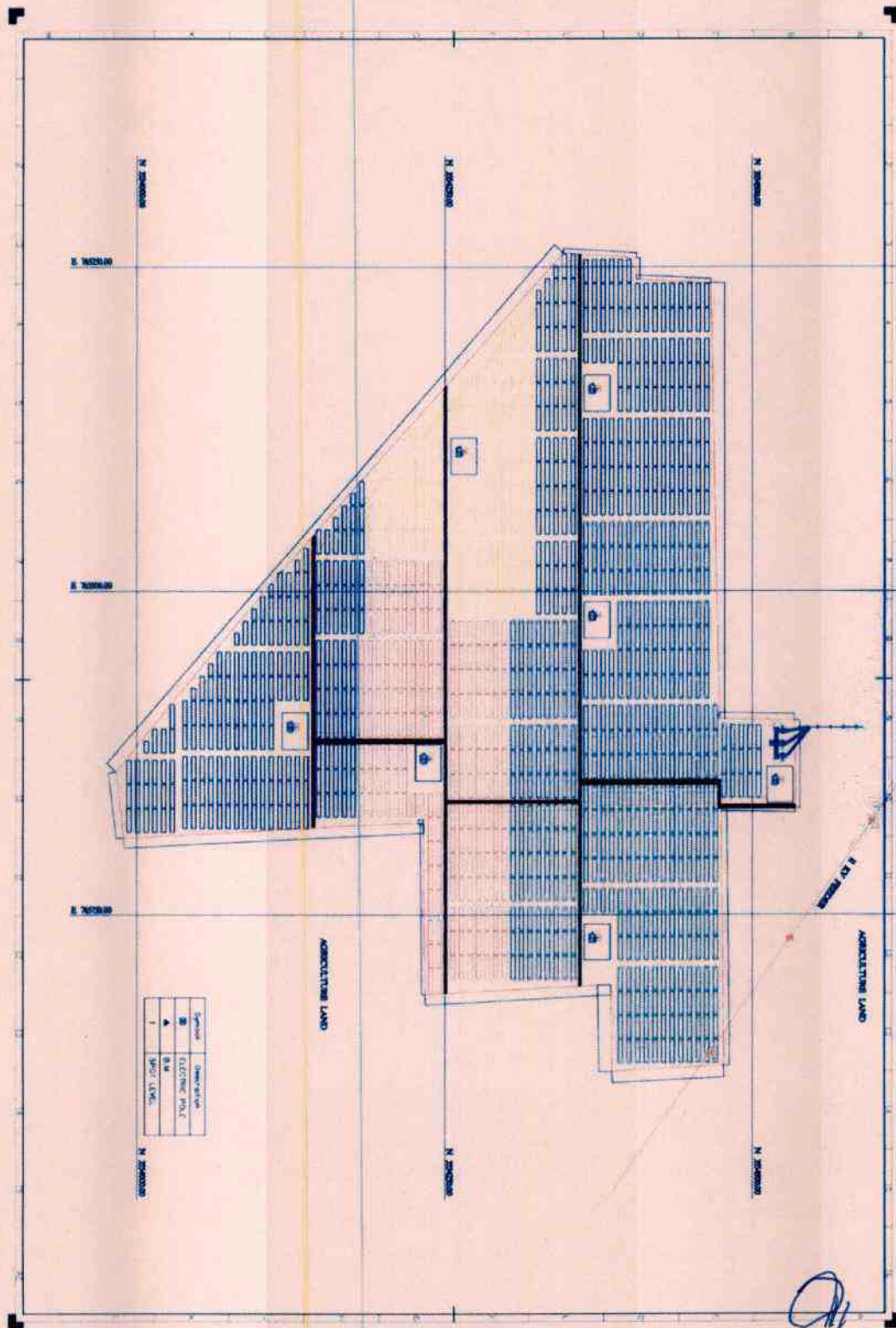




**Layout of the Generation Facility/Solar Power  
Plant/Solar Farm**



## Layout of the Generation Facility/Solar Power Plant/Solar Farm







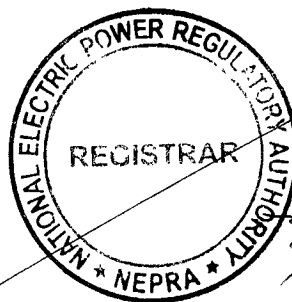
**Interconnection Arrangement/Transmission Facilities for  
Dispersal of Power from the Generation Facility/Solar  
Power Plant/Solar Farm of AJ Power (Private) Limited**

The electric power generated from the Generation Facility/Solar Power Plant/Solar Farm of the AJ Power (Private) Limited-AJPPL/the Licensee shall be dispersed to the load center of FESCO.

