Date : 14-12-2024

The Registrar

National Electric Power Regulatory Authority-NEPRA

NEPRA Tower G-5/1

Islamabad,

Subject: - **Application of SMT Power (Private) Limited for Grant of Concurrence.**

Irfan Merchant CEO, being the duly authorized presentative of SMT POWER Private Limited by virtue on (Board Resolution/ Power of Attorney) dated 30-10-2024 hereby apply to the National Electric Power Regulatory Authority for the grant of Concurrence SMT POWER Private Limited for its generation facility to be located/Set up SMT POWER Private Limited pursuant to Section-14B of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997. I hereby certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, and undertake to abide by the terms and provisions of the above-said regulations. I further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and no material omission has been made. A [BANK DRAFT/PAY ORDER] in the sum of Rupees [=548,671/-], being the license application fee calculated in accordance with Schedule II to the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, is also attached herewith.

Irfan Merchant, CEO

Company Seal

Plot No. D-11, South Avenue, Shahrah-E-Moin Akhter Road, S. I. T. E. Karachi-75700, Pakistan.
Phone: +92 21 3256 2310-11, +92 21 3256 6970
E-mail: smtpower@smgroup.com.pk

SMT Power (Pvt) Ltd

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Check List For Examination Of License / Concurrence Application
For New Thermal Power Project
(Regulation 3 read with 3(4)(A) of AMECPR-2021)

Name of Company : **SMT Power (Private) Limited** Installed Capacity : **4MW**

Regulation No.	Information/Documents Required	Information/Documents Submitted
3(1)*	Application fee (including Indexation)	Annexure-A
3(3)*	Application submitted in triplicate	Yes [One (01) Original & Two (02) copies] Submitted (Annexure-A1)
3(4)(a)	applicable documents-in-support and information set out in Schedule III of these regulations;	Annexure-A2
3(4)(b)*	a prospectus	Annexure-B
3(4)(c)(i)(a)*	certified copies of certificate of incorporation	Annexure-C
3(4)(c)(i)(b)*	certified copies of memorandum and articles of association	Annexure-D
3(4)(c)(i)(c)*	certified copies of annual reports of the company	The company has recently been established and has not completed one (01) year of its operation therefore, the same cannot be provided.
3(4)(c)(ii)*	the last annual return of the Company submitted in compliance of section 130 of the Companies Act or, in case of an applicant to whom section 130 of the Companies Act does not apply, a return comprising of all such information and particulars as required by the specified form under section 130 of the Companies Act, as the case may be;	-Do-
3(4)(c)(iii)	the authorized, issued, subscribed and paid up share capital of the applicant	The Authorized and paid up capital of the company Rs. 50.00 million

Regulation No.	Information/Documents Required	Information/Documents Submitted		
3(4)(c)(iv)	the shareholding pattern of the applicant including list of shareholders holding 5% or more shares, number of shares held by each of them and percentage shares of the total paid-up capital	Name of Beneficiary	No of shares	% of total shareholding
		Irfan Merchant	833000	16.66
		Shaheen Merchant	3334000	66.68
		Farrukh Abdul Qadir Merchant	833000	16.66
		Total	5000000	100

3(4)(d)(i)	evidence of cash balances held in reserve by the applicant, along with bank certificates;	Annexure-E
3(4)(d)(ii)	details of charges or encumbrances attached to the applicant's assets, if any;	No charges or encumbrances are attached to the assets of the company
3(4)(d)(iii)	latest audited financial statements of the applicant;	The company has recently been established and has not completed one (01) year of its operation therefore, the same cannot be provided.
3(4)(d)(iv)	expressions of interest to provide credit or financing along with sources and details thereof;	Annexure-F
3(4)(d)(v)	documents describing the net worth and the equity and debt ratios of the applicant, as on the date of the audited balance sheet accompanying the application;	The company has recently been established and has not completed one (01) year of its operation therefore, the same cannot be provided.
3(4)(d)(vi)*	a reasonably detailed profile of the applicant and the applicant's senior management, technical and professional staff;	Annexure-G
3(4)(d)(vii)	employment records of engineering and technical staff of the applicant proposed to be employed;	Annexure-H
3(4)(d)(vii)	profile of sub-contractors, if any, along with expressions of interest of such sub-contractors;	Annexure-I
3(4)(d)(ix)	verifiable references in respect of the experience of the applicant and its proposed sub-contractors;	Annexure-J
3(e)*	technical and financial proposals in reasonable detail for the operation, maintenance, planning and development of the facility or system in respect of which the license of power generation / concurrence is being sought;	Annexure-K
3(f)*	Feasibility Study	Annexure-L
3(g)*	an affidavit stating whether the applicant has been granted any other license under the Act;	Annexure-M
3(h)*	a duly authorized statement stating whether the applicant has been refused grant of license / concurrence under the Act and, if so, the particulars of the refused application, including date of making the application and decision on the application;	Annexure-N
3(6)*	Authorization from Board Resolution / Power of Attorney	Annexure-O

Date : 14-12-2024

The Registrar
National Electric Power Regulatory
Authority, 2 Floor, OPF Building, Sector
G-5/2,
Islamabad

Subject : Statement issued pursuant to Regulation 3 (4)(h) of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations 2021

Dear Sir,
I, Irfan Merchant, CEO, being the duly authorized representative of SMT POWER Private Limited, by virtue of Board Resolution dated October 30, 2024, hereby confirm that SMT POWER Private Limited has not been refused the grant of any license for the provision of any electric power services pursuant to the applicable provisions of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

Sincerely,
For and on behalf of SMT POWER Private Limited

Sincerely,
Irfan Merchant

Chief Executive Officer

3(4)(a) **Annexure-A2**

SCHEDULE III
(regulation 3(4)(a))

A. GENERATION

(a) NEW GENERATION FACILITY (ALL OTHER THAN HYDEL AND RENEWABLE)

Regulation	Description	Page #
1.	Fuel Supply Agreement	12-15
2.	Interconnection Study	16
3.	Environment Impact Assessment Study	17-18
4.	**Information relating to:**	
* i.	Location (location maps, site map, land)	19
* ii.	Technology, size of the plant, number of units	20
* iii.	Fuel (type, imported/indigenous, supplier, logistics, pipeline etc.)	21-22
* iv.	Emission values	23
* v.	Cooling water source (tube wells, sea/river/canal etc.) and distance from source	24
* vi.	Infrastructure (roads, rail, staff colony, amenities, etc.)	25
*vii.	Project commencement and completion schedule (with milestones)	26
viii.	Safety and emergency plans	27
ix.	Plant characteristics (generation voltage, frequency, power factor, automatic generation control, ramping rate, alternative fuel, auxiliary consumption, time(s) required to synchronize to grid)	28-33
x.	Control, metering, instrumentation and protection	34-39
xi.	**Efficiency Parameters:**	
(I)	Designed Efficiency of power plant (%)	40
(ii)	Gross Efficiency of power plant at Mean Site Conditions (%)	
(iii)	Net Efficiency of power plant at Mean Site Conditions (%)	

WM TRADERS

Deals in all kinds of fuels & Refractory : Wood Chips, Wood Powder, Poltry Waste, Mustard, Koila, Saw

Date: 26 Dec 24 *Ref:*

WM TRADERS
C1-38 Block A, Gulshan-e-Millat, Korangi, Karachi
Cell: 0318-2626256 | Email: wmtraders66@gmail.com

DATE: 26 December 2024

TO:
SMT Power (Pvt) Limited
D-11 South Avenue, SITE, Karachi-75700, Pakistan
Phone: 00922132562310
Website: www.smgroup.com.pk

FUEL SUPPLY AGREEMENT

This Fuel Supply Agreement (the "Agreement") is made and entered into as of 26th December 2024 by and between:

1. WM Traders
A company duly registered and engaged in the supply of biomass fuels and related products, having its office at C1-38 Block A, Gulshan-e-Millat, Korangi, Karachi (hereinafter referred to as the "Supplier").

2. SMT Power (Pvt) Limited
A company operating a biomass boiler and a 4 MW steam turbine system, having its office at D-11 South Avenue, SITE, Karachi (hereinafter referred to as the "Buyer").

RECITALS:

WHEREAS, the Supplier agrees to supply fuels to the Buyer for use in its biomass boiler and 4 MW steam turbine system; and

WHEREAS, the Buyer agrees to procure fuels from the Supplier under the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants herein contained, the parties hereto agree as follows:

1. SUPPLY OF FUEL:

The Supplier agrees to supply, and the Buyer agrees to purchase, the following fuel products:

Rice Husk
Corn Cob
Wood Chips
Coal (Imported and Local)
Bagasse

The fuel shall meet the quality specifications outlined in Section 2 below.

2. FUEL QUALITY AND PARAMETERS:

The Supplier guarantees that the fuels supplied under this Agreement meet the following specifications:

Rice Husk:

GCV: 1595 kcal/kg
Ash Content: Max 16%
Moisture Content: Max 8%
Volatile Matter: 60%-65%
Fixed Carbon: 14%-18%
Sulfur Content: Max 0.1%

Corn Cob:

GCV: 2669 kcal/kg
Ash Content: Max 6%
Moisture Content: Max 12%
Volatile Matter: 68%-72%
Fixed Carbon: 14%-18%
Sulfur Content: Max 0.2%

Wood Chips:

GCV: 1938 kcal/kg
Ash Content: Max 10%
Moisture Content: Max 50%
Volatile Matter: 65%-70%
Fixed Carbon: 15%-20%
Sulfur Content: Max 0.1%

Coal (Imported & Local):

Calorific Value (GCV): Minimum of 4800 kcal/kg and maximum of 5000 kcal/kg
Moisture Content: Maximum of 12%
Ash Content: Maximum of 20%
Sulfur Content: Maximum of 1%
Volatile Matter: 25%-30%
Size Range: 0-50 mm
Fixed Carbon: 45%-50%

Bagasse:

GCV: 1959 kcal/kg
Ash Content: Max 8%
Moisture Content: Max 45%
Volatile Matter: 62%-68%
Fixed Carbon: 12%-16%
Sulfur Content: Max 0.1%

The fuels supplied shall be free from contaminants such as stones, metals, or other non-biomass materials to ensure uninterrupted and efficient operation of the Buyer's biomass boiler and steam turbine system.

If the delivered fuel fails to meet the above specifications, the Buyer reserves the right to reject the shipment, and the Supplier shall replace it promptly at their own expense.

3. QUANTITY AND DELIVERY SCHEDULE:

The Supplier shall deliver the fuel to the Buyer's facility at D-11 South Avenue, SITE, Karachi, as per the delivery schedule mutually agreed upon by both parties.

The Buyer shall provide a delivery schedule to the Supplier at least [number] days in advance.

4. PRICE AND PAYMENT TERMS:

The price for each type of fuel shall be detailed in Annex A of this Agreement.

Payment shall be made by the Buyer within [Insert Days] days of delivery and receipt of a valid invoice from the Supplier.

Late payments shall incur a penalty of [specify interest rate] per month on the outstanding amount.

5. DELIVERY AND RISK OF LOSS:

The Supplier shall be responsible for the safe transportation of the fuels to the Buyer's designated location. Risk of loss and title to the fuel shall pass to the Buyer upon delivery to the Buyer's premises.

6. INSPECTION AND ACCEPTANCE:

The Buyer reserves the right to inspect and test the fuels upon delivery. If the fuel is found to be non-compliant with the agreed specifications, the Buyer may reject the shipment, and the Supplier must replace the deficient fuel promptly at no additional cost.

7. TERM AND TERMINATION:

This Agreement shall remain in effect for a period of one year commencing on the date first written above.

Either party may terminate this Agreement with 30 days written notice. In the event of a material breach of this Agreement, the non-breaching party may terminate the Agreement immediately.

8. FORCE MAJEURE:

Neither party shall be held liable for any delay or failure to perform its obligations under this Agreement due to events beyond their reasonable control, including but not limited to natural disasters, strikes, or governmental actions.

9. GOVERNING LAW AND DISPUTE RESOLUTION:

This Agreement shall be governed by the laws of Pakistan. Any disputes arising from this Agreement shall be resolved through negotiation. If unresolved, the matter shall be referred to arbitration under the rules of KCCI Pakistan.

10. CONFIDENTIALITY:

Both parties agree to maintain the confidentiality of any proprietary information exchanged under this Agreement. This clause shall survive the termination of the Agreement.

11. MISCELLANEOUS:

This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof and supersedes all prior agreements or understandings.

Any amendments to this Agreement must be made in writing and signed by both parties.

SIGNATURES:

For WM Traders:
Name: Muhammad Waqas
Designation: CEO

Signature: _____

Date: 26 - Dec - 24

For SMT Power (Pvt) Limited:
Name: S.M. Zahid Alam
Designation: G.M Engineering

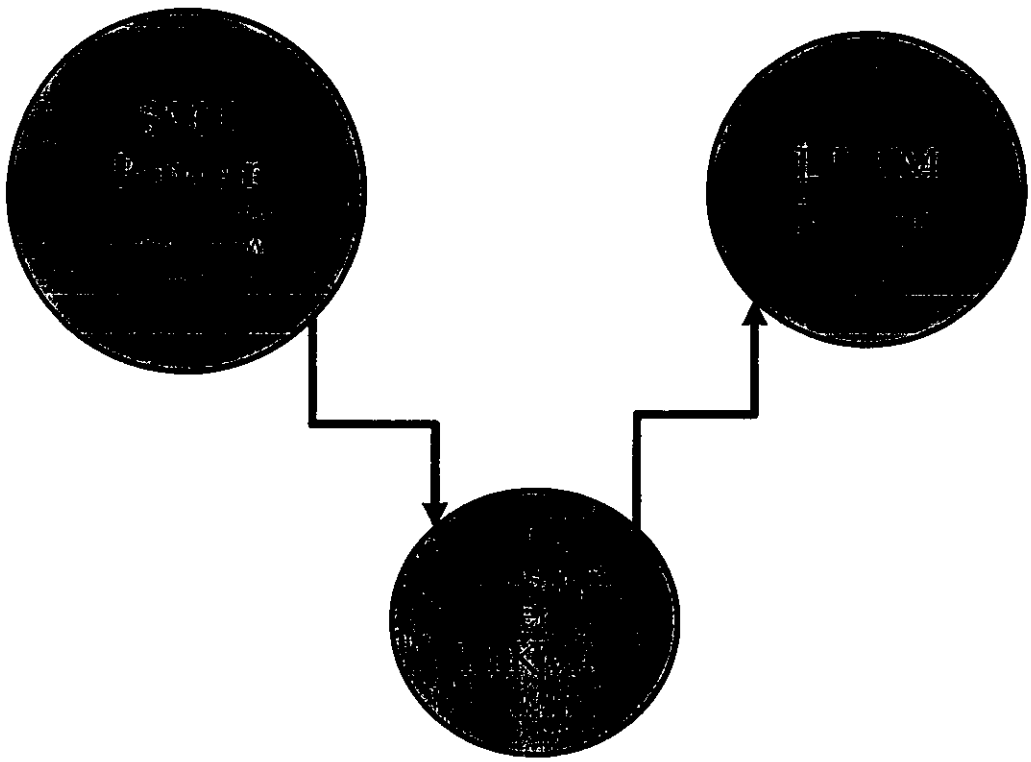
Signature: _____

Date: 26/Dec/24

Interconnection Study

The electric power generated from the Generation Facility/ Steam Turbine Power Plant of the Company shall be dispersed to the load center of SM Traders.

The proposed Interconnection Arrangement/Transmission Facility for dispersal of electric power comprises the direct 11KV lines of approximately 150 to 200-meter length to be laid from the 11 KV bus bar of the Generation Facility/Steam Turbine Power Plant to Transformer of the SM Traders.



