ACCESSOLAR

February 04, 2022

The Registrar
National Electric Power Regulatory Authority ("**NEPRA**")
NEPRA Tower, Attaturk Avenue (East)
Sector G-5/1, Islamabad

Subject: **Application for Modification of the Generation License**

Dear Sir,

Access Solar (Private) Limited (the "**Company**") was granted the Generation License No. SPGL/03/2013, dated August 22, 2013 (the "Generation License") by NEPRA under Regulation 10 (2) of NEPRA Licensing (Application and Modification Procedure) Regulations 1999 (the Regulations) in respect of its 11.52 MWp Solar PV project to be located at near village Hattar, Tehsil Pind Dadan Khan, District Jhelum, Punjab (the **"Project"**), which was subsequently modified following an application by the Company vide NEPRA/R/LAG-223/27979-84 dated September 07, 2020.

Due to delays not attributable to the Company, the most recent Project Tariff issued vide NEPRA/R/Addl. Dir (Trf)/TRF-518/ASPL-2020/47527-47529 expired on December 29, 2021 following which the Company has filed a tariff petition on January 11, 2022 for a fresh determination of the same. Due to the unavailability of 450 Wp modules and recent improvement in technology the Company has proposed 540 Wp mono-bifacial modules for the Project.

In view of the foregoing and pursuant to the NEPRA Licensing (Application & Modification Procedure) Regulations, 1999 (the **"Regulations"**), I, Mr. Amir Altaf, Manager Accounts being the duly authorized representative of the Company by virtue of Board Resolution dated February 03, 2022, hereby apply to NEPRA, for a modification of the Generation License to reflect the above change in technology.

In view thereof, your good offices are humbly requested to process this application expeditiously and issue the modified Generation License at the earliest, enabling the Company to proceed with development of the Project.

In relation to the foregoing, I certify that the documents-in-support enclosed with this application are prepared and submitted in conformity with the provisions of the Regulations, and that the Company undertakes to abide by the terms and provisions of the Regulations. I further undertake and confirm that the information provided in the enclosed documents-in-support are true and correct to the best of my knowledge and belief.

A Bank Cheque dated February 04, 2022 in the sum of Rs. 327,968 being the applicable processing fee is attached herewith.

In light of the above and its enclosures, you are kindly requested to accept our application for the modification of the Generation License.

Thanking you,

For and on behalf of
Access Solar (Private) Limited

Amir Altaf
Manager Accounts

ACCESS SOLAR (PRIVATE) LIMITED
LAHORE

Appended with this application are the following documents:

1. A Bank Cheque dated February 04, 2022 for an amount of Rs. 327,968/- as **Annex A**;
2. Board Resolution dated February 03, 2022 as **Annex B**;
3. Affidavit as **Annex C**;
4. Text of the Proposed Modification as **Annex D**;
5. Statement of the Reasons in Support of the Proposed Modification as **Annex E**
6. Statement of the Impact on the Tariff, Quality of Service and the Performance by the Company of its obligations under the Generation Licence as **Annex F**.

ACCESSOLAR

Board Resolution

Certified Copy of Resolution Passed by The Board of Directors of Access Solar (Private) Limited on February 03, 2022, through circulation.

RESOLVED THAT: the Board of Directors of Access Solar (Private) Limited do hereby authorize Mr. Amir Altaf, Manager Accounts of Power Generation of the Company to apply for Modification in Generation License from **NEPRA** and in this respect sign necessary documents/papers, pay the filling fees, and appear before the Authority as required, to do and cause to be done all acts, deed and things which may be necessary to give effect of this Resolution and to do all acts necessary for completion and processing of the application for Modification in Generation License.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

Mohammad Shomail Ghalib
(Chief Executive Officer)

E-STAMP

E-Stamp ID : **PB-LHR-0DAA36B76BA8CAFC**
Stamp Type : **Low Denomination**
Amount : **Rs 100/-**

Description :	AFFIDAVIT - 4
Applicant :	ACCESS SOLAR PVT LTD[00000-0000000-0]
Representative From :	ACCESS SOLAR PVT LTD
Address :	LAHORE
Issue Date :	4-Feb-2022 11:27:29 AM
Delisted On/Validity :	11-Feb-2022
Amount in Words :	One Hundred Rupees Only
Reason :	AFFIDAVIT
Vendor Information :	Muzaffar Ali Attari | PB-LHR-422 | Nawaz Sharif Colony Lahore

مظفر علی عطاری لائسنس نمبر 422
نواز شریف کالونی نزد 96-ایل ٹاؤن کچہری لاہور 0321-9000052

نوٹ: یہ ٹرانزیکشن تاریخ اجرا سے سات دنوں تک کے لیے قابل استعمال ہے۔

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

AFFIDAVIT

I, Amir Altaf, Manager Accounts, being the duly authorized representative of Access Solar (Private) Limited, hereby solemnly affirm and declare that the contents of the accompanying 'Application for Modification of the Generation License' dated February 04, 2022 (and its annexes) including all supporting documents, are true and correct to the best of my knowledge and belief and that nothing has been concealed.

I also affirm that all further documentation and information to be provided by me in connection with the accompanying application shall be true to the best of my knowledge and belief.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

DEPONENT
Amir Altaf

Verification:

Verified on oath at February 04, 2022 that the contents of the above affidavit are correct and true to the best of my knowledge and belief.

ACCESSOLAR

TEXT OF THE PROPOSED MODIFICATION

The Company filed an application dated January 29, 2013 for grant of the Generation License and was issued the Generation License No. SPGL/03/2013, dated August 22, 2013. An application was filed for a License Proposed Modification on September 05, 2019, and Modification-I in the Generation License was issued on September 07, 2020, for the Project and based on the monocrystalline PV module technology.

the Company has filed a tariff petition on January 11, 2022 for a fresh determination of the Project Tariff. Due to the unavailability of 450 Wp modules and recent improvement in technology the Company has proposed 540 Wp mono-bifacial modules for the Project.

