YDE SA
(SMC-PRIVATE)
LIMITED

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

APPLICATION FOR SEEKING GENERATION LICENSE

ON BEHALF OF

YDE SA SMC PRIVATE LIMITED

Dated: 09-05-2021

Applicant	**Consultants**
YDE SA SMC Private Limited 1st Floor 140-CCA Phase V DHA, Lahore, Pakistan Phone: +92 423 2020137 www.yellowdoorenergy.com/pakistan	AMA Green Energy Pvt. Ltd. Office # 908, Floor # 9, Eden Heights, Jail Road, Lahore, Pakistan Phone: +924265712078 Email: info@amaenergyservices.com

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YDE SA
(SMC-PRIVATE)
LIMITED

To,
THE REGISTRAR
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA Tower Attaturk Avenue (East)
Sector G-5/1, Islamabad
Pakistan

SUBJECT: APPLICATION FOR A GENERATION LICENSE

I, Umer Farooq, Company Secretary, being the duly authorized representative of YDE SA (SMC-Private) Limited, hereby apply to the National Electric Power Regulatory Authority for the grant of a generation license to YDE SA (SMC-Private) Limited pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

I 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 and Modification 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 belief.

A Pay Order in the sum of Rupees 311,361/- (Three Hundred and Eleven Thousand Three Hundred and Sixty-one only), being the nonrefundable license application fee calculated in accordance with Schedule II to the National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 2021, is also attached herewith.

Date: 09-05-2021

Umer Farooq
Company Secretary
YDE SA (SMC-Private) Limited

YDE SA
(SMC-PRIVATE)
LIMITED

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CHECKLIST FOR EXAMINATION OF APPLICATION FOR THE GRANT OF GENERATION LICENSE

Serial No.	Information/Documents required under NEPRA Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021	Information/Documents Submitted
1.	Application for Generation License along with Affidavit authorization from Single Member and Power of Attorney. Regulation 3 (1)	Attached as **Annex I**
2.	Application Fee. Regulation 3(1)	Yes
3.	Application in Triplicate. Regulation 3 (3)	Yes
4.	Certificate of Incorporation. Regulation 3(4)(c)(i)(A)	Attached as **Annex II**
5.	Memorandum and Articles of Association. Regulation 3(4)(c)(i)(B)	Attached as **Annex III**
6.	Evidence of cash balance held in reserves and bank certificates pursuant to Regulation 3(4)(d)(i)	Account maintenance certificate of the Applicant is attached as **Annex IV.**
7.	Latest Audited Financial Statements of the Application pursuant to Regulation 3(4)(d)(iii)	Latest audited financial statement of the period of Jan-2021 to Dec-2021 is attached as **Annex-V**
8.	Annual Reports of the Company pursuant to Regulation 3(4)(c)(i)(C)	Reports of transitionary period of 21-Sep-2020 to Dec-2020 are attached as **Annex-VI** and latest period Jan-2021 to Dec-2021 as attached as Annex-V.
9.	Last filed Annual Return. Regulation 3(4)(c)(ii)	YDE SA SMC-Private Limited is incorporated on 21 September 2020. Mr. Umer Farooq is the Sole Director of the Company. Under Section 130 of Companies Act, 2017 a Single Member Company Annual Return is due after one year of its incorporation. Transitionary phase returns are attached as **Annex-VII.**
10.	The authorized, issued, subscribed and paid-up share capital of the Applicant pursuant to Regulation 3(4)(c)(iii)	The authorized Capital of the Company is Rs. 64,000,000/-(Sixty-Four Million Rupees Only) divided into 640,000(Six Hundred and Forty Thousand) Ordinary Shares of Rs. 100 (One Hundred rupees only). Each. The Company is single member company, and 100 shares has been Subscribed.
11.	The shareholding pattern of the Applicant including list of shareholders pursuant to Regulation	The Company is the single member company limited by shares only.

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	3(4)(c)(iv)	
12.	Details of charges and encumbrances attached to Applicant's assets pursuant to Regulation 3(4)(d)(ii)	The Applicant Company does not have any charges or encumbrances attached to Applicant's assets.
13.	A prospectus pursuant to Regulation 3(4)(b)	Attached as **Annex VIII**
14.	Expression of interest to provide credit or financing along with sources and details thereof as required pursuant to Regulation 3(4)(d)(iv)	As mentioned in the Application, the Applicant would fund the project through 70:30 debt: equity. The equity shall be poured in as shareholder loan from YDEL. Further, with regards to debt it is informed that the Applicant is in advanced stages of obtaining debt from local banks. However, since the Applicant does not intend to sell electricity to the grid or seek a tariff from the Regulator, it is requested that this condition may please be waived off.
15.	Documents describing net worth and equity and debt ratios of the Applicant pursuant to Regulation 3(4)(d)(v)	This information is available in the financials, which are appended as **Annex-V**
16.	Detailed profile and CVs of senior management pursuant to Regulation 3(4)(d)(vi)	Attached as **Annex IX**
17.	Employment records of engineering and technical staff of the Applicant pursuant to Regulation 3(4)(d)(vii)	Attached as part of **Annex IX.**
18.	Profile of Sub-contractors, if any, along with expression of interest of such sub-contractors as required pursuant to Regulation 3 (4)(d)(viii)	Profile of Foundation Solar Energy Limited is attached as **Annex X.** The Applicant is in the process of finalizing an EPC Agreement with the said contractor.
19.	Verifiable references with reference to experience of the Applicant and its sub-contractors as required pursuant to Regulation 3(4)(d)(ix)	Attached as **Annex XI.**
20.	Environmental Impact Assessment Study pursuant to Regulation 3(4)(a) Schedule-III clause A(e)(2)	Attached as **Annex XII.**
21.	Information relating to water source at site for maintenance. (Regulation 3(4)(a), Schedule-III Clause A(a)(4.)(iii))	Unlike conventional thermal power generation plants, solar power plants do not require extensive use of water since cooling and auxiliary consumption is not required. The only water requirement would be the fortnightly cleaning of panels which is done through modern equipment that conserves water. For this purpose, the normal utility water available at the site would be used.
22.	Information relating to infrastructure	The ground mounted PV facility will be

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	(roads, rail, staff colony, amenities) pursuant to Regulation 3(4)(a) Schedule-III clause A(e)(3)(iv)	constructed adjacent to Askari Cement's Nizampur facility and therefore, no new infrastructural development is part of the scope of this project.
23.	Information relating to Project commencement and completion schedule (with milestones). (Regulation 3(4)(a), Schedule-III Clause A(e)(3.)(v))	Attached as **Annex XIII.**
24.	Information relating to Safety and Emergency plans pursuant to Regulation 3(4)(a) Schedule-III clause A(e)(3)(vii)	Health and Safety Plan of the Applicant is attached as **Annex XIV.**
25.	Information relating to plant characteristics (generation voltage, frequency etc.) pursuant to Regulation 3(4)(a) clause A(e)(3)(vii)	Technical details of the plant are part of the technical schedules attached as **Annex XV** of this generation license application.
26.	Feasibility study of the project as required pursuant to Regulation 3(4)f	Attached as **Annex XVI.**
27.	Affidavit stating whether the Applicant has been granted any other license under the Act pursuant to Regulation 3(4)(g)	Attached as **Annex XVII.**
28.	A duly authorized 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 the decision on the application Pursuant to Regulation 3(4)(h)	Attached as **Annex XVIII.**
29.	Bank Guarantee Equivalent to Applicable Annual License Fee for two years pursuant to Regulation 3(8)	The Applicant is ready to furnish Bank Guarantee pursuant to the said regulation. However, the Authority has not yet provided any format of this guarantee. The Applicant pledges to provide the Authority with the Bank Guarantee as soon as a format is provided by the Regulator.
30.	Technical and financial proposals in reasonable details pursuant to Regulation 3(4)(e)	Attached as **Annex XV.**
31.	Information relating to control, metering instrumentation and protections pursuant to Regulation 3(4)(a) Schedule-III clause A(e)(3)(viii)	Attached as Technical Schedule i.e. **Annex XV (Schedule-I).**
32.	Information relating to technology size of the plant number of units etc. pursuant to Regulation 3(4)(a)	Attached as Technical Schedule i.e. **Annex XV (Schedule-I).**

	Schedule-III clause A(e)(3)(ii)	
33.	Interconnection study pursuant to Regulation 3(4)(a) Schedule-III clause A(e)(I).	Attached as Technical Schedule i.e. **Annex XV (Schedule-I).**
34.	Information relating to location (location maps, site maps, land etc.) pursuant to Regulation 3(4)(a), Schedule-III clause A(e)(3)(i)	Attached as Technical Schedule i.e. **Annex XV (Schedule-I)**
35.	Information relating to Degradation Factors. (Regulation 3(4)(a), Schedule-III Clause A(e)(3.)(x))	Attached as Technical Schedule i.e. **Annex XV (Schedule-II)**
36.	Information relating to Estimated Capacity Factor at site. (Regulation 3(4)(a), Schedule-III Clause A(e)(3.)(ix))	Attached as Technical Schedule i.e. **Annex XV (Schedule-II)**

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ANNEX I

Application for Generation License along with Affidavit, Authorization from Single Member, Application fee and Power of Attorney

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Application for the Grant of Generation License

1. Background

a. YDE SA (SMC Private) Limited was incorporated on September 21, 2020 under Section-32 of the Companies Ordinance, 1984, with corporate universal identification No. 0158302. The business office of the company is at 1st Floor of building 140-CCA, Phase V DHA Lahore, Pakistan.

b. The Company is a special purpose vehicle of Yellow Door Energy IRP (Private) Limited. Yellow Door Energy IRP is owned by a UAE based firm Yellow Door Energy Limited (YDEL) which implies that YDEL is the ultimate owner of YDE SA. YDEL which was founded in 2015 in the UAE and Jordan, with the aim of providing sustainable energy solutions for commercial and industrial businesses. Today, the company has over 120 megawatts of solar projects in the Middle East and South Asia. Among its customers are premier businesses such as Nestlé, Unilever, Carrefour/Majid Al Futtaim, and Landmark Group.

c. Yellow Door Energy IRP (Private) Limited aims to alleviate Pakistan's energy problems by introducing innovative distributed solar and energy management solutions. The Pakistan and the global Yellow Door Energy teams are committed to achieve excellence in every aspect of solar design, construction, and operation & maintenance.

d. The list of the senior management, key technical and professional staff of the Applicant Company is provided as under:-

Name	Designation	Qualification
Umer Farooq	Country Head / VP Investments	M.Sc Financial Management (University of London) B.Sc Computer Science Engineering (UCP, Lahore)
Ameer Hamza	Senior Project Manager	MBA (LSE Lahore) B.Sc Electrical Engineering (FAST-NU Lahore)
Sikander Ishtiaq	Finance Manager	ACCA (UK), M.COM (Accounting & Finance)
Muneeb Rasheed	Project Engineer	B.Sc Electrical Engineering (UET Lahore)
Mujahid Hussain	Project Engineer	B.Sc Electrical Engineering (UET Lahore)
Shafqat Rasool	HSE Specialist	B.Sc Chemical Engineering (COMSATS Islamabad)
Ali Raza	O&M Coordinator	B.Sc Electrical Engineering (COMSATS Abbotabad)

2. Project Rationale

a. The origins of Askari Cement Limited ("**ACL**") date back to 1921 with its two cement plants located at Wah, District Rawalpindi (Punjab) and Nizampur, District Nowshera (KPK). ACL has established itself as one of the most prominent names in this sector. Currently the electricity requirements of the Nizampur plant are met by a mix of different sources that includes 6.3kV connection of 30 MW sanctioned load from the local DISCO (PESCO) and 1 steam turbine of 12MW.

b. Since the manufacturing facility has intensive demand for electricity and has ample unutilized, uncultivable land in its proximity, it is ideally suited for a Photovoltaic (PV) plant installation. In view of the aforesaid, YDE SA has proposed and designed 11.26 MW DC (9 MW AC) ground-mounted solar power plant to be installed adjacent to Askari Cement's Nizampur facility, Nowshera, KPK. The project will accommodate a 11.26 MW (DC) Solar PV system with a projected annual production of 16,394 MWh/year. It is

anticipated that approximately 20,832 Longi Solar LR5-72HPH 540W panels would be used along with relevant auxiliaries and custom designed mounting structure. The system will offset approximately 9,484 tons of carbon dioxide annually.

c. For the aforementioned purpose, the applicant and Askari Cement Limited have entered into a 15-year Power Purchase Agreement on BOOT (Build Own Operate and Transfer) arrangement. After thorough deliberation and negotiations, the parties signed the Power Purchase Agreement on Dec 24, 2021 under which YDE SA will design, install and operate a solar power plant of 11.26 MW DC (9 MW AC) and sell the electricity generated to ACL, Nizampur at an agreed rate.

3. Environmental Benefit

a. Almost all conventional methods of energy generation have varying degrees of adverse environmental impact. These methods have far reaching detrimental effects on the climate, air, water, land and wildlife of the adjacent vicinities. However, Solar PV energy technology provides significant environmental advantages in comparison to the conventional energy sources while contributing to the sustainable development of human activities. Besides slowing down the depletion of natural resources, the main environmental advantage is zero air emissions, waste production and eventual reduction in emissions of greenhouse gases (COx, NOx) and toxic gases (SOx).

b. Solar power plants have zero fuel requirement and hence limit the depletion of natural resources, fossil fuels. Unlike conventional thermal power plants, no water consumption is required for cooling purposes. A very optimized quantity of water is occasionally used for plant maintenance / cleaning. As stated earlier, the proposed system of 11.26 MW DC (09 MW AC) will offset approximately 9,484 tons of carbon dioxide annually.

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4. Prayer

a. YDE SA has performed an in-depth technical and financial analysis for 11.26 MW DC (09 MW AC) ground-mounted solar power plant at ACL's Nizampur plant. Findings from these analyses suggest that the proposed site is suitable for installation of PV based power plant with substantial benefits for the environment and promotion of distributed grid in Pakistan.

b. Technical details of the site along with feasibility report have been attached as Annex XV (Schedule I and Schedule II) of this application.

c. As considerable amount of effort and attention to minute details have been put into PV designing and Yellow Door Energy has a diverse experience of solar sector at a global level, YDE SA is confident that if it is allowed to construct this plant, it will be able to achieve the required results without any problem.

In view of above it is requested that the application of YDE SA may very kindly be processed and placed before the Authority for admission.

YDE SA further requests the honorable Authority to kindly grant the Generation License for 11.26 MW (09 MW AC) ground-mounted solar power plant at Askari Cement, Nizampur, Nowshera, KPK. In case any further document / information is required then it is requested that same may kindly be communicated to us.

Yours sincerely,

Umer Farooq
Company Secretary
YDE SA (SMC-Private) Limited

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YDE SA
(SMC-PRIVATE)
LIMITED

RESOLUTION OF THE BOARD OF DIRECTORS
DATED 15th December, 2021:

The notice of convening the meeting of the Board of YDE SA (SMC-Private) Limited (the **"Company"**) was validly communicated. Necessary quorum was present.

Meeting was held on 15th December, 2021 at 1st Floor, 140-CCA, Phase V, DHA, Lahore through video conferencing to appoint the officials who can sign the contracts, letters, forms, power purchase agreements, engineering & procurement contracts and other ancillary documents/agreements on behalf of the Company.

THE DIRECTORS UNANIMOUSLY RESOLVED AS FOLLOWS:

1. That Mr. Rory James McCarthy bearing Passport No. LL873005, Mr. John Jeremy Crane bearing Passport No. AG629178 and Mr. Umer Farooq, son of Muhammad Farooq Sohail, bearing CNIC No. 35201-8420461-5 are hereby authorized to individually sign contracts, letters, forms, power purchase agreements, engineering & procurement contracts and other ancillary documents/agreements of a value having value under USD 10,000/- on behalf of the Company.

2. Further resolved that any contract, letter form, power purchase agreement, engineering & procurement contracts and other ancillary documents/agreements having value above USD 10,000/- must be jointly signed by any two persons out of the above mentioned three authorized persons.

3. Further resolved that all the previous contracts, letters, forms, power purchase agreements, engineering & procurement contracts and other ancillary documents/agreement, signed by either of the above mentioned three authorized persons on behalf of the Company are hereby endorsed, ratified and accepted by the Board of Directors.

4. Further resolved that a copy of the above resolution duly certified as true by designated directors/ Company Secretary of the Company be furnished to such parties as may be required from time to time in connection with the above matter.

This is to certify that the resolution contained herein above has been duly recorded in the minutes of the meeting and the Resolution of the Meeting of the Board of Directors is valid and in effect on the date specified hereinabove.

For and on behalf the Company

1._____
Name: Jeremy Crane
Designation: Director

2._____
Name: Umer Farooq
Designation: Company Secretary

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YDE SA
(SMC-PRIVATE)
LIMITED

POWER OF ATTORNEY

We, **YDE SA SMC-Private Limited**, (the **"Company"**), hereby appoint and constitute **M/s AMA Green Energy Private Limited** to appear and act for us as our consultant and advocate in connection with the Licensee Application (the **"Application"**) filed in respect of seeking Generation License under NEPRA laws with the National Electric Power Regulatory Authority (NEPRA).

I/We also authorize the said consultant or any one of them to do all acts and things necessary for the processing, completion and finalization of the Petition with NEPRA.

For and on behalf of
YDE SA SMC-Private Limited

COMPANY SECRETARY

ACCEPTED

AMA Green Energy
Office # 908, Floor 9, Eden Heights, Jail Road,
Lahore, Pakistan

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E-STAMP

E-Stamp ID : **PB-LHR-3DC38918F0F4BAD5**
Stamp Type : **Low Denomination**
Amount : **Rs 100/-**

Description :	AFFIDAVIT - 4
Applicant :	YDE SA SMC Pvt Ltd[10000-0000000-0]
Representative From :	YDE SA SMC Pvt Ltd
Address :	Lahore
Issue Date :	13-Apr-2022 11:48:08 AM
Delisted On/Validity :	20-Apr-2022
Amount in Words :	One Hundred Rupees Only
Reason :	Genration Licence In favour of NEPRA
Vendor Information :	Muhammad Asif | PB-LHR-1360 | Defence Y Block

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

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

"Applications for seeking Generation License"

ON BEHALF OF

YDE SA (SMC-Private) Limited.

AFFIDAVIT

I, Mr. Umer Farooq, holding CNIC No. 35201-8420461-5, Company Secretary of **YDE SA (SMC-PRIVATE) LIMITED** hereby solemnly affirm and declare that the contents of the accompanying Application for Generation Licence (the "License") is true and correct to the best of my knowledge and belief and the nothing material has been concealed there from.