Environmental Impact Assessment Study

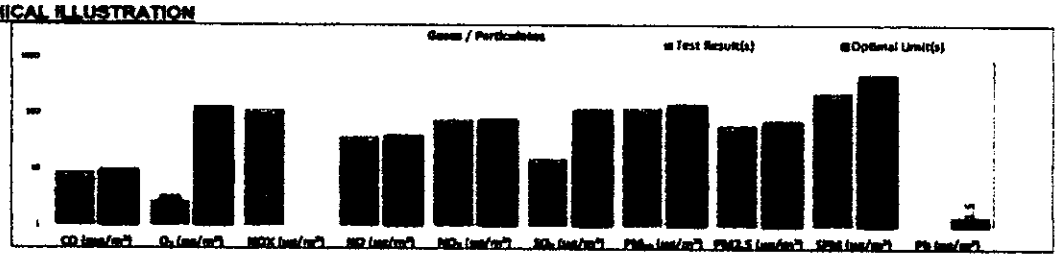
AIR QUALITY MONITORING TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243		**Report No. AMT/IBE/NOV-24/AQ/AL-13325**	
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	**Sampling Date**	25-Nov-24
Sample Description	Air Quality Test	**Reporting Date**	02-Dec-24
LOCATION DETAILS			
Sampling Area	Boiler Area	**Sampling Type**	Indoor Air Quality

S.No	Parameter(s)	Unit(s)	Methodology	Test Result(s)	Optimal Limit(s)
1	Carbon Monoxide	CO (mg/m³)	Non Dispersive Infrared Method	8.9	10
2	Ozone	O_3 (µg/m³)	ASTM D-5156	2.8	130
3	Oxides of Nitrogen as NOX	NOX (µg/m³)	ASTM D-3608	117.0	...
4	Oxides of Nitrogen as NO	NO (µg/m³)	ASTM D-3608	36.4	40
5	Oxides of Nitrogen as NO_2	NO_2 (µg/m³)	ASTM D-3608	78.6	80
6	Sulphur Dioxide	SO_2 (µg/m³)	ASTM D-2914	15.9	120
7	Particulate Matter (10-Microns)	PM_{10} (µg/m³)	PM Analyzer (Laser Diode)	128	150
8	Particulate Matter (2.5-Microns)	PM2.5 (µg/m³)	PM Analyzer (Laser Diode)	63	75
9	Particulate Matter (suspended)	SPM (µg/m³)	PM Analyzer (Laser Diode)	241	500
10	Lead	Pb (µg/m³)	AAS Method (EPM Filter paper)	ND	1.5

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.
Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AIMS TEC (PRIVATE) LIMITED

Reviewed By
Incharge (Environmental Laboratory)

Repudiation: This report is not valid for any judicial use and free from all claims. All test results and report is valid for the time of sampling (as per mentioned date) and particular sample (as per descriptions given by client). Maximum possible safety measure are applied but Aims Tec (pvt) Ltd. doesn't undertake any liability for the scope of methodology used, accuracy and validity of results, which may influence by any unavoidable factors. In case of any query, must contact within a week from the reporting date. After one week of work execution your query will not be entertained.

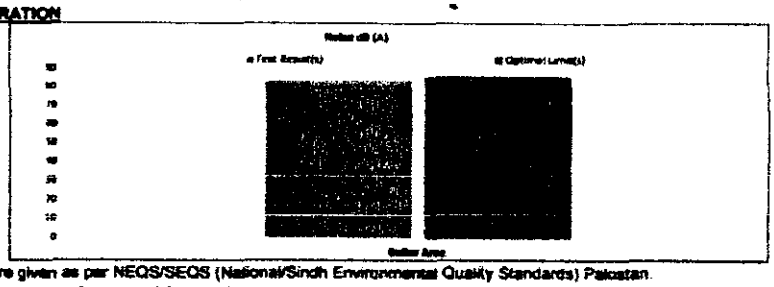
NOISE EXPOSURE TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243			**Report No. AMT/IBE/NOV-24/NE/AL-13327**
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	**Sampling Date**	25-Nov-24
Sample Description	Noise Emission	**Reporting Date**	02-Dec-24
LOCATION DETAILS			
Sampling Area	As Mention Below	**Sampling Type**	Grab Sample

1	Noise background (daytime)	dB (A)	ASTM E-1124	Boiler Area	83.1	85

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.
Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AIMS TEC (PRIVATE) LIMITED

Reviewed By
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Postal Address: Plot No. B-56 / Sector 6-H, Mehran Town, Korangi Industrial Area, Karachi-74900, Pakistan.
Cell: +92-321-922-1123
URL: www.aimstec.com.pk
Email: info@aimstec.com.pk / operations@aimstec.com.pk

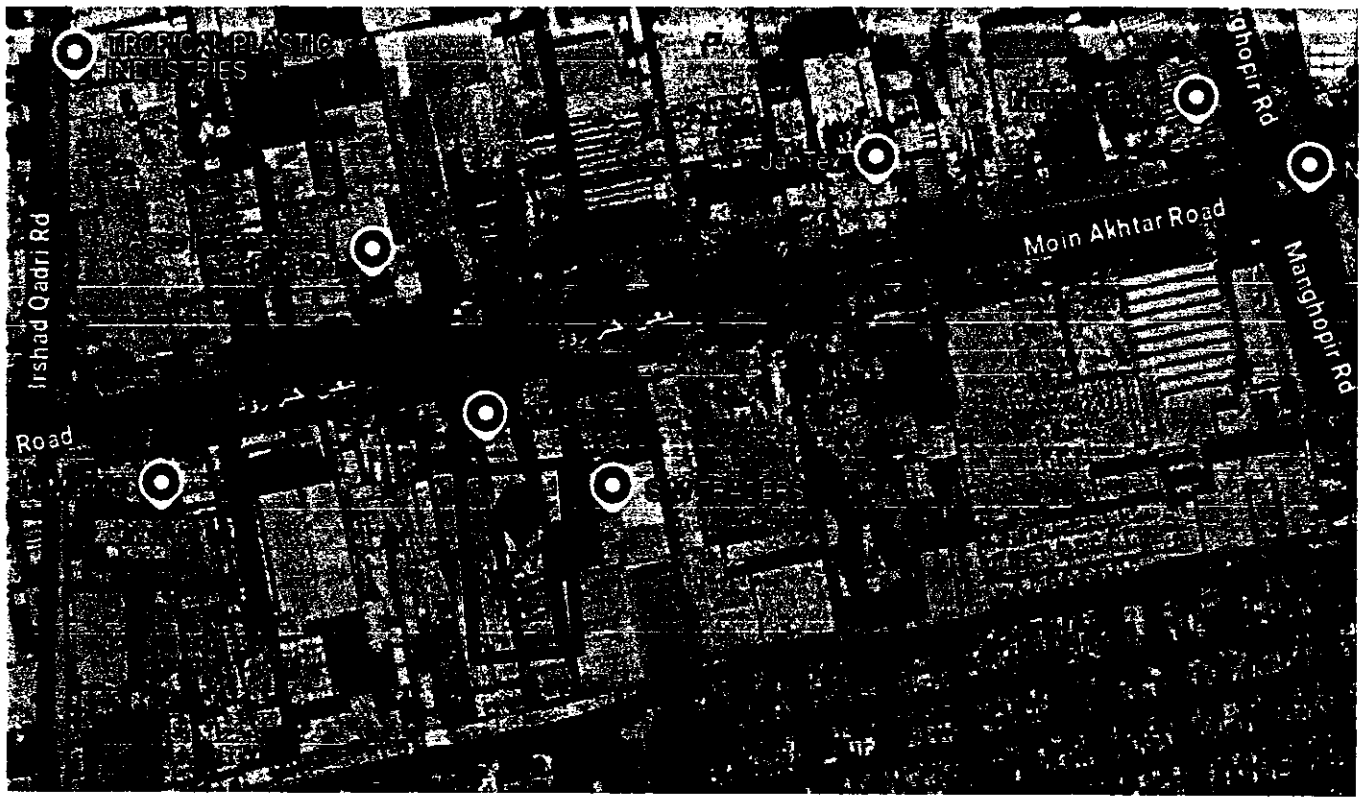
LICENSE OF WEIGHT & MEASURES GOVERNMENT OF SINDH | SEPA APPROVED CERT NO. 13

Regulation-4(i)

Location (Location maps, site map, Land)

The project site is located near the D-11 South Avenue, Site Karachi No.75700, The site is 20.8 km away from Jinnah International Airport, Karachi.

Latitude (North)	Longitude (East)
24°90'43.9"N	67°01'22.3"E



Technology, Size of the Plant, Number of Units

While designing the system, we have the following data Power

Require	3.5
MWH	
Steam Require	15 TPH

Power House Capacity **4 MWH**

Boiler Capacity	30 TPH
Boiler Design Pressure	68 Kg/cm^2 (g) Pressure.
Boiler Type	Fludized Bed
Fuel	Wood, Saw Dust, Rice Husk, Corn Cobs, Sesam Husk, Coal
Turbine Capacity	4 MWH
Type	Extraction Condensing

Fuel: Type, Imported/indigenous, Supplier, Logistics, Pipelines etc

1. Fuel Types:

Biomass Fuels: Corncob, Bagasse, Sesame Husk, Rice Husk
Coal: Lakra Coal (domestic).

2. Fuel Source:

Biomass fuels are sourced locally from agricultural waste and processing units.
Lakra Coal is obtained from domestic coal mines within Pakistan.

3. Fuel Supply:

Biomass fuels are contracted with local suppliers for regular delivery based on plant requirements.

Coal supply agreements are in place with both domestic and international vendors for reliable procurement.

4. Logistics:

Biomass Fuels:
Transported by road using covered vehicles to prevent moisture absorption.

Coal:
Lakra Coal: Delivered via road or rail from nearby mines.
Imported Coal: Shipped to the nearest port, then transported to the site via road or rail.

5. Fuel Storage:

Biomass fuels are stored in separate covered sheds with proper ventilation to maintain fuel quality.
Coal is stored in designated coal yards equipped with drainage systems and dust suppression measures.

6. Fuel Pipelines:

No pipelines are required, as all fuels are solid and transported by conventional means (road/rail).

7. Infrastructure and Handling:

The plant has dedicated unloading facilities, including a weighbridge and conveyor systems for efficient fuel handling.

Safety protocols, including fire suppression systems, are in place for storage areas.

8. Fuel Characteristics:

RICE HUSK (3000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Rice Husk
New Turbine Steam Consumption with Extraction (64 Bar, 480C) 6.5 Ton/MW
Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

CORN COBS (3200 Kcl/kg)
Steam Generation (65 Bar,490C) 3.6 TPH / Ton of Corn Cobs New Turbine Steam Consumption (64 Bar, 490C) 6.5 Ton/MW Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

SESAME HUSK (3300 Kcl/kg)
Steam Generation (65 Bar,490C) 3.3 TPH / Ton of Sesam Husk New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

RA COAL (4000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Lakhra Coal (Low steam generation due to High Sulfur and high Ash).
New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

Cooling water Source: Tube Wells, Sea / River / Canal, Distance from Source etc

Cooling Water Flow	2000 Cubic Meter Hour
Inlet Water Temperature	42 C
Out Let Water Temperature	32 C
Pressure	3.5 Bar

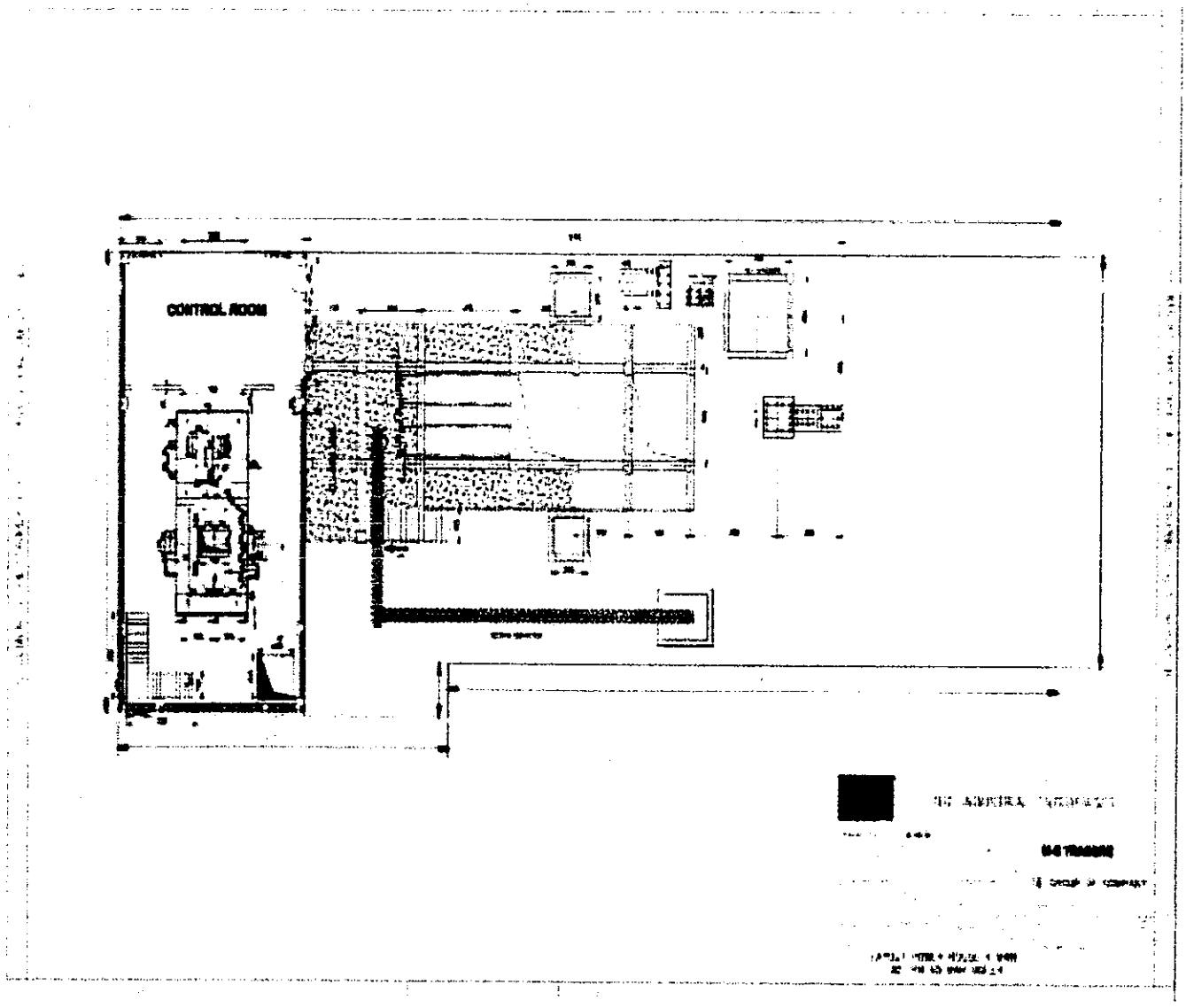
WATER SYSTEM

Bore Water Storage Tank (50 Ton)

R.O / Demin Plant(20 TPH)

Soft Water Storage Tank (100 Ton)

Infrastructure: Roads, Rail, Staff Colony, Amenities



Regulation-4(vii)

Project Commencement and completion schedule with milestones

Installation and commissioning phase of the project period would be 18 months.

Plant Characteristics

Characteristics generation voltage power factor frequency automatic generation controlling ramping rate control metering and instruments.

Complete Heat (15 Tph) and Power (3.5 MWH) Solution

(Steam Turbine 4 MWH, Boiler 30 TPH, 65 Bar)

Plant Characteristics

Power Require	3.5 MWH
Steam Require	15 TPH
Power House Capacity	**4 MWH**
Boiler Capacity	30 TPH
Boiler Design Pressure	68 Kg/cm^2 (g) Pressure.
Boiler Type	Fludized Bed
Fuel	Wood, Saw Dust, Rice Husk, Corn Cobs, Sesam Husk, Coal
Turbine Capacity	4 MWH
Type Extraction Condensing	
Type of Boiler	Single Drum, Membrane wall type Natural Circulation
Combustion system	Fluidized Bed
N.C.R. (Normal Continuous Rating):	30 TPH.
Pressure at outlet of MSSV:	68 Kg/cm2 (g)
Fuel:	**Biomass and Coal**
Type of installation:	Out door
Type of Furnace construction:	Membrane type
Draft system	Balanced draft
Support	Bottom supported on RCC construction
Steam Temperature at outlet of MSSV:	480± 10°C at MCR
Feed water temp. at De-aerator inlet/ outlet :	80°C / 105°C Feed
water temperature at outlet of Economizer:	225°C
Flue gas temperature after Air Heater:	Less Than 160°C
Design Ambient Temperature for Performance Test:	45Deg C
Design Code:	ASME

GRATE AREA

Grate Area (Approx.)	No. of Fuel feeders
Affective Bed Area 17 M^2	3 Nos.

BOILER DRUM

Material	SA- 516-Gr 70

BOILER TUBES

Particulars	Furnace	Boiler Bank	Super-heater	Economizer

Tube OD (mm)	61.1	49.1	38	38.1
Thickness (mm)	5.1	5.1	4	3.8
Material Quality	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA 213 T-11 or BS-3059 Part II Gr.762 Alloy Steel T-91 Seamless	SA-210 A1 or BS-3059 / Gr.440 Part II HFS

HEATING SURFACE APPROX. (M^2)

Furnace and Boiler Bank	Super-heater	Economizer	Air-heater/ Steam Heater
810	150	400	850

Note: Heating surface area can vary according to final design.

DRAFT EQUIPMENTS

Particulars	Capacity M^3/Sec.	Head mm wg	Fan RPM	Temp. °C	Drive	Qty. Nos.
ID Fan	32	350	1450	360	Direct	1
FD Fan	18	650	1450	40	Direct	1
SA Fan	04	800	2980	160	Direct	1

Note: All fans are excess 35% of the design.

