

MASTER

MASTER SOLAR ENERGY LIMITED

Registered Office: Master House, 54 Dar-ul-Aman Cooperative Housing Society, Shahrah-e-Faisal, Karachi.

Lahore Office: 82-C-1, Gulberg III, Lahore.

TEL: +92-42-35752684 **FAX:** +92-42-35752685

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

Subject: Application for Grant of Generation License for 50 MW Solar Power Plant at Winder, Lasbela District, Balochistan

I, Rumman Arshad Dar, Chief Operating Officer, being the duly authorized representative of Master Solar Energy Limited by virtue of Board Resolution dated March 28, 2025, hereby apply to the National Electric Power Regulatory Authority for the grant of a Generation License to Master Solar Energy Limited pursuant to section 14B of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.

I hereby certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, and undertake to abide by the terms and provisions of the above-said regulations. I, further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and no material omission has been made.

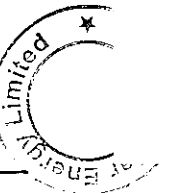
A Pay Order in the sum of PKR 916,724/- (Pakistani Rupees Nine Hundred Sixteen Thousand Seven Hundred and Twenty Four only), being the license fee calculated in accordance with Schedule II to the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, is also attached herewith.

The Company remains available to the Authority to provide any further information as and when required, including to submit further submissions (oral or written), related to the matters entailed herein as required, from time to time

Signature: _____

Name: Rumman Arshad Dar

Designation: Chief Operating Officer



BEFORE
THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
(NEPRA)

APPLICATION FOR A GENERATION LICENSE / REGISTRATION FOR
SOLAR POWER GENERATION FACILITY

PURSUANT TO ENABLING PROVISIONS OF REGULATION OF GENERATION, TRANSMISSION
AND DISTRIBUTION OF ELECTRIC POWER ACT, 1997, READ WITH ENABLING PROVISIONS
OF RULES MADE THEREUNDER, LICENSING (GENERATION) RULES 2000, LICENSING
(APPLICATION, MODIFICATION, EXTENSION AND CANCELLATION) PROCEDURE
REGULATIONS, 2021 &
THE FEDERAL GOVERNMENT'S
'POLICY OF RENEWABLE ENERGY FOR POWER GENERATION 2006' AND 'ALTERNATIVE
AND RENEWABLE ENERGY POLICY 2019'

ON BEHALF OF

MASTER SOLAR ENERGY LIMITED

(A SPECIAL PURPOSE VEHICLE INCORPORATED IN ACCORDANCE WITH THE
REQUIREMENTS OF THE APPLICABLE LAWS BY MASTER TEXTILE MILLS
LIMITED/CONSORTIUM AS REQUIRED BY THE NEPRA APPROVED RFP)

FOR NEPRA'S GRANT OF GENERATION LICENSE / REGISTRATION FOR MASTER SOLAR
ENERGY LIMITED

FOR POWER PROJECT OF TOTAL 50 MW

AT

WINDER, DISTRICT LASBELA, PROVINCE OF BALOCHISTAN, PAKISTAN

DATED: April 07, 2025

MASTER SOLAR ENERGY LIMITED

MAILING ADDRESS : 82-C-I, GULBERG III, LAHORE, PAKISTAN
PHONE # : +92-42-35752683-84
FAX # : +92-42-35752685
EMAIL : DEV-TEAM@MASTERWIND.COM.PK

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APPLICATION FOR GENERATION LICENSE

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**CHECKLIST FOR EXAMINATION OF LICENSE
APPLICATION FOR RENEWABLE POWER PROJECT**

2/10

CHECK LIST FOR EXAMINATION OF CONCURRENCE APPLICATION**FOR RENEWABLE POWER PROJECT**(Regulation 3 read with 3(4)(A) of AMECPR-2021)Name of Company: Master Solar Energy LimitedInstalled Capacity: 50MW

Regulation #	Information/Documents Required	Information/ Documents Submitted
3(1)*	Application fee (including Indexation)	Please refer to "Copy of Bank Draft" below
3(3)	Application submitted in triplicate	✓
3(4)(a)	Applicable documents-in-support and information set out in Schedule III of these regulations;	✓
3(4)(b) *	A prospectus	Annexure A
3(4)(c)(i)(A) *	Certified copies of certificate of incorporation	Annexure B
3(4)(c)(i)(B) *	Certified copies of memorandum and articles of association	Annexure C
3(4)(c)(i)(C) *	Certified copies of annual reports of the company	Annexure D
3(4)(c)(ii) *	The last annual return of the Company submitted in compliance of section 130 of the Companies Act or, in case of an applicant to whom section 130 of the Companies Act does not apply, a return comprising of all such information and particulars as required by the specified form under section 130 of the Companies Act, as the case may be;	Annexure E
3(4)(c)(iii)	The authorised, issued, subscribed and paid up share capital of the applicant	Annexure E

Regulation #	Information/Documents Required	Information/ Documents Submitted
3(4)(c)(iv)	The shareholding pattern of the applicant including list of shareholders holding 5% or more shares, number of shares held by each of them and percentage shares of the total paid-up capital	Annexure E
3(4)(d)(i)	Evidence of cash balances held in reserve by the applicant, along with bank certificates;	Annexure F
3(4)(d)(ii)	Details of charges or encumbrances attached to the applicant's assets, if any;	Not applicable
3(4)(d)(iii)	Latest audited financial statements of the applicant;	Annexure D
3(4)(d)(iv)	Expressions of interest to provide credit or financing along with sources and details thereof;	Bid to KE was submitted by a consortium led by Master Textile Mills Limited (the "MTML Consortium"). Indicative term sheets from prospective financiers were submitted by the MTML Consortium as part of its bid submission. BER has been duly approved by NEPRA pursuant to the BER Approval.
3(4)(d)(v)	Documents describing the net worth and the equity and debt ratios of the applicant, as on the date of the audited balance sheet accompanying the application;	Details of net worth of the bidder were submitted by the MTML Consortium as part of the pre-qualification criteria assessment. BER has been duly approved by NEPRA pursuant to the BER Approval.

Regulation #	Information/Documents Required	Information/ Documents Submitted
3(4)(d)(vi) *	A reasonably detailed profile of the applicant and the applicant's senior management, technical and professional staff;	Annexure G
3(4)(d)(vii)	Employment records of engineering and technical staff of the applicant proposed to be employed;	Existing in-house team will be utilized for development of the Project. Annexure G
3(4)(d)(viii)	Profile of sub-contractors, if any, along with expressions of interest of such sub-contractors;	Indicative expression of interests from prospective sub-contractors were submitted by the MTML Consortium as part of its bid submission. BER has been duly approved by NEPRA pursuant to the BER Approval.
3(4)(d)(ix)	Verifiable references in respect of the experience of the applicant and its proposed sub-contractors;	Past experience of the bidder in the renewable energy sector was submitted to KE as part of the pre-qualification criteria assessment. A list of proposed vendors was also submitted by the MTML Consortium as part of its bid submission. BER has been duly approved by NEPRA pursuant to the BER Approval.
3(e) *	Technical and financial proposals in reasonable detail for the operation, maintenance, planning and development of the facility or system in respect of which the license is being sought;	Annexure H and L

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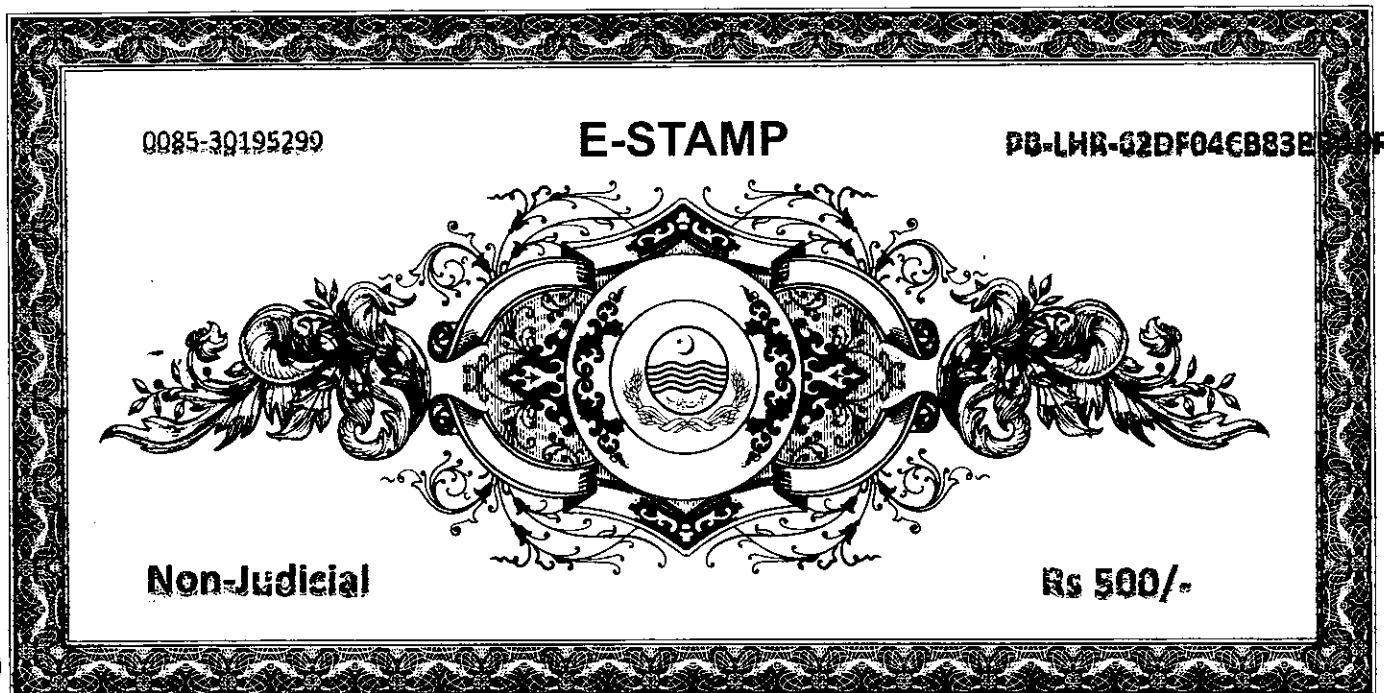
Regulation #	Information/Documents Required	Information/ Documents Submitted
3 (f) *	Feasibility Study	Feasibility Study report submitted by KE as part of the RFP Package duly approved by NEPRA is attached as Annexure I.
3 (g) *	An affidavit stating whether the applicant has been granted any other license under the Act;	The Company has simultaneously applied for a generation license for both 50 MW Winder and 100 MW Bela Projects. No other license under the Act has either been applied or been granted to the Company. Please refer to the "Affidavit" below.
3 (h) *	A duly authorised statement stating whether the applicant has been refused grant of license under the Act and, if so, the particulars of the refused application, including date of making the application and decision on the application;	Please refer to the "Affidavit" below.
3(6) *	Authorization from Board Resolution / Power of Attorney	Please refer to "Copy of Master Solar Energy Limited Board Resolution" below.
3(7) *	An affidavit as to the correctness, authenticity and accuracy of the application,	Please refer to the "" below.
Schedule III (A)(e) (Regulation 3(4)(a))		
1.	Interconnection Study	Annexure H
2.	Environmental Impact Assessment Study	Environmental Impact Assessment Study has been submitted by KE as part of the RFP package.

Regulation #	Information/Documents Required	Information/ Documents Submitted
3	Information relating to:	
3(i) *	Location (location maps, site map, land)	Annexure H
3(ii) *	Technology, size of the plant, number of units	Annexure H
3(iii) *	Water source at site for maintenance	Annexure H
3(iv) *	Infrastructure: roads, rail, staff colony, amenities	Annexure H
3(v) *	Project commencement and completion schedule with milestones	Please refer to Section 6 below
3(vi)	Safety plans, emergency plans	Annexure H
3(vii) *	Plant characteristics (generation voltage, frequency etc.)	Annexure H
3(viii)	Control, metering, instrumentation and protection	Annexure H
3(ix) *	Estimated Capacity Factor at site	Annexure H
3(x)	Degradation Factors	Annexure H

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**STATEMENT OF AUTHORIZED REPRESENTATIVE
OF
MASTER SOLAR ENERGY LIMITED**