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

DEPONENT

Umer Farooq
Company Secretary
YDE SA (SMC-Private) Limited.
Date: 20-04-2022

PROSPECTUS

Brief Introduction of the Applicant:

M/s YDE SA (SMC Private) Limited was incorporated on September 21, 2020 under Section-16 of the Companies Act, 2017, with corporate universal identification No. 0158302. The business office of the company is at 1st Floor of building 140-CCA, Phase V DHA Lahore, Pakistan.

The Company is a special purpose vehicle of Yellow Door Energy IRP (Private) Limited. Yellow Door Energy IRP is owned by a UAE based firm Yellow Door Energy Limited (YDEL) which implies that YDEL is the ultimate owner of YDE SA. YDEL was founded in 2015 in the UAE and Jordan, with the aim of providing sustainable energy solutions for commercial and industrial businesses. Today, the company has over 120 megawatts of solar projects in the Middle East and South Asia. Among its customers are premier businesses such as Nestlé, Unilever, Carrefour/Majid Al Futtaim, and Landmark Group.

Yellow Door Energy IRP (Private) Limited aims to alleviate Pakistan's energy problems by introducing innovative distributed solar and energy management solutions. The Pakistan and the global Yellow Door Energy teams are committed to achieve excellence in every aspect of solar design, construction, and operation & maintenance.

The salient features of the facility or the system in respect of which the licence is sought:

a. The origins of Askari Cement Limited ("**ACL**") date back to 1921 with its two cement plants located at Wah, District Rawalpindi (Punjab) and Nizampur, District Nowshera (KPK). ACL has established itself as one of the most prominent names in this sector.

Currently the electricity requirements of the Nizampur plant are met by a mix of different sources that includes 6.3kV connection of 30 MW sanctioned load from the local DISCO (PESCO) and 1 steam turbine of 12MW.

b. Since the manufacturing facility has intensive demand for electricity and has ample unutilized, uncultivable land in its proximity, it is ideally suited for a Photovoltaic (PV) plant installation. In view of the aforesaid, YDE SA has proposed and designed 11.26 MW DC (9 MW AC) ground-mounted solar power plant to be installed adjacent to Askari Cement's Nizampur facility, Nowshera, KPK. The project will accommodate a 11.26 MW (DC) Solar PV system with a projected annual production of 16,394 MWh/year. It is anticipated that approximately 20,860 Longi Solar LR5-72HPH 540W panels would be used along with relevant auxiliaries and custom designed mounting structure. The system will offset approximately 9,848 tons of carbon dioxide annually.

For the aforementioned purpose, the applicant and Askari Cement Limited have entered into a 15-year Power Purchase Agreement on BOOT (Build Own Operate and Transfer) arrangement. After thorough deliberation and negotiations, the parties signed the Power Purchase Agreement on Dec 24, 2021 under which YDE SA will design, install and operate a solar power plant of 11.26 MW DC (9 MW AC) and sell the electricity generated to Alif Industry at an agreed rate

The proposed investment:

The capital cost shall include the cost borne by the Applicant Company on feasibility studies, planning, designing, material, construction and installation of the Generation Facility. The cost of land preparation will be incurred by the Customer i.e. ACL Nizampur and security during construction and operation will also be the responsibility of the Customer.

Regarding the project cost it is submitted that the approx. USD 7.5 million project would be financed through a commercial loan facility having a debt-to-equity ratio of 70:30. For this purpose the Applicant is in advanced stages of negotiations with guarantors and lenders.

The social and environmental impact of the proposed facility:

a. Almost all conventional methods of energy generation have varying degrees of adverse environmental impact. These methods have far reaching detrimental effects on the climate, air, water, land and wildlife of the adjacent vicinities. However, Solar PV energy technology provides significant environmental advantages in comparison to the conventional energy sources while contributing to the sustainable development of human activities. Besides slowing down the depletion of natural resources, the main environmental advantage is zero air emissions, waste production and eventual reduction in emissions of greenhouse gases (COx, NOx) and toxic gases (SOx).

b. Solar power plants have zero fuel requirement and hence limit the depletion of natural resources, fossil fuels. Unlike conventional thermal power plants, no water consumption is required for cooling purposes. A very optimized quantity of water is occasionally used for plant maintenance / cleaning. As stated earlier, the proposed system of 11.26 MW DC (9 MW AC) will offset approximately 9,848 tons of carbon dioxide annually.

c. The Applicant has carried out environment assessment of the site for installation of solar PV Plant. We humbly submit our findings as under:

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THE COMPANIES ACT, 2017 (XIX of 2017)

(Company Limited by Shares)

ARTICLE OF ASSOCIATION

OF

YDE SA (SMC-PRIVATE) LIMITED

1. The Regulations as set out in part II of Table A of First Schedule of the Companies Act, 2017 shall be the regulations of YDE SA (SMC-PRIVATE) LIMITED

SINGLE MEMBER COMPANY

2. The company is a single member company and as such being a private company limited by shares

   (a) It shall not invite the public to subscribe for any shares of the company;

   (b) The company shall not register any share(s) in the name of two or more persons to hold one or more shares jointly; and

   (c) Number of the members of the company shall be limited to one.

SHARES

3. The liability of the member is limited.
4. Share certificate shall be issued under the seal of the Company and shall be signed by the member director or the non-member director, as the case may be.

DIRECTOR

5. The company shall always have the sole member or in case it is not a natural person its nominee, as a director but it may have such number of other director(s) who fulfil the conditions as specified in section 153 of the Act. Umer Farooq shall be the first director of the Company.

(17)

I, whose name and address is subscribed below, am desirous of forming a company in pursuance of the article of association and agree to take the number of shares in the capital of the company as set opposite my name:

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father / Husband Name in full	Nationality (ies) with any former Nationality	Occupation	Usual residential address in full or the registered/principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
Yellow Door Energy IRP (Private) Limited through Yellow Door Energy IRP (Private) Limited through	0153007	Not applicable	Pakistan	Company	1st Floor 140 CCA Phase V DHA Lahore Cantt LAHORE Punjab Pakistan 54792	100	
Total number of shares taken (in figures and words)						100 (One Hundred)	

Dated: the 18 day of Sep 20 20

Witness to above signatures: witness not required since the documents submitted electronically

Signature:

Address

CERTIFIED TO BE TRUE COPY

21-9-20

JOINT REGISTRAR OF COMPANIES
COMPANY REGISTRATION OFFICE
LAHORE.

THE COMPANIES ACT, 2017 (XIX of 2017)

(COMPANY LIMITED BY SHARES)
MEMORANDUM OF ASSOCIATION
OF

YDE SA (SMC-PRIVATE) LIMITED

1. The name of the Company is YDE SA (SMC-PRIVATE) LIMITED

2. The Registered Office of the Company will be situated in the Province of Punjab

3. (i) The principal line of business of the company shall be to carry on businesses of solar energy system, its manufacturing through poly silicon and chemical technology, processing, casting, cell manufacturing, module manufacturing and installation thereof and also to install, run, own and manage biomass/waste-to-energy power plant, waste heat power plant, combined cycle power plant and to produce wind, biomass, wave and tidal energy and to deal in all other forms of energy and products or services associated therewith and of promoting the conservation and efficient use of energy and to perform all other acts which are necessary or incidental to the business of electricity generation, transmission, distribution and supply, subject to permission of relevant authorities.

   (ii) Except for the businesses mentioned in sub-clause (iii) hereunder, the company shall engage in all the lawful businesses and shall be authorized to take all necessary steps and actions in connection therewith and ancillary thereto.

   (iii) Notwithstanding anything contained in the foregoing sub-clauses of this clause nothing contained herein shall be construed as empowering the Company to undertake or indulge, directly or indirectly in the business of a Banking Company, Non-banking Finance Company (Mutual Fund, Leasing, Investment Company, Investment Advisor, Real Estate Investment Trust management company, Housing Finance Company, Venture Capital Company, Discounting Services, Microfinance or Microcredit business), Insurance Business, Modaraba management company, Stock Brokerage business, forex, real estate business, managing agency, business of providing the services of security guards or any other business restricted under any law for the time being in force or as may be specified by the Commission.

   (iv) It is hereby undertaken that the company shall not:
   (a) engage in any of the business mentioned in sub-clause (iii) above or any unlawful operation;
   (b) launch multi-level marketing (MLM), Pyramid and Ponzi Schemes, or other related activities/businesses or any lottery business;
   (c) engage in any of the permissible business unless the requisite approval, permission, consent or licence is obtained from competent authority as may be required under any law for the time being in force.

4. The liability of the member is limited.

5. The authorized capital of the company is Rs. 64,000,000 (Sixty Four Million Rupees Only) divided into 640,000 (Six Hundred Fourty Thousand) Ordinary shares of Rs.100 (One Hundred Rupees Only) each.

I, whose name and address is subscribed below, am desirous of forming a company in pursuance of this memorandum of association and agree to take the number of shares in the capital of the company as set my name:

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father's/ Husband's Name in full	Nationality (ies) with any former Nationality	Occupation	Usual residential address in full or the registered/principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
Yellow Door Energy IRP (Private) Limited through Yellow Door Energy IRP (Private) Limited through	0153007	Not applicable	Pakistan	Company	1st Floor 140 CCA Phase V DHA Lahore Cantt LAHORE Punjab Pakistan 54792	100	
Total number of shares taken (in figures and words)						100 (One Hundred)	

Dated: the 18 day of Sep 20 20

Witness to above signatures: witness not required since the documents submitted electronically

Signature: [redacted]

Address [redacted]

Company Registration Office Lahore

CERTIFIED TO BE TRUE COPY

21-9-20

JOINT REGISTRAR OF COMPANIES
COMPANY REGISTRATION OFFICE
LAHORE.

ESSA (Environmental and Social Soundness Assessment)

1. Introduction:

Extensive fossil fuel consumption in almost all human activities has led to some undesirable phenomena such as atmospheric and environmental pollution, which have not been experienced before in known human history. Consequently, global warming, greenhouse effect, climate change, ozone layer depletion, and acid rain terminologies started to appear in the literature frequently. Since 1970, it has been understood scientifically by experiments and researches that these phenomena are closely related to fossil fuel use because they emit greenhouse gases such as carbon dioxide (CO2) and methane (CH4), which hinder the long-wave terrestrial radiation escape into space, and, consequently, the earth troposphere becomes warmer. In order to avoid further impacts of these phenomena, the two concentrative alternatives are either to improve the fossil fuel quality with reductions in their harmful emissions into the atmosphere or, more significantly, to replace fossil fuel usage as much as possible with environmentally friendly, clean, and renewable energy sources. Among these sources, solar energy comes at the top of the list due to its abundance and more even distribution in nature than any other renewable energy type, such as wind, geothermal, hydro, wave, and tidal energies. Solar energy technologies are essential components of a sustainable energy future. Energy from fossil fuels may be inexpensive and assurances may have been given of the plentiful supplies of petroleum and other fossil fuels, but these fuels are finite in nature and a major source of greenhouse gas emissions.

2. Objective:

Pakistan is located in the Sunny Belt and can take advantage of its ideal situation for utilization of solar energy. The country's potential for solar generation is beyond doubt as it has high solar irradiation and enough space for installation of generation system those are ideal for PV and other solar energy applications. Villages and other areas which are away from grid or distribution system of utilities can also benefit from solar power generation which will also save the extra cost of laying the system and the losses. Every day, for example, the country receives an average of about 19 Mega Joules per square meter of solar energy Pakistan being in the Sun Belt is ideally located to take advantage of solar energy technologies. This energy source is widely distributed and abundantly available in the country. The mean global irradiation falling on horizontal surface is about 200-250 watt per sq.m in a

day. This amounts to about 2500- 3000 sun shine hours and 1.9 - 2.3 MWh per sq. meter in a year. It has an average daily global isolation of 19 to 20 MJ/sq. meter per day with annual mean sunshine duration of 8 to 8.5 hours (6-7hrs in cold and 10-12 hrs. in hot season) and these values are among the highest in the world. For daily global radiation up to 23MJ/m2, 24 (80%) consecutive days are available in this area for solar energy. Such conditions are ideal for solar thermal applications.

Pakistan receives about 15.5x1014 kWh of solar irradiance each year with most regions receiving approximately 8 to 10 sunlight hours per day. The installed capacity of solar photovoltaic power is estimated to be 1600 GW per year, providing approximately 3.5 PWh of electricity (a figure approximately 41 times that of current power generation in the country). To summarize, the sun shines for 250-300 days per years in Pakistan with average sunshine hours of 8- 10 per day. This gives huge amount of energy to be used for electricity generation by solar photovoltaic and solar thermal power plants.

3. Environment Assessment:

The ACL Nizampur project will be executed on within the premises of Purchaser, and the Applicant has carried out a detailed environment assessment of the site in preparation of the Solar PV Plant.

The assessment of the Project has been considered for both positive and negative effects. The proposed photovoltaic Power Project has been located as per international guidelines. Adoption of green power generation with no emission and effluent discharge with have least impact on the ambient environment and on the host community.

The importance of the sustainable development concept has increased in the whole world. As a result, some new regulations enforce that all development projects should be compatible with the environmental criterions. An environmental impact assessment should be carried out to make sure that projects are compatible with the environmental criterions. Environmental Impact Assessment (EIA) can be defined as a process of environmental management, planning, and decision-making with a purpose of keeping and improving the quality of the environment.

The main goal is to develop environmentally friendly industrialization. With this kind of environmentally friendly industrialization, "sustainable development" can be a possibility in the future by keeping the usage/protection balance between economic development and the environmental protection.

Every energy generation and transmission method affects the environment. Conventional generating options can damage air, climate, water, land & wildlife, landscape as well as raise the levels of harmful radiation. PV technology is substantially safer offering a solution to many environmental and social problems associated with fossil and nuclear fuels. Solar PV energy technology provides obvious environmental advantages in comparison to the conventional energy sources thus contributing to the sustainable development of human activities. Not counting the depletion of the exhausted natural resources, their main advantage is related to the reduced CO2 emissions and normally absence of any air emissions or waste products during their operations.

The use of solar power has additional positive implications such as:

- Reduction of the emissions of the greenhouse gases (mainly CO2, NOx) and prevention of toxic gas emissions (S02, particulates)

- Reduction of the required transmission lines of the electricity grids.

4. Zone Classification:

Detection of rainfall trend is subject to limitations: there is no clear altitudinal trend of rainfall. Therefore, for analysis, a dataset spreads over a period of 30 years (1976-2005) covering the whole country i.e. 30 stations from extreme north to south and east to west have been selected. The stations included in this study were selected on the basis of their latitudinal position, elevation from sea level, length of record, completeness and reliability of data so that a synoptic view of the entire country could be obtained. Further the selected stations have been divided into five different microclimatic zones. These zones were named A, B, C, D and E as shown in Figure 1, along with their latitudinal extent.

Zone A

Zone A comprises those stations having cold climate and high mountains, situated in the north of Pakistan. These stations are Chitral, Gilgit, Muzaffarabad, Said-u-Sharif, Skardu, Astor, Dir, Chilas Parachinar and Kakul. These are mostly hill stations located between 34 N to 38 N in the Himalaya, Hindukash and Koh-e-Sufaid mountain ranges.

Zone B

This zone has mild cold climate and Sub Mountains, located between 31N to 34 N. The stations are Sialkot, D.I.Khan, Islamabad, Peshawar, Cherat and Lahore.

Zone C

Climate is cold in winters and hot in summers. Most of them are mountainous stations with high elevations from mean sea level and cover an area between 27 N to 32N and 64 E to 70 E. Stations included in this zone are Quetta, Zhob, Kalat and Khuzdar.

Zone D

This is the hottest and dry zone of the country where highest maximum temperatures are recorded in stations of Sibbi and Jacobabad. The area is almost plain with some area included in Thar Desert. Stations included are Sibbi, Jacobabad, Bahawalpure, Khanpur, Multan and Rohri.

Zone E

Zone E is a big zone having many stations and coastal cities, near to Arabian Sea. The coastal Part comprises only a small part of this region and climate above coastal parts in Balochistan as well as in Sindh province is mostly arid to hyper arid. The selected stations from this zone are Hyderabad, Karachi, Nawabshah and Jewani.

5. Project Environmental Impacts & Mitigation Measures:

This Section discusses the potential environmental impacts, assesses the significance, recommends mitigation measure to minimize the adverse effect and identifies the residual impacts associated with the proposed activities of the project during the construction and operation phase of the proposed project at the proposed site and of secondary actions like potable, raw water and waste water lines. Solar energy is a lot cleaner when compared with conventional energy sources. Solar energy systems have many significant advantages, like being cheaper and not producing any pollutants during operation, and being almost an infinite energy source when com-pared with fossil fuels. Nevertheless, solar energy systems have some certain negative impacts on the environment just like any other energy system. Some of these impacts will be summarized in this section.

Identification of Potential Impacts:

a) Discharge of Pollutants

b) Visual Impacts

c) Impact on Natural Resources

d) Air Pollution

e) Noise Intrusion

f) Impact on Air

g) Impact on Ground Water/ Surface Water

h) Impact on Solid Waste

i) Impact on Soil

j) Impact on Natural Resources

Discharge of Pollutants: Solar cells do not emit any pollutants during their operations. But solar cell modules contain some toxic substances, and there is a potential risk of releasing these chemicals to the environment during a fire. Necessary precautions will be taken for emergency situations like fire.

Visual Impacts: There will be some visual impacts depending on the type of the scheme and the surroundings of the solar cells. Especially for applications on the buildings, solar cells can be used as a cladding material that could be integrated into the building during the construction phase. Solar cell applications after the

construction phase of the buildings might cause negative visual impacts. However, through proper planning the Applicant will minimize this impact.

Impacts on Natural Resources: Despite being a benign energy system during operation, solar cells have some negative impacts on the environment during their production phase like many other systems. The energy needed for the production of solar energy systems is still produced in conventional methods today. Some toxic chemical substances used during the production phase are produced as a by-product. However, the solar panels to be utilized for this project have been manufactured in China therefore, there is no direct impact on the designated vicinity.

Air Pollution: Solar cells do not emit any substances to the air during operation. But there could be some emissions during manufacturing and transport. The emissions associated with the transport of the modules are insignificant when compared with the emissions associated with the manufacture. Transport emissions are 0.1-1% of the manufacturing emissions.

Noise Intrusion: Solar cells do not make a noise during operation. But during the construction phase, there will be a little noise as usual in other construction activities. However, since the solar panels to be utilized for this project have been manufactured in China, this is not a risk for the designated vicinity.

Impact on Air: There would be no hazardous emissions at site as well as during construction phase except Motor Vehicle and Crane. Moreover, there are no objectionable odors as well as alternation of air temperature.

Impact on Ground Water/ Surface Water: There would be no use of water during design phase except curing of civil pads during construction, which have no negative impact on environment.

Impact on Solid Waste: It may only Create litter and trash waste which is recyclable and may be cleared from site after construction.

Impact on Soil: No impacts as all installed systems are roof top.