SOOT BLOWERS

Make / Type	Bank	Super-heater	Economizer	Air Heater
TIE	1 Nos.	01 Nos.	1Nos.	01No.
Type	Retractable	Retractable	Stationary	Stationary

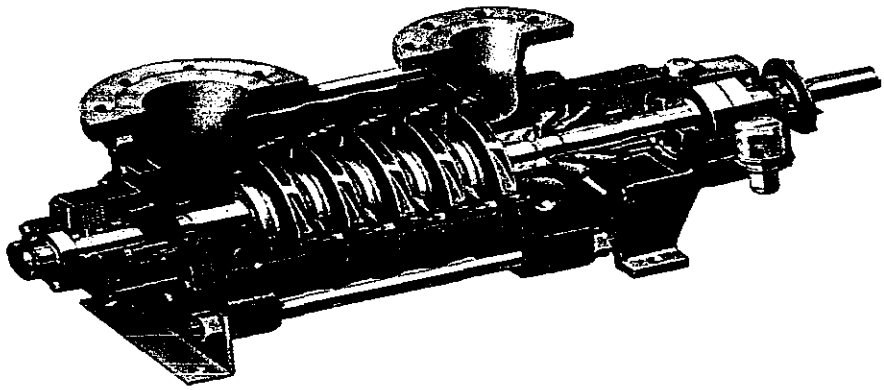
FEED WATER PUMPS

Type	Capacity (M^3/hr.)	Head Mtrs.	R.P.M.	Temp. °C	Qty. Nos.

Multistage Centrifugal Motor Driven	40	855	2950	125	2 (1 W+1 S)

H.P CHEMICAL DOSING SYSTEM

Type	:	**H.P.**
No. of Pumps	:	1 No.
No. of dosing tank	:	1 No.



BOILER DRUM, HEADERS and TUBES:
Boiler pressure parts shall be constructed in accordance with the ASME specifications with flanged ends or welded ends to promote cleaning and inspection.

BLOW DOWN ARRANGEMENT: (IBD Tank)

Continuous blow down equipment as per ASME complete with all piping up to Blow down tank shall be provided.

ECONOMIZER:

An economizer of suitable heating surface shall be provided for the boiler. The economizer shall be complete with Carbon steel quality economizer coils, supports, thermo wells for measuring inlet and outlet water temperature, casing and ducting, soot blower, lagging etc. The economizer shall be designed in accordance with the requirement of ASME.

COMPLETE STRUCTURE:

AIR PRE-HEATER AND TUBES:
Air heater of suitable heating surface to heat the air by flue gases required for combustion for the boiler. The air-heater shall be complete in all respects with Carbon Steel ERW tubes, tube plates, supports, dampers, casing and ducting etc.

FLY ASH ARRESTOR (MULTI SWIRLER DUST COLLECTOR):
A suitable dust collector of multi-swirler type having vertical fins of hard cast iron shall be provided to reduce the contents in the flue gases leaving Chimney. The dust collector shall be located on the suction side of the ID Fan.

DUCTINGS AND DAMPERS:
Necessary mild steel ducting of 3 mm thick in case of air duct and 3 mm thick in case of gas duct with stiffeners shall be provided for boiler comprising of cold air ducting extending between the forced draft fan discharge and air inlet of air heater, hot air ducting from the air heater outlet to the furnace, flue gas ducting connecting the boiler with its accessories up to inlet of Chimney.

Necessary regulating and isolating dampers at suitable points shall be provided for the efficient operations and maintenance of the boiler.
Suitable galleries and ladders with grating or open steel flooring for affording access to the essential levels of the boiler plant complete with hand railings curb angles and supports shall be provided.

REFRACTORY AND INSULATION:
All supporting steel work, hangers thrust brackets and castings for the furnace shall be provided for the boiler. All refractory material including standard and high grade refractory tiles and bricks, adequate quantity of high grade refractory cement, cast able refractory bricks for furnace and high temperature zones shall be as per ASME. Insulating materials for the exposed portion of the boiler, steam and mud drum, integral pipe work from the feed pumps to the boiler, steam pipe, gas and air ducting shall also be supplied. All insulated surfaces of ducting and piping shall be lagged with suitable G.I sheeting

DEAERATOR TANK
PUMPS
SOOT BLOWER
BED
FANS
FEEDERS, SPREADERS
WET SCRUBBER + CHIMNEY (For Clean Environment) VALVES
AND MOUNTINGS

POWER	**4 MWH**
TYPE OF TURBINE	**EXTRACTION**
CONDENSING EXTRACTION QTY	**0 to 15 TPH**
EXTRACTION PRESSURE	**10 BAR**

RICE HUSK (3000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Rice Husk
New Turbine Steam Consumption with Extraction (64 Bar, 480C) 6.5 Ton/MW
Power Generation
4000 KWH

Auxiliary	400 KWH
Available Power	3600 KWH

Rice Husk Price AVG	Rs.14000/Ton
KWH Cost fuel Based	Rs.29/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.31.5/KWH (15 TPH Steam Free)

CORN COBS (3200 Kcl/kg)

Steam Generation (65 Bar,490C) 3.6 TPH / Ton of Corn Cobs New Turbine Steam Consumption (64 Bar, 490C) 6.5 Ton/MW Power

Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Corn Cobs Price AVG	Rs.15000/Ton
KWH Cost fuel Based	Rs.30/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.32.5/KWH (15TPH Steam Free

SESAME HUSK (3300 Kcl/kg)

Steam Generation (65 Bar,490C) 3.3 TPH / Ton of Sesam Husk New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW

Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH

Sesame Husk Price AVG

Rs.12000/Ton KWH Cost fuel Based

Rs.26.20/KWH

O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.28.7/KWH (15 TPH Steam Free)

LAKHRA COAL (4000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Lakhra Coal (Low steam generation due to High Sulfur and high Ash).New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW

Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH

Sesame Husk Price AVG

Rs.16000/Ton KWH Cost fuel Based

Rs.33/KWH

O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.35.5/KWH

WATER SYSTEM

Raw Water Storage Tank (50 Ton)	01 No.
R.O / Demin Plant (20 TPH)	01 No.
(Depending upon the Condensate)	

Rating:	According to Pump manufacturer
Voltage	410 - 415VAC
Ambient Temperature	45C
RPM:	2950

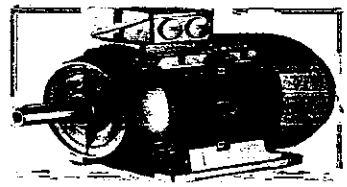
Qty.3

Feeder Gear Motors

Rating:	7.5 kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F

Rotary Valve Gear Motors Qty.4

Rating:	1.5kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F



VARIABLE SPEED DRIVES

Variable Speed Drives for ID Fan Qty.1

Rating:	160 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA

Digital In/Out:	Availa ble
Variable Speed Drives for FD Fan	Qty.1
Rating:	220 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA
Digital In/Out:	Availa ble
Variable Speed Drives for Feeders	
Rating:	5.5 kW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA

ELECTRIC PANELS

All Panel Components Will Be Make of European and Japanese Standards
System cabinet

With Fan, Louvers, light and door switch
Size: 800X600X2200
Fused terminal blocks

Incoming of MCCS (Motor Control Centers) With On/Off Indicators

Voltmeter with selector switch
Ammeter with selector switch
Main copper buss bar **Main**

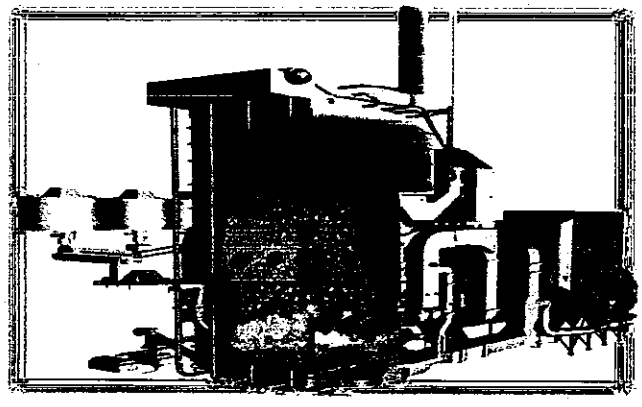
ACB
Soot blower retractable motors

ERECTION MATERIALS

Complete Electrical Material
Cable Trays
Conduit pipe and their accessories
Cable Glands
Thimbles
G.I Piping and their accessories **Signal Cables (Consider 100 Ft) Power Cables (Consider 100 Ft)**

Boiler would be Membrane wall type and Fludized Bed with Secondary Air Cyclone Effects furnace combustion as per ASME standards.

The following special features which will improve the overall performance of the boiler, as well as increase the overall life of the respective equipment.
All equipment such as ID, FD and PA fans will be according to Vent design, which would ensure trouble free working of the boiler.
Bed would be completely shop assembled before dispatch which would ensure smooth



working at site with benefits of Fuel flexibility, High efficiency. Proven and sturdy rotary fuel feeders to ensure continuous feeding of fuel into the furnace.

Special design drum internals to ensure high steam purity. Sturdy boiler structure design
All ducting shall be above ground level.

COOLING TOWER	1 Set
Cooling Water Flow	2000 Cubic Meter Hour
Inlet Water Temperature	42 C
Out Let Water Temperature	32 C
Pressure	3.5 Bar
PUMPS	2 Nos
Capacity	2200 Cubic Meter Hour
Pressure	3.8 Bar
PIPES	
Dia	400 mm

FUEL FEEDING SYSTEM

Shredder (Fuel size inlet 6 inches X 72 inches)	01 No.
Grader (6mm x 6 mm) for Bed)	
Shredder to Grader Conveyor and reverse	01 Set
Main Feeding Conveyor	01 No.
Feeding Bin (1 hour Storage of Coal)	01 No.

ASH HANDLING SYSTEM

Screw Conveyors	04 No.
Main Screw Conveyor	01 No.
Ash Bin (3 Hour Storage Capacity)	01 No.

HT Cables **Turbine Main Penal to Transformer**

Transformer **11 Kv to 400 v**
Lt Cables **Transformer to Boiler Penal**
Synchronizing System
(All Boiler Cables and Penal included in Boiler Scope)

(All Turbine Cables and Penal would also be in Turbine Scope) (All Cooling Tower Cables and Panel would also be in Cooling Tower Scope)
(All Fuel Feeding and Ash Handling System Penal would also be in their Scope)
(All Water System cables and penal would also be in water system scope

Regulation-4(xi)

Efficiency Parameters

i	Design Efficiency of 4 MWp AC	29 %
ii	Gross Efficiency of power plant at mean site condition%	29 %
iii	Net Efficiency of power plant at mean site condition%	32%

Prospectus

Brief Introduction of the Applicant

SM Group, is a family-owned business involved in textile manufacturing and trading of yarn and fabric. We currently contribute to Pakistan's economy by employing more than 1200 employees with annual sales above 70 million USD. With the grant of this license for power generation / concurrence, we expect to hire another 100 employees, fostering economic growth and enhancing workforce development.

SM Traders, since 1976, has been a premier denim mill dedicated to the art of producing high-quality denim for the global market. Based in Karachi, Pakistan, we have established ourselves as a leading player in the textile industry, with a focus on innovation, sustainability, and customer satisfaction.

SMT Power Pvt Limited was Incorporated on 29 October 2024 under Section-16 of the companies Act 2017, with corporate universal identification No.0272732. The business office of the company is at D-11 South Avenue, Site Karachi No.75700. SMT Power Pvt Limited aims to mitigate gas utilization in captive power generation by supplying electricity generated by a Turbine unit using Biomass / alternate fuels to become the primary source of electricity for SM Traders.

Key Features of SM Denim:

- **State of the Art Facilities:**
  Our plant is equipped with cutting-edge machinery and advanced Reverse Osmosis (RO) water treatment systems designed to meet the stringent demands of the textile industry.
- **Sustainability**
  We prioritize eco-friendly practices, including water recycling and the use of energy-efficient equipment. Our RO plant ensures minimal water wastage, aligning with our environmental goals.
- **Product Quality**
  We specialize in producing a wide range of denim fabrics tailored to meet the diverse needs of our customers.

The Salient features of the facility or the system in respect of which the license / Concurrence is sought:

SM Traders currently operate three high-efficiency Jenbecher engines with an installed capacity of **4.3MW** that run on natural gas which is a dwindling resource in Pakistan.

Given the present market conditions for exporters, the abhorrent increase in gas prices, the government mandates to reduce gas fuel for captive power generation, and other economic obstacles it is essential for us to adapt and implement prudent business strategies in line with government policies to have alternative to gas for energy production which we will manage through electricity generation from 4MW Steam turbine and Biomass boiler using alternate fuels.

Biomass Boiler and 4 MW Steam Turbine Installation:

In our continued commitment to sustainability and energy efficiency, SMT Power is set to install a state-of-the-art **30 TPH biomass boiler** coupled with a **4MW steam turbine**. This innovative setup will not only enhance our operational efficiency but will also significantly reduce our carbon footprint by utilizing renewable biomass fuels, such as rice husk, bagasse, and other locally sourced biomass materials. By optimizing the use of **waste heat recovery** from the turbine, the system will minimize the reliance on natural gas, resulting in a considerable reduction in fossil fuel consumption. This transition to biomass-based energy production supports our environmental goals, providing a cleaner, greener alternative to traditional energy sources.

The integration of this **biomass boiler and steam turbine** will help us achieve the following objectives:

- **Reduction in Carbon Emissions:** By shifting from natural gas to biomass fuels, we will significantly lower greenhouse gas emissions, contributing to a cleaner environment.
- **Energy Efficiency:** The combined use of biomass for power generation and steam production ensures a more efficient energy cycle, reducing waste and optimizing resource utilization.
- **Sustainable Energy Production:** This setup represents a major step in our transition towards sustainable energy solutions, aligning with our long-term environmental strategy and industry best practices.
- **Reduced Dependence on External Energy Sources:** With renewable biomass, we decrease our reliance on external fossil fuel supplies, ensuring greater energy security for our operations.

Reverse Osmosis (RO) Plant:

Designed and developed in-house, our RO system ensures water quality meets the highest standards required for denim production. This system is capable of handling high flux rates, ensuring efficiency and reliability.

Environmental Commitment:

Our processes are designed to minimize environmental impact. By integrating modern technologies and efficient resource management, we reduce emissions and conserve natural resources. Our biomass boiler and turbine installation are central to these efforts, ensuring long-term environmental benefits while promoting a cleaner, greener future to meet all SEPA regulations.

Certifications:

SM Denim is committed to meeting international standards for quality and sustainability. Our certifications include ISO 9001, ISO 14001, and other relevant industry certifications.

Sustainability Initiatives:

- **Water Conservation:**

  Our RO plant recycles and reuses water, significantly reducing our water consumption.

- **Green Energy:**

  By utilizing coal in our boiler efficiently, we minimize reliance on external fossil fuel sources.

- **Waste Management:**

  Implementing efficient waste management practices to ensure minimal environmental impact.

In this regard we are submitting an application to the National Electric Power Regulatory Authority (NEPRA) for its power generation facility.

SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN

Business Centre at Head Office Islamabad

CERTIFICATE OF INCORPORATION

[Under section 16 of the Companies Act, 2017 (XIX of 2017)]

Corporate Unique Identification No. 0272732

I hereby certify that **SMT POWER (PRIVATE) LIMITED** is this day incorporated under the Companies Act, 2017 (XIX of 2017) and that the company is **Limited by shares.**

Given at **Islamabad** this **Twenty Ninth** day of **October**, Two **Thousand** and **Twenty Four**

https://leap.secp.gov.pk/#/verify-company-info/0272732

This is an electronically generated document and does not require a physical signature

Disclaimer: This certificate of incorporation is not a permission to accept deposits from the general public by offering fake jobs/investment packages and return thereon, indulge in leasing/ financing of vehicles and household products etc., MLM, Pyramid and Ponzi Schemes, Lottery Business, trading in forex and virtual currencies or any other unlawful business activities

3(4)(c)(i)(b)*

Annexure-D

THE COMPANIES ACT, 2017 (XIX of 2017)

(COMPANY LIMITED BY SHARES)

MEMORANDUM OF ASSOCIATION

1. The name of the company is SMT POWER (PRIVATE) LIMITED

2. The registered office of the Company will be situated in Sindh

3.(i). a The principal line of business of the company shall be to carry on all or any of the businesses of generating, purchasing, importing, transforming, converting, distributing, supplying, exporting and dealing in electricity and all other forms of renewable and non-renewable energy and products or services associated therewith and of promoting the conservation and efficient use of electricity 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 concerned authorities; and to locate, establish, construct, equip, operate, use, manage and maintain thermal power plants, coal fired power plants, hydel power plants, wind mills, solar power plants, power grid station, grid stations, cables, overhead lines, sub-stations, switching stations, tunnels, cable bridges, link boxes, heat pumps, plant and equipment for combined heat and power schemes, offices, computer centers, shops and necessary devices, showrooms, depots, factories, workshops, plants and to provide transforming, switching, conversion and transmission facilities, subject to permission of relevant authorities.