In order to cater to the change, the Schedule I & II attached to the Generation License issue need to be replaced. Please see Annex E (*Statement of Reasons*) for further details). The Generation License shall need to be modified to extent of replacement of Schedules.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

ACCESSOLAR

STATEMENT OF REASONS IN SUPPORT OF THE PROPOSED MODIFICATION

The Company filed an application dated January 29, 2013 for grant of the Generation License and was issued the Generation License No. SPGL/03/2013, dated August 22, 2013. An application was filed for a License Proposed Modification on September 05, 2019, and Modification-I in the Generation License was issued on September 07, 2020, for the Project and based on the monocrystalline PV module technology.

The Company has filed a tariff petition on January 11, 2022 for a fresh determination of the Project Tariff. Due to the unavailability of 450 Wp modules and recent improvement in technology the Company has proposed 540 Wp mono-bifacial modules for the Project.

In order to cater to the change, the Schedule I & II attached to the Generation License issue need to be replaced. Please see Annex E (*Statement of Reasons*) for further details). The Generation License shall need to be modified to extent of replacement of Schedules.

The Project is currently in its development phase and at this stage the Generation License can be updated to cater for the changes in technology.

In view thereof, your good offices are humbly requested to process this application expeditiously and issue the modified Generation License at the earliest, enabling the Company to proceed the development of the Project.

The Proposed Modification will also be in the best interest for the public as it is in compliance with the applicable laws.

In light hereof, since the Proposed Modification will result in a more resourceful Project and ultimately lead to the benefit of the general public and consumers at large, we request the Authority to proceed in accepting our application for the modification of the Generation License.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

ACCESSOLAR

STATEMENT OF THE IMPACT ON THE TARIFF, QUALITY OF SERVICE AND THE PERFORMANCE BY THE COMPANY OF ITS OBLIGATIONS UNDER THE GENERATION LICENSE

A. **Impact on Tariff:** The recently proposed Project Tariff is based on plant factor 20.6% as against the previous plant factor of 20.35% due to higher efficiency. With the exception of changes in the Tariff due to market conditions, the increase in generation will have a positive impact on the Tariff.

B. **Impact on Quality of Service:** The technical performance and quality of service of the Company shall improve significantly.

C. **Impact on Performance of Obligations under the Generation License:** The overall performance of the Company obligations shall improve significantly after adopting the new technology as requested.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

REGISTER OFFICE C/o Horwath Hussain Chaudhry & Co. 25 E, Main Market Gulberg Lahore 54660 I +92 42 111 111 HHC I +92 42 357 59226
PROJECT OFFICE: 39-C, Ahmed Block, New Garden Town, Lahore I +92 042 35940430

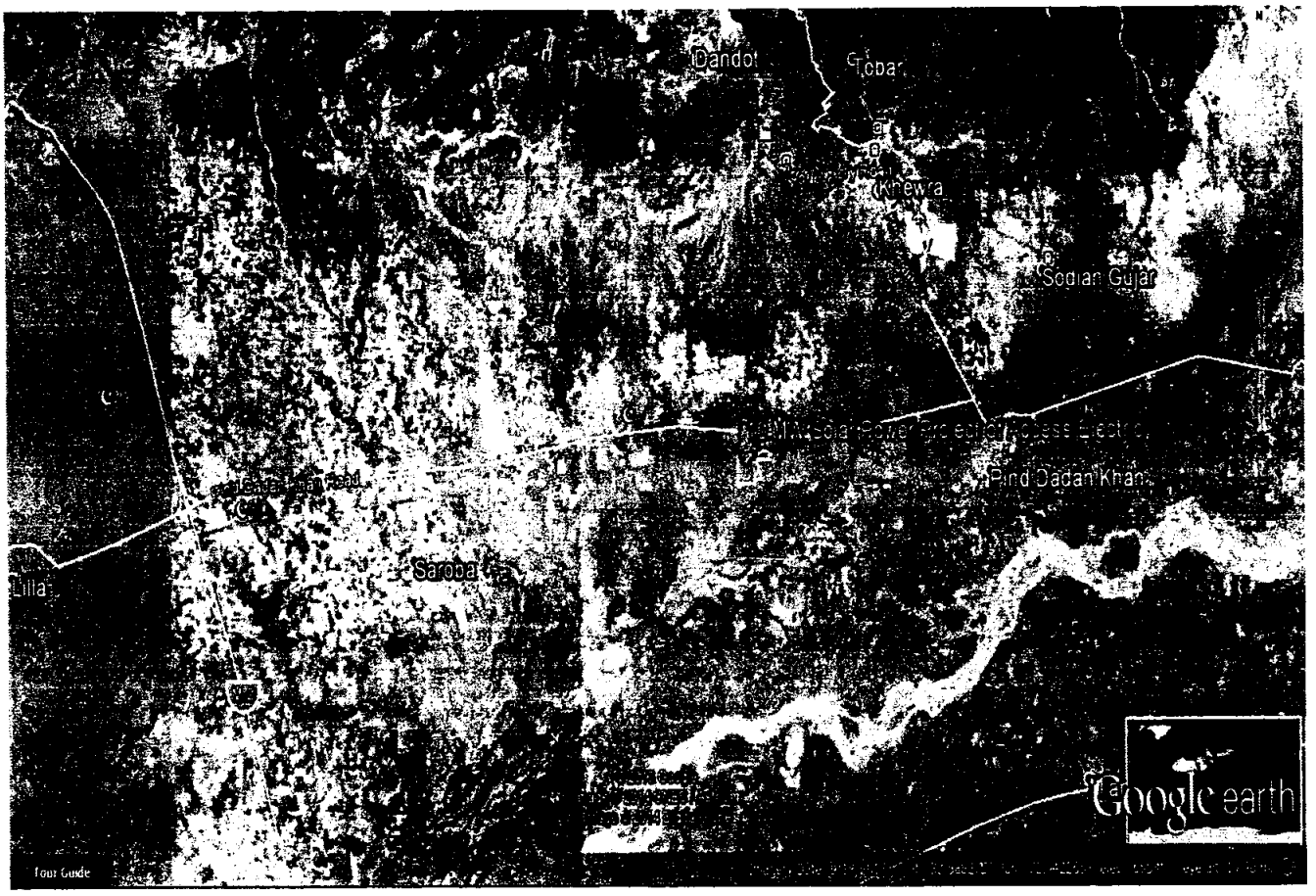
SCHEDULE-I

The Location, Size (Capacity 11.52 MW), Type of Technology, Solar Photovoltaic (PV). Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule.