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Description	: AGREEMENT OR MEMORANDUM OF AN AGREEMENT - 5(d)
First Party	: Master Solar Energy Limited [3000000000000]
Second Party	: NEPRA [3000000000000]
Agent	: Faheem Raza [35201-7699217-7]
Stamp Duty Paid by	: Master Solar Energy Limited [3000000000000]
Issue Date	: 28-Mar-2025, 10:52:35 AM
Paid Through Challan	: 2025F8140CCFAF11
Amount in Words	: Five Hundred Rupees Only

~~~~~ Please Write Below This Line ~~~~~

### AFFIDAVIT

**BEFORE**

### **THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**

I, Rumman Arshad Dar S/o Arshad Iqbal Dar, CNIC No. 61101-1927558-5, Chief Operating Officer, Master Solar Energy Limited hereby solemnly affirm and declare on oath that the contents of the accompanying application for the Generation License / Registration of Master Solar Energy Limited, including all attached documents-in-support, are true and correct to the best of my knowledge and belief, and have been prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, read with the enabling provisions of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

I hereby solemnly affirm and declare on oath that Master Solar Energy Limited was notified as the lowest bidder by KE for 50 MW Winder project and 100 MW Bela project. Master Solar Energy Limited has simultaneously applied for a generation license for 50 MW Winder project and 100 MW Bela project. No other license under the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, has currently been granted to Master Solar Energy Limited.

  
 \_\_\_\_\_  
**DEPONENT**

### **Verification**

Verified on oath at Lahore, Pakistan on this 07 day of April 2025, that the contents of the above affidavit are true and correct to the best of my knowledge and belief.

  
 \_\_\_\_\_  
**DEPONENT**



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**COPY OF MASTER SOLAR ENERGY LIMITED  
BOARD RESOLUTION**

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**CERTIFIED TRUE COPY OF THE MINUTES OF THE MEETING OF THE BOARD OF DIRECTORS OF  
MASTER SOLAR ENERGY LIMITED HELD AT ITS REGISTERED OFFICE 54 DARUL AMAN  
COOPERATIVE HOUSING SOCIETY, MAIN SHAHRAH E FAISAL, KARACHI ON MARCH 28, 2025**

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We hereby certify that the following resolutions of the Board of Directors of Master Solar Energy Limited (the "Company") were passed on March 28, 2025:

**RESOLUTIONS:**

The following resolutions were approved by the Board of the Company:

"

**RESOLVED THAT** the Company is hereby authorized in respect of the Company's projects comprising of the 100 MW solar photovoltaic power project located in Bela, Lasbela District, Balochistan and the 50 MW solar photovoltaic power project located in Winder, Lasbela District, Balochistan (the "Projects") to file: (i) a tariff application (the "Tariff Application") and other ancillary documents for submission to the National Electric Power Regulatory Authority ("NEPRA") for the approval of the tariff of the Projects and in relation thereto, enter into and execute all required documents, make all filings, attend all hearings, provide all required information and pay all applicable fees, in each case, of any nature whatsoever; (ii) a generation license (the "Generation License") and other ancillary documents for submission to the NEPRA for the approval of the Generation License of the Projects and in relation thereto, enter into and execute all required documents, make all filings, attend all hearings, provide all required information and pay all applicable fees, in each case, of any nature whatsoever; and (iii) to undertake all action required for the purposes of the Project.

**RESOLVED FURTHER THAT** Mr. Rumman Arshad Dar S/o Arshad Iqbal Dar having CINC # 6110-1927558-5, is hereby authorized and empowered to undertake all actions on behalf of the Company in relation to the above resolutions, including but not limited to sign, authenticate, execute, review, all necessary applications / forms, verify documents and papers, written statements, affidavits, letters, guarantees, undertakings, approvals, and any other instruments of any nature whatsoever, as may be required, and to submit, file, register any explanation(s), amendments or instrument, with the NEPRA or with any competent authority and to do all such acts, deeds, and things as may be necessary in this regard.

**RESOLVED FURTHER THAT** all actions, heretofore or hereafter taken by an authorized **OFFICER** in connection within the terms of the foregoing recitals and resolutions be and are hereby ratified and confirmed in their entirety.

*[Handwritten signature]*

# MASTER

## MASTER SOLAR ENERGY LIMITED

**Registered Office:** Master House, 54 Dar-ul-Aman  
Cooperative Housing Society, Shahrah-e-Faisal,  
Karachi.

**Lahore Office:** 82-C-1, Gulberg III, Lahore.

**TEL:** +92-42-35752684 **FAX:** +92-42-35752685

**RESOLVED FURTHER THAT** the aforesaid power entrusted in writing to the said official shall be valid and effective unless revoked earlier by the Board or shall be exercisable by him so long as he is in the concerned to the Company.

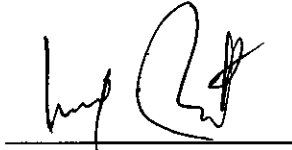
**RESOLVED FURTHER THAT** all acts, deeds, things, matters, etc. as aforesaid shall be deemed to be valid and enforceable only if they are consistent with the instant resolution as may be relevant in this case and that the Board shall not be responsible for any acts done beyond the scope of powers granted in this Resolution.

”

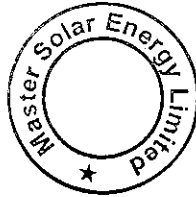
I, the undersigned, do hereby certify that the above resolution (a) was duly passed by the Board of Directors in accordance with the Articles of Association of the Company; and (b) has been duly recorded in the minutes book of the Company.

CERTIFIED TO BE TRUE COPY

Company Secretary



Amir Mushtaq Butt



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**COPY OF BANK DRAFT**

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## 1. BACKGROUND OF GENERATION LICENSE APPLICATION

### 1.1 PROCESS LEADING TO GENERATION LICENSE APPLICATION

- 1.1.1 MASTER SOLAR ENERGY LIMITED (a company duly organized and existing under the laws of Pakistan, with its registered office located at 54 Darul Aman Cooperative Housing Society, Main Shahrah e Faisal, Karachi, Pakistan), being the SPV formed by MTML Consortium being acknowledged as having submitted the lowest bid tariff under the KE Letter (as defined below) for the purpose of this Project (the **"Project Company"**), submitted its proposal on July 31, 2024 to K-Electric Limited (**"KE"**) in response to the invitation to bid circulated by KE (the **"RFP"**), to develop and establish a solar project with a total capacity of 50MW (the **"Project"**) located at Winder, Lasbela District, Balochistan, Pakistan (the **"Project Site"**).
- 1.1.2 The Project Company is the lowest evaluated bidder for two (02) solar power projects: (a) the Project Site; and (b) 100 MW Bela Solar Power Project.
- 1.1.3. KE submitted the Bid Evaluation Report (the **"BER"**) for the Project to the National Electric Power Regulatory Authority (**"NEPRA"**) on August 28, 2024. The BER is attached herein as Annexure J. NEPRA communicated to KE its approval of the BER through an email dated March 25, 2025, which was further communicated to the Project Company through an email dated March 27, 2025 (the **"BER Approval"**), attached herein as Annexure K. Pursuant to the letter dated August 23, 2024, bearing reference no. BD/SQK/MT-WBB/01/2024-2308, KE informed Master Textile Mills Limited (**"MTML"**) that MTML has successfully cleared the technical evaluation and submitted the lowest bid tariff for the Project (the **"KE Letter"**) (attached as Annexure M).

### 1.2 SUBMISSION

- 1.2.1 Under the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the **"NEPRA Act"**), the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 (the **"Licensing Rules 2000"**), and the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 (the **"NEPRA Regulations"**), NEPRA is responsible for and has the authority to, *inter alia*, grant licenses for the generation of electric power and other terms and conditions for the supply of electricity through generation.
- 1.2.2 **PURSUANT TO** the Sections 7 (2) (a) and 14B of the NEPRA Act read with the other enabling provisions of the NEPRA Act, the Licensing Rules 2000, and the NEPRA Regulations AND in accordance with the RE Policy 2006 and the ARE

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Policy 2019: MASTER SOLAR ENERGY LIMITED SUBMITS HEREWITH for NEPRA's kind and gracious consideration, the application for the grant of a generation license / registration along with supporting documents (the "**Generation License Application**") for and on behalf of **MASTER SOLAR ENERGY LIMITED** for the Project having a total capacity of 50MW, to be located at Winder, Lasbela District, Balochistan, Pakistan.

- 1.2.3 Given the advance stage of the project, NEPRA is kindly requested to process the Generation License Application at the earliest, thereby enabling the Project Company to proceed further with the development process.
- 1.2.4 This Generation License Application is submitted in triplicate.
- 1.2.5 It is highlighted that the Project Company is submitting with this Generation License Application the required generation license fee through a bank draft in the amount of PKR 916,724/- (Pakistani Rupees Nine Hundred Sixteen Thousand Seven Hundred and Twenty-Four only) dated April 04, 2025 in favor of NEPRA.

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## 2. APPLICANT – MASTER SOLAR ENERGY LIMITED

- 2.1 The Project Company, being the applicant under this Generation License Application, is a public limited company, incorporated under the laws of Pakistan and has been specifically established to setup the Project at the Project Site.
- 2.2 The Project Company (following grant of a generation license and approval of the Project Company's bid tariff by NEPRA) proposes to finance, design, engineer, procure, construct, install, test, complete, commission, insure, operate and maintain the Project constituting of a 50 MW solar power generation facility (the "**Facility**") to be located at the Project Site.
- 2.3 For the purposes of establishing the Project, the Project Company is in the process of finalizing a contractual arrangement with globally reputable Original Equipment Manufacturers ("**OEM**") and a Civil Construction Contractor. The profile of the aforementioned suppliers/contractors has been submitted by the MTML Consortium as part of its bid submission. NEPRA has duly approved the BER pursuant to the BER Approval.
- 2.4 The following supporting documents relating to the Project Company are attached herewith as follows:

| DOCUMENTS                                                           | ANNEXURE   |
|---------------------------------------------------------------------|------------|
| Prospectus                                                          | ANNEXURE A |
| Certificate of Incorporation                                        | ANNEXURE B |
| Memorandum and Articles of Association                              | ANNEXURE C |
| Annual Reports of the Company                                       | ANNEXURE D |
| Form A                                                              | ANNEXURE E |
| Account Maintenance Certificate                                     | ANNEXURE F |
| Detailed Profile of the Applicant and Senior Management             | ANNEXURE G |
| Project Technical Proposal                                          | ANNEXURE H |
| Project Feasibility Study                                           | ANNEXURE I |
| BER submitted by KE to NEPRA                                        | ANNEXURE J |
| BER Approval                                                        | ANNEXURE K |
| O&M Manual                                                          | ANNEXURE L |
| K-Electric letter to Master Textile Mills Limited (" <b>MTML</b> ") | ANNEXURE M |

### 3. FACILITY UTILIZATION

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#### **POWER OFF-TAKE**

Following commercial operation date of the Project, the electricity generated will be sold to KE, pursuant to an Energy Purchase Agreement (the “EPA”), which in turn will distribute and modulate the electricity generated by the Plant.

The EPA will be finalized and executed by and between the Project Company and KE following NEPRA’s approval of the Project Company’s twenty-five (25) years bid tariff, and the grant of a Generation License (“GL”) to the Project Company.

## 4. RESOURCES

### 4.1 SENIOR MANAGEMENT & PERSONNEL

4.1.1 The Project Company has access to and has engaged the highly qualified personnel (together with a team of reputable technical, legal and in-house financial advisory team) for the development of the Project. The Project Company is presently under process of enhancing its personnel to further strengthen its team based on the requirements of the Project.

4.1.2 In addition, the curriculum vitae of the following individuals currently engaged by the Project Company are attached herewith at ANNEXURE G:

|    | NAME OF INDIVIDUALS       | POSITION                         | ANNEXURE |
|----|---------------------------|----------------------------------|----------|
| 1. | Mr. Nadeem Malik          | DIRECTOR                         | G        |
| 2. | Mr. Najeeb Malik          | DIRECTOR                         | G        |
| 3. | Mr. Shahzad Malik         | DIRECTOR                         | G        |
| 4. | Mr. Rumman Arshad Dar     | CHIEF OPERATING OFFICER          | G        |
| 5. | Mr. Syed Shahzad Ali      | GENERAL MANAGER PLANT OPERATIONS | G        |
| 6. | Mr. Gohar Qudoos          | SENIOR MANAGER PLANT             | G        |
| 7. | Mr. Rashid Hussain Bhatti | SENIOR MANAGER PLANT             | G        |

### 4.2 OPERATIONS AND MAINTENANCE

4.2.1 In addition to recruitment of its own management, staff and personnel for the purposes of the Project, the Project Company will be responsible for the operations and maintenance (the "O&M") of the Project. For details on the O&M Plan, please refer to the Annexure L attached herewith.

### 4.3 TECHNICAL ADVISERS

4.3.1 Renewable Resources ("RE2") has been involved with the renewable energy sector in Pakistan since its inception and has been appointed by the Project Company as one of its technical advisors. RE2 is currently advising a number of solar projects developers and has extensive experience in power plant design, project development, and construction. RE2 focuses on delivering efficient, cost effective and environmentally friendly energy solutions, particularly in wind and solar power, where it holds a significant market share in Pakistan. Their

services include resource assessment, technology selection, feasibility studies, and regulatory compliance, supporting clients across all phases of renewable energy projects from inception to commissioning of the Project. With RE2 on the side of the Project Company, the Project is best positioned for the avoidance of technical risks.

#### **4.4 LEGAL ADVISER**

- 4.4.1 **HAIDERMOTA & CO.**, has been selected by the Project Company to provide legal support on all legal aspects of the Project including Project documentation, regulation and financing matters. Haidermota & Co., has been actively involved in the power sector projects and has advised various project companies / sponsors, lenders and the Government of Pakistan on several transactions and matters. It is ranked by Chamber & Partners as a “*Band 1*” firm in Pakistan for Projects, Banking & Finance and Corporate & Commercial.

## 5. THE FACILITY

### 5.1 TECHNOLOGY

#### 5.1.1 Technology Selection Criteria

The technology for the Project has been selected after detailed analyses of various power generation technologies available internationally for the purposes of power generation through solar. This selection is based upon the detailed technical requirements laid out in Section 15 of the RFP provided by KE. Various factors were considered in selection of equipment and technology which included:

- (a) equipment to be of latest proven technology, megawatt class and high efficiency;
- (b) safe transportation of equipment to the solar plant site;
- (c) maintainability of the equipment and availability of OEM service personnel;
- (d) energy output with warranted power curve and performance warranty;
- (e) grid compatibility with proposed Energy yields and grid code requirements; and
- (f) suitability of operation and maintenance concept for the size and location of projects with suitable availability of spare parts, consumables and main components.

## 6. IMPLEMENTATION SCHEDULE

The following provides the key upcoming milestones and dates for the Project's development:

| <b>MILESTONES TO BE ACHIEVED<sup>1</sup></b>            |                                                                                                                                   |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>ACTIVITIES</b>                                       | <b>ANTICIPATED COMPLETION DATE</b>                                                                                                |
| Submission of Performance Guarantee by Project Company  | Prior to the issuance of Letter of Intent ("LOI") by KE and within 10 business days after being declared as the successful bidder |
| Issuance of LOI                                         | Upon NEPRA's notification of BER approval                                                                                         |
| Grant of Generation License                             | Upon NEPRA's approval                                                                                                             |
| Bid Tariff Approval                                     | Upon NEPRA's approval                                                                                                             |
| Submission of EPA to NEPRA for approval                 | Five (05) months post issuance of LOI                                                                                             |
| EPA Signing with KE                                     | Two (02) months prior to Financial Close                                                                                          |
| Land Sub-lease agreement with Government of Balochistan | Two (02) months prior to Financial Close                                                                                          |
| Project Financial Close & ordering of equipment         | In accordance with the timeline stipulated in the LOI                                                                             |
| Commercial Operation Date                               | 10 months following Financial Close, in accordance with the RFP                                                                   |
| One-time Adjustments by NEPRA                           | Following Commercial Operations Date                                                                                              |

<sup>1</sup> The timelines stipulated above are indicative and subject to change in accordance with the LOI issued to the Project.

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**CONCLUSION**

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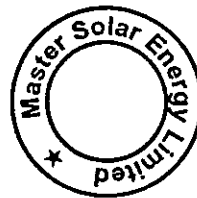
In light of the submissions, the relevant analysis and information contained in this Generation License Application, along with the Annexures attached hereto, this Generation License Application is submitted for NEPRA's approval and for grant of the Generation License to the Project Company.

Respectfully submitted for and on behalf of:

**MASTER SOLAR ENERGY LIMITED**



**MR. RUMMAN ARSHAD DAR**  
(CHIEF OPERATING OFFICER)



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**ANNEXURE – A**  
**PROSPECTUS**

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**MASTER SOLAR ENERGY LIMITED**

**150 MW WINDER AND BELA SOLAR POWER  
PROJECTS**

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## Executive Summary

|                            |                                                                         |                                          |
|----------------------------|-------------------------------------------------------------------------|------------------------------------------|
| <b>Project Name</b>        | Winder and Bela Solar Power Projects                                    |                                          |
| <b>Project Company</b>     | Master Solar Energy Limited ("MSEL")                                    |                                          |
| <b>Main Sponsors</b>       | Master Group of Industries                                              |                                          |
| <b>Industry</b>            | Power Sector – Solar Farm                                               |                                          |
|                            | <b>Bela</b>                                                             | <b>Winder</b>                            |
| <b>Project Capacity</b>    | 100MW                                                                   | 50MW                                     |
| <b>Location</b>            | Bela, Lasbela District,<br>Balochistan                                  | Winder, Lasbela District,<br>Balochistan |
| <b>Land Area</b>           | 500 acres                                                               | 250 acres                                |
| <b>Bid Tariff</b>          | PKR 11.2071/kWh                                                         | PKR 11.6508/kWh                          |
| <b>Land Lease</b>          | Government of Balochistan through Balochistan Energy<br>Company Limited |                                          |
| <b>Construction Period</b> | 10 months from financial close                                          |                                          |
| <b>Concession Period</b>   | 25 years from Commercial Operations Date ("COD")                        |                                          |
| <b>Power Purchaser</b>     | K-Electric                                                              |                                          |

## Pakistan's Energy Sector

The proportion of imported fuel-based power plants in Pakistan's total generation mix has steadily increased over the last two decades. This has resulted in a growing dependence on imported fuels, exposing the cost of electricity generation to fluctuations in foreign exchange rates. Currently, thermal plants account for approximately 60% of the country's total installed capacity<sup>1</sup>.

The surge in the cost of imported fuels, particularly following the Russia-Ukraine war and the COVID-19 pandemic, has led to a notable increase in the fuel cost component of power plant tariffs in Pakistan. As a result, power plants are facing higher fuel procurement costs, which directly impact their overall generation expenses. This increase in generation costs has, in turn, led to higher electricity tariffs, putting added pressure on both consumers and the broader economy.

Simultaneously, the foreign exchange rate of PKR to USD reached an all-time high crossing the PKR 300 / USD mark for the first time in history. The interconnectedness of fuel prices and exchange rate fluctuations underscores the vulnerability of the energy sector to global economic shifts, highlighting the importance of macroeconomic stability in managing the cost of electricity production.

With the rising challenges faced by the power sector in Pakistan, the policy makers are now inclined to diversify the Country's energy mix, moving away from thermal dependency towards cleaner sources like solar, wind, and hydel. As of June 2024<sup>2</sup>, the installed capacity reached **45,888 MW**, with renewables playing an increasing role at **6.24%**. The breakdown of installed capacity and its changes over the past year, as shown below, highlights the country's growing focus on renewable energy, the only source that has seen an increase in installed capacity.

| Source    | June 2023<br>(MW) | June 2024<br>(MW) | (%) Share |
|-----------|-------------------|-------------------|-----------|
| Hydel     | 10,635            | 10,635            | 23.17%    |
| Thermal   | 28,766            | 28,766            | 62.68%    |
| Nuclear   | 3,620             | 3,620             | 7.88%     |
| Renewable | 2,717             | 2,867             | 6.24%     |
| Total     | 45,738            | 45,888            | 100%      |

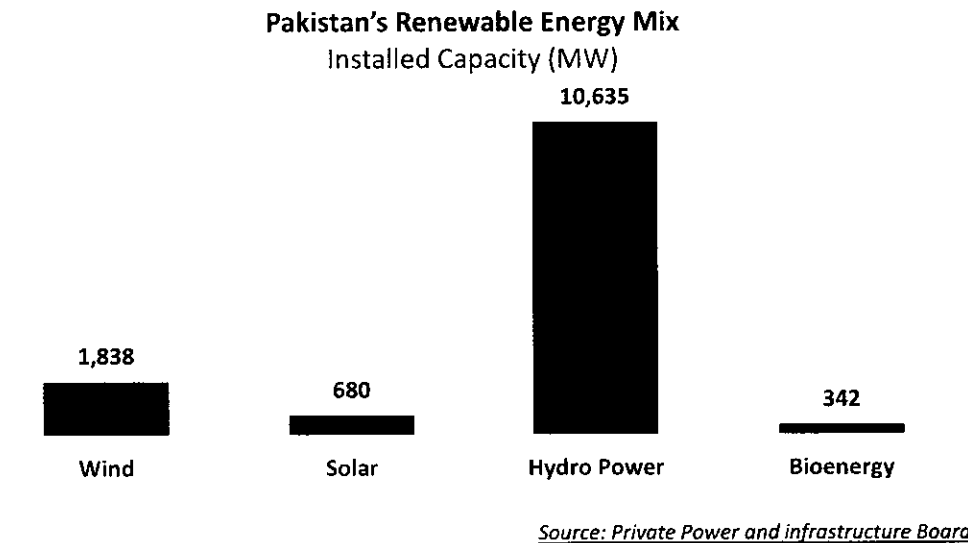
Table 1 NEPRA State of Industry Report 2024

<sup>1</sup> Ministry of Energy (Power Division) – Government of Pakistan

<sup>2</sup> NEPRA State of Industry Report 2024

In recent years, Pakistan has introduced policies to bolster renewable energy development. Over the past decade, solar and wind power have emerged as the fastest-growing segments in the energy mix. As part of its Nationally Determined Contributions, Pakistan targets 30% of its electricity generation from renewable sources by 2030<sup>3</sup>.

Pakistan is actively working to meet its growing energy demands while reducing greenhouse gas emissions. The Government of Pakistan (“GoP”) is prioritizing large-scale renewable energy investments to advance its clean energy objectives. With a target to cut greenhouse gas emissions by 50% by 2030, expanding clean energy will be pivotal in achieving this goal. To support these efforts, the GoP has established a wind energy corridor along the southern coastal regions of Sindh and Balochistan.



## Solar Power

The geographic location of Pakistan is an added bonus for solar technology as the country is located at an aerial belt that receives a large volume of daylight which can produce around **95% energy during daylight hours** (8 to 9.5 hours per day)<sup>4</sup>. Over 95% of the sovereign state of Pakistan has a global average solar radiation of 5-7 kWh/m2/day. The sun shines for above 2300-2700 hours a year in the south-western province of Balochistan and the north-eastern region of Sindh and Southern Punjab. According to Alternate Energy Development Board (AEDB), Pakistan has the potential to generate around 2.9 TW of solar power. The development of solar power resource in Pakistan will therefore allow for an influx of cheap, clean energy into the national grid, and represents one of the best energy options for Pakistan.

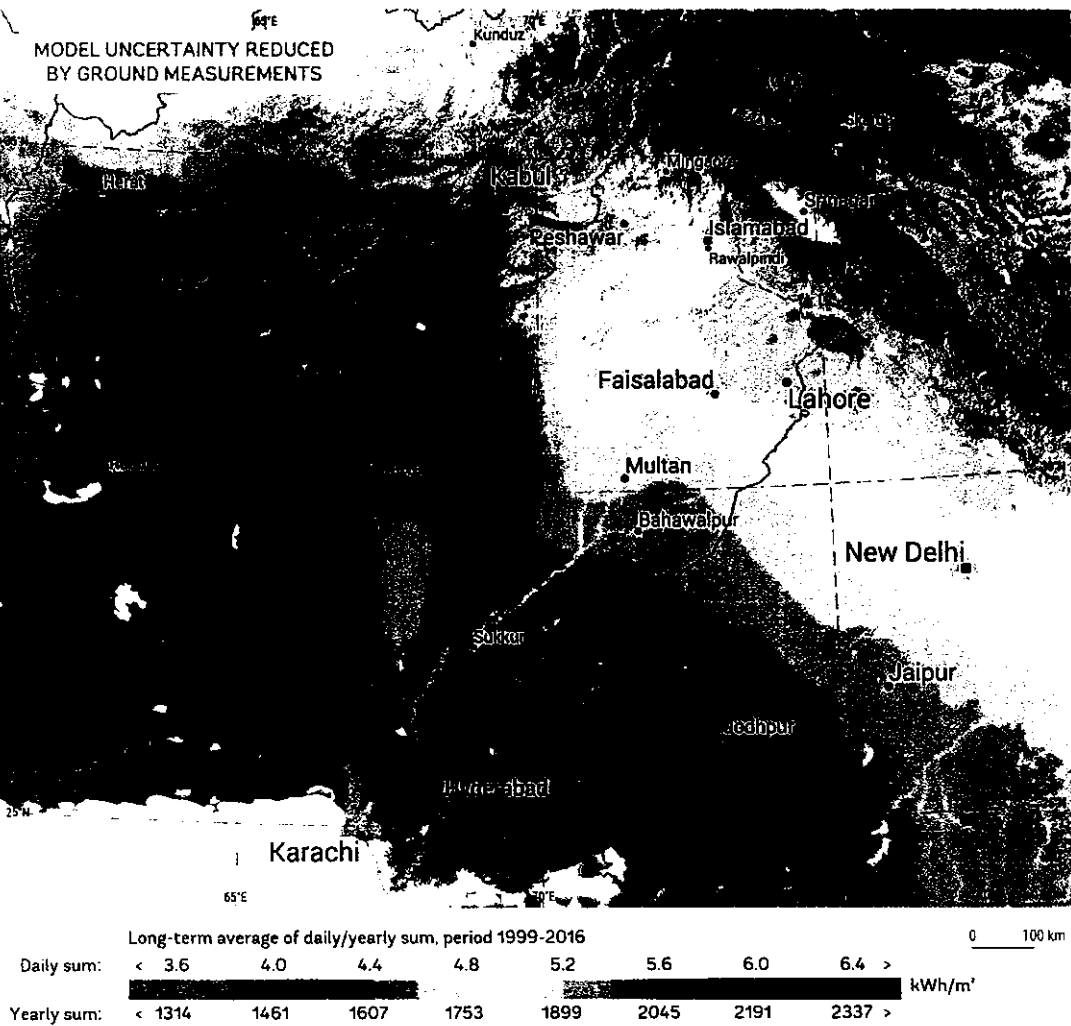
<sup>3</sup> Ministry of Energy (Power Division) – Government of Pakistan

<sup>4</sup> NEPRA State Industry Report 2024

The Projects will be situated in the Balochistan province of Pakistan, which is the largest province of Pakistan in terms of area and is bounded by Afghanistan in the west, Khyber Pakhtunkhwa in the north, Sindh province in the south and Punjab province in the east.

Based on a World Bank study, the resource potential of Balochistan is the highest in the Country. Around 40% of the land area of Balochistan receives direct solar insolation with an energy potential of more than 6 kWh per square meter per day, while the rest of the province receives direct solar radiation with an energy potential of 4.5 kWh per square meter per day. Simple extrapolation from these numbers yields a total power generation potential of as much as 1.2 million MW. Vast majority of land in the area is barren, making it an ideal site for putting up solar panels. This solar potential in the province of Balochistan is to date untapped, with no solar projects located in the region as of today.

The Projects are hence strategically positioned to capitalize on the city's expanding infrastructure and connectivity. With the completion of major projects like integration into the China-Pakistan Economic Corridor (CPEC), Balochistan is poised for exponential growth and increased demand for electricity.



Source: World Bank Solar GIS map

# Master Solar Energy Limited – 150 MW Winder and Bela Solar Power Plants

## Project Profile

K-Electric is a public listed utility company and the only vertically integrated power utility, engaged in the Generation, Transmission Distribution and Supply of electricity in Pakistan. K-Electric has Distribution and Electric Power supplier license for Karachi and its adjoining areas including Dhabeji and Gharo in Sindh and Hub, Uthal, Winder and Bela in Balochistan.

KE, in line with its vision to increase share of renewables to 30%, plans to add 1,282 MW of renewable capacity by way of competitive bidding, with an addition of 640 MW in Phase I and 642 MW in Phase II. KE conducted the initial prequalification process for development of 3x50 MW solar power projects in District Uthal, Winder and Bela, Balochistan in 2021. These projects were later re-classified as two (02) solar power projects: (a) 100 MW Bela Solar Power Project; and (b) 50 MW Winder Solar Power Project, in District Winder and Bela (the “**Projects**”). Post issuance of the NEPRA Determination by the Authority, KE issued the RFP and invited interested parties to submit bids for development of solar power projects in Winder and Bela, Lasbela District, Balochistan.

Master Group of Industries (MGI) submitted its bid to KE and was declared as the lowest bidder by K-Electric. The Projects will be developed by MGIs Special Purpose Vehicle (“**SPV**”) namely Master Solar Energy Limited. The Projects will sell electricity to KE under the Energy Purchase Agreement to be entered for a term of 25 years.

The Winder and Bela towns are located in the Lasbela district of Balochistan which fall under KE’s distribution territory with an existing transmission network from Winder to Bela of 66 kV which is planned to be replaced with new transmission lines and grids of 132 kV. The 132 kV transmission system is planned to be energised before each Project's COD.

Land will be allocated to the Project by the Government of Balochistan (“**GOB**”) through its wholly owned subsidiary Balochistan Energy Company Limited (“**BECL**”).

## Shareholder Profile

MSEL is sponsored by Master Group of Industries. Brief profile of the Sponsor is given below.

## Master Group

Master Group of Industries (“**MGI**” or the “**Group**”) is one of the most dynamic and diverse business conglomerates in Pakistan. The Group started its operations in the foam industry in 1963, as a licensee of Bayer A.G. (Germany). Since then, Group has expanded into the textile, automobile, engineering and energy sectors and tasked itself to become a leading group of Pakistan that actively contributes to every industry with its innovative solutions and exceptional products and services. MGI has a committed workforce of over 18,000 employees that enable it to innovate, evolve, and transform trends. Be it

automotive or home furnishing, wind energy or bedding, furniture or healthcare, textile or chemicals, Master Group has excelled with its inventive and futuristic approach.

The Group's vision is to promote prosperity in Pakistan, which it is doing by not only creating employment opportunities in the Country but also through renewable energy projects; producing 102.50-megawatt renewable electricity by wind and solar combined — simultaneously assisting in preserving the environment. At present the Group is producing 4 times more renewable energy than it consumes, making it a carbon-negative organisation.

MGI is one of the key players of the renewable energy sector in Pakistan and is highly committed to partake in its growth in order for Pakistan to achieve energy security, reduce reliance on imported fuel and reach a lower energy basket price. The Group forayed into the renewable energy sector with its first 52.80 MW wind power project namely Master Wind Energy Limited situated in District Jhimpir, Sindh, which achieved commercial operations date in October, 2016. Following the successful commencement of operations of Master Wind, the Group ventured into its second 50 MW wind power project Master Green Energy Limited located in District Jamshoro, Sindh, which achieved commercial operations date in August, 2021. MGI has also been declared as the First Ranked Bidder for development of a 99 MW Arkari Gol hydropower project in District Chitral, Khyber Pakhtunkhwa by Pakhtunkhwa Energy Development Organisation ("**PEDO**") and has been issued a Letter of Intent for development of a 50 MW wind power project Jamshed Wind Energy in District Jhimpir, Sindh, by the Directorate of Alternative Energy Department Government of Sindh ("**DAE-GOS**").

In line with the Government of Pakistan's ("**GOP**") vision to increase the renewable energy share in the Country's energy mix, MGI participated in the Competitive Bidding held for the Project, and submitted the lowest evaluated bid. The Group is eager to contribute meaningfully to Pakistan's energy security by advancing these transformative Projects, which aim to harness the region's renewable energy potential. Furthermore, MGI is deeply committed to supporting the socio-economic development of Balochistan, addressing its unique challenges, and fostering long-term prosperity in the area through job creation, infrastructure development, and access to clean energy.

## Project Consultants

- I. Technical Consultant – Renewable Resources (RE2) is the professional technical advisor for the Project. **RENEWABLE RESOURCES (PRIVATE) LIMITED (RE2)**, has been involved with the renewable energy sector in Pakistan since its inception and has been appointed by the Project Company as one of its technical advisors. RE2 is currently advising a number of solar projects developers and has extensive experience in power plant design, project development, and construction. RE2 focuses on delivering efficient, cost effective and environmentally friendly energy solutions, particularly in wind and solar power, where it holds a significant market share in Pakistan. Their services include resource assessment, technology selection, feasibility studies, and regulatory compliance, supporting clients across all phases of renewable energy projects from inception to commissioning of the Project.
- II. Legal Consultant – **HAIDERMOTA & CO.**, has been selected by the Project Company to provide legal support on all legal aspects of the Project including Project documentation, regulation and



financing matters. Haidermota & Co., has been actively involved in the power sector projects and has advised various project companies / sponsors, lenders and the GOP on several transactions and matters. It is ranked by Chamber & Partners as a "Band 1" firm in Pakistan for Projects, Banking & Finance and Corporate & Commercial.

## **Environmental Impact of the Project**

The proposed facility is a solar power generation plant and does not release emissions or harmful pollutants into the atmosphere. On the whole, solar power projects benefit the environment as they reduce the requirement for fossil fuel based thermal power stations. The site for the Project is a barren region with little or no vegetation and few inhabitants.

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**ANNEXURE – B**  
**CERTIFICATE OF INCORPORATION**

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The directors may, before recommending any dividend, set aside out of the profits of the company such sums as they think proper as a reserve or reserves which shall, at the discretion of the directors, be applicable for meeting contingencies, or for equalizing dividends, or for any other purpose to which the profits of the company may be properly applied, and pending such application may, at the like discretion, either be employed in the business of company or be invested in such investments (other than shares of the company) as the directors, may, subject to the provisions of the Ordinance, from time to time think fit.

#### 101. Retention of Profit

The directors may carry forward any profit which they may think prudent not to distribute, without setting them aside as a reserve.

#### 102. Capitalisation of Reserve

Any General Meeting may resolve that moneys, investment or other assets forming part of the Company standing to the credit of the Reserve Fund or in the hands of the Company and available for dividend or representing premiums received on the issue of shares and standing to the credit of the shares premium accounts be capitalised and distributed amongst such of the shareholders as would be entitled to receive the same if distributed by way of dividend and in the same proportions on the footing that they become entitled thereto as capital and that all or any part of such capitalised funds be applied on behalf of such shareholder in paying up in full any unissued shares of the Company which shall be distributed accordingly and that such distribution or payment shall be accepted by such shareholders in full satisfaction of their interest in the said capitalised sum.

#### 103. Dividend to Registered holders only

Dividend shall be paid only to registered holders of such shares or to his banker or to his order to a financial institution nominated by the shareholder.

#### 104. Effect of Transfer

Transfer of shares shall not pass the right to any dividend declared thereon before registration of the transfer.

#### 105. Retention in certain cases

The Directors may retain the dividends payable upon shares in respect of which any person is under the transmission clause entitled to become a member or which

## DIVIDENDS AND RESERVES

### 94. Declaration of Dividend

The company in a general meeting may declare dividends but no dividend shall exceed the amount recommended by the directors.

### 95. Interim Dividend

The directors may from time to time pay to the members such interim dividends as appear to the directors to be justified by the profits of the company.

### 96. Dividend out of Profits only

No dividends shall be paid otherwise than out of profits of the year or any other undistributed profits.

### 97. No Dividend out of Capital Profit

No dividend shall be declared or paid out of profits made from sale or disposal of any immovable property or assets of a capital nature comprised in the undertaking except after such profits are set off or adjusted against losses arising from the sale of any such immovable property or assets of capital nature.

### 98. Dividend in Proportion to Amount paid

Subject to the rights of persons (if any) entitled to shares with special rights as to dividends, all dividends shall be declared and paid according to the amounts paid on the shares, but if and so long as nothing is paid upon any of the shares in the company, dividends shall be declared and paid according to the amounts of the shares. No amount paid on a share in advance of calls shall be treated for the purposes of this regulation as paid on the share.

### 99. Dividend paid in Specie

Any general meeting declaring a dividend may resolve that such dividends be paid wholly or in part by the distribution of specific assets and in particular of paid up shares or debentures either of the company or in any one or more such ways.

### 100. Transfer to Reserve



**88. Terms and Conditions**

The terms and conditions of appointment of a chief executive shall be determined by the directors.

**89. Deemed to be Director**

The chief executive shall, if he is not already a director of the company, be deemed to be its director and be entitled to all the rights and <sup>yes,</sup> and subject to all the liabilities, of that office.

**90. Ineligibility**

No person who is ineligible to become a director of a company under Section 187 shall be appointed or continue as chief executive of the company.

**91. Removal**

The directors of a company by resolution passed by not less than three fourths of the total number of directors for the time being, or the company by a special resolution, may remove a chief executive before the expiration of his of office notwithstanding anything contained in these Articles or in any agreement between the company and such chief executive.

SEAL

**92. Common Seal**

The directors shall provide a common seal of the company which shall not be affixed to any instrument except by the authority of resolution of the board of directors or by committee of directors authorised in that behalf by the directors, and two directors or one director.

**93. Office Seal**

The directors may provide for the use in any territory, district or place not situated in India, of an official seal which shall be facsimile of the common seal of the company, with addition on its face of the name of every territory, district or place where it is to be used. The provisions of Section 213 shall apply to the use of such official seal.

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## CHIEF EXECUTIVE

### 81. First Appointment

The directors of the company as from a not later than the fifteenth day after the date of its incorporation appoint any individual to be the chief executive, of the Company.

### 82. Form of Office

The chief executive appointed as aforesaid shall, if he earlier resigns or otherwise ceases to hold offices, hold the first general meeting of the company or, if a shorter period is fixed by the directors at the time of his appointment, for such period.

### 83. Remuneration

The remuneration of the Chief Executive shall be fixed by the directors from time to time.

### 84. Power of Chief Executive

The Chief Executive of the Company shall, subject to the provisions of Section 196 of the Ordinance, have such powers of financial, administrative and operational nature that are delegated by the Board of Directors.

### 85. Subsequent Appointment and Term of Office

Within fourteen days from the date of election of directors under Section 178 or the office of the chief executive falling vacant, as the case may be, the directors of a company shall appoint any person, including an elected director, to be the chief executive, but such appointment shall not be for a period exceeding three years from the date of appointment.

### 86. Eligibility for Reappointment

On the expiry of his term of office under Section 198 or 199, a chief executive shall be eligible for reappointment.

### 87. Continuation of office until appointment of Successor

The chief executive retiring under Section 198 or 199 shall continue to perform his functions until his successor is appointed unless non-appointment of his successor is due to any fault on his part or his office is expressly terminated.



The Company may by resolution in general meeting remove a director appointed under Section 176 or Section 180 or elected in the manner provided for in Section 178.

Provided that a resolution for removing a director shall not be deemed to have been passed if the number of votes cast against it is equal to, or exceeds:

- a. the minimum number of votes that were cast for the election of a director at the immediately preceding election of directors resolution relates to removal of a director elected in the manner provided for in sub-section (5) of Section 178; or
- b. the total number of votes for the time being computed in the manner laid down in sub-section (5) of Section 178 divided by the number of directors for the time being, if the resolution relates to removal of a director appointed under Section 176 or Section 180.

#### 80. Vacation of Office

A director shall ipso facto cease to hold office if:

- a. he becomes ineligible to be appointed a director on any one or more of the grounds enumerated in Section 187.
- b. he absents himself from three consecutive meetings of directors or from all the meetings of the directors for a continuous period of three months, whichever is the longer, without leave of absence from the directors
- c. he or any firm of which he is a partner or any private company of which he is a director :
  1. without the sanction of the company in general meeting accepts or holds any office of profit under the company other than that of Chief Executive or legal or technical adviser or a banker: or
  2. accepts a loan or guarantee from the company in contravention of Section 195.

## ELECTION AND REMOVAL OF DIRECTORS

### 74. Period of Office

The First Directors of the company shall retire from their offices at the first Annual General Meeting of the Company, and directors shall be elected in their place in accordance with Section 178 for a term of three years, unless they resign earlier, become disqualified for being directors or otherwise cease to hold office.

### 75. Election

The directors shall comply with the provisions of Sections 178, 183 and 184 relating to election of directors and matters ancillary thereto.

### 76. Eligibility

A retiring director shall be eligible for re-election.

### 77. Casual Vacancy

Any casual vacancy occurring on the board of directors may be filled up by the directors, but the person so chosen shall be subject to retirement at the same time as if he had become a director on the day on which the director in whose place he is chosen was last elected as director.

### 78. Mode of Election

The number of directors determined by the Board shall be elected to hold office by the members in general meeting in the following manner:

- a. A member shall have such number of votes as is equal to the product of the number of voting shares or securities held by him and the number of directors to be elected;
- b. A member may give all his votes to a single candidate or divide them between more than one of the candidates in such manner as he may choose;
- c. The candidate who gets the highest number of votes shall be declared elected as director and then the candidate who gets the next highest number of votes shall be so declared and so on until the total number of directors to be elected has been so elected.

### 79. Removal





The directors may delegate any of their powers not required to be exercised in their meeting to committees consisting of such member or members of their body as they think fit; any committee so formed shall, in the exercise of the powers so delegated, conform to any restrictions that may be imposed on them by the directors.

#### 69. Chairman

The directors may elect a chairman of their meeting to determine the period for which he is to hold office; but, if no such chairman is elected, or if at any meeting the chairman is not present within fifteen minutes of the time appointed for holding the same or is unwilling to act as chairman, the directors present may choose one of their number to be chairman of the meeting.

#### 70. Chairman of Committee meetings

A committee may elect a chairman of its meetings, but, if no such chairman is elected, or if at any meeting the chairman is not present within fifteen minutes after the time appointed for holding the same or is unwilling to act as chairman, the members present may choose one of their number to be chairman of the meeting.

#### 71. Proceedings of Committee Members

A committee may meet and adjourn as it thinks proper. Questions arising at any meeting shall be determined by a majority of votes of the members present. In case of an equality of votes, the chairman shall have and exercise a second or casting vote.

#### 72. Validity of Director's Acts

All acts done by any meeting of the directors or of a committee of directors, or by any person acting as a director, shall notwithstanding that it be afterwards discovered that there was some defect in the appointment of any such directors or persons acting as aforesaid, or that they or any of them were disqualified, be as valid as if every such person had been duly appointed and was qualified to be a

#### 73. Resolution in Writing

A resolution in writing signed by all the directors or affirmed by them through telex or telegram shall be as valid and effectual as if it had been passed at a meeting of directors duly convened and held.

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- b. of the names of the directors present at each meeting of the directors and of any committee of the directors;
- c. of all resolutions and proceedings at all meetings of the company and of the directors and of committees of directors;

and every director present at any meeting of directors or committee of directors shall sign his name in a book to be kept for that purpose. A copy of the minutes of the board of directors shall be furnished to every director within fourteen days of the date of meeting.

### DISQUALIFICATION OF DIRECTORS

#### 65. Ineligibility

No person shall become director of the Company if he suffers from any of the disabilities or disqualifications mentioned in Section 187 and if already a director, shall cease to hold such office from the date he so becomes disqualified or disabled: Provided, however, that no director shall vacate his office by reason only of his being a member of any company which has entered into contracts with, or done any work for the company of which he is a director but such director shall not vote in respect of any such contract or work, and if he does so vote, his vote shall not be counted.

### PROCEEDINGS OF DIRECTORS

#### 66. Meetings of Directors

The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings, as they think fit. The quorum for a meeting of directors shall not be less than one-third of their number or two, whichever is greater. Questions arising at any meeting shall be decided by a majority of votes. In case of an equality of votes, the Chairman shall have and exercise a second or casting vote. A director may, and the secretary on the requisition of a director shall, at any time, summon a meeting of directors. It shall not be necessary to give notice of a meeting of directors to any director for the time being absent from Pakistan.

#### 67. Minimum number of meetings

The directors shall meet at least once in each quarter of a year as required by Section 193 (2) of the Ordinance.

#### 68. Delegation of Power to Committees

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members, and a summary of particulars relating thereto and notice of any consolidation or increase of share capital, or sub-division of shares, and copies of special resolutions and copy of the register of directors and notifications of any changes therein.

#### 61. Power to Borrow

Subject to the provisions of Section 196, the directors may from time to time at their discretion borrow such sum or sums as they may think fit for the purpose of the company including from any banks and Financial Institutions and secure the payment or repayment of such sum or sums in such manner and upon such terms and conditions as they think fit by mortgage or charge on the whole or any part of the property present and future or any such other way as the directors may think expedient. The company may raise and secure payment of any sum by issue of Redeemable Capital. The Redeemable Capital may be issued at a discount, premium or otherwise with special privilege as to redemption, conversion into shares with voting rights and their subsequent reconversion into Redeemable Capital.

#### 62. Mortgages and Charges

The directors shall cause a proper register to be kept in accordance with Section 135 of all mortgages and charges specifically affecting the property of the company and shall duly comply with the requirements of Sections 121, 122 and 129 in regard to registration of mortgages and charges and shall also duly comply with the requirements of Section 130 as to keeping a copy of every instrument creating any mortgage or charge and the requirements of Section 132 as to giving intimation of the payment or satisfaction of any charge or mortgage created.

#### 63. Disclosure of interest by Directors

Every director or his relative who is in any way, whether directly or indirectly, concerned or interested in any contract or arrangement entered into, or to be entered into, by or on behalf of the company shall disclose the nature of his concern or interest at a meeting of the directors, as required by Section 214.

#### 64. Minutes to be made

The directors shall cause minutes to be made in books provided for the purpose:

- a. of all appointments of officers made by the directors;



the directors and to attend and vote thereat accordingly but shall ipso facto vacate office when his appointer returns to the country or vacates office as director, if the company in General Meeting removes the appointee from office and any appointment and removal under the clause shall be affected by notice in writing under the hand of director making the same.

#### 57. Remuneration of Director

The remuneration of a director for performing extra services, including holding of the office of Chairman, and the remuneration to be paid to any director for attending the meeting of the directors or a committee of directors shall from time to time be determined by the Board of Directors in accordance with the law.

### POWER AND DUTIES OF DIRECTORS

#### 58. Management of Business

The business of the company shall be managed by the directors, who may pay all expenses incurred in promoting and registering the company and may exercise all such powers of the company as are not, by the Ordinance or any statutory modification thereof for the time being in force, or by these regulations, required to be exercised by the company in general meeting, subject nevertheless to the provisions of the Ordinance or to any of these regulations, and such regulations, being not inconsistent with the aforesaid provisions, as may be prescribed by the company in general meeting shall invalidate any prior act of the directors which would have been valid if these regulations had not been made.

#### 59. Power to appoint Attorney

The directors may from time to time by power of attorney under the Company's Seal, appoint any person or persons to be the attorney(s) of Company for such purposes and with such powers, authorities and discretions (not exceeding those vested in or exercisable by the directors under these presents) and for such period and subject to such conditions as the directors may from time to time think fit. Any such attorney(s) may, if authorised by the directors, delegate all or any of the powers vested in him/them.

#### 60. Duties of Directors

The directors shall duly comply with the provisions of the Ordinance or any statutory modification thereof for the time being in force, and in particular with the provisions in regard to the registration of the particulars of mortgages and charges affecting the property of the company or created by it, to the keeping of a register of the directors, and to the sending to the registrar of an annual list of

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### 51. Form of Proxy

An instrument appointing a proxy may be in any usual or common form or as near thereto which the directors shall approve.

### 52. Validity of Proxy

A vote given in accordance with the terms of an instrument of proxy shall be valid notwithstanding the previous death or insanity of the principal or revocation of the proxy or of the authority under which the proxy was executed, or the transfer of the share in respect of which the proxy is given, provided no intimation in writing of such death, insanity, revocation or transfer as aforesaid shall have been received by the company at the office before the commencement of the meeting or adjourned meeting at which the proxy is used.

### DIRECTORS

### 53. Directors

The subscribers to the Memorandum of Association shall be the first directors of the Company namely:

1. Mr. Najeeb Malik
2. Mr. Nadeem Malik
3. Mr. Shahzad Malik

### 54. Number of Directors

Subject to the provisions of Section 178 (1) of the Ordinance, the Company may from time to time in annual general meeting increase or decrease the number of directors. However, such number shall not in any case be less than three.

### 55. Nominated Directors

The company may have directors nominated by the company's creditors or other persons having an interest by virtue of contractual agreements.

### 56. Alternate Director

A director who is about to leave or is absent from Pakistan may with the approval of the directors appoint any person to be an alternate director during his absence from the country provided such absence shall not be less than for a period of three months and such appointment shall have effect and such appointee whilst he holds office as an alternate director, shall be entitled to notice of the meeting of

one vote except for election of directors in which case the provisions of Section 178 shall apply. On a poll every member shall have voting rights as laid down in Section 160.

**46. Vote may be given either personally or by proxy and voting by Corporation Representative**

Where a corporation or company is a member of the Company, a person duly appointed by resolution of directors to represent such corporation at a meeting of the Company in accordance with the provisions of Section 162 shall not be deemed to be as instrument of proxy or power of attorney and the production at the meeting of a copy of such resolution certified by a true copy by a Director of such corporation or by the Chief Executive thereof (if any) shall on production at the meeting be accepted by the Company as sufficient evidence of the validity of his appointment.

**47. Vote of Joint-holders**

In case of joint-holders, the vote of the senior who tenders a vote, whether in person or by proxy, shall be accepted to the exclusion of the votes of the other joint-holders; and for this purpose seniority shall be determined by the order in which the names stand in the register of members.

**48. Vote by member of unsound mind**

A member of unsound mind, or in respect of whom an order has been made by any court having jurisdiction in lunacy, may vote, whether on show of hands or on a poll, by his committee or other legal guardian. and any such committee or guardian may, on a poll, vote by proxy.

**49. Proxy to be in writing**

The instrument appointing a proxy shall be in writing under the hand of the appointer or of his attorney duly authorised in writing. A proxy must be a member.

**50. Deposit of instrument of Proxy**

Instrument appointing a proxy and the power-of-attorney or other authority (if any) under which it is signed, or a notarially certified copy of that power or authority, shall be deposited at the registered office of the company not less than forty-eight hours before the time for holding the meeting at which the person named in the instrument proposes to vote and in default, the instrument of proxy shall not be treated as valid.



The chairman may, with the consent of any meeting at which a quorum is present ( and shall if so directed by the meeting ), adjourn the meeting from time to time; but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for ten days or more notice of the adjourned meeting shall be given as in the case of an original meeting save as aforesaid, it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.

#### 41. Adoption of Resolution

At any general meeting a resolution put to the vote of the meeting shall be decided on a show of hands unless a poll is (before or on the declaration of the result of the show of hands) demanded. Unless a poll is so demanded, a declaration by the chairman that a resolution has, on a show of hands, been carried, or carried unanimously, or by a particular majority, or lost and an entry to that effect in the book of the proceedings of the company shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of, or against, that resolution.

#### 42. Demand for Poll

A poll may be demanded only in accordance with the provisions of Section 167.

#### 43. Manner and Time of Taking Poll

If a poll is duly demanded, it shall be taken in accordance with manner laid down in Section 168 and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded. A poll demanded on the election of chairman or on a question of adjournment shall be taken at once.

#### 44. Casting Vote

In the case of an equality of votes, whether on a show of hands or on a poll, the chairman of the meeting, at which the show of hands takes place, or at which the poll is demanded, shall have and exercise a second or casting vote.

### VOTES OF MEMBERS

#### 45. Right to Vote

Subject to any rights or restrictions for the time being attached to any class or classes of shares, on a show of hands every member present in person shall have



Ordinance or the regulations of the company, entitled to receive such notices from the company but the accidental omission to give notice to, or the non-receipt of notice by, any member shall not invalidate the proceedings at any general meeting. In case of extraordinary general meeting, a shorter notice may be given with the consent of Registrar as provided in Section 159 and for passing a special resolution, meeting may be convened on a shorter notice with the consent of all the members as provided in Section 2 (1)(36) of the Ordinance.

### 36. Special Business

All business shall be deemed special that is transacted at an extraordinary general meeting, and also all that is transacted at an annual general meeting with the exception of declaring a dividend, the consideration of the accounts, balance sheet and the reports of the directors and auditors, the election of directors, the appointment of, and the fixing of the remuneration of the auditors.

### 37. Quorum

No business shall be transacted at any general meeting unless a quorum of members is present at that time when the meeting proceeds to business; save as herein otherwise provided, members having twenty five percent of the voting power present in person or through proxy and two members personally present shall be a quorum.

### 38. Adjourned Meeting

If within half an hour from the time appointed for the meeting a quorum is not present, the meeting, if called upon the requisition of members, shall be dissolved; in any other case, it shall stand adjourned to the same day in the next week at the same time and place, and, if at the adjourned meeting a quorum is not present within half an hour from the time appointed for the meeting, the members present, being not less than two, shall be a quorum.

### 39. Chairman

Chairman of the board of directors, if any, shall preside as chairman at every general meeting of the company. but if there is no such chairman or if at any meeting he is not present within fifteen minutes after the time appointed for the meeting or is unwilling to act as chairman, any one of the directors present may be elected to be chairman, and if none of the directors is present, or willing to act as chairman, the members present shall choose one of their number to be chairman.

### 40. Power to Adjourn General Meeting



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Ordinance or the regulations of the company, entitled to receive such notices from the company but the accidental omission to give notice to, or the non-receipt of notice by, any member shall not invalidate the proceedings at any general meeting. In case of extraordinary general meeting, a shorter notice may be given with the consent of Registrar as provided in Section 159 and for passing a special resolution, meeting may be convened on a shorter notice with the consent of all the members as provided in Section 2 (1)(36) of the Ordinance.

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### 40. Power to Adjourn General Meeting

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The chairman may, with the consent of any meeting at which a quorum is present ( and shall if so directed by the meeting ), adjourn the meeting from time to time; but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for ten days or more notice of the adjourned meeting shall be given as in the case of an original meeting save as aforesaid, it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.

#### 41. Adoption of Resolution

At any general meeting a resolution put to the vote of the meeting shall be decided on a show of hands unless a poll is (before or on the declaration of the result of the show of hands) demanded. Unless a poll is so demanded, a declaration by the chairman that a resolution has, on a show of hands, been carried, or carried unanimously, or by a particular majority, or lost and an entry to that effect in the book of the proceedings of the company shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of, or against, that resolution.

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### VOTES OF MEMBERS

#### 45. Right to Vote

Subject to any rights or restrictions for the time being attached to any class or classes of shares, on a show of hands every member present in person shall have

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one vote except for election of directors in which case the provisions of Section 178 shall apply. On a poll every member shall have voting rights as laid down in Section 160.

**46. Vote may be given either personally or by proxy and voting by Corporation Representative**

Where a corporation or company is a member of the Company, a person duly appointed by resolution of directors to represent such corporation at a meeting of the Company in accordance with the provisions of Section 162 shall not be deemed to be as instrument of proxy or power of attorney and the production at the meeting of a copy of such resolution certified as a true copy by a Director of such corporation or by the Chief Executive thereof (if any) shall on production at the meeting be accepted by the Company as sufficient evidence of the validity of his appointment.

**47. Vote of Joint-holders**

In case of joint-holders, the vote of the senior who tenders a vote, whether in person or by proxy, shall be accepted to the exclusion of the votes of the other joint-holders; and for this purpose seniority shall be determined by the order in which the names stand in the register of members.

**48. Vote by member of unsound mind**

A member of unsound mind, or in respect of whom an order has been made by any court having jurisdiction in lunacy, may vote, whether on show of hands or on a poll, by his committee or other legal guardian. and any such committee or guardian may, on a poll, vote by proxy.

**49. Proxy to be in writing**

The instrument appointing a proxy shall be in writing under the hand of the appointer or of his attorney duly authorised in writing. A proxy must be a member.

**50. Deposit of instrument of Proxy**

Instrument appointing a proxy and the power-of-attorney or other authority (if any) under which it is signed, or a notarially certified copy of that power or authority, shall be deposited at the registered office of the company not less than forty-eight hours before the time for holding the meeting at which the person named in the instrument proposes to vote and in default, the instrument of proxy shall not be treated as valid.

### 51. Form of Proxy

An instrument appointing a proxy may be in any usual or common form or as near thereto which the directors shall approve.

### 52. Validity of Proxy

A vote given in accordance with the terms of an instrument of proxy shall be valid notwithstanding the previous death or insanity of the principal or revocation of the proxy or of the authority under which the proxy was executed, or the transfer of the share in respect of which the proxy is given, provided no intimation in writing of such death, insanity, revocation or transfer as aforesaid shall have been received by the company at the office before the commencement of the meeting or adjourned meeting at which the proxy is used.

### DIRECTORS

### 53. Directors

The subscribers to the Memorandum of Association shall be the first directors of the Company namely:

1. Mr. Najeeb Malik
2. Mr. Nadeem Malik
3. Mr. Shahzad Malik

### 54. Number of Directors

Subject to the provisions of Section 178 (1) of the Ordinance, the Company may from time to time in annual general meeting increase or decrease the number of directors. However, such number shall not in any case be less than three.

### 55. Nominated Directors

The company may have directors nominated by the company's creditors or other persons having an interest by virtue of contractual agreements.

### 56. Alternate Director

A director who is about to leave or is absent from Pakistan may with the approval of the directors appoint any person to be an alternate director during his absence from the country provided such absence shall not be less than for a period of three months and such appointment shall have effect and such appointee whilst he holds office as an alternate director, shall be entitled to notice of the meeting of



the directors and to attend and vote thereat accordingly but shall ipso facto vacate office when his appointer returns to the country or vacates office as director, if the company in General Meeting removes the appointee from office and any appointment and removal under the clause shall be affected by notice in writing under the hand of director making the same.

#### 57. Remuneration of Director

The remuneration of a director for performing extra services, including holding of the office of Chairman, and the remuneration to be paid to any director for attending the meeting of the directors or a committee of directors shall from time to time be determined by the Board of Directors in accordance with the law.

### POWER AND DUTIES OF DIRECTORS

#### 58. Management of Business

The business of the company shall be managed by the directors, who may pay all expenses incurred in promoting and registering the company and may exercise all such powers of the company as are not, by the Ordinance or any statutory modification thereof for the time being in force, or by these regulations, required to be exercised by the company in general meeting, subject nevertheless to the provisions of the Ordinance or to any of these regulations, and such regulations, being not inconsistent with the aforesaid provisions, as may be prescribed by the company in general meeting shall invalidate any prior act of the directors which would have been valid if these regulations had not been made.

#### 59. Power to appoint Attorney

The directors may from time to time by power of attorney under the Company's Seal, appoint any person or persons to be the attorney(s) of Company for such purposes and with such powers, authorities and discretions (not exceeding those vested in or exercisable by the directors under these presents) and for such period and subject to such conditions as the directors may from time to time think fit. Any such attorney(s) may, if authorised by the directors, delegate all or any of the powers vested in him/them.

#### 60. Duties of Directors

The directors shall duly comply with the provisions of the Ordinance or any statutory modification thereof for the time being in force, and in particular with the provisions in regard to the registration of the particulars of mortgages and charges affecting the property of the company or created by it, to the keeping of a register of the directors, and to the sending to the registrar of an annual list of