(ii). Except for the businesses mentioned in sub-clause (iii) hereunder, the company may 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 (Asset Management Services, Leasing, Investment Finance Services, Investment Advisory Services, REIT management Services, Housing Finance Services, Private Equity and Venture Capital Fund Management Services, Discounting Services, Pension Fund Scheme Business, Micro Financing), Corporate Restructuring Company, Insurance Business, Modaraba management company, Stock Brokerage business, forex, Clearing House, Securities and Futures Advisor, Commodity Exchange, managing agency, business of providing the services of security guards or any other business subject to license and 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 impermissible business unless the requisite approval, permission, consent or license is obtained from competent authority as may be required under any law for the time being in force.

4. The liability of the member(s) is limited.

5. The Authorized Capital of the Company is Rs. 50000000/- (Rupees Fifty Million) divided into 5000000 (Five Million) Ordinary shares of Rs. 10/- (Rupees Ten) each.

We, the several persons whose name and addresses are subscribed below, are desirous of being formed into a company, in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company as set opposite our respective name(s):

Name and surname (present &	NIC No. (in case of foreigner,	Father`s/ Husband`s Name in full	Nationality(ies) with any former	Occupation	Usual residential address in	Number of shares taken by each	Signatures

former) in full (in Block Letters)	Passport No)		Nationality		full or the registered/ principal office address for a subscriber other than natural person	subscriber (in figures and words)	
Irfan Merchant	4230121766165	Not Required	Pakistan	Business	HOUSE. NO 35/2, 25th STREET KHYABAN-E-MUJAHID PHASE-V DHA, KARACHI, Saddar Town, Karachi South, Sindh, Pakistan	833000 (Eight Hundred Thirty Three Thousand)	Electronically Signed
Shaheen Merchant	4230121862115	Not Required	Pakistan	Business	HOUSE NO 34/2, 26TH. STREET, KHYABAN-E-MUIAHID PHASE-V DHA. KARACHI, Saddar Town, Karachi South, Sindh, Pakistan	3334000 (Three Million Three Hundred Thirty Four Thousand)	Electronically Signed
Farrukh Abdul Qadir Merchant	4230118404603	Not Required	Pakistan	Business	HOUSE.37/2 25TH.STREET, KHYABAN-E-MUJAHID PHASE-V DHA, KARACHI., Saddar Town, Karachi South, Sindh, Pakistan	833000 (Eight Hundred Thirty Three Thousand)	Electronically Signed
		5000000 (Five Million)					

Dated the 14 day of October ,2024

THE COMPANIES ACT, 2017 (XIX of 2017)

(Company Limited by Shares)

ARTICLES OF ASSOCIATION

OF

SMT POWER (PRIVATE) LIMITED

PRELIMINARY

1. (1) In these regulations-

(a) "section" means section of the Act;

(b) "the Act" means the Companies Act, 2017; and

(c) "the seal" means the common seal or official seal of the company as the case may be.

(2) Unless the context otherwise requires, words or expressions contained in these regulations shall have the same meaning as in this Act; and words importing the singular shall include the plural, and vice versa, and words importing the masculine gender shall include feminine, and words importing persons shall include bodies corporate.

BUSINESS

2. The directors shall have regard to the restrictions on the commencement of business imposed by section 19 if, and so far as, those restrictions are binding upon the company.

SHARES

3. In case of shares in the physical form, every person whose name is entered as a member in the register of members shall, without payment, be entitled to receive, within thirty days after allotment or within fifteen days of the application for registration of transfer, a certificate under the seal specifying the share or shares held by him and the amount paid up thereon:

Provided that if the shares are in book entry form or in case of conversion of physical shares and other transferable securities into book-entry form, the company shall, within ten days after an application is made for the registration of the transfer of any shares or other securities to a central depository, register such transfer in the name of the central depository.

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

5. If a share certificate in physical form is defaced, lost or destroyed, it may be renewed on payment of such fee, if any, not exceeding one hundred rupees, and on such terms, if any, as to evidence and indemnity and payment of expenses incurred by the company in investigating title as the directors think fit.

6. Except to the extent and in the manner allowed by section 86, no part of the funds of the company shall be employed in the purchase of, or in loans upon the security of, the companys shares.

TRANSFER AND TRANSMISSION OF SHARES

7. The instrument of transfer of any share in physical form in the company shall be executed both by the transferor and transferee, and the transferor shall be deemed to remain holder of the share until the name of the transferee is entered in the register of members in respect thereof.

8. Shares in physical form in the company shall be transferred in the following form, or in any usual or common form which the directors shall approve: -

Form for Transfer of Shares

(First Schedule to the Companies Act, 2017)

I..... s/o ..... r/o.....(hereinafter called "the transferor") in consideration of the sum of rupees ..... paid to me by..... s/o ..... r/o..... (hereinafter called "the transferee"), do hereby transfer to the said transferee.....theshare(orshares)with distinctive numbers from .....to.....inclusive, in the..... Limited, to hold unto the said transferee, his executors, administrators and assigns, subject to the several conditions on which I held the same at the time of the execution hereof, and I, the said transferee, do hereby agree to take the said share (or shares) subject to the conditions aforesaid. As witness our hands this..... day of..... , 20.....

Signature .....
Transferor
Full Name, Fathers / Husbands Name
CNIC Number (in case of foreigner, Passport Number)
Nationality
Occupation and usual Residential Address

Witness 1:

Signature.....date .....
Name, CNIC Number and Full Address
Cell number
Landline number, if any
Email address

Signature .....
Transferor
Full Name, Fathers /

Witness 2:

Signature.....date .....

which it relates, and such other evidence as the directors may reasonably require to show the right of the transferor to make the transfer.

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

Provided that the company shall, where the transferee is a central depository the refusal shall be conveyed within five days from the date on which the instrument of transfer was lodged with it notify the defect or invalidity to the transferee who shall, after the removal of such defect or invalidity, be entitled to re-lodge the transfer deed with the company.

TRANSMISSION OF SHARES

10. The executors, administrators, heirs, or nominees, as the case may be, of a deceased sole holder of a share shall be the only persons recognised by the company to deal with the share in accordance with the law. In the case of a share registered in the names of two or more holders, the survivors or survivor, or the executors or administrators of the deceased survivor, shall be the only persons recognised by the company to deal with the share in accordance with the law.

11. The shares or other securities of a deceased member shall be transferred on application duly supported by succession certificate or by lawful award, as the case may be, in favour of the successors to the extent of their interests and their names shall be entered to the register of members.

12. A person may on acquiring interest in a company as member, represented by shares, at any time after acquisition of such interest deposit with the company a nomination conferring on a person, being the relatives of the member, namely, a spouse, father, mother, brother, sister and son or daughter, the right to protect the interest of the legal heirs in the shares of the deceased in the event of his death, as a trustee and to facilitate the transfer of shares to the legal heirs of the deceased subject to succession to be determined under the Islamic law of inheritance and in case of non-Muslim members, as per their respective law.

13. The person nominated under regulation 12 shall, after the death of the member, be deemed as a member of company till the shares are transferred to the legal heirs and if the deceased was a director of the company, not being a listed company, the nominee shall also act as director of the company to protect the interest of the legal heirs.

14. A person to be deemed as a member under regulation 11, 12 and 13 to a share by reason of the death or insolvency of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he were the registered holder of the share and exercise any right conferred by membership in relation to meetings of the company.

ALTERATION OF CAPITAL

15. The company may, by special resolution-

(a) increase its authorised capital by such amount as it thinks expedient;

(b) consolidate and divide the whole or any part of its share capital into shares of larger amount than its existing shares;

(c) sub-divide its shares, or any of them, into shares of smaller amount than is fixed by the memorandum;

(d) cancel shares which, at the date of the passing of the resolution in that behalf, have not been taken or agreed to be taken by any person, and diminish the amount of its share capital by the amount of the share so cancelled.

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

17. The new shares shall be subject to the same provisions with reference to transfer, transmission and otherwise as the shares in the original share capital.

18. The company may, by special resolution-

(a) consolidate and divide its share capital into shares of larger amount than its existing shares;

(b) sub-divide its existing shares or any of them into shares of smaller amount than is fixed by the memorandum of association, subject, nevertheless, to the provisions of section 85;

(c) cancel any shares which, at the date of the passing of the resolution, have not been taken or agreed to be taken by any person.

19. The company may, by special resolution, reduce its share capital in any manner and with, and subject to confirmation by the Court and any incident authorised and consent required, by law.

GENERAL MEETINGS

20. The statutory general meeting of the company shall be held within the period required by section 131.

21. A general meeting, to be called annual general meeting, shall be held, in accordance with the provisions of section 132, within sixteen months from the date of incorporation of the company and thereafter once at least in every year within a period of one hundred and twenty days following the close of its financial year.

22. All general meetings of a company other than the statutory meeting or an annual general meeting mentioned in sections 131 and 132 respectively shall be called extraordinary general meetings.

23. The directors may, whenever they think fit, call an extraordinary general meeting, and extraordinary general meetings shall also be called on such requisition, or in default, may be called by such requisitionists, as provided by section 133. If at any time there are not within Pakistan sufficient directors capable of acting to form a quorum, any director of the company may call an extraordinary general meeting in the same manner as nearly as possible as that in which meetings may be called by the directors.

24. The company may provide video-link facility to its members for attending general meeting at places other than the town in which general meeting is taking place after considering the geographical dispersal of its members:

Provided that in case of listed companies if the members holding ten percent of the total paid up capital or such other percentage of the paid up capital as may be specified, are resident in any other city, the company shall provide the facility of video-link to such members for attending annual general meeting of the company, if so required by such members in writing to the company at least seven days before the date of the meeting.

NOTICE AND PROCEEDINGS OF GENERAL MEETINGS

25. Twenty-one day notice at the least (exclusive of the day on which the notice is served or deemed to be served, but inclusive of the day for which notice is given) specifying the place, the day and the hour of meeting and, in case of special business, the general nature of that business, shall be given in manner provided by the Act for the general meeting, to such persons as are, under the Act or the regulations of the company, entitled to receive such notice from the company; but the accidental omission to give notice to, or the non-receipt of notice by, any member shall not invalidate the proceedings at any general meeting.

26. All the business transacted at a general meeting shall be deemed special other than the business stated in sub-section (2) of section 134 namely; the consideration of financial statements and the reports of the board and auditors, the declaration of any dividend, the election and appointment of directors in place of those retiring, and the appointment of the auditors and fixing of their remuneration.

27. No business shall be transacted at any general meeting unless a quorum of members is present at that time when the meeting proceeds to business. The quorum of the general meeting shall be-

(a) in the case of a public listed company, not less than ten members present personally, or through video-link who represent not less than twenty-five percent of the total voting power, either of their own account or as proxies;

(b) in the case of any other company having share capital, two members present personally, or through video-link who represent not less than twenty-five percent of the total voting power, either of their own account or as proxies.

28. If within half an hour from the time appointed for the meeting a quorum is not present, the

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

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

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

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

(2) At any general meeting, the company shall transact such businesses as may be notified by the Commission, only through postal ballot.

32. A poll may be demanded only in accordance with the provisions of section 143.

33. If a poll is duly demanded, it shall be taken in accordance with the manner laid down in sections 144 and 145 and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded.

34. A poll demanded on the election of chairman or on a question of adjournment shall be taken at once.

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

36. Except for the businesses specified under sub-section (2) of section 134 to be conducted in the annual general meeting, the members of a private company or a public unlisted company (having not more than fifty members), may pass a resolution (ordinary or special) by circulation signed by all the members for the time being entitled to receive notice of a meeting. The resolution by circulation shall be deemed to be passed on the date of signing by the last of the signatory member to such resolution.

VOTES OF MEMBERS

37. Subject to any rights or restrictions for the time being attached to any class or classes of shares, on a show of hands every member present in person shall have one vote except for election of directors in which case the provisions of section 159 shall apply. On a poll every member shall have voting rights as laid down in section 134.

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

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

40. On a poll votes may be given either personally or through video-link, by proxy or through postal ballot:

Provided that nobody corporate shall vote by proxy as long as a resolution of its directors in accordance with the provisions of section 138 is in force.

41. (1) The instrument appointing a proxy shall be in writing under the hand of the appointer or of his attorney duly authorised in writing.

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

42. An instrument appointing a proxy may be in the following form, or a form as near thereto as may be:

INSTRUMENT OF PROXY

..... *Limited*

"I ..... s/o ..... r/o ..... being a member of the ..... Limited, hereby appoint ..... s/o ..... r/o ..... as my proxy to attend and vote on my behalf at the (statutory, annual, extraordinary, as the case may be) general meeting of the company to be held on the ..... day of ....., 20..... and at any adjournment thereof."

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

DIRECTORS

44. The following subscribers of the memorandum of association shall be the first directors of the company, so, however, that the number of directors shall not in any case be less than that specified in section 154 and they shall hold office until the election of directors in the first annual general meeting:

1. Farrukh Abdul Qadir Merchant

2. Irfan Merchant

3. Shaheen Merchant

45. The remuneration of the directors shall from time to time be determined by the company in general meeting subject to the provisions of the Act.

46. Save as provided in section 153, no person shall be appointed as a director unless he is a member of the company.

POWERS AND DUTIES OF DIRECTORS

47. The business of the company shall be managed by the directors, who may pay all expenses incurred in promoting and registering the company, and may exercise all such powers of the company as are not by the Act or any statutory modification thereof for the time being in force, or by these regulations, required to be exercised by the company in general meeting, subject nevertheless to the provisions of the Act or to any of these regulations, and such regulations being not inconsistent with the aforesaid provisions, as may be prescribed by the company in general meeting but no regulation made by the company in general meeting shall invalidate any prior act of the directors which would have been valid if that regulation had not been made.

48. The directors shall appoint a chief executive in accordance with the provisions of sections 186 and 187.

49. The amount for the time being remaining undischarged of moneys borrowed or raised by the directors for the purposes of the company (otherwise than by the issue of share capital) shall not at any time, without the sanction of the company in general meeting, exceed the issued share capital of the company.

50. The directors shall duly comply with the provisions of the Act, or any statutory modification thereof for the time being in force, and in particular with the provisions in regard to the registration of the particulars of mortgages, charges and pledge affecting the property of the company or created by it, to the keeping of a register of the directors, and to the sending to the registrar of an annual list of members, and a summary of particulars relating thereto and notice of any consolidation or increase of share capital, or sub-division of shares, and copies of special resolutions and a copy of the register of directors and notifications of any changes therein.

MINUTE BOOKS

51. The directors shall cause records to be kept and minutes to be made in book or books with regard to

(a) all resolutions and proceedings of general meeting(s) and the meeting(s) of directors and Committee(s) of directors, and every member present at any general meeting and every director present at any meeting of directors or Committee of directors shall put his signature in a book to be kept for that purpose;

(b) recording the names of the persons present at each meeting of the directors and of any committee of the directors, and the general meeting; and

(c) all orders made by the directors and Committee(s) of directors:

Provided that all records related to proceedings through video-link shall be maintained in accordance with the relevant regulations specified by the Commission which shall be appropriately rendered into writing as part of the minute books according to the said regulations.

THE SEAL

52. The directors shall provide for the safe custody of the seal and the seal shall not be affixed to any instrument except by the authority of a resolution of the board of directors or by a committee of directors authorized in that behalf by the directors and in the presence of at least two directors and of the secretary or such other person as the directors may appoint for the purpose; and those two directors and secretary or other person as aforesaid shall sign every instrument to which the seal of the company is so affixed in their presence.

DISQUALIFICATION OF DIRECTORS

53. No person shall become the director of a company if he suffers from any of the disabilities or disqualifications mentioned in section 153 or disqualified or debarred from holding such office under any of the provisions of the Act as the case may be and, if already a director, shall cease to hold such office from the date he so becomes disqualified or disabled:

Provided, however, that no director shall vacate his office by reason only of his being a member of any company which has entered into contracts with, or done any work for, the company of which he is director, but such director shall not vote in respect of any such contract or work, and if he does so vote, his vote shall not be counted.

PROCEEDINGS OF DIRECTORS

54. The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings, as they think fit. A director may, and the secretary on the requisition of a director shall, at any time, summon a meeting of directors. Notice sent to a director through email whether such director is in Pakistan or outside Pakistan shall be a valid notice.

55. The directors may elect a chairman of their meetings and determine the period for which he

is to hold office; but, if no such chairman is elected, or if at any meeting the chairman is not present within ten minutes after the time appointed for holding the same or is unwilling to act as chairman, the directors present may choose one of their number to be chairman of the meeting.