Impact on Natural Resources: There won't be any increase in the rate of usage of any natural resource like any minerals, additional fuel other than vehicles. But there would be increase in the amount of usage of Paper for mapping, enlisting items etc. However, paper may be recycled by throwing it in ordinary dustbin, further maximum usage of electronic system e.g. emails will be done.

6. Environment Assessment:

a. Almost all conventional methods of energy generation have varying degrees of adverse environmental impact. These methods have far reaching detrimental effects on the climate, air, water, land and wildlife of the adjacent vicinities. However, Solar PV energy technology provides significant environmental advantages in comparison to the conventional energy sources while contributing to the sustainable development of human activities. Besides slowing down the depletion of natural resources, the main environmental advantage is zero air emissions, waste production and eventual reduction in emissions of greenhouse gases (COx, NOx) and toxic gases (SOx).

b. Solar power plants have zero fuel requirement and hence limit the depletion of natural resources, fossil fuels. Unlike conventional thermal power plants, no water consumption is required for cooling purposes. A very optimized quantity of water is occasionally used for plant maintenance / cleaning. As stated earlier, the proposed system of 11.26 MWp DC (09 MW AC) will offset approximately 9,484 tons of carbon dioxide annually.

c. The Applicant has carried out environment assessment of the site for installation of solar PV Plant. We humbly submit our findings as under:

Environment Parameters	Level of Impact	Reasons	Mitigation Measures
Air Impact	Low	Solar Energy is Carbon Free	No Emissions, however, during construction adequate measures to limit dust pollution will be taken.
Water	Low	Plant will require a very low quantity of water for cleaning purpose only	Specialized equipment that conserves water will be used to cleaning the PV modules.
Land	Low	No Impact on Land	The land being allocated for this facility is barren.
Ecosystem	Low	No ecologically sensitive area	There is no significant vegetation cover within the selected area, land is

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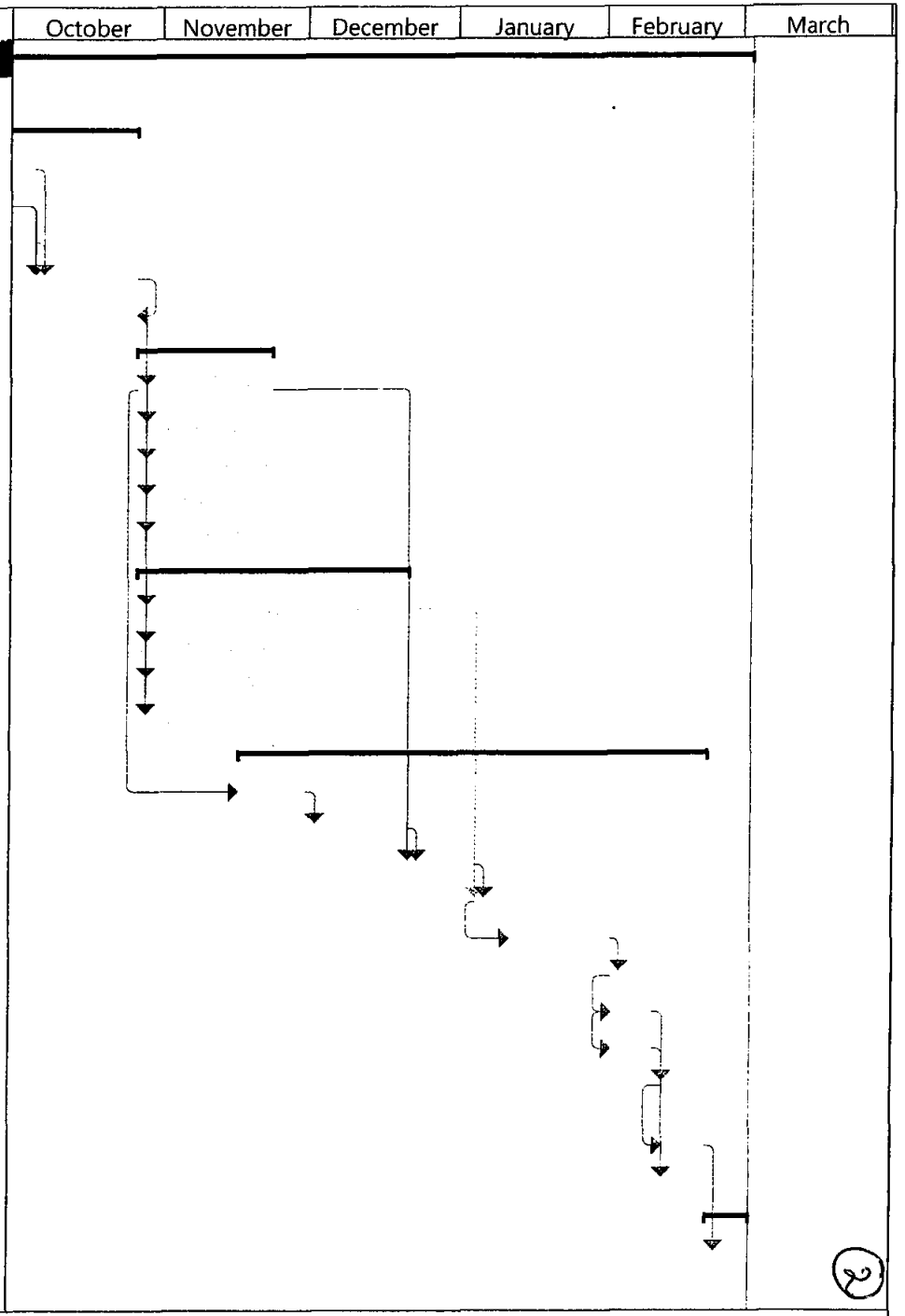
		lies with in premises	barren.
Socio Eco System	Low	Total area identified for said project is adjacent to the plant premises and no acquisition is needed. No displacement will occur.	Not Applicable

7. Safety plans, emergency plans

- The qualified and authorized electricians will be allowed to undertake servicing or maintenance tasks.
- The authorized personnel will wear appropriate equipment, including a safety harness to restrain from falling off the roof, sturdy shoes that will have thick rubber soles to provide electrical insulation and good grip and appropriate clothing for personal protection, including a hat, sunglasses, gloves and long pants and sleeves.
- Lock out and tag out procedures will be used before commencement of maintenance tasks.
- On-going operation and maintenance concerns for solar power systems will be addressed properly. These systems are exposed to outdoor weather conditions that enhance the aging process, and the infrastructure needs to be in place for the on-going maintenance of these systems to assure their safe operation.
- Properly grounded or double insulated power tools will be used for maintenance tasks.
- Tools will be maintained in good condition.
- Working on electrical equipment and circuits will be carried out in de-energized state.
- Proper pathways will be available for operation, maintenance and firefighting.
- Fire protection and suppression will be placed at site.

ID	Task Name	Duration	Start	Finish
1	PROJECT COMPLETION	121 days	Thu 15-09-22	Thu 02-03-23
2	**EPC CONTRACT SIGNING**	1 day	Thu 15-09-22	Thu 15-09-22
3	PROJECT KICKOFF	30 days	Thu 15-09-22	Wed 26-10-22
4	Land Levelling and Site Clearance	15 days	Thu 15-09-22	Wed 05-10-22
5	Site survey for planning detailed activities	7 days	Fri 16-09-22	Mon 26-09-22
6	Soil Test Study	14 days	Fri 16-09-22	Wed 05-10-22
7	Preparation of Construction Drawings	15 days	Thu 06-10-22	Wed 26-10-22
8	Preparation of Mobilization Plan	15 days	Thu 06-10-22	Wed 26-10-22
9	DELIVERY OF LOCAL EQUIPMENT TO SITE	20 days	Thu 27-10-22	Wed 23-11-22
10	Delivery of Mounting Structure	20 days	Thu 27-10-22	Wed 23-11-22
11	Delivery of DC Cables & Power Cables	20 days	Thu 27-10-22	Wed 23-11-22
12	Delivery of Switchgear and Transformer	20 days	Thu 27-10-22	Wed 23-11-22
13	Delivery of Lightning Arrestors	15 days	Thu 27-10-22	Wed 16-11-22
14	Delivery of Control System	15 days	Thu 27-10-22	Wed 16-11-22
15	**DELIVERY OF IMPORTED EQUIPMENT TO SITE**	**40 days**	**Thu 27-10-22**	**Wed 21-12-22**
16	Delivery of Solar Panels	40 days	Thu 27-10-22	Wed 21-12-22
17	Delivery of Solar Inverters	20 days	Thu 27-10-22	Wed 23-11-22
18	Delivery of Data Loggers	20 days	Thu 27-10-22	Wed 23-11-22
19	Delivery of Weather Station	20 days	Thu 27-10-22	Wed 23-11-22
20	START OF CONSTRUCTION PHASE	69 days	Thu 17-11-22	Tue 21-02-23
21	Demarcation	10 days	Thu 17-11-22	Wed 30-11-22
22	Construction of Civil Pads	15 days	Thu 01-12-22	Wed 21-12-22
23	Erection Of Mounting Structure	10 days	Thu 22-12-22	Wed 04-01-23
24	Installation of Solar Panels	10 days	Thu 05-01-23	Wed 18-01-23
25	DC Cable Laying	15 days	Thu 12-01-23	Wed 01-02-23
26	Installation of Inverters and Switch Gear	3 days	Thu 02-02-23	Mon 06-02-23
27	AC Cable Laying	7 days	Thu 02-02-23	Fri 10-02-23
28	MV Cable Laying	7 days	Thu 02-02-23	Fri 10-02-23
29	Installation of Weather Station and Data Loggers	7 days	Mon 13-02-23	Tue 21-02-23
30	Installation of Control Systems	7 days	Mon 13-02-23	Tue 21-02-23
31	Earthing & Lightning Arrestors Installation	7 days	Mon 13-02-23	Tue 21-02-23
32	COMMISSIONING	7 days	Wed 22-02-23	Thu 02-03-23
33	Commissioning Tests	7 days	Wed 22-02-23	Thu 02-03-23
34	**START OF OPERATIONS PHASE**	**1 day**	**Thu 02-03-23**	**Thu 02-03-23**



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ENVIRONMENT AND SOCIAL, HEALTH AND SAFETY POLICY STATEMENT

1. Yellow Door Energy is an investment and development company focusing on clean energy and alternative energy sectors worldwide.
2. Yellow Door Energy has contracted Hisel Power for design, procurement, construction, installation, operation and maintenance of photovoltaic assets at Turkplast 933.12 kWp Solar Project in Lahore in Pakistan, with a capacity of 933.12 kWp.
3. Yellow Door Energy has appointed *Appointed Environment and Energy Consultancies* for Environment and Energy Consultancies to undertake the role of Environmental & Social (E&S) Focal Point for Yellow Door Energy's solar power plants in Lahore district of Pakistan.
4. The Appointed Contractor should appoint a Community Liaison Officer (CLO) for Pakistan to follow up local community grievances (if any) in order to facilitate early indication of, and prompt remediation for those who may be harmed by the project's actions.
5. Yellow Door Energy's Policy is to provide a framework for the environmental and social management process and to monitor and maintain safe and healthy working conditions for all employees.
6. In normal circumstances, Yellow Door Energy will be responsible for obtaining the necessary licenses, permits and approvals for the environmental issues.
7. Yellow Door Energy management accepts the responsibility for monitoring the above via the E&S focal point and Hisel Power management accepts responsibility for providing information, instruction and training to achieve the purpose above upon agreed dates of communication.
8. Yellow Door Energy will monitor, through the E&S focal point, Hisel Power Environmental Management plans, health and safety plans to minimize the risks created by work activities, products and services and to secure involvement and participation at all levels. All plans are to be submitted to Yellow Door Energy prior to any site mobilisation and notice to proceed will be limited until plans have been audited.
9. Yellow Door Energy reserves the right to audit Hisel Power's ESHS standards during construction.
10. Yellow Door Energy E&S focal point and Hisel Power will assess risks to environment, social performance, safety and health and implement all actions shown to be necessary.
11. Should any of Hisel Power activities endanger the health of any employee and/or the environment, such activities will be monitored and where necessary, arrangements for health surveillance made.

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12. Other people may be affected by projects activities e.g. visitors, neighbors, contractors etc., and Hisel Power management accepts the responsibility to provide personal protection equipment (PPE) of international standards for them.
13. Yellow Door Energy and Hisel Power commitment to this policy will assist to develop a positive environment, health and safety culture throughout all areas and activities.
14. All sub-contractors will be required to comply with all current Health, Safety and Environment legislation.
15. It is the responsibility of Hisel Power to reiterate the Health and Safety policy of Yellow Door Energy to all sub-contractors.

HSE Minimum Requirements

1. Introduction

These procedures outline the Owners requirements for the management of Health and Safety from Site mobilization to construction, completion of construction, until Final Acceptance Date.

The Principal Contractor and Sub-contractors of all tiers are ultimately responsible for ensuring the safety of their staff, contractors, agents, visitors and the general public by implementing these requirements or any applicable regional legislation.

The Health and Safety requirements include all aspects of the Works, such as design, manufacture, transportation, construction, commissioning and testing, and operation.

The Owner shall verify the safety and health competence of the following key appointments:

- The Principal Contractor as an entity
- The Contractor's design team and or contracted designers, including temporary works designers.
- The Contractor's Project Manager, Site Manager and Commissioning Manager
- The Principal Contractor's contact person, if different to the above
- The Principal Contractor's Safety Manager, Environmental Manager etc.
- The Principal Contractor's Safety advisors
- The main Sub-contractors as an entity

Yellow Door Energy focal point and the Principal Contractor will assess risks to environment and social performance, safety and health and implement all actions shown to be necessary.

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Should any of the Principal Contractor activities endanger the health of any employee and/or the environment, such activities will be monitored and where necessary, arrangements for health surveillance made.

Other people may be affected by projects activities e.g. visitors, neighbours, contractors etc., and the Principal Contractor management accepts the responsibility to provide appropriate levels of safety for them.

Yellow Door and Principal Contractor commitment to this policy will assist to develop a positive environment, health and safety culture throughout all areas and activities.

All Sub Contractors will be required to comply with all current Health, Safety and Environment legislation.

2. HSE Design Principles

The general contractor shall, to the best of their ability, adhere to the below design principles as minimum. Any deviation from these principles and work at height safety precautions shall be supplied and installed by the Contractor according to the applicable Health and Safety regulations and as approved by the Owner.

2.1.1. Access/Egress Ladders

- Ladders used for access/egress must be caged;
- If the ladder is required to be of greater height than 7.3m, then additional ladder safety devices must be put in place – including, but not limited to rest platforms;
- Ladders must extend over the total height of the roof by at least 1m;
- Ladders must have horizontal guardrails in place at the top, to safely guide workers to the nearest walkway.

2.1.2. Parapets

- In order for a roof parapet to be considered as providing adequate fall protection, it must be at least 0.8m in height throughout the rooftop boundary.

2.1.3. Safe Working Distance from Exposed Edges

An exposed edge is one which does not have in place any edge protection (i.e. parapet).

- Walkways must be a minimum distance of 3m from exposed edges. Personal Protective Equipment (i.e. lifelines being used in conjunction with body harness, lanyard etc.) are not suitable substitution of the 3m distance;

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- Where this is not possible, additional edge protection to be put in place – this includes, but is not limited to guardrails;
- The walkways considered for the rooftop installation shall be connected to the roof access, all the PV modules shall be accessible via the walkways.

2.1.4. Safe Working Distance from Exposed Skylights

An exposed Skylight is one which does not have in place any additional protection measures (i.e. skylight covered), and is not raised at least 0.8m above rooftop height.

- Walkways must be a minimum distance of 3m from exposed skylights. Personal Protective Equipment (i.e. lifelines being used in conjunction with body harness, lanyard etc.) is not suitable substitution of the 3m distance;
- Where this is not possible, additional skylight protection to be put in place – this includes, but is not limited to skylight covers.

2.1.5. Safety Signs

If some or all the previously mentioned precautions are already installed on Site, compliant with the most recent applicable regulations and evaluated as accepted by the Owner, the same can be used for the PV system installation and operation period

ENVIRONMENT AND SOCIAL, HEALTH, SAFETY STATEMENT

1. INTRODUCTION TO THE ENVIRONMENT & SOCIAL, HEALTH & SAFETY STATEMENT

Yellow Door Energy recognizes its responsibility to monitor Hisel Power to secure the safety, health and welfare of employees. This Safety Statement specifies the arrangements made for this to be carried out, including available resources, the names of responsible persons, the co-operation required from employees, consultation procedures and available information.

2. REVIEW OF THE ENVIRONMENT & SOCIAL, HEALTH & SAFETY STATEMENT

The E&S focal point will review this Policy annually.

3. COMMUNICATION OF THE ENVIRONMENT & SOCIAL, HEALTH & SAFETY STATEMENT TO CONTRACTOR'S EMPLOYEES

It is important that this Statement is read and acknowledged by all Hisel Power employees. It will be presented at induction to new employees and made available at all times thereafter.

5. HEALTH AND SAFETY TRAINING

All Hisel Power employees need to know about:

- Hisel Power Health and Safety Policy.
- The structure and system for delivering this Policy.
- The risks in their work activities that apply to them.

Hisel Power should be trained appropriately and competent to deal with any risk to health or injury resulting from the work environment.

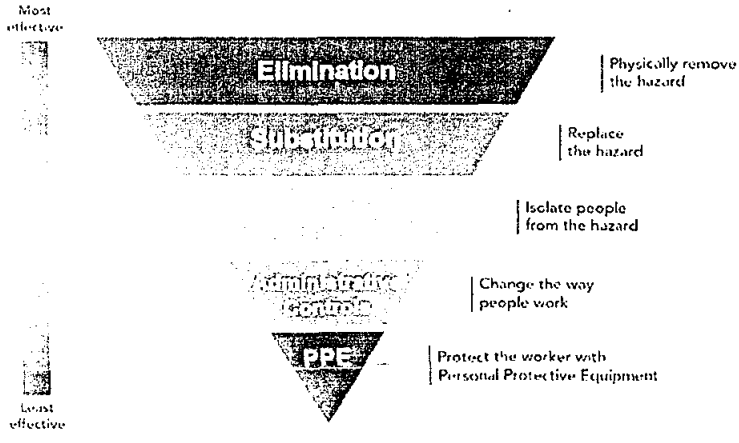
All Hisel Power employees will receive induction training. Such training will cover-Fire Procedures, Warning Systems, actions to be taken on receiving warning, locations of exits/escape routes, evacuation and Assembly Procedures, First Aid/Injury Reporting Procedures, names of First Aiders/Appointed Persons, issue of protective clothing/ equipment, and its use, instruction under COSHH, compulsory protection areas, thorough instruction applicable to their particular duties at work etc.

Training needs will be reviewed by Hisel Power as a result of job changes, promotion, new activities or new technology, following an accident/incident and as a result of performance appraisal.
Records of training will be kept for all Hisel Power employees.