ACCESS SOLAR (PRIVATE) LIMITED
LAHORE

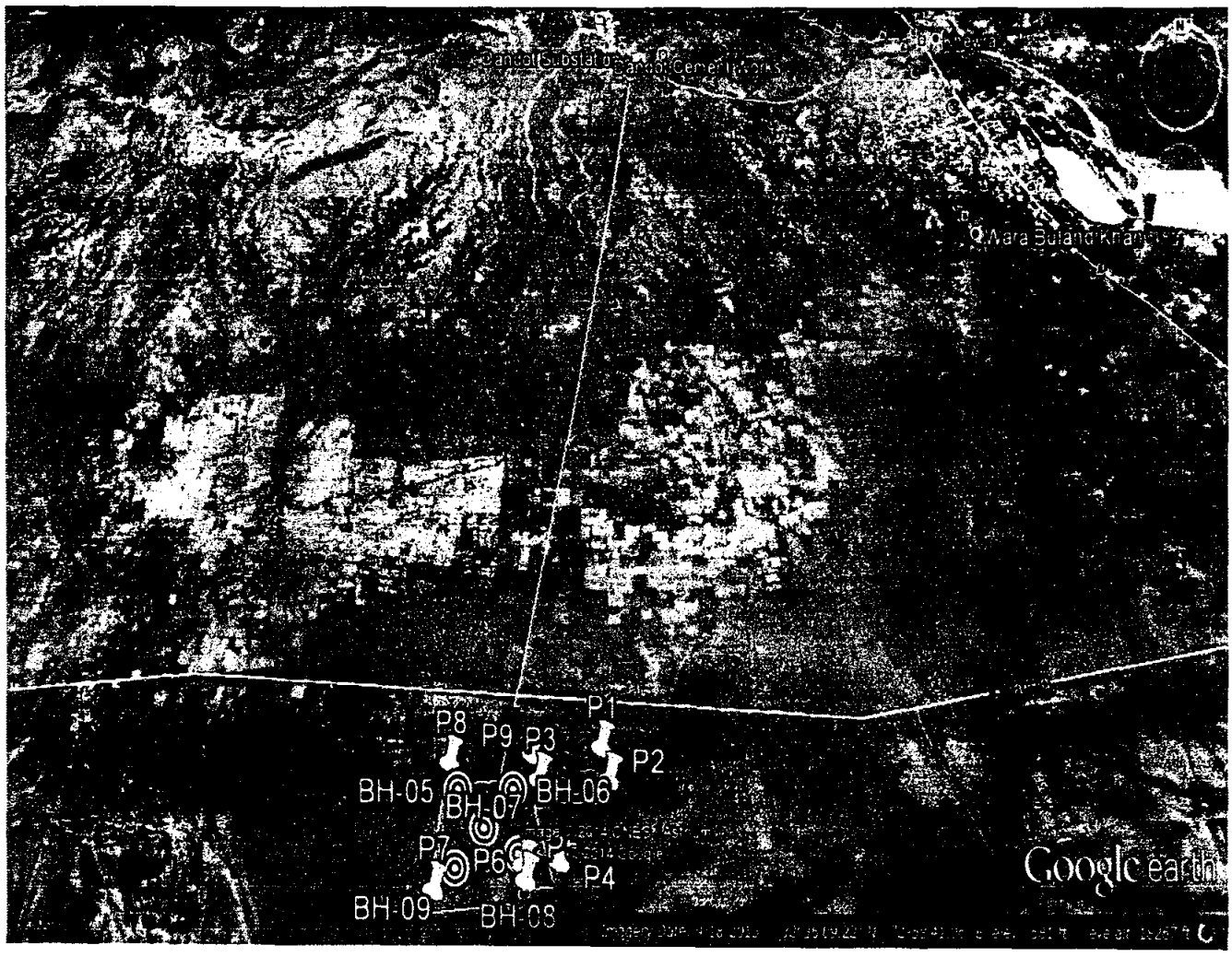
Generation Licence
Access Solar (Private) Limited
Near Village Hattar Tehsil
Pind Dadan Khan District
Jhelum Province of Punjab