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members, and a summary of particulars relating thereto and notice of any consolidation or increase of share capital, or sub-division of shares, and copies of special resolutions and copy of the register of directors and notifications of any changes therein.

#### 61. Power to Borrow

Subject to the provisions of Section 196, the directors may from time to time at their discretion borrow such sum or sums as they may think fit for the purpose of the company including from any banks and Financial Institutions and secure the payment or repayment of such sum or sums in such manner and upon such terms and conditions as they think fit by mortgage or charge on the whole or any part of the property present and future or any such other way as the directors may think expedient. The company may raise and secure payment of any sum by issue of Redeemable Capital. The Redeemable Capital may be issued at a discount, premium or otherwise with special privilege as to redemption, conversion into shares with voting rights and their subsequent reconversion into Redeemable Capital.

#### 62. Mortgages and Charges

The directors shall cause a proper register to be kept in accordance with Section 135 of all mortgages and charges specifically affecting the property of the company and shall duly comply with the requirements of Sections 121, 122 and 129 in regard to registration of mortgages and charges and shall also duly comply with the requirements of Section 130 as to keeping a copy of every instrument creating any mortgage or charge and the requirements of Section 132 as to giving intimation of the payment or satisfaction of any charge or mortgage created.

#### 63. Disclosure of Interest by Directors

Every director or his relative who is in any way, whether directly or indirectly, concerned or interested in any contract or arrangement entered into, or to be entered into, by or on behalf of the company shall disclose the nature of his concern or interest at a meeting of the directors, as required by Section 214.

#### 64. Minutes to be made

The directors shall cause minutes to be made in books provided for the purpose:

- a. of all appointments of officers made by the directors;



- b. of the names of the directors present at each meeting of the directors and of any committee of the directors;
- c. of all resolutions and proceedings at all meetings of the company and of the directors and of committees of directors;

and every director present at any meeting of directors or committee of directors shall sign his name in a book to be kept for that purpose. A copy of the minutes of the board of directors shall be furnished to every director within fourteen days of the date of meeting.

### DISQUALIFICATION OF DIRECTORS

#### 65. Ineligibility

No person shall become director of the Company if he suffers from any of the disabilities or disqualifications mentioned in Section 187 and if already a director, shall cease to hold such office from the date he so becomes disqualified or disabled: Provided, however, that no director shall vacate his office by reason only of his being a member of any company which has entered into contracts with, or done any work for the company of which he is a director but such director shall not vote in respect of any such contract or work, and if he does so vote, his vote shall not be counted.

### PROCEEDINGS OF DIRECTORS

#### 66. Meetings of Directors

The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings, as they think fit. The quorum for a meeting of directors shall not be less than one-third of their number or two, whichever is greater. Questions arising at any meeting shall be decided by a majority of votes. In case of an equality of votes, the Chairman shall have and exercise a second or casting vote. A director may, and the secretary on the requisition of a director shall, at any time, summon a meeting of directors. It shall not be necessary to give notice of a meeting of directors to any director for the time being absent from Pakistan.

#### 67. Maximum number of meetings

The directors shall meet at least once in each quarter of a year as required by Section 193 (2) of the Ordinance.

#### 68. Delegation of Power to Committees

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The directors may delegate any of their powers not required to be exercised in their meeting to committees consisting of such member or members of their body as they think fit; any committee so formed shall, in the exercise of the powers so delegated, conform to any restrictions that may be imposed on them by the directors.

#### 69. Chairman

The directors may elect a chairman of their meeting to determine the period for which he is to hold office; but, if no such chairman is elected, or if at any meeting the chairman is not present within fifteen minutes of the time appointed for holding the same or is unwilling to act as chairman, the directors present may choose one of their number to be chairman of the meeting.

#### 70. Chairman of Committee meetings

A committee may elect a chairman of its meetings, but, if no such chairman is elected, or if at any meeting the chairman is not present within fifteen minutes after the time appointed for holding the same or is unwilling to act as chairman, the members present may choose one of their number to be chairman of the meeting.

#### 71. Proceedings of Committee Members

A committee may meet and adjourn as it thinks proper. Questions arising at any meeting shall be determined by a majority of votes of the members present. In case of an equality of votes, the chairman shall have and exercise a second or casting vote.

#### 72. Validity of Director's Acts

All acts done by any meeting of the directors or of a committee of directors, or by any person acting as a director, shall notwithstanding that it be afterwards discovered that there was some defect in the appointment of any such directors or persons acting as aforesaid, or that they or any of them were disqualified, be as valid as if every such person had been duly appointed and was qualified to be a

#### 73. Resolution in Writing

A resolution in writing signed by all the directors or affirmed by them through telex or telegram shall be as valid and effectual as if it had been passed at a meeting of directors duly convened and held.

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## ELECTION AND REMOVAL OF DIRECTORS

### 74. Period of Office

The First Directors of the company shall retire from their offices at the first Annual General Meeting of the Company, and directors shall be elected in their place in accordance with Section 178 for a term of three years, unless they resign earlier, become disqualified for being directors or otherwise cease to hold office.

### 75. Election

The directors shall comply with the provisions of Sections 178, 183 and 184 relating to election of directors and matters ancillary thereto.

### 76. Eligibility

A retiring director shall be eligible for re-election.

### 77. Casual Vacancy

Any casual vacancy occurring on the board of directors may be filled up by the directors, but the person so chosen shall be subject to retirement at the same time as if he had become a director on the day on which the director in whose place he is chosen was last elected as director.

### 78. Mode of Election

The number of directors determined by the Board shall be elected to hold office by the members in general meeting in the following manner:

- a. A member shall have such number of votes as is equal to the product of the number of voting shares or securities held by him and the number of directors to be elected;
- +b. A member may give all his votes to a single candidate or divide them between than one of the candidates in such manner as he may choose;
- c. The candidate who gets the highest number of votes shall be declared elected as director and then the candidate who gets the next highest number of votes shall be so declared and so on until the total number of directors to be elected has been so elected.

### 79. Removal





The Company may by resolution in general meeting remove a director appointed under Section 176 or Section 180 or elected in the manner provided for in Section 178.

Provided that a resolution for removing a director shall not be deemed to have been passed if the number of votes cast against it is equal to, or exceeds:

- a. the minimum number of votes that were cast for the election of a director at the immediately preceding election of directors resolution relates to removal of a director elected in the manner provided for in sub-section (5) of Section 178; or
- b. the total number of votes for the time being computed in the manner laid down in sub-section (5) of Section 178 divided by the number of directors for the time being, if the resolution relates to removal of a director appointed under Section 176 or Section 180.

#### 80. Vacation of Office

A director shall ipso facto cease to hold office if:

- a. he becomes ineligible to be appointed a director on any one or more of the grounds enumerated in Section 187.
- b. he absents himself from three consecutive meetings of directors or from all the meetings of the directors for a continuous period of three months, whichever is the longer, without leave of absence from the directors
- c. he or any firm of which he is a partner or any private company of which he is a director :
  - i. without the sanction of the company in general meeting accepts or holds any office of profit under the company other than that of Chief Executive or legal or technical adviser or a banker; or
  - ii. accepts a loan or guarantee from the company in contravention of Section 195.

## CHIEF EXECUTIVE

### 81. First Appointment

The directors of the company as from a not later than the fifteenth day after the date of its incorporation appoint any individual to be the chief executive, of the Company.

### 82. Form of Office

The chief executive appointed as aforesaid shall, if he earlier resigns or otherwise ceases to hold offices, hold the first general meeting of the company or, if a shorter period is fixed by the directors at the time of his appointment, for such period.

### 83. Remuneration

The remuneration of the Chief Executive shall be fixed by the directors from time to time.

### 84. Power of Chief Executive

The Chief Executive of the Company shall, subject to the provisions of Section 196 of the Ordinance, have such powers of financial, administrative and operational nature that are delegated by the Board of Directors.

### 85. Subsequent Appointment and Term of Office

Within fourteen days from the date of election of directors under Section 178 or the office of the chief executive falling vacant, as the case may be, the directors of a company shall appoint any person, including an elected director, to be the chief executive, but such appointment shall not be for a period exceeding three years from the date of appointment.

### 86. Eligibility for Reappointment

On the expiry of his term of office under Section 198 or 199, a chief executive shall be eligible for reappointment.

### 87. Continuation of office until appointment of Successor

The chief executive retiring under Section 198 or 199 shall continue to perform his functions until his successor is appointed unless non-appointment of his successor is due to any fault on his part or his office is expressly terminated.



#### 88. Terms and Conditions

The terms and conditions of appointment of a chief executive shall be determined by the directors.

#### 89. Deemed to be Director

The chief executive shall, if he is not already a director of the company, be deemed to be its director and be entitled to all the rights and <sup>yes,</sup> and subject to all the liabilities, of that office.

#### 90. Ineligibility

No person who is ineligible to become a director of a company under Section 187 shall be appointed or continue as chief executive of the company.

#### 91. Removal

The directors of a company by resolution passed by not less than three fourths of the total number of directors for the time being, or the company by a special resolution, may remove a chief executive before the expiration of his of office notwithstanding anything contained in these Articles or in any agreement between the company and such chief executive.

SEAL

#### 92. Common Seal

The directors shall provide a common seal of the company which shall not be affixed to any instrument except by the authority of resolution of the board of directors or by committee of directors authorised in that behalf by the directors, and two directors or one director.

#### 93. Office Seal

The directors may provide for the use in any territory, district or place not situated in <sup>the</sup> ~~the~~ territory, of an official seal which shall be facsimile of the common seal of the company, with addition on its face of the name of every territory, district or place where it is to be used. The provisions of Section 213 shall apply to the use of such official seal.

## DIVIDENDS AND RESERVES

### 94. Declaration of Dividend

The company in a general meeting may declare dividends but no dividend shall exceed the amount recommended by the directors.

### 95. Interim Dividend

The directors may from time to time pay to the members such interim dividends as appear to the directors to be justified by the profits of the company.

### 96. Dividend out of Profits only

No dividends shall be paid otherwise than out of profits of the year or any other undistributed profits.

### 97. No Dividend out of Capital Profit

No dividend shall be declared or paid out of profits made from sale or disposal of any immovable property or assets of a capital nature comprised in the undertaking except after such profits are set off or adjusted against losses arising from the sale of any such immovable property or assets of capital nature.

### 98. Dividend in Proportion to Amount paid

Subject to the rights of persons (if any) entitled to shares with special rights as to dividends, all dividends shall be declared and paid according to the amounts paid on the shares, but if and so long as nothing is paid upon any of the shares in the company, dividends shall be declared and paid according to the amounts of the shares. No amount paid on a share in advance of calls shall be treated for the purposes of this regulation as paid on the share.

### 99. Dividend in Specie

Any general meeting declaring a dividend may resolve that such dividends be paid wholly or in part by the distribution of specific assets and in particular of paid up shares or debentures either of the company or in any one or more such ways.

### 100. Transfer to Reserve



The directors may, before recommending any dividend, set aside out of the profits of the company such sums as they think proper as a reserve or reserves which shall, at the discretion of the directors, be applicable for meeting contingencies, or for equalizing dividends, or for any other purpose to which the profits of the company may be properly applied, and pending such application may, at the like discretion, either be employed in the business of company or be invested in such investments (other than shares of the company) as the directors, may, subject to the provisions of the Ordinance, from time to time think fit.

**101. Retention of Profit**

The directors may carry forward any profit which they may think prudent not to distribute, without setting them aside as a reserve.

**102. Capitalisation of Reserve**

Any General Meeting may resolve that moneys, investment or other assets forming part of the Company standing to the credit of the Reserve Fund or in the hands of the Company and available for dividend or representing premiums received on the issue of shares and standing to the credit of the shares premium accounts be capitalised and distributed amongst such of the shareholders as would be entitled to receive the same if distributed by way of dividend and in the same proportions on the footing that they become entitled thereto as capital and that all or any part of such capitalised funds be applied on behalf of such shareholder in paying up in full any unissued shares of the Company which shall be distributed accordingly and that such distribution or payment shall be accepted by such shareholders in full satisfaction of their interest in the said capitalised sum.

**103. Dividend to Registered holders only**

Dividend shall be paid only to registered holders of such shares or to his banker or to his order to a financial institution nominated by the shareholder.

**104. Effect of Transfer**

Transfer of shares shall not pass the right to any dividend declared thereon before registration of the transfer.

**105. Retention in certain cases**

The Directors may retain the dividends payable upon shares in respect of which any person is under the transmission clause entitled to become a member or which

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SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN  
COMPANY REGISTRATION OFFICE, LAHORE

CERTIFICATE OF INCORPORATION

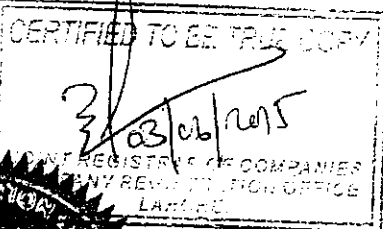
[Under section 32 of the Companies Ordinance, 1984 (XLVII of 1984)]

Corporate Universal Identification No. 0093653

I hereby certify that MASTER SOLAR ENERGY LIMITED is  
this day incorporated under the Companies Ordinance, 1984 (XLVII of 1984) and that the  
company is Limited by Shares.

Given under my hand at Lahore this Twenty Eighth day of May, Two  
Thousand and Fifteen.

Fee Rs. 104,000/-



(LIAQAT ALI DOLLA)  
Additional Registrar

No.ARL/ 29825 DATED: 28/5/2015

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**ANNEXURE – C**  
**MEMORANDUM AND ARTICLES OF ASSOCIATION**

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PAID



**PUBLIC COMPANY LIMITED BY SHARES**  
**INCORPORATED UNDER THE COMPANIES ORDINANCE, 1984**

**MEMORANDUM OF ASSOCIATION**

**MASTER SOLAR ENERGY LIMITED**

**NAME**


- I. The name of the Company is "MASTER SOLAR ENERGY LIMITED".


**REGISTERED OFFICE**

- II. The Registered Office of the Company will be situated in the Province of the Sindh.

**OBJECTS**

- III. The objects for which the Company is established are all or any of the following :
1. To carry on the business of electric power supply company and to conduct, lay down, establish, fix and out all necessary power stations, cables, wires, lines, accumulators, lamps and works, and to set up, operate Solar power generation projects to generate, accumulate, distribute and supply electricity and light to sister concern companies branches, W.A.P.D.A., K.E.S.C., industries, cities, towns, streets, docks, markets, theatres, buildings and places both public and private subject to permission from NEPRA.
  2. To carry out the construction of Solar, gas, hydroelectric and thermal energy projects fueled by various fuels such as solar energy, gas energy, bio -thermal energy and to construct, establish and fix necessary power stations.

- 
3. To carry on the business of establishing operating and managing transmission systems for electricity generation, steam process, air and suppliers of and dealers in electrical and related appliances, generators, cables, wire lines, dry cells, accumulators lamps and works and to generate, accumulate, distribute and supply electricity for the purpose of light, heat, motive power, and for all other purposes for which electrical energy can be employed.
4. To import, purchase, supply and acquire all kinds of raw and other materials for generation of energy electricity and sell, transmit and deliver the same thus generated anywhere in Pakistan.
5. To initiate, organize and to carry on the business of manufacturer, importer, exporter, assembler and supplier of all kinds of heavy and light apparatus for the purpose of electric generation and also manufacture import, export, supply and assemble accumulator wire, lumps, meters, batteries and all kind of engineering goods.
6. To carry on all kinds of business as manufacturers, importers, exporters, dealers, assembler and distributors of gas generators, humidifying, ventilating, cooling plant and all types of tools and equipment for industrial and commercial use.
7. To carry on the business of manufacturer, importer, fabricator, assembler, developer, designer, supplier, distributor, tabulator, seller, and to market, repair, service, replace, process and deal in all kinds of diesel, gas, petrol and kerosene generating sets, frequency converters, UPS, spare parts, air and gas treatment plants and equipment, air-conditioning plants, industrial fans, steam heaters, air filters, spray painting booths power plants, and complete systems of all kinds and description relating to generator, air technology and solar energy heat radiator, machineries, units, parts and allied products.
8. To carry on the business of manufacturers, importers, exporters, sellers, buyers and dealers whether as wholesalers or retailers of all kinds of electric motors and in particular fractional horsepower electric motors.
9. To manufacture, repair, purchase, sell, import, export or otherwise deal in generators, switchgears, meters, transformers, wire and cables, lamps, fans, fittings, electromedical and X-ray apparatus, heaters, radiators, ovens, refrigerators and air conditioning equipment.
10. To set up and establish undertakings for manufacturing of molds, dyes and other engineering items and to carry on the business as contractors in the field of civil, electrical and mechanical engineering.

- 
11. To carry on, directly or indirectly, the business of mechanical, electrical, civil engineers, petrochemical engineers, drillers of soil and water wells, oil and gas wells, rock querrings, metals, minerals and precious stones; and to further carry on the business as engineers, consultants, contractors, planners, designers, surveyors, estimators and supervisors in any matter related to the above branches in or outside Pakistan.
12. To carry on the business of electrical, engineering and manufacturing of all kinds of heavy and light electrical machinery and electrical apparatus for any purpose whatsoever and to manufacture, install, sell and contract for the supply of electricity, wires, lamps, engines, meter, dynamo, batteries, or telephonic apparatus.
13. To carry on the business of manufacturer and assemblers of agriculture tractors, components parts, agriculture machineries and equipment and to buy, sell and deals in tractors of all kinds.
14. To acquire or construct, maintain and alter any building or works necessary or convenient for the purpose of the company and to sale any such property as an when deemed fit.
15. To carry on the business of constructions of residential and town houses, bridges, markets, shops, showrooms, arcades, shopping centres, flats, offices, paint houses, townships, water works, electric generating stations, roads, tramways, underground rail roads, seaports, airports, heat, light, gas supply works, telegraphs works, hotels, cafeteria, lodging houses, huts, tanks, hospitals, restaurants, baths, places of worship, amusement, cremation and burial grounds, parks, gardens, libraries, reading rooms, orchestra stands, pavilions, taxi rickshaw and other vehicles stands, garages, dairy farms and all kinds of civil works.
16. To borrow or raise money or for the payment of money in any manner as the Company shall think fit and to secure the repayment of any money borrowed, raised or owing by mortgage, charge, standard security, lien or other security upon the whole or any part of Company's personal property and assets, present or future, and also to issue and deposit any securities which the Company has authority to issue by way of mortgage, charge, standard security, lien or other security to secure and guarantee the performance by the Company of any obligations or liabilities it may undertake or which may become binding on it.
17. To borrow funds by means of loans from commercial banks and government financial institutions for the Company's construction or manufacturing business in such manner as the company shall think fit and in particular by issue of debentures or debenture stock, perpetual or otherwise, charged upon all or any

the Company's property (both present and future) and to purchase, redeem and pay of any such securities.


18. To invest or deposit monies of the Company, not immediately required, in such shares, stocks, debentures, debenture stocks or in any investments, movable or immovable, in such manner as may from time to time be decided by the directors.
19. To amalgamate with any other company having objects altogether or in part similar to those of this Company, and to enter partnership or any arrangement for sharing profits, union of interest, association, joint-venture, reciprocal concession or otherwise with any person or company carrying on or engaged in, or about business or transaction which this Company is authorized to carry on or engage in, or about business or transaction capable of being conducted so as directly or indirectly to benefit this Company.
20. To enter into arrangement for sharing profits or into any union of interest, joint-venture, reciprocal concession or co-operation with any person or persons or local and foreign company or companies carrying on or engaged in communication related business or transaction which this company is authorized to carry on or engage in or any business or transaction capable of being conducted so as to directly or indirectly benefit the company.
21. To sell or dispose of any undertaking of the Company or and in particular for shares, debentures or securities of any other company having objects altogether or in part similar to those of this Company.
22. To distribute any of the Company's property among the members in specie or in kind or in any manner whatsoever, in case of winding up or dissolution of the Company.
23. To subscribe for, take or otherwise acquire and hold shares in, or any securities any other company having objects altogether or in part similar to those of this Company or carrying on any business capable of being conducted so as directly or indirectly benefit this Company or enhance the value of any of its property or for investment of additional Funds.
24. To purchase or otherwise acquire the whole or any part of the business, goodwill and assets of the company, firm or person carrying on or proposing to carry on any of the businesses which the Company is authorized to carry on and to give and receive consideration For such acquisition and to undertake all or any of the liabilities of such company, firm or person.
25. To receive payment on the sale or disposal of the whole or any part of the business or property of the Company, either in cash, by installments or



otherwise, for such consideration as the Directors of the Company may think fit, and in particular for shares, debentures or otherwise in securities of any company and generally to dispose, hold or otherwise deal with any shares, stocks or securities so acquired.

26. To purchase, register, apply for or otherwise acquire and use any patent, patent right, design, copyright, license, concession, convenience, innovation, invention, trade marks, or process, rights or privileges, plants, tools or machinery and the like in Pakistan or elsewhere, which may for the time being appear to be useful or valuable for adding to the efficiency or productivity of the company's work or business, with the permission of the concerned authorities and to expend money for their improvement as may be necessary or convenient for the purposes of the business or businesses of the Company.
27. To open any current, overdraft, cash credit account of fixed account with any bankers and to pay money into and draw money from any such account.
28. To make, draw, accept, endorse, discount, execute or negotiate and issue, negotiate and discount cheques, promissory notes, bills of exchange, bills of lading, warrants, deposit notes, debentures, letter of credit and other negotiable or transferable instruments or securities concerning this Company.
29. To undertake and execute any trusts, undertaking whereof may seem desirable and either gratuitously or otherwise.
30. To subscribe, donate money for any national, charitable, benevolent, public, general or useful object including any educational institution, hospital, flood or famine relief fund and other institution or fund established for religious or charitable purpose.
31. To establish and support, or aid in establishment and support of associations, institutions, funds, trusts, and conveniences calculated to benefit persons who are or have been Directors of or who are or have been employed by or who are serving or have served the Company or any company which is a subsidiary or associate of the Company or dependents or connections of such persons and to grant pensions and allowances and to make payments towards insurance etc.
32. To use such means of making known the business and products of the Company as may seem expedient, and in particular by advertisement in press, by circulars, by exhibition of works of art or interest, by publication of books and periodicals and by granting prizes, rewards, and also giving advertisement as permissible under law.



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33. To apply for and obtain necessary consents, permissions and licence from any Government, state, local and other authorities for enabling the Company to carry on any of its objects effectively as and when required by law.
34. To establish and maintain offices, branches and local registers and to procure registration of the Company and to carry on business in any part of the world and to take such steps as may be necessary to give the Company such rights and privileges in any part of the world as are possessed by local companies or partnerships or as may be thought desirable.
35. To remunerate any company, person or firm by way of consideration for rendering services received by the Company either by cash payment or by allotment to him or them of shares or other securities of the Company credited as paid up in full or otherwise as may be thought expedient.
36. To do and perform all or any of above things and such other things as are incidental or may be thought conducive to the attainment of above objects or any of them in any part of the world and as principals, agents, contractors, importers, exporters or otherwise and by or through trustees, agents, or otherwise, and either alone or in conjunction with others.
37. Notwithstanding anything stated in any object clause, the Company shall not engage in banking or the business of an investment company, leasing, insurance, managing agency or any unlawful business and shall not by advertisement, pamphlets, other means or other negotiation, offer for sale or take advance money for the further sale of plots, houses, flats etc., are acquired and have been developed by the company and that nothing in the object clause shall be construed to entitle it to engage in such business. The Company shall not launch multilevel marketing, pyramid and Ponzi schemes. It is further declared that the company would not indulge in any sort of real estate business, housing colonies, purchase and sale of plots and development of land and housing finance company business as mentioned in NBFC Rules, 2003.
38. Notwithstanding anything stated in any object clause, the Company shall obtain such other approval or licence from the competent authority, as may be required under any law for the time being in force to undertake a particular business.

#### LIABILITY

- IV. The liability of the members is limited.

## CAPITAL

- V. The authorised capital of the company is Rs. 10,000,000- (Rupees Ten Million) divided into 10,000 (Ten Thousand) Ordinary shares of Rs.1,000 (Rupees One Thousand) each with the rights, privileges and conditions attaching thereto as are provided by the regulations of the Company for the time being, with powers to increase, reduce, subdivide, consolidate or reorganise the capital of the Company and to divide the shares in the capital of the Company for the time being into several classes in accordance with the provisions of the Companies Ordinance, 1984 and to attach thereto respectively such special rights, privileges or conditions as may be determined in accordance with the regulations of the Company, provided however, that as between various classes of ordinary shares, if any, as to profits, votes and benefits shall be strictly proportionate to the paid up value of the shares.

CERTIFIED TRUE COPY

P.D.



We the several persons, whose name and addresses are subscribed, are desirous of being formed into a Company, in pursuance of the Memorandum of Association and to take the number of shares in the capital of the Company set opposite to our respective names.

| Sr. No. | Name and Surname (Present and former) In full block letters        | Father's/ Husband's Name in full | Nationality with any former Nationality | Occupation                  | Residential Address in Full                                                      | Number of shares taken by each subscriber | Signature of the subscriber |
|---------|--------------------------------------------------------------------|----------------------------------|-----------------------------------------|-----------------------------|----------------------------------------------------------------------------------|-------------------------------------------|-----------------------------|
| 1       | Mr. NADFI MALIK<br>CNIC No. 42-0-056497-9                          | S/o Riaz Malik                   | Pakistani                               | Business Foam Manufacturing | Plot No. 75, Khayaban-e-Shaheen, Phase VI, D.H.A, Karachi                        | 300                                       | <i>[Signature]</i>          |
| 2       | Mr. NAJEEB MALIK<br>CNIC No. 35201-2088787-3<br><i>[Signature]</i> | S/o Riaz Malik                   | Pakistani                               | Business Foam Manufacturing | Plot No. 321, Block K, Phase 1, Lahore Cantt Cooperative Housing Society, Lahore | 300                                       | <i>[Signature]</i>          |
| 3       | Mr. SHAHZAD MALIK<br>CNIC No. 352019-295415-7                      | S/o Naveed Malik                 | Pakistani                               | Business                    | 126- Y Block, Street No. 18, D.H.A. Lahore                                       | 300                                       | <i>[Signature]</i>          |
|         |                                                                    |                                  |                                         | <b>Total</b>                |                                                                                  | <b>900</b>                                |                             |

Dated 30th day of April, 2015

Witness to \_\_\_\_\_ signature

MR. AMIR MUSHTAQ BUTT S/O  
MUSHTAQ AHMED BUTT

CNIC: 35202-3058104-1

82 - C-1, Gulberg III, Lahore.



PUBLIC COMPANY LIMITED BY SHARES  
INCORPORATED UNDER THE COMPANIES ORDINANCE, 1984

ARTICLES OF ASSOCIATION

MASTER SOLAR ENERGY LIMITED

PRELIMINARY

1. Company to be governed by the Articles & Table 'A' not to apply.

The Regulations contained in Table 'A' in the First Schedule to the Companies Ordinance, 1984 shall not apply to the Company except to the extent and as hereinafter, expressly incorporated. In case of any conflict between the provisions referred to and the provisions herein contained and the incorporated Regulations of Table 'A', the provisions herein contained shall prevail.

INTERPRETATION

2. In the interpretation of these Articles, words importing the singular shall include the plural, and vice versa and words importing the masculine gender shall include feminine gender and words importing persons shall also include corporate bodies.

AEDB The 'AEDB' means the Alternative Energy Development Board, a statutory body corporate formed under the Alternative Energy Development Board Act, 2010.

Articles The 'Articles' means these Articles as originally framed or as from time to time altered in accordance with law.

The 'Board' means Board of Directors for the time being of the Company

Commission The 'Commission' means Securities and Exchange Commission of Pakistan.

Chief Executive The 'Chief Executive' means an individual who subject to the control and Executive directions of the directors, is entrusted



with the whole, or substantially the whole, of the powers of management of the affairs of the company and includes a director or any other person occupying the position of a chief executive, by whatever name called, and whether under a contract of service or otherwise.

|                        |                                                                                                                                                                                                                                                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Company                | The name of the Company is "MASTER SOLAR ENERGY LIMITED".                                                                                                                                                                                                                                                                   |
| Directors              | The 'Directors' means the Directors for the time being of the Company.                                                                                                                                                                                                                                                      |
| Dividend               | The 'Dividend' includes bonus shares.                                                                                                                                                                                                                                                                                       |
| Document               | 'Document' includes summons, notice, requisition, order, other legal process, voucher and register.                                                                                                                                                                                                                         |
| Member                 | 'Member' means a person whose name is for the time being entered in the Register of Members by virtue of his being a subscriber to the Memorandum and Articles of Association of the Company, or of his holding by allotment or otherwise any share, scrip or other security which gives him a voting right in the Company. |
| Month                  | 'Month' means the calendar month according to the English Calendar.                                                                                                                                                                                                                                                         |
| Office                 | 'The Office' means the Registered Office for the time being of the Company.                                                                                                                                                                                                                                                 |
| Ordinance              | 'The Ordinance' means the Companies Ordinance, 1984.                                                                                                                                                                                                                                                                        |
| Ordinary Share Capital | 'Ordinary Share Capital' includes any shares of the Company with voting or other rights of management and control, and any securities of the Company that are convertible into such shares at the option of the holder.                                                                                                     |
| Proxy                  | 'Proxy' includes an Attorney duly constituted under a Power of Attorney.                                                                                                                                                                                                                                                    |
| Public Company         | "Means a company which is not a private Company under Companies Ordinance, 1984"                                                                                                                                                                                                                                            |

Register

'The Register' means the Register of Members to be kept in pursuance to Section 147 of the Ordinance.

Registrar

'The Registrar' means the Registrar of Companies having jurisdiction on the Company.

Redeemable Capital

'Redeemable Capital' includes finance obtained on the basis of Participation Terms Certificate Musharika Certificate, Term Finance Certificate (TFC) or any other security or obligation based on interest, other than an ordinary share of the company representing an instrument or a certificate of specified denomination called the face value or nominal value evidencing investment of the holder in the capital of the company on terms and conditions of the agreement for the issue of such instrument or certificate or such other certificate or instrument as the Federal Government may, by notification in the official Gazette specify for the purpose.

Section

'Section' means Section of the Ordinance.

Seal

'The Seal' means the common seal of the Company

Security

'Security' means any share, script, debenture, Participation Term Certificate, Modaraba Certificate, Musharika Certificate, Term Finance Certificate, bond, pre-organisation certificate or such other instrument as the Federal Government may, by notification in the official Gazette, specify for the purpose.

Writing

'In Writing' and written include printing, lithography and other modes of representing or reproducing words in a visible form.

\*Expression

Words and phrases used herein but not defined shall be assigned the same meaning as given to them in the Ordinance.

## BUSINESS

### 3. Object

The business of the company shall include the several objects expressed in Clause of the Memorandum of Association or any of them.

### 4. Commencement

The directors shall have regard to the restrictions on the commencement of business imposed by Section 146, if and so far as such restrictions are binding upon the company.

## SHARES

### 5. Share Capital

The authorised capital of the company is Rs. 10,000,000/- (Rupees Ten Million) divided into 10,000 (Ten Thousand) Ordinary shares of Rs.1,000/- (Rupees One Thousand) each with the rights, privileges and conditions attaching thereto as are provided by the regulations of the Company for the time being, with powers to increase, reduce, subdivide, consolidate or reorganise the capital of the Company and to divide the shares in the capital of the Company for the time being into several classes in accordance with the provisions of the Ordinance and to attach thereto respectively such special rights, privileges or conditions as may be determined by or in accordance with the regulations of the Company, provided however, that rights, as between various classes of ordinary shares, if any, as to profits, votes and other benefits shall be strictly to the paid up value of the shares.

### 6. Allotment of Shares under the control of the Directors

Subject to the provisions of these Articles and to the provisions of Section 86, the shares shall be under the control of the directors who may allot or otherwise dispose of the same to such persons, on such terms and conditions, and either at premium or at par and at such times, as the directors think fit and with full power to give to any person the right to call for the allotment of any shares either at par or at premium for such time and for such consideration as the directors think fit.

### 7. Issuance of shares at discount

With the prior approval of the shareholders in a General Meeting of the Company and with the sanction of the Securities and Exchange Commission of Pakistan and upon otherwise complying with the provisions of Section 84, it shall be lawful for the Directors to issue shares in the capital of the Company at discount.



#### 8. Variation of shareholders rights

If at any time the share capital is divided into different classes of shares, the rights attached to any class (unless provided by the terms of issue of the shares of that class) may subject to the provisions of Section 108 be varied with the consent in writing of the holders of three fourths of the issued shares of that class, or with the sanction of a special resolution passed at a separate general meeting of the holders of the shares of the class. To every such separate general meeting, the provisions of these regulations relating to general meeting shall mutandis apply, but so that the necessary shall be three persons at least holding or representing by Proxy and having twenty five percent of the issued shares of that class.

#### 9. Allotment and Minimum Subscription

The Directors shall in making the allotments duly observe the provisions of Section 68 to 73 as may be applicable to the Company. The minimum subscription upon which the Directors may proceed to allotment as defined in Section 68 is fixed at Rs. 900,000/-.

#### 10. Trust not recognized

Save as herein otherwise provided, the company shall be entitled to treat the registered holder of any share as the absolute owner thereof and accordingly shall not, except as ordered by a court of competent jurisdiction or as by statute required, be bound to recognize equitable, contingent, future, partial or other claim to or interest in such share on the part of any other person.

#### 11. Company and Corporate Body may hold shares

Shares may be registered in the name of any limited company or other corporate body. Unless the directors otherwise consent in any case, not more than four persons shall be registered joint-holders of any share.

#### 12. Issue of shares to banks and financial institution

Provided in Section 87, the directors may issue ordinary shares, or grant option to convert into ordinary shares, the outstanding balance of any loans, advances or credits or other non-interest bearing securities and obligations outstanding or having a term of not less than three years in the manner provided in any contract with any schedule bank or a financial institution to the extent of twenty percent of such balance.



### 13. Issue of Redeemable Capital

The directors may issue to banks or financial institutions either severally, jointly or through a syndicate, Redeemable Capital in consideration of any funds, moneys, accommodations received or to be received by the company whether in cash or in specie or against promise, guarantee, undertaking or indemnity issued to or in favour or benefit of the company.

### 14. Offer for Subscription

No share shall be offered for subscription except upon the term that the amount payable on application shall be the full amount of the nominal value of the share.

### CERTIFICATE

### 15. Certificate

Every person whose name is entered as a member in the Register shall, without payment, be entitled to receive, within two months after allotment or within forty-five days of the application or registration of transfer, a certificate under the seal specifying the share or shares held by him and the amount paid up thereon.

### 16. Joint holder

In respect of a share or shares held jointly by several persons, the company shall not be bound to issue more than one certificate and delivery of a certificate for a share to one of the several joint holders shall be sufficient delivery to all.

### 17. Duplicate Certificate

If a share certificate is defaced, lost or destroyed, it may be renewed on payment of such fee, if any, not exceeding one rupee, and on such terms, if any, as to evidence and indemnity and payment of expenses incurred by the company in investigating title, as the directors think fit. Within forty-five days of the application the company shall issue certificate to the applicant.

### 18. Prohibition on Purchase of its own Shares

Except to the extent and in the manner allowed by Section 95, no part of the funds of the company shall be employed in the purchase of, or in loans upon the security of the company's shares.

## ISSUANCE AND TRANSFER OF SHARES

### 19. Registration of Transfer

The directors shall not refuse to transfer any fully paid shares unless the transfer deed is defective or invalid. The directors may also decline the registration of transfers during ten days immediately by giving seven days previous notice in the manner provided in the Ordinance. The directors may decline to recognise any instrument of transfer unless :

- a. a fee not exceeding two rupees as may be determined by the directors is paid to the company in respect thereof; and
- b. the duly stamped instrument of transfer is accompanied by the certificate of the shares to which it relates, and such other evidence as the directors may reasonably require to show the right of the transferor to make the transfer.

If the directors refuse to register a transfer of shares, they shall within forty five days after the date on which the transfer deed was lodged with the company send to the transferee and the transferor notice of the refusal indicating the defect or invalidity to the transferee, who shall after removal of such defect or invalidity be entitled to re-lodge the transfer deed with the company.

### 20. Execution of Transfer

The instrument of transfer of any share in the company shall be executed both by the transferor and the transferee, and transferor shall be deemed to remain holder of the share until the name of the transferee entered in the register of members in respect thereof. No transfer shall be made to an infant or person of unsound mind.

### 21. Form of Transfer

Shares in the company shall be transferred in any usual or common form which the directors shall approve.

## TRANSMISSION OF SHARES

### 22. Shares of Deceased

The executors, administrators, heirs or nominees, as the case may be, of a deceased sole holder of share shall be the only persons recognised by the company as having



any title to the share. In the case of a share in the name of two or more holders, the survivor or survivors, or the executors or administrators of the survivor or survivors shall be the only persons recognised by the company as having any title to the share.

### 23. Nomination by Members

A member or shareholder may deposit with the company a nomination conferring on one or more persons the right to acquire the interest in the shares therein specified in the event of his death. Provisions of Section 70 will apply in case of all such nominations.

### 24. Entitlement of Shares

Any person becoming entitled to a share in consequence of the death or bankruptcy or insolvency of a member shall, upon such evidence being produced as may from time to time be required by the directors, have the right, either to be registered as a member in respect of the share or, instead of being registered himself, to make such transfer of the share as the deceased or insolvent person could have made; but the directors shall, in either case, have the same right to decline or suspend registration as they would have had in the case of transfer of the share by the deceased or insolvent person before the death or insolvency.

### 25. Entitlement of Dividend

A person becoming entitled to a share by reason of the death or bankruptcy or insolvency of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he was the registered holder of the share, except that he shall not, before being registered as a member in respect of the share, be entitled in respect of it to exercise any right conferred by membership in relation to meetings of the company.

## ALTERATION AND FURTHER ISSUE OF CAPITAL

### 26. Increase in Share Capital

The company may, from time to time, by special resolution increase the share capital by such sum, to be divided into shares of such amount, as the resolution shall prescribe. The new shares shall be subject to the same provisions with reference to transfer, transmission and otherwise as the shares in the original share capital.

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## 27. Consolidation, Division, Sub-division and Cancellation of Shares

The company may by special resolution:

- a. Consolidate and divide its share capital into shares of larger amount than its existing shares;
- b. Sub-divide its existing shares or any of them into shares of smaller amount than is fixed by the memorandum of association, subject nevertheless to the provisions of clause (d) of sub-section (1) of Section 92;
- c. Cancel any shares which, at the date of the passing of the resolution, have not been taken or agreed to be taken by any person.

## 28. Offer for new shares

Subject to the provisions of Section 86 all new shares shall, before issue be offered to such persons as at the date of the offer are entitled to receive notices from the company of general meetings in proportion, as nearly as the circumstances admit, to the amount of the existing shares to which they are entitled. The offer shall be made by notice specifying the number of shares offered, and limiting a time within which the offer, if not accepted will be deemed to be declined, and after the expiration of that time, or on the receipt of an intimation from the person to whom the offer is made that he declines to accept the shares offered, the directors may dispose of the same in such manner as they think most beneficial to the company. The directors may likewise so dispose of any new shares which (by reason of the ratio which the new shares bear to shares held by persons entitled to an offer of new shares) cannot in the opinion of the directors, be conveniently offered under the regulation.

## 29. Reduction of Capital

The company may, by special resolution, reduce its share capital in any manner and with, and subject to, any incident authorised and consent required by Sections 96 to 106 provided the reduction so made shall not disturb the requirement of minimum paid up capital.

## 30. Surrender of Shares

Subject to the provisions of the Ordinance, the directors may accept from any member the surrender of all or any of his shares on such terms as shall be agreed.

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## GENERAL MEETING

### 31. Statutory Meeting

Subject to provisions of Section 157 the Statutory General Meeting of the company shall be held within a period of not less than three months and not more than six months from the date of entitlement of commencement of business.

### 32. Annual General Meeting

A general meeting, to be called annual general meeting, shall be held as may be determined by the directors, in accordance with the provisions of Section 158, within eighteen months from the date of incorporation of the company and thereafter once at least in every calendar year within a period of four months following the close of its financial year and not more than fifteen months after the holding of its last preceding annual general meeting.

### 33. Extra ordinary General Meeting

All general meetings of a company other than the statutory meeting or an annual general meeting mentioned in Sections 157 and 158 respectively shall be called Extraordinary General Meetings.

### 34. Calling of an Extra ordinary General Meeting

The directors may, whenever they think fit, call an extraordinary general meeting. Extraordinary general meeting shall also be called on such requisition, or in default, may be called by such requisitionists, as is provided by Section 159. If at any time there are not within Pakistan sufficient directors capable of acting to form a quorum, any director of the company may call an extraordinary general meeting in the same manner as nearly as possible as that in which meetings may be called by the directors.

## NOTICE AND PROCEEDINGS OF GENERAL MEETING

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Twenty-one days' notice at the least (exclusive of the day on which the notice is served or deemed to be served, but inclusive of the day for which notice is given) specifying the place, the day and the hour of meeting and, in case of special business, the general nature of that business, shall be given in manner provided by the Ordinance for the general meeting, to such persons as are, under the

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any person under that clause is entitled to transfer until such person becomes a member in respect thereof or shall duly transfer the same.

**106. Dividend to joint holders**

Any one of the several persons who are registered as the joint holders of any share may give effectual receipt for all dividends and payments on account of dividends in respect of such share.

**107. Mode of Payment**

Unless otherwise directed any dividend may be paid by cheque or warrant sent through the post to the registered address of the member entitled, or in the case of joint holders to the registered address of that one whose name stands first on the register in respect of the joint holding and every cheque or warrant so sent shall be made payable to the order of the person to whom it is sent.

**108. Unclaimed dividend**

All dividends unclaimed for one year after having been declared may be invested or otherwise made use of by the directors for the benefit of the Company until claimed.

**109. Time of Payment**

The dividends shall be paid within the period laid down in Section 251.

**BOOKS AND ACCOUNTS**

**110. Books of Account**

The directors shall cause to be kept proper books of account as required under Section 230.

**111. Place where Books of Account kept**

Books of account shall be kept at the registered office of the company or at other place as the directors shall think fit and shall be open to inspection by the directors during business hours.



## 112. Inspection by Members

The directors shall from time to time determine whether and to what extent and at what time and place and under what conditions or regulations the accounts and books or papers of the company or any of them shall be open to the inspection of members not being directors and no member (not being a director) shall have any right of inspecting any account and book or papers of the company except as conferred by law or authorised by the directors or by the company in general meeting.

## 113. Annual Accounts

The directors shall as required by Sections 233 and 236 cause to be prepared and to be laid before the company in general meeting such profit and loss accounts or income and expenditure accounts and balance sheets duly audited and reports as are referred to in those sections.

## 114. Presentation of Annual Accounts before Annual General Meeting

A balance sheet, profit and loss account, income and expenditure account and other reports referred to in clause 113 above shall be made out in every year and laid before the company in the annual general meeting made up to a date not more than four months before such meeting. The balance sheet and profit and loss account or income and expenditure account shall be accompanied by a report of the auditors of the company and the report of directors.

## 115. When Accounts Settled

Every account of the company when audited and approved by a general meeting shall be conclusive except as regards any errors discovered therein within three months next after the approval thereof. Whenever any such error is discovered within that period, the account shall forthwith be corrected and thenceforth shall be conclusive.

## 116. Copies to be sent to Members

Copies of the balance sheet and profit and loss account or income and expenditure account and reports of directors and auditors shall, at least twenty one days preceding the meeting, be sent to the persons entitled to receive notices of general meeting in the manner in which notices are to be given hereunder.



#### 117. Compliance with the Ordinance

The directors shall in all respect comply with the provisions of Sections 230 to 236.

### AUDIT

#### 118. Audit

Auditors shall be appointed and their duties regulated in accordance with Sections 252 to 255.

### NOTICES

#### 119. Mode of Service of Notice

A notice may be given by the company to any member either personally or by sending it by post to him to his registered address or (if he has no registered address in Pakistan) to the address, if any, within Pakistan supplied by him to the company for the giving of notices to him. Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice and, unless the contrary is proved, to have been effected at the time at which the letter would be delivered in the ordinary course of post.

#### 120. Notice by Newspaper

If a member has no registered address in Pakistan, and has not supplied to the company an address within Pakistan for the giving of notices to him, the Company shall comply with the requirements of section of the Ordinance.

#### 121. Notice to joint holders

A notice may be given by the company to the joint-holders of a share by giving the notice to the joint-holder named first in the register in respect of the share.

#### 122. Notice to person entitled to transmission

A notice may be given by the company to the persons entitled to a share in consequence of the death or insolvency of a member by sending it through post in a prepaid letter addressed to them by name, or by the title of representatives of the deceased, or assignee of the insolvent or by any like description, at the address (if any) in Pakistan supplied for the purpose by the person claiming to be so entitled,



or (until such an address has been so supplied) by giving the notice in any manner in which the same might have been given if the death or insolvency had not occurred.

#### 123. Notice of General Meeting

Notice of every general meeting shall be given in same manner hereinbefore authorized to:

- a. every member of the company except those who, having no registered address within Pakistan, have supplied the company an address within Pakistan for the giving of notices to the company also to;
- b. every person entitled to a share in consequence of the death or insolvency of a member, who but for his death or insolvency would be entitled to receive notice of the meeting; and
- c. to the auditors of the company for the time being.

SECRET

#### 124. Secrecy

Every Director, Chief Executive, Secretary, Auditor, Trustee, Member of Committee, Officer, Servant, Agent, Accountant or other person employed in the business of the Company shall, if so required by the directors before entering upon his duties, sign a declaration pledging himself to observe a strict secrecy respecting all transactions of the company with the customers and the state of accounts with individuals and in matters relating thereto and shall by such declaration pledge himself not to reveal any of the matters which may come to his knowledge in the discharge of his duties except when required to do so by the directors or by any meeting or by a court of law or by the person to whom such matters relate and except so far as may be necessary in order to comply with any of the provisions in these presents.

#### 125. Member's Access to Company Premises

\*No member or other person (not being a director) shall be entitled to enter the premises of the company or examine the company's premises or properties without the permission of a director, subject to Article 125 to require discovery of or any information respecting any detail of the Company's trading or any matter which is or may be in the nature of a trade secret, mystery of trade or secret process or of any matter whatsoever which may relate to the conduct of the business of the company and which in the opinion of the directors will be inexpedient in the interest of the members of the company, to communicate.

## WINDING UP

### 126. Division of Assets in Specie

If the company is wound up, the liquidator may, with the sanction of a special resolution of the company and any other sanction required by the Ordinance, divide amongst the members, in specie or kind, the whole or any part of the assets of the company, whether they consist of property of the same kind or not.

### 127. Valuation by Liquidator

For the purpose aforesaid, the liquidator may set a value as he deems fair upon any property to be divided as aforesaid and may determine how such division shall be carried out as between the members or different classes of members.

### 128. Assets in Trust

The liquidator may, with the like sanction, vest the whole or any part of such assets in trustees upon such trust for the benefit of the contributories as the liquidator, with the like sanction, thinks fit, but so that no member shall be compelled to accept any shares or other securities whereon there is any liability.

## INDEMNITY

### 129. Director's and other's right to Indemnify

Every officer or agent for the time being of the company may be indemnified out of the assets of the company against any liability incurred by him in defending any proceedings, whether civil or criminal, arising out of his dealings in relation to the affairs of the company, except those brought by the company against him, in which judgment is given in his favour or in which he is acquitted, or in connection with any application under Section 488 in which relief is granted to him by the Court.

## ARBITRATION

### 130. Differences to be referred to

Wherever any difference arises between the company on the one hand and any of its members, their executors, administrators or assigns on the other hand, the true intent or construction, or the incident or consequences of these Articles or of the statutes, or touching anything there or thereafter done, executed, omitted or suffered in pursuance of these Articles or of the statutes or touching any breach or alleged breach of these Articles, or any claim on account of any such breach or alleged breach, or otherwise relating to the premises, or to these Articles or to any



statute affecting the company or to any of the affairs of the Company, every such difference shall, as a condition precedent to any other action at law be referred in conformity with the Arbitration Act, 1940, or any statutory modification thereof and any rules made thereunder, to the decision of an arbitrator to be appointed by the parties in difference or if they cannot agree upon a single arbitrator to the decision of two arbitrators of whom one shall be appointed by each of the parties in difference, or in the event of the two arbitrators not agreeing, then of an umpire to be appointed by the two arbitrators, in writing, before proceeding on the reference, and such decision shall be final and binding on the parties.

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We the several persons, whose name and addresses are subscribed, are desirous of being form into a Company, in pursuance of this Association and to take the number of shares in the capital of the Company set opposite to our respective names.

| Sr. No. | Name and Surname (Present and former) In full block lettes         | Father's/ Husband's Name in full | Nationality with any former Nationality | Occupation                  | Residential Address in Full                                                      | Number of shares taken by each subscriber | Signature of the subscriber |
|---------|--------------------------------------------------------------------|----------------------------------|-----------------------------------------|-----------------------------|----------------------------------------------------------------------------------|-------------------------------------------|-----------------------------|
| 1       | Mr. NADEEM MALIK<br>CNIC No. 4236-8656497-9                        | S/o Riaz Malik                   | Pakistani                               | Business Foam Manufacturing | Plot No. 75, Khayaban-e-Shaheen, Phase VI, D.H.A, Karachi                        | 300                                       | <i>[Signature]</i>          |
| 2       | Mr. NAJEEB MALIK<br>CNIC No. 35201-7088787-3<br><i>[Signature]</i> | S/o Riaz Malik                   | Pakistani                               | Business Foam Manufacturing | Plot No. 321, Block K, Phase 1, Lahore Cantt Cooperative Housing Society, Lahore | 300                                       | <i>[Signature]</i>          |
| 3       | Mr. SHAHZAD MALIK<br>CNIC No. 352019-295415-7                      | S/o Navced Malik                 | Pakistani                               | Business                    | 126- Y Block, Street No. 18, D.H.A. Lahore                                       | 300                                       | <i>[Signature]</i>          |
|         |                                                                    |                                  |                                         |                             | <b>TOTAL</b>                                                                     | <b>900</b>                                |                             |

Dated 30th day of April, 2015

Witness t. *[Signature]* Signature

MR. AMIR MUSHTAQ BUTT S/O  
MUSHTAQ AHMED BUTT

CNIC: 35202-3058104-1

82 - C-1, Gulberg III, Lahore.

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**ANNEXURE – D**  
**ANNUAL REPORTS OF THE COMPANY**

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# RAO & COMPANY

CHARTERED ACCOUNTANTS

TELEPHONES

32412778 & 32412779

FAX: 32419452

E-mail: [audit@raoandco.com.pk](mailto:audit@raoandco.com.pk)  
[raoandco\\_ca@yahoo.com](mailto:raoandco_ca@yahoo.com)

4, Karachi Chambers  
Nasrat Mahani Road  
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Karachi-2  
PAKISTAN

## INDEPENDENT AUDITOR'S REPORT

To the members of Master Solar Energy Limited

Report on the Audit of the Financial Statements

### Opinion

We have audited the annexed financial statements of Master Solar Energy Limited (the Company), which comprise the statement of financial position as at June 30, 2024 and the statement of profit or loss and other comprehensive income, the statement of changes in equity, the statement of cash flows for the year then ended, and notes to the financial statements, including material accounting policies information and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.