6. PLANNING, MEASURING, AUDITING AND REVIEWING SAFETY PERFORMANCE

a) Planning

Yellow Door Energy's aim is to monitor Hisel Power through the E&S focal point to minimize the risks created by work activities. Hisel Power will use Risk Assessment methods to decide priorities and set objectives for hazard elimination and risk control. Risks shall be eliminated or minimized using the theory of the well-recognized Hierarchy of Control – beginning with the most effective, Elimination. Where this is not possible, the second most effective method should be used, Substitution. And so on, until the least effective method is reached, PPE. . Performance Standards will be established and performance measured against these.



b) Measuring Performance

The success of action taken to control risks will be assessed thorough investigation of any accidents, ill health or incidents with the potential to cause harm or loss. Hisel Power will aim to

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identify the underlying causes and take corrective action to prevent recurrence. E&S focal point will monitor the EHS performance of the contractor.

c) Auditing and Reviewing Performance

Environment, Health & Safety arrangements will be audited at frequent intervals, and regular reviews of performance will be carried out by E&S focal point and Hisel Power management with the objective of continual improvement of policies, systems and procedures.

7. RESOURCES

It is recognized that Environment, Health and Safety is a management function equal to any other and sufficient resources will be provided to carry it out. The organization and responsibilities are detailed in the following sections 8. and 9.

8. MANAGEMENT ORGANISATION FOR IMPLEMENTATION OF ENVIRONMENT, HEALTH & SAFETY STATEMENT

Hisel Power Branch Manager is responsible for the organization and implementation of the Health and Safety Statement and Yellow Door Energy will monitor the EHS implementation through E&S focal point.

9. ENVIRONMENT, HEALTH AND SAFETY RESPONSIBILITIES

To be efficient and effective in controlling risks, it is required that Hisel Power co-ordinates the activities of managers and employees to ensure everyone is clear about what they are expected to achieve.

Hisel Power managers and employees identified as having specific health and safety responsibilities and will be held accountable for their performance.

Responsible Persons

The following persons have been allocated key areas of responsibility:

Hisel Power

- **The person responsible for allocation of sufficient resources for this policy to be carried out is:** *Person In Charge*
- **The person responsible for ensuring the monitoring of safety performance and reviewing of the Health and Safety Policy is:** *Person In Charge*
- **The person responsible for communicating the Health and Safety Statement to employees is:** *Person In Charge*
- **The person responsible for Health and Safety Training and recording that it has taken place is:** *Person In Charge*

- **The person responsible for ensuring that all required Assessment Duties are undertaken is:** *Person In Charge*
- **The person responsible for maintaining Accident Records and dealing with Reportable Accidents and Dangerous Occurrences is:** *Person In Charge*
- **The person responsible for Fire Safety is:** *Person In Charge*
- **The person responsible for monitoring and maintaining First Aid Supplies is:** *Person In Charge*

- Comply with all applicable safety regulations.

- Develop, present and implement a complete health and safety plan (HASP) which must be approved by the client representative and the E&S focal point.

- Take reasonable care for the Health and Safety of themselves and of other persons who may be affected by their acts or omissions at work.

- Cooperate with Management to enable the employer to carry out his legal duties or any requirements as may be imposed.

- Not intentionally or recklessly interfere with, or misuse, any item provided in the interests of Health, Safety and Welfare.

- Use machines, equipment, dangerous substances, transport equipment, means of production or safety device provided by the employer, in accordance with the training and instructions received.

- Inform the employer or any other employee with specific Health and Safety responsibilities for fellow employees:

    - Of any work situation where it is considered that the training and instruction received by themselves or a fellow employee, could represent a serious and imminent danger to their Health and Safety, and;

- Of any matter where it is considered that the training and instruction received by themselves or a fellow employee, could present a failure in the employers' protection arrangements for their Health and Safety, even where no immediate danger exists

Yellow Door Energy

Monitoring and follow up contractor's performance: E&S focal point

Responsibilities of Hisel Power's employees

There is a duty on all employees to take care of their own safety and that of others while at work. Co-operation is also required in using suitable personal protective equipment (PPE) or clothing provided to safeguard Safety and Health and to enable the company to comply with the law.

All Hisel Power's employees must comply with the Safety local Rules:

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a) To take reasonable care for the Health and Safety of themselves and of other persons who may be affected by their acts or omissions at work.
b) To cooperate with Management to enable the employer to carry out his legal duties or any requirements as may be imposed.
c) Not to intentionally or recklessly interfere with, or misuse, any item provided in the interests of Health, Safety and Welfare.
d) To use machines, equipment, dangerous substances, transport equipment, means of production or safety device provided by the employer, in accordance with the training and instructions received.

e) To inform the employer or any other employee with specific Health and Safety responsibilities for fellow employees:
    - Of any work situation where it is considered that the training and instruction received by themselves or a fellow employee, could represent a serious and imminent danger to their Health and Safety, and;
    - Of any matter where it is considered that the training and instruction received by themselves or a fellow employee, could present a failure in the employers' protection arrangements for their Health and Safety, even where no immediate danger exists.

10. RULES COVERING HEALTH AND SAFETY AT WORK

This section of the Health and Safety Statement specifies the safety rules in operation, which employees must adhere to. These rules are prepared in accordance with legal requirements and acknowledged safe working practices. In addition to the legal duty imposed upon employees to comply with these rules, failure to observe them will be considered to be a breach of the Hisel Power's Contract of Employment and will result in disciplinary action being taken.
It should also be borne in mind that a breach of Health and Safety Legislation by an employee is a criminal offence and an Enforcing Officer could take action against an individual.

A) Working Practices

1. Employees must not operate any item of plant or equipment unless they have been trained and authorized to do so.
2. Employees must make full and proper use of all equipment guarding.
3. Employees must report to management immediately any fault, damage, defect or malfunction in any item of plant, equipment or tool.
4. Employees must not clean any moving item of plant or equipment.
5. Employees must not leave any item of plant or equipment in motion whilst unattended unless authorized to do so.
6. Employees must not make any repairs or carry out maintenance work of any description unless authorized to do so.

7. Employees must use all substances, chemicals, liquids etc. in accordance with instructions.
8. Employees must observe all pedestrian and vehicle controls in force on the premises.

B) Hazard Warning Signs and Notices

Employees must comply with all hazard and warning signs and notices displayed on the premises. All the warning signs and notice should be permanent.

C) Working Conditions and Environment

1. Employees must make proper use of all equipment and facilities provided to control working conditions.
2. Employees must keep stairways, passageways and work areas clear and in a clean and tidy condition.
3. Employees must dispose of all rubbish, scrap and waste within the working area, using the facilities provided.
4. Employees must use the correct methods when removing any articles of waste for disposal.
5. Employees must clear up spillages or liquids within the work area.
6. Employees must not pollute watercourses, sewers or drains with chemicals, or substances.

D) Protective Clothing and Equipment

1. Employees must use all items of protective clothing and equipment provided as instructed.
2. Employees must report any damage, loss, fault or unsuitability of protective clothing or equipment to their supervisor.

E) Fire Precautions

1. Employees must comply with all laid down Emergency Procedures.
2. Employees must not obstruct any Fire Escape Route, fire equipment or fire doors.
3. Employees must report any use of firefighting equipment to their supervisor.

F) Hisel Power's Company Transport

1. Employees with company vehicles must carry out daily check of their vehicles, paying particular attention to tires, oil, radiator water and windscreen wash in accordance with the manufacturer's manual.
2. Employees must not drive or operate any vehicles for which they do not hold the appropriate driving license or permit.
3. Employees must not carry unauthorized passengers or unauthorized loads.
4. Employees must not use vehicles for unauthorized purposes.
5. Employees must not overload vehicles above the stated capacity.
6. Employees must not drive or operate vehicles whilst suffering from a medical condition or illness that may affect their driving or operating ability.

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7. Employees must not operate vehicles under the influence of any medication or drugs that can interfere with the driver's ability to operate the vehicle.

G) Accidents

1. Employees must seek medical treatment for any injury they may receive, no matter how slight it may seem to be. Upon returning from treatment they must report the incident to their Line Manager.
2. Employees must report all accidents and dangerous occurrences to management as soon as it is practicable.
3. Employees must notify management of any incident in which damage is caused to property.

H) Health

1. Employees must report to management any medical condition, which could affect the safety of themselves or others.
2. Employees must cooperate with the management on the implementation of the Medical and Occupational Health Provisions.

I) Rules Covering Gross Misconduct

An employee will be liable to dispensary actions if he/she is found to have acted in any of the following ways:

1. A serious or willful breach of safety rules.
2. Unauthorized removal or interference with any guard or protective device.
3. Unauthorized operation of any item of plant or equipment.
4. Unauthorized removal of any item of First Aid equipment.
5. Willful damage to, misuse of, or interference with any item provided in the interests of Health and Safety or welfare at work.
6. Unauthorized removal or defacing of any label, sign or warning device.
7. Misuse of chemicals, inflammable, hazardous or toxic substances.
8. Horseplay or practical jokes, which could cause accidents.
9. Making false statements or in any way deliberately interfering with evidence following an accident or dangerous occurrence.
10. Misuse of any item of equipment, utensil, fitting/fixture, vehicle, or electrical equipment.

11. Project Management Plans

In addition to the Health and Safety Management Plan as detailed in section 8 of this Schedule, the Principal Contractor shall develop and submit to the Owner for approval Project Management Plans covering the following areas:

- Fire Safety Management;
- Emergency Response;
- First Aid Arrangements;
- Accident and Injury Reporting;
- Training Management;
- Waste Management;
- Traffic Management;
- Risk Management & Risk Assessment;
- Worker Grievance Mechanism;
- Grievance Mechanism for External Stakeholders.

Project Management Plans shall ensure Principal Contractor's compliance with national requirements, all relevant HSE requirements, as well as applicable IFC Performance Standards provisions and applicable WB HSE general and sector guidelines.

Upon approval, the Project Management Plans shall be adhered to, regularly reviewed and updated as necessary, and maintained by the Principal Contractor.

12. FIRE ARRANGEMENTS

This section outlines the arrangements and responsibilities for evacuation in the event of fire.

- All Hisel Power's employees must receive instruction and training in the procedures to be followed in the event of a fire.
- As part of the fire arrangements, a person has been nominated who is responsible for Fire Safety planning/fire precautions, Evacuation Drills, fire appliance checks, Fire Alarm tests and record keeping.
- Fire Evacuation Drills will be arranged by the nominated person twice per year.

A) Fire Procedures

Upon discovering, hearing or being notified of a fire,

THE SENIOR PERSON PRESENT WILL:

1. Telephone the Emergency Services by dialing:

Fire brigade	16
Rescue Services	1122

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2. When the Operator answers, ask for the FIRE SERVICE and state clearly the address of the premises from which you are calling:

ADDRESS

3. When connected to the Fire Service, state slowly and distinctly:
"THIS IS Hisel Power, WE HAVE A FIRE".

Do not replace the receiver until this information has been correctly acknowledged.

4. Evacuate the building by the nearest available exit and proceed to the assembly point.

5. Initiate a roll call for employees and visitors.

6. Liaise with the Senior Fire Officer, giving information concerning:
   a) location of fire
   b) missing employees/visitors
   c) location of dangerous chemicals/substances
   d) location of services isolating points.

7. Liaise with the Fire Officer before re-entering the building.

8. Ensure that all discharged fire extinguishers are replaced.

B) Fire Notice

When notified of a fire, all employees should leave the building by the nearest available exit and assemble outside in front of the office building.
A roll call will be held, to ensure all persons are accounted for, and no one is left in the building.
Do not delay leaving the building by collecting personal belongings.

VISITORS

Please assemble at the location identified above where a roll call of visitors will be held - it is important that you do not leave the area before notifying the Senior Person present.
Do not delay leaving the building by collecting personal belongings.

SENIOR PERSON PRESENT

a) Ensure that the FIRE SERVICE has been summoned.
b) Initiate a roll call for employees and visitors.
c) Inform the fire service of the suspected or actual location of the fire, any missing persons, any dangerous substances present and service isolation points, e.g. gas mains/valves, electricity, etc.
d) Do not re-enter the building until told that is safe to do so by the Fire Officer.

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e) Ensure that all discharged fire extinguishers are replaced.
f) Keep a record of the incident.

13. ACCIDENT AND INJURY REPORTING PROCEDURE AND RECORDS

All injuries no matter how minor should be treated and a record made in the Accident Book:

1. The injured person reports for First Aid Treatment.
2. The responsible person will decide what actions are necessary (if any), carrying out an investigation and recording details on the form if appropriate.
3. The responsible person will notify the Authorities immediately if the injury results in absence from work of more than 3 days.

14. FIRST AID ARRANGEMENTS

A trained First-Aider or appointed person by Hisel Power, First Aid equipment and records are provided. Displayed throughout the premises are notices, which detail the following:

LOCATION OF FIRST AID KIT

In Office and on site.

LOCATION OF RECORD OF ACCIDENT/TREATMENT RECORD BOOKS

In Office.

15. EMERGENCY PROCEDURE

1. In the event of requiring the Emergency Services dial:

1122/15

2. When the Exchange Operator answers, ask for the appropriate service.

3. When connected to the required service, state slowly and distinctly:

"THIS IS Hisel Power"

4. Give details of the incident.
5. Give details of the address
6. Do not replace the receiver until this information has been correctly acknowledged.

16. DANGEROUS OCCURRENCE REPORTING PROCEDURE

Report any dangerous occurrence to Hisel Power's HSE Advisor on site.

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17. ARRANGEMENTS FOR CARRYING OUT RISK ASSESSMENT

Hisel Power will carry out a formal risk assessment and record the following:

1. Any significant sources of harm (hazards) to Health and Safety identified during the assessment.
2. Any existing control measures currently in place and their level of effectiveness in controlling those risks (with reference and access to work manuals or other documentation if appropriate).
3. The persons who may be affected by the risks identified, in particular any personnel who may be especially at risk.
4. The decisions taken as a result of the assessment.

A competent team will carry out the risk assessment.

When a hazard is identified and the risk assessed, the necessary arrangements will be decided and put into effect to protect safety and health, including removal of the hazard, control measures, safeguards or the provision of protective equipment.

Risk assessments will be recorded and submitted to Yellow Door Energy along with the health and safety plan.

During the construction of the project, a health and safety file shall be prepared and submitted at commissioning. The contents of the file will cover:

a. A brief description of the work carried out;
b. Any hazards that have not been eliminated through the design and construction processes, and how they have been addressed (e.g. surveys or other information concerning asbestos or contaminated land);
c. Key structural principles (e.g. bracing, sources of substantial stored energy - including pre- or post-tensioned members) and safe working loads for floors and roofs;
d. Hazardous materials used (e.g. lead paints and special coatings);
e. Information regarding the removal or dismantling of installed plant and equipment (e.g. any special arrangements for lifting such equipment);
f. Health and safety information about equipment provided for cleaning or maintaining the structure;
g. The nature, location and markings of significant services, including underground cables; gas supply equipment; fire-fighting services etc;
h. Information and as-built drawings of the building, its plant and equipment (e.g. the means of safe access to and from service voids and fire doors)

If an operation and maintenance contract is applicable post construction, an updated health and safety file will need to be submitted preceding the end of the operation and maintenance contract.

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Yellow Door Energy (YDE) is a leading provider of financed energy solutions. Our mission is to provide customers with reliable, efficient and sustainable energy solutions. We do this by investing in distributed solar and energy efficiency infrastructure for commercial and industrial businesses in the Middle East, Africa and South Asia.

YDE is committed to minimizing the environmental impacts and enhancing the social and economic benefits of our installations during construction, through operations and after the installations lifetime. Our priorities and guiding principles include:

- Providing cost-effective environmental solutions for our customers to be more competitive and sustainable
- Operating world-class installations, applying responsible clean energy generation and energy saving construction practices and maintaining environmental, health and safety programs and policies that protect the environment and ensure the safety of our associates and the communities in which we operate.
- Measuring, tracking and reporting on a number of sustainability performance metrics including our recordable injury rate, energy and water use, waste generation, and greenhouse gas emissions as part of our commitment to transparency.
- Engaging with local communities to create economic opportunity as well as ensuring that projects have a net positive impact on their environmental and social welfare
- Participating as a responsible citizen in the communities where we operate.
- Engaging with suppliers on responsible and sustainable sourcing as part of our commitment to operating a supply chain free of conflict minerals.
- Creating enduring economic value by implementing a long-term roadmap to achieve our technology and cost leadership goals while operating as efficiently as we can in each environment where we do business.

It is an obligatory requirement of our contractors to ensure they perform an environmental impact assesment prior to construction and produce an environmental manual as part of the health and safety manual. This will need to be submitted prior to mobilisation.

Waste Management

As part of the ESHS plans, waste management plans must be submitted by the contractor. The contractor is obliged to follow the guidelines and content highlighted below for the local munipality and that of the International Finance Corporation. Waste management records must be submitted on a weekly basis, along with HSE records and the weekly update report.

1. PURPOSE

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The purpose of a Waste Management Plan ("**WMP**") is to:

- Assess, and where possible reduce, the amount of waste produced during the operation phase of the Project.
- Set instructions and requirements for a proper segregation, storage and disposal of waste generated during operation and maintenance activities.
- Ensure all operation and maintenance staff are aware of their legal responsibilities and duties when dealing with waste during the construction phase and the operation phase.

For the purpose of this document the construction phase is defined as from the time when the EPC contractor is given Notice To Proceed ("**NTP**") ("**Construction Phase**"). The operation phase is defined as the time when it is commissioned by Yellow Door Energy ("**Operational Phase**").

The plan will assess how the waste will be dealt with in the most environmentally sustainable way. The WMP contains the following information:

- Relevant legislation and guidelines for waste management of the Project.
- The systems, procedures and initiatives proposed to address the management of waste materials generated during the operation phase of the Project.
- Safeguards, mitigation measures and monitoring to manage waste impacts during operation.
- An effective monitoring and reporting framework to assess the effectiveness of the control implemented.

2. LEGISLATIVE REQUIREMENTS

Waste management shall be carried out in compliance with applicable local environmental legislation and IFC Performance Standards and Guidelines. When both such requirements differ, the most restrictive will be applied.

Local environmental legislation relating to waste management includes the following:

- Pakistan Envrionmental protection Act (1997) Section 11-Prohibation of certian discharge and Emissions subject to the provision of this act and the rules and regulation made there under no person shall discharge or emission which is in the excess of the National Environmental Quality standard.
- National Environmetal policy (2004) section 3.3- Waste managment policy under this pollution caused by liquid and solid waste in the country would be prevented and reduced.
- Punjab Enviromental protection Act (1997)-An Act to provide for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable developmen
- Hazardous substances rule 1999
- The Punjab Occupational Safety and Health Act 2019
- Pakistan Penal Code
- Hazardous Substance Rules 2003

Technical Guidelines include:

- Technical guidelines No.1 Punjab Environmental Protection Act 2012, Punjab Hazardous Substances Rules 2018
- Technical guidelines No.2 The Punjab Occupational Safety and Health Act 2019

IFC requirements include:

- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Environmental, Health, and Safety (EHS) guidelines

3. WASTE STREAMS

Waste is defined as any solid, liquid, or contained gaseous material that is being discarded by disposal, recycling, burning or incineration. It can be the byproduct of a manufacturing process or an obsolete commercial product that can no longer be used for intended purpose and requires disposal.