56. At least one-third (1/3rd) of the total number of directors or two (2) directors whichever is higher, for the time being of the company, present personally or through video-link, shall constitute a quorum.

57. Save as otherwise expressly provided in the Act, every question at meetings of the board shall be determined by a majority of votes of the directors present in person or through video-link, each director having one vote. In case of an equality of votes or tie, the chairman shall have a casting vote in addition to his original vote as a director.

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

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

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

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

61. A copy of the draft minutes of meeting of the board of directors shall be furnished to every director within seven working days of the date of meeting.

62. A resolution in writing signed by all the directors for the time being entitled to receive notice of a meeting of the directors shall be as valid and effectual as if it had been passed at a meeting of the directors duly convened and held.

FILLING OF VACANCIES

63. At the first annual general meeting of the company, all the directors shall stand retired from office, and directors shall be elected in their place in accordance with section 159 for a term of three years.

64. A retiring director shall be eligible for re-election.

65. The directors shall comply with the provisions of sections 154 to 159 and sections 161, 162 and 167 relating to the election of directors and matters ancillary thereto.

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

67. The company may remove a director but only in accordance with the provisions of the Act.

DIVIDENDS AND RESERVE

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

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

70. Any dividend may be paid by a company either in cash or in kind only out of its profits. The payment of dividend in kind shall only be in the shape of shares of listed company held by the distributing company.

71. Dividend shall not be paid out of unrealized gain on investment property credited to profit and loss account.

72. Subject to the rights of persons (if any) entitled to shares with special rights as to dividends, all dividends shall be declared and paid according to the amounts paid on the shares.

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

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

74. If several persons are registered as joint-holders of any share, any one of them may give effectual receipt for any dividend payable on the share.

75. (1) Notice of any dividend that may have been declared shall be given in manner hereinafter mentioned to the persons entitled to share therein but, in the case of a public company, the company may give such notice by advertisement in a newspaper circulating in the Province in which the registered office of the company is situate.

(2) Any dividend declared by the company shall be paid to its registered shareholders or to their order. The dividend payable in cash may be paid by cheque or warrant or in any electronic mode to the shareholders entitled to the payment of the dividend, as per their direction.

(3) In case of a listed company, any dividend payable in cash shall only be paid through

electronic mode directly into the bank account designated by the entitled shareholders.

76. The dividend shall be paid within the period laid down under the Act.

ACCOUNTS

77. The directors shall cause to be kept proper books of account as required under section 220.

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

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

80. The directors shall as required by sections 223 and 226 cause to be prepared and to be laid before the company in general meeting the financial statements duly audited and reports as are referred to in those sections.

81. The financial statements and other reports referred to in regulation 80 shall be made out in every year and laid before the company in the annual general meeting in accordance with sections 132 and 223.

82. A copy of the financial statements and reports of directors and auditors shall, at least twenty- one days preceding the meeting, be sent to the persons entitled to receive notices of general meetings in the manner in which notices are to be given hereunder.

83. The directors shall in all respect comply with the provisions of sections 220 to 227.

84. Auditors shall be appointed and their duties regulated in accordance with sections 246 to 249.

NOTICES

85. (1) A notice may be given by the company to any member to his registered address or if he has no registered address in Pakistan to the address, if any, supplied by him to the company for the giving of notices to him against an acknowledgement or by post or courier service or through electronic means or in any other manner as may be specified by the Commission.

(2) Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice and, unless the contrary is proved, to have been effected at the time at which the letter will be delivered in the ordinary course of post.

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

87. A notice may be given by the company to the person entitled to a share in consequence of the death or insolvency of a member in the manner provided under regulation 85 addressed to them by name, or by the title or representatives of the deceased, or assignees of the insolvent, or by any like description, at the address, supplied for the purpose by the person claiming to be so entitled.

88. Notice of every general meeting shall be given in the manner hereinbefore authorised to (a) every member of the company and also to (b) every person entitled to a share in consequence of the death or insolvency of a member, who but for his death or insolvency would be entitled to receive notice of the meeting, and (c) to the auditors of the company for the time being and every person who is entitled to receive notice of general meetings.

WINDING UP

89. (1) In the case of members voluntary winding up, with the sanction of a special resolution of the company, and, in the case of creditors voluntary winding up, of a meeting of the creditors, the liquidator shall exercise any of the powers given by sub-section (1) of section 337 of the Act to a liquidator in a winding up by the Court including inter-alia divide amongst the members, in specie or kind, the whole or any part of the assets of the company, whether they consist of property of the same kind or not.

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

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

INDEMNITY

90. Every officer or agent for the time being of the company may be indemnified out of the assets of the company against any liability incurred by him in defending any proceedings, whether civil or criminal, arising out of his dealings in relation to the affairs of the company, except those brought by the company against him, in which judgment is given in his favour or in which he is acquitted, or in connection with any application under section 492 in which relief is granted to him by the Court.

We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a company, in pursuance of these articles of association, and we respectively agree to take the number of shares in the capital of the company set opposite our respective names:

Name and surname	NIC No. (in case of	Father`s/ Husband`s Name in	Nationality(ies) with any former	Occupation	Usual residential address in	Number of shares taken by	Signatures

(present & former) in full (in Block Letters)	foreigner, Passport No)	full	Nationality		full or the registered/ principal office address for a subscriber other than natural person	each subscriber (in figures and words)	
Irfan Merchant	4230121766165	Not Required	Pakistan	Business	HOUSE. NO 35/2, 25th STREET KHYABAN-E-MUJAHID PHASE-V DHA, KARACHI., Saddar Town, Karachi South, Sindh, Pakistan	833000 (Eight Hundred Thirty Three Thousand)	Electronically Signed
Shaheen Merchant	4230121862115	Not Required	Pakistan	Business	HOUSE NO 34/2, 26TH. STREET, KHYABAN-E-MUIAHID PHASE-V DHA. KARACHI, Saddar Town, Karachi South, Sindh, Pakistan	3334000 (Three Million Three Hundred Thirty Four Thousand)	Electronically Signed
Farrukh Abdul Qadir Merchant	4230118404603	Not Required	Pakistan	Business	HOUSE. 37/2 25TH.STREET, KHYABAN-E-MUJAHI	833000 (Eight Hundred Thirty Three Thousand)	Electronically Signed

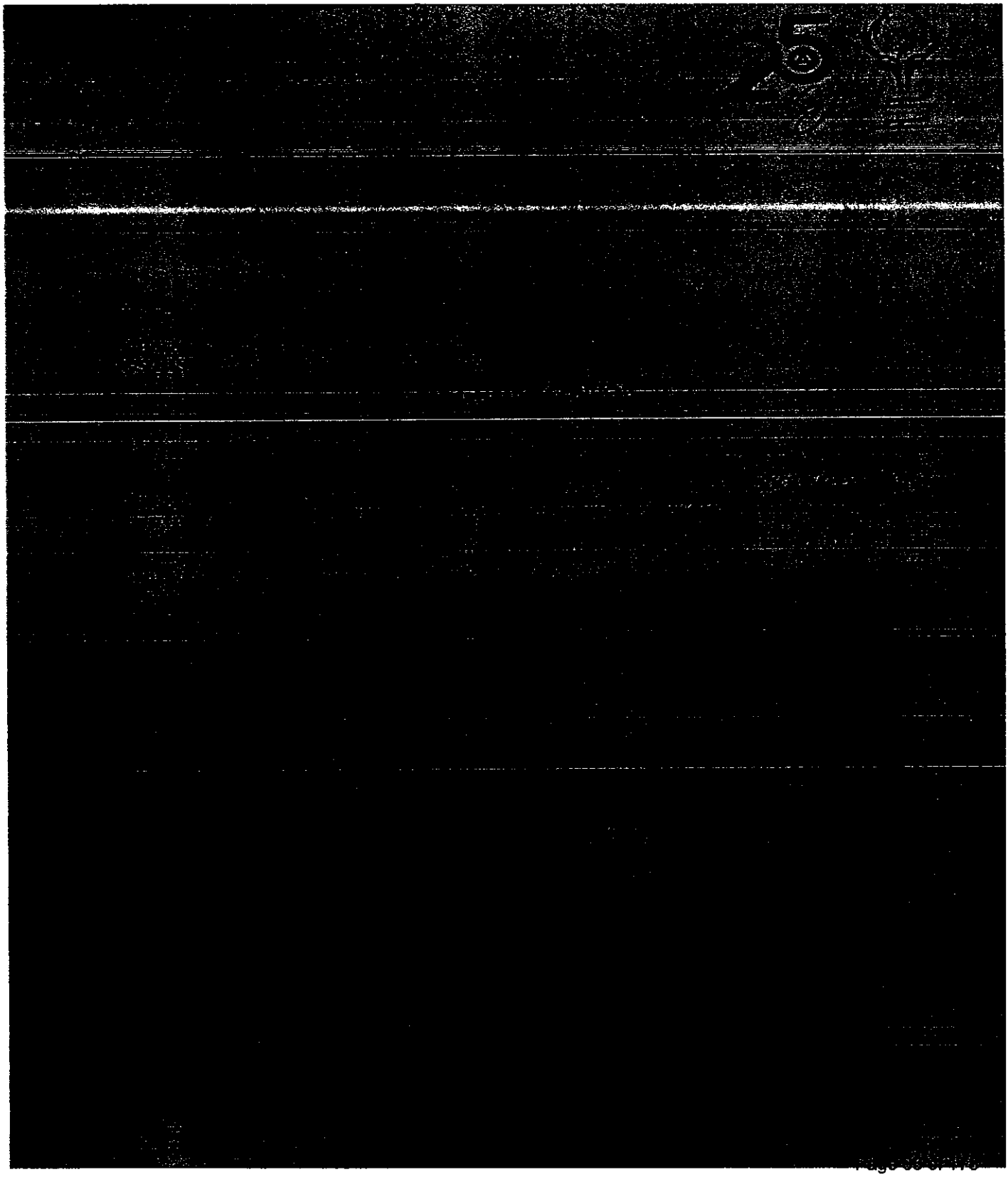
					D PHASE-V DHA, KARACHI., Saddar Town, Karachi South, Sindh, Pakistan		
		5000000 (Five Million)					

Dated the 14 day of October ,2024

3(4)(d)(i) **Annexure-E**

Evidence of cash balances held in reserve by the applicant, along with bank certificates;

Funds for preliminary expenses has already been paid amounting to Rs. 2 Million till the bank loan has not been availed and amount has not been deposited in SMT Power Bank Account.



3(4)(d)(iv) **Annexue-F**

Expressions of interest to provide credit or financing along with sources and details thereof;

Application Submitted to Meezan Bank for Loan of Rs. 930 Million. And balance financing of Rs. 230 Million, will be made by Directors.

Total Project cost will be around Rs. 1,160 Millions.

- Indicative term sheet of Meezan Bank attached.
- Audited Financial statement of parent company (SM Traders) attached.

Meezan Bank
The Premier Islamic Bank

15-January 2025

To

Mr. Shaheen Merchant
Director
SMT Power (Pvt) Limited
Plot # D-11 South Avenue SITE Area
Karachi

Dear Sir,

INDICATIVE TERM SHEET

Meezan Bank Limited (hereinafter referred to as "Bank") is pleased to offer indicative term sheet to SMT Power (Pvt) Limited

Facility Type – 1	**Sight LC under Agency Agreement**
Facility Amount	PKR 480,000,000 (Pak Rupees Four hundred Eighty Million Only)
Purpose	For import of Complete 1x4 MWH MCR Power House, Boiler Capacity 30 TPH, 68 kg/CM2 Pressure / Biomass and Coal Fired Boiler, STEAM Turbine, Pipeline.
Profit Rate	APSOC subject to 85% discount in 1st Quarter and Subsequent Qrts (0.10% p.q) and 0.10% retirement Charges.
Tenor	At Sight
Security	• Lien over import documents • Nil Cash margin or as per SBP requirement whichever is higher. • PG of all Partners along with PNWS

Facility Type – 1A	**Diminishing Musharaka – Plant & Machinery**
Facility Amount	PKR 480,000,000 (Pak Rupees Four hundred Eighty Million Only)
Purpose	For retirement of LC Sight documents
Profit Rate	Matching Kibor + 1%
Tenor	7 Yeas including 02 years Grace period WITH Prepayment option
Security	• 15% Equity Participation in shape of Duties & Taxes, treated to be as customer participation (if applicable) • Direct Debit Authority. • DM Asset to be covered against takaful coverage with all mandatory clauses. • 1st exclusive hypothecation charge over Imported machinery with 25% margin duly registered with STR. • PG of all Partners along with PNWS.

Facility Type – 2	**Diminishing Musharaka – Purchase of Land**
Facility Amount	PKR 285,000,000 (Pak Rupees Two Hundred Eighty Five Million Only) [Land Value Rs.380,000,000/- MBL Share 75% Customer Share 25%
Purpose	For purchase of Land located at SITE Industrial Area [Plot # D-10, A2 & D-10 A4, measuring 0.25 Acre each]
Profit Rate	Matching Kibor + 1%
Tenor	7 Yeas including 02 years Grace period WITH Prepayment option
Security	• 25% Equity Participation • Direct Debit Authority. • DM Asset to be covered against takaful coverage with all mandatory clauses (if applicable). • 1st exclusive hypothecation charge over Land with 25% margin duly registered with STR • PG of all Directors along with PNWS.

Facility Type – 3	Diminishing Musharaka – Construction & Erection
Facility Amount	PKR 165,000,000 (Pak Rupees One Hundred Sixty five Million Only) Total Cost Rs.300,000,000/- MBL Share 55% Customer Share 45%
Purpose	For Erection and Construction over purchase Land located at SITE Industrial Area. [Plot # D-10, A2 & D-10 A4, measuring 0.25 Acre each]
Profit Rate	Matching Kibor + 1%
Tenor	7 Yeas including 02 years Grace period With Prepayment option
Security	• 45% Equity Participation • Direct Debit Authority. • DM Asset to be covered against takaful coverage with all mandatory clauses 9f applicable). • 1st exclusive hypothecation charge over Land with 25% margin duly registered with STR • PG of all Directors along with PNWS.

- **Premature payment without early termination charges.**
- **Total Project cost is around Rs.1,551 Mn and MBL participation Rs.930 Mn**
- **Subordination of Directors Loan amounting to Rs.189 Mn**
- **Overall Equity participation will be 60% MBL and 40% SMT Power (Pvt) Limited.**
- **Processing charges as per SOC**
- **Corporate Guarantee of M/s.S.M Traders to cover the entire exposure.**

The terms outlined in this Indicative Term Sheet are for discussion purposes and does not constitute a commitment, agreement in principle or other agreement or obligation by Meezan Bank Limited to provide financing. The above-mentioned facilities are subject to internal approvals, execution and satisfactory review of all documentation including but not limited to security perfection and other necessary formalities.

The Facilities shall be governed by the rules and regulations of the Government of Pakistan and the State Bank of Pakistan (SBP), including the Prudential Regulations, Foreign Exchange Manual and the regulations issued for Islamic Banking and applicable AAOIFI standards for Islamic financing transactions but not restricted to regulations of the State Bank of Pakistan, now in force and as amended from time to time, and credit restrictions imposed by SBP from time to time.

M/s. S.MT Power (Pvt) Limited shall keep the contents of this indicative terms sheet strictly confidential and shall not disclose the terms contained herein to any person other than the company's Directors and Senior Management on a need to know basis only.

We shall appreciate if you could kindly arrange return of the duplicate of this indicative term sheet signed by the authorized signatories of M/s. S.MT Power (Pvt) Limited as your acceptance of aforementioned terms, enabling us to process your credit proposal. Please note that this indicative term sheet is valid for acceptance by 31 Jan 2025

Warm Regards,

Khurram Waqar Ahmed
Hub Manager – SITE Area
Vice President

Muhammad Aslam Meher
Regional Credit Manager
Senior Vice President

Agreed & Accepted by:

For and on Behalf of
M/s. S.MT Power (Pvt) Limited

SAJID & CO.

Chartered Accountants

Suit No. 204, 2nd Floor Amber Estate Extension, Opp. HBL, MCB Kawish Court Br. and Maqbool Masjid, Near Baloch Colony Bridge, Shahrah-e-Faisal, Karachi.
PTCL No. 34320685, E-mail: sajid_yunus@yahoo.com

AUDITORS' REPORT TO THE PARTNERS

Opinion

We have audited the financial statements of **S.M. Traders** (the Firm), which comprise the statement of financial position as at June 30, 2024, the statement of profit or loss and other comprehensive income, the statement of cash flow for the year then ended, and notes to the financial statements including summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, and the statement of financial position of the firm as at June 30, 2024, and its statement of financial performance and its statement of cash flows for the year then ended in accordance with the Generally Accepted Accounting Principles as applicable in Pakistan.