In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes forming parts thereof conform with accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the Company's affairs as at June 30, 2024 and of the loss, other comprehensive income, the changes in equity and its cash flows for the year then ended.

### Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan (the Code) and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Information Other than the Financial Statements and Auditor's Report Thereon

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon. 

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# **RAO & COMPANY**

CHARTERED ACCOUNTANTS

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

## **Responsibilities of Management and Board of Directors for the Financial Statements**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017 (XIX of 2017) and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Board of Directors are responsible for overseeing the Company's financial reporting process.

## **Auditor's Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern.

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**RAO & COMPANY**  
CHARTERED ACCOUNTANTS

concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.


We communicate with the Board of Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

**Report on Other Legal and Regulatory Requirements**

Based on our audit, we further report that in our opinion:

- a) proper books of account have been kept by the Company as required by the Companies Act, 2017 (XIX of 2017);
- b) the statement of financial position, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017), and are in agreement with the books of account and returns;
- c) investments made, expenditure incurred and guarantees extended during the year were for the purpose of the Company's business; and
- d) no Zakat was deductible at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

The engagement partner on the audit resulting in this independent auditor's report is Abdul Rafay.

  
Rao & Company  
Chartered Accountants  
Karachi

Date: 07 October 2024  
UDIN: AR202410267XiQoD95pb

**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF FINANCIAL POSITION**  
**AS AT JUNE 30, 2024**

|                                                                                                               | Note | 2024<br>Rupees    | 2023<br>Rupees    |
|---------------------------------------------------------------------------------------------------------------|------|-------------------|-------------------|
| <b>ASSETS</b>                                                                                                 |      |                   |                   |
| <b>NON-CURRENT ASSETS</b>                                                                                     |      |                   |                   |
| Property, plant and equipment                                                                                 | 4    | 3,776,862         | 3,776,862         |
| <b>CURRENT ASSETS</b>                                                                                         |      |                   |                   |
| Tax refunds due from government                                                                               | 5    | 11,071            | 9,612             |
| Interest income receivable                                                                                    |      | 167               | 1,052             |
| Cash and bank balance                                                                                         | 6    | 32,975            | 138,310           |
|                                                                                                               |      | 44,213            | 148,974           |
|                                                                                                               |      | <u>3,821,075</u>  | <u>3,925,836</u>  |
| <b>EQUITY AND LIABILITIES</b>                                                                                 |      |                   |                   |
| <b>SHARE CAPITAL AND RESERVES</b>                                                                             |      |                   |                   |
| Authorised share capital<br>10,000 ordinary shares of Rs. 1,000 each (2023: 10,000)                           |      | <u>10,000,000</u> | <u>10,000,000</u> |
| Issued, subscribed and paid up capital<br>900 (2023: 900) Ordinary share of Rs. 1,000 each fully paid in cash |      | <u>900,000</u>    | <u>900,000</u>    |
| Loan from director                                                                                            | 7    | 3,777,500         | 3,777,500         |
| Revenue reserve                                                                                               |      |                   |                   |
| Accumulated loss                                                                                              |      | (970,715)         | (865,954)         |
|                                                                                                               |      | 3,706,785         | 3,811,546         |
| <b>CURRENT LIABILITIES</b>                                                                                    |      |                   |                   |
| Trade and other payables                                                                                      | 8    | 114,290           | 114,290           |
| <b>CONTINGENCIES AND COMMITMENTS</b>                                                                          |      |                   |                   |
|                                                                                                               | 9    | <u>3,821,075</u>  | <u>3,925,836</u>  |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

Chief Executive

Director

RAD

**MASTER SOLAR ENERGY LIMITED****STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME****FOR THE YEAR ENDED JUNE 30, 2024**

|                                            | Notes | 2024<br>Rupees          | 2023<br>Rupees          |
|--------------------------------------------|-------|-------------------------|-------------------------|
| <b>Administrative expenses</b>             |       |                         |                         |
| Fees and subscription                      |       | (5,600)                 | (4,532)                 |
| Auditors' remuneration                     |       | (108,000)               | (116,000)               |
| <b>Operating loss</b>                      |       | <u>(113,600)</u>        | <u>(120,532)</u>        |
| Interest income on deposit account         |       | 8,839                   | 12,067                  |
| <b>Loss for the year</b>                   |       | <u>(104,761)</u>        | <u>(108,465)</u>        |
| <b>Other comprehensive income / (loss)</b> |       | -                       | -                       |
| <b>Total comprehensive loss</b>            |       | <u><u>(104,761)</u></u> | <u><u>(108,465)</u></u> |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

  
\_\_\_\_\_  
Chief Executive  
\_\_\_\_\_  
Director

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**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF CASH FLOWS**  
**FOR THE YEAR ENDED JUNE 30, 2024**

|                                                        | 2024<br>Rupees | 2023<br>Rupees |
|--------------------------------------------------------|----------------|----------------|
| <b>CASH FLOWS FROM OPERATING ACTIVITIES</b>            |                |                |
| Loss for the year                                      | (104,761)      | (108,465)      |
| Operating loss before working capital changes          | (104,761)      | (108,465)      |
| <b>Working Capital Changes</b>                         |                |                |
| <i>Decrease in current assets</i>                      |                |                |
| Interest income receivable                             | 885            | 185            |
| <i>Increase in current liabilities</i>                 |                |                |
| Trade and other payables                               | -              | 8,000          |
| Cash used in operations                                | (103,876)      | (100,280)      |
| Income tax paid                                        | (1,459)        | (1,838)        |
| Net cash outflow from operating activities             | (105,335)      | (102,118)      |
| <b>CASH FLOWS FROM INVESTING ACTIVITIES</b>            | -              | -              |
| <b>CASH FLOWS FROM FINANCING ACTIVITIES</b>            | -              | -              |
| Net decrease in cash and cash equivalents              | (105,335)      | (102,118)      |
| Cash and cash equivalents at the beginning of the year | 138,310        | 240,428        |
| Cash and cash equivalents at the end of the year       | 32,975         | 138,310        |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

  
Chief Executive

  
Director

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**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF CHANGES IN EQUITY**  
**FOR THE YEAR ENDED JUNE 30, 2024**

|                          | Issued,<br>subscribed and<br>paid-up capital | Loan from<br>director | Revenue reserve<br>Accumulated<br>loss | Total     |
|--------------------------|----------------------------------------------|-----------------------|----------------------------------------|-----------|
|                          | <b>Rupees</b>                                |                       |                                        |           |
| Balance at June 01, 2022 | 900,000                                      | 3,777,500             | (757,489)                              | 4,008,786 |
| Loss for the year        | -                                            | -                     | (108,465)                              | (108,465) |
| Balance at June 30, 2023 | 900,000                                      | 3,777,500             | (865,954)                              | 3,811,546 |
| Balance at July 01, 2023 | 900,000                                      | 3,777,500             | (865,954)                              | 3,811,546 |
| Loss for the year        | -                                            | -                     | (104,761)                              | (104,761) |
| Balance at June 30, 2024 | 900,000                                      | 3,777,500             | (970,715)                              | 3,706,785 |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

Chief Executive

Director

RAD

# **MASTER SOLAR ENERGY LIMITED**

## **NOTES TO THE FINANCIAL STATEMENTS**

### **FOR THE YEAR ENDED JUNE 30, 2024**

#### **1 Corporate and general information**

##### **1.1 Legal status and operations**

Master Solar Energy Limited (the 'Company') was incorporated on May 28, 2015, as public limited company under the Companies Ordinance, 1984 (Repealed with enactment of the Companies Act, 2017).

The Company's principal objective is to carry on the business of supplying general electric power and to setup and operate solar power generation projects to generate, accumulate, distribute and supply electricity.

The geographical location and address of the company's business units, including plant is as under.

- The registered office of the Company is situated at Master House, 82 C - I, Gulberg III, Lahore.

The Company is under consideration to develop solar powered plant.

#### **2 BASIS OF PREPARATION**

##### **2.1 Statement of compliance**

These financial statements have been prepared in accordance with the accounting and reporting standards as applicable in Pakistan for financial reporting. The accounting and reporting standards as applicable in Pakistan comprise of such International Financial Reporting Standards (IFRS Standards), issued by International Accounting Standard Board (IASB) as notified under Companies Act, 2017 (the "Act"); and provisions of and directives issued under the Act. Where the provisions of and directives issued under the Companies Act, 2017 differ from the IFRS standards, the provisions of and directives issued under the Companies Act, 2017 have been followed.

##### **2.2 Basis of measurement**

These financial statements have been prepared under the historical cost convention as per accounting policies consistently applied during the period except as other wise stated in the respective policies and notes given hereunder.

##### **2.3 Functional and presentation currency**

These financial statements are presented in Pak Rupees, which is the functional and presentation currency of the Company. Amounts presented in the financial statements have been rounded off to the nearest of Rupee unless otherwise stated.

##### **2.4 Key judgements and estimates**

The preparation of financial statements in conformity with the accounting and reporting standards as applicable in Pakistan requires the use of certain critical accounting estimates.

In addition, it requires management to exercise judgement in the process of applying the Company's accounting policies. The areas involving a high degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements, are documented in the following accounting policies and notes, and relate primarily to:

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- Capital work in process – Note 3.1
- Estimation of provisions - Note 3.7
- Current income tax expense and provision for current tax - Note 3.8

The revisions to accounting estimates (if any) are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

## 2.5 Change in accounting standards, interpretations and amendments to published approved accounting standards

- a There are certain amendments and interpretations to the accounting and reporting standards which are mandatory for the Company's annual accounting period which began on July 1, 2023. However, these do not have any significant impact on the Company's financial statements except as disclosed in note 3 to these financial statements.
- b Standards, amendments and interpretations to existing standards that are not yet effective and have not been early adopted by the Company:

|                                                                                                     | Effective date<br>(annual reporting<br>periods beginning<br>on or after) |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| IAS 1 Presentation of Financial Statements (Amendments)                                             | January 1, 2024                                                          |
| IAS 7 Statement of Cash Flows (Amendments)                                                          | January 1, 2024                                                          |
| IFRS 16 Leases (Amendments)                                                                         | January 1, 2024                                                          |
| IAS 21 The Effects of changes in Foreign Exchange Rates (Amendments)                                | January 1, 2025                                                          |
| IFRS 7 Financial Instruments: Disclosures (Amendments)                                              | January 1, 2026                                                          |
| IFRS 17 Insurance Contracts                                                                         | January 1, 2026                                                          |
| IFRS 9 Financial Instruments – Classification and Measurement of Financial Instruments (Amendments) | January 1, 2026                                                          |

- c The above standards, amendments to approved accounting standards and interpretations are not likely to have any material impact on the Company's financial statements.
- d Other than the aforesaid standards, interpretations and amendments, International Accounting Standards Board (IASB) has also issued the following standards and interpretation, which have not been notified locally or declared exempt by the Securities and Exchange Commission of Pakistan (SECP) as at 30 June 2024;
 

|          |                                                                    |
|----------|--------------------------------------------------------------------|
| IFRS 1   | First-time Adoption of International Financial Reporting Standards |
| IFRIC 12 | Service Concession Arrangement                                     |
| IFRS 18  | Presentation and Disclosures in Financial Statements               |
| IFRS 19  | Subsidiaries without Public Accountability: Disclosures            |

## 3 Material Accounting Policies Information

The Company adopted disclosure of Accounting Policies (Amendments to IAS 1 and IFRS practice statements 2 'Making Materiality Judgments') from 01 July, 2023. Although amendments did not result in any changes to the accounting policies themselves, they impact the accounting policy information disclosed in the financial statements.

The amendments require disclosure of 'material', rather than 'significant' accounting policies. The amendments also provide the guidance on the application of materiality to disclosure of accounting policies, assisting entities to provide useful entity specific accounting policy information that user need to understand other information in the financial statements.

The material accounting policies set out below have been applied consistently to all periods presented in these financial statements.

### **3.1 Capital work in progress**

Capital work-in-progress is stated at cost less any identified impairment loss. All expenditure connected with specific assets incurred during installation and construction period are carried under capital work-in-progress. These are transferred to operating fixed assets as and when these are available for use.

### **3.2 Trade debts, loans, advances, deposits and other receivables**

These are initially measured at the fair value of the consideration receivable. Subsequently these are valued at amortized cost. These assets are written off when there is no reasonable expectation of recovery. Credit loss is based on the expected credit loss.

### **3.3 Cash and cash equivalents**

Cash and cash equivalents are carried in the statement of financial position at cost. For the purpose of Cash Flow Statement, cash and cash equivalent comprise cash in hand and cash with banks.

### **3.4 Loan from directors**

Loan from director is accounted for by using Technical Release-32 "Accounting Directors' Loan" (TR 32) issued by the Institute of Chartered Accountants of Pakistan (ICAP) on 25 January 2016 which provided specific guidance on Director's loan that are interest free and repayable at the discretion of the entity. Loan from director is accounted for as per clause 3.3.1 of TR 32 which states that "A loan to an entity by the director which is agreed to be paid at the discretion of the entity does not pass the test of liability and is to be recorded as equity at face value. This is not subsequently remeasured.

### **3.5 Financial instruments**

#### **Financial assets**

#### **Initial measurement**

The Company classifies its financial assets in to

- fair value through other comprehensive income (FVOCI);
- fair value through profit or loss (FVTPL); and
- measured at amortized cost.

A financial asset is initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition.

#### **Subsequent measurement**

#### **Debt investments at FVOCI**

These assets are subsequently measured at fair value. Interest / markup income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in the statement of profit or loss. Other net gains and losses are recognized in other comprehensive income. On de-recognition, gains and losses accumulated in other comprehensive income are reclassified to the statement of profit or loss.

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### **Equity investments at FVOCI**

These assets are subsequently measured at fair value. Dividends are recognized as income in the statement of profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income and are never reclassified to the statement of profit or loss.

### **Financial assets at FVTPL**

These assets are subsequently measured at fair value. Net gains and losses, including any interest / markup or dividend income, are recognized in statement of profit or loss.

### **Financial assets measured at amortized cost**

These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest / markup income, foreign exchange gains and losses and impairment are recognized in the statement of profit or loss.

### **Short term investments**

Investment in Term deposits is classified as amortized cost and are initially measured at fair value. Transaction costs directly attributable to the acquisition are included in the carrying amount. Subsequently these investments are measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest / markup income, losses and impairment are recognized in the statement of profit or loss.

### **Impairment of financial assets**

The Company recognizes loss allowances for ECLs in respect of financial assets measured at amortized cost and fair value through other comprehensive income.

The Company measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs:

- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balance for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowances for trade receivables are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Company's historical experience and informed credit assessment and including forward-looking information.

The Company assumes that the credit risk on a financial asset has increased significantly if it is more than past due for a reasonable period of time. Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument. 12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months). The maximum period considered when estimating ECLs is the maximum contractual period over which the Company is exposed to credit risk.

Loss allowances for financial assets measured at amortized cost are deducted from the Gross carrying amount of the assets.

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The Gross carrying amount of a financial asset is written off when the Company has no reasonable expectations of recovering of a financial asset in its entirety or a portion thereof. The Company individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Company expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Company's procedures for recovery of amounts due.

#### **De-recognition**

Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all risks and rewards of ownership.

#### **Financial liabilities**

Financial liabilities are classified as measured at amortized cost or 'at fair value through profit or loss' (FVTPL). A financial liability is classified as at FVTPL if it is classified as held for trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in the statement of profit or loss.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in the statement of profit or loss. Any gain or loss on de-recognition is also recognized in the statement of profit or loss.

Financial liabilities are derecognized when the contractual obligations are discharged or cancelled or have expired or when the financial liability's cash flows have been substantially modified.

#### **Offsetting of financial assets and financial liabilities**

Financial assets and financial liabilities are set off and only the net amount is reported in the statement of financial position when there is a legally enforceable right to set off the recognized amount and the Company intends to either settle on a net basis, or to realize the asset and settle the liability simultaneously.

### **3.6 Trade and other payables**

Liabilities for trade and other amounts payable are carried at cost which is the fair value of the consideration to be paid in the future for goods and services received, whether or not billed to the Company.

### **3.7 Provisions**

A provision is recognized in the statement of financial position when the Company has a present legal or constructive obligation as a result of past event and it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation of which reliable estimate can be made. The expense relating to provision is presented in statement of comprehensive income net of any reimbursements. Provisions are reviewed at each statement of financial position date and adjusted to reflect the current best estimate. The management expects that time value of money is not material and no discounting of provision is made by the Company.

### **3.8 Taxation**

#### **Current**

Provision for current tax is based on the taxable income for the year determined in accordance with the prevailing law for taxation of income. The charge for current tax is calculated using prevailing tax rates or tax rates expected to apply to the profit for the year if enacted after taking into account tax credits, rebates and exemptions, if any. The charge for current tax also includes adjustments, where considered necessary, to provision for tax made in previous years arising from assessments framed during the year for such years. 12

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## Deferred

Deferred tax is accounted for using the statement of financial position liability method in respect of all temporary differences arising from differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of the taxable profit. However, the deferred tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of transaction neither affects accounting nor taxable profit or loss. Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which the deductible temporary differences, unused tax losses and tax credits can be utilised.

Deferred tax is calculated at the rates that are expected to apply to the period when the differences reverse based on tax rates that have been enacted or substantively enacted by the statement of financial position date. Deferred tax is charged or credited in the profit and loss account, except in the case of items credited or charged to equity in which case it is included in equity.

| Deferred tax asset not recognized | 2024<br>Rupees | 2023<br>Rupees |
|-----------------------------------|----------------|----------------|
| Deductible temporary difference   |                |                |
| Carry forward tax losses          | <u>132,615</u> | <u>176,960</u> |

### 3.9 Mark-up bearing borrowings and borrowing cost

Mark-up bearing borrowings are recognized initially at fair value, less attributable transaction cost. Subsequent to initial recognition, mark up bearing borrowings are stated at amortized cost, while the difference between the cost (reduced for periodic payments) and redemption value is recognized in the statement of profit or loss account over the period of the borrowings using the effective interest method. Borrowing costs are recognised as an expense in the period in which these are incurred, except that those which are directly attributable to the acquisition, construction or production of a qualifying asset (i.e. an asset that necessarily takes a substantial period of time to get ready for its intended use or sale) are capitalized as part of the cost of that asset.

### 3.10 Foreign exchange

Foreign currency transactions are recorded at the exchange rate applicable at the transactions date. Monetary assets & liabilities are translated into Rupees using exchange rates applicable at the statement of financial position date. All gains and losses on settlement and transaction at year end are recognised in statement of profit and loss.

### 3.11 Impairment

The carrying amount of the Company's assets are reviewed at each statement of financial position date to determine whether there is any indication of impairment loss. If such evidence exists, the recoverable amount of assets is estimated in order to determine the extent of the impairment loss, if any. Impairment losses are recognized as expense in statement of profit and loss. p

|                                                                                                                                           | Note | 2024<br>Rupees   | 2023<br>Rupees   |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|------------------|
| <b>4 PROPERTY, PLANT AND EQUIPMENT</b>                                                                                                    |      |                  |                  |
| Capital work in progress                                                                                                                  |      | <u>3,776,862</u> | <u>3,776,862</u> |
| <b>5 TAX REFUNDS DUE FROM GOVERNMENT</b>                                                                                                  |      |                  |                  |
| Advance income tax                                                                                                                        |      | 1,459            | 1,838            |
| Income tax refundable                                                                                                                     |      | <u>9,612</u>     | <u>7,774</u>     |
|                                                                                                                                           |      | <u>11,071</u>    | <u>9,612</u>     |
| <b>6 CASH AND BANK BALANCE</b>                                                                                                            |      |                  |                  |
| Cash in hand                                                                                                                              |      | 5,428            | 1,129            |
| Current account                                                                                                                           |      | <u>9,096</u>     | <u>9,046</u>     |
| Saving account                                                                                                                            | 6.1  | <u>18,451</u>    | <u>128,135</u>   |
|                                                                                                                                           |      | <u>27,547</u>    | <u>137,181</u>   |
|                                                                                                                                           |      | <u>32,975</u>    | <u>138,310</u>   |
| 6.1 The balance in saving accounts carry mark up at the rates from 10% to 11.01% per annum (2023 : 6.5% to 10% per annum)                 |      |                  |                  |
| <b>7 LOAN FROM DIRECTOR</b>                                                                                                               |      |                  |                  |
| Loan from director                                                                                                                        | 7.1  | <u>3,777,500</u> | <u>3,777,500</u> |
| 7.1 This represent unsecured and interest free loan from director of the Company, the loan is repayable at the discretion of the Company. |      |                  |                  |
| <b>8 TRADE AND OTHER PAYABLES</b>                                                                                                         |      |                  |                  |
| Audit fee payable                                                                                                                         |      | 108,000          | 108,000          |
| Other payables                                                                                                                            |      | <u>6,290</u>     | <u>6,290</u>     |
|                                                                                                                                           |      | <u>114,290</u>   | <u>114,290</u>   |
| <b>9 CONTINGENCIES AND COMMITMENTS</b>                                                                                                    |      |                  |                  |
| There were no contingencies and commitments to report at the year end (2023: Nil).                                                        |      |                  |                  |
| <b>10 REMUNERATION OF CHIEF EXECUTIVE, DIRECTORS AND EXECUTIVES</b>                                                                       |      |                  |                  |
| No remuneration were paid to the Chief Executive, any of the directors and executive of the Company.                                      |      |                  |                  |

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## 11 FINANCIAL INSTRUMENTS AND RISK MANAGEMENT

The Company finances its operations through equity, borrowing and management of working capital with a view to maintain an appropriate mix between various sources of finance to minimize risk.

Taken as a whole the Company's risk arising from financial instruments is limited as there is no significant exposure to price and cash flow risk in respect of such instruments. Financial instruments of the Company are as under:

|                                                | 2024<br>Rupees | 2023<br>Rupees |
|------------------------------------------------|----------------|----------------|
| <b>Financial Instruments by category</b>       |                |                |
| <b>Financial assets at amortised cost</b>      |                |                |
| Interest income receivable                     | 167            | 1,052          |
| Cash and bank balance                          | <u>32,975</u>  | <u>138,310</u> |
|                                                | <u>33,142</u>  | <u>139,362</u> |
| <b>Financial liabilities at amortised cost</b> |                |                |
| Trade and other payables                       | <u>114,290</u> | <u>114,290</u> |

### a) Financial risk management objectives

The Company has exposure to the following risks from financial instruments:

- Credit risk
- Liquidity risk
- Market risk

The Board of Directors of the Company has the overall responsibility for establishment and oversight of the Company's risk management framework. To assist the Board in discharging its oversight responsibility, the management has been made responsible for identifying, monitoring and managing the company's financial risk exposure. The Company's overall risk management program focuses on the under predictability of financial markets and seek to minimize potential adverse effects on the Company's financial performance.

### b) Credit risk

Credit risk is a risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss, without taking into account the fair value of any collateral. Concentration of credit risk arises when a number of financial instruments or contracts are entered into with same party, or when counter parties are engaged in similar business activities, or activities in the same geographical region, or have similar economic features that would cause their ability to meet contractual obligations to be similarly effected by change in economics, political or other conditions. Concentration of credit risk indicate the relative sensitivity of the Company's performance to developments affecting a particular industry.

At the reporting date, the Company's total credit risk was concentrated in the following industrial / economic sectors: 12

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Interest income receivable  
Bank balance

| 2024   |      |
|--------|------|
| Rupees | %    |
| 167    | 1%   |
| 27,547 | 99%  |
| 27,714 | 100% |

Interest income receivable  
Bank balance

| 2023    |      |
|---------|------|
| Rupees  | %    |
| 1,052   | 1%   |
| 137,181 | 99%  |
| 138,233 | 100% |

The maximum exposure to credit risk at the reporting date is:

Interest income receivable  
Bank balance

| 2024   | 2023    |
|--------|---------|
| Rupees | Rupees  |
| 167    | 1,052   |
| 27,547 | 137,181 |
| 27,714 | 138,233 |

The credit quality of assets that are neither past due nor impaired can be assessed by reference to historical information and external credit ratings or to historical counterparty default rates.

The credit risk on bank balances is limited because the counter parties are banks with reasonably high credit ratings.

The credit quality of bank balances are as follows:

|                            | Short term rating | Rating agency | 2024<br>Rupees | 2023<br>Rupees |
|----------------------------|-------------------|---------------|----------------|----------------|
| <b>Balances with banks</b> |                   |               |                |                |
| - Bank Al Habib Limited    | A1+               | PACRA         | 9,096          | 9,046          |
| - Meezan Bank Limited      | A1+               | JCR - VIS     | 18,451         | 128,135        |
|                            |                   |               | 27,547         | 137,181        |

Due to the Company's long standing business relationships with this counterparty and after giving due consideration to its strong financial standing, management does not expect non-performance by this counterparty on its obligations to the Company. Accordingly, the credit risk is minimal.

#### c) Liquidity risk management

Liquidity risk is the risk that the Company will encounter difficulty in meeting its financial obligations as they fall due. Liquidity risk arises because of the possibility that the Company could be required to pay its liabilities earlier than expected or may face difficulty in raising funds to meet commitments associated with financial liabilities as they fall due.

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The Company is exposed to liquidity risk in respect of trade and other payable.

The Company's approach to manage liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Company's reputation.

The table below analyses Company's financial liabilities into relevant maturity groupings based on the remaining period at the balance sheet date to maturity date and represents the undiscounted cash flows. The amounts in the table are the gross nominal undiscounted cash flows.

|                                               | 2024            |                        |                 |                   |
|-----------------------------------------------|-----------------|------------------------|-----------------|-------------------|
|                                               | Carrying amount | Contractual cash flows | Within one year | One to five years |
|                                               | Rupees          |                        |                 |                   |
| <b>Non - derivative financial liabilities</b> |                 |                        |                 |                   |
| Trade and other payables                      | 114,290         | 114,290                | 114,290         | -                 |
|                                               |                 |                        |                 |                   |
|                                               | 2023            |                        |                 |                   |
|                                               | Carrying amount | Contractual cash flows | Within one year | One to five years |
|                                               | Rupees          |                        |                 |                   |
| <b>Non - derivative financial liabilities</b> |                 |                        |                 |                   |
| Trade and other payables                      | 114,290         | 114,290                | 114,290         | -                 |

**d) Market risk**

Market risk is the risk that changes in market interest rates, equity prices, foreign exchange rates and credit spreads (not relating to changes in the obligor's / issuer's credit standing) will affect the Company's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return on risk.

**e) Interest rate risk management**

Interest / mark up rate risk management arises from the possibility of changes in interest / mark up rates which may affect the value of financial instruments. At the balance sheet date the Company is not exposed to any interest rate risk.

**f) Capital risk management**

The objective of the Company when managing capital is to safeguard its ability to continue as a going concern so that it can continue to provide returns for shareholders and to maintain a strong base to support the sustained development of its business.

The Company manages its capital structure by monitoring return on net assets and make adjustments to it in the light of changes in economic conditions.

The Company finances its expansion projects through equity, borrowings and management of its working capital with a view to maintain an appropriate mix between various sources of finance to minimize risk.

## 12 FAIR VALUES OF FINANCIAL INSTRUMENTS

Fair value is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The carrying values of financial assets and liabilities reflected in the financial statements approximate their fair values.

Financial assets which are tradable in an open market are revalued at the market prices prevailing on the balance sheet date. The estimated fair value of financial assets and liabilities considered not significantly different from their book value.

### Fair value hierarchy

The different level have been defined as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities (level 1);
- Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly (i.e as prices) or indirectly (i.e derivate from prices) Level 2 ; and
- Inputs for the asset or liability that are not based on observable market data (level 3).

There were no transfers amongst levels during the year.

## 13 RELATED PARTY TRANSACTIONS

Related parties comprise key management personnel. The related parties with whom the Company had entered into transactions or had arrangements / agreements in place during the year have been disclosed below along with their basis of relationship and percentage shareholding in the Company:

| Name of related party | Basis of relationship | %age of shareholding of the Company |
|-----------------------|-----------------------|-------------------------------------|
| Mr. Nadeem Malik      | Director              | 33.34%                              |
| Mr. Najeed Malik      | Director              | 33.33%                              |
| Mr. Shahzad Malik     | Director              | 33.33%                              |

## 14 NUMBER OF EMPLOYEES

Total number of employees as at the end of the year

\_\_\_\_\_

Average number of employees during the year

\_\_\_\_\_

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**15 GENERAL**

**15.1** Figures have been rounded off to the nearest Rupee.

**15.2** The comparative figures have been re-arranged or re-classified wherever necessary for the purpose of better presentation.

**16 AUTHORISATION**

These Financial statements were approved by the Board of Directors in their meeting held on

~~07 OCT 2024~~ *en*

*Sl/m-*  
\_\_\_\_\_  
Chief Executive

*HV WH*  
\_\_\_\_\_  
Director

RAD

# RAO & COMPANY

CHARTERED ACCOUNTANTS

TELEPHONES

32412778 & 32412779

FAX: 32419452

E-mail: [audtkhi@raococa.com](mailto:audtkhi@raococa.com)  
[raoandco\\_ca@yahoo.com](mailto:raoandco_ca@yahoo.com)

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Hasrat Mahani Road  
P.O. Box 5061  
Karachi-2  
PAKISTAN

## INDEPENDENT AUDITOR'S REPORT

To the members of Master Solar Energy Limited

Report on the Audit of the Financial Statements

### Opinion

We have audited the annexed financial statements of Master Solar Energy Limited (the Company), which comprise the statement of financial position as at June 30, 2023 and the statement of profit or loss and other comprehensive income, the statement of changes in equity, the statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.

In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes forming parts thereof conform with accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the Company's affairs as at June 30, 2023 and of the loss, other comprehensive income, the changes in equity and its cash flows for the year then ended.

### Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan (the Code) and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Information Other than the Financial Statements and Auditor's Report Thereon

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon. *er*

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# **RAO & COMPANY**

CHARTERED ACCOUNTANTS

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

## **Responsibilities of Management and Board of Directors for the Financial Statements**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017 (XIX of 2017) and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Board of Directors are responsible for overseeing the Company's financial reporting process.

## **Auditor's Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

## RAO & COMPANY

### CHARTERED ACCOUNTANTS

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

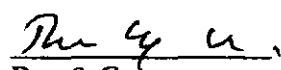
We communicate with the Board of Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

### Report on Other Legal and Regulatory Requirements

Based on our audit, we further report that in our opinion:

- a) proper books of account have been kept by the Company as required by the Companies Act, 2017 (XIX of 2017);
- b) the statement of financial position, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017), and are in agreement with the books of account and returns;
- c) investments made, expenditure incurred and guarantees extended during the year were for the purpose of the Company's business; and
- d) no Zakat was deductible at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

The engagement partner on the audit resulting in this independent auditor's report is Abdul Rafay.

  
**Rao & Company**  
Chartered Accountants  
Karachi

Date: 06 October 2023  
UDIN: AR202310267yb6tMCTOo



**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF FINANCIAL POSITION**  
**AS AT JUNE 30, 2023**

|                                                                     | Note | 2023<br>Rupees    | 2022<br>Rupees    |
|---------------------------------------------------------------------|------|-------------------|-------------------|
| <b>ASSETS</b>                                                       |      |                   |                   |
| <b>NON-CURRENT ASSETS</b>                                           |      |                   |                   |
| Property, plant and equipment                                       | 4    | 3,776,862         | 3,776,862         |
| <b>CURRENT ASSETS</b>                                               |      |                   |                   |
| Tax refunds due from government                                     | 5    | 9,612             | 7,774             |
| Interest income receivable                                          |      | 1,052             | 1,237             |
| Cash and bank balance                                               | 6    | 138,310           | 240,428           |
|                                                                     |      | 148,974           | 249,439           |
|                                                                     |      | <u>3,925,836</u>  | <u>4,026,301</u>  |
| <b>EQUITY AND LIABILITIES</b>                                       |      |                   |                   |
| <b>SHARE CAPITAL AND RESERVES</b>                                   |      |                   |                   |
| Authorised share capital                                            |      |                   |                   |
| 10,000 ordinary shares of Rs. 1,000 each (2022: 10,000)             |      | <u>10,000,000</u> | <u>10,000,000</u> |
| Issued, subscribed and paid up capital                              |      |                   |                   |
| 900 (2022: 900) Ordinary share of Rs. 1,000 each fully paid in cash |      | 900,000           | 900,000           |
| Loan from director                                                  | 7    | 3,777,500         | 3,777,500         |
| Accumulated loss                                                    |      | (865,954)         | (757,489)         |
|                                                                     |      | 3,811,546         | 3,920,011         |
| <b>CURRENT LIABILITIES</b>                                          |      |                   |                   |
| Trade and other payables                                            | 8    | 114,290           | 106,290           |
| <b>CONTINGENCIES AND COMMITMENTS</b>                                |      |                   |                   |
|                                                                     | 9    |                   |                   |
|                                                                     |      | <u>3,925,836</u>  | <u>4,026,301</u>  |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

  
**Chief Executive**

  
**Director**

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# MASTER SOLAR ENERGY LIMITED

## STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE YEAR ENDED JUNE 30, 2023

|                                            | Notes | 2023<br>Rupees          | 2022<br>Rupees         |
|--------------------------------------------|-------|-------------------------|------------------------|
| <b>Administrative expenses</b>             |       |                         |                        |
| Fees and subscription                      |       | (4,532)                 | (915)                  |
| Auditors' remuneration                     |       | (116,000)               | (100,000)              |
| <b>Operating loss</b>                      |       | <u>(120,532)</u>        | <u>(100,915)</u>       |
| Interest income on deposit account         |       | 12,067                  | 12,140                 |
| <b>Loss for the year</b>                   |       | <u>(108,465)</u>        | <u>(88,775)</u>        |
| <b>Other comprehensive income / (loss)</b> |       | -                       | -                      |
| <b>Total comprehensive loss</b>            |       | <u><u>(108,465)</u></u> | <u><u>(88,775)</u></u> |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

  
Chief Executive

  
Director

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**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF CASH FLOWS**  
**FOR THE YEAR ENDED JUNE 30, 2023**

|                                                         | Notes | 2023<br>Rupees        | 2022<br>Rupees        |
|---------------------------------------------------------|-------|-----------------------|-----------------------|
| <b>CASH FLOWS FROM OPERATING ACTIVITIES</b>             |       |                       |                       |
| Loss for the year                                       |       | (108,465)             | (88,775)              |
| <b>Operating loss before working capital changes</b>    |       | <u>(108,465)</u>      | <u>(88,775)</u>       |
| <b>Working Capital Changes</b>                          |       |                       |                       |
| <i>Decrease / (Increase) in current assets</i>          |       |                       |                       |
| Interest income receivable                              |       | 185                   | (485)                 |
| <i>Increase in current liabilities</i>                  |       |                       |                       |
| Trade and other payables                                |       | 8,000                 | 1,015                 |
| <b>Cash used in operations</b>                          |       | <u>(100,280)</u>      | <u>(88,245)</u>       |
| Income tax paid                                         |       | (1,838)               | (1,748)               |
| <b>Net cash outflow from operating activities</b>       |       | <u>(102,118)</u>      | <u>(89,993)</u>       |
| <b>CASH FLOWS FROM INVESTING ACTIVITIES</b>             |       | -                     | -                     |
| <b>CASH FLOWS FROM FINANCING ACTIVITIES</b>             |       | -                     | -                     |
| Net decrease in cash and cash equivalents               |       | <u>(102,118)</u>      | <u>(89,993)</u>       |
| Cash and cash equivalents at the beginning of the year  |       | 240,428               | 330,421               |
| <b>Cash and cash equivalents at the end of the year</b> |       | <u><u>138,310</u></u> | <u><u>240,428</u></u> |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

  
Chief Executive

  
Director

**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF CHANGES IN EQUITY**  
**FOR THE YEAR ENDED JUNE 30, 2023**

|                          | Issued,<br>subscribed and<br>paid-up capital | Loan from<br>directors | Accumulated<br>loss | Total     |
|--------------------------|----------------------------------------------|------------------------|---------------------|-----------|
|                          | <u>Rupees</u>                                |                        |                     |           |
| Balance at June 30, 2021 | 900,000                                      | 3,777,500              | (668,714)           | 4,008,786 |
| Loss for the year        | -                                            | -                      | (88,775)            | (88,775)  |
| Balance at June 30, 2022 | 900,000                                      | 3,777,500              | (757,489)           | 3,920,011 |
| Loss for the year        | -                                            | -                      | (108,465)           | (108,465) |
| Balance at June 30, 2023 | 900,000                                      | 3,777,500              | (865,954)           | 3,811,546 |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

Chief Executive

Director

# **MASTER SOLAR ENERGY LIMITED**

## **NOTES TO THE FINANCIAL STATEMENTS**

*FOR THE YEAR ENDED JUNE 30, 2023*

### **1 Corporate and general information**

#### **1.1 Legal status and operations**

Master Solar Energy Limited (the 'Company') was incorporated on May 28, 2015, as public limited company under the Companies Ordinance, 1984 (Repealed with enactment of the Companies Act, 2017).

The Company's principal objective is to carry on the business of supplying general electric power and to setup and operate solar power generation projects to generate, accumulate, distribute and supply electricity.

The geographical location and address of the company's business units, including plant is as under.

- The registered office of the Company is situated at Master House, 82 C - 1, Gulberg III, Lahore.

The Company is under consideration to develop solar powered plant.

### **2 BASIS OF PREPARATION**

#### **2.1 Statement of compliance**

These financial statements have been prepared in accordance with the accounting and reporting standards as applicable in Pakistan for financial reporting. The accounting and reporting standards as applicable in Pakistan comprise of such International Financial Reporting Standards (IFRS Standards), issued by International Accounting Standard Board (IASB) as notified under Companies Act, 2017 (the "Act"); and provisions of and directives issued under the Act. Where the provisions of and directives issued under the Companies Act, 2017 differ from the IFRS standards, the provisions of and directives issued under the Companies Act, 2017 have been followed.

#### **2.2 Basis of measurement**

These financial statements have been prepared under the historical cost convention as per accounting policies consistently applied during the period except as other wise stated in the respective policies and notes given hereunder.

#### **2.3 Functional and presentation currency**

These financial statements are presented in Pak Rupees, which is the functional and presentation currency of the Company. Amounts presented in the financial statements have been rounded off to the nearest of Rupee unless otherwise stated.

#### **2.4 Key judgements and estimates**

The preparation of financial statements in conformity with the accounting and reporting standards as applicable in Pakistan requires the use of certain critical accounting estimates.

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In addition, it requires management to exercise judgement in the process of applying the Company's accounting policies. The areas involving a high degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements, are documented in the following accounting policies and notes, and relate primarily to:

- Capital work in process – Note 3.1
- Estimation of provisions - Note 3.7
- Current income tax expense and provision for current tax - Note 3.8

The revisions to accounting estimates (if any) are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

## **2.5 Change in accounting standards, interpretations and amendments to published approved accounting standards**

- a) Standards, interpretations and amendments to published approved accounting standards that are effective.

There are certain amendments and interpretations to the accounting and reporting standards which are mandatory for the Company's annual accounting period which began on July 1, 2022. However, these do not have any significant impact on the Company's financial reporting.

- b) Standard and amendments to approved accounting standards that are not yet effective.

There are certain amendments and interpretations to the accounting and reporting standards that will be mandatory for the Company's annual accounting periods beginning on or after July 1, 2023. However, these will not have any impact on the Company's

## **3 SIGNIFICANT ACCOUNTING POLICIES**

The significant accounting policies consistently applied in the preparation of these financial statements are the same as those applied in earlier periods presented.

### **3.1 Capital work in progress**

Capital work-in-progress is stated at cost less any identified impairment loss. All expenditure connected with specific assets incurred during installation and construction period are carried under capital work-in-progress. These are transferred to operating fixed assets as and when these are available for use.

### **3.2 Trade debts, loans, advances, deposits and other receivables**

These are initially measured at the fair value of the consideration receivable. Subsequently these are valued at amortized cost. These assets are written off when there is no reasonable expectation of recovery. Credit loss is based on the expected credit loss.

### **3.3 Cash and cash equivalents**

Cash and cash equivalents are carried in the statement of financial position at cost. For the purpose of Cash Flow Statement, cash and cash equivalent comprise cash in hand and cash with banks. *ew*

### **3.4 Loan from directors**

Loan from director is accounted for by using Technical Release-32 "Accounting Directors' Loan" (TR 32) issued by the Institute of Chartered Accountants of Pakistan (ICAP) on 25 January 2016 which provided specific guidance on Director's loan that are interest free and repayable at the discretion of the entity. Loan from director is accounted for as per clause 3.3.1 of TR 32 which states that "A loan to an entity by the director which is agreed to be paid at the discretion of the entity does not pass the test of liability and is to be recorded as equity at face value. This is not subsequently remeasured.

### **3.5 Financial instruments**

#### **Financial assets**

##### **Initial measurement**

The Company classifies its financial assets in to following

- fair value through other comprehensive income (FVOCI);
- fair value through profit or loss (FVTPL); and
- measured at amortized cost.

A financial asset is initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition.

##### **Subsequent measurement**

##### **Debt investments at FVOCI**

These assets are subsequently measured at fair value. Interest / markup income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in the statement of profit or loss. Other net gains and losses are recognized in other comprehensive income. On de-recognition, gains and losses accumulated in other comprehensive income are reclassified to the statement of profit or loss.

##### **Equity investments at FVOCI**

These assets are subsequently measured at fair value. Dividends are recognized as income in the statement of profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income and are never reclassified to the statement of profit or loss.

##### **Financial assets at FVTPL**

These assets are subsequently measured at fair value. Net gains and losses, including any interest / markup or dividend income, are recognized in statement of profit or loss.

##### **Financial assets measured at amortized cost**

These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest / markup income, foreign exchange gains and losses and impairment are recognized in the statement of profit or loss. *ew*

## **Short term investments**

Investment in Term deposits is classified as amortized cost and are initially measured at fair value. Transaction costs directly attributable to the acquisition are included in the carrying amount. Subsequently these investments are measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest / markup income, losses and impairment are recognized in the statement of profit or loss.

## **Impairment of financial assets**

The Company recognizes loss allowances for ECLs in respect of financial assets measured at amortized cost and fair value through other comprehensive income.

The Company measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs:

- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balance for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowances for trade receivables are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Company's historical experience and informed credit assessment and including forward-looking information.

The Company assumes that the credit risk on a financial asset has increased significantly if it is more than past due for a reasonable period of time. Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument. 12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months). The maximum period considered when estimating ECLs is the maximum contractual period over which the Company is exposed to credit risk.

Loss allowances for financial assets measured at amortized cost are deducted from the Gross carrying amount of the assets.

The Gross carrying amount of a financial asset is written off when the Company has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof. The Company individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Company expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Company's procedures for recovery of amounts due.

## **De-recognition**

Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all risks and rewards of ownership. *ew*



## **Financial liabilities**

Financial liabilities are classified as measured at amortized cost or 'at fair value through profit or loss' (FVTPL). A financial liability is classified as at FVTPL if it is classified as held for trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in the statement of profit or loss.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in the statement of profit or loss. Any gain or loss on de-recognition is also recognized in the statement of profit or loss.

Financial liabilities are derecognized when the contractual obligations are discharged or cancelled or have expired or when the financial liability's cash flows have been substantially modified.

## **Offsetting of financial assets and financial liabilities**

Financial assets and financial liabilities are set off and only the net amount is reported in the statement of financial position when there is a legally enforceable right to set off the recognized amount and the Company intends to either settle on a net basis, or to realize the asset and settle the liability simultaneously.

### **3.6 Trade and other payables**

Liabilities for trade and other amounts payable are carried at cost which is the fair value of the consideration to be paid in the future for goods and services received, whether or not billed to the Company.

### **3.7 Provisions**

A provision is recognized in the statement of financial position when the Company has a present legal or constructive obligation as a result of past event and it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation of which reliable estimate can be made. The expense relating to provision is presented in statement of comprehensive income net of any reimbursements. Provisions are reviewed at each statement of financial position date and adjusted to reflect the current best estimate. The management expects that time value of money is not material and no discounting of provision is made by the Company.

### **3.8 Taxation**

#### **Current**

Provision for current tax is based on the taxable income for the year determined in accordance with the prevailing law for taxation of income. The charge for current tax is calculated using prevailing tax rates or tax rates expected to apply to the profit for the year if enacted after taking into account tax credits, rebates and exemptions, if any. The charge for current tax also includes adjustments, where considered necessary, to provision for tax made in previous years arising from assessments framed during the year for such years. *eu*

## Deferred

Deferred tax is accounted for using the statement of financial position liability method in respect of all temporary differences arising from differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of the taxable profit. However, the deferred tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of transaction neither affects accounting nor taxable profit or loss. Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which the deductible temporary differences, unused tax losses and tax credits can be utilised.

Deferred tax is calculated at the rates that are expected to apply to the period when the differences reverse based on tax rates that have been enacted or substantively enacted by the statement of financial position date. Deferred tax is charged or credited in the profit and loss account, except in the case of items credited or charged to equity in which case it is included in equity.

### Deferred tax asset not recognized

|                                 | 2023<br>Rupees | 2022<br>Rupees |
|---------------------------------|----------------|----------------|
| Deductible temporary difference |                |                |
| Carry forward tax losses        | <u>176,960</u> | <u>173,927</u> |

### 3.9 Mark-up bearing borrowings and borrowing cost

Mark-up bearing borrowings are recognized initially at fair value, less attributable transaction cost. Subsequent to initial recognition, mark up bearing borrowings are stated at amortized cost, while the difference between the cost (reduced for periodic payments) and redemption value is recognized in the statement of profit or loss account over the period of the borrowings using the effective interest method. Borrowing costs are recognised as an expense in the period in which these are incurred, except that those which are directly attributable to the acquisition, construction or production of a qualifying asset (i.e. an asset that necessarily takes a substantial period of time to get ready for its intended use or sale) are capitalized as part of the cost of that asset.

### 3.10 Foreign exchange

Foreign currency transactions are recorded at the exchange rate applicable at the transactions date. Monetary assets & liabilities are translated into Rupees using exchange rates applicable at the statement of financial position date. All gains and losses on settlement and transaction at year end are recognised in statement of profit

### 3.11 Impairment

The carrying amount of the Company's assets are reviewed at each statement of financial position date to determine whether there is any indication of impairment loss. If such evidence exists, the recoverable amount of assets is estimated in order to determine the extent of the impairment loss, if any. Impairment losses are recognized as expense in statement of profit and loss.

|                                                                                                                                           | Note | 2023<br>Rupees   | 2022<br>Rupees   |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|------------------|
| <b>4 PROPERTY, PLANT AND EQUIPMENT</b>                                                                                                    |      |                  |                  |
| Capital work in progress                                                                                                                  |      | <u>3,776,862</u> | <u>3,776,862</u> |
| <b>5 TAX REFUNDS DUE FROM GOVERNMENT</b>                                                                                                  |      |                  |                  |
| Advance income tax                                                                                                                        |      | 1,838            | 1,748            |
| Income tax refundable                                                                                                                     |      | <u>7,774</u>     | <u>6,026</u>     |
|                                                                                                                                           |      | <u>9,612</u>     | <u>7,774</u>     |
| <b>6 CASH AND BANK BALANCE</b>                                                                                                            |      |                  |                  |
| Cash in hand                                                                                                                              |      | 1,129            | 711              |
| Current account                                                                                                                           |      | <u>9,046</u>     | <u>14,046</u>    |