For the purpose of this document waste is classified into five streams:

- **Solid (non-hazardous) waste** generally includes any garbage and refuse. Examples of such waste include domestic trash and garbage; refuse, such as metal scrap and empty containers (except those previously used to contain hazardous materials which should, in principle, be managed as a hazardous waste); and residual waste from any other operations.
- **Inert waste** include wastes that are not biologically or chemically active in the natural environment including glass, concrete, brick materials, broken clay and manufactured rubber products, or non-contaminated waste soil from excavation operations.
- **Hazardous waste** shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical, or biological characteristics that may pose a potential risk to human health or the environment if improperly managed. Wastes may also be defined as "hazardous" by local regulations or international conventions, based on the origin of the waste and its inclusion on hazardous waste lists, or based on its characteristics.
- **Domestic Wastewater** discharged to septic tankers: All wastewater shall be discharged to underground septic tanks that are well contained and impermeable to prevent leakage of wastewater into soil. In addition, proper bunding must be in place to prevent further spillage if leakage occurs. The level of wastewater in the septic tanks shall be monitored to make sure it is discharged to mobile truck mounted septic tanks when 80% capacity is reached. **Wastewater** all spent water discharged from any activity of man or industrial process.
- **Recyclable waste** are waste materials that are broadly classified as recyclables for containing valuable material meant for recycling or reusing. Recyclable waste as described below:

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Waste	Description
Paper	Corrugated Paper – Cardboard containers, boxes and packaging, including pizza boxes, which are cleaned of contamination by food wastes or polystyrene commonly called Styrofoam, and which have been flattened for transport.
	Newspapers, Magazines, and Catalogues- includes common machine finished paper made chiefly from wood pulp used for printing newspapers, as well as glossy inserts, magazines and catalogues. All must be free of contaminants.
	Kraft paper: all bond paper, and also computer printout, stationery, photocopy and ledger paper of any color from all Waste Generators. This term excludes carbo paper, chemical transfer paper and Tyvek or plastic coated envelopes.
	Paperboard- includes paper packaging as found in cereal, cracker and tissue boxes, etc. and toilet tissue and paper towel tubes.
	Mixed paper – includes discarded and bulk mail, computer paper, colored paper, envelopes, greeting cars, wrapping paper and carbonless multi-part forms. Excludes any paper coated with foil or plastic.
Glass	Empty, washed glass jars, bottles and containers of clear, green and amber (brown) that contained food and drink, caps removed. This term excludes ceramic, window glass, auto glass, mirror and kitchenware.
Metal	All ferrous and non-ferrous metals, including: steel, aluminum and composite cans and containers (cleaned of food wastes) and empty aerosol cans that did not contain hazardous material. Scrap metal, wire, pipes, tubing, motors, sheet, metal, etc. are recyclables but must be recycled through scrap dealers.
Plastics	All High Density Polyethylene (HDPE) and Polyethylene (PET) type plastic bottles (#1 & #2), including empty, washed food, beverage, detergent, bleach and hair care containers. This term excludes all photographic film, plastic film, vinyl, rigid and foam plastic materials, as well as plastics numbered 3, 4, 5, 6 and 7.
E-Waste	Refers to the discarded obsolete or broken waste electrical and electronics equipment as classified in Waste Electrical and Electronic Equipment Directive 2012/19/EU ("**WEEE Directive**"), both as special waste and as hazardous waste due to the economic value of the recyclable components and to the hazardous nature of some parts thereof.

4. AVAILABLE WASTE MANAGEMENT SERVICES

4.1 Duties of waste generators companies:

As waste generators, our duties are to ensure:

1) Waste is Segregated (separate recyclables from general waste), store and transport generated waste appropriately and securely;

2) any waste produced is handled and stored safely, without causing harm or pollution to the environment;
3) the waste management register is kept up to date throughout the operation and construction phase (see Annex 1);
4) the transfer of waste is covered by a waste manifest which clearly indicates the waste generator, the waste transporter and final destination of the waste;
5) that the description of the waste is accurate and contains all the information needed in order for the waste to be safely handled, transported, treated, recovered or disposed by subsequent holders;
6) the waste is transferred to a company who is properly licensed and permitted to collect, transport and dispose of the waste; and
7) When required and practical obtain certificate for recycled material.

4.2 Solid Waste and inert waste services

In Pakistan, solid waste management is undertaken primarily by waste generators through contracting with waste management companies approved by Local Municipality. Solid waste is managed through the operation of collection, transportation to landfills (or dumpsites) to be disposed of or recycled. Solid waste management is the responsibility of local municipalities under the umbrella of the provincial waste managment department – this includes contracting with waste management companies approved by Punjab provincial Municipality for the collection of solid waste, transportation, and disposal to landfills, burning or combustion in controlled manner for the purpose of getting rid of waste material or final deposit at local Municipality waste treatment facility or complex for recycling.

4.3 Hazardous waste services

In accordance with Technical Guideline No.8 regarding Disposal of Hazardous Waste, all hazardous waste must be stored in a suitable place for hazardous material that meets safety requirements and which prevents any harm to the public. The requirements of storage of hazardous waste are as follow:

1) Hazardous waste must be stored in special containers where the containers are made of block material which are free of holes, leakage resistant, provided with tight caps and seals and are of sufficient capacity to story hazardous waste.
2) Hazardous waste shall be marked clearly stating the containers' content and indicating the hazard which might arise upon improper handling of such materials.
3) Time schedule set up for collection of hazardous waste as soon as practicably possible.
4) In case of mobile containers, the hazardous waste generating party shall not place such a container in public area and shall not damage the environment.

Hazardous waste should be transported Hazardous waste transporters approved by local province Municipality and disposed of at the disposal site approved by punjab Municipality. This site, with defined area and boundaries, is intended for the final depository of waste. It may be a

final depository site of lined or unlined landfill or any dedicated facility for waste treatment as approved by punjab Municipality.

All disposal procedures of hazardous waste should fall under the local municipality laws. The contractor must be dispose the all hazaordous and non hazardous waste in designated places approve by local development Authorities.

5 WASTE GENERATION

5.1 Solid and inert waste

The project is expected to generate solid waste during the operation phase to include general municipal waste (such as food, paper, glass, bottles, plastic, etc.) Solid waste quantities generated are expected to be minimal and not significant at all and are likely to be easily handled by the designated and approved punjab Municipality designated site for waste treatment complex.

5.2 Hazardous waste

The exact quantities of hazardous waste that will be generated from the Project are not determined, but given the nature of operation and maintenance activities they are expected to be minimal and not significant at all. Such hazardous waste streams include simple types of waste such as oil, chemical, fuel for the various equipment and machinery and any broken or obsolete solar panels. Hazardous waste quantities are likely to be easily handled on sites specifically approved by the punjab Municipality – Environment Department. As far as reasonably practical cause all hazardous waste to be recycled by third party recycling companies approved by the punjab Municipality – Environment Department.

5.3 Wastewater

During the construction phase, domestic wastewater is expected to generate from toilets, kitchens, sinks, showers, laundry and other domestic facilities. There will be an internal piping system to collect all generated wastewater into a septic tank (or more if required). Septic tanks shall be constructed considering applicable local legislation, they shall be sealed to prevent any leakage into the environment, and they shall be used only for collection of wastewater (no treatment is planned). Discharging and disposal of domestic wastewater collected at the septic tanks shall be considered a hazardous activity and shall be carried out only by licensed contractors. Full records shall be kept of all collection and disposal activities. Domestic wastewater shall be discharged to a wastewater treatment facility through punjab Municipality.

1) Analysis Report from accredited laboratories (shall not be more than a month old) with minimum required parameters analyzed: pH, Total Suspended Solids, Total Dissolved Solids, BOD5, COD, Oil/greases(emulsified), Free Oil, Sulfates, Sulfides, Ammoniacal Nitrogen, Metals (Al, As, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Ag, Se, Zn) and total heavy metals.
2) Description with flowchart of the process sources of waste.
3) Description of on-site treatment and collection of the waste before disposal.

4) Drawing details of waste treatment system plus details of wastewater holding tanks with connection to sewer lines (if any)
5) Location plan of the premises and site drainage plan.

Upon receipt of the punjab waste managment department approval, the waste management company is contacted to transport the wastewater to be disposed at the designated Municipality Site.

6 WASTE MANAGEMENT

6.1 Waste minimization hierarchy

Waste management throughout the operation and maintenance activities will focus on the recovery opportunities:

- Reduce;
- Reuse;
- Return;
- Recycle;
- Dispose.

Limiting the amount of material sent for disposal has a positive impact on both the environment and cost. Preventing and minimizing waste generation is the highest priority. Reusing or recycling of waste is second priority (i.e reuse of wooden pallets, plastic canvas, etc.) Following minimization and recycling, returning to the manufacturer where the waste can be recycled internally and reused. Following that, energy recovery is preferable rather than disposal, which is always the last option as landfilling causes high impact on the environment and high polluting materials may remain on ground for many years.

The life cycle stages for PV equipment and resulting opportunities for reducing, reusing, returning or recycling:

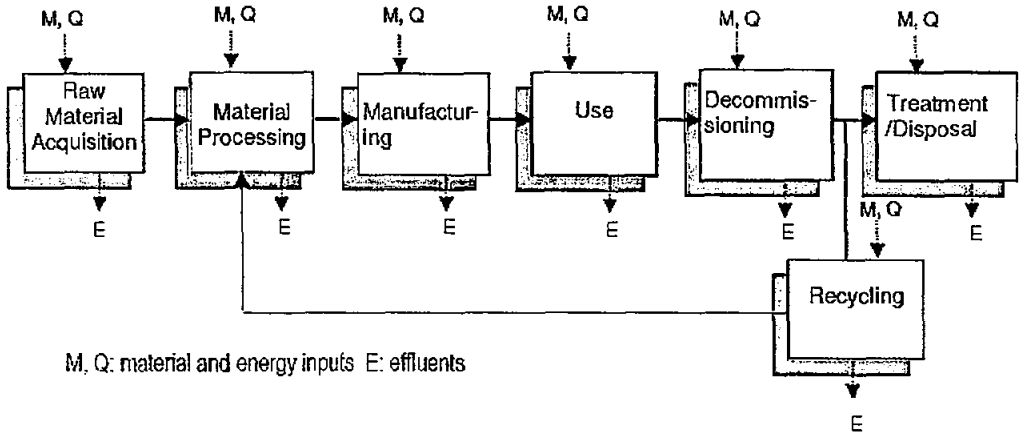

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FIGURE 1: WASTE MANAGEMENT IN THE LIFE CYCLE OF PV PANEL

6.2 Waste segregation

When collecting waste at the generation point, it is prohibited to mix different types of waste as to allow waste recovery whenever possible and avoid contamination of materials and substances (i.e mixing hazardous with non-hazardous waste, mixing recyclable waste with non-recyclable waste).

All waste shall be segregated in the following bins:

1) Inert aggregates;
2) Metals;
3) Timber;
4) Dry recyclables; and
5) Hazardous materials.

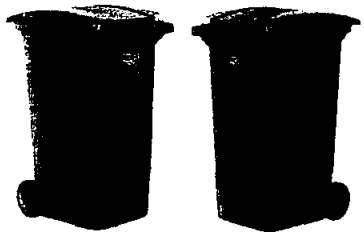

FIGURE 2: SAMPLE WASTE SEGREGATION BINS

The minimum container requirement is a "two bin" system. One bin colored green will be for the mixed dry recyclables, the other bin colored black for the solid waste. The waste generator may increase the number or size of containers as they see practically fit so long as they follow the color codes below:

Table 1. Two Bin System:

S.No	Type of Material	Color Code
[redacted]		
2	Dry Mixed Recyclables	Green

Table 2. Bin Color Codes for 3 Bin or more:

S.No	Type of Material	Color Code
1	Paper	Blue
2	Plastic	Green
3	Metal	Maroon
4	Glass	Yellow
5	Rubber	Cyan
6	Leather	Cyan
7	Textile	[redacted]
[redacted]		
9	E waste	Orange
[redacted]		

Table 3. Bin System and Color Codes for Construction and Demolition Sites:

S.No	Type of Material	Color Code
1	Inert Aggregates	Grey
2	Metal	Maroon
4	Dry Recyclables	Green
5	Hazardous Materials	Red

6.3 Waste storage

Generated waste if not properly stored and controlled, can cause human safety and health concerns; contaminate soils, surface and groundwater; be toxic to vegetation, wildlife and aquatic organisms if ingested in sufficient quantities. Therefore, minimum protection measures shall be taken in order to minimize potential negative environmental effects when storing waste.

During operational phase, operation personnel will seek waste storage facilities on client premises compliant with our requirements as below. In the case where client does not have proper storage facilities, operation personnel will be responsible to make available proper facilities for storage of waste available.

During construction phase, operation personnel will be responsible for proper segregation and storage of waste on site using client waste storage facilities as far as practical when compliant with our requirements. The following measures shall be taken in order to ensure proper waste storage on site.

Solid and inert waste:

- Operation personnel will be responsible for providing a space for safe and sanitary storage of solid waste and recyclable materials. The area will be kept clean and will meet appropriate health and safety standards and regulations.
- Waste will be gathered on a regular basis and stored in closed containers until recycled or disposed of as per local legal requirements.
- Solid waste shall be disposed of in container properly labeled indicating the type of waste that can be thrown in.
- Organic waste will be stored in a manner that ensures wildlife will not be attracted.
- Containers shall be collected frequently in order to avoid odor nuisances (recommended period but not limited to: max once per week).
- It is strictly prohibited to open landfills to dispose of waste generated on site.

Hazardous waste:

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Hazardous waste shall be stored so as to prevent or control accidental releases to air, soil and water resources, the following shall be applied:

- Hazardous waste shall be stored in a manner that prevents the commingling or contract between incompatible wastes, and allows for inspection between containers to monitor leaks or spills. Examples include sufficient space between incompatibles or physical separation such as walls or containment curbs.
- Hazardous waste shall be stored in closed containers away from direct sunlight, wind and rain.
- Secondary containment systems shall be constructed with materials appropriate for the wastes being contained and adequate to prevent loss to the environment.
- Secondary containment is included wherever liquid wastes are stored in volumes greater than 220 liters. The available volume of secondary containment shall be at least 110 percent of the largest storage container, or 25 percent of the total storage capacity (whichever is greater), in that specific location.
- Provide adequate ventilation where volatile wastes are stored.

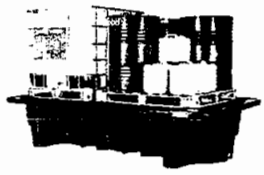

FIGURE 3: EXAMPLE OF SECONDARY CONTAINMENT FOR HAZARDOUS WASTE

Hazardous waste storage activities shall also be subject to special management actions, conducted by employees who have received specific training in handling and storage of hazardous wastes:

- Provision of readily available information on chemical compatibility to employees, including labeling each container to identify its content.
- Limiting access to hazardous waste storage areas to employees who have received proper training.
- Clearly identifying (label) and demarcating the area, including documentation of its location on a facility map or site plan.
- Conducting periodic inspections of waste storage areas and documenting the findings.
- Preparing and implementing spill response and emergency plans to address their accidental release.
- Avoiding underground storage tanks and underground piping of hazardous waste.

WASTE PRODUCER INFORMATION	
NAME	
TELEPHONE	
ADDRESS	
CONTACT PERSON	

[redacted]	
NAME	
TELEPHONE	
ADDRESS	
[redacted]	
NAME	
PACKAGING DATE	
HAZARD SYMBOL	

FIGURE 4: EXAMPLE OF HAZARDOUS WASTE LABEL

6.4 Waste Transportation

Only licensed and permitted Waste Management Companies approved by punjab Municipality are allowed to collect, transport and dispose waste in punjab.

All waste containers designated for off-site shipment shall be secured and labeled with the contents and associated hazards, be properly loaded on the transport vehicles before leaving site, and be accompanied by a shipping paper (i.e manifest) that describes the load and its associated hazards.

Waste Management Companies:

Before selecting a waste management company, they shall show a full compliance with legal requirements and authorizations for collection, transportation and final disposal.

The waste management companies must deliver all documents that ensure correct handling, transportation and disposal. Documentation must be kept for a period of at least 2 years in order to assure compliance and avoid legal liabilities.

Priority will be to given to waste management companies that recycle waste generated on site. Waste management companies responsible for carrying out the disposal of waste must be legally authorized by the local legal environmental/municipal authority.

In order to ensure strict control of waste management procedures during project operation phase, it is recommended to perform audits to the chosen supplier responsible for providing collection and disposal services. Such audits shall be performed at least once to evert suppliers used.

Contacts are updated on a periodical basis available on Lahore waste managment company website https://www.lwmc.com.pk/

6.5 Waste disposal

- It shall be the responsibility of the contractor personnel to arrange for the timely collection of solid waste from the site
- All waste is to be disposed of to an approved site by the contracted Waste Management Company.

- Littering in any form, volume and location is prohibited. Similarly, casual waste dumping, including roadside dumping and illegal land filling is prohibited.
- The burning of any waste on or off the site is strictly forbidden.
- Documentation of regulated waste removal will be kept on file (waste type, quantity and destination).
- When applicable, recycling certificate to be provided

7 TRAINING

All employees working on site shall undergo site induction and environmental training in relation to waste management issues. The induction will address:

- This waste management plan
- Relevant legislation
- Waste minimization
- Waste recognition and recycling
- Available recycling facilities
- Energy and water conservation measures

Records shall be kept of all personnel undertaking the site induction and training, including the contents of the training, date and name of trainer.

Key staff will undertake more comprehensive training relevant to their position and/or responsibility. This training may be provided as "toolbox" training or specific training.

8 MONITORING AND REPORTING

Regular monitoring will be undertaken to track waste management on and off site, this shall be achieved by monitoring the following:

- Solid waste generation, including quantity and quality.
- Collection and transportation efficiency.
- Suitability of final disposal sites.
- Solid waste accumulation within the project area in terms of volumes and frequency of removal.
- Inspection of wastewater management practices onsite.
- Review of records and manifests for volume of wastewater management practices.

During the construction phase, a record of the quantity of the recyclable waste collected for processing as well as solid waste generated for disposal will be submitted on a regular basis in compliance to local Municipality. The record should also be available at all times on site in case of an unannounced audit by Lahore waste mangment company.