Basis for Opinion

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

Responsibilities of Management and Board of Directors for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the generally accepted accounting principles, and for such internal control as the management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

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

Those charged with governance are responsible for overseeing the Firm's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

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

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

Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit to design audit procedures that are appropriate in the circumstances, but not to express an opinion on the effectiveness of the Firm's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

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

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

We communicate with those charged with governance regarding the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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

Sajid & Company
Chartered Accountants

Place: Karachi
Dated: November 02, 2024
UDIN: AR20241025tejuTrlFwm

S. M. TRADERS
STATEMENT OF FINANCIAL POSITION
FOR THE YEAR ENDED JUNE 30, 2024

	Note	2024 Rupees	2023 Rupees
ASSETS			
Non Current Assets			
Property, plant and equipment	3	6,480,855,725	4,015,347,472
Current Assets			
Stock in trade	4	3,230,439,560	3,263,989,174
Trade receivables	5	2,219,864,802	2,107,823,780
Prepayments, deposits and other receivables	6	552,091,048	490,954,565
Short term investment		-	700,000,000
Cash and bank balances		566,048,829	723,790,954
		6,568,444,239	7,286,558,473
Total Assets		13,049,299,964	11,301,905,945
EQUITY AND LIABILITIES			
Partners' Capital and Reserves			
Irfan Merchant		553,599,353	668,660,561
Farrukh Merchant		715,826,107	851,857,292
Shaheen Merchant		1,348,518,339	1,649,400,508
		2,617,943,799	3,169,918,361
Surplus on revaluation of fixed assets	7	5,487,364,953	3,218,318,703
Total Equity		8,105,308,752	6,388,237,064
Non Current Liabilities			
Long term finance from banking company		952,251,772	1,075,201,076
Current Liabilities			
Short term bank borrowings	8	1,736,000,000	2,037,786,891
Trade and other payables	9	1,818,986,840	1,363,928,314
		3,554,986,840	3,401,715,205
Contingencies and commitments	10	436,752,600	436,752,600
Total Capital and Liabilities		13,049,299,964	11,301,905,945

The annexed notes form an integral parts of these financial statements

Partner

Partner

S. M. TRADERS
STATEMENT OF PROFIT AND LOSS
FOR THE YEAR ENDED JUNE 30, 2024

	Note	2024 Rupees	2023 Rupees
Sales	11	12,667,477,661	9,780,220,160
Cost of sales	12	(10,628,971,541)	(8,211,432,956)
Gross profit		2,038,506,120	1,568,787,204
Operating expenses			
Administrative and selling expenses	13	(881,135,905)	(796,267,992)
Finance cost	14	(496,534,333)	(397,599,897)
		(1,377,670,238)	(1,193,867,889)
Profit before taxation		660,835,882	374,919,315
Taxation - Current		(120,015,446)	(94,715,189)
Profit after taxation		540,820,436	280,204,126

The annexed notes form an integral parts of these financial statements

Partner

Partner

S. M. TRADERS
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED JUNE 30, 2024

	2024 Rupees	2023 Rupees
A. CASH FLOW FROM OPERATING ACTIVITIES		
Profit before tax	660,835,882	374,919,315
Adjustment for:		
Depreciation	93,380,877	316,779,722
Finance cost	496,534,333	(397,599,897)
	589,915,210	(80,820,175)
Cash inflows before changes in working capital	1,250,751,092	294,099,140
Changes in working capital		
(Increase) / decrease in current assets		
Stock in trade	33,549,614	(1,050,611,525)
Trade receivables	(112,041,022)	11,680,564
Short term investment	700,000,000	-
Prepayments, deposits and other receivables	(61,136,483)	1,322,827,904
Increase / (decrease) in current liabilities		
Trade and other payables	455,058,526	117,968,965
	1,015,430,635	401,865,908
Cash (used in) / generated from operating activities	2,266,181,727	695,965,048
Finance cost paid	(496,534,333)	397,599,897
Taxes paid - net	(120,015,446)	(94,715,189)
	(616,549,779)	302,884,708
Net cash (used in) / generated from operating activities	1,649,631,948	998,849,756
B. CASH FLOW FROM INVESTING ACTIVITIES		
Fixed capital expenditure	(259,994,444)	(130,011,566)
Capital injected / (drawings) made during the year	(1,092,794,998)	(178,279,152)
Other adjustments	(29,848,436)	-
Net cash generated from / (used in) investing activities	(1,382,637,878)	(308,290,718)
C. CASH FLOW FROM FINANCING ACTIVITIES		
Long term finance from banking company	(122,949,304)	(118,484,168)
Short term bank borrowings	(301,786,891)	(778,678,584)
Contingencies and commitment	-	436,752,600
Net cash generated from financing activities	(424,736,195)	(460,410,152)
Net increase in cash and cash equivalent (A+B+C)	(157,742,125)	230,148,886
Cash and cash equivalent at beginning of the year	723,790,954	493,642,068
Cash and cash equivalent at the end of the year	566,048,829	723,790,954

The annexed notes form an integral part of these financial statements

Partner

Partner

S. M. TRADERS
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED JUNE 30, 2024

1 LEGAL STATUS & NATURE OF BUSINESS

S.M Traders (the Firm) is a partnership firm formed pursuant to a partnership agreement dated January 1976, under the Partnership Act, 1932. The Registered address of the Firm is D-11 South Avenue, S.I.T.E, Shahra-e-Moin Akhtar Karachi 75700 – Pakistan. The Firm is engaged in the business of manufacturing of Denim Fabrics.

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

2.1 Accounting convention

These financial statements have been prepared under the 'historical cost convention'.

2.2 Property, plant and equipment

These are stated at cost.

2.3 Short term investment

These are stated at cost.

2.4 Stock-in-trade

All stocks are stated at the lower of cost and estimated net realizable value. Cost is determined by weighted average method except for those in-transit where it represents invoice value and other charges paid thereon. Cost of finished goods also include production overheads.

Net realizable value signifies the estimated selling price in the ordinary course of business less costs necessarily to be incurred in order to make the sale.

2.5 Trade debts

Trade debts are carried at original invoice amount less provision made for doubtful receivables based on a review of all outstanding amounts of the year end. Debts considered irrecoverable are written off.

2.6 Advances and other receivables

These are stated at the amounts originally disbursed, provision is made for the amounts considered doubtful, considered irrecoverable are written off.

2.7 Trade and other liabilities

Liabilities for trade and other amounts payable are stated at their nominal values.

2.8 Taxation

Provision for current taxation is made according to the provisions of Income Tax Ordinance, 2001.

2.9 Revenue recognition

Revenue from sale is recognized on dispatch of goods to customers.

	Note	2024 Rupees	2023 Rupees
3 PROPERTY, PLANT AND EQUIPMENT			
Operating fixed assets	3.1	993,490,772	797,028,769
[illegible]	-	[illegible]	[illegible]
		6,480,855,725	4,015,347,472

3.1 Operating fixed assets

Particulars	Cost			Rate %	Depreciation				Written down value as at June 30, 2024
	As at July 01, 2023	Addition / (Deletion)	As at June 30, 2024		As at July 01, 2023	Addition / (Deletion)	For the year	As at June 30, 2024	
	Rupees				Rupees				
Land	8,431,730	-	8,431,730	-	-	-	-		8,431,730
Office building	399,377,568	144,275,809	543,653,377	5	268,379,048	-	13,763,716	282,142,764	261,510,613
Plant and machinery	2,394,478,711	102,681,576	2,497,160,287	10	1,795,190,685	(28,981,936)	70,196,960	1,836,405,709	660,754,578
Vehicles	225,603,400	(542,150)	225,061,250	20	202,206,798	(866,500)	4,570,890	205,911,188	19,150,062
Furniture and fixture	58,653,997	1,479,881	60,133,878	10	47,222,483	-	1,291,140	48,513,622	11,620,256
Office equipment	80,768,925	12,099,328	92,868,253	10	57,286,548	-	3,558,170	60,844,719	32,023,534
2024	3,167,314,331	259,994,444	3,427,308,775		2,370,285,562	(29,848,436)	93,380,877	2,433,818,003	993,490,772
2023	3,037,302,765	130,011,566	3,167,314,331		2,053,505,840	-	318,479,722	2,370,285,562	-

	2024 Rupees	2023 Rupees
4 STOCK IN TRADE		
Raw material	364,280,445	504,449,357
Work in process	833,633,564	609,557,810
Finished goods	1,784,062,709	1,926,727,419
Store & Spares	248,462,842	223,254,588
	3,230,439,560	3,263,989,174
5 TRADE RECEIVABLES		
Export	2,916,891,001	1,793,379,527
Bill discounting	(1,982,941,129)	(890,955,327)
Local	1,285,914,930	1,205,399,580
	2,219,864,802	2,107,823,780
6 PREPAYMENTS, DEPOSITS AND OTHER RECEIVABLES		
Deposits and prepayments	334,389,989	228,928,968
Other receivables		
Rebate receivable	9,498,291	12,726,625
Research and development receivable	-	-
Other receivables	208,202,768	249,298,972
	217,701,059	262,025,597
	552,091,048	490,954,565

7 SURPLUS ON REVALUATION OF FIXED ASSETS

	Revaluation	Book Value	Net Revaluation	Accumulated As At July 01, 2023	Rate %	Depreciation For The Year	Accumulated as at June 30, 2024	Surplus on Revaluation of Fix Assets
Land	1,306,250,000	8,431,730	1,297,818,270	-	-	-		1,297,818,270
Office Building	2,014,112,000	130,998,520	1,883,113,480	-	5%	94,155,674	94,155,674	1,788,957,806
Plant & Machinery	3,266,609,000	599,288,026	2,667,320,974	-	10%	266,732,097	266,732,097	2,400,588,877
2024	6,586,971,000	738,718,276	5,848,252,724			360,887,771	360,887,771	5,487,364,953
2023	4,377,665,000	747,428,485	3,630,236,515			205,958,906	411,917,813	3,218,318,703

7.1 During the year under review, the firm revalued its assets by M/s. MYK Associates (Pvt.) Ltd, an independent and qualified revaluer. The revaluer valued on the basis of market value. However, the forced sale value is Rs.4,942,915,900. The date of valuation report is 11th October 2023.

		2024	2023
		Rupees	Rupees
8	SHORT TERM BORROWINGS		
	Short term loan from banks	1,736,000,000	2,037,786,891
		1,736,000,000	2,037,786,891

8.1 The firm has entered into Short term loan from different banks carrying markup SBP rate + 1% per annum.

		2024	2023
		Rupees	Rupees
9	TRADE AND OTHER PAYABLES		
	Creditors	1,467,156,950	1,157,743,955
	Accrued expenses	292,274,062	18,619,257
	Other liabilities	59,555,828	187,565,102
		1,818,986,840	1,363,928,314

10 CONTINGENCIES AND COMMITMENTS

Contingencies and Commitments	436,752,600	436,752,600

The Company had successfully challenged the levy of Gas Infrastructure Development Cess (GIDC) under the GIDC Act, 2015 before the Sindh High Court. The Federal Government has filed a time-barred Appeal before the Division Bench of the Honourable Sindh High Court after a delay of three years.

		2024	2023
		Rupees	Rupees
11	REVENUE		
	Export sales	7,462,086,904	6,158,857,252
	Local sales	5,194,662,794	3,601,585,619
	Wastage sales	5,970,964	5,313,438
		12,662,720,662	9,765,756,309
	Rebate claim	678280	9,973,976
	Others	4078719	4,489,875
		4756999	14,463,851
	Total turnover	12,667,477,661	9,780,220,160
12	COST OF SALES		
	Opening stock	3,263,989,174	2,213,377,649
	Purchases and manufacturing expenses	10,595,421,927	9,262,044,481
		13,859,411,101	11,475,422,130
	Less: Closing stock	(3,230,439,560)	(3,263,989,174)
		10,628,971,541	8,211,432,956

	2024 Rupees	2023 Rupees
13 ADMINISTRATIVE AND SELLING EXPENSES		
Salaries and other benefits	180,228,485	178,255,507
Travelling expenses	130,331,750	105,826,968
Printing and stationery	6,164,651	6,687,668
Insurance expenses	23,709,430	19,491,977
Legal and professional charges	4,169,863	4,958,569
Advertising, publicity and exhibition expenses	39,986,857	38,687,258
Repairs and maintenance charges	43,266,105	37,695,225
Telecommunication and mobile expenses	4,687,648	5,651,585
Postage and telegram	69,953,429	49,727,196
Entertainment expenses	15,458,327	12,370,682
Medical expenses	1,310,525	1,029,885
Photocopy gift and other expenses	697,862	1,622,286
Consultancy and technical assistance	8,502,129	10,621,587
Contributions	3,538,044	2,267,067
Fee and subscription	776,245	528,852
Donation and zakat	1,967,500	2,029,100
Property and water taxes	594,192	588,624
Security expenses	5,688,832	4,589,663
General and miscellaneous expenses	15,096,810	28,640,779
Import expenses	234,014	1,396,616
Rent and rates	19,113,239	27,307,278
Export expenses	105,903,399	45,247,076
Fabric inspection and laboratory testing	18,106,606	5,625,371
Claims	2,839,956	4,518,297
Rebate and R&D expenses	-	31,558,706
Local sale expenses	2,253,956	2,254,305
Course expense	-	119,310
Convence petrol	3,958,610	2,305,917
Freight	172,597,441	164,664,638
	881,135,905	796,267,992
14 FINANCIAL CHARGES		
Bank charges	39,105,088	39,348,373
Discount markup charges	86,851,741	38,888,597
Interest on refinance	370,577,504	319,362,927
	496,534,333	397,599,897

15 DATE OF AUTHORIZATION FOR ISSUE

These financial statements have been authorized for issue by the Partners of the Firm on 02 NOV 2024

16 GENERAL

Figures have been rounded off to the nearest rupee.

Partner

Partner

Tariq Jamil
Company Secretary

After Graduation from St. Petric College join Fords, Rhodes, Robbson, Morrow a chartered accountant Audit farm enrollment with Institute of Chartered Accountants of Pakistan, Qualifying Chartered Accountant Intermediate exam and completed Articles and fellow member of Institute of Taxation Management of Pakistan. Carry Industrial Experience of more than Thirty Five Years in Textile Industrial Group.

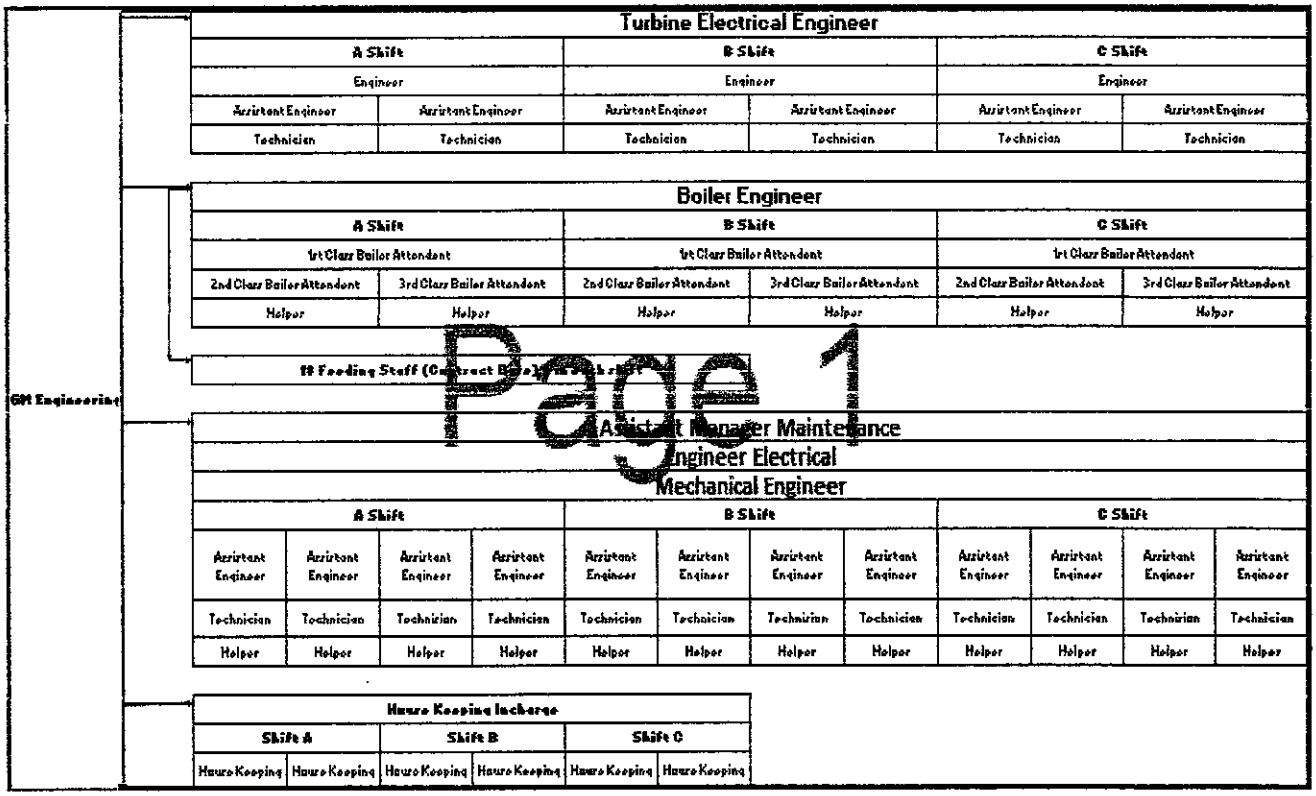
As Follows :

	Designation	Company
i.	Chief Accountant	UDL Industries
ii.	Auditing Company Secretary And C. F. O.	Umer Group of Company, Bhanero Textile Ltd, Faisal Spinning Mills Ltd. Blessed Textile Ltd, Hush Puppies (Lather), City Towers (Constriction and Marketing)
iii.	C. F. O.	Stallion Textile (Pvt) Ltd.
iv.	C. F. O.	S M Group

Employment Records of Engineering & Technical Staff

Mr Zahid Alam G.M Engineering have 23 year of Experience in utilities and looking after all engineering & projects in SM Denim Since 2018 and will have the same role in SMT Power (Pvt) Limited.