| Saving account                                                                                                                            | 6.1  | <u>128,135</u>   | <u>225,671</u>   |
|                                                                                                                                           |      | 137,181          | 239,717          |
|                                                                                                                                           |      | <u>138,310</u>   | <u>240,428</u>   |
| 6.1 The balance in saving accounts carry mark up at the rates from 6.5% to 10% per annum (2022 : 2.80% to 6.50% per annum)                |      |                  |                  |
| <b>7 LOAN FROM DIRECTOR</b>                                                                                                               |      |                  |                  |
| Loan from director                                                                                                                        | 7.1  | <u>3,777,500</u> | <u>3,777,500</u> |
| 7.1 This represent unsecured and interest free loan from director of the Company, the loan is repayable at the discretion of the Company. |      |                  |                  |
| <b>8 TRADE AND OTHER PAYABLES</b>                                                                                                         |      |                  |                  |
| Audit fee payable                                                                                                                         |      | 108,000          | 100,000          |
| Other payables                                                                                                                            |      | 6,290            | 6,290            |
|                                                                                                                                           |      | <u>114,290</u>   | <u>106,290</u>   |
| <b>9 CONTINGENCIES AND COMMITMENTS</b>                                                                                                    |      |                  |                  |
| There were no contingencies and commitments to report at the year end (2022: Nil).                                                        |      |                  |                  |
| <b>10 REMUNERATION OF CHIEF EXECUTIVE, DIRECTORS AND EXECUTIVES</b>                                                                       |      |                  |                  |
| No remuneration were paid to the Chief Executive, any of the directors and executive of the Company. <i>e</i>                             |      |                  |                  |

## 11 FINANCIAL INSTRUMENTS AND RISK MANAGEMENT

The Company finances its operations through equity, borrowing and management of working capital with a view to maintain an appropriate mix between various sources of finance to minimize risk.

Taken as a whole the Company's risk arising from financial instruments is limited as there is no significant exposure to price and cash flow risk in respect of such instruments. Financial instruments of the Company are as under:

|                                                | 2023<br>Rupees | 2022<br>Rupees |
|------------------------------------------------|----------------|----------------|
| <b>Financial Instruments by category</b>       |                |                |
| <b>Financial assets at amortised cost</b>      |                |                |
| Interest income receivable                     | 1,052          | 1,237          |
| Cash and bank balance                          | 138,310        | 240,428        |
|                                                | <u>139,362</u> | <u>241,665</u> |
| <b>Financial liabilities at amortised cost</b> |                |                |
| Trade and other payables                       | <u>114,290</u> | <u>106,290</u> |

### a) Financial risk management objectives

The Company has exposure to the following risks from financial instruments:

- Credit risk
- Liquidity risk
- Market risk

The Board of Directors of the Company has the overall responsibility for establishment and oversight of the Company's risk management framework. To assist the Board in discharging its oversight responsibility, the management has been made responsible for identifying, monitoring and managing the company's financial risk exposure. The Company's overall risk management program focuses on the under predictability of financial markets and seek to minimize potential adverse effects on the Company's financial performance.

### b) Credit risk

Credit risk is a risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss, without taking into account the fair value of any collateral. Concentration of credit risk arises when a number of financial instruments or contracts are entered into with same party, or when counter parties are engaged in similar business activities, or activities in the same geographical region, or have similar economic features that would cause their ability to meet contractual obligations to be similarly effected by change in economics, political or other conditions. Concentration of credit risk indicate the relative sensitivity of the Company's performance to developments affecting a particular industry. *u*

At the reporting date, the Company's total credit risk was concentrated in the following industrial / economic sectors:

|                            | 2023           |                |
|----------------------------|----------------|----------------|
|                            | Rupees         | %              |
| Interest income receivable | 1,052          | 1%             |
| Bank balance               | 137,181        | 99%            |
|                            | <u>138,233</u> | <u>100%</u>    |
|                            | 2022           |                |
|                            | Rupees         | %              |
| Interest income receivable | 1,237          | 1%             |
| Bank balance               | 239,717        | 99%            |
|                            | <u>240,954</u> | <u>100%</u>    |
|                            | 2023<br>Rupees | 2022<br>Rupees |

The maximum exposure to credit risk at the reporting date is:

|                            |                |                |
|----------------------------|----------------|----------------|
| Interest income receivable | 1,052          | 1,237          |
| Bank balance               | 137,181        | 239,717        |
|                            | <u>138,233</u> | <u>240,954</u> |

The credit quality of assets that are neither past due nor impaired can be assessed by reference to historical information and external credit ratings or to historical counterparty default rates.

The credit risk on bank balances is limited because the counter parties are banks with reasonably high credit ratings.

The credit quality of bank balances are as follows:

|                            | Short term<br>rating | Rating<br>agency | 2023<br>Rupees | 2022<br>Rupees |
|----------------------------|----------------------|------------------|----------------|----------------|
| <b>Balances with banks</b> |                      |                  |                |                |
| - Bank Al Habib Limited    | AI+                  | PACRA            | 9,046          | 14,046         |
| - Meezan Bank Limited      | AI+                  | JCR - VIS        | 128,135        | 225,671        |
|                            |                      |                  | <u>137,181</u> | <u>239,717</u> |

Due to the Company's long standing business relationships with this counterparty and after giving due consideration to its strong financial standing, management does not expect non-performance by this counter party on its obligations to the Company. Accordingly, the credit risk is minimal.

#### c) Liquidity risk management

Liquidity risk is the risk that the Company will encounter difficulty in meeting its financial obligations as they fall due. Liquidity risk arises because of the possibility that the Company could be required to pay its liabilities earlier than expected or may face difficulty in raising funds to meet commitments associated with financial liabilities as they fall due.

The Company is exposed to liquidity risk in respect of trade and other payable.

The Company's approach to manage liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Company's reputation.

The table below analyses Company's financial liabilities into relevant maturity groupings based on the remaining period at the balance sheet date to maturity date and represents the undiscounted cash flows. The amounts in the table are the gross nominal undiscounted cash flows.

|                                               | 2023            |                        |                 |                   |
|-----------------------------------------------|-----------------|------------------------|-----------------|-------------------|
|                                               | Carrying amount | Contractual cash flows | Within one year | One to five years |
|                                               | Rupees -        |                        |                 |                   |
| <b>Non - derivative financial liabilities</b> |                 |                        |                 |                   |
| Trade and other payables                      | 114,290         | 114,290                | 114,290         | -                 |
|                                               |                 |                        |                 |                   |
|                                               | 2022            |                        |                 |                   |
|                                               | Carrying amount | Contractual cash flows | Within one year | One to five years |
|                                               | Rupees -        |                        |                 |                   |
| <b>Non - derivative financial liabilities</b> |                 |                        |                 |                   |
| Trade and other payables                      | 106,290         | 106,290                | 106,290         | -                 |

**d) Market risk**

Market risk is the risk that changes in market interest rates, equity prices, foreign exchange rates and credit spreads (not relating to changes in the obligor's / issuer's credit standing) will affect the Company's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return on risk.

**e) Interest rate risk management**

Interest / mark up rate risk management arises from the possibility of changes in interest / mark up rates which may affect the value of financial instruments. At the balance sheet date the Company is not exposed to any interest rate risk.

**f) Capital risk management**

The objective of the Company when managing capital is to safeguard its ability to continue as a going concern so that it can continue to provide returns for shareholders and to maintain a strong base to support the sustained development of its business.

The Company manages its capital structure by monitoring return on net assets and make adjustments to it in the light of changes in economic conditions.

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The Company finances its expansion projects through equity, borrowings and management of its working capital with a view to maintain an appropriate mix between various sources of finance to minimize risk.

## 12 FAIR VALUES OF FINANCIAL INSTRUMENTS

Fair value is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The carrying values of financial assets and liabilities reflected in the financial statements approximate their fair values.

Financial assets which are tradable in an open market are revalued at the market prices prevailing on the balance sheet date. The estimated fair value of financial assets and liabilities considered not significantly different from their book value.

### Fair value hierarchy

The different level have been defined as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities (level 1);
- Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly (i.e as prices) or indirectly (i.e derivate from prices) Level 2 ; and
- Inputs for the asset or liability that are not based on observable market data (level 3).

There were no transfers amongst levels during the year.

## 13 RELATED PARTY TRANSACTIONS

Related parties comprise associated companies, companies where directors also hold directorship, retirement benefits fund and key management personnel. The related parties with whom the Company had entered into transactions or had arrangements / agreements in place during the year have been disclosed below along with their basis of relationship and percentage shareholding in the Company:

| Name of related party | Basis of relationship | %age of shareholding of the Company |
|-----------------------|-----------------------|-------------------------------------|
| Mr. Nadeem Malik      | Director              | 33.34%                              |
| Mr. Najeem Malik      | Director              | 33.33%                              |
| Mr. Shahzad Malik     | Director              | 33.33%                              |

## 14 NUMBER OF EMPLOYEES

Total number of employees as at the end of the year

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Average number of employees during the year

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**15 GENERAL**

**15.1** Figures have been rounded off to the nearest Rupee.

**15.2** The comparative figures have been re-arranged or re-classified wherever necessary for the purpose of better presentation.

**16 AUTHORISATION**

These Financial statements were approved by the Board of Directors in their meeting held on

~~06 OCT 2023~~ *u*

*[Signature]*  
Chief Executive

*[Signature]*  
Director

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**RAO & COMPANY**  
CHARTERED ACCOUNTANTS

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**INDEPENDENT AUDITOR'S REPORT**

**To the members of Master Solar Energy Limited**

**Report on the Audit of the Financial Statements**

**Opinion**

We have audited the annexed financial statements of Master Solar Energy Limited (the Company), which comprise the statement of financial position as at June 30, 2022 and the statement of profit or loss and other comprehensive income, the statement of changes in equity, the statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.

In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes forming parts thereof conform with accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the Company's affairs as at June 30, 2022 and of the loss, other comprehensive income, the changes in equity and its cash flows for the year then ended.

**Basis for Opinion**

We conducted our audit in accordance with International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan (the Code) and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

**Information Other than the Financial Statements and Auditor's Report Thereon**

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

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In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

#### **Responsibilities of Management and Board of Directors for the Financial Statements**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017 (XIX of 2017) and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Board of Directors are responsible for overseeing the Company's financial reporting process.

#### **Auditor's Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern.

**RAO & COMPANY**  
CHARTERED ACCOUNTANTS

concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.


We communicate with the Board of Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

**Report on Other Legal and Regulatory Requirements**

Based on our audit, we further report that in our opinion:

- a) proper books of account have been kept by the Company as required by the Companies Act, 2017 (XIX of 2017);
- b) the statement of financial position, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017), and are in agreement with the books of account and returns;
- c) investments made, expenditure incurred and guarantees extended during the year were for the purpose of the Company's business; and
- d) no Zakat was deductible at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

The engagement partner on the audit resulting in this independent auditor's report is Abdul Rafay.

  
**Rao & Company**  
Chartered Accountants  
Rahim Yar Khan

Date: 07 October 2022  
UDIN: AR2022102670oiz8ekC3

RAD

# MASTER SOLAR ENERGY LIMITED

## STATEMENT OF FINANCIAL POSITION

As at June 30, 2022

|                                                                     | Note | 2022<br>Rupees    | 2021<br>Rupees    |
|---------------------------------------------------------------------|------|-------------------|-------------------|
| <b>ASSETS</b>                                                       |      |                   |                   |
| <b>NON-CURRENT ASSETS</b>                                           |      |                   |                   |
| Property, plant and equipment                                       | 4    | 3,776,862         | 3,776,862         |
| <b>CURRENT ASSETS</b>                                               |      |                   |                   |
| Tax refunds due from government                                     | 5    | 7,774             | 6,026             |
| Interest income receivable                                          |      | 1,237             | 752               |
| Cash and bank balance                                               | 6    | 240,428           | 330,421           |
|                                                                     |      | 249,439           | 337,199           |
|                                                                     |      | <u>4,026,301</u>  | <u>4,114,061</u>  |
| <b>EQUITY AND LIABILITIES</b>                                       |      |                   |                   |
| <b>SHARE CAPITAL AND RESERVES</b>                                   |      |                   |                   |
| Authorised share capital                                            |      |                   |                   |
| 10,000 ordinary shares of Rs. 1,000 each (2021: 10,000)             |      | <u>10,000,000</u> | <u>10,000,000</u> |
| Issued, subscribed and paid up capital                              |      |                   |                   |
| 900 (2021: 900) Ordinary share of Rs. 1,000 each fully paid in cash |      | <u>900,000</u>    | <u>900,000</u>    |
| Loan from director                                                  | 7    | 3,777,500         | 3,777,500         |
| Accumulated loss                                                    |      | (757,489)         | (668,714)         |
|                                                                     |      | 3,920,011         | 4,008,786         |
| <b>CURRENT LIABILITIES</b>                                          |      |                   |                   |
| Trade and other payables                                            | 8    | 106,290           | 105,275           |
| <b>CONTINGENCIES AND COMMITMENTS</b>                                |      |                   |                   |
|                                                                     | 9    |                   |                   |
|                                                                     |      | <u>4,026,301</u>  | <u>4,114,061</u>  |

The annexed notes 1 to 16 form an integral part of these financial statements.

  
Chief Executive

  
Director

RAJ

# MASTER SOLAR ENERGY LIMITED


## STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

For the year ended June 30, 2022

|                                            | Notes | 2022<br>Rupees   | 2021<br>Rupees   |
|--------------------------------------------|-------|------------------|------------------|
| <b>Administrative expenses</b>             |       |                  |                  |
| Fees and subscription                      |       | (915)            | (5,175)          |
| Auditors' remuneration                     |       | (100,000)        | (100,000)        |
| <b>Operating loss</b>                      |       | <u>(100,915)</u> | <u>(105,175)</u> |
| Interest income on deposit account         |       | 12,140           | 9,832            |
| <b>Loss for the year</b>                   |       | <u>(88,775)</u>  | <u>(95,343)</u>  |
| <b>Other comprehensive income / (loss)</b> |       | -                | -                |
| <b>Total comprehensive loss</b>            |       | <u>(88,775)</u>  | <u>(95,343)</u>  |

The annexed notes 1 to 16 form an integral part of these financial statements.

  
Chief Executive

  
Director

RAD

**MASTER SOLAR ENERGY LIMITED****STATEMENT OF CASH FLOWS***For the year ended June 30, 2022*

|                                                         | Notes | 2022<br>Rupees  | 2021<br>Rupees  |
|---------------------------------------------------------|-------|-----------------|-----------------|
| <b>CASH FLOWS FROM OPERATING ACTIVITIES</b>             |       |                 |                 |
| Loss for the year                                       |       | (88,775)        | (95,343)        |
| <b>Operating loss before working capital changes</b>    |       | <u>(88,775)</u> | <u>(95,343)</u> |
| <b>Working Capital Changes</b>                          |       |                 |                 |
| <i>(Increase) / decrease in current assets</i>          |       |                 |                 |
| Interest income receivable                              |       | (485)           | 349             |
| <i>Increase in current liabilities</i>                  |       |                 |                 |
| Trade and other payables                                |       | 1,015           | 835             |
| <b>Cash used in operations</b>                          |       | <u>(88,245)</u> | <u>(94,159)</u> |
| Income tax paid                                         |       | (1,748)         | (1,527)         |
| <b>Net cash outflow from operating activities</b>       |       | <u>(89,993)</u> | <u>(95,686)</u> |
| <b>CASH FLOWS FROM INVESTING ACTIVITIES</b>             |       | -               | -               |
| <b>CASH FLOWS FROM FINANCING ACTIVITIES</b>             |       | -               | -               |
| <b>Net decrease in cash and cash equivalents</b>        |       | <u>(89,993)</u> | <u>(95,686)</u> |
| Cash and cash equivalents at the beginning of the year  |       | 330,421         | 426,107         |
| <b>Cash and cash equivalents at the end of the year</b> |       | <u>240,428</u>  | <u>330,421</u>  |

*The annexed notes 1 to 16 form an integral part of these financial statements.* *ew*

*S. J. M.*  
Chief Executive

*H. T. M.*

Director

RAD

**MASTER SOLAR ENERGY LIMITED**  
**STATEMENT OF CHANGES IN EQUITY**

*For the year ended June 30, 2022*

|                          | Issued,<br>subscribed and<br>paid-up capital | Loan from<br>directors | Accumulated<br>loss | Total     |
|--------------------------|----------------------------------------------|------------------------|---------------------|-----------|
|                          | <u>Rupees</u>                                |                        |                     |           |
| Balance at June 30, 2020 | 900,000                                      | 3,777,500              | (573,371)           | 4,104,129 |
| Loss for the year        | -                                            | -                      | (95,343)            | (95,343)  |
| Balance at June 30, 2021 | 900,000                                      | 3,777,500              | (668,714)           | 4,008,786 |
| Loss for the year        | -                                            | -                      | (88,775)            | (88,775)  |
| Balance at June 30, 2022 | 900,000                                      | 3,777,500              | (757,489)           | 3,920,011 |

*The annexed notes 1 to 16 form an integral part of these financial statements.*

  
**Chief Executive**



**Director**

RAD

# **MASTER SOLAR ENERGY LIMITED**

## **NOTES TO THE FINANCIAL STATEMENTS**

*For the year ended June 30, 2022*

### **1 Corporate and general information**

#### **1.1 Legal status and operations**

Master Solar Energy Limited (the 'Company') was incorporated on May 28, 2015, as public limited company under the Companies Ordinance, 1984 (Repealed with enactment of the Companies Act, 2017).

The Company's principal objective is to carry on the business of supplying general electric power and to setup and operate solar power generation projects to generate, accumulate, distribute and supply electricity.

The geographical location and address of the company's business units, including plant is as under.

- The registered office of the Company is situated at Master House, 82 C - 1, Gulberg III, Lahore.

The Company is under consideration to develop solar powered plant.

### **2 BASIS OF PREPARATION**

#### **2.1 Statement of compliance**

These financial statements have been prepared in accordance with the accounting and reporting standards as applicable in Pakistan for financial reporting. The accounting and reporting standards as applicable in Pakistan comprise of such International Financial Reporting Standards (IFRS Standards), issued by International Accounting Standard Board (IASB) as notified under Companies Act, 2017 (the "Act"); and provisions of and directives issued under the Act. Where the provisions of and directives issued under the Companies Act, 2017 differ from the IFRS standards, the provisions of and directives issued under the Companies Act, 2017 have been followed.

#### **2.2 Basis of measurement**

These financial statements have been prepared under the historical cost convention as per accounting policies consistently applied during the period except as other wise stated in the respective policies and notes given hereunder.

#### **2.3 Functional and presentation currency**

These financial statements are presented in Pak Rupees, which is the functional and presentation currency of the Company. Amounts presented in the financial statements have been rounded off to the nearest of Rupee unless otherwise stated.

#### **2.4 Key judgements and estimates**

The preparation of financial statements in conformity with the accounting and reporting standards as applicable in Pakistan requires the use of certain critical accounting estimates. *er*



In addition, it requires management to exercise judgement in the process of applying the Company's accounting policies. The areas involving a high degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements, are documented in the following accounting policies and notes, and relate primarily to:

- Capital work in process – Note 3.1
- Trade debts – Note 3.2
- Estimation of provisions - Note 3.7
- Current income tax expense and provision for current tax - Note 3.8

The revisions to accounting estimates (if any) are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

## **2.5 Change in accounting standards, interpretations and amendments to published approved accounting standards**

- a) Standards, interpretations and amendments to published approved accounting standards that are effective.

Interest Rate Benchmark Reform – Phase 2 which amended IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16 is applicable for annual financial periods beginning on or after 1 January 2021, with earlier application permitted. The amendments introduce a practical expedient to account for modifications of financial assets or financial liabilities if a change results directly from IBOR reform and occurs on an 'economically equivalent' basis. In these cases, changes will be accounted for by updating the effective interest rate. A similar practical expedient will apply under IFRS 16 for lessees when accounting for lease modifications required by IBOR reform. The amendments also allow a series of exemptions from the regular, strict rules around hedge accounting for hedging relationships directly affected by the interest rate benchmark reforms. The amendments apply retrospectively with earlier application permitted. Hedging relationships previously discontinued solely because of changes resulting from the reform will be reinstated if certain conditions are met.

- b) The following International Financial Reporting Standards (IFRS Standards) as notified under the Companies Act, 2017 and the amendments and interpretations thereto will be effective for accounting periods beginning on or after 1 July 2022:

- Onerous Contracts – Cost of Fulfilling a Contract (Amendments to IAS 37) effective for the annual periods beginning on or after 1 January 2022 clarifies that the 'cost of fulfilling a contract' for the purposes of the onerous contract assessment comprises the costs that relate directly to the contract, including both the incremental costs and an allocation of other direct costs to fulfil the contract. An entity is required to apply the amendments to contracts for which it has not yet fulfilled all its obligations at the beginning of the annual reporting period in which it first applies the amendments (the date of initial application). Restatement of comparative information is not required, instead the amendments require an entity to recognize the cumulative effect of initially applying the amendments as an adjustment to the opening balance of retained earnings or other component of equity, as appropriate, at the date of initial application.

The following annual improvements to IFRS Standards 2018-2020 are effective for annual reporting periods beginning on or after 1 January 2022.

- IFRS 9 – The amendment clarifies that an entity includes only fees paid or received between the entity (the borrower) and the lender, including fees paid or received by either the entity or the lender on the other's behalf, when it applies the '10 per cent' test in paragraph B3.3.6 of IFRS 9 in assessing whether to derecognize a financial liability.

- IFRS 16 – The amendment partially amends Illustrative Example 13 accompanying IFRS 16 by excluding the illustration of reimbursement of leasehold improvements by the lessor. The objective of the amendment is to resolve any potential confusion that might arise in lease incentives.
- Property, Plant and Equipment: Proceeds before Intended Use (Amendments to IAS 16) effective for annual periods beginning on or after 1 January 2022 clarifies that sales proceeds and costs of items produced while bringing an item of property, plant and equipment to the location and condition necessary for it to be capable of operating in the manner intended by management e.g. when testing etc., are recognized in profit or loss in accordance with applicable Standards. The entity measures the cost of those items applying the measurement requirements of IAS 2. The standard also removes the requirement of deducting the net sales proceeds from cost of testing. An entity shall apply those amendments retrospectively, but only to items of property, plant and equipment that are brought to the location and condition necessary for them to be capable of operating in the manner intended by management on or after the beginning of the earliest period presented in the financial statements in which the entity first applies the amendments. The entity shall recognize the cumulative effect of initially applying the amendments as an adjustment to the opening balance of retained earnings (or other components of equity, as appropriate) at the beginning of that earliest period presented.
- Reference to the Conceptual Framework (Amendments to IFRS 3) - Reference to the Conceptual Framework, issued in May 2020, amended paragraphs 11, 14, 21, 22 and 23 of and added paragraphs 21A, 21B, 21C and 23A to IFRS 3. An entity shall apply those amendments to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after 1 January 2022.
- Classification of liabilities as current or non-current (Amendments to IAS 1) amendments apply retrospectively for the annual periods beginning on or after 1 January 2023. These amendments in the standards have been added to further clarify when a liability is classified as current. The standard also amends the aspect of classification of liability as non-current by requiring the assessment of the entity's right at the end of the reporting period to defer the settlement of liability for at least twelve months after the reporting period. An entity shall apply those amendments retrospectively in accordance with IAS 8.
- Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2) – the IASB has issued amendments on the application of materiality to disclosure of accounting policies and to help companies provide useful accounting policy disclosures. The key amendments to IAS 1 include:
  - requiring companies to disclose their material accounting policies rather than their significant accounting policies;
  - clarifying that accounting policies related to immaterial transactions, other events or conditions are themselves immaterial and as such need not be disclosed; and
  - clarifying that not all accounting policies that relate to material transactions, other events or conditions are themselves material to a company's financial statements.

The Board also amended IFRS Practice Statement 2 to include guidance and two additional examples on the application of materiality to accounting policy disclosures. The amendments are effective for annual reporting periods beginning on or after 1 January 2023 with earlier application permitted.

Definition of Accounting Estimates (Amendments to IAS 8) introduce a new definition for accounting estimates clarifying that they are monetary amounts in the financial statements that are subject to measurement uncertainty. The amendments also clarify the relationship between accounting policies and accounting estimates by specifying that an entity develops an accounting estimate to achieve the objective set out by an accounting policy. The amendments are effective for periods beginning on or after 1 January 2023, with earlier application permitted, and will apply prospectively to changes in accounting estimates and changes in accounting policies occurring on or after the beginning of the first annual reporting period in which the company applies the amendments.

Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to IAS 12) narrow the scope of the initial recognition exemption (IRE) so that it does not apply to transactions that give rise to equal and offsetting temporary differences. As a result, companies will need to recognize a deferred tax asset and a deferred tax liability for temporary differences arising on initial recognition of a lease and a decommissioning provision. For leases and decommissioning liabilities, the associated deferred tax asset and liabilities will need to be recognized from the beginning of the earliest comparative period presented, with any cumulative effect recognized as an adjustment to retained earnings or other components of equity at that date. The amendments are effective for annual reporting periods beginning on or after 1 January 2023 with earlier application permitted.

Sale or Contribution of Assets between an Investor and its Associate or Joint Venture (Amendments to IFRS 10 and IAS 28) - The amendment amends accounting treatment on loss of control of business or assets. The amendments also introduce new accounting for less frequent transaction that involves neither cost nor full step-up of certain retained interests in assets that are not businesses. The effective date for these changes has been deferred indefinitely until the completion of a broader review.

The Company is in the process of assessing the impact of the above amendments and improvements.

### **3 SIGNIFICANT ACCOUNTING POLICIES**

The significant accounting policies consistently applied in the preparation of these financial statements are the same as those applied in earlier periods presented.

#### **3.1 Capital work in progress**

Capital work-in-progress is stated at cost less any identified impairment loss. All expenditure connected with specific assets incurred during installation and construction period are carried under capital work-in-progress. These are transferred to operating fixed assets as and when these are available for use.

#### **3.2 Trade debts, loans, advances, deposits and other receivables**

These are initially measured at the fair value of the consideration receivable. Subsequently these are valued at amortized cost. These assets are written off when there is no reasonable expectation of recovery. Credit loss is based on the expected credit loss.

#### **3.3 Cash and cash equivalents**

Cash and cash equivalents are carried in the statement of financial position at cost. For the purpose of Cash Flow Statement, cash and cash equivalent comprise cash in hand and cash with banks.

### **3.4 Loan from directors**

Loan from director is accounted for by using Technical Release-32 "Accounting Directors' Loan" (TR 32) issued by the Institute of Chartered Accountants of Pakistan (ICAP) on 25 January 2016 which provided specific guidance on Director's loan that are interest free and repayable at the discretion of the entity. Loan from director is accounted for as per clause 3.3.1 of TR 32 which states that "A loan to an entity by the director which is agreed to be paid at the discretion of the entity does not pass the test of liability and is to be recorded as equity at face value. This is not subsequently remeasured.

### **3.5 Financial instruments**

#### **Financial assets**

##### **Initial measurement**

The Company classifies its financial assets in to following

- fair value through other comprehensive income (FVOCI);
- fair value through profit or loss (FVTPL); and
- measured at amortized cost.

A financial asset is initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition.

##### **Subsequent measurement**

##### **Debt investments at FVOCI**

These assets are subsequently measured at fair value. Interest / markup income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in the statement of profit or loss. Other net gains and losses are recognized in other comprehensive income. On de-recognition, gains and losses accumulated in other comprehensive income are reclassified to the statement of profit or loss.

##### **Equity investments at FVOCI**

These assets are subsequently measured at fair value. Dividends are recognized as income in the statement of profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income and are never reclassified to the statement of profit or loss.

##### **Financial assets at FVTPL**

These assets are subsequently measured at fair value. Net gains and losses, including any interest / markup or dividend income, are recognized in statement of profit or loss.

##### **Financial assets measured at amortized cost**

These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest / markup income, foreign exchange gains and losses and impairment are recognized in the statement of profit or loss. *Rad*

*RAD*

### **Short term investments**

Investment in Term deposits is classified as amortized cost and are initially measured at fair value. Transaction costs directly attributable to the acquisition are included in the carrying amount. Subsequently these investments are measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest / markup income, losses and impairment are recognized in the statement of profit or loss.

### **Impairment of financial assets**

The Company recognizes loss allowances for ECLs in respect of financial assets measured at amortized cost.

The Company measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs:

- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balance for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowances for trade receivables are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Company's historical experience and informed credit assessment and including forward-looking information.

The Company assumes that the credit risk on a financial asset has increased significantly if it is more than past due for a reasonable period of time. Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument. 12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months). The maximum period considered when estimating ECLs is the maximum contractual period over which the Company is exposed to credit risk.

Loss allowances for financial assets measured at amortized cost are deducted from the Gross carrying amount of the assets.

The Gross carrying amount of a financial asset is written off when the Company has no reasonable expectations of recovering of a financial asset in its entirety or a portion thereof. The Company individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Company expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Company's procedures for recovery of amounts due.

### **De-recognition**

Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all risks and rewards of ownership.

### **Financial liabilities**

Financial liabilities are classified as measured at amortized cost or 'at fair value through profit or loss' (FVTPL). A financial liability is classified as at FVTPL if it is classified as held for trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in the statement of profit or loss.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in the statement of profit or loss. Any gain or loss on de-recognition is also recognized in the statement of profit or loss.

Financial liabilities are derecognized when the contractual obligations are discharged or cancelled or have expired or when the financial liability's cash flows have been substantially modified.

### **Offsetting of financial assets and financial liabilities**

Financial assets and financial liabilities are set off and only the net amount is reported in the statement of financial position when there is a legally enforceable right to set off the recognized amount and the Company intends to either settle on a net basis, or to realize the asset and settle the liability simultaneously.

### **3.6 Trade and other payables**

Liabilities for trade and other amounts payable are carried at cost which is the fair value of the consideration to be paid in the future for goods and services received, whether or not billed to the Company.

### **3.7 Provisions**

A provision is recognized in the statement of financial position when the Company has a present legal or constructive obligation as a result of past event and it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation of which reliable estimate can be made. The expense relating to provision is presented in statement of comprehensive income net of any reimbursements. The management expects that time value of money is not material and no discounting of provision is made by the Company.

### **3.8 Taxation**

#### **Current**

The profits and gains of the company derived from electric power generation are exempt from tax in terms of Clause (132) of Part I of the Second Schedule to the Income Tax Ordinance, 2001, subject to the conditions and limitations provided therein.

Under clause (11A) of Part IV of the Second Schedule to the Income Tax Ordinance, 2001, the company is also exempt from levy of minimum tax on 'turnover' under section 113 of the Income Tax Ordinance, 2001. However, full provision is made in the profit and loss account on income from sources not covered under the above clauses at current rates of taxation after taking into account tax credits and rebates available, if any. *e*

## **Deferred**

Deferred tax is accounted for using the statement of financial position liability method in respect of all temporary differences arising from differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of the taxable profit. However, the deferred tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of transaction neither affects accounting nor taxable profit or loss. Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which the deductible temporary differences, unused tax losses and tax credits can be utilised.

Deferred tax is calculated at the rates that are expected to apply to the period when the differences reverse based on tax rates that have been enacted or substantively enacted by the statement of financial position date. Deferred tax is charged or credited in the profit and loss account, except in the case of items credited or charged to equity in which case it is included in equity.

Deferred tax has not been provided in these financial statements as the company's management believes that the temporary differences will not reverse in the foreseeable future due to the fact that the profits and gains of the company derived from electric power generation are exempt from tax subject to the conditions and limitations provided for in terms of clause (132) of Part I of the Second Schedule to the Income Tax Ordinance, 2001.

### **3.9 Mark-up bearing borrowings and borrowing cost**

Mark-up bearing borrowings are recognized initially at fair value, less attributable transaction cost. Subsequent to initial recognition, mark up bearing borrowings are stated at amortized cost, while the difference between the cost (reduced for periodic payments) and redemption value is recognized in the statement of profit or loss account over the period of the borrowings using the effective interest method. Borrowing costs are recognised as an expense in the period in which these are incurred, except that those which are directly attributable to the acquisition, construction or production of a qualifying asset (i.e. an asset that necessarily takes a substantial period of time to get ready for its intended use or sale) are capitalized as part of the cost of that asset.

### **3.10 Foreign exchange**

Foreign currency transactions are recorded at the exchange rate applicable at the transactions date. Monetary assets & liabilities are translated into Rupees using exchange rates applicable at the statement of financial position date. All gains and losses on settlement and transaction at year end are recognised in profit and loss account.

### **3.11 Impairment**

The carrying amount of the Company's assets are reviewed at each statement of financial position date to determine whether there is any indication of impairment loss. If such evidence exists, the recoverable amount of assets is estimated in order to determine the extent of the impairment loss, if any. Impairment losses are recognized as expense in profit and loss account.

|                                                                                                                                           | Note | 2022<br>Rupees   | 2021<br>Rupees   |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|------------------|
| <b>4 PROPERTY, PLANT AND EQUIPMENT</b>                                                                                                    |      |                  |                  |
| Capital work in progress                                                                                                                  |      | <u>3,776,862</u> | <u>3,776,862</u> |
| <b>5 TAX REFUNDS DUE FROM GOVERNMENT</b>                                                                                                  |      |                  |                  |
| Advance income tax                                                                                                                        |      | 1,748            | 1,527            |
| Income tax refundable                                                                                                                     |      | 6,026            | 4,499            |
|                                                                                                                                           |      | <u>7,774</u>     | <u>6,026</u>     |
| <b>6 CASH AND BANK BALANCE</b>                                                                                                            |      |                  |                  |
| Cash in hand                                                                                                                              |      | 711              | 660              |
| Current account                                                                                                                           |      | <u>14,046</u>    | <u>14,096</u>    |
| Saving account                                                                                                                            |      | <u>225,671</u>   | <u>315,665</u>   |
|                                                                                                                                           |      | <u>239,717</u>   | <u>329,761</u>   |
|                                                                                                                                           |      | <u>240,428</u>   | <u>330,421</u>   |
| 6.1 The balance in saving accounts carry mark up at the rates from 2.80 % to 6.50% per annum (2021 : 2.75% to 2.90% per annum)            |      |                  |                  |
| <b>7 LOAN FROM DIRECTOR</b>                                                                                                               |      |                  |                  |
| <i>Loan from director</i>                                                                                                                 |      |                  |                  |
| Mr. Nadeem Malik                                                                                                                          | 7.1  | 1,070,000        | 1,070,000        |
| Mr. Najeeb Malik                                                                                                                          | 7.1  | 1,070,000        | 1,070,000        |
| Mr. Shahzad Malik                                                                                                                         | 7.1  | 1,637,500        | 1,637,500        |
|                                                                                                                                           |      | <u>3,777,500</u> | <u>3,777,500</u> |
| 7.1 This represent unsecured and interest free loan from director of the Company, the loan is repayable at the discretion of the Company. |      |                  |                  |
| <b>8 TRADE AND OTHER PAYABLES</b>                                                                                                         |      |                  |                  |
| Audit fee payable                                                                                                                         |      | 100,000          | 100,000          |
| Other payables                                                                                                                            |      | 6,290            | 5,275            |
|                                                                                                                                           |      | <u>106,290</u>   | <u>105,275</u>   |
| <b>9 CONTINGENCIES AND COMMITMENTS</b>                                                                                                    |      |                  |                  |

There were no contingencies and commitments to report at the year end (2021: Nil). *ew*



## 10 REMUNERATION OF CHIEF EXECUTIVE, DIRECTORS AND EXECUTIVES

No remuneration were paid to the Executive, Chief Executive or any of the directors of the Company.

## 11 FINANCIAL INSTRUMENTS AND RISK MANAGEMENT

The Company finances its operations through equity, borrowing and management of working capital with a view to maintain an appropriate mix between various sources of finance to minimize risk.

Taken as a whole the Company's risk arising from financial instruments is limited as there is no significant exposure to price and cash flow risk in respect of such instruments. Financial instruments of the Company are as under:

|                                                | 2022<br>Rupees | 2021<br>Rupees |
|------------------------------------------------|----------------|----------------|
| <b>Financial Instruments by category</b>       |                |                |
| <b>Financial assets at amortised cost</b>      |                |                |
| Interest income receivable                     | 1,237          | 752            |
| Cash and bank balance                          | 240,428        | 330,421        |
|                                                | <u>241,665</u> | <u>331,173</u> |
| <b>Financial liabilities at amortised cost</b> |                |                |
| Trade and other payables                       | <u>106,290</u> | <u>105,275</u> |

### a) Financial risk management objectives

The Company has exposure to the following risks from financial instruments:

- Credit risk
- Liquidity risk
- Market risk

The Board of Directors of the Company has the overall responsibility for establishment and oversight of the Company's risk management framework. To assist the Board in discharging its oversight responsibility, the management has been made responsible for identifying, monitoring and managing the company's financial risk exposure. The Company's overall risk management program focuses on the under predictability of financial markets and seek to minimize potential adverse effects on the Company's financial performance.

### b) Credit risk

Credit risk is a risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss, without taking into account the fair value of any collateral. Concentration of credit risk arises when a number of financial instruments or contracts are entered into with same party, or when counter parties are engaged in similar business activities, or activities in the same geographical region, or have similar economic features that would cause their ability to meet contractual obligations to be similarly effected by change in economics, political or other conditions. Concentration of credit risk indicate the relative sensitivity of the Company's performance to developments affecting a particular industry.

At the reporting date, the Company's total credit risk was concentrated in the following industrial / economic sectors: *see*

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|                            | 2022           |             |
|----------------------------|----------------|-------------|
|                            | Rupees         | %           |
| Interest income receivable | 1,237          | 1%          |
| Bank balance               | 239,717        | 99%         |
|                            | <u>240,954</u> | <u>100%</u> |

|                            | 2021           |             |
|----------------------------|----------------|-------------|
|                            | Rupees         | %           |
| Interest income receivable | 752            | 0%          |
| Bank balance               | 329,761        | 100%        |
|                            | <u>330,513</u> | <u>100%</u> |

|                                                               | 2022<br>Rupees | 2021<br>Rupees |
|---------------------------------------------------------------|----------------|----------------|
| The maximum exposure to credit risk at the reporting date is: |                |                |
| Interest income receivable                                    | 1,237          | 752            |
| Cash and bank balance                                         | 240,428        | 330,421        |
|                                                               | <u>241,665</u> | <u>331,173</u> |

The credit quality of assets that are neither past due nor impaired can be assessed by reference to historical information and external credit ratings or to historical counterparty default rates.

The credit risk on bank balances is limited because the counter parties are banks with reasonably high credit ratings.

The credit quality of bank balances are as follows:

|                            | Short term<br>rating | Rating<br>agency | 2022<br>Rupees | 2021<br>Rupees |
|----------------------------|----------------------|------------------|----------------|----------------|
| <b>Balances with banks</b> |                      |                  |                |                |
| - Bank Al Habib Limited    | AA+                  | PACRA            | 14,046         | 14,096         |
| - Meezan Bank Limited      | AA+                  | JCR - VIS        | 225,671        | 315,665        |
|                            |                      |                  | <u>239,717</u> | <u>329,761</u> |

Due to the Company's long standing business relationships with this counterparty and after giving due consideration to its strong financial standing, management does not expect non-performance by this counter party on its obligations to the Company. Accordingly, the credit risk is minimal. *ew*

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**c) Liquidity risk management**

Liquidity risk is the risk that the Company will encounter difficulty in meeting its financial obligations as they fall due. Liquidity risk arises because of the possibility that the Company could be required to pay its liabilities earlier than expected or may face difficulty in raising funds to meet commitments associated with financial liabilities as they fall due.

The Company is exposed to liquidity risk in respect of non-current interest bearing liabilities, short term borrowings, trade and other payable and accrued mark up.

The Company's approach to manage liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Company's reputation.

The table below analyses Company's financial liabilities into relevant maturity groupings based on the remaining period at the balance sheet date to maturity date and represents the undiscounted cash flows. The amounts in the table are the gross nominal undiscounted cash flows.

| 2022                                   |                        |                 |                   |
|----------------------------------------|------------------------|-----------------|-------------------|
| Carrying amount                        | Contractual cash flows | Within one year | One to five years |
| ----- Rupees -----                     |                        |                 |                   |
| Non - derivative financial liabilities |                        |                 |                   |
| Trade and other payables               | 106,290                | 106,290         | 106,290 -         |
| 2021                                   |                        |                 |                   |
| Carrying amount                        | Contractual cash flows | Within one year | One to five years |
| ----- Rupees -----                     |                        |                 |                   |
| Non - derivative financial liabilities |                        |                 |                   |
| Trade and other payables               | 105,275                | 105,275         | 105,275 -         |

**d) Market risk**

Market risk is the risk that changes in market interest rates, equity prices, foreign exchange rates and credit spreads (not relating to changes in the obligor's / issuer's credit standing) will affect the Company's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return on risk.

**e) Interest rate risk management**

Interest / mark up rate risk management arises from the possibility of changes in interest / mark up rates which may affect the value of financial instruments. The Company has long term finance and short term borrowing at variable rates. At the balance sheet date the Company is not exposed to any interest rate risk. *ew*

**f) Capital risk management**

The objective of the Company when managing capital is to safeguard its ability to continue as a going concern so that it can continue to provide returns for shareholders and to maintain a strong base to support the sustained development of its business.

The Company manages its capital structure by monitoring return on net assets and make adjustments to it in the light of changes in economic conditions. In order to maintain or adjust the capital structure, the Company may adjust the amount of dividend payable to the shareholders or issue new shares.

The Company finances its expansion projects through equity, borrowings and management of its working capital with a view to maintain an appropriate mix between various sources of finance to minimize risk.

**12 FAIR VALUES OF FINANCIAL INSTRUMENTS**

Fair value is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The carrying values of financial assets and liabilities reflected in the financial statements approximate their fair values.

Financial assets which are tradable in an open market are revalued at the market prices prevailing on the balance sheet date. The estimated fair value of financial assets and liabilities considered not significantly different from their book value.

**Fair value hierarchy**

The different level have been defined as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities (level 1);
- Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly (i.e as prices) or indirectly (i.e derivate from prices) Level 2 ; and
- Inputs for the asset or liability that are not based on observable market data (level 3).

There were no transfers amongst levels during the year.

**13 RELATED PARTY TRANSACTIONS**

Related parties comprise associated companies, companies where directors also hold directorship, retirement benefits fund and key management personnel. The related parties with whom the Company had entered into transactions or had arrangements / agreements in place during the year have been disclosed below along with their basis of relationship and percentage shareholding in the Company:

| Name of related party | Basis of relationship | %age of shareholding of the Company |
|-----------------------|-----------------------|-------------------------------------|
| Mr. Nadeem Malik      | Director              | 33.34%                              |
| Mr. Najeeb Malik      | Director              | 33.33%                              |
| Mr. Shahzad Malik     | Director              | 33.33% <i>RM</i>                    |

**14 NUMBER OF EMPLOYEES**

Total number of employees as at the end of the year

\_\_\_\_\_

Average number of employees during the year

\_\_\_\_\_

**15 GENERAL**

**15.1** Figures have been rounded off to the nearest Rupee.

**15.2** The comparative figures have been re-arranged or re-classified wherever necessary for the purpose of better presentation.

**16 AUTHORISATION**

These Financial statements were approved by the Board of Directors in their meeting held on

~~07 OCT 2022~~

*[Signature]*

Chief Executive

*[Signature]*

Director

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**ANNEXURE – E**  
**FORM A**

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RAD



THE COMPANIES ACT, 2017  
THE COMPANIES REGULATIONS, 2024

[Section 130(1),130(2),424(5) read with Regulations 62 & 30]

**ANNUAL RETURN OF A COMPANY**

**PART I**

**(To be filled by All Companies)**

1.1. CUIIN (Registration Number)

0 0 9 3 6 5 3

1.2. Name of the Company

MASTER SOLAR ENERGY LIMITED

1.3 Fee Payment Details

1.3.1 Challan No

24181138

1.3.2 Amount (Rs.)

2200

| 1.4 Particulars of--- |                                                        | Please tick the relevant box        |
|-----------------------|--------------------------------------------------------|-------------------------------------|
| Part-II               | Annual Return of a company other than inactive company | <input checked="" type="checkbox"/> |
| Part-III              | Annual Return of Inactive Company                      | <input type="checkbox"/>            |

**PART II**

**(To be filled by an Active Company)**

2.1. Annual General Meeting held on

Day

Month

year

2 8 1 0 2 0 2 4

2.2. Form-A made up to (applicable in case no AGM was held/concluded during the year)

Day

Month

year

2.3. Registered office address

MASTER HOUSE, 54-DARUL AMAN,  
COOPERATIVE HOUSING SOCIETY,  
SHAHRAH-E-FAISAL, KARACHI, Jamshed  
Town, Karachi East, Sindh, Pakistan

2.4. Email Address

acct.off@master.com.pk

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2.5. Office Tel No

+923008433159

2.6. Mobile No. (Preferable WhatsApp enabled number) of authorized officer (Chief Executive/Director/Company Secretary/Chief Financial Officer)

+92 3420821153

2.7. **Authorized Share Capital (If applicable)**

| Classes and kinds of Shares | No of Shares | Amount     | Face Value |
|-----------------------------|--------------|------------|------------|
| Ordinary Shares             | 10,000       | 10,000,000 | 1,000      |

2.8. **Paid up Share Capital (If applicable)**

| Classes and kinds of Shares | No of Shares | Amount  | Face Value |
|-----------------------------|--------------|---------|------------|
| Ordinary/Ordinary           | 900          | 900,000 | 1,000      |

2.9. **Particulars of Officer(s) including Share Registrar**

| S#. | Name              | Designation                     | CNIC No.          | Address                                                                                                          |
|-----|-------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------|
| 1   | SHAHZAD MALIK     | Chief Executive                 | 352019295<br>4157 | HOUSE # 126-Y BLOCK<br>STREET # 18, DHA<br>LAHORE, Pakistan                                                      |
| 2   | AMIR MUSHTAQ BUTT | Company Secretary               | 352023058<br>1041 | 82-C-1, GULBERG III,<br>LAHORE, Pakistan                                                                         |
| 3   |                   | Chief Financial Officer         |                   |                                                                                                                  |
| 4   | QASIM KHAN        | Legal Advisor                   | 352023676<br>7153 | 2-AZEEM HOUSE, 4<br>MOZANG ROAD,<br>LAHORE, Pakistan                                                             |
| 5   | RAO AND COMPANY   | Auditor                         |                   | 4 KARACHI<br>CHAMBERS, HASRAT<br>MOHANI ROAD, PO<br>BOX 5061, KARACHI 2,<br>Karachi, Karachi, Sindh,<br>Pakistan |
| 6   |                   | Share Registrar (if applicable) |                   |                                                                                                                  |
| 7   |                   | Any Other Officer               |                   |                                                                                                                  |

2.10. **List of Directors as on the date up to which the Form is made.**

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| S # | Name             | Residential Address                                               | Nationality | CNIC No for Pakistanis, or NICOP No for Overseas Pakistanis, or Passport No for foreigners | Date of appointment or election | Name of member or creditor nominating or appointing the director |
|-----|------------------|-------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------|
| 1   | MR. NAJEEB MALIK | HOUSE # 321, BLOCK K, PHASE II, DHA, LAHORE CANTT., Pakistan      | Pakistan    | 3520130887873                                                                              | 28-10-2022                      |                                                                  |
| 2   | SHAHZAD MALIK    | HOUSE # 126-Y BLOCK STREET # 18, DHA LAHORE, Pakistan             | Pakistan    | 3520192964157                                                                              | 28-10-2022                      |                                                                  |
| 3   | MR. NADEEM MALIK | HOUSE # 75, KHAYABA N-E-SHAHEEN, PHASE VI, DHA, KARACHI, Pakistan | Pakistan    | 4230186564979                                                                              | 28-10-2022                      |                                                                  |

2.11. List of members/shareholders & debenture holders on the date up to which this Form is made

| S # | Folio # (if any) | Name | Addresses | Nationality | No of shares /debentures held | Percentage of shareholding of member having 25% or more shareholding | CNIC No for Pakistanis, or NICOP No for Overseas Pakistanis, or Passport No for foreigners, or CUIN No. for pakistani company, or Registration No. for foreign company |
|-----|------------------|------|-----------|-------------|-------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|-----|------------------|------|-----------|-------------|-------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Shareholders/member |  |                  |                                                                  |          |     |       |               |
|---------------------|--|------------------|------------------------------------------------------------------|----------|-----|-------|---------------|
| 1                   |  | MR. NAJEEB MALIK | HOUSE # 321, BLOCK K, PHASE II, DHA, LAHORE CANTT, Pakistan      | Pakistan | 300 | 33.33 | 3520130887873 |
| 2                   |  | SHAHZAD MALIK    | HOUSE # 126-Y BLOCK STREET # 18, DHA LAHORE, Pakistan            | Pakistan | 300 | 33.33 | 3520192954157 |
| 3                   |  | MR. NADEEM MALIK | HOUSE # 75, KHAYABAN-E-SHAHEEN, PHASE VI, DHA, KARACHI, Pakistan | Pakistan | 300 | 33.33 | 4230186564979 |
| Debenture holders   |  |                  |                                                                  |          |     |       |               |

2.12. **Transfer of shares/ debentures since last Form-A was made (Applicable for companies having share capital)**

| S#. | Name of Transferor  | Name of Transferee | Number of shares transferred | Date of registration of transfer |
|-----|---------------------|--------------------|------------------------------|----------------------------------|
|     | Shareholders/member |                    |                              |                                  |
|     | Debenture holders   |                    |                              |                                  |

### PART III

(To be filled by an Inactive Company)