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



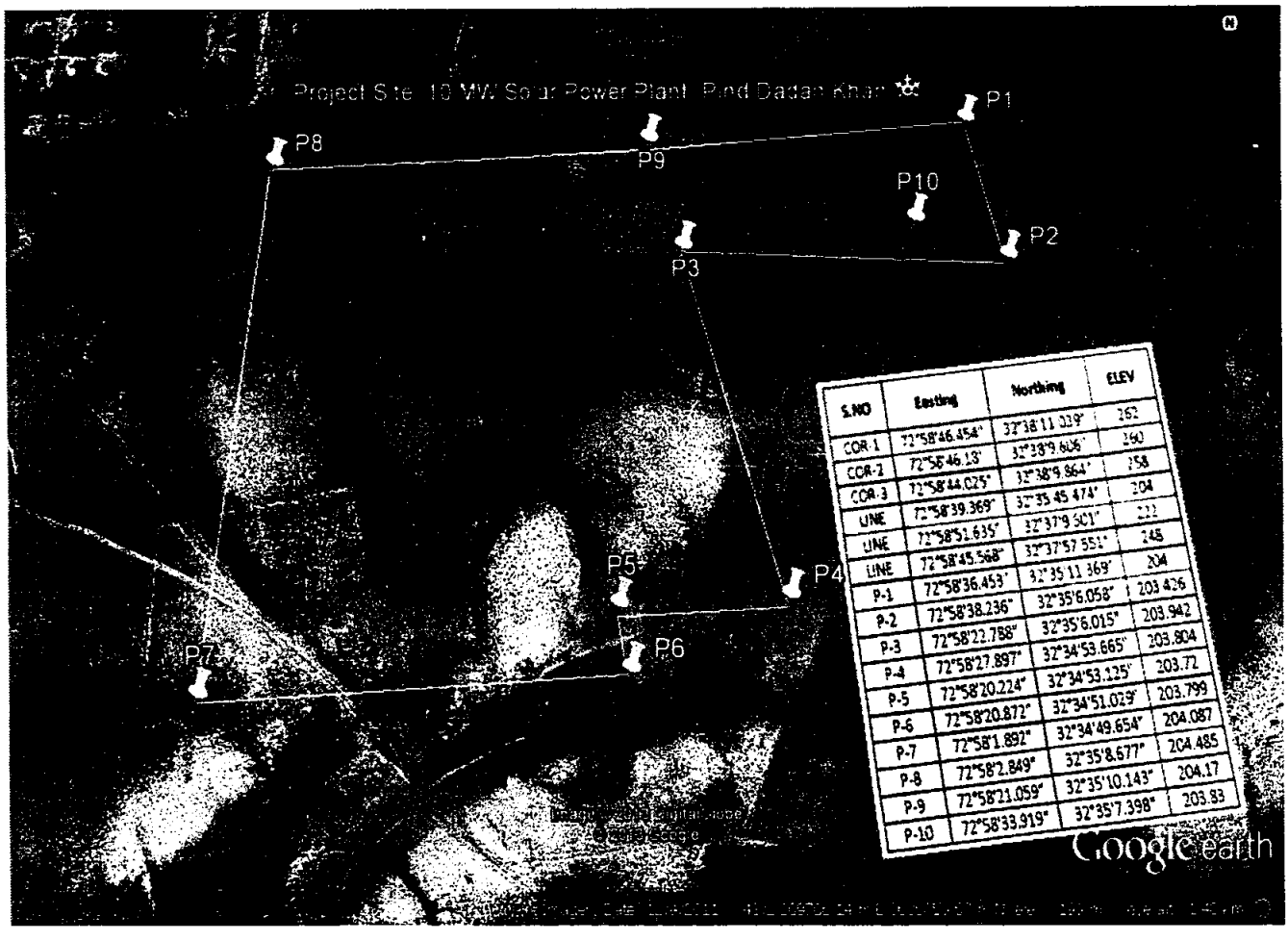
ACCESS SOLAR (PRIVATE) LIMITED
LAHORE

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



ACCESS SOLAR (PRIVATE) LIMITED LAHORE

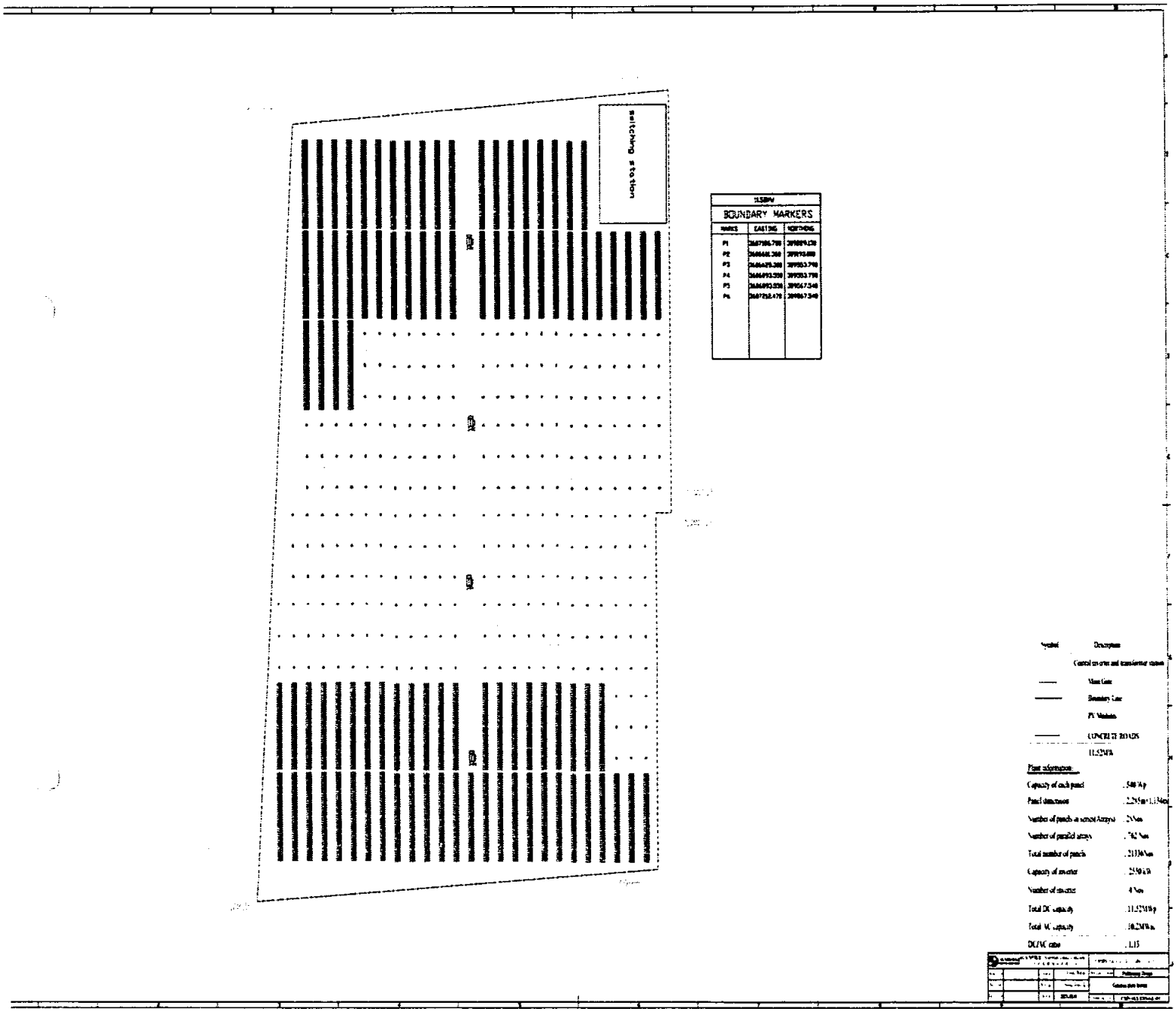
Co-Ordinates of the Generation Facility /Solar Power Plant/ Solar Farm