A qualified person will be assigned (most probably the environmental manager/supervisor) to be responsible for preparing quarterly waste management reports or Punjab environmental protective authorities

Annex 1

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Waste Management Register

No.	Date & Time	Waste Classification (solid or hazardous or recyclable)	Description of Waste (eg. Kitchen, wastewater, spent oil)	Weight/volume	Treatment Methods (can it be recycled/re-used)	Transportation method	Destination facility	Signature/receipt No.

GRIEVANCE MECHANISM PROCEDURE

INTRODUCTION

The purpose of this document is to formalize the management of grievances from YDE's stakeholders to minimize the social risks to the business. The grievance process, outlined in the document, provides an avenue for stakeholders to voice their concerns and gives transparency on how grievances will be managed internally, which aims to reduce conflict and strengthen relationships between external stakeholders.

SCOPE

The grievance mechanism procedure applies to all external stakeholders of our operations and exploration activities. This procedure does not cover grievances raised by internal stakeholders, such as employees, who are to refer to YDE's internal grievance standard located on YDE's intranet. Specific and localized grievance mechanisms may need to be put in place for future development projects, which consider local language and customs.

DEFINITIONS

"Grievance": An issue, concern, problem, or claim (perceived or actual) that an individual or community group wants addressed by the company in a formal manner.

"Grievance Mechanism": A formalized way to accept, assess, and resolve community complaints concerning the performance or behavior of the company, its contractors, or employees. This includes adverse economic, environmental and social impacts.

"Internal Stakeholders": Groups or individuals within a business who work directly within the business, such as employees and contractors.

"External Stakeholders": Groups or individuals outside a business who are not directly employed or contracted by the business but are affected in some way from the decisions of the business, such as customers, suppliers, community, NGOs and the government.

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GRIEVANCE REPORTING CHANNELS

YDE will communicate this procedure to its external stakeholders to raise awareness and offer transparency of how stakeholders can voice their grievances. Various channels for external stakeholders to vocalize their grievances formally include:

- Telephone: Stakeholders can call YDE's head office in Pakistan office on +92300-207 3399
- Email: Grievances can be sent to project-grievance@yellowdoor energy.com
- Face to face: Stakeholders can voice their grievance to any YDE employee who will then escalate using the correct process

ROLES AND RESPONSIBILITIES

Grievance Owner

- Employee investigating the grievance and liaising with the external stakeholder/s
- Developing resolutions and actions to rectify any issues
- Follow up and track progress of grievance
- Document any interactions with external stakeholders

Stakeholder Contact Officer

- Receive grievances and assign a grievance owner
- Makes sure the grievance mechanism procedure is being adhered to and followed correctly
- Maintains grievance register and monitor any correspondence
- Monitor grievances/trends over time and report findings to the Management Team
- Raise internal awareness of the grievance mechanism among employees and contractors

Employees

- Receive grievances in person
- Report grievance to the Stakeholder Contact Officer by lodging the Grievance Lodgment Form
- May provide information and assistance in developing a response and close out of a grievance

GRIEVANCE MECHANISM PROCESS

The below describes the process that will be used to resolve any grievances: Follow up and Close out Act Investigate Acknowledge Screen Record Receive Grievance

In Person/ over the phone

If a grievance is received face to face or over the phone and the stakeholder wishes to address the grievance formally, it is the responsibility of the employee who receives the grievance to complete a Grievance Lodgment Form (see Appendix 1). Once the form is completed the employee will then pass the form on to the stakeholder contact officer for processing.

Electronic

The stakeholder contact officer receives all grievances that come through via email or YDE's website. The stakeholder contact officer will review the grievance form and process the grievance in accordance to this procedure.

Record

All formal grievances will be logged in the External Grievance Register (see Appendix 2) and Grievance Lodgment Forms will be saved in YDE's intranet for record of correspondence.

Screen

The stakeholder contact officer is responsible for assigning a grievance owner to liaise with the external stakeholder/s and work on a resolution. Grievances will be screened depending the level of severity in order to determine who the grievance owner will be and how the grievance is approached. See below the different categorizations:

Level 1: When an answer can be provided immediately and/or YDE are already working on a resolution. (Only formal grievances to be lodged in the External Grievance Register)

Level 2: One-off grievances that will not affect the reputation of YDE.

Level 3: Repeated, extensive and high-profile grievances that may jeopardize the reputation of YDE. Executive level resolution required.

Acknowledge

A grievance will be acknowledged, by the grievance owner, within two working days of a grievance being submitted. Communication will be made either verbally or in written form (stakeholders will outline their preferred method of contact on the Grievance Lodgment Form, see Appendix 1).

The acknowledgement of a grievance should include a summary of the grievance, method that will be taken to resolve the grievance and an estimated timeframe in which the grievance will be resolved. If required, the acknowledgment provides an opportunity to ask for any additional information or to clarify any issues.

Investigate

The grievance owner is responsible for investigating the grievance. The investigation may require the grievance owner to make site visits, consult employees, contact external stakeholders and complete other activities. Records of meetings, discussions and activities all need to be recorded during the investigation. Information gathered during the investigation will be analyzed and will assist in determining how the grievance is handled and what steps need to be taken in order to resolve the grievance.

Act

Following the investigation, the grievance owner will use the findings to create an action plan outlining steps to be taken in order to resolve the grievance. The grievance owner is responsible for assigning actions, monitoring actions undertaken and making sure deadlines are adhered to. Once all actions have been completed and the grievance owner feels the grievance has been

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resolved, they will then formally advise the external stakeholder via their preferred method of contact.

Follow up and close out

The grievance owner will contact the external stakeholder/s after the grievance is resolved. When contacting the external stakeholder, the grievance owner will verify that the outcome was satisfied and also gather any feedback on the grievance process. Minutes of the meeting will be recorded and saved in YDE's intranet. If required, the grievance owner may need to follow up with the external stakeholder on numerous occasions to confirm all parties are satisfied.

APPEAL

If the external stakeholder is unhappy with the resolution and/or does not agree with the proposed actions, then the grievance owner needs to escalate the matter to the executive management team. The executive team will review the grievance and all documentation gathered throughout the investigation and determine whether further actions are required to resolve the grievance. YDE are fully committed to resolving an external stakeholder's grievance so if YDE are unable to resolve a complaint or a stakeholder is unhappy with the outcome, YDE may seek advice from other independent parties.

REPORTING

The Management Team will receive quarterly updates on stakeholder grievances. Information outlining the number of grievances, time to resolution and outcomes of grievances will be communicated. Grievances will also be reported in YDE's annual report. YDE will evaluate and update the Grievance Mechanism procedure every two years (or when required) to continually improve its stakeholder engagement.

STORING OF GRIEVANCES

All records, including grievance forms, investigation notes, interviews and minutes of meetings will be securely filed in YDE's intranet to ensure privacy and confidentiality is maintained for all parties involved.

REFERENCE DOCUMENTS

Grievance Standard

The UN Guiding Principles on Business and Human Rights 2009 (the 'Ruggie Principles')

APPENDIX 1 GRIEVANCE LODGEMENT FORM

Name:	
Please do not use my name when talking about this concern in public.	
Company: (if applicable)	
Date:	
Time:	
Preferred Contact Method:	
Telephone	
Email	

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Mail	
Supporting Documents Attached?	Yes
	No
Please provide details of your grievance	
What outcome are you seeking?	
Additional Information	
Claimant Signature:	YDE Signature: .....
Date:	Date: .....

Office Use only

Stakeholder Reference:

- ☐ NGO
- ☐ Neighbor - Pastoralist
- ☐ Municipality
- ☐ Neighhor – Port
- ☐ Government – Local
- ☐ Neighbor – Other
- ☐ Contractor
- ☐ Indigenous
- ☐ Consultant
- ☐ Other

APPENDIX 2 EXTERNAL GRIEVANCE REGISTER CRITERIA

Date received	
Stakeholder	
Contact Officer	
Grievance Owner	
Grievance Level (1, 2, 3)	
Grievance Description	
Cause of the grievance	
Outcome If a resolution was offered please indicate 'accepted' or 'not accepted'.	
Actions/ Notes	

ANNEX XV

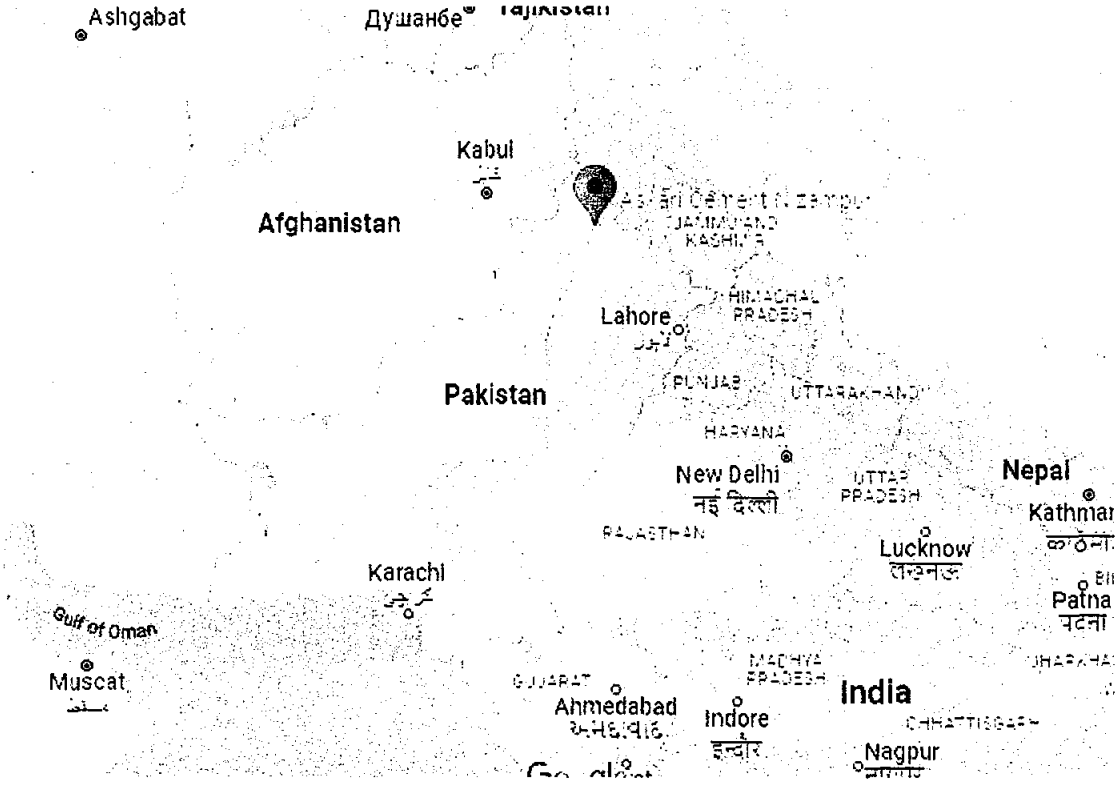
Technical Schedule

(35)

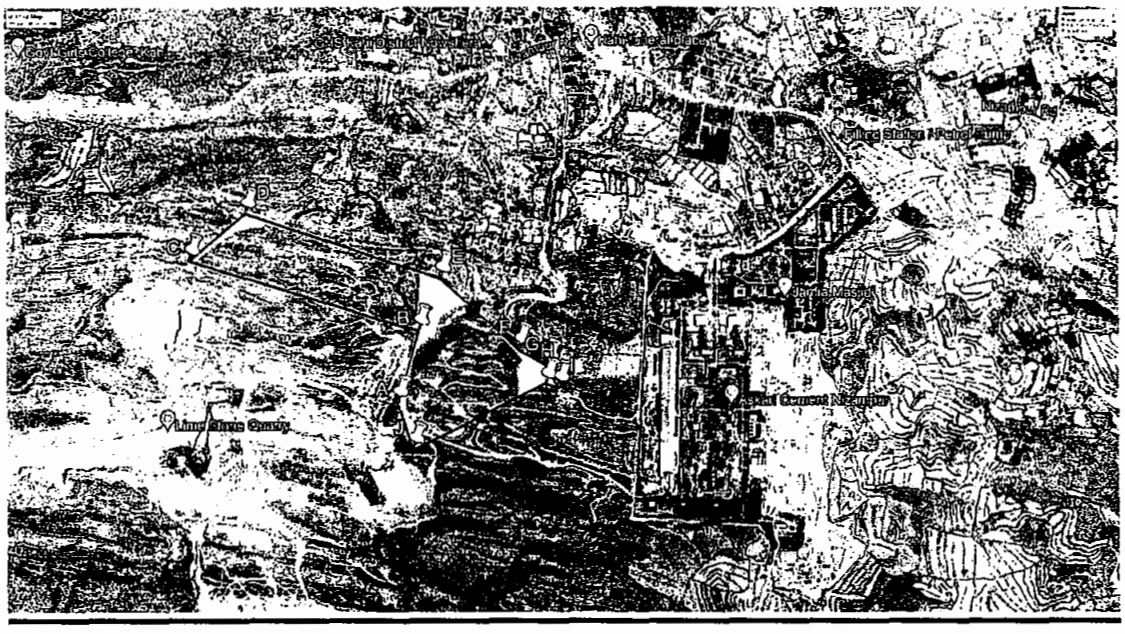
SCHEDULE-I

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

Location of the Generation Facility/ Solar Power Plant/ Ground Mount Solar of the Licensee

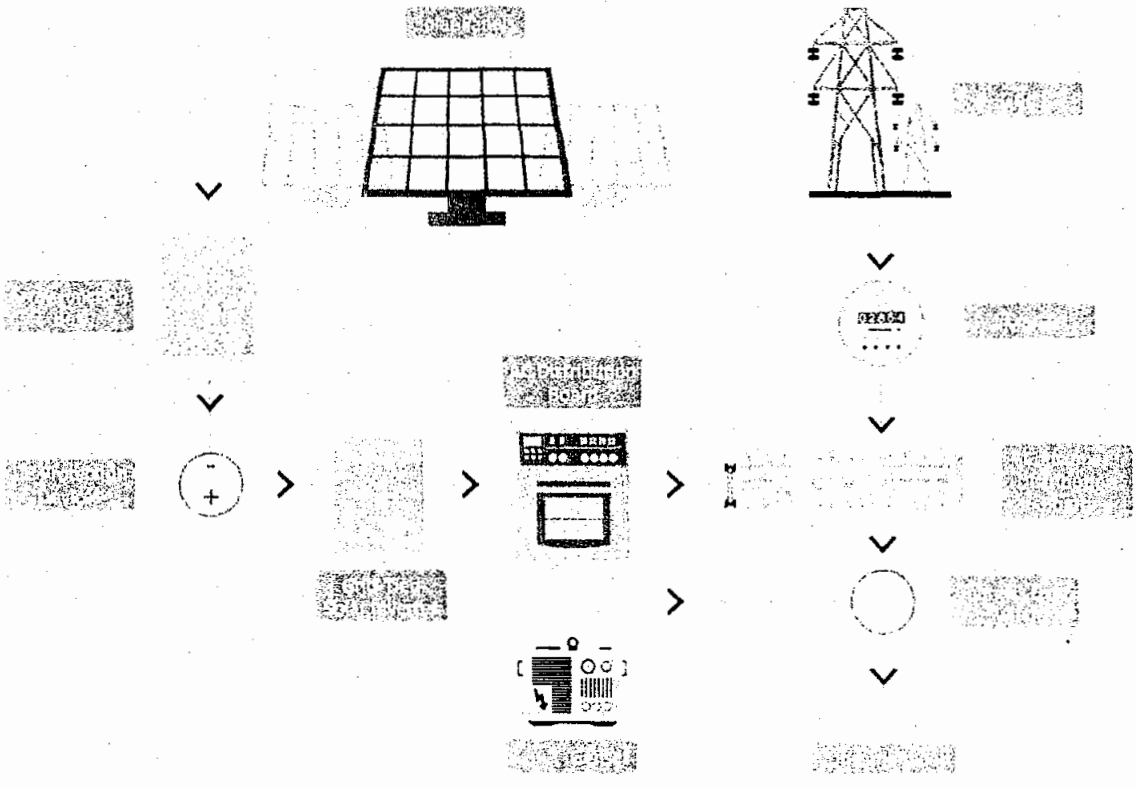


Land Coordinates of the Generation Facility/ Solar Power Plant/ Ground Mount Solar of the Licensee

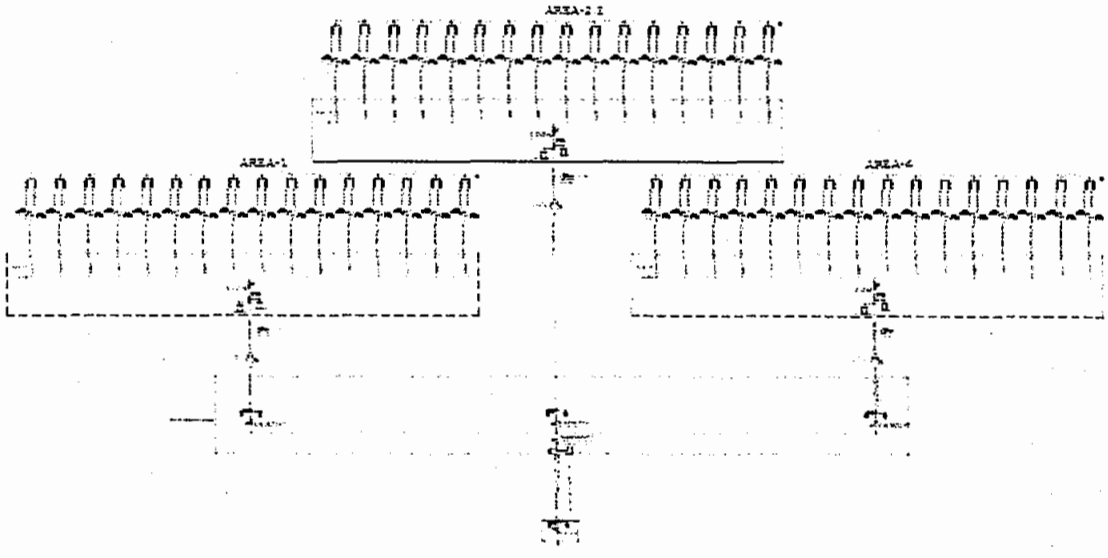


Serial Number	Latitude	Longitude
A.	33°48'7.92"N	72°5'0.66"E
B.	33°48'16.19"N	72°5'3.5"E
C.	33°48'24.33"N	72°4'30.67"E
D.	33°48'29.87"N	72°4'38.59"E
E.	33°48'22.41"N	72°5'6.46"E
F.	33°48'14.09"N	72°5'17.74"E
G.	33°48'12.24"N	72°5'21.96"E
H.	33°48'10.08"N	72°5'21.69"E
I.	33°48'9.74"N	72°5'23.56"E
J.	33°48'2.48"N	72°5'2.89"E