3.1. Correspondence Address

|  |
|--|
|  |
|--|

3.2. Contact Details

|  |
|--|
|  |
|--|

3.3. List of Directors as on the date up to which the Form is made.

| S # | Name | Residential Address | Nationality | No of shares held (if any) | ONIC No for Pakistani s, or NICOP No for Overseas Pakistani s, or Passport No for foreigners | Date of becoming member/d irector | Name of member or creditor nominating or appointing the director |
|-----|------|---------------------|-------------|----------------------------|----------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|
|     |      |                     |             |                            |                                                                                              |                                   |                                                                  |

3.4. Confirmation about inactive status of Company

It is hereby stated and confirmed that the Company has :

- not carried out any operation since grant of status as inactive company.
- no substantial assets or Accounting transactions.

#### Declaration

3.5. I do hereby solemnly and sincerely declare that the information provided in the form and the enclosures is:

- true and correct to the best of my knowledge, in consonance with the record as maintained by the company and nothing has been concealed; and
- hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.6. Name of Authorized Officer with designation/Authorized Intermediary (if appointed)

SHAHZAD MALIK

"Director, Chief Executive"

3.7. Signatures

This is an electronically generated document and doesnt require a physical form

RAD

3.8. Registration No of Authorized Intermediary, if applicable

|  |
|--|
|  |
|--|

3.9. Date

Day

Month

year

|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 0 | 4 | 1 | 1 | 2 | 0 | 2 | 4 |
|---|---|---|---|---|---|---|---|

**INSTRUCTIONS FOR FILLING THIS FORM**

1. This Form shall be made up to the date of last AGM of the Company or the last date of the calendar year where no AGM is held concluded during the year.
2. If shares are of different classes the columns should be subdivided so that the number of each class held, is shown separately against S. No. 2.7 and 2.8
3. If space provided is insufficient, the required information should be listed in a separate sheet attached to this return which should also be signed.
4. This form is to be filed within 30 days of the date indicated in S.No. 2.1 or 2.2 (as the case may be). If the form is filed after 30 days, additional fee as per section 468 shall be applicable.
5. An inactive company or a company which held its AGM but the same was not concluded shall file Forms-A within a period of 30 days from the close of calendar year.
6. This form is not applicable on single member companies & private companies having paid-up capital not exceeding 3.0 million in case there is no change of particulars since last annual return filed with the registrar.
7. A company, other than a single member company or a private company having paid up capital of not more than three million rupees, shall inform the registrar on Form-24 that there is no change of particulars in the last annual return filed with the registrar.
8. Original challan or other evidence of payment of fee specified in Seventh Schedule of the Act will be submitted with this form (not applicable in case of online filing)

CERTIFIED TRUE COPY

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**ANNEXURE – F**  
**ACCOUNT MAINTENANCE CERTIFICATE**

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RAD



**Meezan Bank**  
The Premier Islamic Bank



Best Bank  
2018, 2020 & 2023  
Pakistan Banking Awards

28 JAN, 2025

To,

MASTER GROUP,

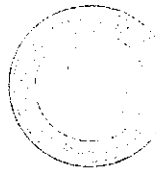
**Account Maintenance Certificate**

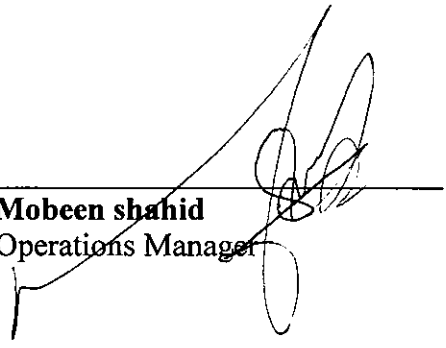
السلام عليكم ورحمة الله وبركاته

This is to certify that **MASTER SOLAR ENERGY LIMITED** is maintaining **MEEZAN RUPEE SAVINGS ACCOUNT**, Account **0254-0103372931** with us since **02 OCT 2018**.

The above information is provided at the specific request of our customer without any risk, obligation and responsibility on the part of Meezan Bank Ltd. Pakistan, its authorized signatories or employees.

  
**Ahsan Zafar Khan**  
Personal Banking Manager



  
**Mobeen Shahid**  
Operations Manager

**Meezan Bank Ltd.**

Zahoor Elahi Road Branch

Building No.3-A, Block A, Gulberg II, Zahoor Elahi Road, Lahore, Pakistan.

Tel: (92-042) 35987200 Fax: (92-042) 35786220 www.meezanbank.com

RAV

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**ANNEXURE – G**  
**DETAILED PROFILE OF THE APPLICANT &**  
**SENIOR MANAGEMENT**

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## MASTER SOLAR ENERGY LIMITED

*Management Credentials*

### BOARD OF DIRECTORS

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#### ❖ NADEEM MALIK – DIRECTOR

Mr. Nadeem Malik has been associated with the Group for the past 25 years and is a director and major stakeholder in the companies comprising the Master Group. He spearheaded the Group's expansion into the automotive sector, and is currently Managing Director of Procon Engineering (Private) Limited and Master Motor Corporation (Private) Limited. He holds a Bachelor's degree in Business Administration from the University of Southern California.

#### **Professional Experience**

Mr. Nadeem Malik specializes in and has extensive experience in the Automotive Industry and has been successfully running his business over a period spanning over 2 decades. He is currently managing director of Procon Engineering (Pvt) Ltd and Master Motor Corporation along with holding directorship in the Master Group companies in Pakistan as detailed below:

##### ○ PROCON ENGINEERING (PVT) LTD – *Managing Director*

The year 1988 saw the foundation of PROCON ENGINEERING (PVT) LTD which rapidly grew to be a totally self-reliant composite manufacturing facility, with strength of over 250 engineers and technical staff. Since then PROCON ENGINEERING (PVT) LTD has always been at the forefront as an integral player in the industrialization of Pakistan. PROCON ENGINEERING (PVT) LTD is involved in the manufacture and supply of all type of automobile seats, sports car seats for export, door trims (molded & flat type), roof headlining (molded, suspended & perforated types), steering wheels, rear package tray, sun visors, fender liner, engine under cover, armrests and floor mats.

##### ○ MASTER MOTOR CORPORATION – *Managing Director*

Master Motor Corporation has state-of-the-art technology at its newly built plant at Bin Qasim, Karachi. Master Motor Corporation is introducing 4.5 Ton, 3.5 Ton and 2 Ton light duty truck and medium size buses to be followed by a variety of models including medium and heavy-duty trucks and large buses.

#### **Education**

- O' Level from Cambridge University in 1979.
- Bachelor of Business Management from University of Southern California, LOS Angeles, U.S.A. in 1983.

#### ❖ NAJEEB MALIK – DIRECTOR

Mr. Najeeb Malik has been associated with the Group for over twenty years. He was the driving force behind Master Group's diversification into the textile sector, and is currently Managing Director of Master Textile Mills Limited. He is also a major stakeholder and director of the other Master Group Companies. Mr. Najeeb Malik holds an engineering degree from University of Southern California.

#### **Professional Experience**

Mr. Najeeb Malik specializes in textile industry and has been successfully running his business for the last 2 decades. He is currently managing director of Master Textile Mills Ltd along with holding directorship in the Master Group companies in Pakistan as detailed below:



○ **MASTER TEXTILE MILLS LIMITED – *Managing Director***

MTML was incorporated on February 13, 1992 as a private limited company under the Companies Ordinance, 1984 and was subsequently converted into a public limited company in 1992. MTML is a fully vertically integrated facility, with spinning, weaving, dyeing and garment divisions. It is one of the go-to choices manufacturing choices for international brands.

**Education**

- Master's degree in Engineering from University of Southern California, USA

❖ **SHAHZAD MALIK – CHIEF EXECUTIVE OFFICER & DIRECTOR**

Mr. Shahzad Malik, a young and enterprising businessman, started his career at Master Group in the core, foam products business. Since taking over, he has revamped the entire product line, expanded beyond Pakistan and updated the look of the Master brand to reflect the modern era and is currently Managing Director of Master Molty Foam and Group Energy Division.

**Professional Experience**

Mr. Shahzad Malik is also the driving force behind a new foam production facility (2015) at Raiwind, and the inauguration of the Marina Home store in Lahore. Recognising the potential of the wind power sector in Pakistan, Mr. Malik spearheaded Master Group's investment in the energy sector, and was responsible for development and successful achievement of commercial operations date of two wind power projects; 52.80 MW Master Wind Energy Limited and 50 MW Master Green Energy Limited, and is responsible for the management of these projects. As Managing Director, he favours a hand-on approach, which has given him extensive experience and insight into all aspects of wind power projects, from the pre-financial close process of financing, selection of EPC contractors and negotiating the project agreements, to the construction phase of coordinating on the ground activities.

○ **MASTER MOLTY FOAM – *Managing Director***

Master Group of Industries is a pioneer of foam industry in Pakistan - since 1963 Master MoltyFoam has been manufacturing and providing inventive sleeping solutions offering ubiquitous health effects. Commitment to producing innovative problem-solving products, Master MoltyFoam launched Pakistan's first-ever healthcare and orthopedic sleeping solutions. The company takes pride in being the only foam manufacturer of the country that utilize top-class high-pressure technology to produce quality comfort solutions.

○ **MASTER GROUP – ENERGY DIVISION – *Managing Director***

Master Group of Industries is one of the key players of the renewable energy sector in Pakistan and is highly committed to partake in its growth in order for Pakistan to achieve energy security, reduce reliance on imported fuel and reach a lower energy basket price. The Group forayed into the renewable energy sector with its first 52.80 MW wind power project namely Master Wind Energy Limited situated in District Jhimpir, Sindh, which achieved Commercial Operations Date in October, 2016. Following the successful commencement of operations of Master Wind, the Group ventured into its second 50 MW wind power project Master Green Energy Limited located in District Jamshoro, Sindh which achieved Commercial Operations Date in August, 2021. MGI has also been declared as the First Ranked Bidder for development of a 99 MW Arkari Gol hydropower project in District Chitral, Khyber Pakhtunkhwa by Pakhtunkhwa Energy Development Organisation ("PEDO") and has been issued a Letter of Intent ("LOI") for development of a 50 MW wind power project Jamshed Wind Energy in District Jhimpir, Sindh by the Directorate of Alternative Energy Department Government of Sindh ("DAE-GOS").

**Education**

- Masters in Business Administration, Bentley Universities, USA
- Bachelors of Science (Finance), Bentley Universities, USA



## MASTER SOLAR ENERGY LIMITED

*Management Credentials*

### KEY MANAGEMENT

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#### ❖ RUMMAN ARSHAD DAR – CHIEF OPERATING OFFICER

Mr. Rumman has over 20 years of experience in Corporate Finance, Financial Advisory and Investment Banking, with particular expertise in Structured Project Finance, Debt Advisory, Contract Negotiation and Project Development & Implementation. Prior to joining Master Group, he was a Partner at Bridge Factor (boutique financial advisory firm) where he oversaw the firm's power sector clients. In this role, his responsibilities included arrangement of financing and overall project development & implementation (tariffing, concession agreements, EPC and O&M contracts finalisation, etc). He has been involved in the wind industry of Pakistan since its inception, and contributed to the successful financial close and implementation of numerous wind power projects, including FFC Energy Ltd., Foundation Wind Energy, Sapphire Wind Power Company Ltd., Gul Ahmed Wind Power Ltd. and Master Wind Energy Ltd. Before Bridge Factor, Mr. Dar worked as Director Finance at Cleantech, a local import and distribution company.

##### Professional Experience

- Jul 2015 – Present Chief Operating Officer, Master Group Energy Division
- Dec 2008 – Jun 2015 Partner, Bridge Factor
- Mar 2003 – Nov 2008 Director Finance & Accounts, Cleantech (Pvt.) Ltd.
- Oct 2006 – Oct 2009 Director Concept (Pvt.) Ltd.

##### Education

- Dec 2007 & Aug 2008 Cleared Level I & II, Chartered Financial Analyst Program (CFA Institute, USA)
- Jan 2007 MBA Finance, Bahria University, Pakistan

#### ❖ SYED SHAHZAD ALI – GENERAL MANAGER PLANT OPERATIONS

Syed Shahzad Ali has over 16 years of experience in the field of Electrical Engineering. He has been a part of several reputable organisations, with varied responsibilities including project management, engineering, technical support and maintenance. Prior to joining Master Group of Industries, Mr. Ali worked as Project Manager and Electrical Engineer at Al Ajjaj Ltd. Co., a leading electro-mechanical engineering company based in Qatar, where he successfully managed the electrical engineering of the firms numerous development projects, including power generation and transmission. He was responsible for supervising the on-site electrical works of the Master Wind Energy Limited and Master Green Energy Limited and worked closely with the EPC contractor's electrical team to ensure smooth development activities and commissioning of the Projects. Currently, he is the General Manager Plant Operations for the 52.80 MW Master Wind Energy Limited and 50 MW Master Green Energy Limited wind power plants and ensures smooth operations. He is also overseeing power projects of MGI which are in developmental phase.

##### Professional Experience

- Nov 2014 – Present Senior Project Manager, Master Group Energy Division
- Aug 2010 – May 2014 Project Manager/Senior Electrical Engineer, Al Ajjaj Ltd. Co. (Qatar)
- Aug 2008 – Jul 2010 Senior Engineer, Areva T&D (Pvt.) Ltd. Formerly ALSTOM (Pakistan)
- Nov 2007 – Jul 2008 Electrical Engineer, Al Ajjaj Ltd. Co. (Qatar)
- Oct 2006 – Oct 2007 Assistant Manager Electrical

RAM

## Education

- o 2005 Bachelor Tech. (Electrical) (Mehran University of Engineering and Technology)
- o 1999 D.A.E. (R, TV and Electronics) (Sindh Board of Technical Education, Karachi)

## ❖ GOHAR QUDOOS – ELECTRICAL ENGINEER

Gohar Qudoos is a seasoned electrical engineering professional with over 20 years of rich experience in electrical substations, project management, and protection systems. With an impressive track record at leading organizations like Siemens, AALCO, and SCAN Electromechanical, he has demonstrated expertise in testing, commissioning, and operational management of high-voltage substations across the UAE, Qatar, and Pakistan. A certified expert in substation protection calculations and IEC61850 configuration, Gohar has contributed to complex projects, including 66kV GIS systems and 11kV networks, ensuring seamless execution and reliable outcomes. Currently, he is working with Master Group of Industries as an Electrical Engineer and has a sound knowledge of his field work.

## Professional Experience

- o Nov 2024 – Present Electrical Engineer, Master Group Energy Division
- o June 2014 – Oct 2024 Protection Engineer, SCAN Electromechanical LLC, Sharjah (UAE)
- o Oct 2008 – Jun 2014 Protection / Testing Manager, AALCO (Qatar)
- o Oct 2007 – Sep 2008 Specialist Power. Mobilink (Pakistan)
- o June 2007 – Sep 2007 Electrical Engineer, Imperial Electric Company (Pakistan)
- o Apr 2004 – May 2007 Executive Engineer, Siemens Pakistan Engineering Co. Ltd. (Pakistan)

## Education

- o 2004 Bachelor of Engineering (Electrical) (UET Lahore, Pakistan)

## ❖ RASHID HUSSAIN BHATTI – ELECTRICAL ENGINEER

Rashid Hussain Bhatti is a highly skilled electrical engineer with 19 years of experience in the installation, commissioning, and operations of power plants, switchyards, and substations. Having held key roles in prominent projects such as Sachal Wind Energy (49.5 MW), Shat-al Basra Power Plant (1250 MW, Iraq), and Uch-II Power Plant (404 MW), he has demonstrated expertise in managing high-voltage systems, SCADA, and GIS/AIS substations. Proficient in electrical protection systems, DC setups, and emergency operations, Rashid has been instrumental in delivering reliable and efficient solutions across Pakistan and the Middle East.

## Professional Experience

- o Dec 2024 – Present Electrical Engineer, Master Group Energy Division
- o Aug 2016 – Nov 2021 Sachal Wind Energy Limited (Pakistan)
- o Aug 2014 – Aug 2016 Halcrow Pakistan (Pvt) Limited (Pakistan)
- o Feb 2014 – Aug 2014 Voyage Global Energy (Iraq)
- o Oct 2012 – Feb 2014 OMS (Pvt) Limited (Pakistan)
- o Aug 2007 – Oct 2012 Mott Mac Pakistan (Pvt) Limited (Pakistan)
- o Sept 2004 – Aug 2007 Al – Abbas Industries (Pvt) Limited (Pakistan)
- o Mar 2003 – Sept 2004 Flowtronix (Pvt) Limited (Pakistan)

## Education

- o 2003 Bachelors of Engineering (Electrical) (Mehran University, Pakistan)

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**ANNEXURE – H**  
**PROJECT TECHNICAL PROPOSAL**

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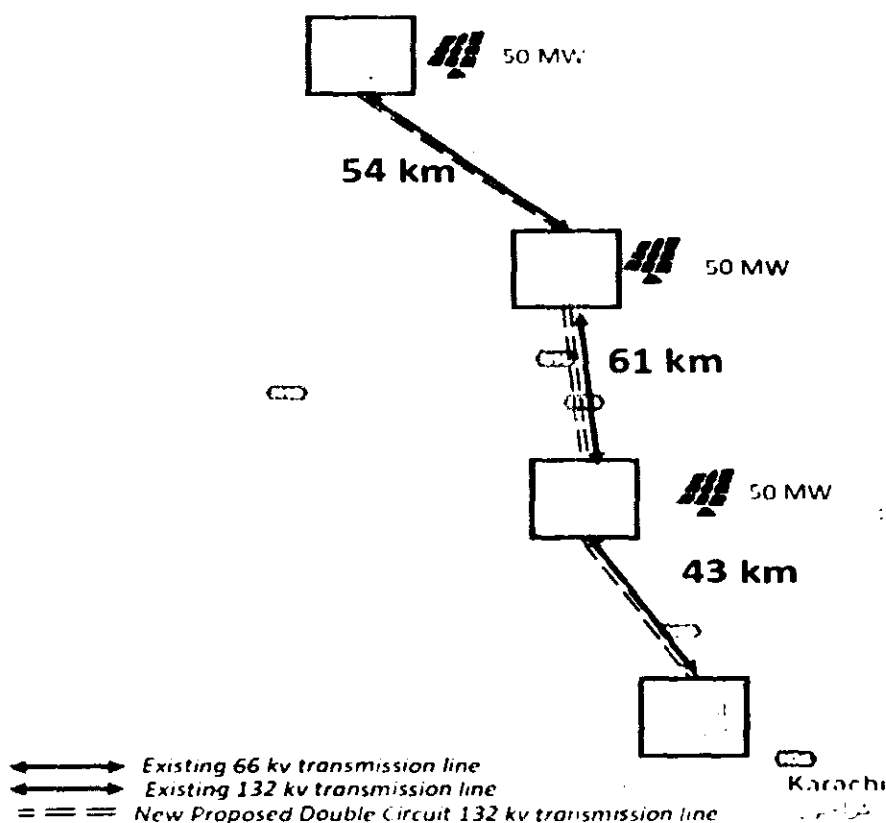
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## 1. Interconnection Study

The nearest substations of K-Electric, based on the location of these solar plants are Winder, Uthal and Bela grid station. The existing 66 kV transmission line will be dismantled while a new double circuit 132 KV transmission line along with Winder, Uthal and Bela grid stations will be re-constructed using AAAC Greeley conductor. The proposed routes of the 132 kV double circuit transmission lines will be crossing over the Winder and Bela sites. The length of single circuit transmission line from Hub Chowki to Bela 132 kV grid station after the interconnection of all three power plants will be about 158 km. Proposed interconnection scheme is mentioned as below:



## 2. Project Site Location (Location Map, Site Map, Land)

### Site Location of the Solar Power Plant of Master Solar Energy Limited

The Project is situated in Lasbela District, Balochistan Province, and is located approximately 78 kms from Karachi, Pakistan's commercial hub and main coastal/port city. The National Highway-25 is the connecting road to the Project Site.

Based on a World Bank study, the resource potential of Balochistan is the highest in the Country. Around 40% of the land area of Balochistan receives direct solar insolation with an energy potential of more than 6 kWh per square meter per day. Vast majority of land in

the area is barren, making it an ideal site for putting up solar panels.<sup>1</sup> This solar potential in the province of Balochistan is to date untapped, with no solar projects located in the region as of today. The Project is hence strategically positioned to capitalize on the city's expanding infrastructure and connectivity. With the completion of major projects like integration into the China-Pakistan Economic Corridor (CPEC), Balochistan is poised for exponential growth and increased demand for electricity.

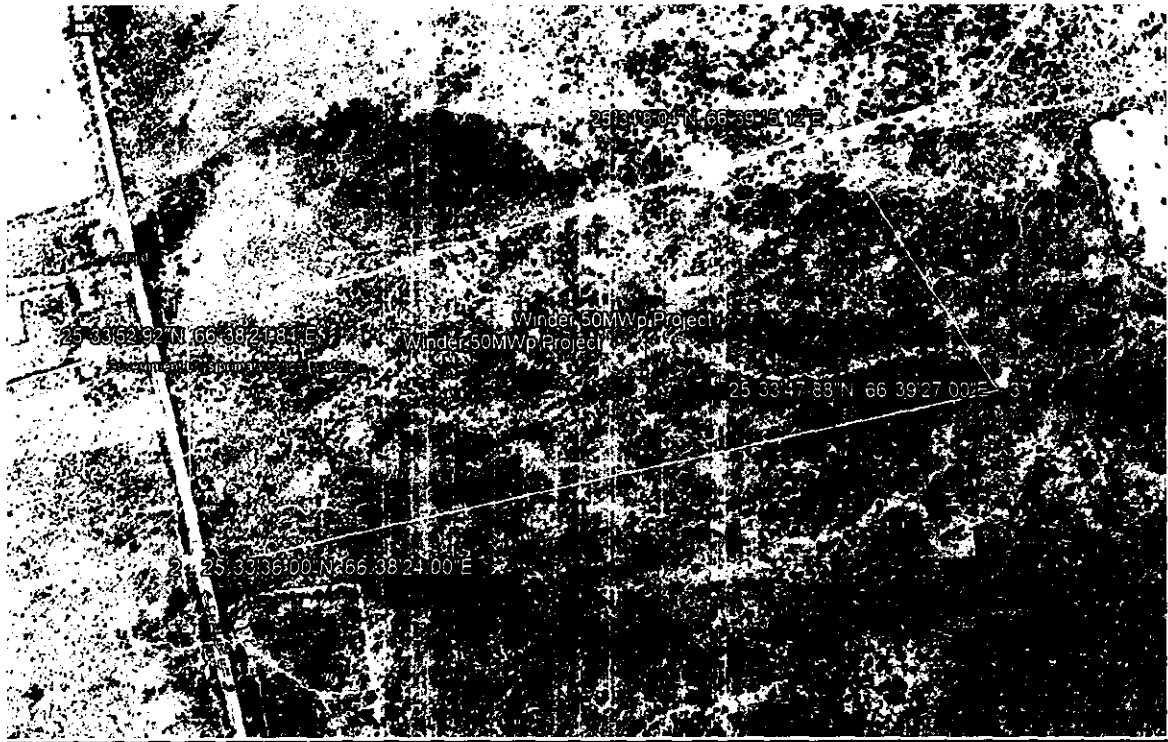
The geographical location of the Project is shown in the figure below.



### Layout of Generation Facility/ Solar Power Plant of Master Solar Energy Limited

The general layout of the Solar Farm of Master Solar Energy Limited at Winder is shown in the figure below.

<sup>1</sup>chrome-extension://efaidnbmnnnibpcajpcgiclfndmkaj/https://documents1.worldbank.org/curated/zh/352401468145176136/pdf/ACS22580WP0v500art020Energy0Sector.pdf



**Land Coordinates and Micro-sitting of the Generation Facility/Solar Power Plant of Master Solar Energy Limited**

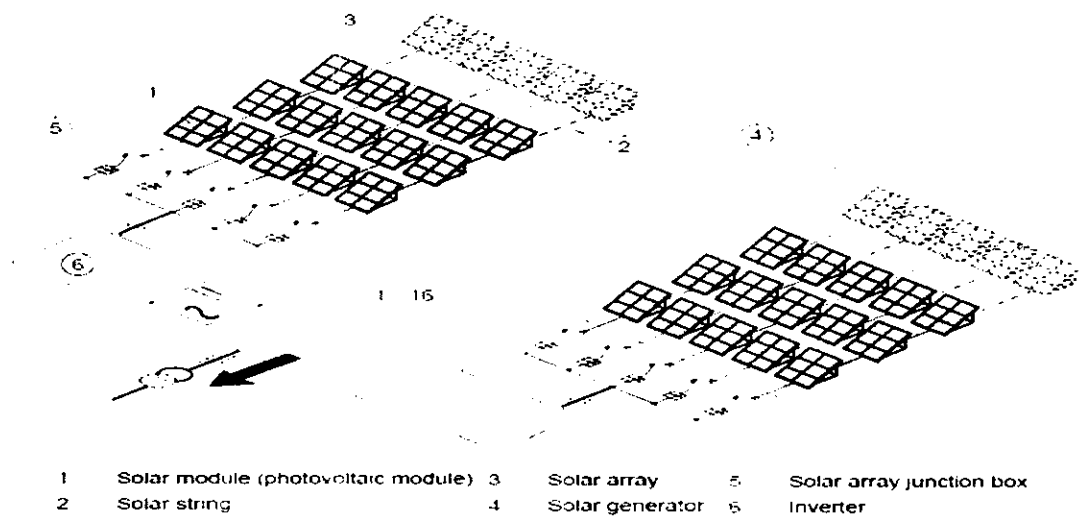
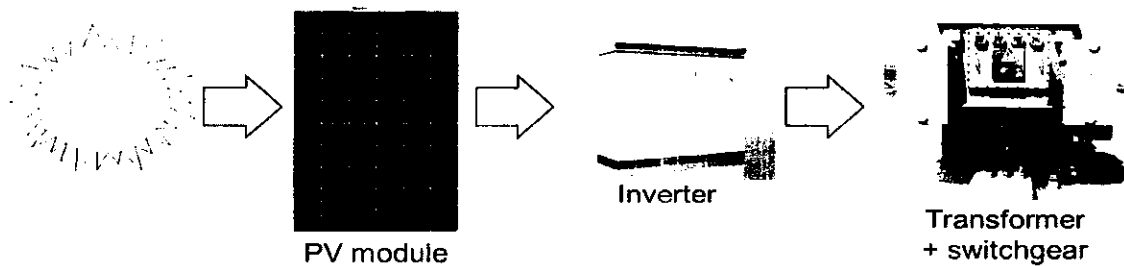
**50 MW Winder:**

| Boundary | Latitude   | Longitude  |
|----------|------------|------------|
| A1       | 25.564700° | 66.639400° |
| A2       | 25.560000° | 66.640000° |
| A3       | 25.563300° | 66.657500° |
| A4       | 25.568900° | 66.654200° |



### 3. Technology, size of plant, number of units

Process flow diagram of Solar PV project of 50MWp Winder are as below:



19/10

**Technical details of the equipment are as below:**

**Winder Project:**

| (a)    | Solar Panels – PV Modules |                                                                                                                                                         |
|--------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| (i).   | Type of Module            | Trina Vertex N 715/720 Wp<br>OR<br>Longi Hi-MO 9 655/660 Wp<br>OR<br>Longi Hi-MO 7 620 Wp                                                               |
| (ii).  | Type of Cell              | N-type i-TOPCon Bifacial Dual Glass (Trina)<br>OR<br>LR8-66HYD Monocrystalline Bifacial (Hi-MO 9)<br>OR<br>LR7-72HGD Monocrystalline Bifacial (Hi-MO 7) |
| (iii). | Dimension of each Module  | 2384×1303×33 mm (Trina)<br>OR<br>2382×1133×30 mm (Hi-MO 9)<br>OR<br>2278×1134×30mm (Hi-MO 7)                                                            |
| (iv).  | Number of Panels          | 70,448 (Trina)<br>OR<br>76,350 (Hi-MO 9)<br>OR<br>80,700 (Hi-MO 7)                                                                                      |
| (v).   | Module Area               | 3.094 m <sup>2</sup> (Trina)<br>OR<br>2.699 m <sup>2</sup> (Hi-Mo 9)<br>OR<br>2.689 m <sup>2</sup> (Hi-Mo 7)                                            |

|         |                                   |                                                                      |
|---------|-----------------------------------|----------------------------------------------------------------------|
| (vi).   | Panel's Frame                     | Anodized Aluminium alloy                                             |
| (vii).  | Weight of one Module              | 38.3 Kg (Trina)<br>OR<br>33.5 Kg (Hi-MO 9 and Hi-MO 7)               |
| (viii). | No of Solar Cells in each module  | 132 Cells (Trina)<br>OR<br>144 Cells (Hi-MO 9 and Hi-MO 7)           |
| (ix).   | Efficiency of module              | 23 %                                                                 |
| (x).    | Maximum Power ( $P_{max}$ )       | 710Wp (Trina)<br>OR<br>655Wp (Hi-MO 9)<br>OR<br>620Wp (Hi-MO 7)      |
| (xi).   | Voltage @ $P_{max}$               | 41.3V (Trina)<br>OR<br>41V (Hi-MO 9)<br>OR<br>44.33 V (Hi-MO 7)      |
| (xii).  | Current @ $P_{max}$               | 17.44 A (Trina)<br>OR<br>16.1 A (Hi-MO 9)<br>OR<br>13.99 A (Hi-MO 7) |
| (xiii). | Open circuit voltage ( $V_{oc}$ ) | 49.4 V (Trina)<br>OR<br>49.71 V (Hi-MO 9)<br>OR                      |

|            |                                     |                                                                     |
|------------|-------------------------------------|---------------------------------------------------------------------|
|            |                                     | 52.77 V (Hi-MO 7)                                                   |
| (xiv).     | Short circuit current ( $I_{sc}$ )  | 18.59 (Trina)<br>OR<br>16.80 A (Hi-MO 9)<br>OR<br>14.85 A (Hi-MO 7) |
| (xv).      | Maximum system open Circuit Voltage | 1,500                                                               |
| <b>(b)</b> | <b>PV Array</b>                     |                                                                     |
| (i).       | Nos. of Strings                     | 2516 (Trina)<br>OR<br>3054 (Hi-MO 9)<br>OR<br>3228 (Hi-MO 7)        |
| (ii).      | Modules in a string                 | 28 (Trina)<br>OR<br>25 (Hi-MO 9)<br>OR<br>26 (Hi-MO 7)              |
| <b>(c)</b> | <b>Inverters</b>                    |                                                                     |
| (i).       | Capacity of each unit               | 8.8 MW (Sungrow)<br>OR<br>330 Kw (Huawei)                           |
| (ii).      | Manufacturer                        | Sungrow<br>OR<br>Huawei                                             |
| (iii).     | Input Operating Voltage Range       | 895 – 1500 V (Sungrow)<br>OR<br>500 – 1500 V (Huawei)               |

|         |                                 |                                                         |                       |
|---------|---------------------------------|---------------------------------------------------------|-----------------------|
| (iv).   | Number of Inverters             | 5 (Sungrow)<br>OR<br>144 (Huawei)                       |                       |
| (v).    | Efficiency of inverter          | 98.77% (Sungrow)<br>OR<br>98.8% (Huawei)                |                       |
| (vi).   | Max. Allowable Input voltage    | 1500 V                                                  |                       |
| (vii).  | Max. Current                    | 8 x 1435 A (Sungrow)<br>OR<br>6 x 65 A (Huawei)         |                       |
| (viii). | Max. Power Point Tracking Range | 895 – 1500 V (Sungrow)<br>OR<br>500 – 1500 V (Huawei)   |                       |
| (ix).   | Output electrical system        | 3 Phase AC                                              |                       |
| (x).    | Rated Output Voltage            | 20 kV – 35 kV (Sungrow)<br>OR<br>800V, 3W + PE (Huawei) |                       |
| (xi).   | Power Factor (adjustable)       | 0.8 leading —0.8 lagging                                |                       |
| (xii).  | Power control                   | MPP Tracker                                             |                       |
| (xiii). | Rated Frequency                 | 50 Hz                                                   |                       |
| (xiv).  | Environmental Enclosures        | Relative Humidity                                       | 0~95%, non-condensing |
|         |                                 | Audible Noise                                           | -                     |
|         |                                 | Operating Elevation                                     | 1000 m                |
| (xv).   |                                 | Operating temperature                                   | -20°C~+60°C           |

|        |                           |                                                                                     |                                 |
|--------|---------------------------|-------------------------------------------------------------------------------------|---------------------------------|
| (xvi). | Grid Operating protection | A                                                                                   | DC circuit breaker              |
|        |                           | B                                                                                   | AC circuit breaker              |
|        |                           | C                                                                                   | DC overload protection (Type 2) |
|        |                           | D                                                                                   | Overheat protection             |
|        |                           | E                                                                                   | Grid monitoring                 |
|        |                           | F                                                                                   | Insulation monitoring           |
|        |                           | G                                                                                   | Ground fault monitoring         |
| (d)    | Data Collecting System    |                                                                                     |                                 |
| (i).   | System Data               | Hardwired Connection via RS485, Ethernet and/or FO                                  |                                 |
| (e)    | Power Transformer         |                                                                                     |                                 |
| (i).   | Rating                    | 2 x 50 MVA                                                                          |                                 |
| (ii).  | Type of transformer       | ONAN/ONAF                                                                           |                                 |
| (iii). | Purpose of transformer    | Step-up (33 kV/132 kV)                                                              |                                 |
| (iv).  | Output Voltage            | 132 KV                                                                              |                                 |
| (f)    | Mounting Structure        |                                                                                     |                                 |
| (i).   | Structure                 | Single Axis Tracker System                                                          |                                 |
| (ii).  | Tilt of Array Frame       | ± 60 °                                                                              |                                 |
| (iii). | Array Specifications      | Portrait Oriented, 1Px 87 Modules or 1P x 84 Modules in a structure (tracker table) |                                 |
| (g)    | Unit Transformer          |                                                                                     |                                 |
| (i).   | Rating                    | 8800 kVA @50 Degree Celsius                                                         |                                 |
| (ii).  | Type of transformer       | 33kV Oil Type Transformer                                                           |                                 |
| (iii). | Purpose of transformer    | Step-up (0.63 kV / 0.63 kV / (20 – 35) kV                                           |                                 |

|       |                |      |
|-------|----------------|------|
| (iv). | Output Voltage | 33kV |
|-------|----------------|------|

#### **Single Line Diagram (Electrical) of the Generation Facility/Solar Farm at Winder**

Preliminary Single Line Diagram of Winder 50MWp solar power Project has been attached as Appendix A to this Annexure H.

#### **4. Water source at site for maintenance**

Water will be required for dust prevention during the construction phase and for cleaning of modules in the operation phase.

##### **Water Demand**

Majority of the water will be needed for regular cleaning of the modules. Furthermore, small amounts of water will be needed for domestic consumption (e.g. living), landscaping and dust prevention on roads / tracks. Wet cleaning of the modules is supposed to take place monthly. The total demand of fresh water is estimated to be approx. 45,325 m<sup>3</sup> / year including the amount for domestic, landscaping and dust prevention consumption for the power plant. The daily water demand equals to approx. 12.5 m<sup>3</sup> / day per 50 MWp Solar power plant.

However, after extensive analysis of the site conditions, it is suggested that the modules be cleaned via dry brushing at least once per week to ensure maximum output. In the case of weekly wet cleaning, the water demand can rise further.

##### **Water Supply**

Inquiries from the locals living in surroundings of Winder's site and the feasibility study of the Project indicate that reasonable quality of ground water is present at about 60m to 70m depth below the existing ground level. A solar tube well has been installed in a nearby village which is about 0.5km to 1km from the Project site. For a sustainable source of water, it is better to install a tube well with RO plant within the Project site boundary after performing detailed ground water survey.

##### **Water Reuse / Treatment / Disposal**

The water utilized for cleaning the modules will not be reused or treated after the module cleaning procedure. The water will be let to seep away into the ground, as catching the water before dropping off the modules is a very complex process. As environmental pollutants, e.g. dust, sand, and bird droppings, are mixed within the used cleaning water, those naturally occurring elements are not regarded to give any negative influence to the PV plant's soil. However, in the long term of solar plant operations, it can be efficient to apply some type of water recycling system to reduce freshwater consumption for module

cleaning process. Nonetheless, the module manufacturer's specifications regarding water quality will be considered.

Water used for domestic supply is supposed to be collected in underground wastewater storage tanks. A procedure to recycle grey water, e.g. from lavatory, is not scheduled currently, but recommended to be applied for efficient reduction of freshwater consumption.

### **Water Management Plan**

A water management plan for construction and operation of the solar power plant as follows shall be carried out:

- Water demand of the plant (e.g. for construction and cleaning of the modules).
- Water supply to the plant (based on the hydrological situation in the area).
- Water reuse / recycling schemes (e.g. waste treatment, storage ponds).
- Wastewater discharge (e.g. quality and amount of wastewater, run-off systems, etc.).
- Water-related (hydrological) environmental impact analysis.

### **5. Infrastructure: road, rail, staff colony, amenities**

Please refer to Annexure I - Project Feasibility Study, of the Generation License Application.

### **6. Safety and emergency plans**

The Applicant will ensure compliance of all the requirements mentioned in the K-Electric RFP document regarding safety and security, as well as the guidelines on safety signs and barricade guidelines provided by KE as part of the RFP package, attached as Appendix B to this Annexure H.

For the feasibility study of the Project, please refer to Annexure I - Project Feasibility Study, of the Generation License Application.

### **7. Plant characteristics (generation voltage, power factor etc.)**

The characteristics of the Solar Plant are as follows:

|                           |        |
|---------------------------|--------|
| <b>Generation Voltage</b> | 132 kV |
|---------------------------|--------|



|                                     |                        |
|-------------------------------------|------------------------|
| <b>Projected Energy Output</b>      | 106,673 MWh / Year     |
| <b>Power Factor</b>                 | As per NEPRA Grid Code |
| <b>Frequency</b>                    | 50 Hz                  |
| <b>Automatic Generation Control</b> | SCADA controlled       |
| <b>Ramping Rate</b>                 | Not Applicable         |

#### **8. Control, metering and instrumentation**

The Applicant will ensure compliance with all the requirements mentioned in the K-Electric RFP document regarding SCADA, Tele-Communication and Protection Schemes, Metering System and Back-up Metering System. Weather Station and Plant Monitoring System.

#### **9. Generation Capacity and Performance Metrics**

|      |                                                                        |               |
|------|------------------------------------------------------------------------|---------------|
| (1). | Total PV Installed Capacity of the Generation Facility/Solar Farm      | 50 MWp        |
| (2). | Average Sun Hour Availability/Day<br>(Irradiation on Inclined Surface) | 8 to 8.5 Hrs  |
| (4). | PV Plant Generating Capacity Annually<br>(As Per Simulation)           | 106,673 MWh   |
| (5). | Expected Total Generation in 25 years Life Span                        | 2,537,524 MWh |
| (6)  | Net Capacity Factor                                                    | 24.35%        |

## **Appendix A – Single Line Diagram (Electrical)**

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| SYMBOLS | DESIGNATION | NAME                                  |
|---------|-------------|---------------------------------------|
|         | -10         | CIRCUIT BREAKER                       |
|         | -11         | DISCONNECTING SWITCH                  |
|         | -12         | DISCONNECTING SWITCH WITH LOCKED GATE |
|         | -13         | CURRENT TRANSFORMER                   |
|         | -14         | VOLTAZ TRANSFORMER                    |
|         | -15         | VOLTAZ TRANSFORMER FOR METEOR         |
|         | -16         | METAL OXIDE SURGE ARRESTER            |
|         | -17         | POWER TRANSFORMER                     |
|         | -18         | LINE TRAP                             |
|         | -19         | INDUCTIVE VOLTAZ TRANSFORMER          |

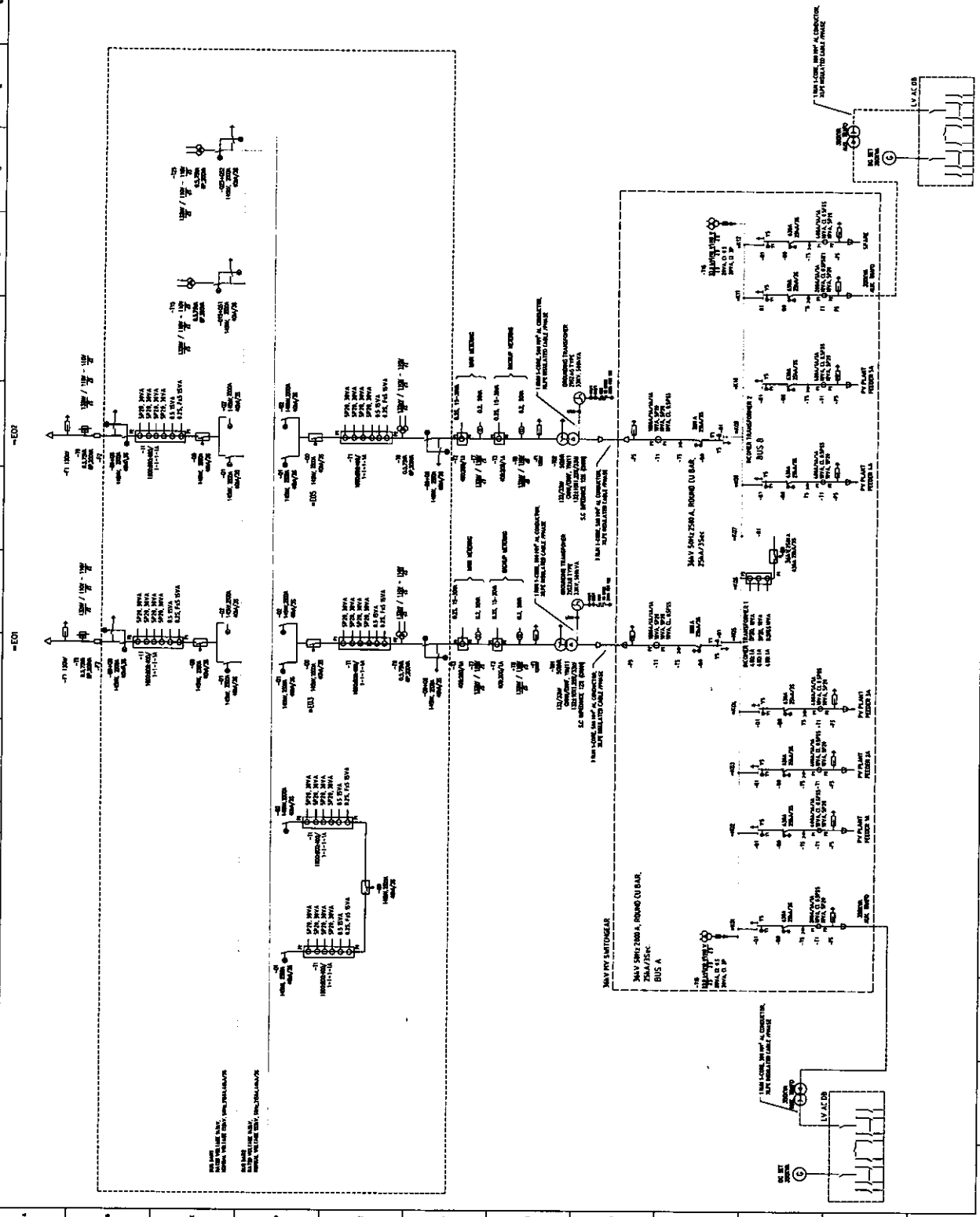
| SYMBOLS | DESIGNATION | NAME                        |
|---------|-------------|-----------------------------|
|         | -20         | SURGE ARRESTER              |
|         | -21         | CURRENT TRANSFORMER         |
|         | -22         | CAPACITIVE DETECTION SYSTEM |
|         | -23         | CIRCUIT BREAKER             |
|         | -24         | DISCONNECTING SWITCH        |
|         | -25         | VOLTAZ TRANSFORMER          |

| REV | DATE       | REVISION              |
|-----|------------|-----------------------|
| 1   | 10/10/2010 | Initial Design        |
| 2   | 11/10/2010 | Change in Transformer |
| 3   | 12/10/2010 | Change in P.T.S       |

PROJECT: 500KV  
132/33kV GIS SUBSTATION


TITLE: 33/132kV SINGLE LINE DIAGRAM

| NO | DATE       | REVISION              |
|----|------------|-----------------------|
| 1  | 10/10/2010 | Initial Design        |
| 2  | 11/10/2010 | Change in Transformer |
| 3  | 12/10/2010 | Change in P.T.S       |



## **Appendix B – Safety & Barricade Guidelines**


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|                                                                                   |           |                                                |                 |                |                       |
|-----------------------------------------------------------------------------------|-----------|------------------------------------------------|-----------------|----------------|-----------------------|
|  |           | <b>SAFETY SIGNS &amp; BARRICADE GUIDELINES</b> |                 |                |                       |
| <b>KE/CHSEQ/RP/059</b>                                                            | <b>00</b> | <b>Oct 2023</b>                                | <b>Sep 2026</b> | <b>1 of 21</b> | <b>Corporate HSEQ</b> |
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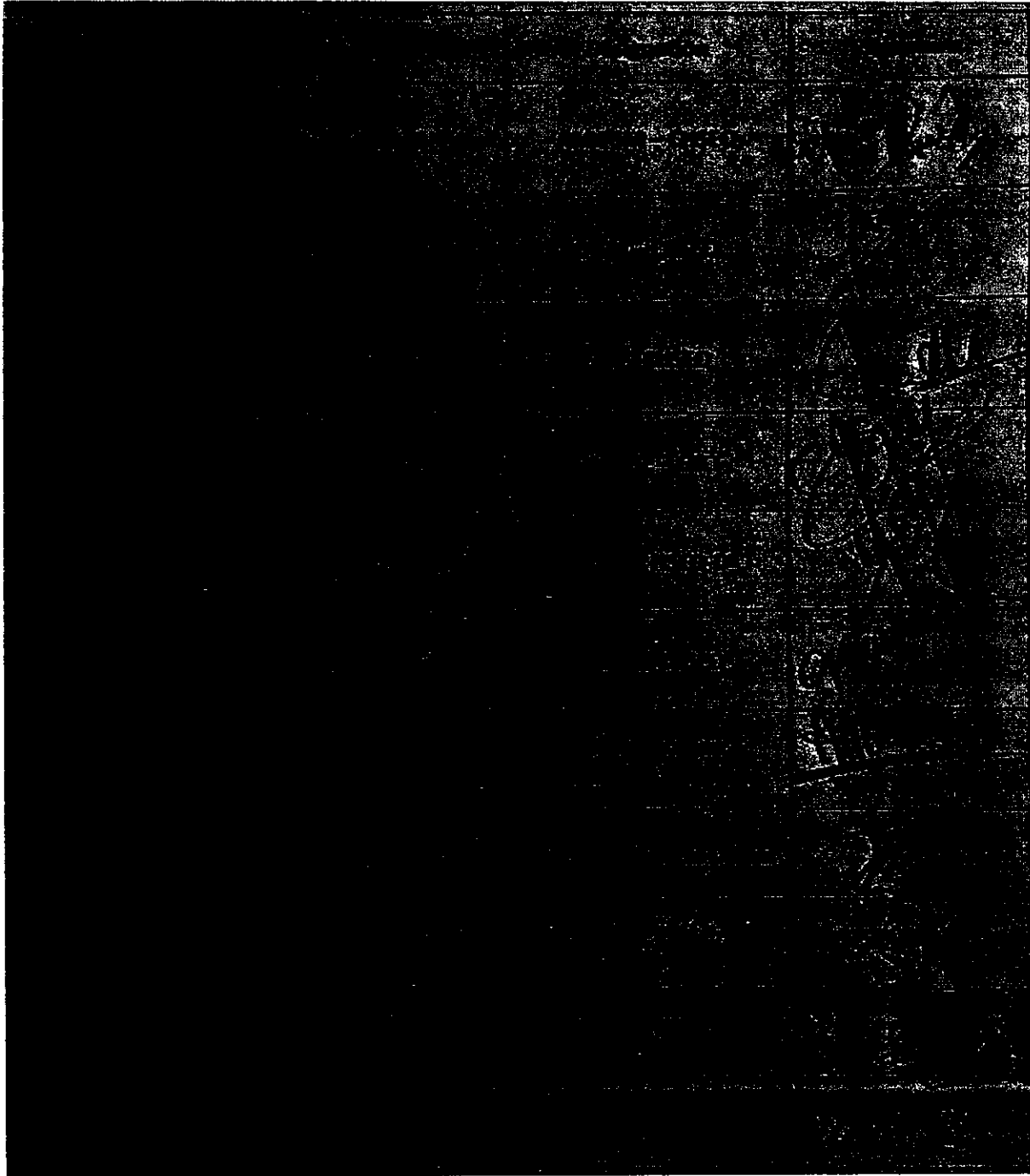


## SAFETY SIGNS & BARRICADE GUIDELINES


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#### **DOCUMENT CHANGE RECORD**

| REV. NO | DESCRIPTION OF CHANGE | EFFECTIVE DATE |
|---------|-----------------------|----------------|
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|-----------------------------------------------------------------------------------|---------|------------------------------------------------|---------------|----------|--------------------|
|  |         | <b>SAFETY SIGNS &amp; BARRICADE GUIDELINES</b> |               |          |                    |
| KE/CHSEQ/RP/059                                                                   | 00      | Oct 2023                                       | Sep 2026      | 4 of 21  | Corporate HSEQ     |
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## 1.0 PURPOSE

This procedure provides guidelines to protect personnel by preventing or controlling access to hazard/ high risk work areas by the installation and maintenances of barricades and safety signs. It defines the requirements for and appropriate methods and types of barricades and safety signs to be opt and utilized at K-Electric. This procedure details the application of:

- The requirement of hard/ soft barricades
- Types of Barricade Tape
- Types of Safety Signs
- Appropriate signs to be used to highlight the magnitude of hazard

## 2.0 SCOPE

This procedure shall be applicable to all KE, OSP, Contractors/ PQC employees across all Business Unit.

## 3.0 BARRICADES

Barricades can be classified as either soft barricade or hard (solid) barricade.

### 3.1 Soft Barricade

Soft barricades are those that use an appropriate tape to prevent or restrict access to an area. There are four types of soft barricades at K-Electric. They are to be used to identify and protect personnel from general hazards and also those which are high risk and may pose a risk to life and health.

#### 3.1.1 Caution Barricade Tape

The caution tape shall be used to highlight minor hazards to other personnel that may need to access the area. Any person may access into a caution barricaded area as long as they have familiarized themselves with the hazards detailed on the barricade signage and implemented any controls indicated on the signage/ tags.



Figure 1 Caution Tape


#### 3.1.2 Restricted Access Barricade Tape

This restricted access tape restricts access to the barricaded work area by any individual except area owner. This tape shall be used for high potential danger such as naked LT, HT or EHT wires/ lines uncovered hot surfaces, falling objects and unprotected edges.

Access inside restricted access barricaded area can only be made after seeking permission (at least verbal is must) from Respective Location or Area Owner/ Site Supervisor/ Shift In-charge/ Area Operator.

Location/Area owner or Site Supervisor must ensure all non-authorized individuals are kept outside this barricade while maintenance supervisors must ensure their manpower respects this barricade and does

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not tress pass it without seeking permission.



*Figure 2 Restricted Access Barricade Tape*

### 3.1.3 High Voltage Testing Barricade Tape

- A high voltage testing barricade shall be erected around electrical equipment that is under test to provide a minimum safe approach distance for untrained persons.
- Where testing is performed inside metal clad switchgear or similar enclosed spaces, barricading is not required, provided the testing area is not left unattended and a red flashing light is used when test voltages are applied.
- Flashing red lights shall be installed and activated when test voltages are applied



*Figure 3 High Voltage Barricade Tape*

### 3.1.4 Radiation Affected Zone Barricade Tape

This barricade tape must specifically be used to highlight radiation hazard to all individuals. Radiation affected zone barricade tape shall be placed by person who is supervising the activity from KE like Competent Person (in Generation Plants) or Shift In-Charge/ Area Owner (in other locations and facilities of KE). Barricade signage should specifically mention "Radiation Hazard" as a reason behind barricade.

NO INDIVIDUAL (including area owner) is allowed to tress pass this barricade without seeking permission from on duty person who is supervising the Radiography Activity from KE.


Competent Person (for Generation Plant) or Shift In-Charge/ Area Owner (in other locations and facilities of KE) shall inform Senior Authorized Person (SAP)/ Location Owner regarding the planned Radiography in specific area, date, and time period. SAP/ Location Owner shall issue an e-mail to all relevant regarding this planned activity.

All supervisors/ in charges are responsible for adequately informing their employees about the planned radiography.



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*Figure 3 Radiation Affected Zone Barricade Tape*

### 3.1.5 Safety Cones

- Orange/ White colored Safety cones can be opted as barricade where work is being carried out in public areas (roads) with the help of vehicle like MTL (Mobile Transport Ladder).
- All the works where MTL is not used as the primary source for the activity, other barricade shall be used as defined in the procedure

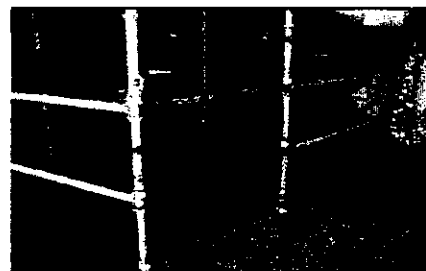
### 3.2 Hard (Solid) Barricade

A hard barricade is a physical structure such as scaffold pipes that prevent or restrict access to an area. If scaffold pipes are being used as barricade, then it should have top, mid and toe rail installed as per standard height used for scaffolds.

The purpose of a solid barricade is to provide a physical barrier capable of performing the same function as a permanent guardrail

Where solid barricades are used, they shall be accompanied with signs to communicate the hazard information. In addition, appropriate barricade tape may be used to highlight the existence of the barricaded area.

Hard (solid) Barricade installation shall be made mandatory for those areas where hazards are present for long tenure and cannot be rectified for days, weeks or month such as, trenches, excavations (highways, roads, streets), uncovered drain channels etc. Approach Roads, road crossing etc.



## 4.0 ERECTION AND USE OF BARRICADE

The barricade shall encompass the entire potentially affected area of the hazard and consider factors such as:


- possible deflection of an object if it falls
- slag or sparks created from hot work activities
- distance from the hazard
- creating an additional hazard, for example, access and egress. Sites shall make sure that barricades are erected so that all sides of the hazard are protected from unauthorized access

All barricades shall be accompanied by an appropriate sign, which is to be placed on all access points. For details, refer to **Section 6.0 – Barricade Tag/ Signage**

Signs or tags shall clearly display the following information:

- the name of the person in charge of the barricaded area
- the hazards that are within the barricaded area
- the date and time
- the contact details of the person in charge of the area

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It shall be ensured that where soft barricading is used to provide a means of restricted access around a penetration or an unprotected edge, it is to be located at least two (2) meters from the outside of the edge.

**Note:** Where work is being carried out in public areas, roads etc., soft barricade shall be located at a minimum of 01 meter from the outside edge.

## 5.0 METHOD OF BARRICADING

### 5.1 Caution Barricade

Caution barricade tape shall be erected to inform personnel of an uncontrolled hazard within the barricaded area. The caution barricade tape is not suitable for medium, high, or extreme risk hazards. It is only suitable for minor hazards where the main control is for personnel to be aware of the hazard.

Examples of suitable hazards that can be controlled by Caution barricades include:

- Trip hazards,
- Covered hot surfaces,
- Maintenance job on equipment
- Minor/ Drop wise leak
- Poor housekeeping zone

Caution barricades are not to prevent personnel from entering the barricaded area. They are to highlight the hazard so that personnel are well aware of the hazards while inside the barricade. This tape is not appropriate for height and unprotected edge hazards. The appropriate signage/ tag as mentioned in Section 6.0 of this procedure, shall always be attached to a caution barricade.

### 5.2 Restricted Access Barricade

Restricted access barricades shall be erected to prevent unauthorized personnel from accessing the barricaded area. The intent is that only the Area owner has access to the area while the hazard is present and uncontrolled.


This barricade is suitable to use to restrict access from hazards such as:

- Hot Work
- Persons working above / falling objects
- Medium/ Major Spills / leaks
- General delineation of a work area (e.g., cluttered access etc.)
- Unprotected edges creating a fall risk
- Electrical Hazard
- Excavation/ Trenches
- Around swing radius of equipment with a rotating superstructure
- Toxic Environment

Access inside restricted access barricaded can only be made after seeking permission from Respective Location or Area Owner/ Site Supervisor/ Shift In-charge/ Area Operator. The appropriate signage/ tag as mentioned in Section 6.0 of this procedure, shall always be attached to a caution barricade.

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### 5.3 High Voltage Testing Barricade

Refer to Section 3.1.3.

### 5.4 Radiation Affected Zone Barricade

Refer to Section 3.1.4.

### 5.5 Hard (Solid) Barricade

Refer to Section 3.2.

**Note:** Where barricades are installed across roadways and will remain in place during hours of darkness, the barricade shall be fitted with flashing lights to identify the barricade / traffic obstruction.

## 6.0 BARRICADE TAG/ SIGNAGE

All barricades must be fitted with tags to explain the hazards inside the barricade.

### 6.1 Caution Barricade Tag

This tag has to be signed and placed on caution barricade by respective Area Operator (for Generation Plant) and Location Supervisor (for other KE Locations)

Shift In-charge (for Generation & Transmission) and Location Owner (for other KE Locations) should ensure all vicinity of hazard has been properly cordoned off.

### 6.2 Restricted Access Barricade Tag

This tag has to be signed and placed on restricted access barricade by respective Area Operator (for Generation Plant) and Location Supervisor (for other KE Locations)

Shift In-charge (for Generation & Transmission) and Location Owner (for other KE Locations) should ensure all vicinity of hazard has been properly cordoned off.

### 6.3 High Voltage Testing Barricade Tag

This tag has to be signed and placed on Danger (restricted access) barricade – Electrical Hazard by respective Area Operator (for Generation Plant) and Location Supervisor (for other KE Locations)

Shift In-charge (for Generation & Transmission) and Location Owner (for other KE Locations) should ensure all vicinity of hazard has been properly cordoned off.


### 6.4 Radiation Affected Zone Barricade Tag

Radiation affected zone will be calculated and highlighted by a person who is supervising the activity from KE such as Competent Person (in Generation Plants) or Shift In-Charge/ Area Owner (in other locations and facilities of KE). He shall get the barricade tape placed.

This tag has to be signed and placed by Area Operator (for Generation Plant) and Location Supervisor (for other KE Locations) on Radiation Affected Zone Barricade after signature by a person who is supervising the activity from KE such as Competent Person (in Generation Plants) or Shift In-Charge/ Area Owner (in other locations and facilities of KE)

Person who is supervising the activity from KE such as Competent Person (in Generation Plants) or Shift In-

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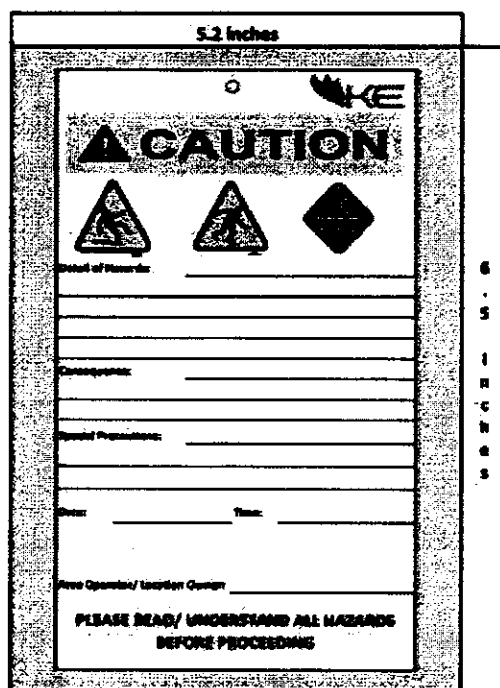
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Charge/ Area Owner (in other locations and facilities of KE) should ensure all vicinity of hazard has been properly cordoned off.

**Note:** Tags should be placed on barricade tape, at various entry points adequately so that all access points get covered

## 7.0 BARRICADE TAG SIZE

All barricade tag shall be standardized across KE with below measurement.



## 8.0 WATCH LIGHTS/ NIGHT LIGHTS


Where barricades are installed across roadways and will remain in place during night hours of darkness, the barricades shall be fitted with flashing lights (preferably Battery Operated/ Photocell) to identify the barricade/ traffic obstruction. This shall be in addition to the barricading and display of safety signage at the working location / area under work.

## 9.0 SAFETY SIGNS

Safety Professionals believes that it is critical to effectively communicate the safety. Safety signs plays a vital role in achieving this objective. They are the visual tools use to:

- Remind people of potential hazards and how to avoid them
- Point people to the location of emergency equipment
- Direct people's path to safety in an emergency situation
- Reinforce safety training programs
- Inform people of security and limited access policies

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## 9.1 Types of Safety Signs

### 9.1.1 Prohibition/ Danger Sign

A sign prohibiting behavior likely to increase or cause danger (e.g., no access for unauthorized persons'). Danger signs shall be used only where an immediate hazard exists.

Danger signs shall have red as the predominating color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.

Intrinsic features:

- Round shape
- Black pictogram on white background, red edging, and diagonal line (the red part to take up at least 35% of the area of the sign)



### 9.1.2 Caution Sign

A sign giving warning of a hazard or danger. Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices.

The standard color of the background shall be yellow, and the panel, black with yellow letters. Any letters used against the yellow background shall be black.


Intrinsic features:

- Triangular shape
- Black pictogram on a yellow background with black edging (the yellow part to take up at least 50% of the area of the sign)



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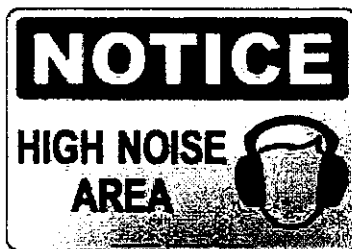
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### 9.1.3 Notice and Mandatory Sign

A sign prescribing specific behavior (e.g., eye protection must be worn). Notice sign must be square in shape with a blue background and message written in white.

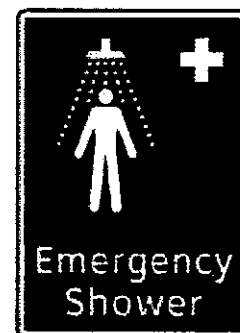
Mandatory Sign Intrinsic features:

- Round shape
- White pictogram on a blue background (the blue part to take up at least 50% of the area of the sign)



### 9.1.4 Safety Instruction Sign

Safety instruction signs, when used, shall be white with green upper panel with white letters to convey the principal message. Any additional wording on the sign shall be black letters on the white background (see accompanying figure).



### 9.1.5 Emergency Escape Sign


A sign giving information on emergency exits, first aid, or rescue facilities. i.e., emergency exit/ escape route.

Escape signs, when required, shall be lettered in legible red letters, not less than 6 inches high, on a white field and the principal stroke of the letters shall be at least three-fourths inch in width.

Intrinsic feature. rectangular or square shape.

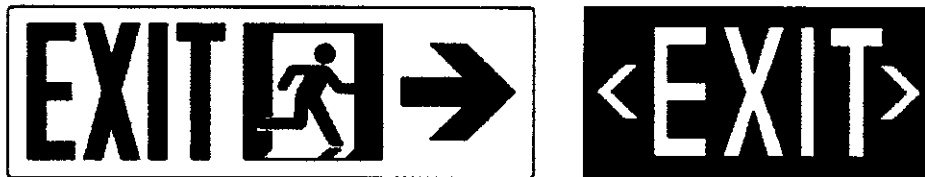


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#### 9.1.6 Directional Sign

Directional signs, other than automotive traffic signs specified in the paragraph below, shall be white with a black panel and a white directional symbol. Any additional wording on the sign shall be black letters on the white background.



#### 9.1.7 Fire Safety Signs

Provides information on the identification or location of firefighting equipment or gives warning in case of fire.

Intrinsic features:

- Rectangular or square shape.
- White pictogram on a red background (the red part to take up at least 50% of the area of the sign).




#### 9.1.8 Traffic Directional Sign

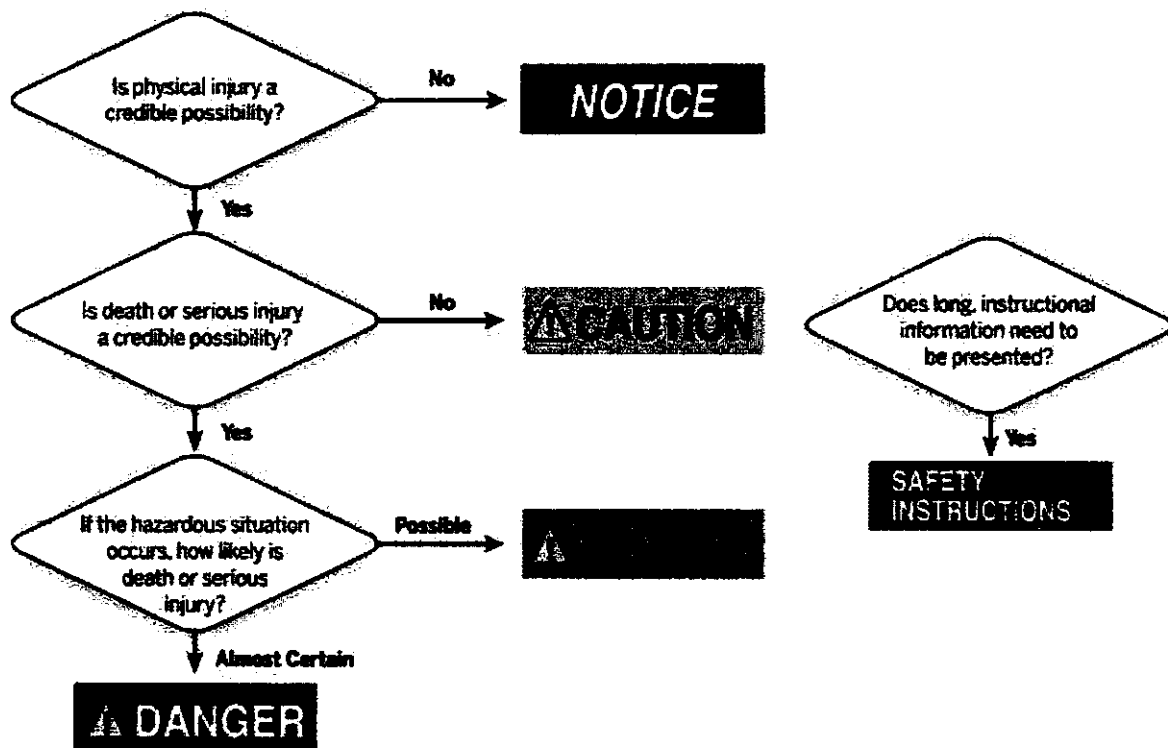
Construction areas shall be posted with legible traffic signs at points of hazard. All traffic control signs, or devices used for protection of construction workers shall conform to American National Standards Institute ANSI D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways.



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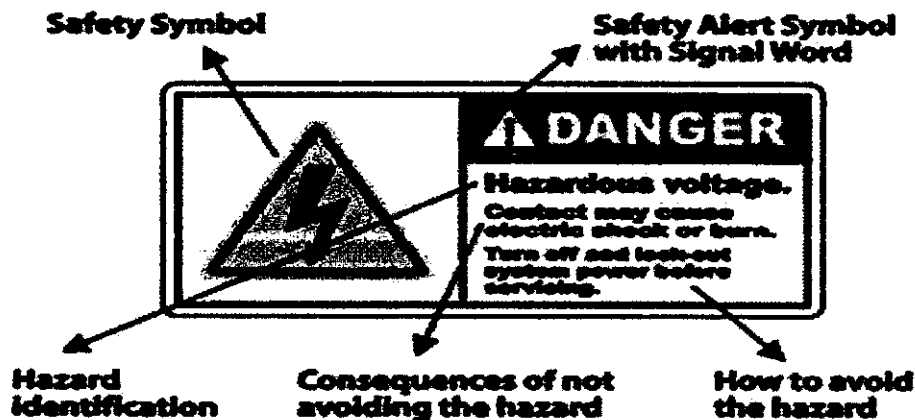
## 9.2 How to select a right sign to match risk level?




## 9.3 Safety Sign Format

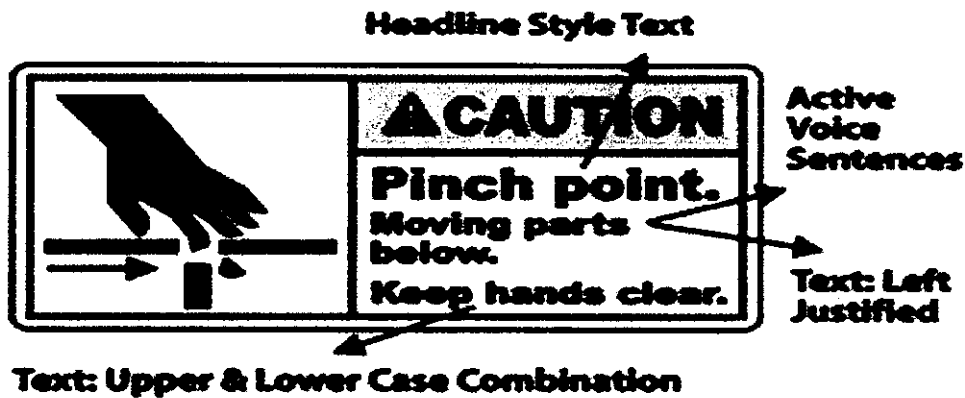
The **safety alert symbol** shall precede the **signal word**. The base of the safety alert symbol shall be on the same horizontal line as the base of the letters of the signal word. The height of the safety alert symbol shall be equal to or exceed the signal word in letter height.

Following are the standard formats of safety signs.



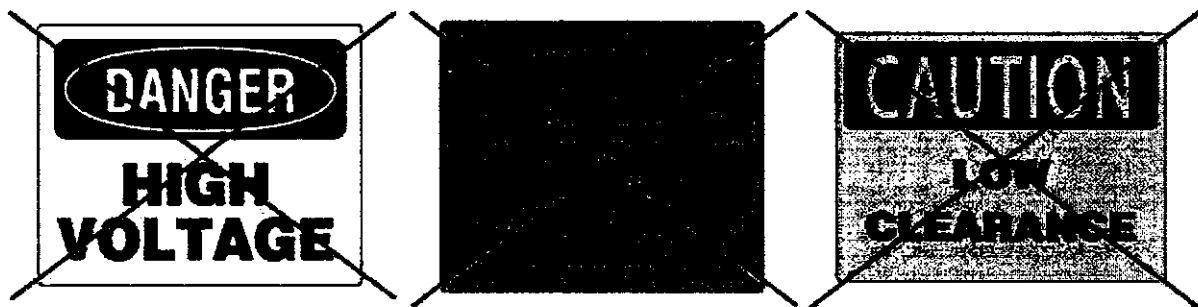
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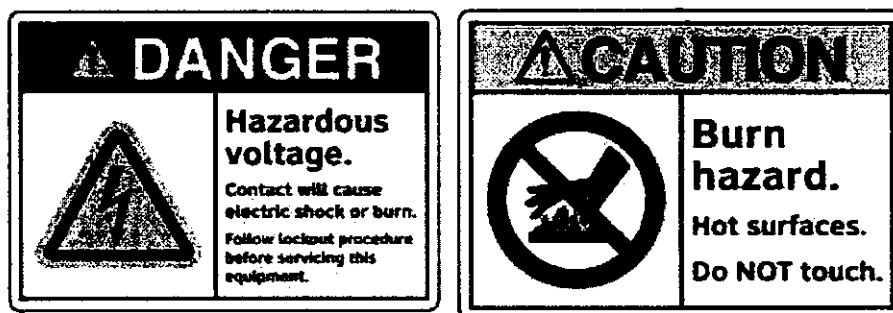


#### 9.4 Old Vs New Safety Sign


##### 9.4.1 Old OSHA/ ANSI Sign



##### 9.4.2 New OSHA/ ANSI Sign



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## 10.0 REFERNCES

- **OSHA 1910.144** - Safety color code for marking physical hazards.
- **OSHA 1910.145** – Specifications for accident prevention signs and tags.
- **ANSI Z535.5-2022** - Safety Tags and Barricade Tapes (For Temporary Hazards)






## 11.0 ATTACHMENTS

1. Caution Barricade Tag
2. Danger (Restricted Access) Barricade Tag
3. Radiation Effected Zone Barricade Tag
4. Danger Tag Electrical Hazard Barricade Tag


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#### Caution Barricade Tag


|                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                      |
|  <span style="font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">CAUTION</span>                                                                               |
|    |
| <b>Detail of Hazards:</b> _____<br>_____<br>_____<br>_____<br>_____                                                                                                                                                                                    |
| <b>Consequence:</b> _____<br>_____<br>_____                                                                                                                                                                                                            |
| <b>Special Precautions:</b> _____<br>_____<br>_____                                                                                                                                                                                                    |
| <b>Date:</b> _____ <b>Time:</b> _____                                                                                                                                                                                                                  |
| <b>Area Operator/ Location Owner:</b> _____                                                                                                                                                                                                            |
| <b>PLEASE READ/ UNDERSTAND ALL HAZARDS<br/>BEFORE PROCEEDING</b>                                                                                                                                                                                       |





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| KE/CHSEQ/RP/059                                                                   | 00      | Oct 2023                                       | Sep 2026      | 19 of 21 | Corporate HSEQ     |
| Document No.                                                                      | Version | Date of Version                                | Next Revision | Page No. | Issuing department |

**Danger (Restricted Access) Barricade Tag**




DANGER

**Detail of Hazards:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Consequence:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Special Precautions:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_


\_\_\_\_\_

**Area Operator/ Location Owner:** \_\_\_\_\_


DONOT TRESPASS THE BARRICADED AREA  
 WITHOUT PERMISSION

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|                                                                                   |         |                                     |               |          |                    |
|-----------------------------------------------------------------------------------|---------|-------------------------------------|---------------|----------|--------------------|
|  |         | SAFETY SIGNS & BARRICADE GUIDELINES |               |          |                    |
| KE/CHSEQ/RP/059                                                                   | 00      | Oct 2023                            | Sep 2026      | 20 of 21 | Corporate HSEQ     |
| Document No.                                                                      | Version | Date of Version                     | Next Revision | Page No. | Issuing department |

#### Radiation Effected Zone Barricade Tag



CAUTION



RADIATION HAZARD

**Detail of Hazards:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Consequence:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Special Precautions:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Date:** \_\_\_\_\_

**Time:** \_\_\_\_\_


**Competent Person (In Plants)** \_\_\_\_\_  
**Area Operator** \_\_\_\_\_

DONOT TRESPASS THE BARRICADED AREA WITHOUT  
 PERMISSION


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|-----------------------------------------------------------------------------------|---------|-------------------------------------|---------------|----------|--------------------|
|  |         | SAFETY SIGNS & BARRICADE GUIDELINES |               |          |                    |
| KE/CHSEQ/RP/059                                                                   | 00      | Oct 2023                            | Sep 2026      | 21 of 21 | Corporate HSEQ     |
| Document No.                                                                      | Version | Date of Version                     | Next Revision | Page No. | Issuing department |

#### Danger Tag Electrical Hazard Barricade Tag





# DANGER



ELECTRICAL  
HAZARD

**Detail of Hazards:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Consequence:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Special Precautions:** \_\_\_\_\_

\_\_\_\_\_

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_

**Maintenance Engineer** \_\_\_\_\_

**Grid In-charge/ Shift In-Charge/ Area In-Charge** \_\_\_\_\_

DONOT TRESPASS THE BARRICADED AREA WITHOUT  
PERMISSION

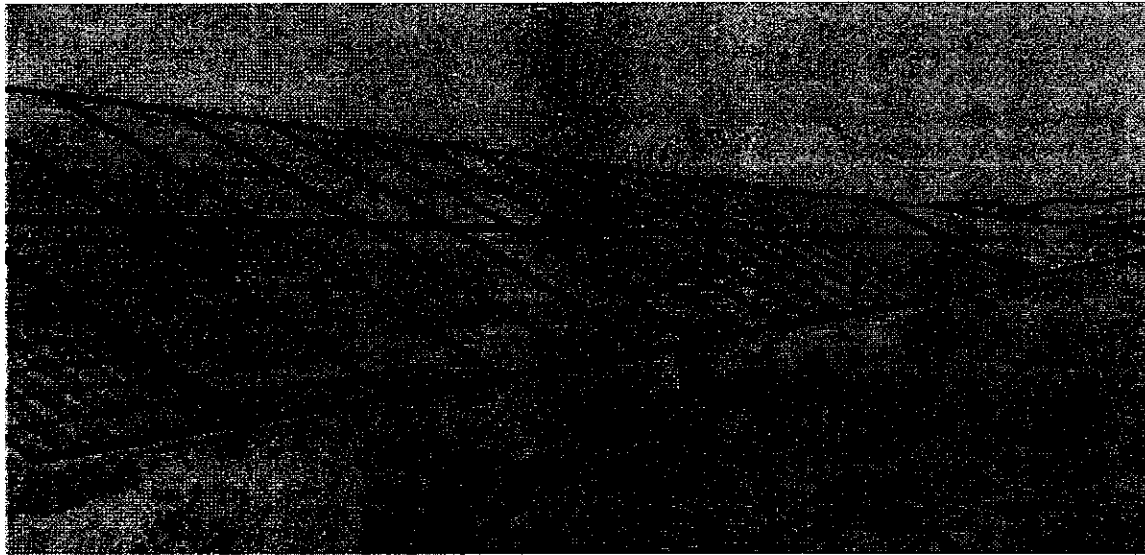
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**ANNEXURE – I**  
**PROJECT FEASIBILITY STUDY**

---



## F e a s i b i l i t y   S t u d y

---

|                         |                                                                                        |
|-------------------------|----------------------------------------------------------------------------------------|
| Type of Report:         | Feasibility Study                                                                      |
| Project:                | Feasibility Study of Vinder                                                            |
| Client:                 | K-Electric Limited                                                                     |
| Purpose:                | Assessment of the technical viability of a 50 MWp solar PV project at Vinder, Pakistan |
| Site location, Country: | Vinder (25°33'53.0 N 66°38'22.0E), Pakistan                                            |
| Operator:               | K-Electric Limited                                                                     |
| Report number:          | 202624-Vinder-FS-R00                                                                   |
| Date of Inspection:     | 25-05-2021                                                                             |

8.2 Renewable Energy Experts Pakistan  
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Lahore, Pakistan  
Tel: 042 34004416  
Email: Faisal.dar@8p2.de

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**Revision**

| Version | Modifications |
|---------|---------------|
|         |               |

## I. Confidential and Proprietary Content

8.2 Renewable Energy Experts Hamburg GmbH (named hereinafter: "8.2 Renewable Energy Experts Hamburg") has been commissioned by the client to prepare the following report (the "report"). The report summarizes the findings obtained during on-site visit(s) and/or through the assessment of project related documents which have been provided by the client. The report is confidential and proprietary and has been prepared exclusively for the benefit of the client. The report may solely be used for the intended purpose by the client and his or her professional advisors who are bound by confidentiality obligations. The report shall not inform or protect any third party. It shall not be used by any third party or for any other purpose. The client shall not disclose, publish, copy or otherwise reveal any of the confidential information embodied in the report to any third party without the prior written consent of 8.2 Renewable Energy Experts Hamburg.

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The report is based solely on findings obtained during on-site visit(s) by 8.2 Renewable Energy Experts Hamburg as well as on information from documents which have been provided by the client until the date of delivery of the report. It is further noted that:

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## List of Abbreviations:

|                             |                                                                                                                                                                              |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a                           | Year                                                                                                                                                                         |
| A                           | <b>A</b> mpere                                                                                                                                                               |
| AC                          | <b>A</b> lternating <b>C</b> urrent                                                                                                                                          |
| AJB                         | <b>A</b> rray <b>J</b> unction <b>B</b> ox (string combiner at structure table)                                                                                              |
| CE                          | <b>C</b> onformité <b>E</b> uropéenne                                                                                                                                        |
| DC                          | <b>D</b> irect <b>C</b> urrent                                                                                                                                               |
| GJB                         | <b>G</b> enerator <b>J</b> unction <b>B</b> ox (main combiner before inverter)                                                                                               |
| EBB                         | <b>E</b> quipotential <b>B</b> us <b>B</b> ar                                                                                                                                |
| EN                          | <b>E</b> uropean <b>S</b> tandard                                                                                                                                            |
| EL                          | <b>E</b> lectroluminescence                                                                                                                                                  |
| F(A)                        | Surface factor (Flächenfaktor), indicates the value by which the annual global irradiation at module level changes (depending on inclination and alignment of the generator) |
| GaSC                        | <b>G</b> round and short-circuit                                                                                                                                             |
| GB Standards                | Guobiao Standards                                                                                                                                                            |
| Gh [kWh / m <sup>2</sup> a] | <b>G</b> lobal irradiation [kilowatt hour per square metre and year]                                                                                                         |
| GJB                         | <b>G</b> enerator <b>J</b> unction <b>B</b> ox                                                                                                                               |
| h                           | <b>H</b> our                                                                                                                                                                 |
| HV                          | <b>H</b> igh <b>V</b> oltage (44kV and higher)                                                                                                                               |
| I                           | Electric Current                                                                                                                                                             |
| IAM                         | <b>I</b> ncidence <b>A</b> ngle <b>M</b> odifier (adjustment value inclined irradiation)                                                                                     |
| IEC                         | <b>I</b> nternational <b>E</b> lectrotechnical <b>C</b> ommission                                                                                                            |
| INV                         | <b>I</b> nverter; converts the direct current from the solar generator into grid-compatible alternating current.                                                             |
| INVS1                       | <b>I</b> nverter station 1                                                                                                                                                   |
| ISFH                        | Institut für <b>S</b> olarenergieforschung <b>H</b> ameln<br>(Institute for Solar Energy Research Hameln)                                                                    |
| ISO                         | <b>I</b> nternational <b>O</b> rganization for <b>S</b> tandardization                                                                                                       |
| kV                          | <b>K</b> ilovolt                                                                                                                                                             |

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|                        |                                                                                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| kVA / MVA              | <b>Kilovolt-ampere / Megavolt-ampere</b>                                                                                                                                                |