S.NO	Easting	Northing	ELEV
COR-1	72°58'46.454"	32°38'11.319"	202
COR-2	72°58'46.13"	32°38'9.606"	240
COR-3	72°58'44.025"	32°38'9.864"	258
LINE	72°58'39.369"	32°35'45.474"	204
LINE	72°58'51.635"	32°37'9.501"	222
LINE	72°58'45.568"	32°37'57.551"	245
P-1	72°58'36.453"	32°35'11.369"	204
P-2	72°58'38.236"	32°35'6.058"	203.426
P-3	72°58'22.788"	32°35'6.015"	203.942
P-4	72°58'27.897"	32°34'53.665"	203.804
P-5	72°58'20.224"	32°34'53.125"	203.72
P-6	72°58'20.872"	32°34'51.029"	203.799
P-7	72°58'1.892"	32°34'49.654"	204.087
P-8	72°58'2.849"	32°35'8.677"	204.485
P-9	72°58'21.059"	32°35'10.143"	204.17
P-10	72°58'33.919"	32°35'7.398"	203.83

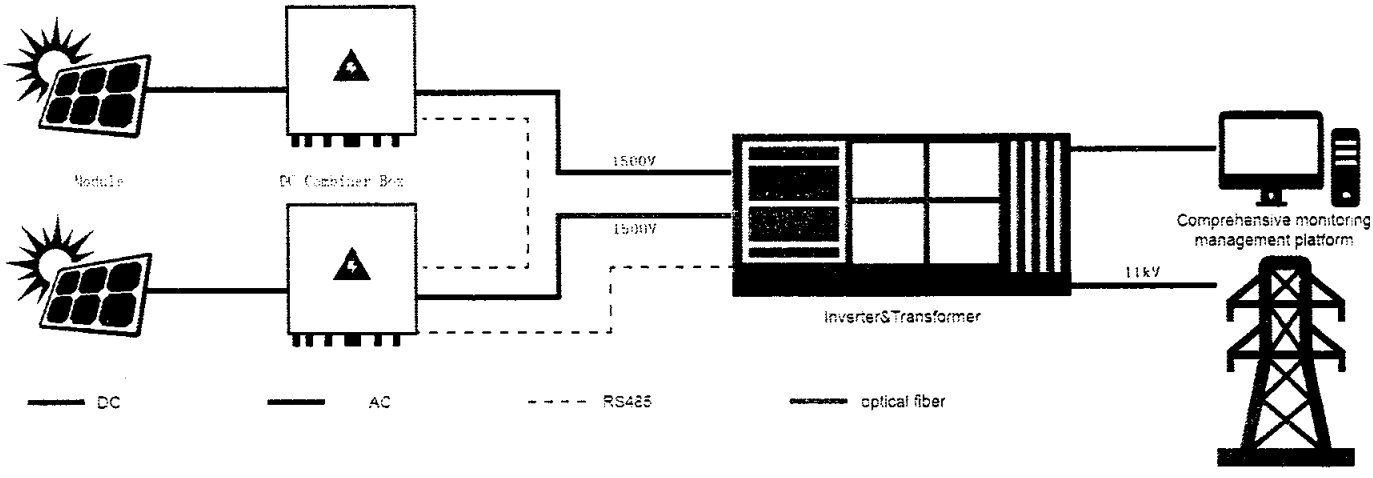
ACCESS SOLAR (PRIVATE) LIMITED LAHORE

Schematic Diagram of the Layoutof the Generation Facility/Solar Power Plant/ Solar Farm of the Licensee