Previously has worked in Union Fabrics Pvt. Ltd. as Manager Engineering.
He has already provided his services in Bangladesh as Project manager for (03) three years.



Profile of Sub-contractors, if any, along with expressions of interest of such sub-contractors.

Currently no need , will arrange in future if required

3(4)(d)(ix) **Annexure-J**

VERIFIABLE REFERENCE OF PROPOSED CONTRACTOR.

HEAD OFFICE
381-N Johar Town Lahore,
Pakistan
Phone: +92 42 35302574

FACTORY AREA
Rana Town,G.T Road ,
7 km Ahdiyan Road Lahore , Pakistan Phone:
+92 42 35020625

ISLAMABAD OFFICE

Office No.10, 3rd Floor VIP
Square,I-8 Markaz
Islamabad

DUBAI OFFICE
P.O Box # 4352
Dubai (UAE)
Phone: +97 544332204
www.tiecompanies.com
contact on +92 303777771
works@tie.com.pk

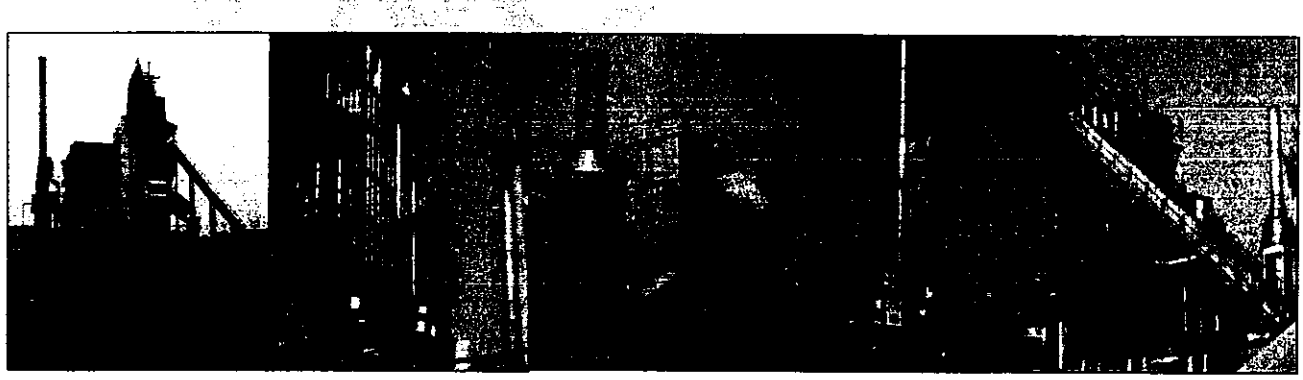
3(e)*

Annexure

TIE GROUP OF COMPANIES

574-G Johar Town
Lahore, Pakistan
Tel: 0423-5302574
Fax: 0423-5303574

info@tie.com.pk
workshop@tie.com.pk
www.tiecompanies .com



TECHNICAL/COMMERCIAL PROPOSAL

Welcome to TIE GROUP OF COMPANIES

Turnkey Projects

TIE Group of Companies has been in business of Industrial Boiler and Power House Manufactures for the past 33 years.

We specialize in designing, manufacturing, selling and offering consultation services of Power Plants, Steam Boilers, Industrial Boilers, Power Boilers with ISO 9001:2008, ASME and Bureau Veritas certifications.

TIE offers a very broad palette of system for generation of electricity and steam for process.

- Biomass Fired Boilers
- Coal Fired Boilers
- Multi-fuel Fired Boilers
- Oil/Gas Fired Boilers
- Biogas Fired Boilers
- Heat Recovery Boilers

With the capacities of our Power Houses from 200kW to 100 MW

TIE also offer services of,

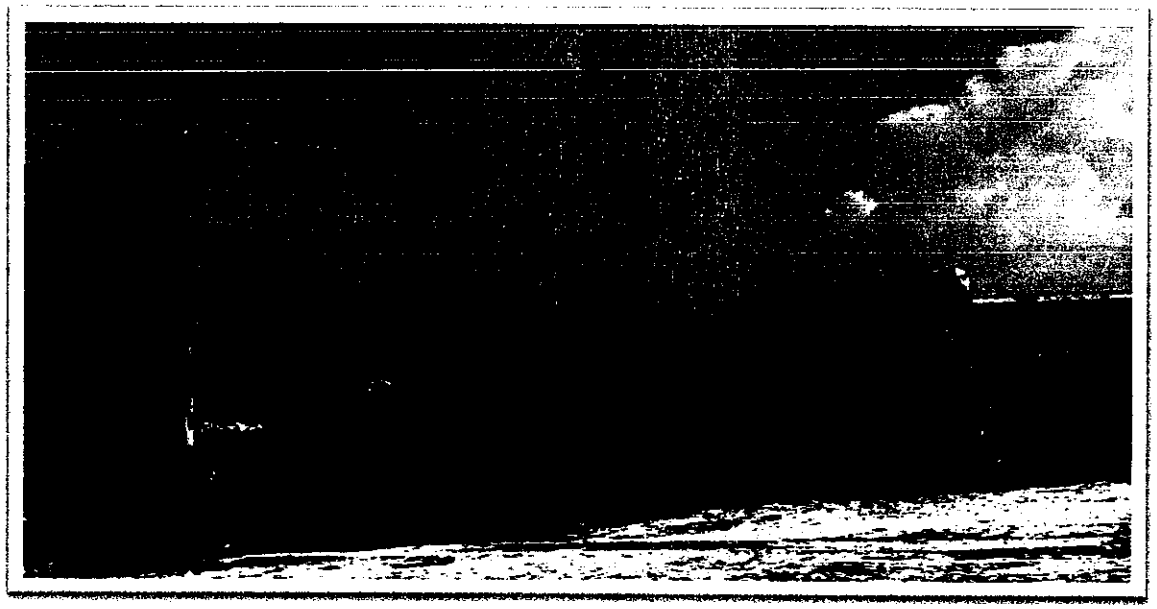
- EPC Power Plant,
- Boiler Renovation and Modernization,
- Boiler Refectory Repair and Installation,
- Industrial Process Piping,
- Electrical, Instrumentation & Control,

Boiler Spares,

- Bubble Fluidized (Upper/Under),
- Semi Fluidized Grate,
- Dumping Grate,
- Traveling Grate,
- Condenser,
- Heat Exchanger,
- Steam Distributor Header,
- ID Fan FD Fan

- S.FD Fan
- PA Fan
- Rotary Valve
- Pneumatic Spreader
- Retractable Soot Blowers
- Stationary Soot Blowers
- Ash Chain Carrier
- Oil Storage Tanks
- Water Storage Tanks

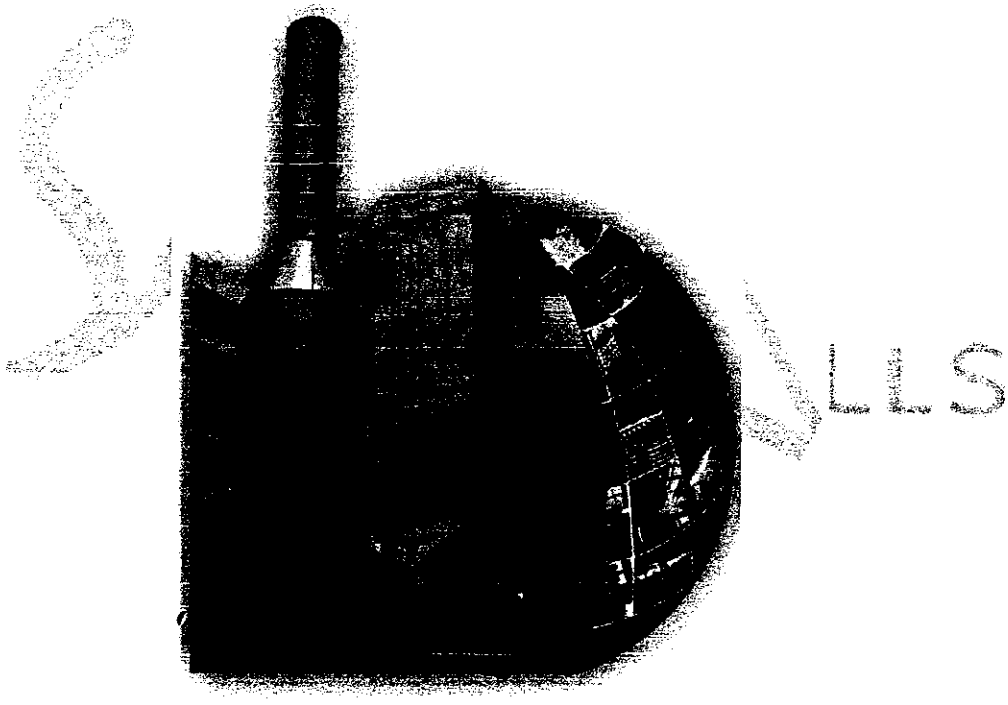
WORKSHOP FRONT VIEW



Technical / Commercial Proposal

For

Combined Heat and Power Solution



Your's Energy Partner

THE INDUSTRIAL ENTERPRISES

574-G Johar Town Lahore
Pakistan 042-35302574
http://tiecompanies.com

TIE/ST/786/01
22/07/2024

M/S. SMT Power (Private) Limited
Karachi

Subject: Complete Heat (15 Tph) and Power (3.5 MWH) Solution

(Steam Turbine 4 MWH, Boiler 30 TPH, 65 Bar)

Dear Sir,

With reference to your requirement of subjected COMPLETE HEAT (15 TPH) AND POWER (3.5 MWH) SOLUTION.

Please find below our Technical and commercial proposal.

We hope our offer shall be in line with your requirement. Should you require any more information, please feel free to contact us.

For
THE INDUSTRIAL ENTERPRISES

MUHAMMAD IMRAN
CEO

PROJECT SPECIFICATIONS

While designing the system, we have assumed the following data

Power Require	3.5 MWH
Steam Require	15 TPH

Power House Capacity	*4 MWH*
Boiler Capacity	30 TPH
Boiler Design Pressure	68 Kg/cm^2 (g) Pressure.
Boiler Type	Fludized Bed
Fuel	Wood, Saw Dust, Rice Husk, Corn Cobs, Sesam Husk, Coal
Turbine Capacity	4 MWH
Type	Extraction Condensing

DRAWINGS &DOCUMENTS:

We shall provide tentative drawings showing the general layout and the foundation plans. This will only be used as guidance by our clients as the site location will vary from place to place.

A complete set of Drawings and Documents duly certified will be given within 4 to 6 weeks after finalization of order.

For the purpose of clarity and simplification our quotation is grouped separately as follows.

BOILER

BOILER DATA	
Boiler Design Data	Annexure - I
Technical Specification of Boiler	Annexure –II
Boiler Scope of Supply Mechanical	Annexure - III
Boiler Scope of Supply Instruments	Annexure - IV
Boiler Scope of Supply Electrical	Annexure - V
STEAM TURBINE, STEAM PIPE LINE	Annexure – VI
COOLING TOWER AND PUMPS, PIPES	Annexure – VII
FUEL FEEDING & ASH HANDLING SYSTEM	Annexure – VIII
WATER SYSTEM	Annexure – IX
ELECTRICAL SYSTEM	Annexure – X
CLIENT SCOPE	Annexure –XI
VENDER LIST	Annexure - XII

COMMERCIAL DATA

Commercial Offer	Annexure- XIII
General Terms & Conditions.	Annexure - XIIII

Annexure-I
Boiler Design Data

TECHNICAL SPECIFICATIONS AND SCOPE OF SUPPLY OF 30 TPH, 68 Kg/cm2

THE TYPE OF BOILER SELECTED IS:-

Type of Boiler	Single Drum, Membrane wall type Natural Circulation
Combustion system	Fluidized Bed
N.C.R. (Normal Continuous Rating):	30 TPH.
Pressure at outlet of MSSV:	68 Kg/cm2 (g)
Fuel:	**Biomass and Coal**
Type of installation:	Out door
Type of Furnace construction:	Membrane type
Draft system	Balanced draft
Support	Bottom supported on RCC construction
Steam Temperature at outlet of MSSV:	480± *10*°C *at MCR*
Feed water temp. at De-aerator inlet/ outlet :	80°C / 105°C
Feed water temperature at outlet of Economizer:	225°C
Flue gas temperature after Air Heater:	Less Than 160°C
Design Ambient Temperature for Performance Test:	45Deg C
Design Code:	ASME

Boiler would be Membrane wall type and Fludized Bed with Secondary Air Cyclone Effects furnace combustion as per ASME standards.

TIE offers following special features which will improve the overall performance of the boiler, as well as increase the overall life of the respective equipment.

All equipment such as ID, FD and PA fans will be according to Venty design, which would ensure trouble free working of the boiler.

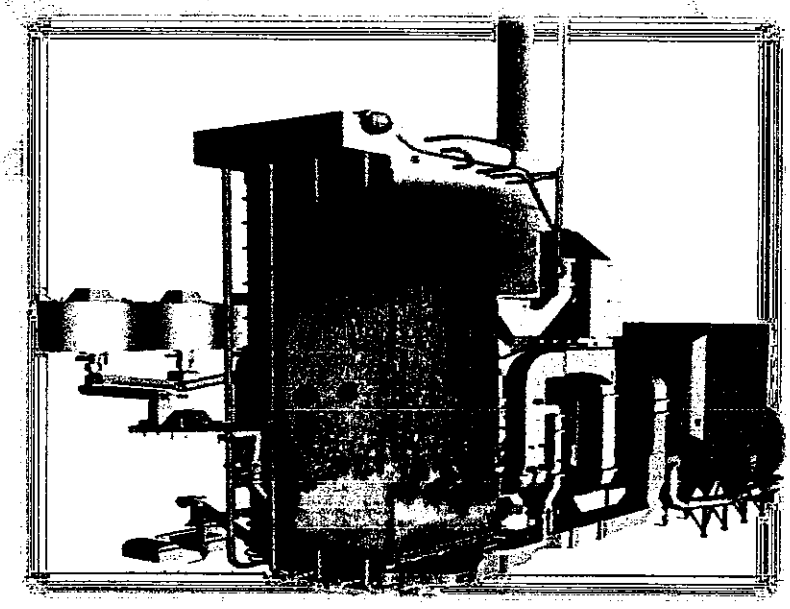
Bed would be completely shop assembled before dispatch which would ensure smooth working at site with benefits of Fuel flexibility, High efficiency.

Proven and sturdy rotary fuel feeders to ensure continuous feeding of fuel into the furnace.

Special design drum internals to ensure high steam purity.

Sturdy boiler structure design

All ducting shall be above ground level.



Annexure-II
Technical Specifications of Boiler

GRATE AREA

Grate Area (Approx.)	No. of Fuel feeders
Affective Bed Area 17 M^2	3 Nos.

BOILER DRUM

Material	SA- 516-Gr 70

BOILER TUBES

Particulars	Furnace	Boiler Bank	Super-heater	Economizer
Tube OD (mm)	61.1	49.1	38	38.1
Thickness (mm)	5.1	5.1	4	3.8
Material Quality	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA 213 T-11 or BS-3059 Part II Gr.762 Alloy Steel T-91 Seamless	SA-210 A1 or BS-3059 / Gr.440 Part II HFS

HEATING SURFACE APPROX. (M^2)

Furnace and Boiler Bank	Super-heater	Economizer	Air-heater/ Steam Heater
810	150	400	850

Note: Heating surface area can vary according to final design.