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

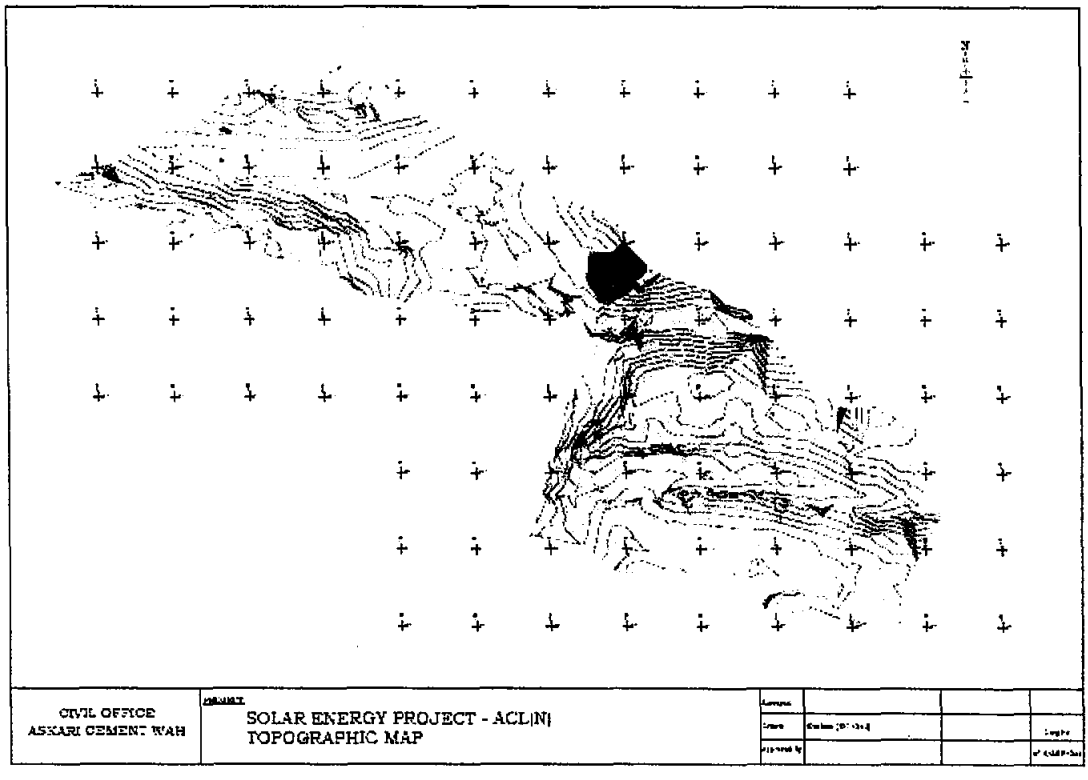


Single Line Diagram
Generation Facility/ Solar Power Plant/ Ground Mount Solar of the Licensee



(41)

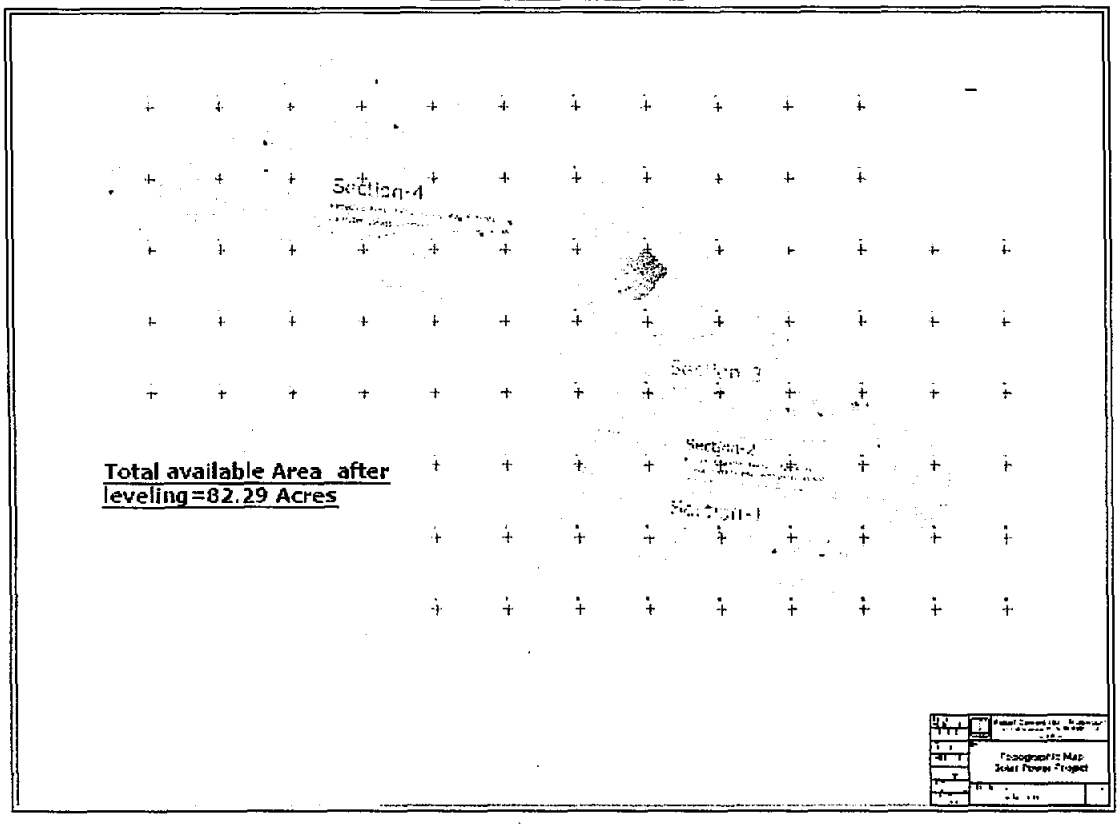
Present Topography
Generation Facility/ Solar Power Plant/ Ground Mount Solar of the Licensee



(92)

Planned Topography after Land Levelling

Generation Facility/ Solar Power Plant/ Ground Mount Solar of the Licensee



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Interconnection Arrangement/Transmission Facilities for Dispersal of Power from the Generation Facility/Solar Power Plant/Ground Mount Solar of the Licensee

1) The power generated from the Generation Facility/Power Plant of YDE SA, installed at Ground Mount of Askari Cement, Nizampur, KPK, will be dispersed for in-house utilization.

2) The proposed Interconnection Arrangement for dispersal of electric power for the Generation Facility/Solar Power Plant will be as under: -

    a. 6.3kV single circuit line on the bus bar of the main MV panel of ACL/Consumer

3) Any change in the above Interconnection Arrangement duly agreed by YDE SA and Askari Cement shall be communicated in the Authority in due course of time.

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Details of Generation Facility/Solar Power Plant/ Ground Mount Solar

(A). General Information

(i).	Name of the Company/Licensee	YDE SA (SMC/PVT.) LTD.
(ii).	Registered/ Business office of the Company/Licensee	1st Floor 140-CCA, Sector C Phase 5 D.H.A, Lahore, Punjab
(iii).	Type of the generation facility/Solar Power Plant/Ground Mount Solar	Photovoltaic (PV) Cell
(iv).	Location(s) of the generation facility Solar Power Plant/ Ground Mount Solar	Askari Cement, Kahi Village, Nizampur Nowshera, Khyber Pakhtunkhwa

(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photovoltaic (PV) Cell	
(ii).	System Type	On-Grid	
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Ground Mount Solar	11,264 kW_P	
(iv).	No. of Panel/Modules	20,860 x 540 Watt	
(v).	PV Array	Nos. of Strings	745
		Modules in a string	28
(vi).	Invertor(s)	Quantity	45
		Make	Huawei
		Capacity of each unit	215 kW

(C). Technical Details of Equipment

(a).	**Solar Panels – PV Modules**	
(i).	Type of Module	LONGI LR4-72HPH-540M
(ii).	Type of Cell	Mono crystalline
(iii).	Dimension of each Module	2256 mm x 1133 mm x 35 mm
(iv).	Total Module Area	2,556 m^2
(v).	Frame of Panel	Anodized aluminium alloy
(vi).	Weight of one Module	27.2 kg
(vii).	No of Solar Cells in each module	144 (Half Cut Cells)
(viii).	Efficiency of module	21.1%
(ix).	Maximum Power (P_{max})	540 W_P
(x).	Voltage @ P_{max}	41.65 V
(xi).	Current @ P_{max}	12.97 A
(xii).	Open circuit voltage (V_{oc})	49.50 V
(xiii).	Short circuit current (I_{sc})	13.85 A
(xiv).	Maximum system open Circuit Voltage	1500VDC (IEC)
(b).	**Inverters**	
(i).	Type of Module	215 kW

(ii).	Type of Cell	SUN2000-215KTL-H0	
(iii).	Input Operating Voltage Range	500 V to 1500 V	
(iv).	Efficiency of inverter	98.7 %	
(v).	Max. Input voltage	1500V	
(vi).	Max. Short Circuit Current per MPPT	DC 50 A	
(viii).	Output electrical system	3 Phase AC	
(ix).	Rated Output Voltage	380 to 480	
(x).	Power Factor (adjustable)	0.8 Lagging-0.8 Leading	
(xi).	Power control	MPP tracker	
(xii).	Rated Frequency	50 Hz	
(xiii).	Environmental Enclosures	Relative Humidity	0-100% non-condensing
		Audible Noise	50 DB @ 1m
		Operating Elevation	4000 m
		Operating temperature	-25 to +60°C
(xiv).	Grid Operating protection	A	DC circuit breaker
		B	AC circuit breaker
		C	DC overload protection (Type 2)
		D	Overheat protection

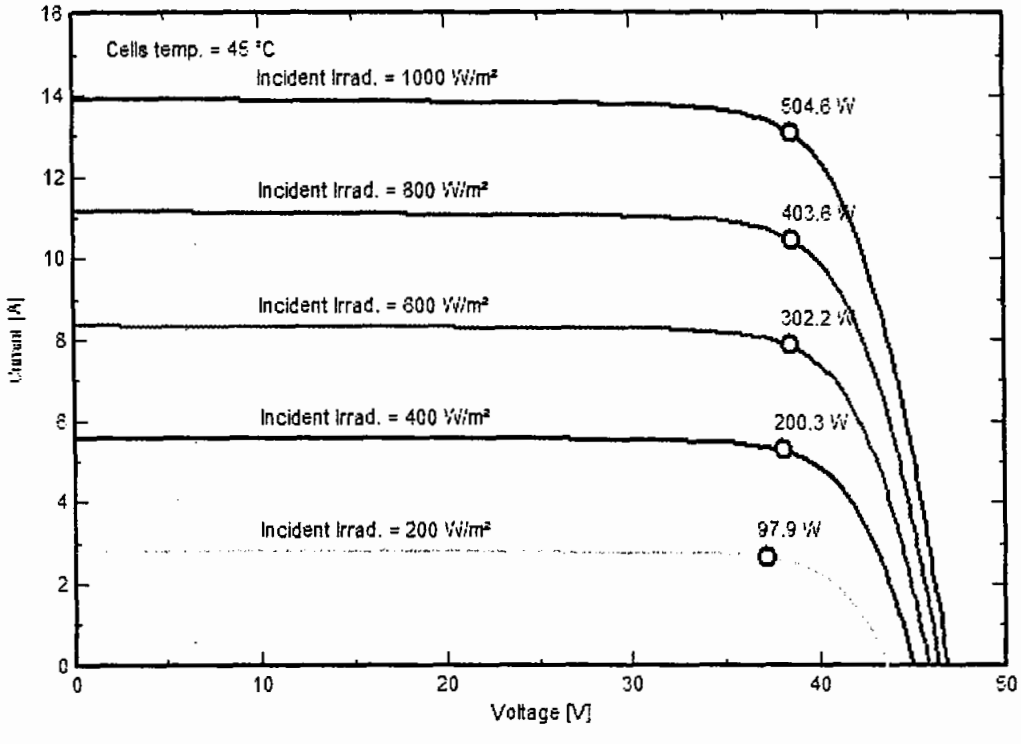
		E	Grid monitoring
		F	Insulation monitoring
		G	Ground fault monitoring
(c).	**Data Collecting System**		
(i).	System Data	Continuous online logging with data logging software to portal.	
(d).	**Unit Transformer**		
(i).	3 x Transformer, 3750 kVA, 800V/ 6.3kV, ONAN, Skid type, outdoor rated and can be terminated easily through cable. Maximum Ambient temperature: 55 degree Celsius. Insulation Class A Maximum operating Relative Humidity (non-condensing): 95% Delta to grounded y configuration, Step-up transformer efficiency (CEC): not less than 99% with 6 inputs		

(D). Other Details

Expected COD of the generation facility Solar Power Plant/ Ground Mount Solar	March 31, 2023
Expected useful Life of the generation facility Solar Power Plant/ Ground Mount Solar from the COD	25 years

V-I Curve
Generation Facility/Solar Power Plant/Ground Mount Solar of the Licensee

PV module: Longi Solar, LR5-72HPH-540M



Information
Regarding Consumer i.e. Askari Cement Limited (ACL) to be Supplied by the Licensee i.e. YDE SA (SMC-PVT)

(i).	No. of Consumers		1 (One)
(ii).	Location of consumers (distance and/or identity of premises)		Askari Cement, Kahi Village, Nizampur Nowshera, Khyber Pakhtunkhwa
(iii).	Contracted Capacity		11,264 kW_P DC
(iv).	Specify Whether		
	(a).	The consumer is an Associate undertaking of the Licensee -If yes, specify percentage ownership of equity;	ACL does not have direct association with YDE SA (SMC-PVT).
	(b).	There are common directorships:	No
	(c).	Either can exercise influence or control over the other.	No
(v).	Specify nature of contractual Relationship		
	(a).	Between each consumer and the Licensee	YDE SA (SMC – PVT) will construct and operate solar plant and provide electricity to ACL for its operations.

	(b).	Consumer and DISCO.	Yes. Existing Consumer of LESCO with Connected Load of 30 MW
(vi)	Any other network information deemed relevant for disclosure to or consideration of the Authority.		NA

Information
Regarding Distribution Network for Supply of Electric Power Consumer in the name of ACL

(i).	No. of Feeders		01
(ii).	Length of Each Feeder (Meter)		125m
(iii).	Length of Each Feeder to each Consumer		125m
(iv).	In respect of all the Feeders, describe the property (streets, farms, Agri land, etc.) through, under or over which they pass right up to the premises of customer, whether they cross-over.		N/A
(v).	Whether owned by YDE SA, Consumer or DISCO-(deal with each Feeder Separately)		N/A.
	(a).	If owned by DISCO, particulars of contractual arrangement	N/A.
	(b).	Operation and maintenance responsibility for each feeder	ACL

(vi).	Whether connection with network of DISCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)	B4 consumer of LESCO
(vii).	Any other network information deemed relevant for disclosure to or consideration of the Authority.	N/A.

SCHEDULE-II

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

SCHEDULE-II

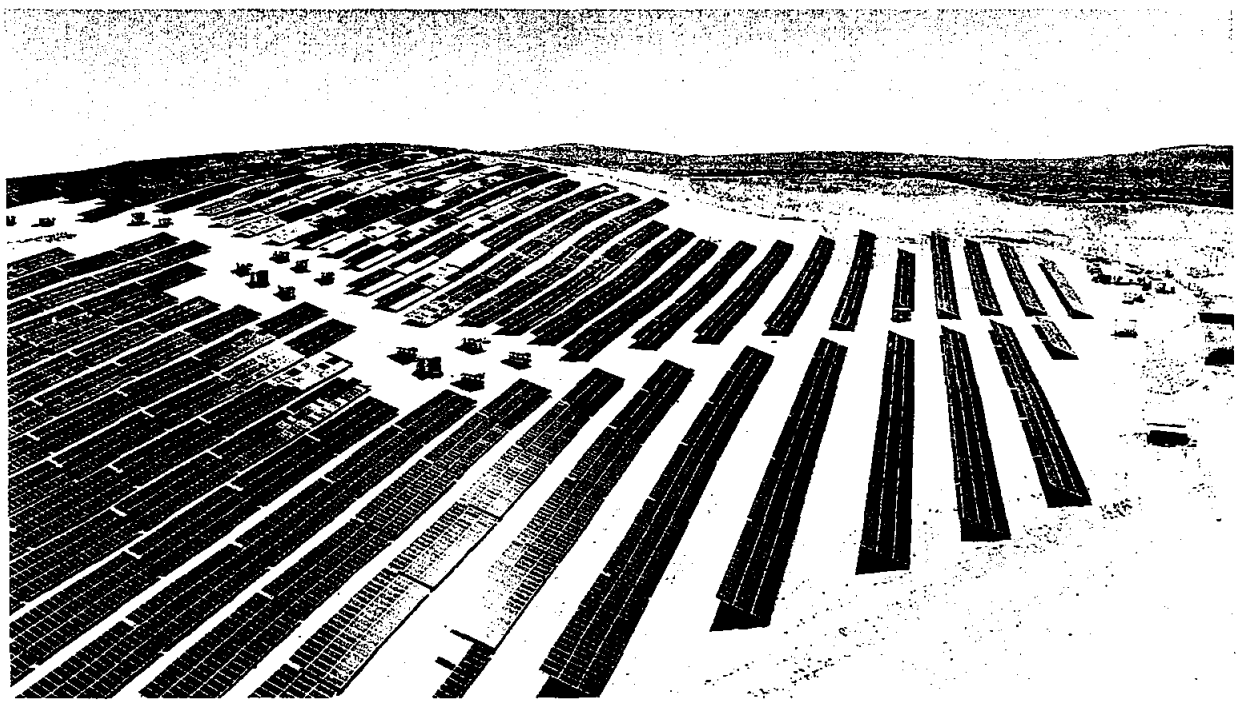
(1)	Total Installed Capacity of the Generation Facility/Solar Power Plant/ Ground Mount Solar	11,264 kW_P 9,000 kW AC
(2)	Average Sun Hour Availability/ Day (Irradiation on Inclined Surface)	5 to 5.25 Hours
(3)	No. of days per year	365
(4)	Annual generating capacity of Generation Facility/Solar Power Plant/ Ground Mount Solar (As Per Simulation)	16,394 MWh
(5)	Total expected generation of the Generation Facility/Solar Power Plant/ Ground Mount Solar during the twenty five (25) years term of this licence	374,931 MWh
(6)	Annual generation of Generation Facility/Solar Power Plant/ Ground Mount Solar based on 24 hours working	16,394 MWh
(7)	Net Capacity Factor of Generation Facility/Solar Power Plant/ Ground Mount Solar	16.60% (WRT DC) 20.78% (WRT AC)

Note

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

ANNEX XVI

Feasibility Study



FEASIBILITY STUDY FOR SOLAR INSTALLATION AT ASKARI CEMENT LIMITED, NIZAMPUR, KPK

YDE SA (SMC-PVT.) LTD.