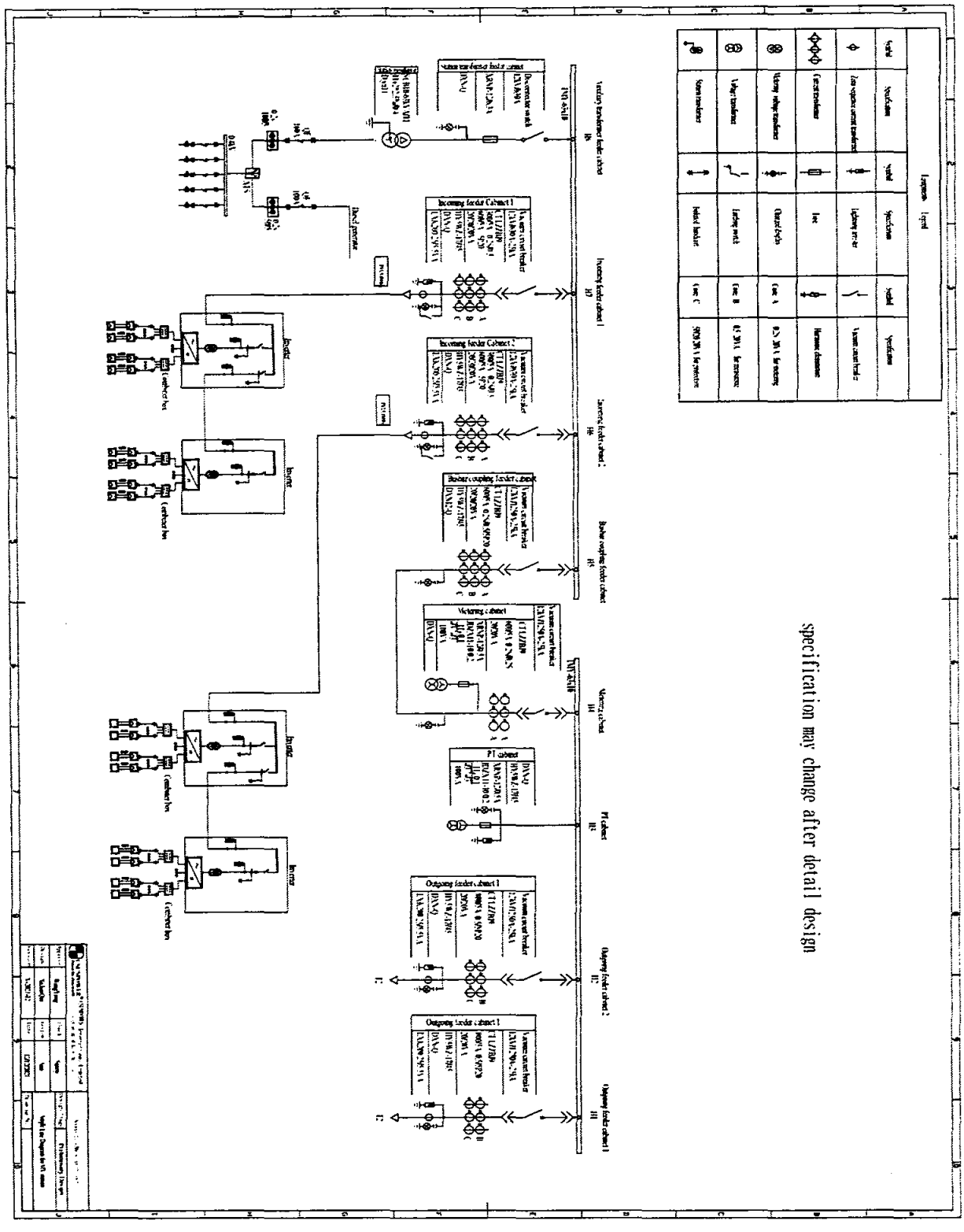
ACCESS SOLAR (PRIVATE) LIMITED LAHORE

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



ACCESS SOLAR (PRIVATE) LIMITED LAHORE

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



ACCESS SOLAR (PRIVATE) LIMITED LAHORE

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

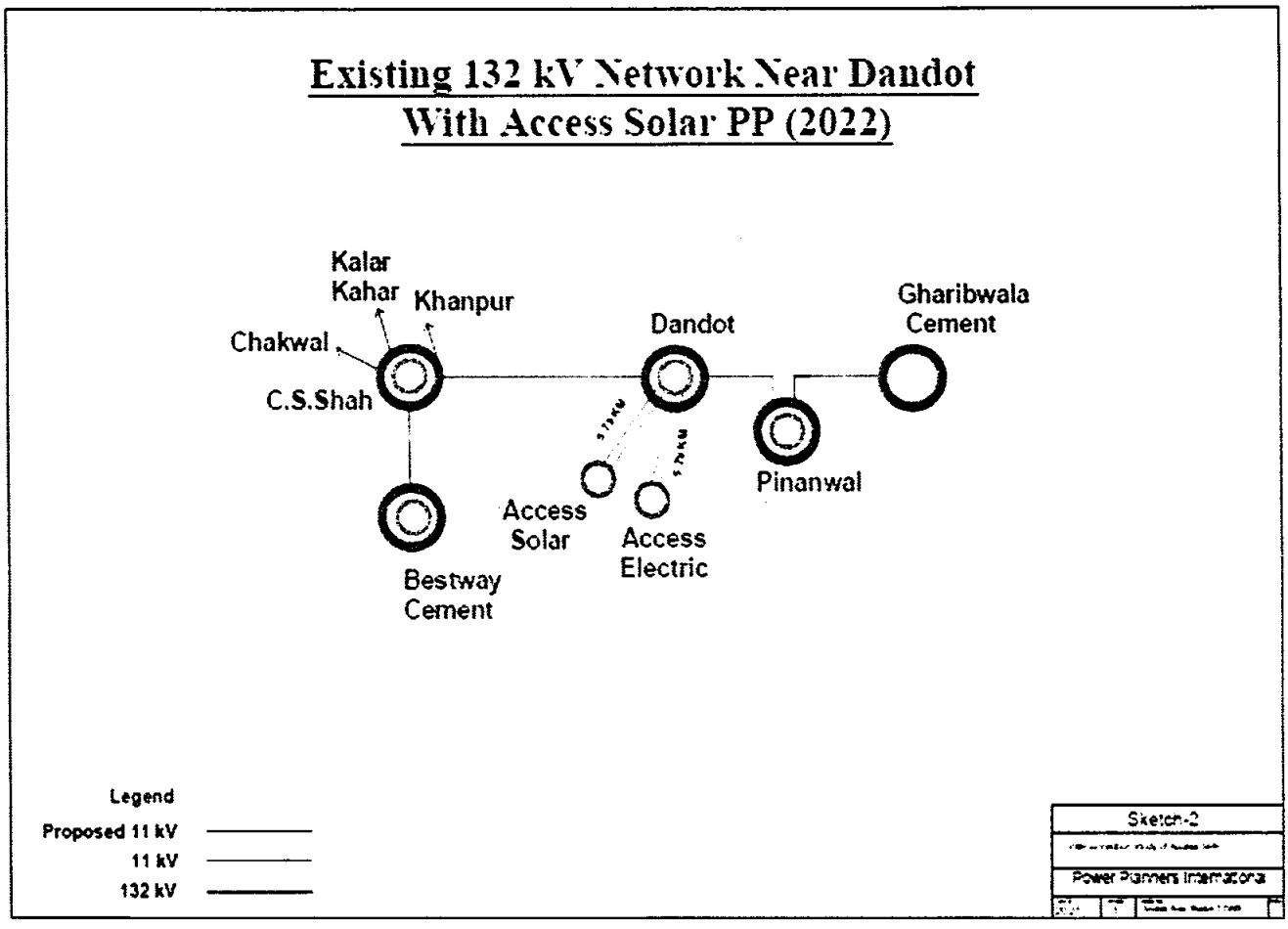
The power generated from the Generation Facility/Power Plant/Solar Farm of ASPL shall be dispersed to the load center of IESCO.

(2). The proposed Interconnection/dispersal arrangement for the project will be consisting of two (02) 11 KV Feeders using ACSR OSPREY Conductor connecting the Generation Facility/Power Plant/Solar Farm with 132 KV Dandot Grid Station located in the service area of IESCO.