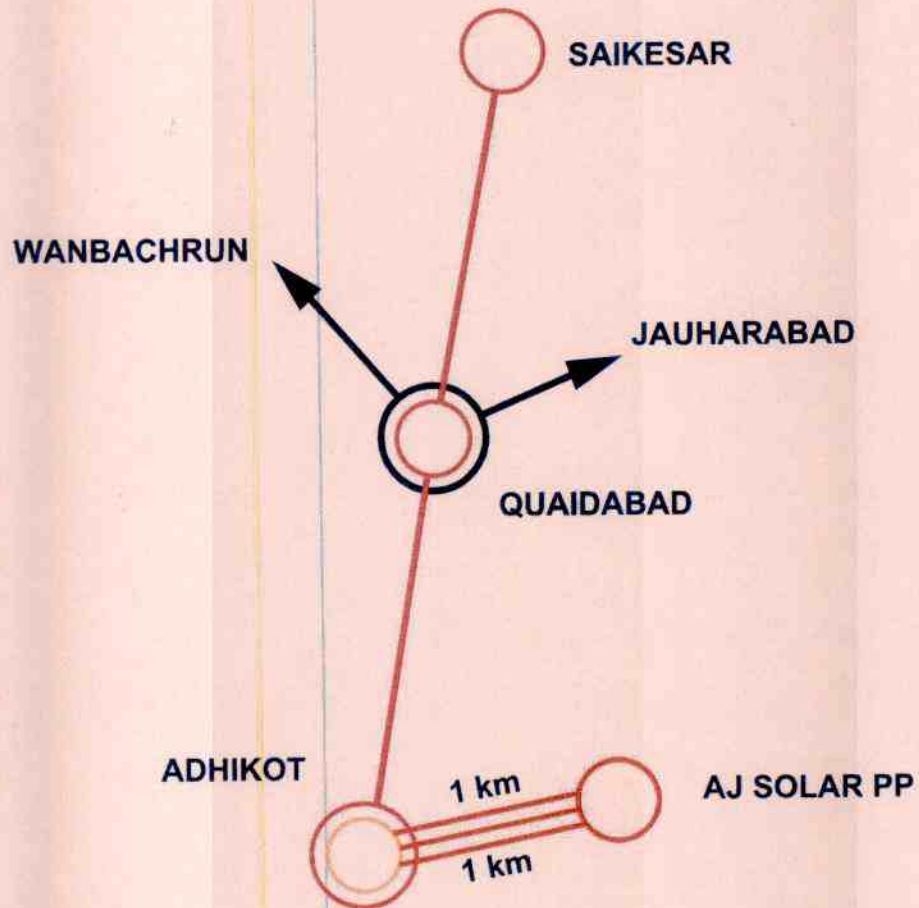
(2). The proposed Interconnection Arrangement/Transmission Facility for dispersal of electric power for the Generation Facility/Solar Power Plant/Solar Farm comprises the following:-

(a). A direct 11 kV triple circuit line of approximately 1.00 km length using Osprey conductor to be laid from the 11 kV bus bar of the Generation Facility/Solar Power Plant/Solar Farm to the 66/11 kV Adhi Kot Grid Station.

(3). Any change in the above Interconnection Arrangement/Transmission Facility duly agreed by AJPPL and FESCO, shall be communicated to the Authority in due course of time.



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



**Legend**

11kV

66kV

132kV

Proposed 11kV





**Detail of**  
**Generation Facility/Solar Power Plant/**  
**Solar Plant/Solar Farm**

**(A). General Information**

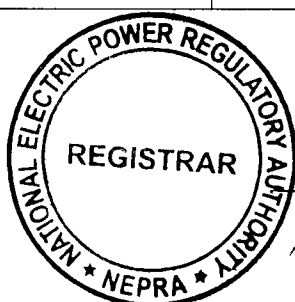
(i).	Name of Company/ Licensee	AJ Power (Private) Limited
(ii).	Registered/Business Office	127-S Quaid-e-Azam Industrial Estate Kotlakhpat, Township, Lahore in the Province of Punjab.
(iii).	Plants Location	Adhi Kot, Tehsil Noorpur Thal, District Khushab in the Province of Punjab
(iv).	Type of Generation Facility	Solar PV Power Plant

**(B). Solar Power Generation Technology & Capacity**

(i).	Type of Technology	Photovoltaic (PV) Cell
(ii).	System Type	Grid Connected
(iii).	Installed Capacity of Solar Farm (MW)	12.00114MW <sub>p</sub>

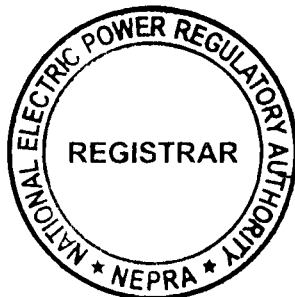
**(C). Technical Details of Equipment**

(a).	<b><u>Solar Panels – PV Modules</u></b>	
(i).	Type of Module	Polycrystalline PV Module CSUN 305-72P
(ii).	Type of Cell	Polycrystalline
(iii).	Dimension of each Module	1,956 mm x 990 mm x 50 mm
(iv).	Module Surface Area	1.9 m <sup>2</sup>
(v).	No. of Panel /Modules	39,348
(vi).	Total Module Area	76,195 m <sup>2</sup>
(vii).	Total Land Area Used	43.2 acres