Table of Contents

Executive Summary

The feasibility study examines the costs, practicality, and likely outcome of a solar photovoltaic (PV) installation for Askari Cement Limited, Nizampur, KPK.

The main outcome of the feasibility report is given below:

Technical Site Analysis: The project site is suitable for a solar PV energy system. For the purpose of estimation of power generation potential, solar insolation is assumed to be "good" (1,460 kWh/m^2/year). Panel azimuths (155^0 degrees), panel tilt (25^0degrees) and satisfactory land condition and structure are also assumed.

Anticipated System Information: The project will accommodate a 11.26 MWp (DC) Solar PV system with a projected annual production of 16,394 MWh/year. Use of LONGi LR4-72HPH-540M PV Panel as a basis for design will result in an acceptable system weight density of 4-5 lb per sq ft. The system will offset approximately 9,484 tons of carbon dioxide annually.

Financial Analysis:

The sponsor, Yellow Door Energy SA (SMC-Private) Limited (YDE SA), is expected to make a total investment of approximately US$ 7,000,000/- to finance the construction of the Askari Cement Project. The capital structure of the project would primarily constitute of 70:30 debt equity ratio wherein the Applicant is in advanced stages of arranging local debt and the equity would be injected as a shareholder loan, which would be extended by Yellow Door Energy IRP (Private) Limited (YDE IRP) to YDE SA.

Yellow Door Energy IRP is owned by a UAE based firm Yellow Door Energy Limited (YDEL) which implies that YDEL is the ultimate owner of YDE SA. YDEL was founded in 2015 in the UAE and Jordan, with the aim of providing sustainable energy solutions for commercial and industrial businesses. Today, the company has over 110 megawatts of solar projects in the Middle East and South Asia. Among its customers are premier businesses such as Nestlé, Unilever, Carrefour/Majid Al Futtaim, and Landmark Group.

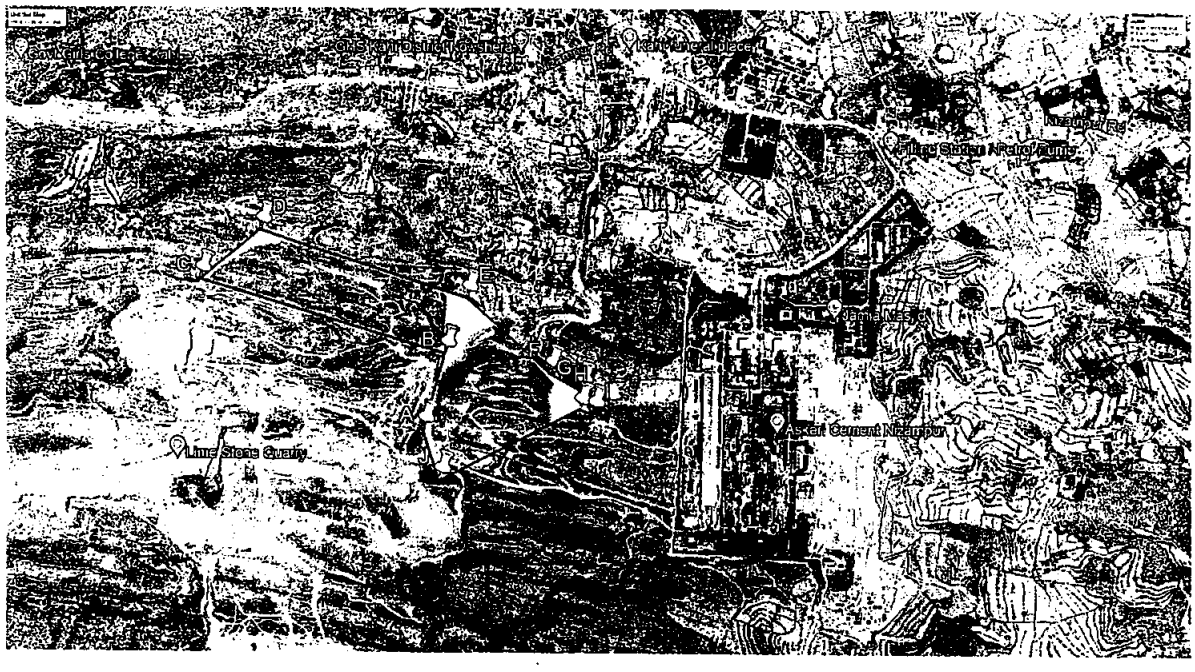
Introduction

The project site is the Askari Cement's Nizampur facility. The exact coordinates of the project sites are:

Latitude: 33°48'7.92"N

Longitude: 72°5'0.66"E

A bird's eye view of the project site is given in the figure below:



Technical Analysis

Site Conditions

The following tasks were carried out:

- Global Horizontal Irradiation, annual and inter annual variation was assessed.
- Near shading objects were considered for placement by PV modules.
- Area required for selected module technology was calculated. Keeping in view available area and minimum inter row shading, tilt angle and appropriate spacing was calculated from near shading objects.

Details of the finalized parameters are given under section 3.5.1

Technology Review and Selection

Technology Selection

(i).	Type of Technology	Photovoltaic (PV) Cell	
(ii).	System Type	On-Grid	
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Ground Mount Solar	11,264 kW_P	
(iv).	No. of Panel/Modules	20,860 x 540 Watt	
(v).	PV Array	Nos. of Strings	745
		Modules in a string	28
(vi).	Invertor(s)	Quantity	45
		Make	Huawei
		Capacity of each unit	215 kW

Technical Details of Equipment

(a).	**Solar Panels – PV Modules**	
(i).	Type of Module	LONGI LR4-72HPH-540M
(ii).	Type of Cell	Mono crystalline
(iii).	Dimension of each Module	2256 mm x 1133 mm x 35 mm
(iv).	Total Module Area	2,556 m^2
(v).	Frame of Panel	Anodized aluminium alloy
(vi).	Weight of one Module	27.2 kg
(vii).	No of Solar Cells in each module	144 (Half Cut Cells)
(viii).	Efficiency of module	21.1%
(ix).	Maximum Power (P_{max})	540 W_P
(x).	Voltage @ P_{max}	41.65 V
(xi).	Current @ P_{max}	12.97 A
(xii).	Open circuit voltage (V_{oc})	49.50 V
(xiii).	Short circuit current (I_{sc})	13.85 A
(xiv).	Maximum system open Circuit Voltage	1500VDC (IEC)
(b).	**Inverters**	

(i).	Type of Module	215 kW	
(ii).	Type of Cell	SUN2000-215KTL-H0	
(iii).	Input Operating Voltage Range	500 V to 1500 V	
(iv).	Efficiency of inverter	98.7 %	
(v).	Max. Input voltage	1500V	
(vi).	Max. Short Circuit Current per MPPT	DC 50 A	
(viii).	Output electrical system	3 Phase AC	
(ix).	Rated Output Voltage	380 to 480	
(x).	Power Factor (adjustable)	0.8 Lagging-0.8 Leading	
(xi).	Power control	MPP tracker	
(xii).	Rated Frequency	50 Hz	
(xiii).	Environmental Enclosures	Relative Humidity	0-100% non-condensing
		Audible Noise	50 DB @ 1m
		Operating Elevation	4000 m
		Operating temperature	-25 to +60°C
(xiv).	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
(c).	**Data Collecting System**		
(i).	System Data	Continuous online logging with data logging software to portal.	
(d).	**Unit Transformer**		
(i).	3 x Transformer, 3750 kVA, 800V/ 6.3kV, ONAN, Skid type, outdoor rated and can be terminated easily through cable. Maximum Ambient temperature: 55 degree Celsius. Insulation Class A Maximum operating Relative Humidity (non-condensing): 95% Delta to grounded y configuration, Step-up transformer efficiency (CEC): not less than 99% with 6 inputs		

Other Details

i.	COD of the Project (Tentative)	31st March, 2023
ii.	Expected Life of the Project From the COD	25 years

Solar PV yield Estimation and Simulation

The aim of yield estimation is to predict the average energy output of the site. PVSyst software is used for simulation and near shading analysis.

Working Conditions

The solar system will have automatic mechanism to ensure that PV power currently generated by the inverters always matches the current power consumption of the site load. A closed loop control system of inverter AC output is implemented in reference energy flow at grid connection point which will reduce inverter AC output of the inverter if site load will be less than the solar production in case of Load Shedding.

Plant Characteristics

Generation Voltage: 230/400V three phase four wire system

Power Factor at rated power: 0.9

Frequency: 50 Hz

Generation Characteristics: Inverter has built-in features of controllable active power ramp following grid disturbance or normal connection, voltage regulation and frequency response. There are no additional control metering and instrumentations.

Design Parameters

The following tasks were carried out for PV Layout and shading:

Assessment of shading

- Outline layout of area suitable for PV development
- Designing row spacing to reduce inter row shading and associated shading losses
- Designing the layout to minimize cable runs and associated electrical losses
- Choosing a tilt angle, the optimizes the annual energy yield according to the latitude of the site and the annual distribution of solar resource

Module cleaning strategy

- Simulating the annual energy losses associated with various configurations of tilt angle, orientations and row spacing. The optimized configuration and simulation results are given in section "Energy Yield Prediction"
- PV Layouts of the site are given in 3D and 2D view in the following section

Layout

The detailed layout (2D and 3D) of the solar panels is given below: PV Layout may change depending upon site constraints before or during installation. PV Syst simulation is also performed as per following layout:

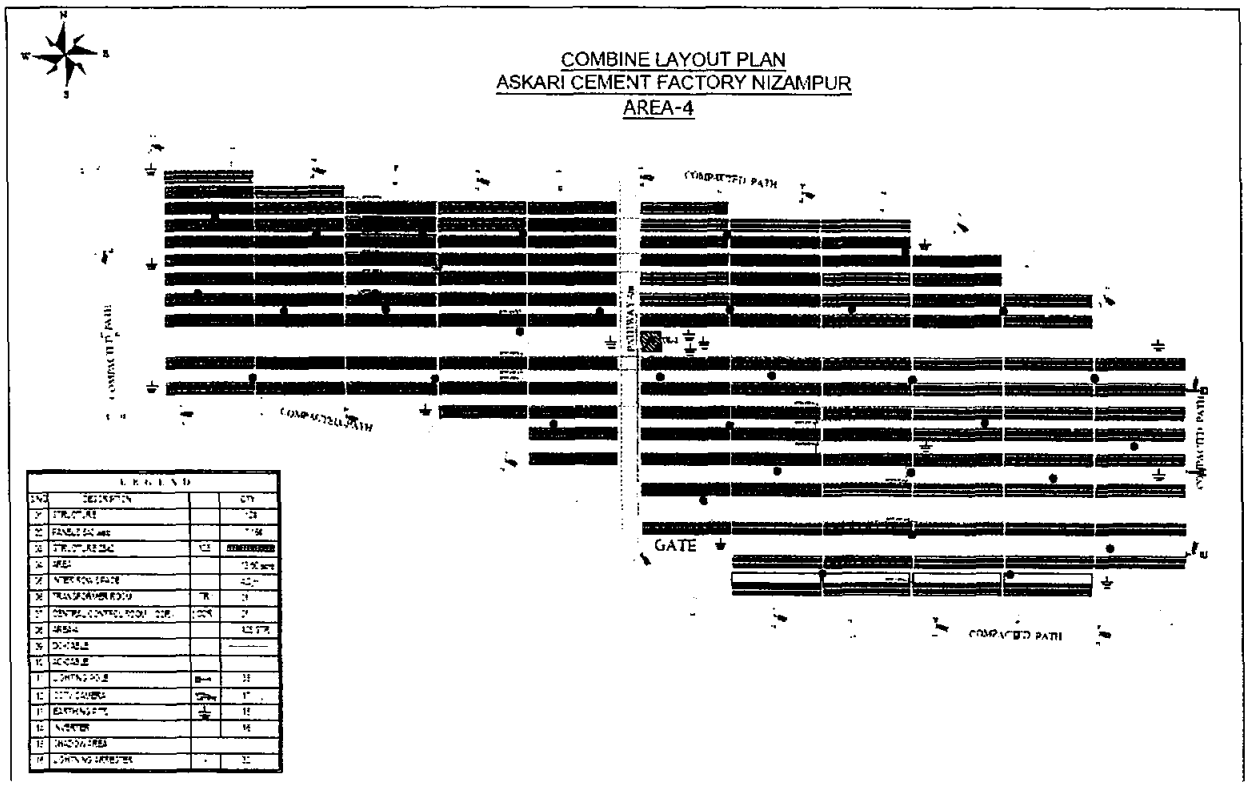


Figure 1: Layout – Askari

Electrical Design

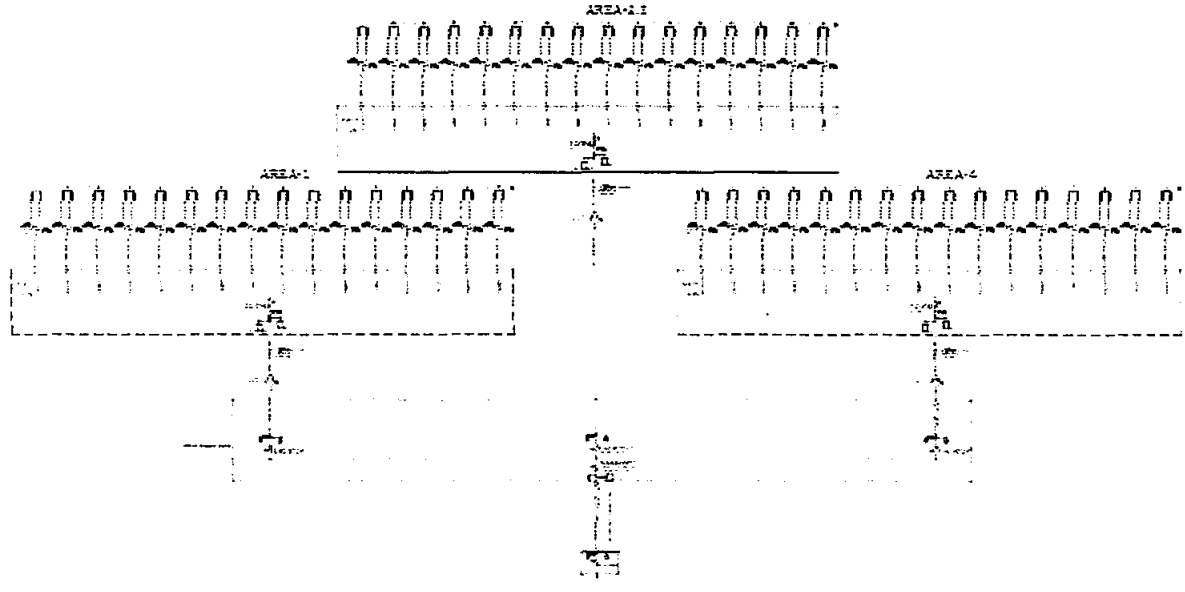
The electrical system comprises the following components:

- Array(s) of PV modules
- DC/AC cabling (module, string and main cable)
- DC connectors (plus and sockets)
- Disconnects/switches
- Protection devices e.g fuses, surge protective devices, breakers
- Energy Meters
- Earthing

The single line diagram is given below. The single line diagram includes the protection devices that will be used for safe and smooth operation of the system.

Protection DC Side: Built in inverter

Protection AC Side: MCBs, Main Breakers, SPDs and Grid Interface Relays.



Energy Yield Estimation

The energy yield prediction provides the basis for calculating project revenues. The aim is to predict the average annual energy output for the lifetime of the proposed power plant.

To estimate accurately the energy produced from PV power plant, information is needed on the solar resource and temperature conditions of the site. Also required are the layout and technical specifications of the plant components.

A number of solar energy yield prediction software package are available in the market. These packages use time step simulation to model the performance of a project over the course of a year. PVSyst software has been used for energy yield prediction for this site and its results are given below. Details of the simulation steps and the outcomes are attached as an Annexure to this Generation License Application.

Safe and Safety Emergency Plans

- Only qualified and authorized electricians will be allowed to undertake servicing or maintenance tasks.
- The authorized personnel will wear appropriate equipment, including a safety harness to restrain from falling, sturdy shoes that will have thick rubber sides to provide electrical insulation and good grip and appropriate clothing for personal protection, including a hat, sunglasses, gloves and long pants and sleeves.
- Lock nut and tag out procedures will be used before commencement of maintenance tasks.
- Ongoing operation and maintenance concerns for solar power systems will be addressed properly. These systems are exposed to outdoor weather conditions that enhance the aging process and the infrastructure needs to be in place for the ongoing maintenance of these systems to assure their safe operation
- Properly grounded or double insulated power tools will be used for maintenance tasks. Tools will be maintained in good condition.
- Working on electrical equipment and circuits will be carried out in de energized state.
- Proper pathways will be available for operation, maintenance and firefighting.
- Fire protection and suppression will be placed at site.
- Fire protection and suppression will be placed at site.

Training and Capacity Development

Trained and qualified personnel will be available at site 24/7 with proper safety and firefighting training. Training program will focus on but limited to Solar Resource Assessment, Site Survey, Technology, Engineering Design, Regulation, Policy, Metering and Billing and Project Management or Solar System. The following components will include in training and development program:

- Collection of resource data
- Variability and uncertainty of resource data
- Site evaluation
- Crystalline and Thin Film technology comparison
- Module mounting structure selection
- Inverter Selection
- Design of PV Array
- Shadow Analysis
- DC Cable Sizing
- DC Cable Layout
- Protection and Metering
- Installation and testing standards for solar PV plants
- Solar Module testing standards

- Detailed Project Report
- Detailed Project Report
- Operation and maintenance of solar system
- Safety and firefighting training

Environmental Aspects

Every energy generation and transmission method affect the environment. Conventional generating options can damage air, climate, water. Land and wildlife landscape as well as raise the levels of harmful radiation. PV technology is substantially safer operating solution to many environmental and social problems associated with fossil and nuclear fuels; Solar PV energy technology provides obvious environment advantages in comparison to the conventional energy sources the contributing to the sustainable development of human activities. Not counting the depletion of the exhausted natural resources, their main advantage is related to the reduced CO2 emissions and normally absence of any air emissions or waste products during their operation

The use of solar power has additional positive implications such as Reduction of the emissions of the greenhouse gases (mainly CO2, NOx) and prevention of toxic gas emissions (SO2 particulates)

Socio Economic Aspects

In regard to the socio-economic viewpoint, the benefits of exploitation of solar PV system comprise of:

- Increase of the regional/national energy independency
- Provision of significant work opportunities
- Diversification and security of energy supply
- Support of the deregulation of energy markets

Conclusion

This feasibility study conducted to ascertain the technical feasibility and commercial viability of installation of 11.26 MWp ground-mount PV system at Askari Cement, Nizampur, KPK. Based on the outcomes of both the technical and financial analysis captured herein, the subject project is deemed to be viable.