(3). Any change in the above Interconnection Arrangement/Transmission Facilities duly agreed by ASPL, NTDC and IESCO, shall be communicated to the Authority in due course of time.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

Single Line Diagram of the Interconnection Arrangement/Transmission Facilities for Dispersal of Power from the Generation Facility/ Solar Power Plant/Solar Farm



ACCESS SOLAR (PRIVATE) LIMITED LAHORE

Detail of Generation Facility/Solar Power Plant/ Solar Farm

(A). General Information

(i).	Name of Licensee	Access Solar (Private) Limited.
(ii).	Registered Office	C/O Horwath Chaudhary & Co. 25E, Main Market, Gulberg, Lahore.
(iii).	Principal Office	House No.39-C, Ahmed Block New Garden Town Lahore
(iii).	Plants Location	Near Village Hattar, Tehsil Pind Dadan Khan, District Jhelum in the Province of Punjab.
(iv).	Type of Generation Facility	Solar Photovoltaic (PV).

(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photo Voltaic (PV) Cell
(ii).	System Type	Grid Connected
(iii).	Installed Capacity of Solar Farm (MW)	11.52MWp

(C). Technical Details of Equipment

(a).	**Solar Panels – PV Modules**	
(i).	Type of Module	Bifacial Monocrystalline PV Module (CSUNPOWER Brand)
(ii).	Type of Cell	Monocrystalline
(iii).	Dimension of each Module	2285 × 1134 × 35 mm

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

(iv).	Module Surface Area	2.591sq.m.	
(v).	No. of Panel/ Modules	21336 pcs	
(vi).	Total Module Area	55286 sq.m.	
(vii).	Total Land Area Used	17.5 Hectors (approximately)	
(viii).	Frame of Panel	Anodized Aluminum	
(ix).	Weight of one Module	31.5kg	
(x).	Module Output Warranty	For 1st year	For 2nd to 25th year
		98%	The loss of power output shall not exceed 0.55% per year
(xi).	Number of Solar Cells in each module	144	
(xii).	Efficiency of module	20.84%	
(xiii).	Environment Protection System	Encapsulation and sealing arrangements for protection from environment.	
(xiv).	Maximum Power (Pmax)	540W, 0 ~ +5W	
(xv).	Voltage @ (Pmax)	41.64V	
(xvi).	Current @ Pmax	12.97A	
(xvii).	Open circuit voltage (Voc)	49.6V	
(xviii).	Short circuit current (Isc)	13.86A	
(xix).	Maximum system open Circuit Voltage	1500Vdc	

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

(b).	**PV Array**	
(i).	No. of Sub-arrays	381
(ii).	Modules in a string	28 pcs
(iii).	Total No. of Strings	762
(iv).	Modules in Sub-Array	56 pcs/ sub-array
(v).	Total Modules	21336pcs
(c).	**PV Capacity**	
(i).	Total	11.52MWp

(d).	**Inverters**	
(i)	Capacity of each unit	2550W
(ii)	Inverter Model	PVH-L2550E
(iii)	Manufacturer	TMEIC
(iv)	Rated Input Voltage	915~1300Vdc
(v)	Input Operating Voltage Range	915~1300Vdc
(vi)	Number of Inverters	4
(vii)	Total Power	10.2MW
(viii)	Efficiency	Max.:99%; EU: 98.5%
(ix)	Max. Allowable Input voltage	1500V
(x)	Max. Current	input: 2844A; output: 2337A
(xi)	Max Power Point Tracking Range	915~1300Vdc
(xii)	Output electrical system	3 phases
(xiii)	Rated Output Voltage	630V
(xiv)	Rated Frequency	50/60Hz
(xv)	Power Factor	>0.99

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

(xvi)	Power Control	Adjustable from 0.85 leading to 0.85 lagging	
(xvii)	Environmental Enclosures	Operating Temperature Range	-20°C ~ +60°C (derating above 50°C)
		Relative Humidity	5% ~ 95% (non-condensing)
		Audible Noise	<70 dB
		Operating Elevation	3000m (derating above 2000m)
		Warranty Period	5 years
(xviii)	Grid Operation Protection	(a).	Islanding protection
		(b).	short-circuit protection
		(c).	over/under voltage protection
		(d).	over/under current protection
		(e).	over/under frequency protection
		(f).	over temperature protection

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

		(g).	DC input protection
(e)	**Junction Boxes Installed and fixed on main steel structure in Array Yard**		
(i)	Number of Junction Box units	48/39/32	
(ii)	Input circuits in each box	16/20/24	
(iii)	Max. Input current for each circuit	20A	
(iv)	Max. Input voltage	1500V	
(v)	Power at each box	241.92kWp/302.40kWp/362.88kWp	
(vi)	Protection Level	IP65	
(vii)	Over-Current protection	Fuse	
(viii)	Output switch	250A/400A, 1500V circuit breaker	
(ix)	Surge protection	1500V, Type II	
(x)	Purpose of Junction Box	(a).	Combine groups of modules into sub-arrays that will be wired into the inverter.
		(b).	Provide arrangement for disconnection for each of the groups.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

		(c).	To provide group array isolation.
		(d).	The current carrying ratings of the junction boxes shall be suitable with adequate safety factor to inter-connect the solar PV array.
		(e).	16 protected inputs at 20A to prevent backflow of short circuit current.
(F)	**Data Collecting System**		
(i)	Weather Data	(a).	Total radiation
		(b).	Ambient temperature
		(c).	Solar panel temperature
		(d).	Wind direction
		(e).	Wind speed
(ii)	System Data	(a).	DC input voltage(V)&current(A) of each Inverter (Phase, Line)