| kW                     | <b>Kilowatt</b>                                                                                                                                                                         |
| kWh                    | <b>Kilowatt hour</b>                                                                                                                                                                    |
| kWp                    | <b>Kilowatt peak</b>                                                                                                                                                                    |
| LCOE                   | <b>Levelized cost of Energy</b>                                                                                                                                                         |
| LV                     | <b>Low Voltage</b>                                                                                                                                                                      |
| MPP                    | <b>Maximum Power Point</b> (point of maximum power = operating point of module, string or even entire solar generator)                                                                  |
| MPP-Tracker            | Electrotechnical tracking system assuring the optimal operating point                                                                                                                   |
| MV                     | <b>Medium Voltage</b>                                                                                                                                                                   |
| MWp                    | <b>Megawatt peak</b>                                                                                                                                                                    |
| NOCT                   | <b>Nominal Operation Cell Temperature</b> (practical operating conditions); irradiance on cell surface 800 W/m <sup>2</sup> ; air temperature 20°Celsius; wind velocity 1 m/s           |
| O&M                    | <b>Operations and Maintenance</b>                                                                                                                                                       |
| PE                     | <b>Potential Equalization</b>                                                                                                                                                           |
| POA                    | <b>Plane of Array</b>                                                                                                                                                                   |
| PPA                    | <b>Power Purchase Agreement</b>                                                                                                                                                         |
| PR                     | <b>Performance Ratio</b>                                                                                                                                                                |
| PV                     | <b>Photovoltaic</b>                                                                                                                                                                     |
| PV-Module / Module     | Single solar module; smallest, essentially planar assembly of solar cells and ancillary parts, such as interconnections and terminals intended to generate direct current power         |
| Solar generator        | Total of all PV strings of a PV power supply system which are electrically interconnected                                                                                               |
| STC                    | <b>Standard Test Conditions</b><br>Irradiance at module level 1,000 W/m <sup>2</sup><br>Cell junction temperature 25°C<br>Solar spectral irradiance distribution AM 1.5 (AM = Air Mass) |
| String / Module string | Consists of 23 PV modules connected in series and is the smallest site assembled power unit                                                                                             |
| TA                     | <b>Technical Advisor</b>                                                                                                                                                                |

|            |                                                                                                                 |
|------------|-----------------------------------------------------------------------------------------------------------------|
| TC         | <b>T</b> echnical <b>C</b> onsultant                                                                            |
| TF station | <b>T</b> ransfer station; interface to the power utility with electricity meter for billing purposes            |
| TS         | <b>T</b> ransformer station; transforms the alternating current from LV to MV                                   |
| V          | <b>V</b> oltage                                                                                                 |
| UPS        | <b>U</b> ninterrupted <b>P</b> ower <b>S</b> upply                                                              |
| Wp         | <b>W</b> att peak, rated power output or peak power at STC is the output data for solar modules or solar plants |
| IEE        | <b>I</b> nitial <b>E</b> nvironment <b>E</b> xamination                                                         |

RAD

## General Data

### Assignment

|                     |                                                                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Task:               | Preparation of a Feasibility Study                                                                                                    |
| Scope of Work:      | 8.2 REEP was commissioned to perform a feasibility study to evaluate the viability and potential of the site as part of the contract. |
| Client:             | K-Electric Limited<br>KE House, 39-B, Sunset Boulevard, DHA Phase II<br>Karachi<br>Pakistan                                           |
| Order Date:         | 21-04-2021                                                                                                                            |
| Contractor:         | 8.2 Renewable Energy Experts Pakistan<br>60-H, Gulberg III<br>Lahore,<br>Pakistan                                                     |
| Author / Inspector: | Faisal Dar                                                                                                                            |
| Second Inspector:   | Aitsam Hasan                                                                                                                          |
| Report number:      | 202624-Vinder-FS-R00                                                                                                                  |

RAN

Project Identification

|                                 |                                                                            |
|---------------------------------|----------------------------------------------------------------------------|
| <u>Solar plant</u>              | 50MWp K-Electric Plant at Vinder                                           |
| <u>Coordinates (Lat, Lon)</u>   | 25°33'53.0 N 66°38'22.0E                                                   |
| <u>Location, Country</u>        | Vinder, Pakistan                                                           |
| <u>Altitude above sea level</u> | 18 m                                                                       |
| <u>Plant type</u>               | ground mounted                                                             |
| <u>Size of the site</u>         | approx. 1.0 km <sup>2</sup> (247 acres)                                    |
| <u>Expected plant size</u>      | 50,000 kWp                                                                 |
| <u>Grid connection</u>          | High Voltage Level,132 kV substation                                       |
| <u>Electric utility company</u> | K-Electric Limited                                                         |
| <u>General Contractor</u>       | to be selected                                                             |
| <u>Project Developer</u>        | K-Electric Limited                                                         |
| <u>Site Owner</u>               | K-Electric Limited                                                         |
| <u>Road Access</u>              | Site is located on main Regional Cooperation for Development (RCD) Highway |
| <u>Water Access</u>             | No proper water access, tube wells with RO plants are recommended          |

RAD

## Executive Summary

This study assesses the feasibility for 50 MWp PV Power Plant in Vinder, Balochistan, Pakistan. The assumptions, results and conclusions of this study have been refined during multiple site visits, latest being in June 2021.

PV power plants of large sizes are not common. However, through vast knowledge and experiences acquired over many years, it has become possible to develop highly efficient parks, irrespective of size.

Analysis of data obtained from various sources including several key studies like Geo-Tech, IEE etc. allow us to conclude that the site allocated for power plant is feasible. Components, currently available in the market, are suitable for the environmental conditions of the region. However, a risk management strategy for development, construction and operation is highly recommended. A project timeline of 12 months from financial close until the commercial operation day is a reasonable assumption.

It is recommended, that a single axis mounting structure to be considered for this project, as it allows us to increase the yield and capacity factor with minimum cost impact. In the past tracking systems were not common and affordable but now with the advancement in technology, these systems are proving to be a better option as compared to fixed mounting structures.

Support for IPPs, both from the provincial and federal government, is visible by way of infrastructure development in the country. Launching of the first 100 MWp PV plant through the Punjab government owned entity, QA Solar (Pvt.) Ltd, has also lent impetus and encouragement for private IPPs to follow in their footsteps.

Lahore, 29.06.2021

Faisal Dar, BS & MBA

Aitsam Hasan, MSc. (Eng.)

Ran



## 1 Summary

This feasibility study assesses and summarizes the given information and includes additional results from extensive site visits.

### 1.1 Technical Project Description

The plant site is located in Vinder which lies in the Lasbela district of Balochistan. The plant size would be 50,000kWp which will cover an approximate area of 225 acres. The location of the plant is shown in Figure 1. Installations in this phase shall be connected to the 132 kV overhead power line. Presently, there is an existing 66kV transmission line which will be dismantled and a new 132kV line would be set up.

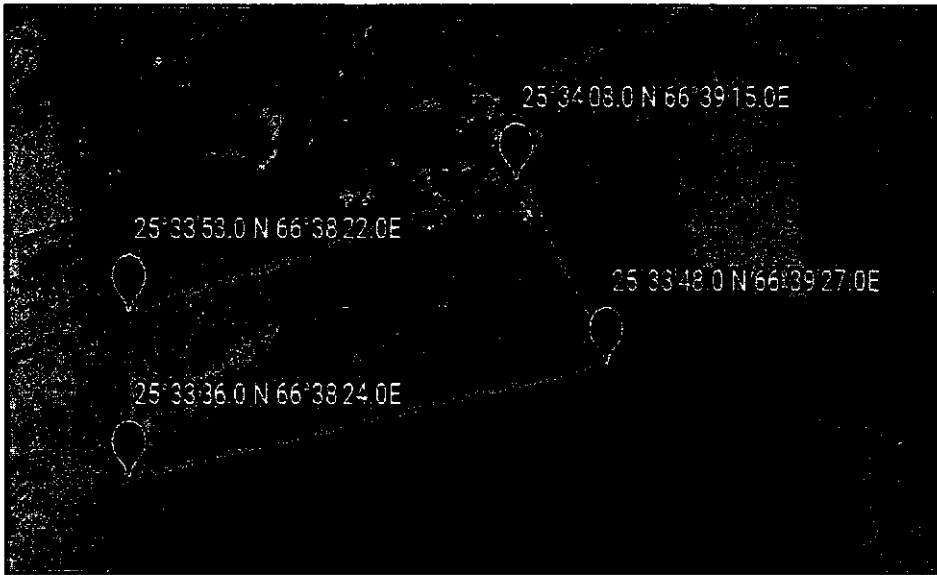


Figure 1 Location of site

### 1.2 Project Status

The project is under RFP stage i.e. the RFPs have been floated for the EPC companies. Moreover, various studies like the Initial Environment Examination, Geo-Tech, topography and meteorological study have been conducted for the plant site. K-Electric plans to begin the construction of the power plant by the end of this year.

### 1.3 Technical Risk Factors for the PV Power Plant

The following table shows the possible risks and their assumed occurrence probabilities associated with the project.

RAD

|                                               |  |
|-----------------------------------------------|--|
| Deal Breaker: high risk not possible to solve |  |
| High Risk, possible to solve                  |  |
| Medium Risk, possible to solve                |  |
| Low Risk, possible to solve                   |  |
| OK                                            |  |

| Sr.-No | Subject                  | Risk                                                                                                                                                                                                                                                                                               | Risk Value | Risk Mitigation                                           |
|--------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------|
| 1      | Geographic parameters    | The exact position for power plant has been finalized. However, there is unwanted vegetation.                                                                                                                                                                                                      | Low Risk   | Relocation or removal of vegetation has to be considered. |
| 2      | Climatic conditions      | The climate conditions require robust components. Amongst other criteria, effective cooling, dust/sand filters and abrasive resistant materials shall be utilized.                                                                                                                                 | Low Risk   | To be considered in detailed design                       |
| 3      | Environmental Aspects    | Precautions against rodents shall be made to protect cabling effectively.                                                                                                                                                                                                                          | Low Risk   | To be considered in detailed design                       |
| 4      | Topography and grounding | Foundations for Buildings have to be well prepared. Screw- or Ramming-Pile foundations present the best options for installation of PV-generator. The overall design, selection of components, and all constructions and foundations, as well as cabling have to be suitable for these conditions. | Low Risk   | Soil analysis has to be considered for foundation design. |
| 5      | Irradiation Data         | There is a potential bias of satellite irradiance data for this area by 3-5% towards                                                                                                                                                                                                               | Low Risk   | Ground measurements for at least 6 months should be       |

| Sr.-No | Subject          | Risk                                                                                                                                                                                                                | Risk Value | Risk Mitigation                                                                                                                              |
|--------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|        |                  | the downside of the expected value.                                                                                                                                                                                 |            | done before financial close to reduce the uncertainty                                                                                        |
| 6      | Transport Access | The site is located on main RCD highway. Construction and service roads within the Plant's area have to be erected.                                                                                                 | Low Risk   | To be done during detailed design                                                                                                            |
| 7      | Water Access     | A water management plan for construction and operation of the plant shall to be carried out.                                                                                                                        | Low Risk   | To be done during detailed design                                                                                                            |
| 8      | Grid Access      | Currently, there is no available line to get electricity during construction phase. Therefore, a MV power line should be made or diesel generators should be used to provide electricity during construction phase. | Low Risk   | MV Power Line should be made or diesel generators should be used. Erection of MV/HV step-up stations to be considered during planning phase. |
| 9      | Facility Access  | Access to public facilities (fire / police station, hospital) is well available nearby. Fire hydrants have to be established along the roadside in a distance of max. 120 m.                                        | Low Risk   | To be initiated                                                                                                                              |
| 10     | Grid connection  | The specific requirements and approval for grid connection need to be confirmed by NEPRA / KE                                                                                                                       | Low Risk   | To be initiated asap                                                                                                                         |

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## 2 Overview of Solar Photovoltaic Plants and related Technologies

### 2.1 Basic Principles of Solar Photovoltaic Plants

Solar photovoltaic plants use the global irradiation (GI), which is converted into electric energy. Adequate project locations should offer at least 1,200 kWh/m<sup>2</sup> per year. The basic concept of a PV power plant is shown in Figure 2 below.

The solar energy collected by the modules is aggregated in several steps until it reaches the inverter. The inverter converts the DC power provided by the modules into AC power to feed into the grid.

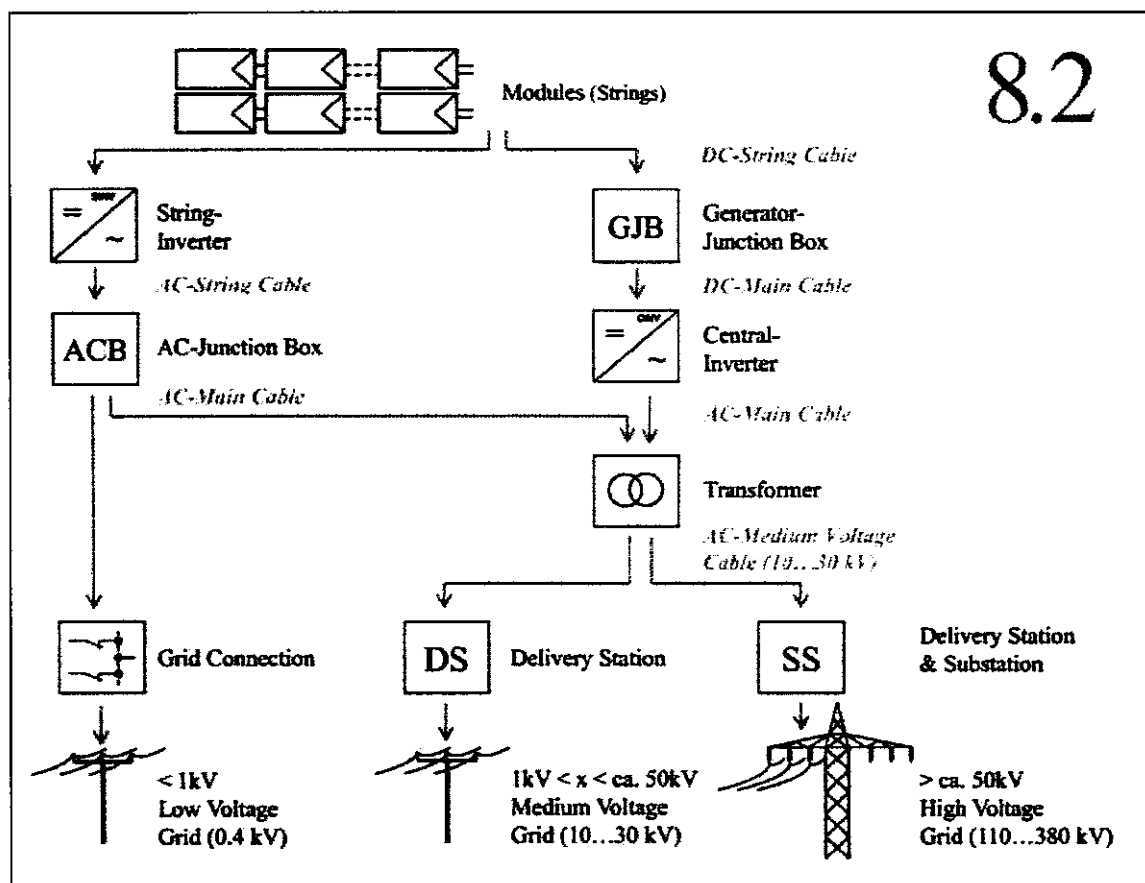


Figure 2: Schematic Overview / Principle of Photovoltaic Systems, Single Line Diagram

### 2.2 Basic Principles of Photovoltaic Modules

Photovoltaic technologies differ primarily by the type of manufacturing process, which leads to different price ranges, manufacturing cost and performance for the different technologies. Photovoltaic technology is based on the photoelectric effect, in which the photons emitted by

the sun get converted to electric power by the semiconductor. The semiconductor is typically made of silicon (80% of the global market).

These absorbed photons hit the atoms, releasing electrons, which causes a chain reaction that multiplies the effect of electrons released. The electrons get lifted from a lower potential to higher. This increase in potential results in the generation of current through potential difference (voltage). The reactions and release of electrons is continuous.

The purity level of the conductor material is important as well as the fact that there are no gaps or defects at the molecular and atomic level of the semiconductor material. As a general rule, the lesser the microscopic defects, the higher the efficiency of power conversion.

The efficiency of a solar cell ( $\eta$ ) is the percentage of power from solar energy, incident on the panel, converted to electrical energy. This term is calculated using the ratio of the maximum power point of the cell,  $P_m$ , divided by the light power that reaches the cell, the global irradiance ( $E$ , in  $W / m^2$ ) and the surface area of the solar cell ( $A_c$  in  $m^2$ ).

$$\eta = \frac{P_m}{E \times A_c}$$

As this efficiency varies in different irradiance conditions, the PV industry defined certain conditions for efficiency rating of PV panels. These are called standard test conditions (STC).

Another important standardized variable is the Normal Operating Cell Temperature (NOCT) for modules. This is a characteristic cell value defined as the temperature of the cells, which they reach at an irradiance of  $800 W / m^2$ , an ambient temperature of  $20^\circ C$  and a wind speed of  $1 m / s$  – typically given at open circuit.

Three main solar cell technologies are commercially available:

- Monocrystalline
- Polycrystalline
- Thin Film

## 2.2.1 Monocrystalline Technology

The manufacturing process of monocrystalline cells requires more effort in comparison to other technologies. However, these cells offer higher efficiency – typically within 15 – 21 %.

### Advantages:

- The loss of efficiency due to the higher temperature is lower than for other types of crystalline module technologies.
- Mature and commercially proven technology.

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- Long life of panels.
- Low degradation of maximum 0.1 - 0.5 % per year (manufacturer guarantee is 0.7 % degradation per year; however reality proves to be less).
- Lower installation costs.
- More environmentally friendly than other technologies, for example, some thin film technologies use cadmium. Monocrystalline cells are not harmful to the environment.

### **Disadvantages:**

- The initial investment costs are higher.
- Higher risk of damages (micro-cracks) during transport or during operation at sites with high wind speeds.

### **2.2.2 Polycrystalline Technology**

This technology exists since 1981. The manufacturing process is simpler when compared with monocrystalline technology.

### **Advantages:**

- Lower production costs.

### **Disadvantages:**

- Lower efficiency, due to lower purity of the cell material: 14 – 16 % (module size)
- Because of the lower efficiency, slightly more ground surface area is required to reach the same capacity (as for monocrystalline).
- Higher risk of damages (micro cracks) during transport or during operation at sites with high wind speeds.

### **2.2.3 Thin Film Technology**

This technology is called Thin Film because only a couple nanometers of the semiconductor material is placed on a substrate material. Hence a very low amount of material is needed. The main semiconductor materials used are:

- Amorphous Silicon (a-Si)

### **Cadmium Telluride (CdTe)**

- Copper Iridium Gallium Selenium (CIS / CIGS)
- Organic photovoltaic cells

Thin Film technologies have a low market share, except of the CdTe material, with the main manufacturer First Solar. But also CIS / CIGS technologies are having an increasing market,

because of their higher efficiency. Depending on the technology, standard thin film module efficiencies have reached 7 - 15%. Prototypes of these technologies reach an efficiency of 16% and more which is expected to be transformed to standard products in the future.

### Advantages:

- Easier to manufacture, thus lower costs.
- Homogenous appearance.
- Flexible, hence for use at different applications and surfaces.
- Less affected by high temperatures and shadowing.

### Disadvantages:

- Faster degradation rate of up to 0.7 % per year. However, there are some hints that, nowadays, CIS has degradation rates comparable to crystalline modules.
- Lower efficiency leads to greater surface area requirements, for the same capacity.

Table 1: Comparison of the Module Technologies

|    | Parameter                                                                                                               | Crystalline                                  |                                              | Thin Film                      |                                  |
|----|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|--------------------------------|----------------------------------|
|    |                                                                                                                         | Monocrystalline                              | Polycrystalline                              | CdTe                           | CIS / CIGS                       |
| 1  | Voltage rating $-V_{mp}$ and $V_{oc}$                                                                                   | 80 % – 85 %                                  | 80 % – 85 %                                  | 72 % - 78 %                    | 72 % - 78 %                      |
| 2  | Temperature Coefficient                                                                                                 | Higher losses<br>(ca. -0,4 %/K)              | Higher losses<br>(ca. -0,45 %/K)             | Lower losses<br>(ca. -0,2 %/K) | Higher losses<br>(ca. -0,35 %/K) |
| 2a | Performance Losses for 40°C ambient temperature (~ 60°C cell temperature) versus STC conditions (25°C cell temperature) | ~ 14 %                                       | ~ 15,75%                                     | ~ 7%                           | ~ 12,25%                         |
| 3  | I-V curve Fill Factor                                                                                                   | Higher<br>70 % - 85 %                        | Higher<br>70 % - 85 %                        | Lower<br>60 % - 72 %           | Higher<br>70 % - 85 %            |
| 4  | Module Construction                                                                                                     | Framed with structural or anodized aluminium | Framed with structural or anodized aluminium | Normally Frameless             | Normally Frameless               |
| 5  | Module Efficiency                                                                                                       | 14 % - 20 %                                  | 12 % - 17 %                                  | 6 % - 12 %                     | 13 % - 15 %                      |
| 6  | Inverter Compatibility and Sizing                                                                                       | High efficiency                              | High efficiency                              | Low efficiency                 | High efficiency                  |

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## 8.2 | The Experts in Renewable Energy

|    |                           | Crystalline                                                                                                         |                                                                                                            | Thin Film                                                                                                                                                                    |                                                                                                                                                        |
|----|---------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Parameter                 | Monocrystalline                                                                                                     | Polycrystalline                                                                                            | CdTe                                                                                                                                                                         | CIS / CIGS                                                                                                                                             |
|    |                           | → less modules<br>→ less inverters                                                                                  | → less modules<br>→ less inverters                                                                         | → more modules<br>→ more inverters                                                                                                                                           | → less modules<br>→ less inverters                                                                                                                     |
| 7  | Mounting System           | Industry Standard practices                                                                                         | Industry Standard practices                                                                                | Special clips and structures for frameless modules may be needed to hold the module.<br><br>Mounting system has to be accepted by module manufacturer.                       | Special clips and structures for frameless modules may be needed to hold the module.<br><br>Mounting system has to be accepted by module manufacturer. |
| 9  | Layout Area               | Much smaller size for the same output.                                                                              | Smaller size for the same output.                                                                          | May require up to 50% more space for the given project size. The extra space can't be standardized and depends on the design (rows over each other) and the site conditions. | Smaller size for the same output.                                                                                                                      |
| 10 | Applications              | On grid and off grid usage.<br><br>More usual as a reference cell and used for scientific tests.                    | On grid and off grid usage.                                                                                | On grid and off grid usage.                                                                                                                                                  | On grid and off grid usage.                                                                                                                            |
| 11 | PV Plant cell cost        | More expensive than polycrystalline and CdTe modules due to high cell efficiency                                    | Cost Higher than CdTe due to higher cell efficiency; Production process easier which lowers the basic cost | Cost Lower due to lower efficiency and double pane glass sheeting                                                                                                            | Very expensive                                                                                                                                         |
| 12 | PV Plant module unit cost | Cost per kWp slightly higher as for polycrystalline modules, but comparable to the cost per kWh due to fewer losses | Cost per kWh comparable                                                                                    | Cost per kWp slightly higher as for polycrystalline modules, but comparable to the cost per kWh due to fewer losses                                                          | Cost per kWp slightly higher as for polycrystalline modules, but comparable to the cost per kWh due to fewer losses                                    |
| 13 | PV Plant total cost       | Lower Cost due to higher efficiency of the modules (less                                                            | Usually lowest cost (Low m <sup>2</sup> cost and less m <sup>2</sup> needed because                        | Highest cost due to additional space and                                                                                                                                     | High cost due to additional space                                                                                                                      |



|    | Parameter           | Crystalline                                                                                                                                       |                                                                                                                                                                     | Thin Film                                                                                                                              |                                                                                                                                            |
|----|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|    |                     | Monocrystalline                                                                                                                                   | Polycrystalline                                                                                                                                                     | CdTe                                                                                                                                   | CIS / CIGS                                                                                                                                 |
|    |                     | modules and less mounting structures). Entire cost depends on the market situation (module price) and the concerned country (m <sup>2</sup> cost) | of the higher efficiency compared to thin film modules). Entire cost depends on the market situation (module price) and the concerned country (m <sup>2</sup> cost) | mounting structures needed. Entire cost depends on the market situation (module price) and the concerned country (m <sup>2</sup> cost) | and mounting structures needed. Entire cost depends on the market situation (module price) and the concerned country (m <sup>2</sup> cost) |
| 14 | Module power output | Immediate and stable; but zero shadow tolerance, high losses when temperature high and irradiation suboptimal                                     | Immediate and stable; but zero shadow tolerance, high losses when temperature is high and irradiation suboptimal                                                    | Requires time to stabilize power output; even slightly shadowed output is feasible                                                     | Very good weak light performance (best results of the technologies in winter)                                                              |
| 15 | Degradation         | Around 0.5 % per year                                                                                                                             | Around 0.5 % per year                                                                                                                                               | Around 0.5 % per year                                                                                                                  | Around 0.2 % per year                                                                                                                      |
| 16 | Market perspective  | Standard technology many providers.                                                                                                               | Standard technology, many providers                                                                                                                                 | One big provider (First solar)                                                                                                         | Little number of providers.                                                                                                                |

## 2.3 Mounting structures and tracking systems

The photovoltaic modules can be installed on fixed structures or on moving structures tracking the sun. Trackers can be implemented either as a single axis system or as a dual axis tracking system.

### 2.3.1 Fixed mounted structure

Fixed structures are usually tilted to face south (north in southern hemisphere) with a fixed angle depending on several parameters e.g. the location. Nowadays, more and more PV power plants are installed with modules tilted to east and west usually with tilt angles between 10° to 15°. This installation type would offer lower peak capacity. However, the generation curve would be less spiked and allow an energy generation distribution to be more spread out over the day. The row shading of these installations is less, such that the rows can be installed closer to each other and more modules can be installed on the same area as it is possible with modules facing south. Depending on the construction, the installation costs of east-west installations are often lower than south oriented systems.

2.3.1



Figure 3: Fixed Mounted Structure facing south or north



Figure 4: Fixed Mounted Structure facing east and west

## 2.3.2 Tracker systems

The aim of trackers is an optimized adjustment of the module surface to the sun during the day to increase the total irradiation onto the module surface. This can also lead to greater efficiency in converting solar energy. Commonly used tracking systems are single and dual-axis trackers.

Dual-axis trackers follow the sun in azimuth and tilt. With it, the sun can be exactly tracked over the course of the day to achieve an optimized irradiation angle. Dual-axis trackers have one pole which is carrying and tracking a frame with modules mounted on. Usually, between 20 and 30 modules are installed on one tracker. The installed module capacity on the plant has to be lower than with fixed mounted structures to avoid overwhelming shading losses. Dual-axis trackers are almost independent of the landscape.

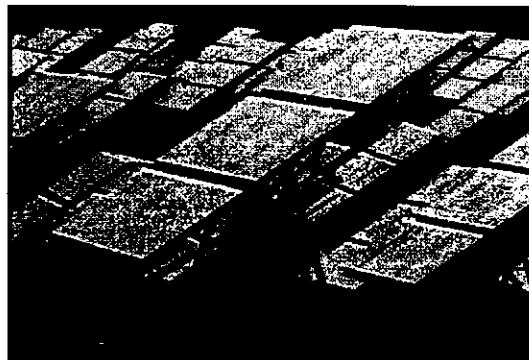


Figure 5: Dual-Axis Tracker

Single-axis trackers usually follow the azimuth of the sun. Several construction types exist. One is similar to dual axis trackers with one pole carrying a module frame (vertical axis system). In that case, the module tilt is fixed and the pole is used as rotation axis. The tilt depends on the location. For the location Vinder (25°33'53.0 N 66°38'22.0E) the optimal installation would have a tilt of approximately 28°.

Because the single-axis tracker, described above, needs similar space as dual axis trackers, nowadays another type of single axis tracker is in use. This one has a horizontal rotation axis oriented from south to north or from east to west. The modules are installed parallel to the rotation axis. Depending on the way of installation and length of horizontal axis the requirements to the flatness of the area can be higher, because the horizontal axis itself is not able to compensate irregularities.

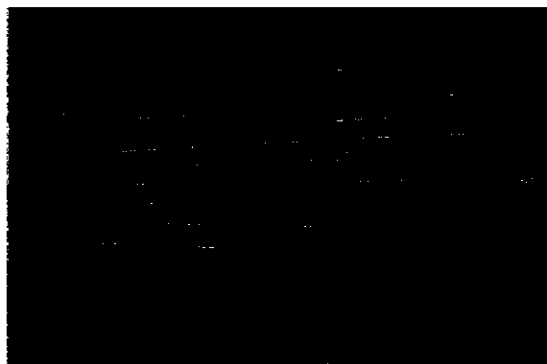


Figure 6: Single Axis Tracker, vertical Axis



Figure 7: Single Axis Tracker, horizontal Axis

The decision to choose any of the three types of mounting structure is based on a technical and economical evaluation. When choosing a tracking system, the extra energy generation in combination with the energy price must be compared with the additional investment and maintenance costs required for tracking systems.

In general, tracker solutions gather more irradiation per installed module capacity than fixed mounted modules. The peak of the production curve is wider during the day compared to fixed mounted modules. But the installation effort is higher for tracker solutions based on their design. More attention has to be laid into the resistance against heavy storms.

Table 2: Comparison of the Mounting Systems

|   | Parameter          | Fixed-tilted                                                                                                                                                      |           | Horizontal single-axis tracker                                                  |             | Vertical single-axis tracker                                       | Dual-axis tracker                                                 |
|---|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------|-------------------------------------------------------------------|
|   |                    | South faced                                                                                                                                                       | East-west | East-west                                                                       | North-south |                                                                    |                                                                   |
| 1 | System costs       | Lower than for tracker solutions, as no mechanical parts                                                                                                          |           | Higher costs than fixed-tilted. High differences between the manufacturers.     |             | Higher costs than horizontal tracker                               | The highest costs of all systems                                  |
| 2 | Installation costs | Lower than for tracker solutions, as less complex system. But the difference regarding the total installation cost is minimal compared to the horizontal tracker. |           | Higher costs than the fixed tilted system, but lower than the vertical tracker. |             | Higher installation costs, especially for the commissioning phase. | Higher installation costs, especially for the commissioning phase |

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|   | Parameter                 | Fixed-tilted                                                                                                    |                                                                                         | Horizontal single-axis tracker                                                                                       |                                                                                                              | Vertical single-axis tracker                                                                   | Dual-axis tracker                                                                              |
|---|---------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|   |                           | South faced                                                                                                     | East-west                                                                               | East-west                                                                                                            | North-south                                                                                                  |                                                                                                |                                                                                                |
| 3 | Maintenance costs         | Lower than for tracker solutions, as no mechanical parts                                                        |                                                                                         | Depends on the selected manufacturer (options without mechanical parts available), but cost higher than fixed-tilted |                                                                                                              | Higher costs based on the mechanical parts                                                     | Higher costs based on the mechanical parts                                                     |
| 4 | Max. pivoting angle range | 10° to 35°                                                                                                      | 5° to 20°                                                                               | -120° to 120°                                                                                                        | -120° to 120°                                                                                                | Fixed tilt for site 28°, vertical axis -180 to 180°                                            | Motorized tilt 00-80° and vertical axis -180° to 180°                                          |
| 5 | Site requirements         | System is adaptable to uneven ground and high slopes. Standard system up to 35°(North/South) and 10°(East/West) |                                                                                         | Ground might be uneven with slopes up to 28°                                                                         | Ground might be uneven with slopes up to 28°<br>The system makes just sense if the site is not facing South. | Ground might be uneven but sites with higher slopes are not suitable without huge extra effort | Ground might be uneven but sites with higher slopes are not suitable without huge extra effort |
| 6 | Space requirement         | Several rows can be installed over each other. Space requirement low                                            | No row shading, so the rows can be installed near to each other. Best space requirement | Installation of rows over each other is limited, but space requirement not much higher than fixed-tilted             | Installation of rows over each other is limited, but space requirement not much higher than fixed-tilted     | The distance between the trackers must be high. Space requirement is high                      | The distance between the trackers must be high. Space requirement is high                      |
| 7 | Space factor (Wp/m2)      | ~50 - 75                                                                                                        | ~60 - 90                                                                                | ~40 - 65~                                                                                                            | ~45 - 55                                                                                                     | ~15 - 25                                                                                       | ~15 - 25                                                                                       |

## 2.4 Inverter Technology

Because photovoltaic panels generate DC electricity, it must be converted to alternating current before it can be fed into the grid. This is achieved by an electronic device called inverter.

State of the art inverters offer a broad range of operational stages, which generally fulfill all the requirements of the international grid codes in terms of fault-ride-through and reactive power provision. Inverter stations provide a protective shell in which PV-strings can be connected to inverters. Centralized inverters typically have a capacity from 500 kW to 3125 kW of DC PV-Power, depending on the size of inverter.

From the inverter stations the AC power is stepped-up by a MV or HV-Transformer, and then connected to a medium or high voltage grid (for instance 132 kV and 220 kV as in Pakistan).

Regarding the inverter system, two design types can be selected: a central or a decentralized design.

## 2.4.1 Central Inverter

Use of central inverters is the standard practice in large PV plants. The strings are combined in string combiner boxes and several combiner boxes are connected to an inverter. Typically the output power of central inverters is between 500 kW and 3125 kW. The inverter can be installed in a compact station, in a container or as an outdoor system depending on the space for installation and the transport opportunities.

Typically, central inverters have a better price per MW and have less start-up and operation problems. But they require a specific training of the electricians for the commissioning procedure and in case of failures.

The efficiency is around 1 - 2% higher than of string inverters.

## 2.4.2 String (decentralized) Inverter

String inverters are commonly used in small sized PV plants but there is also a trend to use them in large scale PV plants. The strings are connected directly to inverters, which can be up to 225 kW.

String inverters can be installed and exchanged by basic educated electricians and spare parts can be stored near the side. These inverters are easy to transport and handle. In complex terrain, with a lot of shading, the benefit is lesser module strings and therefore fewer modules are combined per inverter. Therefore, in case of partial shading of the PV generator, the mismatch losses are less because fewer modules are affected.

## 2.5 Control System

A PV plant is typically controlled by a SCADA System (Supervisory Control and Data Acquisition) so that it can be remotely managed and supervised. However, for preventive, planned and corrective maintenance, adequate staff and qualified contractors must be identified for the Operations & Maintenance (O&M) of the plant.

## 3 Site Description and Assessment

### 3.1 Geographic Parameters

The plant site is in the southern region of the Balochistan province in district Lasbela, it is almost 18km to the main town Vinder, see Figure 8 and Figure 9. Lasbela is a coastal district of Balochistan, it contains five tehsils with Vinder being the sub tehsil of Hub.



Figure 9 Overview of Location/ Region in Pakistan



Figure 8 Site Map Showing Access Roads

As it is a coastal district, there is some unwanted vegetation on the planned solar plant site which may cause shading of the solar generator (Figure 10 and Figure 11). This may cause temporary impact on some parts of the generator field. The vegetation will have to be relocated or removed before any construction begins.

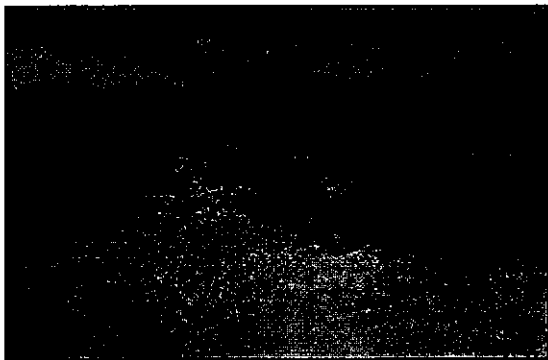


Figure 10 Vegetation at site

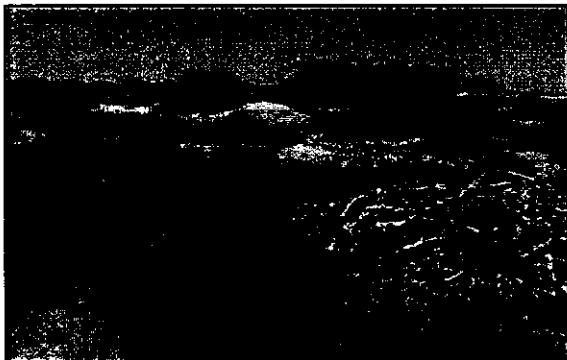


Figure 11 Vegetation at site

|                       |                                                                                               |                                                          |
|-----------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Geographic parameters | The exact position for power plant has been finalized. However, there is unwanted vegetation. | Relocation or removal of vegetation has to be considered |
|-----------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------|

### 3.2 Climatic conditions

Climatic conditions have an influence on construction and foundation layout as well as energy production. The Balochistan Meteorological Department has only one weather station throughout Lasbela district. However, to evaluate the climate conditions of the plant site a detailed Meteorological study was carried out. From the study it was observed that the site has warm summers with average high temperatures up to 36° C.

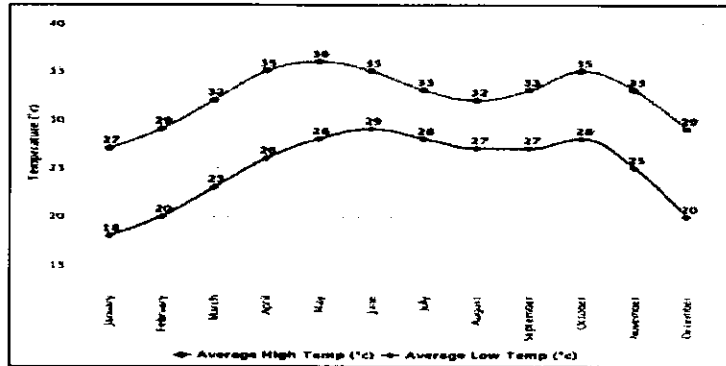


Figure 12 Site Temperature Range (source: Meteorological Study)

The monsoon season lasts from May through September with a peak in July and August. 60 – 70 % of the yearly rainfall comes in these months. The average rainfall per year in balochistan can range from 50 – 200 mm. In the Figure 13 the monthly precipitation for the plant site is shown.

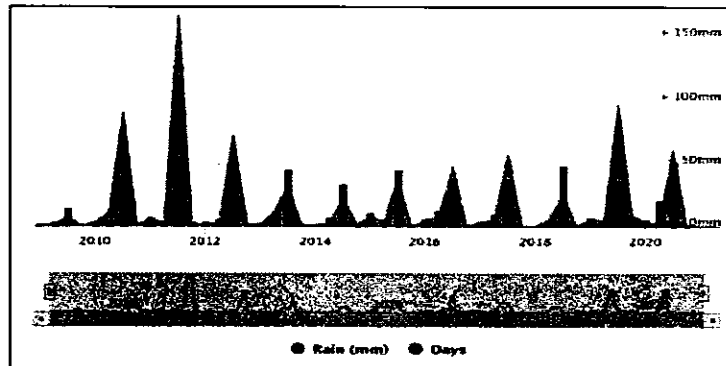


Figure 13 Precipitation at site (source: Meteorological Study)

Drainage from the site seems not to be an issue as water will drain towards RCD highway and will pass through the culverts. For flood, a small stream network was found at plant site. The stream is all dried up and remains show that it has been inactive from decades. Therefore,



chances for flooding are low however, it is recommended to design the site drainage keeping in view the 100 year return flood period.

There is an average of 9 hours of clear sky per day throughout the year and 2900 - 3300 sun hours annually.

As per meteorological study, the average wind speed in this area peaks at 35 kmph whereas average maximum wind speeds range between 30 to 35 kmph.

Micro climate effects can cause dusty and windy conditions which should be evaluated more thoroughly. Broken up surfaces cause swirling dusts at wind speeds of higher than 5 - 6 m/s.

Also, frequent dust storms are observed in the area which might increase the soiling loss for the power plant and have an overall negative impact on its yield.

**Impact on the project:**

The inverters for this site should be designed for high ambient temperatures and all of the equipment including inverters, transformers etc. should be installed on an elevated terrain. Dusty conditions should be considered for the design of filters for all electrical equipment and buildings. The position of the modules and other structures should be chosen so that an intelligent drainage and seepage network can be incorporated into the site.

|                     |                                                                                                                                                                    |                                                               |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Climatic conditions | The climate conditions require robust components. Amongst other criteria, effective cooling, dust/sand filters and abrasive resistant materials shall be utilized. | <b>Low Risk –<br/>to be considered in detailed<br/>design</b> |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|

**3.3 Other Environmental Aspects**

No industrial activities are present nearby, the closest industrial area from the site is Hub which is 70km form the plant site. There are agriculture activities around the site. Pakistan Environment Protection Agency (Pak-EPA) has no regulations or requirements for solar power generation (PEPA Regulations 2000). Low rainfall and some wind cause slight erosion of soil. No protected wild plants or animals are reported at the site. The ambient air and noise quality meet the required National Environmental Quality Standards (NEQS) limits. Further details of environmental impact are highlighted in Initial Environmental Examination (IEE) of the plant site.

Potential risk of earthquakes is a clear point of consideration as the site is located in a region which is in the vicinity of the plate boundaries. Historical data shows that large magnitude earthquakes have occurred within more than 150 km radius from project area. The peak

APW

horizontal acceleration for a return period of 475 years is 0.30g. More information can be found in the Geotechnical study of plant site.

As the plant site occupies a large area so usually rodents live in such areas. They are known to eat plastics and cables. However, during site visits, only holes in the ground were seen.



Figure 14 Rodent holes at site

### Impact on Project:

No critical aspects can be detected as long as all obligatory safety rules are implemented e.g. for oil pollution from facilities and transformers.

|                       |                                                                           |                                                   |
|-----------------------|---------------------------------------------------------------------------|---------------------------------------------------|
| Environmental Aspects | Precautions against rodents shall be made to protect cabling effectively. | Low Risk –<br>to be considered in detailed design |
|-----------------------|---------------------------------------------------------------------------|---------------------------------------------------|

### 3.4 Topography and Grounding

The topography of the project site is predominately uneven with some level portion within the area. The soil has dry shrubs growing on it.



Figure 15 Vegetation

The natural soil layer is not suitable as the foundation bearing layer and the soil has to be prepared for heavy transport traffic, as frequent traffic is likely to loosen the soil surface. Further investigations with focus on necessary preparations are required. Details of soil can be found out in Geo-Tech study.

Table 3 Soil classification

| Borehole No. | Sample No. | Depth (m) | Grain Size Analysis |      |       | Atterberg Limits |    | Sulphate Content | Chloride Content | pH Value | Soil Classification (USCS) |            |
|--------------|------------|-----------|---------------------|------|-------|------------------|----|------------------|------------------|----------|----------------------------|------------|
|              |            |           | Gravel              | Sand | Fines | LL               | PI |                  |                  |          | Group Symbol               | Group Name |
|              |            |           | %                   | %    | %     | %                | %  |                  |                  |          |                            |            |
| BH-03        | DS-1       | 0.0 - 1.0 | 0.0                 | 81.0 | 19.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
|              | SPT-3      | 3.00      | 0.0                 | 81.0 | 39.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
|              | SPT-5      | 5.00      | 0.0                 | 72.0 | 28.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
| BH-04        | SPT-1      | 1.00      | 0.0                 | 63.0 | 37.0  | Non- Plastic     |    | 0.128%           | 0.52%            | 8.3      | SM                         | Silty Sand |
|              | SPT-2      | 2.00      | 0.0                 | 64.0 | 36.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
|              | SPT-4      | 4.00      | 0.0                 | 70.0 | 30.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
| BH-06        | DS-1       | 0.0 - 1.0 | 0.0                 | 56.0 | 44.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
|              | SPT-3      | 3.00      | 0.0                 | 65.0 | 35.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
|              | SPT-5      | 5.00      | 0.0                 | 63.0 | 37.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
| BH-08        | SPT-1      | 1.00      | 0.0                 | 66.0 | 34.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |
|              | SPT-2      | 2.00      | 0.0                 | 65.0 | 35.0  | Non- Plastic     |    | 0.133%           | 0.54%            | 8.5      | SM                         | Silty Sand |
|              | SPT-4      | 4.00      | 0.0                 | 59.0 | 41.0  | Non- Plastic     |    |                  |                  |          | SM                         | Silty Sand |

The thickness and resistivity values of the subsurface layers of soil are quite variable therefore, the detailed findings of resistivity in the Geo-Tech study should be used for the designing of earthing system.

## Impact on the project:

Overall conditions are more or less standard and various solutions can be settled to implement the project.

|                          |                                                                                                                                                                                                                                                                                                    |                                                           |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Topography and grounding | Foundations for Buildings have to be well prepared. Screw- or Ramming-Pile foundations present the best options for installation of PV-generator. The overall design, selection of components, and all constructions and foundations, as well as cabling have to be suitable for these conditions. | Soil analysis has to be considered for foundation design. |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|

RW

### 3.5 Meteorology including Solar Resource

Pakistan is exposed to strong solar radiation, long hours of sunshine, and abundant solar energy resources. The annual sunshine hours range between 2900 - 3300 hours, with a daily average of 12 hours of sunshine.

Lasbela District is located in the south of Balochistan Province. For this location, the average sunshine duration sums up to 8.9 hours per day resulting in approx. 3250 hours of sunshine per year. The basic available meteorological data and the sunshine hours for year 2020 of the Meteorological Station of Lasbela district have been collected.

**Table 4: Climate Data of the Region (Extract)**

|                       | Average daily Sun hours * | T Amb | Wind Vel |
|-----------------------|---------------------------|-------|----------|
|                       | h                         | °C    | m/s      |
| <b>January</b>        | 7.7                       | 18.4  | 2.39     |
| <b>February</b>       | 9.9                       | 21.2  | 2.79     |
| <b>March</b>          | 8.2                       | 26.1  | 3.1      |
| <b>April</b>          | 9.0                       | 29.3  | 3.79     |
| <b>May</b>            | 9.4                       | 31.8  | 5        |
| <b>June</b>           | 9.3                       | 32    | 5.2      |
| <b>July</b>           | 8.4                       | 31    | 5.3      |
| <b>August</b>         | 6.9                       | 29.7  | 4.7      |
| <b>September</b>      | 10                        | 29.3  | 4.1      |
| <b>October</b>        | 10.3                      | 29    | 2.5      |
| <b>November</b>       | 9.1                       | 24.2  | 1.99     |
| <b>December</b>       | 8.4                       | 19.8  | 2.19     |
| <b>Annual average</b> | 2900-3300                 | 26.8  | 3.59     |

Source: Meteorological Station Lasbela District

Sun hours: Hours

T Amb: Average ambient temperature (Meteonorm 8.0)

Wind Vel: Average wind velocity (Meteonorm 8.0)

For the first part of this feasibility study, we have used the solar irradiance resource from the Meteonorm 8.0 database. To determine the best data for the solar irradiation predictions, we will also analyze SolarGIS. Generally, different sources refer to the same satellite and ground measured data. In the following paragraphs, we will describe the differences and define the preferred meteorological dataset for the yield assessment.

The high level of global horizontal irradiation with the typical shape of seasonal variation through the monthly values shows differences of only 2 - 3% on annual basis between different sources.

**SolarGIS** provides irradiation data based on calculations from satellite images. The database represents long-term global data (1999 to 2021). The spatial resolution is 250 m. SolarGIS

typically has an uncertainty of 3.5 % based on experiences in other countries of the MENA region and Middle East. For Pakistan and the region of Balochistan, we calculate an uncertainty of 5% due to missing close reliable reference meteorological stations with measurement for irradiance values.

**Meteonorm** uses several sources e.g. different satellites and ground stations for mean values. The main time period is 1996 – 2015 (totally 1942 stations). The most important source of radiation data is the Global Energy Balance Archive (GEBA, <https://protos.ethz.ch/geba/>). This database is also used to extract uncertainty, variability and trend information (770 stations are used for this). Additionally the global radiation values of the stations of NREL's TMY3 database ([http://rredc.nrel.gov/solar/old\\_data/nsrdb/1991-2010/tmy3/](http://rredc.nrel.gov/solar/old_data/nsrdb/1991-2010/tmy3/)) with the highest quality level (NSRDB class I) have been included in the Meteonorm database. Interpolation of global radiation data is based on a mixture of ground measurements and satellite data. The calculation of the uncertainty values of global radiation is based on (1) uncertainty of ground measurement based on long term variability of local climate, (2) uncertainty of interpolation of ground measurement and uncertainty of satellite based data and (3) on uncertainty of splitting into diffuse and direct radiation and inclined planes. Four parameters have been classified: (1) duration of measurement period, (2) standard deviation, (3) decadal trend and (4) end of measurement period. Interpolation of ground stations is modelled with help to the nearest station.

High latitudes and high albedo would increase the uncertainty even more which is not the case for the site. The uncertainty of satellite data is given by Meteonorm with 3 - 8 %. The overall uncertainty calculated internally by the Meteonorm software comes out with 3.1% based on the available 20 years long term data set for this region for global horizontal irradiation (Ghi).

For a more exhaustive overview, the different sources can be viewed in detail in Table 5 and Figure 16.

Table 5: Results from different Sources for Irradiance Data

| Irradiation Sources              | Meteonorm 7.3      | SolarGIS           |
|----------------------------------|--------------------|--------------------|
| Bahawalpur                       | 1996-2015          | 1999-2021          |
| Average monthly sum              | GlobHor            | GlobHor            |
|                                  | kWh/m <sup>2</sup> | kWh/m <sup>2</sup> |
| January                          | 119.7              | 129                |
| February                         | 128.6              | 145                |
| March                            | 172.3              | 191                |
| April                            | 184.7              | 208                |
| May                              | 198.9              | 222                |
| June                             | 184.5              | 195                |
| July                             | 156.1              | 169                |
| August                           | 148.7              | 160                |
| September                        | 161.6              | 173                |
| October                          | 150.3              | 171                |
| November                         | 127.7              | 138                |
| December                         | 115                | 125                |
| Annual sum kWh/m <sup>2</sup> *a | 1848.1             | 2026               |

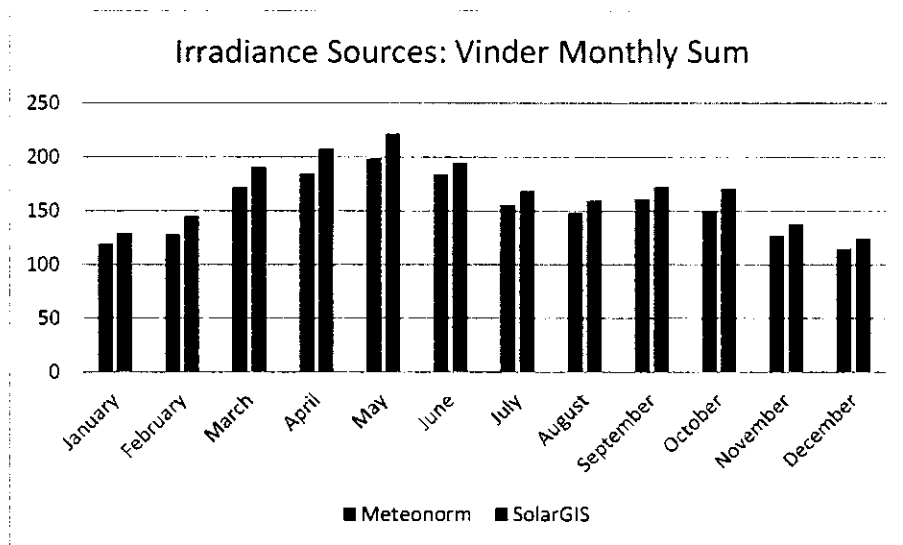


Figure 16: Comparison of Results from different Sources for Irradiance Data

Based on the consultant's experience, these irradiance values are in close proximity and deviate only slightly. For energy yield analysis in this Feasibility Report, Meteonorm and SolarGIS data will be used.

|                  |                                                                                                                         |                                                                                                          |
|------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Irradiation Data | There is a potential bias of satellite irradiance data for this area by 3-5% towards the downside of the expected value | Ground measurements of at least 6 months should be done before financial close to reduce the uncertainty |
|------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|

## 3.6 Transport Access

The site lies on the main RCD highway and also has a link road. The nearest airport is located at a distance of 80 km at Karachi. Sea freight may be shipped to Karachi harbor and then be transported to the site via road.

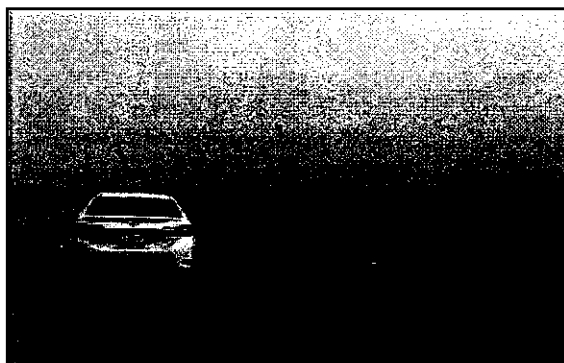


Figure 17 Access road (RCD Highway)

|                  |                                                                                                               |                                              |
|------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Transport Access | The site lies on main RCD highway. Construction and service roads within the Plant's area have to be erected. | Low Risk - to be done during detailed design |
|------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------|

## 3.7 Water Access

Water will be required for dust prevention during the construction phase and for cleaning of modules in the operation phase.

### 3.7.1 Water Demand

The majority of the water will be needed for regular cleaning of the modules. Furthermore, small amounts of water will be needed for domestic consumption (e.g. living), landscaping and dust prevention on roads / tracks. Wet cleaning of the modules is supposed to take place on a monthly basis. The total demand of fresh water is estimated to be approx. 45325 m<sup>3</sup> / year including the amount for domestic, landscaping and dust prevention consumption for the power plant. The daily water demand equals to approx. 12.5 m<sup>3</sup> / day per 50 MWp Solar power plant.

However, after extensive analysis of the site conditions, it is suggested that the modules be cleaned via dry brushing at least once per week to ensure maximum output. In case of weekly wet cleaning, the water demand can rise further.

### 3.7.2 Water Supply

At Vinder site, it was enquired from locals that ground water is present at about 70m to 80m depth below the existing ground level. For a sustainable source of water, it is better to install a tube well with RO plants within the project site boundary after performing detailed ground water survey.

### 3.7.3 Water Reuse / Treatment / Disposal

The water utilized for cleaning the modules will not be reused or treated after the module cleaning procedure. The water will be let to seep away into the ground, as catching the water before dropping off the modules is a very complex process. As environmental pollutants, e.g. dust, sand, and bird droppings, are mixed within the used cleaning water, those naturally occurring elements are not regarded to give any negative influence to the PV plant's soil. However, in long term of solar plant operations, it can be efficient to apply some type of water recycling system to reduce fresh water consumption for module cleaning process. However, the module manufacturer's specifications regarding water quality have to be respected.

Water used for domestic supply is supposed to be collected in underground waste water storage tanks. A procedure to recycle grey water, e.g. from lavatory, is not scheduled currently, but recommended to be applied for efficient reduction of fresh water consumption.

A waste water treatment plant is currently not intended, but recommended to be applied. Waste water from domestic use shall not be dissipated into the ground without treatment.

### 3.7.4 Water Management Plan

We recommend carrying out a water management plan for construction and operation of the solar power plant. In particular:

- Water demand of the plant (e.g. for construction and cleaning of the modules).
- Water supply to the plant (based on the hydrological situation in the area).
- Water reuse / recycling schemes (e.g. waste treatment, storage ponds...).
- Waste water discharge (e.g. quality and amount of waste water, run-off systems, etc.).
- Water-related (hydrological) environmental impact analysis.



|              |                                                                                                                  |                                                         |
|--------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Water Access | A water management plan for construction and operation of the plant, as specified above shall to be carried out. | <b>Low Risk -<br/>to be done during detailed design</b> |
|--------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|

## 3.8 Grid Access

Currently, there is a 66kV line which would be dismantled and a new 132kV would be established to export power from the solar power plant. A detailed grid interconnection study is recommended.

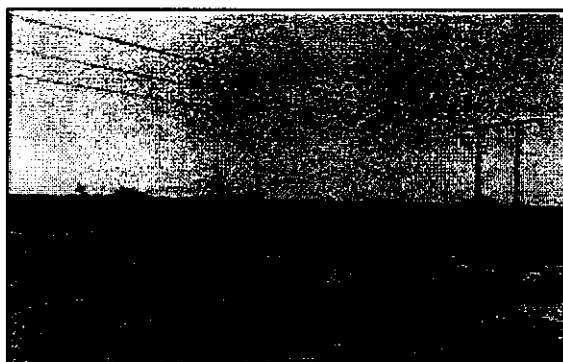