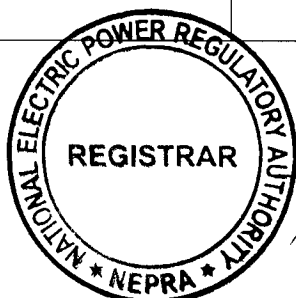


in the Province of Punjab

(viii).	Panel's Frame	Anodised Aluminium Alloy	
(ix).	Weight of one Module	23.8 kg	
(x).	Module Output Warranty	For 1 <sup>st</sup> year	For 2 <sup>nd</sup> to 25 <sup>th</sup> year
		97% or above	Not more than 0.7% Output Reduction Each Year
(xi).	No. of Solar Cells in each module	72 Cells	
(xii).	Efficiency of module	15.75 %	
(xiii).	Environment Protection System	Encapsulation and sealing arrangements for protection from environment.	
(xiv).	Maximum Power (Pmpp) at STC	305 W	
(xv).	Power Tolerance at STC	0 ~ +5W	
(xvi).	Voltage at maximum Power STC (Vmpp)	35.9 V	
(xvii).	Current at maximum Power STC (Impp)	8.50 A	
(xviii).	Open circuit voltage (Voc) at STC	44.7 V	
(xix).	Short circuit current (Isc) at STC	8.97 A	
(xx).	Open Circuit Voltage at NOCT	41.3 V	
(xxi).	Maximum Power Voltage at NOCT	33.2 V	
(xxii).	Short circuit current (Isc) at NOCT	7.24 A	
(xxiii).	Maximum system Voltage at STC	1,000 V	
(b).	<b><u>PV Array</u></b>		
(i).	No. of PV modules	39,348	
(ii).	Modules in a string	18	
(iii).	Total number of strings	2,186	




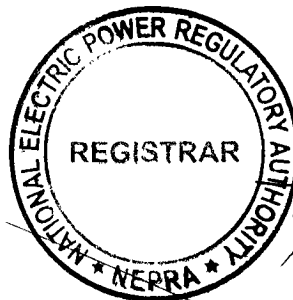
<b>(c). <u>PV Capacity</u></b>			
	Total	12. 00114 MW <sub>p</sub>	
<b>(d). <u>Inverters</u></b>			
(i).	Max.DC power Input	20,800 W	
(ii).	Inverter Model	CSUN 20000 UE	
(iii).	Maximum DC Input Voltage	1,000V	
(iv).	Start Voltage	350 V DC	
(v).	Number of Inverters	536	
(vi).	Efficiency	98%	
(vii).	Full load voltage Range	400 ~ 800 V	
(viii).	Max. Input Current	DC 20 A	
(ix).	Output electrical system	3-phase, 3-wire	
(x).	Rated Output Voltage (AC)	230/400V	
(xi).	Rated Frequency	50/60 Hz	
(xii).	Power Factor	0.9 lagging, 0.9 leading (Adjustable)	
(xiii).	Power Control	MPP Tracker	
(xiv).	Environmental Enclosures	Relative Humidity	0 ~ 95%
		Audible Noise	<65 dB(A)
		Max. Operating Elevation	600 m
		Operating Temperature Range	-5C ~ +55C
(xv).	Grid Operation Protection	(a).	DC circuit breaker
		(b).	AC circuit breaker
		(c).	DC overvoltage protection
		(d).	Ground Monitoring



		(e).	Grid monitoring
		(f).	Insulation monitoring
		(g).	Anti-Islanding
<b>(e).</b>	<b><u>Isolating Transformer</u></b>		
(i).	Rating	1,000 KVA,	
(ii).	Type of Transformer	Isolated, Oil filled	
(iii).	Input voltage	400V	
(iv).	Output Voltage	11kV	
(v).	Purpose of Transformer	Step Up Voltage	

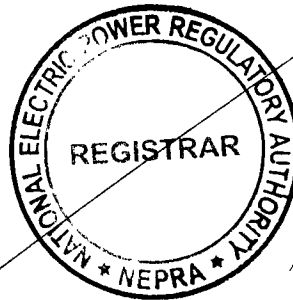
**(D). Other Details**

(i).	CoD of the Generation Facility/Solar Power Plant/Solar Farm (Anticipated)	March 31, 2016
(ii).	Expected Life of the Generation Facility/Solar Power Plant/Solar Farm from CoD	25 Years 



## 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/Power Plant/Solar Farm of Licensee is given in this Schedule.



## **SCHEDULE-II**

(1).	Total PV Installed Capacity of Generation Facility	12.00144 MWp
(2).	Average Sun Hour Availability/Day (Irradiation on Inclined Surface)	5.5 Hrs
(3).	Days per Year	365
(4).	PV Plant Generating Capacity Annually (As Per Simulation)	19,700 MWh
(5).	Expected Total Generation in 25 years Life Span	464,642 MWh
(6).	Generation per Year from plant keeping 24 Hours Working	$12 \times 24 \times 365 = 105,120$ MWh
(7).	Net Capacity Factor (4/6)	18.7 %

### **Note**

All the above figures are indicative as provided by the Licensee. The Net energy available to the Power Purchaser for dispatch will be determined through procedures contained in the Energy Purchase Agreement.