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

		(b).	Total DC power (kW) generated by PV array.
		(c).	AC output voltage(V)&current(A) of each Inverter (Phase, Total)
		(d).	AC output power (KW) & energy (kWh) of each Inverter
		(e).	Frequency (Hz)
		(f).	Power Factor (PF)
		(g).	Temperature inside inverter station
(g)	**Isolating Transformer**		
(i)	Rating	2550kva, 11±2x2.5%/0.63kV	
(ii)	Type of Transformer	Oil Natural Air Natural	
(iii)	Input voltage	0.63kV	
(iv)	Output Voltage	11kV	
(v)	Purpose of Transformer	Step up voltage, galvanic isolation and eliminate DC current injection	
(vi)	Efficiency	>99%	
(h)	**Outdoor Cubicle Control Room**		
(i)	Data Record	Continuous logging with data logging software	
(ii)	Control Room System	Computerized data acquisition system	
(iii)	Control room System Detail	Interfacing hardware & software, industrial type PC, which will be robust &	

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

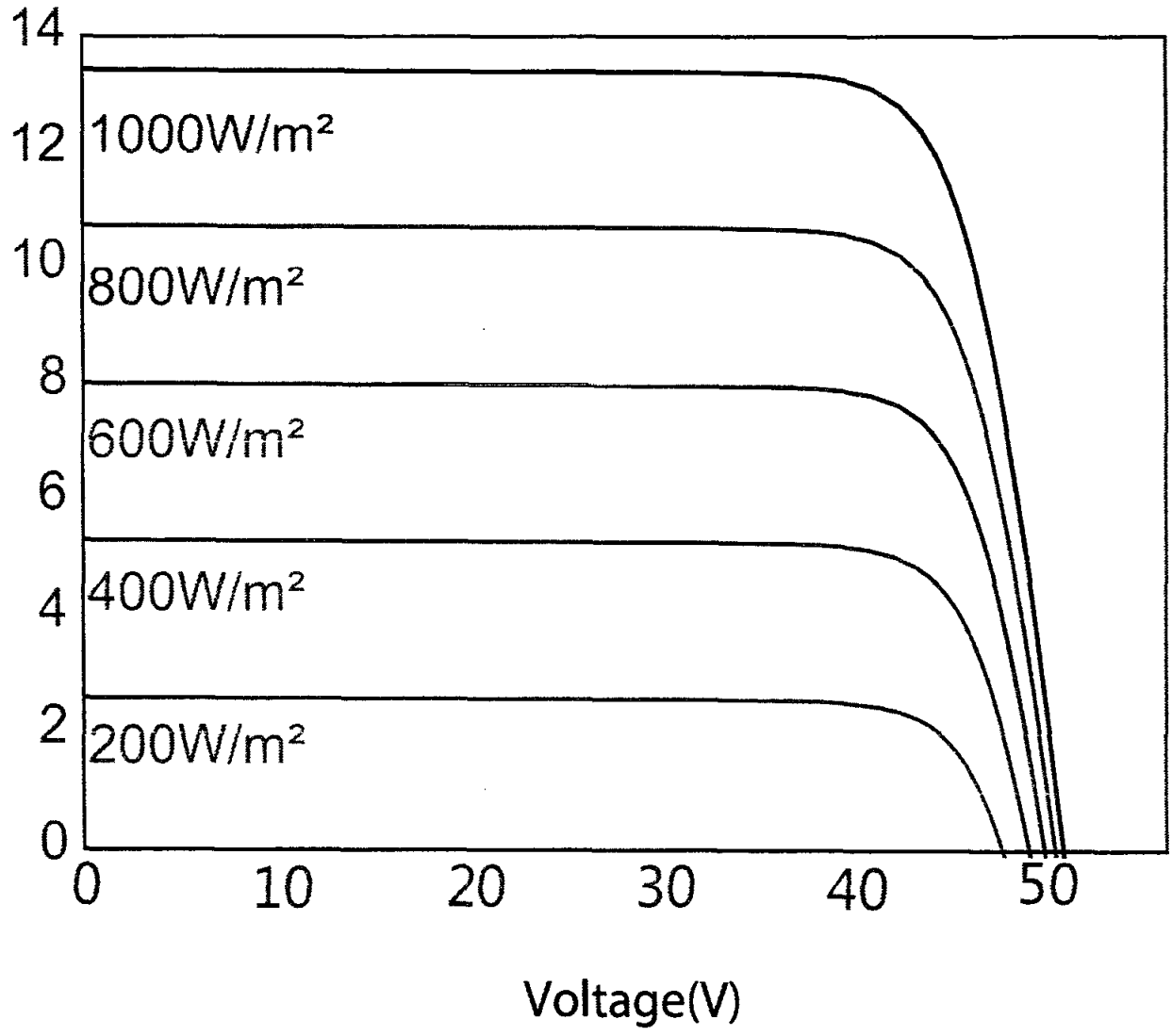
		rugged suitable to operate in the control room environment
(l)	**Mounting Structure**	
(i)	Structure	HDG steel with concrete pile foundations
(ii)	Tilt of Array System	±60°
(iii)	Array Specification	Certified for wind and seismic requirements
(j)	**Foundation Pillars**	
(i)	No. of foundations	1793 (Preliminary design)
(ii)	Foundation Structure	Reinforced concrete

(D). Other Details

(i)	COD of the Generation Facility/Solar Power Plant (Anticipated)	December, 2022
(ii)	Expected Life of the Generation Facility/Solar Power Plant from the COD	25 years

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

V-1 Curve of
Solar Cell



ACCESS SOLAR (PRIVATE) LIMITED
LAHORE

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) kh and Net Capacity Factor of the Generation Facility/Power Plant/Solar Farm of Licensee is given in this Schedule.

ACCESS SOLAR (PRIVATE) LIMITED LAHORE

SCHEDULE-II

(1).	Total PV Installed Capacity of Generation Facility	11.52 MWp
(2).	Average Sun Hour Availability/Day (Irradiation on Inclined Surface)	1781h
(3).	Days per Year	365
(4).	PV Plant Generating Capacity Annually (As Per Simulation)	20,814 MWh
(5).	Expected Total Generation in 25 years Life Span	485,306 MWh
(6).	Generation per Year from plant keeping 24 Hours Working	11.52 x 24 x 365 =100,915 MWh
(7).	Net Capacity Factor (4/6)	20.60%

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

ACCESS SOLAR (PRIVATE) LIMITED LAHORE