Figure 18 Existing 66kV line

|             |                                                                                                                                                                                                                     |                                                                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grid Access | Currently, there is no available line to get electricity during construction phase. Therefore, a MV power line should be made or diesel generators should be used to provide electricity during construction phase. | <b>MV Power Line should be made or diesel generators should be used.<br/>Erection of MV/HV step-up stations to be considered during planning phase.</b> |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|

## 3.9 Facility Access

As the PV development site is almost 18km to main town Vinder therefore, most of the facilities like police station, hospitals are near to site too.

However, no proper fire station could be located near the site. Therefore, It should be checked if a fire station is located near the site or not. If the fire station is located it should also be checked if it can meet the fire protection requirements of the solar power plant, to conclude, if a dedicated fire station is required or not.

According to the features of the plant site, and on the basis of the relevant specifications of Code of Design on Building Fire Protection and Prevention (GB50016-2006), fire hydrants will be provided in the general services area and the 132 kV step-up station. The outdoor fire

REV

hydrant shall be erected along the roadside, and the arranged distance between the hydrants shall be no more than 120 m. The fire devices shall be designed according to the secondary load power supply standard, using double circuit power supply and automatic switching at the end. The fire devices shall use fire protection or fire-resistant cables. The fire protection and firefighting system is part of safety requirement and shall be designed and provided by EPC contractor.

There are nearby hospitals therefore, the distance to the hospital is acceptable. An emergency kit has to be provided on site, along with an emergency guideline, the emergency call number and a description of the travel route to enable a rapid aid.

The distance to the police station is also acceptable, but it is recommended that the site has its own full time security staff located near or on the site.

|                 |                                                                                                                                                                              |                 |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Facility Access | Access to public facilities (fire / police station, hospital) is well available nearby. Fire hydrants have to be established along the roadside in a distance of max. 120 m. | To be initiated |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|

## 4 Plant Layout and Description of Technical Equipment

### 4.1 Power Supply Infrastructure

Presently, there is no proper power infrastructure at plant site. An 11 kV overhead power line should also be made available for auxiliary loads or diesel generators should be used, for sufficient power supply during construction phase.

### 4.2 Power plant Technology Configurations

In general, several technology configurations can be implemented.

The most economical technology configuration is a fixed mounted module installation with a tilt to the south with central inverters. The density of installed PV power to ground space is highest and the specific energy output by installed PV power is lowest.

Alternatively, a dual axis tracking system represents the complete opposite:

- It is more expensive, with highest O&M cost.
- It has the lowest density of installed PV power to ground space, and
- The highest specific energy output of installed PV Power.

A compromise of these two technologies lays in a single axis tracking system. This option offers a good cost to power ratio. Due to this insight, several versions of single axis tracking systems (with horizontal North-South axis) may be compared.

Single axis tracking installation is considered for the purpose of this feasibility, because it offers the perfect mix of cost and production.

Pile rammed substructure is the most recommended type of foundation for PV racks.

## 4.3 Basic System Design

In the following paragraphs, the main assumptions and the components preselected for the Energy Yield Assessment can be found.

### 4.3.1 Preliminary Layout

The preliminary layout shows a typical layout for a solar plant of this size. The final layout will be defined only once the final choice of modules, structures and inverters is made.

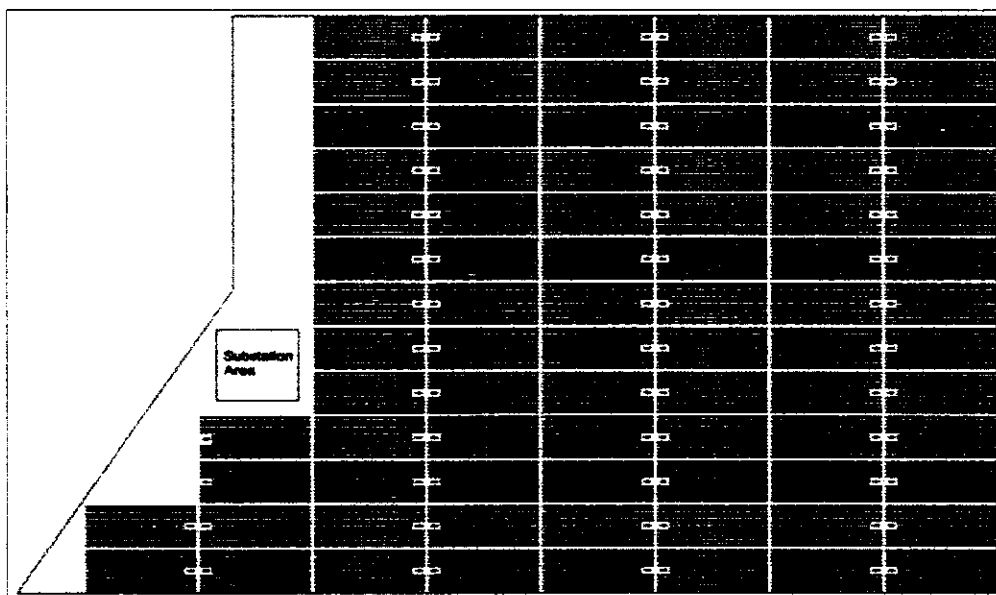


Figure 19: Schematic Overview PV Plant (excerpt)

### 4.3.2 Modules

The 144-cell Mono-crystalline PV modules, with a positive tolerance were selected for the system design. This type of module is state of the art. Such modules are new in the market but are available in sufficient amounts to implement a 50 MWp solar plant.

Quality of the modules will be assured by a pre-construction factory-audit of the manufacturer, laboratory testing of recently produced modules and on-site testing of modules delivered to construction site.

### 4.3.3 Structure

For mounting structure, a single axis EW tracking is selected. Single axis tracking offers more yield and does not has a dramatic impact on the overall project cost. Tracking systems are becoming common and have proven their reliability in several PV projects throughout the world.

The tracking structure has a maximum angle of  $60^\circ$  and minimum angle of  $-60^\circ$  to enable sun exposure and high energy yield.

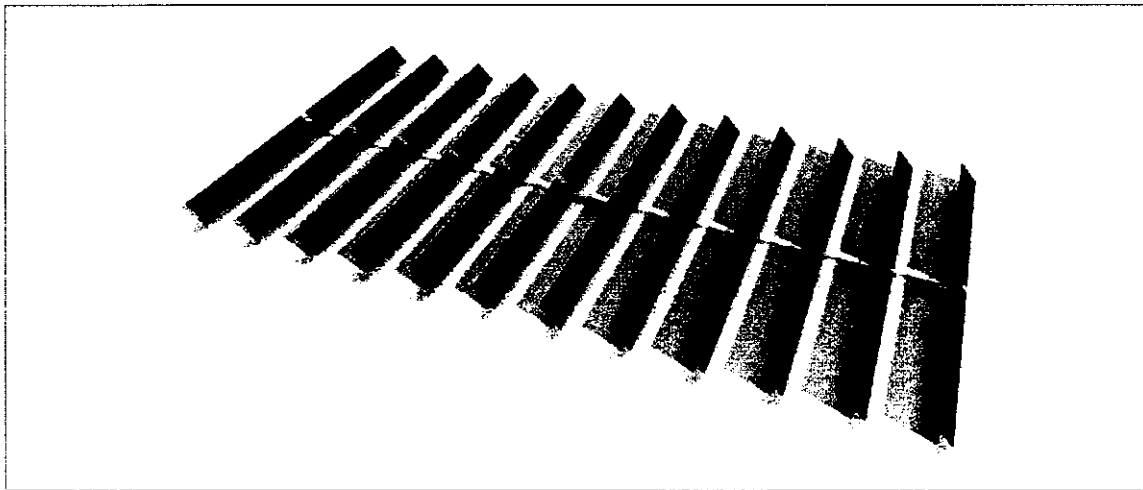


Figure 20: Schematic of PV Mounting Structure

### 4.3.4 Cables

The electrical interconnection between PV modules and inverters is designed to be made of minimum  $4 \text{ mm}^2$  copper cable. This is a standard approach according to international best practice and suitable for the project.

### 4.3.5 Inverters

For this feasibility study centralized type inverters were selected. This type of inverter is a typical and high quality state of the art product suitable for the project. Inverter quality shall be secured by a factory-audit of the manufacturer before production and delivery.

Centralized type inverters were selected due to their capacity of dynamic grid support, which is a relevant point in the project site. Additionally, the specific purchase price per MW is lower, and efficiency is higher than for decentralized inverters.

#### 4.3.6 HV Station

The substation is considered as a critical part of the project concerning the time line for its construction. Availability and delivery time of the chosen components and design criteria, acceptable to KE, have to be considered.

A standard substation consisting of a Medium Voltage part including HV transformer, HV portion of the plant, double bus bar single breaker scheme designed for HV portion is recommended for utilization in this project.

#### 4.3.7 Monitoring

A SCADA system of high temporal resolution (minimum should be 15 Minute average values) is recommended to be adopted. It is also recommended to measure fine resolution of plant components, e.g. in one channel combination of two module strings only.

To achieve an optimum energy yield, it is recommended to keep staff operating on site for continuous monitoring of the performance of the solar plant.

#### 4.3.8 Security

To secure the site against theft and vandalism as well as for staff's protection, a 2m high fence at least with barbed wire on top should be erected. As an alternative, a solid concrete wall should be erected. Additionally, a video surveillance system connected to a maintenance office is recommended to be installed to remotely supervise activities on site.

### 4.4 Required infrastructure developments

- Water tube wells should be established to provide water for the constructions phase.
- An 11kV line should be set up to provide electricity during construction phase and energize the auxiliary loads.

## 5 Grid interconnection

### 5.1 Assessment of possible electrical Faults and their Impact on the Power Network

In developed countries, many years of experience with grid connected renewable energy power plants and previous experiences in Pakistan have shown that it is possible to integrate these power plants into the grid under consideration of clearly defined technical aspects. PV plants, especially, are also able to offer reactive power 24/7 and can thereby help stabilize the grid.

## 5.2 Possible electrical Faults and their Impact on the Grid

In general, measures have to be taken in order to assure that all types of electrical faults of the PV plant are managed in accordance with the relevant national grid code (NEPRA Grid Code June-2005) and potentially existing so-called "Technical Conditions for Grid Connection" of the corresponding grid operator. The needs can be fulfilled by selecting the right safety equipment and a safety concept which includes all components from inverter up to the grid connection point.

## 5.3 Impact on the Evacuation Network

With respect to the transmission grid at high voltage level, the conditions for safe grid integration 50 MW nominal AC power needs to be formally assessed externally and signed off. The corresponding key indicators for this assessment are the short circuit power and the impedance angle of the grid at the grid connection point.

## 5.4 Balancing Power

Due to their very nature, PV plants as such are not suitable for providing balancing power. According to the installed inverters, the PV plant has to be operated far below nominal power at certain times of the day to ensure the requested reactive power. Usually, inverters react slowly to the request to change the share of reactive power. Due to the slow reaction of the inverters and the need for fast power balancing, a compensation system has to be implemented. The PV plant needs to be formally assessed, so that adequate measures to provide the required balancing power can be implemented and an overall monitoring and control system installed.

## 5.5 Grid control Strategies

Basically grid control strategies can only be set up with a somewhat clear understanding of the potential energy mix of a specific region in the future. Once this mix is known at least on "target basis", it is feasible to exploit the potential of modern inverters to the full extent, for instance their capabilities of providing reactive power on demand in more or less real time or in case of low voltage.

## 5.6 Technical Specifications

Prior to setting up technical specifications for the grid connection, a comprehensive analysis, of the existing grid codes, relevant guidelines and national regulations, has to take place with the target to establish the exact conditions for a safe, technically and economically viable grid

connection of the solar plant. Following this analysis, detailed technical requirement specifications, concerning the behavior of the grid connected solar power plant, can be set up in order to make sure that faults and deviations from the established set of conditions result in predefined actions. Key issues in this respect are:

- Decoupling of the solar plant in case of short circuit and voltage or frequency deviation above or below defined thresholds
- Dynamic grid support in case of short term voltage drops
- Provision of reactive power and control of effective power as required

## 5.7 Approvals

There has to be a grid integration and connection study to confirm the conditions of integration of this 50 MWp solar plant. In particular:

- Potentials and limitations for the integration of the power product of the different scales of SPV plants into the daily and yearly load curves.
- Quantitative and qualitative needs and already available grid-inherent potentials to provide balancing power.
- Quantitative and qualitative needs for additional balancing power.
- Further risks and necessary risk mitigation measures for ensuring grid stability.
- Required power quality output parameters of the plant.
- Technical requirements of inverters, transformer, switching devices, circuit breakers etc.
- Control parameters and control interfaces to the grid operators control schemes.
- Further risks and necessary risk mitigation measures avoiding and handling electric failures of the plant.

|                 |                                                                                               |                                 |
|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------|
| Grid connection | The specific requirements and approval for grid connection need to be confirmed by NEPRA / KE | Low Risk - to be initiated asap |
|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------|

## 6 Energy Yield Assessment

### 6.1 Solar Irradiation Data

The given sunshine hours can only indicate the volatility through the years which is around 20%. Besides the sun hour data, there are other sources for irradiation data as well e.g. satellite. To calculate energy values, the dimension to be taken into consideration should be expressed in kWh/m<sup>2</sup> instead of sun hours. For a first energy yield analysis, the annual horizontal global irradiation was evaluated 1848.1kWh/m<sup>2</sup> (Meteonorm data base).

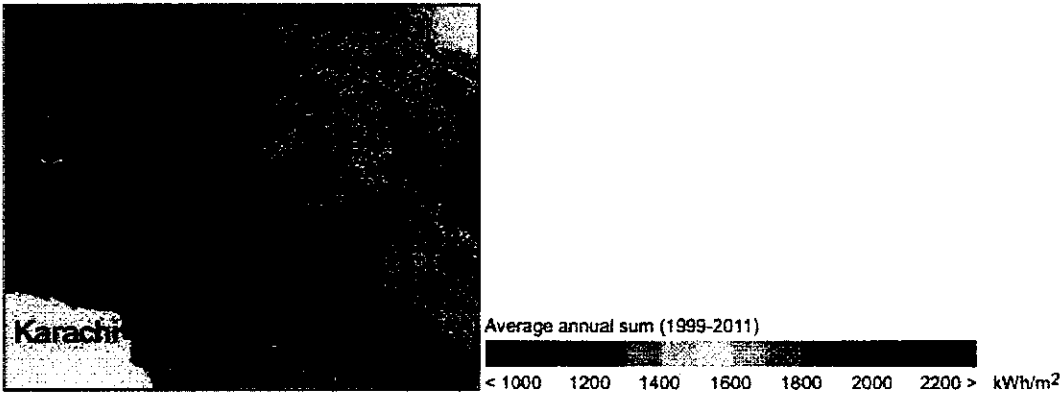


Figure 21: Global horizontal Irradiation (GHI) for Pakistan  
(Source: SolarGIS)

Table 6: Global horizontal Irradiance (Ghi) and Ambient Temperature (Ta)  
Monthly means (by Meteonorm 8)

| Month     | GlobHor (Ghi)      | T Amb (Ta) |
|-----------|--------------------|------------|
|           | kWh/m <sup>2</sup> | °C         |
| January   | 119.7              | 18.4       |
| February  | 128.6              | 21.2       |
| March     | 172.3              | 26.1       |
| April     | 184.7              | 29.3       |
| May       | 198.9              | 31.8       |
| June      | 184.5              | 32         |
| July      | 156.1              | 31         |
| August    | 148.7              | 29.7       |
| September | 161.6              | 29.3       |
| October   | 150.3              | 29         |
| November  | 127.7              | 24.2       |
| December  | 115                | 19.8       |
| Year      | 1848.1             | 26.8       |



Table 7 Global horizontal Irradiance (Ghi) and Ambient Temperature (Ta) (SolarGIS)

| Month     | GlobHor (Ghi)      | T Amb (Ta) |
|-----------|--------------------|------------|
|           | kWh/m <sup>2</sup> | °C         |
| January   | 129                | 19.4       |
| February  | 145                | 21.1       |
| March     | 191                | 25         |
| April     | 208                | 29         |
| May       | 222                | 31.1       |
| June      | 195                | 31.3       |
| July      | 169                | 30.3       |
| August    | 160                | 28.6       |
| September | 173                | 30.4       |
| October   | 171                | 28         |
| November  | 138                | 25.7       |
| December  | 125                | 21.0       |
| Year      | 2026               | 26.8       |

The deviation of single years from the long-term average can amount up to 15% and can show the same trend over several years. To minimize deviations for yield calculations, it is necessary to take into account a long term average of irradiation.

The figure below demonstrates the maximum deviation from the long term average in the years 1937-1999 at the Potsdam site. In fact, there will always be deviations in irradiance between each year of operation. Regarding the long term of operation these deviations will lead to an average irradiance very close to the number given in the yield analysis.

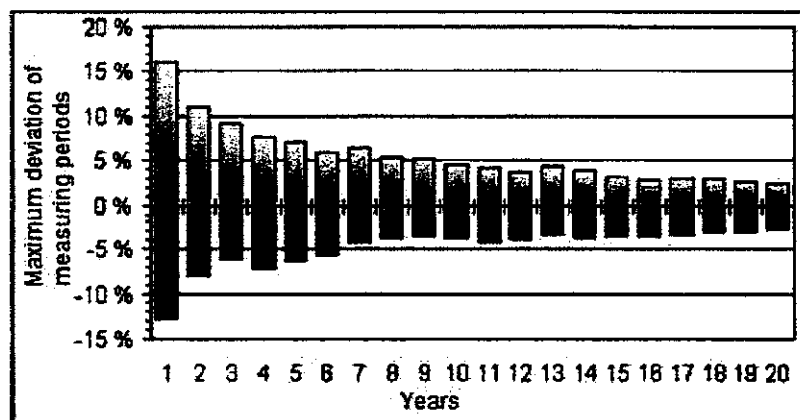


Figure 22 Deviation of Solar Irradiance from long term average

For the PV plant's geographical location, the uncertainty of irradiance measurement data is 3.1% (source: Meteonorm software, Version 7.3), as the nearest ground measurement station for comparative values is only available at a distance of 106 km.

RAP

## 6.2 Shading Analysis

From several site visits, we can summarize that terrain causes no relevant shading. There are a few existing settlements and vegetation, which will have to be relocated and removed before any construction begins.

## 6.3 Performance Ratio

A solar cell is the smallest semiconductor element within a PV module to perform the immediate conversion of sunlight into electrical energy by the photovoltaic effect. Depending on the employed technology, the degree of efficiency amounts up to 21 %. This value seems to be quite low but the free supply of primary energy (solar radiation) and the corresponding absence of power dissipation in the conventional sense should be taken into consideration. By using appropriate technology, the direct current generated by the solar modules is converted into alternating current that can be fed into the public power supply.

The conversion into alternating current implicates losses depends on the PV system configuration, the choice of components and to a minor degree on the local site conditions.

If these losses are identified and evaluated, the system operation quality – the performance ratio (PR) – can be ascertained.

The PR is stated as percentage and describes the relationship between the actual and theoretical energy outputs of the PV plant considering module efficiency.

PR = energy yield / (unshaded annual irradiation on array surface \* module efficiency according to STC)

$$PR = 100 \times \left[ \frac{E_{AC}}{E_{Irradiation} \times A_{Array} \times \eta_{STC}} \right]$$

$E_{AC}$  = energy coming from the inverter or measured at the energy meter in kWh

$E_{Irradiation}$  = unshaded irradiation at module level in kWh

$A_{Array}$  = total surface of all solar modules in m<sup>2</sup>

$\eta_{STC}$  = module efficiency at STC

The module efficiency (contrary to the cell efficiency) considers the gross module surface and can be calculated as follows:

$$\eta_{STC} = \left[ \frac{P_{Module}}{A_{Module} \times 1.000} \right]$$

## 6.4 Expected Losses

A fundamental step in understanding this important quality criterion is the explanation of the typical loss factors affecting the energy yield with different weights. In every simulation step, all described aspects have an hourly impact on the overall result.

All technical losses described below are calculated in the energy yield analysis depending on system design and chosen components and operation conditions.

### 6.4.1 Irradiation Gain by Inclination of Modules

In non-equatorial zones, the degree of irradiation at module level can be improved by the inclination of modules southwards (northern hemisphere) or northwards (southern hemisphere) against the horizontal. When reaching a normal module inclination angle of 25 - 30 degrees, the irradiation gain can amount up to 10 – 15% in temperate zones. It is expressed by the surface-factor F (A) ~ 1.10 – 1.15.

### 6.4.2 Technical Losses because of Shading

If there are objects in the environment of the planned PV power plant causing shading of the solar generator. These shadings can be considered and simulated by a shading analysis. A distinction is made between "horizon shading" and "nearby shading".

Horizon shading causes a shading effect which has a permanent impact on the entire generator field. The simulation considers this effect by adjusting the horizon line. Objects that are in a large distance to the modules, e.g. mountain ranges, are typical horizon shadings.

Nearby shading has a temporary impact only on some parts of the generator field. Most parts of the site remain unaffected. Objects at close distance to the PV modules cast shadows, e.g. power poles, trees also there can be shading between different rows of PV modules. Greater distances between the mounting rows will lead to less nearby shading, as the effect of shading at low sun-angle will reduce.

Depending on the site conditions, these aspects are considered in the yield simulation.

Best in class shading losses would be represented by values in the range of up to 1%. Acceptable values would range between 1% up to 4% always depending on the required use of ground and intended energy yield of the PV plant. Shading above 4% would be unacceptable.

KAD

## 6.4.3 Technical Losses because of Soiling

Dirt on the modules also causes shading effects which can change over time and seasonally. This shading impact on the energy yield depends for example on the surrounding landscape, cultivation and precipitation. The impact can only be appraised and is based on experience values as well as contracted cleaning. Consequently, the uncertainty is high. It is recommended to clean the PV modules regularly and based on an ongoing assessment of the actual soiling during operation.

Best in class soiling losses would be represented by values in the range of up to 2%. In Pakistan, acceptable values would range between 1% up to 5%. Soiling above 5% would be unacceptable.

## 6.4.4 Technical Losses because of Temperature Fluctuation

Ambient temperature and level of irradiation have an influence on the cell temperature and so affect the energy conversion process. According to the defined STC value of 25°C the electrical power output decreases with higher module cell temperature and increases with lower cell temperature. The PV module model shows this characteristic by means of temperature coefficients for current and voltage.

Best in class losses due to ambient temperature would be represented by values in the range of up to 9 % under the site conditions. Acceptable values would range between 9 % up to 11 %. Temperature fluctuation losses above 11 % would be un-acceptable.

## 6.4.5 Technical Losses because of Reflection

In particular inclined irradiation causes reflection of sunlight at the glass and solar cell surface. Although this causes a small effect, it is considered by an empirically determined factor: IAM (Incidence Angle Modifier). By default, the factor is set to 0.05.

Best in class losses due to reflection would be represented by values in the range of up to 1.5 %. Acceptable values would range between 1.5 % up to 2.8 %. Reflection losses above 2.8 % would be un-acceptable.

## 6.4.6 Technical Losses because of low Irradiance Level

The irradiance varies over time (hourly and seasonally). The efficiency of the conversion of irradiance into electricity (expressed as efficiency the PV modules) is – due to manufacturing processes generally not identical for the entire width of irradiance levels. The PV module model shows this characteristic by means of different efficiencies for different irradiance levels.

Best in class losses due to this effect would be <0.2%. Acceptable values would range between 0.2 % up to 0.8 %.

#### 6.4.7 Technical Losses because of Module Quality

Due to production related reasons and/or contractually allowed tolerances, the PV module output power under Standard Test Conditions might deviate.

Typical losses due to PV module quality are nowadays negative as only positive STC power tolerances are allowed.

Best in class losses due to module quality would be represented by values in the range of up to -1.0 %. Acceptable values would be negative as only positive tolerances are allowed.

#### 6.4.8 Technical Losses because of Array Mismatch

Array mismatch losses are mainly caused by the fact that in a string of modules the lowest current drives the current of the whole string. With its statistically distributed parameters of current, voltage and power in each module, most of the modules will not be driven at their optimum operating conditions.

Best in class losses due to mismatch would be represented by values in the range of up to 0.5%. Acceptable values would range between 0.5% up to 1.5%. Mismatching losses above 1.5% would be unacceptable.

#### 6.4.9 Technical Cable Losses

The whole wiring of the solar power plant is subjected to cable losses due to the natural resistance of conductors - the ohmic resistance. Due to small-scaled plant design and cable dimensioning for maximum performance, losses normally amount to 1 - 2%.

Best in class ohmic losses would be represented by values in the range of up to 1.5%. Acceptable values would range between 1.5% up to 2.5%. Ohmic losses above 2.5% would be unacceptable.

#### 6.4.10 Technical Losses because of DC to AC Inversion

The conversion of direct current (DC) into grid compatible alternating current (AC) entails inevitable losses. The inverter model shows this characteristic by means of different efficiencies for different load levels and input voltages.

Best in class losses due to DC/AC inversion would be represented by values in range of up to 1.0%. Acceptable values would range between 1.0% up to 2%. DC/AC inversion losses above 2% would be unacceptable.

#### 6.4.11 Technical Losses because of Transformation (Transformer Losses)

Transformer losses depend simultaneously on several parameters. Basic technical parameters like ohmic and magnetic resistance can be taken into consideration.

Best in class losses due to voltage transformation would be represented by values in range of up to 0.6%. Acceptable values would range between 0.6% up to 1.2%. Transformation losses above 1.2% would be unacceptable.

### 6.4.12 Technical Losses because of Self-Consumption

Inverters (operation, fans, heating ...), monitoring and security systems as well as communication systems consume power. During energy production the necessary power is reducing the current output of the PV plant.

Best in class self-consumption losses would be represented by values in the range of up to 0.2 %. Acceptable values would range between 0.2 % up to 0.5 %. Self-consumption losses above 0.5 % would be not acceptable.

### 6.4.13 Technical Losses because of Plant-Availability

The technical availability of a PV plant crucially determines the energy yield. Outages due to failure of fuses, disconnected strings or broken inverters are likely to occur and therefore must be considered in the expected energy yield.

Best in class technical availability losses would be represented by values in range of up to 0.3%. Acceptable values would range between 0.3% up to 1.2%. Availability losses above 1.2% would be unacceptable.

### 6.4.14 Technical losses because of Light-Induced Degradation (LID)

Light-Induced Degradation or sometimes referred to as initial degradation is a potential slight performance drop of the PV modules during the initial hours and days when exposed to solar irradiance which can affect several solar cells. Manufacturers of crystalline modules do not always take into account the potential LID effects when drafting the STC power specifications on the nameplate. If a manufacturer fails to take the LID into account during the power classification of the PV modules, this value will be used to regard this effect within the simulation.

Best in class LID losses would be represented by values in the range of up to 1.0 %. Acceptable values would range between 1.0 % up to 2.5 %. LID losses above 2.5 % would be not acceptable.

### 6.4.15 Technical Losses because of Weathering and Degradation

Changes in the energy yield because of weathering need to be considered in the expected long term energy yield. As degradation of the PV modules is a continuous process, depending on time, performance will decrease over time of operation. Performance guarantees of the manufacturer and different practical results diverge a lot. Former long-term study findings cannot be applied easily to PV modules produced with today's manufacturing processes and

product features. But it is assumed that today's processes and technologies lead to a higher module quality. The consideration of an annual correction value for weathering / degradation is recommended for the overall result.

Best in class degradation losses would be represented by values in the range of up to 0.1 %. Acceptable values would range between 0.1 % up to 0.5 %. Degradation losses above 0.5 % would be not acceptable.

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## 6.5 Overview to Technical Losses

As the technical design is not decided yet, our calculations are based on typical assumptions and state of the art components. The abovementioned described losses come out of the yield calculations of a so called waterfall diagram. Table 8 summarizes values of loss-factors.

Table 8: Overview to Loss Factors and Quality Classification

| Loss Factor                     | Best in Class | Non Acceptable |
|---------------------------------|---------------|----------------|
|                                 | %             | %              |
| Shading                         | < 1.0         | > 4.0          |
| Soiling                         | < 1.0         | > 5.0          |
| Low irradiance                  | < 0.2         | > 0.8          |
| Ambient temperature             | < 9.0         | > 11.0         |
| Reflection                      | < 1.5         | > 2.8          |
| Module quality performance      | < -1.0        | > 0.0          |
| Module mismatch losses          | < 0.5         | > 1.5          |
| Cable losses                    | < 1.5         | > 2.5          |
| DC/AC conversion                | < 1.0         | > 2.0          |
| Voltage transformation          | < 0.6         | > 1.2          |
| Self-consumption                | < 0.2         | > 0.5          |
| Availability                    | < 0.3         | > 1.2          |
| Light-Induced Degradation (LID) | < 1.0         | > 2.5          |
| Degradation on average          | < 0.1         | > 0.5          |

See below the results for single axis tracking [-60° to 60°] system.

General explanation of the waterfall diagram: (1) Starting with the Horizontal Global Irradiance: the tracking installation increases the irradiance on PV module plane. Near shadings, soiling losses and glass reflections reduce that gain. (2) Once the irradiance reaches the active cell, it is converted to electric power ("PV conversion"). (3) Further, electrical losses occur in the electrical system depending on the characteristic behavior of the components used, cabling



design, and operation of the equipment. Performance ratio of the whole system is calculated between "Energy injected to grid" and "Array nominal energy (at STC efficiency)".

Four simulations have been run for a single axis tracking system [-60° to 60°]. Two on Meteonorm with using Mono-Perc and Bifacial modules and another two on SolarGIS using the same technologies. For Reference one loss diagram using Meteonorm as the irradiance source and Mono-Perc modules is shown in Figure 23. The losses are in the expected range for the design and environmental conditions and have been kept same in all simulations. All PVsyst simulations are attached as Appendix 1.

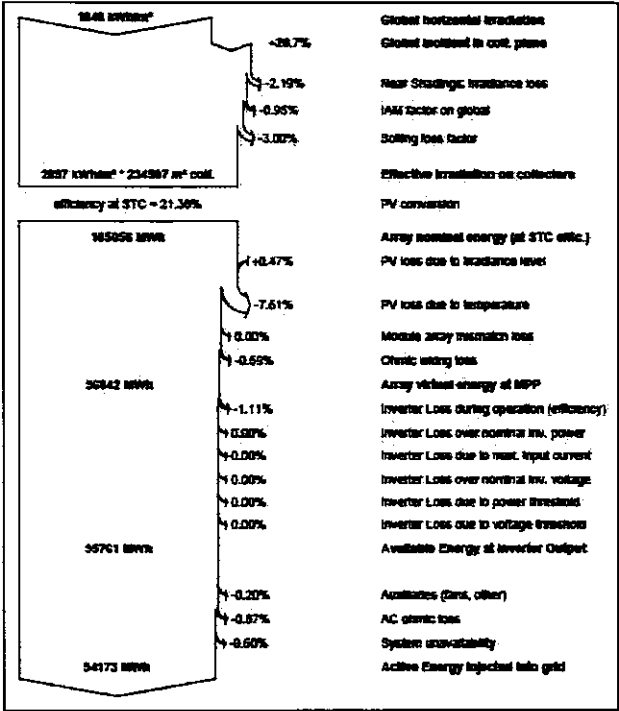


Figure 23 Loss Diagram with irradiance source Meteonorm & Mono-Perc Modules

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## 6.6 Energy Yield Simulation for most suitable Technical Design

Different pre-assessments have been calculated with the simulation software PVSyst. PVSyst takes as an input, the meteorological data as well as a given system design and a component selection. Then it simulates a whole operational year in two-minutes-steps through a whole year.

The options for technical design are single axis tracking with minimum tilt of -60 to a maximum tilt of 60. The first high level yield assessments show following initial annual output to grid at P50 level. The results (see) are calculated for the interconnection point with the HV grid.

The results include cable losses to the point of interconnection to the HV Power line.

**Table 9: Summarized Main Results of Yield Simulation**  
(Please see plot of main results in Appendix 1)

| Feature                                                     | 2025   | 2026   | 2027    | 2028    |
|-------------------------------------------------------------|--------|--------|---------|---------|
| <b>Irradiation in module plane [kWh/m<sup>2</sup>/year]</b> | 1848.1 | 1848.1 | 2026    | 2026    |
| <b>Performance Ratio (PR) [%]</b>                           | 84.41  | 88.53  | 84.11   | 88.11   |
| <b>Initial specific output [kWh/kWp]</b>                    | 1883   | 1975   | 2053    | 2151    |
| <b>Total output for 50 MWp [MWh/year]</b>                   | 94,173 | 98,766 | 102,668 | 107,554 |

### 6.6.1 Risk Mitigation

All the risks on the energy output can be controlled, except for the meteorological uncertainties. We strongly recommend to contractually specifying each qualitative relevant detail in the EPC and O&M contract. This includes the quality criteria, how they are to be measured for the single PV plants and the consequence if they are not met.

This point is most valid for the PV modules and inverters. To enforce the deliverables, a financial security should be in place for a minimum of two years, preferably five years.

The meteorological uncertainties have to be considered in the financial model, which needs to have the flexibility to cater for those.

## APPENDIX 1: PVSyst Simulation

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## APPENDIX 2: Geotechnical Investigation Report

## APPENDIX 3: Meteorological Report

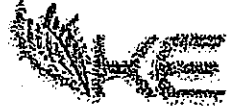
## APPENDIX 4: Initial Environmental Examination

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**ANNEXURE – J**  
**BER SUBMITTED BY KE TO NEPRA**

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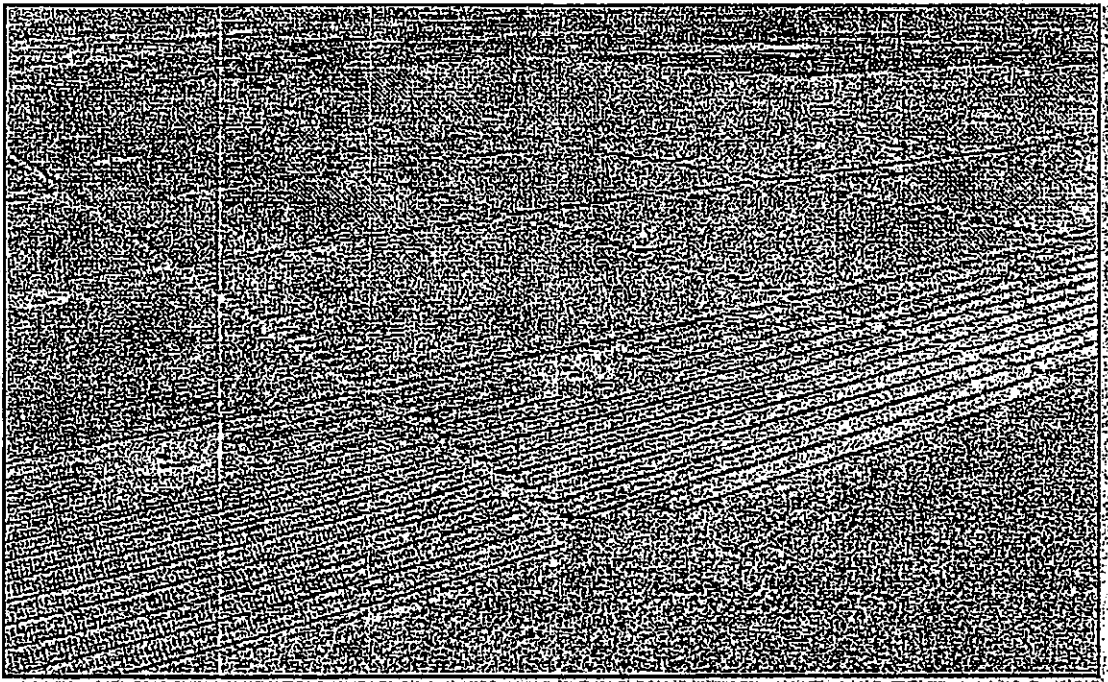
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## **BID EVALUATION REPORT**

**50MW<sub>p</sub> SOLAR POWER PROJECT AT WINDER –  
BALOCHISTAN – PAKISTAN ("PROJECT")**

**IN ACCORDANCE WITH NEPRA COMPETITIVE  
BIDDING TARIFF REGULATIONS, 2017 ("NCBTR")**



**AUGUST 2024**

km





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## Executive Summary

### Project Background

K-Electric Limited ("KE") initiated the process of bidding to Induct 50 MW Solar Project in Balochistan region under NEPRA Competitive Bidding Tariff (Approval Procedure) Regulations, 2017 ("NCBTR"). The Project will not only reduce generation costs but will also help KE in achieving its goal to include 30% Renewable capacity by 2030.

The Project is planned to be connected through to KE grid through the 132kV HVUB transmission line.

### Open Competitive Bidding

KE conducted the initial prequalification process for the Project in 2021. Subsequently, the Request for Proposal ("RFP") for the Projects were approved by NEPRA on February 29, 2024, under open competitive bidding without benchmark tariff. In compliance with the NCBTR and NEPRA determination, KE invited reputable local and international companies/consortiums with proven power project experience and sound financial standing to submit their Bid Proposal for the Project by 31<sup>st</sup> July 2024 ("Bid Submission Deadline").

### Power Evacuation arrangement

It is pertinent to mention here that evacuation of power from the Project is dependent on timely completion of HVUB Grid and Transmission Line for which KE humbly requests the Honorable NEPRA Authority to approve the cost based on competitive bids received so that the EPC Contract can be awarded for construction of the HVUB Grid and Transmission Line for timely evacuation of power from the Project.

### Submission of Bids and Evaluation of Technical Proposals

In response to KE invitation, seven (07) Bidders participated in the open competitive bidding procedure and their technical bids for the Project were opened on August 1, 2024.

After a thorough technical evaluation, it was concluded that all the Bidders met the knock-off criteria and achieved more than the minimum technical score. The list of Technically qualified Bidders is as follows.

| S. No. | Lead Sponsor                 |
|--------|------------------------------|
| 1      | Atlas Power Limited          |
| 2      | Hecate Global Renewables LLC |
| 3      | Hub Power Holdings Limited   |
| 4      | JCM Power Corporation        |
| 5      | Master Textile Mills Limited |
| 6      | Metro Group of Companies     |
| 7      | Oursun Pakistan Limited      |

Table 1: List of Technically qualified Bidders

RAN



### Evaluation of Commercial Proposals

Subsequent to technical evaluation, financial bids were opened for all the Technically qualified Bidders on August 19, 2024. The summary of tariff proposal submitted by all the Bidders are as follows:

| Lead Sponsor Name            | Bid Tariff (PKR/kWh) | Ranking |
|------------------------------|----------------------|---------|
| Master Textile Mills Limited | 11.6508              | 1       |
| Atlas Power Limited          | 12.3132              | 2       |
| Oursun Pakistan Limited      | 13.7686              | 3       |
| Hub Power Holdings Limited   | 13.7975              | 4       |
| JCM Power Corporation        | 13.7980              | 5       |
| Metro Group of Companies     | 14.4200              | 6       |
| Hecate Global Renewables LLC | 16.6839              | 7       |

Table 2: Summary of Tariff Proposal

### Prudency Check by KE

As directed by NEPRA in its determination of RFP of the Project, KE has conducted a comprehensive assessment of the successful bid, considering the prevailing macroeconomic and market conditions along with an assessment and analysis of displacement of expensive electricity in its system.

Based on the prudency check of Bid Tariff, KE has independently prepared an estimated Tariff number based on current market conditions and prices which works out to be in the range of Rs. 12.1917/kWh – Rs.13.5206/kWh (USc.4.2237/kWh – USc.4.6841/kWh) depending upon the mix of foreign and local debt. However, as evident from Table 2 above, the lowest Bidder - Master Textiles Mills Limited has offered a tariff of Rs.11.6508/kWh which is less than the estimated tariff worked out by KE.

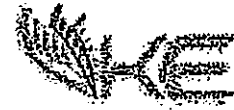
Additionally, KE has conducted analysis of displacement of expensive fuel due to offtake from the Project – further detailed in Section 4 of the Bid Evaluation Report ("BER"). Based on the analysis, the Project is expected to fetch annual savings in energy costs of PKR 744 million (total savings of PKR 18.59 billion through the life of the Project) on account of displacement of expensive imported fuel-based generation. Moreover, the Project is also expected to realize annual forex savings of USD 5.76 million (total savings of USD 144 million through the life of the Project).

### Results of Tariff Proposal

In accordance with the Technical and Financial evaluation criteria approved by NEPRA and as per the prudency check performed by KE, **Master Textile Mills Limited is declared as the Successful Bidder** for the Project by the Bid Evaluation Committee ("BEC").

### Submission to NEPRA

KE hereby requests the Honorable NEPRA Authority to grant its approval of the Competitive Bidding process and the BER so that the same can be communicated to Successful Bidder and subsequent steps can be taken accordingly.



## 1 Project Background

- 1.1 K-Electric Limited ("KE") is a publicly listed utility company and the only vertically integrated power utility, engaged in the Generation, Transmission Distribution and Supply of electricity in Pakistan. K-Electric has Distribution and Electric Power Supplier license for Karachi and its adjoining areas including Dhabeji and Gharo in Sindh and Hub, Uthal, Winder and Bela in Balochistan. The Company has around 3.7 million industrial, commercial, agriculture and residential consumers and is supplying electricity to over 20 million people.
- 1.2 The Winder, and Bela towns are located in the Lasbela district of Balochistan which falls under KE distribution territory. The existing transmission network from Winder to Bela is 66 kV which is planned to be replaced with new transmission lines and grids of 132 kV. The investment required for this upgradation is currently under review with NEPRA for approval. The 132 kV transmission system is planned to be energise before each Project's COD, subject to regulatory approvals.
- 1.3 KE conducted the initial prequalification process for the Projects in 2021.
- 1.4 In accordance with NEPRA's determination dated February 29, 2024, the prequalification process was conducted again. Moreover, NEPRA had clarified that the existing prequalified parties were considered as prequalified.
- 1.5 The RFP of the Project was structured in line with the laws of Pakistan, international standards and bankability. The approval of RFP document for the Projects was accorded by NEPRA vide its decision no. NEPRA/Advisor (CTBCM)/RFP-04/3115-21 on February 29, 2024.
- 1.6 The invitation to bid advertisement for the Project(s) was published on 2<sup>nd</sup> April 2024, under major publications as follows:
  1. International newspapers: China Daily, Khaleej Times, New York Times and Financial Times
  2. Local newspapers: Daily Dawn, Business Recorder, Express Tribune and others
  3. Tendering websites: globaltenders.com and tendersinfo.com
- 1.7 The RFP document was also made available on the KE website. All Bidders/Applicants were required to register on SAP ARIBA software, for submission of soft copy of the bids. All correspondence, clarifications and amendments were uploaded on the Ariba Software and/or KE website.
- 1.8 In line with the RFP, KE formed the Bid Evaluation Committee (as detailed in Section 2 below) to oversee the Competitive Bidding process, evaluation of Bids and preparation of Bid Evaluation Report.
- 1.9 As required under NCBTR, KE appointed M/s OMS (Private) Limited ("OMS") as Independent Consultant ("IC") in the Bid Evaluation Committee of the Project.

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## 2 Evaluation of Bids

### 2.1 Bid Evaluation Committee

In compliance with NEPRA Competitive Bidding Tariff Regulations, 2017 ("NCBTR"), KE formed the Bid Evaluation Committee comprising of following five (5) members:

| S. No. | Members                                       |
|--------|-----------------------------------------------|
| 1      | KE Business Development                       |
| 2      | KE Business Finance                           |
| 3      | KE Corporate Legal                            |
| 4      | KE Supply Chain                               |
| 5      | OMS (Private) Limited, Independent Consultant |

Table 2.1-1: Bid Evaluation Committee Members

The Bid Evaluation Committee has assessed both the Technical and Financial/Tariff Proposal received, and subsequently conducted bid evaluations in accordance with Exhibit 7 (Bid Evaluation Criteria) of the RFP. Moreover, OMS (Private) Limited, in its capacity as the Independent member of the Bid Evaluation Committee as required under the NCBTR, has been integral part of the bid evaluation process and has endorsed the technical and financial evaluation.

### 2.2 Power evacuation arrangements and Grid Interconnection Study

It is pertinent to mention here that evacuation of power from the Project is dependent on timely completion of HVUB Grid and Transmission Line for which KE humbly requests the Honorable NEPRA Authority to approve the cost based on competitive bids received so that EPC Contract can be awarded for construction of the HVUB Grid and Transmission Line for timely evacuation of power from the Project.

Grid Interconnection study had already been conducted for the project and the same has already been shared with the bidders.

### 2.3 Bidding Process

#### 2.3.1 Prequalification

A prequalification process was initially carried out by KE in 2021, however in the recent approval of the RFP, NEPRA directed KE to allow new parties to participate in the prequalification process who had not previously participated in the prequalification process, while the parties who have already been prequalified by KE shall not be required to go through the process again. The following parties were pre-qualified in the initial round of 2021.

| S. No. | Lead Sponsor                                   | Status        |
|--------|------------------------------------------------|---------------|
| 1      | China Machinery Engineering Corporation (CMEC) | Single Entity |
| 2      | Trina Solar Company Limited                    | Single Entity |
| 3      | Master Textile Mills Limited (MTML)            | Consortium    |
| 4      | Oursun Pakistan Limited                        | Consortium    |



|    |                                            |               |
|----|--------------------------------------------|---------------|
| 5  | Rana Nasim - Ghara Solar (Private) Limited | Consortium    |
| 6  | Marubeni Corporation                       | Consortium    |
| 7  | Sapphire Electric Company Limited          | Consortium    |
| 8  | Atlas Power Limited                        | Single Entity |
| 9  | Metro Group of Companies                   | Consortium    |
| 10 | Zorlu Energy                               | Single Entity |
| 11 | Universal Energy Company Limited           | Consortium    |
| 12 | JCM Power                                  | Consortium    |
| 13 | Engro Energy Limited                       | Single Entity |
| 14 | Zonergy Company Limited                    | Single Entity |
| 15 | Artistic Milliners (Private) Limited       | Single Entity |
| 16 | Scatec Solar                               | Consortium    |
| 17 | Malaysian Solar MSR                        | Consortium    |
| 18 | JA Solar Holdings                          | Single Entity |

Table 2.3-1: List of prequalified bidders

Subsequently, new bidders and the parties who have changed the consortium submitted prequalification documents along with their bidding documents.

### 2.3.2 Pre-bid clarifications

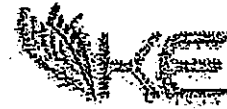
During the tendering process, several potential bidders submitted pre-bid clarifications to KE. In response, KE, in consultation with the Independent Consultant (OMS), addressed these clarifications. A consolidated document of pre-bid clarifications was subsequently prepared and circulated to all bidders by KE on July 23, 2024, and July 26, 2024. Moreover, KE issued General Clarifications (Refer Annexure A2), Corrigendum to RFP (Refer Annexure A3) and shared Energy Purchase Agreement revision with Bidders (Refer Annexure A4).

### 2.3.3 Bid submission

At the time of Bid Submission Deadline on July 31, 2024, a total number of 07 (seven) Bids were received from the following Bidders.

| S. No. | Bidder Name                                                                            | Address                                                                                                                              | Single Entity/Consortium | Country         |
|--------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|
| 1      | Atlas Power Limited                                                                    | 26/27 km, Lahore Sheikhupura Road, Sheikhupura                                                                                       | Single Entity            | Pakistan        |
| 2      | Hecate Global Renewables LLC (Lead Member) - The Imperial Electric Company (Pvt.) Ltd. | 621 W. Randolph St., Chicago, IL 60661, United States of America<br>National Tower, 28 Egerton Rd, Garhi Shahu, Lahore, Punjab 54000 | Consortium               | USA<br>Pakistan |
| 3      | Hub Power Holdings Limited                                                             | 9 <sup>th</sup> Floor, Ocean Tower Block-9, Main-Clifton Road, Karachi                                                               | Single Entity            | Pakistan        |

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|   |                                                                                                                |                                                                                             |            |                   |
|---|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------|-------------------|
| 4 | JCM Power Corporation (Lead Member) – Rana Nasim Ahmed (Support Member)                                        | 15 Baycrest Drive, Barrie, CA, ON L4M 7C7<br>76-B, Street 4, Phase 5, DHA, Lahore, Pakistan | Consortium | Canada – Pakistan |
| 5 | Master Textile Mills Limited (Lead Member) – Mr. Nadeem Malik (Sponsor)<br>Mr. Shahzad Malik (Sponsor)         | 82-C1, Gulberg III, Lahore                                                                  | Consortium | Pakistan          |
| 6 | Metro Group of Companies – Mr. Danish Iqbal (Sponsor) – Mr. Saad Iqbal (Sponsor) – Ms. Natasha Iqbal (Sponsor) | 7 <sup>th</sup> Floor, Al-Tijarah Centre, P.E.C.H.S., Main Shahrah-e-Faisal, Karachi.       | Consortium | Pakistan          |
| 7 | Oursun Pakistan Limited – Orient Power Company Private Limited                                                 | 10, All Block, New Garden Town, Lahore – Pakistan                                           | Consortium | Pakistan          |

Table 2.3-2: List of bids received

#### 2.3.4 Evaluation of Prequalification Application upon bid submission

In accordance with the KE RFP, two (2) Prequalified Applicants in the initial round namely, JCM Power Corporation and Metro Group of Companies submitted the request for change in their consortium.

Furthermore, Hub Power Holdings Limited and Hecate Global Renewables LLC submitted a new pre-qualification application for the Project.

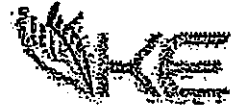
After evaluation of the Legal, Technical and Commercial requirements submitted in compliance of the RFP following new parties were prequalified for the Project.

| S. No. | Lead Member                                 | Status        |
|--------|---------------------------------------------|---------------|
| 1      | JCM Power Corporation                       | Consortium    |
| 2      | Hub Power Holdings Limited                  | Single Entity |
| 3      | Hecate Global Renewables LLC                | Consortium    |
| 4      | Metro Group of Companies - Mr. Danish Iqbal | Consortium    |

Table 2.3-3: List of fresh prequalified bidders

#### 2.3.5 Technical Evaluation Criteria:

Given below are the technical specifications relevant to technology and energy yield of the solar power plant, non-compliance to which shall result in disqualification of the bidder.



#### **Knock-off Criteria:**

|              |                                                                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solar Panel: | Tier 1                                                                                                                                                                                                         |
| Yield:       | Greater than 21.5%                                                                                                                                                                                             |
| Grid Code:   | Compatibility of the Complex and equipment with technical standards of Grid Code 2023 (power factor, voltage variation, operating frequency range etc.), Distribution Code and other applicable documents etc. |

Detailed Technical Scorecard is given in annexure A5, according to which, minimum criteria for qualification of bidder are 75 out of 100 marks after passing the knock-off criteria.

#### **2.3.6 Technical Evaluation Summary**

In view of the above, all parties submitting the technical bids have passed the technical evaluation and were declared as technically qualified.





Company Name



| Technical Evaluation Criteria                    | Atlas Power Limited | Hecate Global Renewables LLC | Hub Power Holdings Limited | ICM Power Corporation | Master Textile Mills Limited | Metro Group of Companies | Ourson Pakistan Limited |
|--------------------------------------------------|---------------------|------------------------------|----------------------------|-----------------------|------------------------------|--------------------------|-------------------------|
| Compliant With Knock-off Criteria                | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Solar Panel                                      | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Power Inverter                                   | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| GIS                                              | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Power Transformer & Other Switchgear equipment   | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| SCADA, Tele-communication and Protection Schemes | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Metering System & Back-up Metering System        | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Weather Station                                  | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Civil / Mounting Structure                       | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| BOP                                              | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Safety & Security                                | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Plant Monitoring System                          | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Interconnection Requirement                      | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Design Experience and Capability                 | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| Yield                                            | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| O&M                                              | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |
| HSE                                              | Yes                 | Yes                          | Yes                        | Yes                   | Yes                          | Yes                      | Yes                     |

Table 2.3-4: Technical Submission Summary Results (detailed technical scoring card in annexure A5)

Key: Yes = Compliant; No = Not Compliant

As per the RFP and general clarifications any change in equipment proposed will be subject to KE's approval and with the fulfillment of criteria set out in the RFP.

### 2.3.7 Legal Submission:

The prequalified bidders were required to submit the following information in their legal submission:

- Bid Submission Letter
- Confidentiality Agreement
- Form of Covenant
- Power of Attorney
- Affidavit

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- f) Letter of Acceptance
- g) Form of Bid Bond

All the bidders are considered to have submitted a compliant legal submission.

| Lead Sponsor                                   | Bid Submission Letter | Confidentiality Agreement | Form of Consent | Power of Attorney | Affidavit | Letter of Acceptance | Form of Bid Bond |
|------------------------------------------------|-----------------------|---------------------------|-----------------|-------------------|-----------|----------------------|------------------|
| Atlas Power Limited                            | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |
| Hecate Global Renewables LLC                   | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |
| Hub Power Holdings Limited                     | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |
| JCM Power Corporation                          | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |
| Master Textile Mills Limited                   | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |
| Metro Group of Companies<br>- Mr. Danish Iqbal | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |
| Oursun Pakistan Limited                        | Yes                   | Yes                       | Yes             | Yes               | Yes       | Yes                  | Yes              |

Table 2.3-5: Summary of Legal Documentation  
Key: Yes = Compliant; No = Not Compliant

### 2.3.8 Grievance and Redressal Committee

From and after the announcement of the technically qualified Bidders, any Bidder feeling aggrieved by the evaluation outcome may lodge a written complaint before the Grievance Redressal Committee concerning its grievance not later than seven (7) days after the announcement with adequate particulars of the complaint and attaching copies of any documents relevant to the complaint, via electronic mail to the following address: email address: [project.grievance@ke.com.pk](mailto:project.grievance@ke.com.pk).

No grievance was received for the Project as all Bidders were declared as technically qualified.



### 3 Evaluation of Bid Tariff

The financial bid opening took place on August 19, 2024. The Tariff Proposals of the technically qualified Bidders were opened in the presence of the representatives from KE, OMS and all technically qualified Bidders. The details of the Bid Tariffs submitted by each Bidder are summarized in the table below:

| Lead Sponsor                                | Bid Tariff (PKR/kWh) | Ranking |
|---------------------------------------------|----------------------|---------|
| Master Textile Mills Limited                | 11.6508              | 1       |
| Atlas Power Limited                         | 12.3132              | 2       |
| Oursun Pakistan Limited                     | 13.7686              | 3       |
| Hub Power Holdings Limited                  | 13.7975              | 4       |
| JCM Power Corporation                       | 13.7980              | 5       |
| Metro Group of Companies – Mr. Danish Iqbal | 14.4200              | 6       |
| Hecate Global Renewables LLC                | 16.6839              | 7       |

Table 3-1: Bid Tariff of technically qualified bidder

Furthermore, it is pertinent to mention that all Bidders have submitted their proposal based on commercial financing and have asserted that SBP concessionary financing is not available. Additionally, they have also submitted relevant correspondence from Local Banks confirming the non-availability of SBP's concessionary financing arrangement.

In conclusion, based on the evaluation criteria as mentioned in Exhibit -7 of the RFP, the Bidder offering the lowest Bid Tariff is **Master Textile Mills Limited**, with a Bid Tariff of **11.6508 PKR/kWh (USc. 4.0363/kWh)**<sup>1</sup>.

<sup>1</sup> USD to PKR rate of Rs.288.65/USD have been used



## 4 KE's Prudency Check

As required by NEPRA in the RFP approval, KE has performed a prudency check on the successful bid based on the prevailing equipment cost, market conditions and funding costs. Moreover, analysis for displacement of expensive fuel have also been performed.

### 4.1 Prudency of Bid Tariff

KE has performed an analysis of submitted tariffs based on the prevailing equipment costs (based on quotes received from equipment manufacturers) and prevailing market conditions. The key assumptions and results of the above analysis are as follows:

| Parameter          | Assumptions                 |
|--------------------|-----------------------------|
| Exchange Rate      | 288.65/USD                  |
| SOFR + Spread      | 5.37% + 4.5%                |
| Foreign Debt Tenor | 15 years                    |
| KIBOR + Spread     | 21.28% + 2.5%               |
| Local Debt Tenor   | 15 years                    |
| Capacity Factor    | 23%                         |
| Debt: Equity Ratio | 70:30                       |
| Return on Equity   | 15% (USD Based)             |
| IRR                | 13%                         |
| EPC Cost           | USD 0.48 Mn/MW <sup>2</sup> |

Table 4.1-1: Assumptions

| Range of Bid Tariff upon KE independent assessment |                        |
|----------------------------------------------------|------------------------|
| PKR 12.1917/kWh                                    | PKR 13.5206/kWh        |
| Foreign Debt Mix - 100%                            | Foreign Debt Mix - 80% |
| Local Debt Mix - Nil                               | Local Debt Mix - 20%   |

Table 4.1-2: Estimated bid tariff

### 4.2 Displacement Cost Analysis<sup>3</sup>

The induction of the Project in KE fleet is expected to bring savings in both national system and KE grid due to replacement of expensive generation in National Grid and KE fleet with renewable power from the Project. Based on KE estimate, the Project will bring following cost and forex savings:

| Parameters                | Annual savings | Project life savings |
|---------------------------|----------------|----------------------|
| Energy Cost Savings - PKR | 744 Mn         | 18,590 Mn            |
| Forex Savings - USD       | 5.76 Mn        | 144 Mn               |

Table 4.2-1: Project Savings

The above savings are indicative only and have been computed based on certain assumptions including but not limited to the hourly demand profile, availability of supply from National Grid (assumed at 1,700 MW for the analysis), fuel prices, marginal cost of National Grid, technical constraints etc.

<sup>2</sup> KE had gathered quotations from different equipment manufacturers and service providers to evaluate the prudency of successful bid.

<sup>3</sup> Savings due to displacement of imported fuel has been worked out using prevalent fuel cost considering horizon of 3 years, which have then been prorated over entire Project Life.



## 5 Conclusion

Based on the Technical and Financial evaluation conducted by the Bid Evaluation Committee, along with the prudency checks performed by KE as detailed in the report presented above, it is requested to the Honorable NEPRA Authority to approve the Bid Evaluation Report and declare M/s Master Textile Mills Limited (Refer Annexure A1 for Bid Details) as the Successful Bidder. This declaration is requested in accordance with the criteria set forth in the NCBTR and NEPRA approved RFP.

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- The Bid Evaluation Committee hereby approves the Bid Evaluation Report and declares M/s Master Textile Mills Limited as the Successful Bidder, subject to approval of NEPRA.

A handwritten signature in ink, appearing to be 'D. K. S.', written over a horizontal line.

Head of Business Development - KE

A handwritten signature in ink, appearing to be 'D. K. S.', written over a horizontal line.

Head of Business Finance - KE

A handwritten signature in ink, appearing to be 'D. K. S.', written over a horizontal line.

Head of Legal - KE

A handwritten signature in ink, appearing to be 'D. K. S.', written over a horizontal line.

Head of Procurement - KE

A handwritten signature in ink, appearing to be 'D. K. S.', written over a horizontal line.

Independent Consultant - OMS (Private) Limited

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## ANNEXURES

### A1 – Bid Details for Master Textile Mills Ltd.

| S. No. | Description                                                        | Specifications                                                                         |
|--------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1      | Solar Panel                                                        | Longi Himo 9 (LR7-72HYD), Longi Himo 7 (LR7-72HGD), Trina Vertex N (N-type I- TOPCon). |
| 2      | Power Inverters                                                    | Sungrow SG8800UD-MV-20, Huawei                                                         |
| 3      | Gas Insulated Switchgear (GIS)                                     | TBEA ZF58-145 SF6-GIS, Chint                                                           |
| 4      | Power Transformers                                                 | TBEA SFZ11 SFZ-50000/132, Chint                                                        |
| 5      | SCADA System                                                       | EBOP SCADA                                                                             |
| 6      | Overall System Design and Documentation                            | Detailed design provided                                                               |
| 7      | Experience of Key Design Staff                                     | Master team and RE2                                                                    |
| 8      | Tracking System                                                    | Trina Vanguard 1P, HD Solar, ANTAI                                                     |
| 9      | Warranty duration and coverage for solar panels                    | 12 year material and processing, 30 year linear power output                           |
| 10     | Warranty duration and coverage for Inverters                       | 5 years                                                                                |
| 11     | Warranty duration and coverage for GIS                             | 2 years                                                                                |
| 12     | Warranty duration and coverage for power and inverter transformers | Inverter Transformer: 5 years, Power Transformer: 2 years                              |
| 13     | CSR                                                                | Compliance                                                                             |

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**ANNEXURE – K**  
**BER APPROVAL**

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**Nayab rishi**

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**From:** Mairah Khan <mairah.khan@ke.com.pk>  
**Sent:** Thursday, March 27, 2025 1:33 PM  
**To:** Zainab Saleem; Rumman A. Dar; New Projects  
**Cc:** Mudassir Zuberi; Ayesha Akhtar; Fahad Mazhar; Fahad Najmi; Huzaifa Abdul Samad  
**Subject:** FW: Bid Evaluation Report (BER) For 50MWp Winder and 100MWp Bela Solar Projects at Balochistan - Submission of Tariff Petition

Dear Master Team,

Reference to the below email, please submit the tariff petition for the projects with NEPRA as soon as possible.

Regards,  
Mairah Khan

**From:** Registrar <registrar@nepra.org.pk>  
**Sent:** Tuesday, 25 March 2025 4:41 pm  
**To:** Moonis Abdullah Alvi, Syed <moonis.alvi@ke.com.pk>  
**Cc:** Sameer Hasan, Syed <sameer.hasan@ke.com.pk>; Chairman <chairman@nepra.org.pk>; Syed Salman Rehman <salman@nepra.org.pk>; Gul Hassan Bhutto <bhutto.gulhassan@nepra.org.pk>; Ather Rehman <atherrehman@nepra.org.pk>; Mian Ahmad Ibrahim <ahmad.ibrahim@nepra.org.pk>; Noor Saleem <noorsaleem@nepra.org.pk>; Saba Saif <sabasaif@nepra.org.pk>; Hassan Bhinder <hassan.bhinder@nepra.org.pk>  
**Subject:** Bid Evaluation Report (BER) For 50MWp Winder and 100MWp Bela Solar Projects at Balochistan - Submission of Tariff Petition

[External Sender [registrar@nepra.org.pk](mailto:registrar@nepra.org.pk)]

It is submitted that the Authority has approved the subject Bid Evaluation Report (BER) and the issuance of the formal decision will take some time.

In the interest of time and in view of bid validity period expiring on March 31, 2025 as informed by KE, KE is being informed to direct the lowest evaluated bidders to file their tariff petitions before NEPRA, as per the relevant provisions of NEPRA Competitive Bidding Tariff Regulations-2017 (NCBTR).

Wasim Anwar Bhinder

Registrar,

NEPRA

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**ANNEXURE – L**  
**O&M MANUAL**

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## Operations and Maintenance

In accordance with the requirements outlined in Section 15.17 Volume II of the RFP, MSEL, as the Project Developer, will strive to ensure the operational efficiency of the Project and will be responsible for the O&M of the entire solar PV plant at each location. The scope of our responsibilities includes:

- Module cleaning
- Module connection integrity
- Junction boxes/combiners inspection
- Thermographic detection of faults
- Inverter servicing
- Mechanical integrity of the mounting structure
- Vegetation control
- Routine balance of plant servicing/inspection
- Cable connection tightening/replacement of blown fuses
- Lightning damage repair
- Mounting structure/tracking system fault repair
- Optimizing loss due to soiling
- Providing additional points for automated cleaning mechanisms
- Rectifying SCADA faults

Additionally, the Project Developer will:

1. Be responsible for claiming any warranties or replacements that might arise during the life of the plant.
2. Ensure operations to maintain availability as per the proposed Capacity Factor.
3. Be responsible for array inspection and cleaning to maintain the required performance target, as well as inspecting the inverter and rectifying faults to ensure plant availability.

Based on the site survey, we believe that certain technical measures will need to be undertaken according to site specifics to ensure efficient plant operations. Further evaluation of the site conditions, detailed studies, and observations from our technical consultant, along with subsequent approvals from KE and NEPRA, will guide the development of our O&M strategies for the Project's benefit.

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**ANNEXURE – M**  
**K-ELECTRIC LETTER TO MASTER TEXTILE**  
**MILLS LIMITED**

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**Private and Confidential**  
**Without Prejudice**

Reference No. BD/SQK/MT-WBB/01/2024-2308  
August 23, 2024

Mr. Rumman A. Dar  
Director – New Business Development  
Master Textile Mills Limited  
82 C-1, Gulberg III,  
Lahore

**Subject: Lowest Tariff Bid for 150 MW Solar Projects at Winder and Bela (the "Projects")**

Dear Sir,

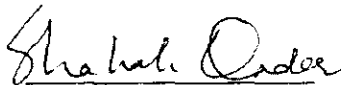
K-Electric (Private) Limited ("KE") is pleased to inform you that, following completion of its evaluation process, as outlined in the Project's Request for Proposals ("RFP"), **Master Textile Mills Limited ("MTML")** has successfully cleared the technical evaluation and submitted the lowest bid tariff for the Projects.

The Projects carry great importance for KE as they are the first of its kind competitive bidding projects in Pakistan and a pivotal step towards KE's commitment for affordable and reliable power.

Please note that this letter is confidential and being issued without prejudice for the sole purpose of initiating the preliminary requirements of MTML as per the RFP and should not be considered as notification of the successful bidder, which is subject to National Electricity Power Regulatory Authority's approval of KE's Bid Evaluation Report. Further, please note that KE does not accept any liability for any costs incurred or committed in the absence of a contract duly executed by KE.

We thank you for your time and effort in submitting the proposal and we will keep you informed of further developments in due course.

Sincerely,



**Shahab Qader Khan**  
Chief Strategy Officer

K-Electric Limited

39-B KE House Sunset Boulevard, DHA- Phase 2, Karachi, Pakistan