DRAFT EQUIPMENTS

Particulars	Capacity M^3/Sec.	Head mm wg	Fan RPM	Temp. °C	Drive	Qty. Nos.
ID Fan	32	350	1450	360	Direct	1
FD Fan	18	650	1450	40	Direct	1
SA Fan	04	800	2980	160	Direct	1

Note: All fans are excess 35% of the design.

SOOT BLOWERS

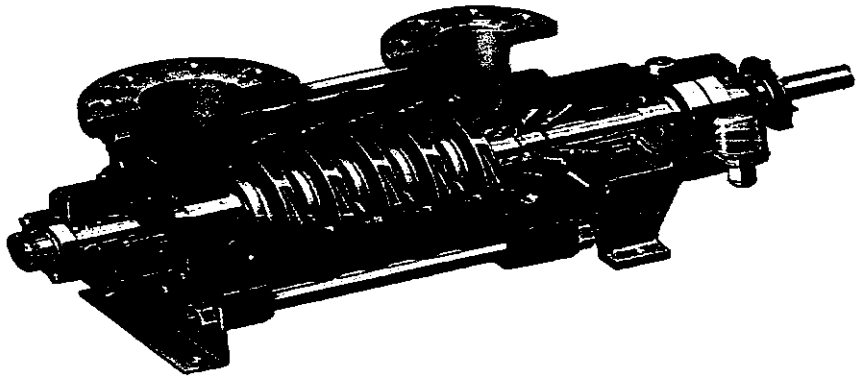
Make / Type	Bank	Super-heater	Economizer	Air Heater
TIE	1 Nos.	01 Nos.	1Nos.	01No.
Type	Retractable	Retractable	Stationary	Stationary

FEED WATER PUMPS

Type	Capacity (M^3/hr.)	Head Mtrs.	R.P.M.	Temp. °C	Qty. Nos.
Multistage Centrifugal Motor Driven	40	855	2950	125	2 (1 W+1 S)

H.P CHEMICAL DOSING SYSTEM

Type	:	**H.P.**
No. of Pumps	:	1 No.
No. of dosing tank	:	1 No.



Annexure-III

Boiler Scope of Supply (Mechanical)

BOILER DRUM, HEADERS and TUBES:

Boiler pressure parts shall be constructed in accordance with the ASME specifications with flanged ends or welded ends to promote cleaning and inspection.

BLOW DOWN ARRANGEMENT: (IBD Tank)

Continuous blow down equipment as per ASME complete with all piping up to Blow down tank shall be provided.

ECONOMIZER:

An economizer of suitable heating surface shall be provided for the boiler. The economizer shall be complete with Carbon steel quality economizer coils, supports, thermo wells for measuring inlet and outlet water temperature, casing and ducting, soot blower, lagging etc. The economizer shall be designed in accordance with the requirement of ASME.

COMPLETE STRUCTURE:

AIR PRE-HEATER AND TUBES:

Air heater of suitable heating surface to heat the air by flue gases required for combustion for the boiler. The air-heater shall be complete in all respects with Carbon Steel ERW tubes, tube plates, supports, dampers, casing and ducting etc.

FLY ASH ARRESTOR (MULTISWIRLER DUST COLLECTOR):

A suitable dust collector of multi-swirler type having vertical fins of hard cast iron shall be provided to reduce the contents in the flue gases leaving Chimney. The dust collector shall be located on the suction side of the ID Fan.

DUCTINGS AND DAMPERS:

Necessary mild steel ducting of 3 mm thick in case of air duct and 3 mm thick in case of gas duct with stiffeners shall be provided for boiler comprising of cold air ducting extending between the forced draft fan discharge and air inlet of air heater, hot air ducting from the air heater outlet to the furnace, flue gas ducting connecting the boiler with its accessories up to inlet of Chimney.

Necessary regulating and isolating dampers at suitable points shall be provided for the efficient operations and maintenance of the boiler.

Suitable galleries and ladders with grating or open steel flooring for affording access to the essential levels of the boiler plant complete with hand railings curb angles and supports shall be provided.

REFRACTORY AND INSULATION:

All supporting steel work, hangers thrust brackets and castings for the furnace shall be provided for the boiler. All refractory material including standard and high grade refractory tiles and bricks, adequate quantity of high grade refractory cement, cast able refractory bricks for furnace and high temperature zones shall be as per ASME. Insulating materials for the exposed portion of the boiler, steam and mud drum, integral pipe work from the feed pumps to the boiler, steam pipe, gas and air ducting shall also be supplied. All insulated surfaces of ducting and piping shall be lagged with suitable G.I sheeting

DEARATOR TANK
PUMPS

SOOT BLOWER
BED

FANS

FEEDERS, SPREADERS

WET SCRUBBER + CHIMNEY (For Clean Environment)
VALVES AND MOUNTINGS

1. Main Stop valve + Non Return Valve
2. Safety valves (01 Nos for SH, and 2 Nos for Drum)
3. Feed water line valves
4. De-aerator tank valves
5. Blow-down valves
6. Soot-Blower controlling valves (All types of valves etc.)

CASING We shell use M.S sheets for casing according to design.

Annexure-IV
Boiler Scope of Supply

CONTROL SYSTEM

PLC

Ethernet Cable

Analog Inputs 16 Channel card

Analog Outputs 16 Channel card

Digital Inputs 32 Channel card

Digital Outputs 32 Channel card

RTD Inputs 12 Channel card

Thermocouple inputs08 Channel card

OPERATOR WORKSTATION

CPU with LCD

FIELD INSTRUMENT EQUIPMENT

Furnace Draught Pressure Transmitter

Steam drum level transmitter Qty 2

Main steam pressure transmitter

De-aerator level transmitter

De-aerator pressure transmitter

Feed water pressure transmitter

Feed water flow transmitter

Steam flow transmitter

Orifice Plates for Feed Water Flow and Steam Flow

AUTO CONTROL VALVE

Feed Water Control valve	Qty 1
De-aerator pressure control valve	Qty 1
De-aerator temperature control valve	Qty 1
Steam Temp Control	Qty 1

TEMPERATURE INDICATIONS

Feed water temperature

Type PT 100

Main Steam Temperature

Type PT 100

Furnace Temperature

Type PT 100

After Economizer Temperature

Type PT 100

After Air Heater Temperature

Type PT 100

Stack Gas Temperature

Type Pt 100

ANALYZER METER

TDS Meter

PH Meter

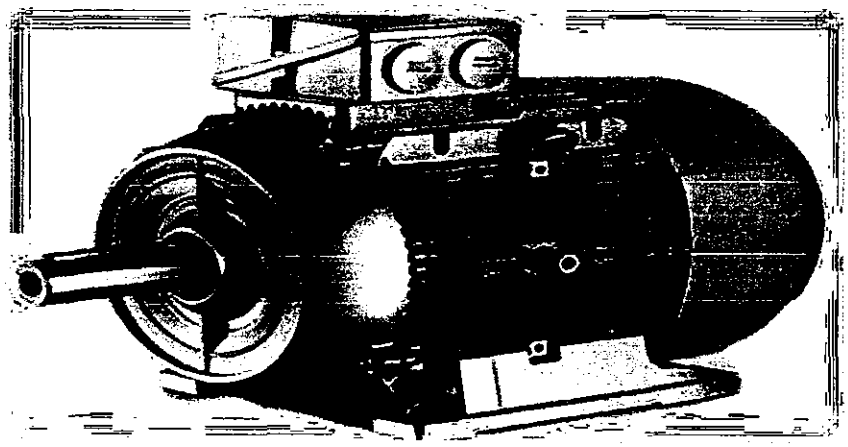
Annexure-V
Boiler Scope of Supply (Electrical)

INDUCTION MOTORS/GEAR MOTORS

Electric Motor for ID Fan	Qty. 1
Rating:	160 kW
RPM:	990
Voltage:	410 - 415 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Efficiency	E - 2
Electric Motor for FD Fan	Qty.1
Rating:	220 kW
RPM:	1480 RPM
Voltage:	410 - 415 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Efficiency	E - 2
Electric Motor PA Fan	35 KW with 2890 RPM
Feed Water Pump Motors	Qty.2
Rating:	According to Pump manufacturer
Voltage	410 - 415VAC
Ambient Temperature	45C
RPM:	2950

Feeder Gear Motors	Qty.3
Rating:	7.5 kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F

Rotary Valve Gear Motors	Qty.4
Rating:	1.5kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F



VARIABLE SPEED DRIVES

Variable Speed Drives for ID Fan	Qty.1
Rating:	160 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA
Digital In/Out:	Available

Variable Speed Drives for FD Fan	Qty.1
Rating:	220 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA
Digital In/Out:	Available

Variable Speed Drives for Feeders

Rating:	5.5 kW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA

ELECTRIC PANELS

All Panel Components Will Be Make of European and Japanese Standards

System cabinet

With Fan, Louvers, light and door switch

Size: 800X600X2200

Fused terminal blocks

Incoming of MCCS (Motor Control Centers)

With On/Off Indicators

Voltmeter with selector switch

Ammeter with selector switch

Main copper buss bar

Main ACB

Soot blower retractable motors

ERECTION MATERIALS

Complete Electrical Material

Cable Trays

Conduit pipe and their accessories

Cable Glands

Thimbles

G.I Piping and their accessories **Signal**

Cables (Consider 100 Ft) Power

Cables (Consider 100 Ft)

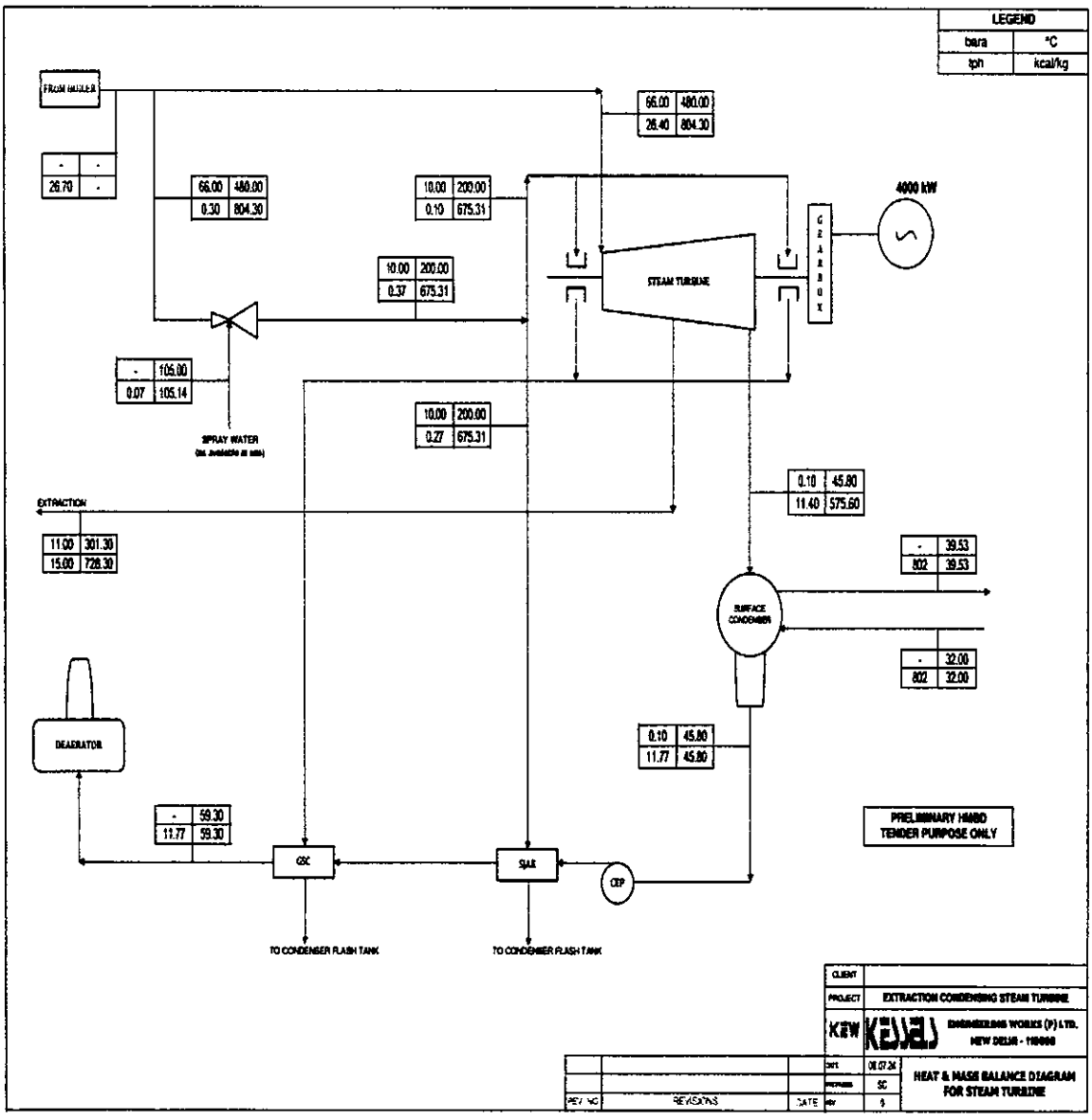
Annexure-VI
STEAM TURBINE

POWER 4 MWH

TYPE OF TURBINE **EXTRACTION CONDENSING**

EXTRACTION QTY **0 to 15 TPH**

EXTRACTION PRESSURE **10 BAR**



RICE HUSK (3000 Kcl/kg)

Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Rice Husk

New Turbine Steam Consumption with Extraction (64 Bar, 480C) 6.5 Ton/MW

Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Rice Husk Price AVG	Rs.14000/Ton
KWH Cost fuel Based	Rs.29/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.31.5/KWH (15 TPH Steam Free)

CORN COBS (3200 Kcl/kg)

Steam Generation (65 Bar,490C) 3.6 TPH / Ton of Corn Cobs

New Turbine Steam Consumption (64 Bar, 490C) 6.5 Ton/MW

Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Corn Cobs Price AVG	Rs.15000/Ton
KWH Cost fuel Based	Rs.30/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.32.5/KWH (15TPH Steam Free)

SESAME HUSK (3300 Kcl/kg)

Steam Generation (65 Bar,490C) 3.3 TPH / Ton of Sesam Husk

New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW

Power Generation	**4000 KWH**
Auxiliary	**400 KWH**
Available Power	**3600 KWH**
Sesame Husk Price AVG	**Rs.12000/Ton**
KWH Cost fuel Based	**Rs.26.20/KWH**
O&M	**Rs.2.5/KWH**
KWH Cost without Financing	**Rs.28.7/KWH (15 TPH Steam Free)**

LAKHRA COAL (4000 Kcl/kg)

Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Lakhra Coal (Low steam generation due to High Sulfur and high Ash).

New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW

Power Generation	**4000 KWH**
Auxiliary	**400 KWH**
Available Power	**3600 KWH**
Sesame Husk Price AVG	**Rs.16000/Ton**
KWH Cost fuel Based	**Rs.33/KWH**
O&M	**Rs.2.5/KWH**
KWH Cost without Financing	**Rs.35.5/KWH**

Annexure-VII

COOLING TOWER, PUMPS & PIPES

COOLING TOWER	1 Set
Cooling Water Flow	2000 Cubic Meter Hour
Inlet Water Temperature	42 C
Out Let Water Temperature	32 C
Pressure	3.5 Bar
PUMPS	2 Nos
Capacity	2200 Cubic Meter Hour
Pressure	3.8 Bar

PIPES

Dia	400 mm

Annexure-VIII
FUEL FEEDING, ASH HANDLING

FUEL FEEDING SYSTEM

Shredder (Fuel size inlet 6 inches X 72 inches)	01 No.
Grader (6mm x 6 mm) for Bed)	
Shredder to Grader Conveyor and reverse	01 Set
Main Feeding Conveyor	01 No.
Feeding Bin (1 hour Storage of Coal)	01 No.

ASH HANDLING SYSTEM

Screw Conveyors	04 No.
Main Screw Conveyor	01 No.
Ash Bin (3 Hour Storage Capacity)	01 No.

Annexure-IX
WATER SYSTEM

WATER SYSTEM

Raw Water Storage Tank (50 Ton)	01 No.
R.O / Demin Plant (20 TPH)	01 No.
(Depending upon the Condensate)	
Soft Water Stora	
ge Tank (100 Ton)	01 No.

Annexure-X
ELECTRICAL SYSTEM

HT Cables	**Turbine Main Penal to Transformer**
Transformer	**11 Kv to 400 v**
Lt Cables	**Transformer to Boiler Penal**

Synchronizing System

(All Boiler Cables and Penal included in Boiler Scope)

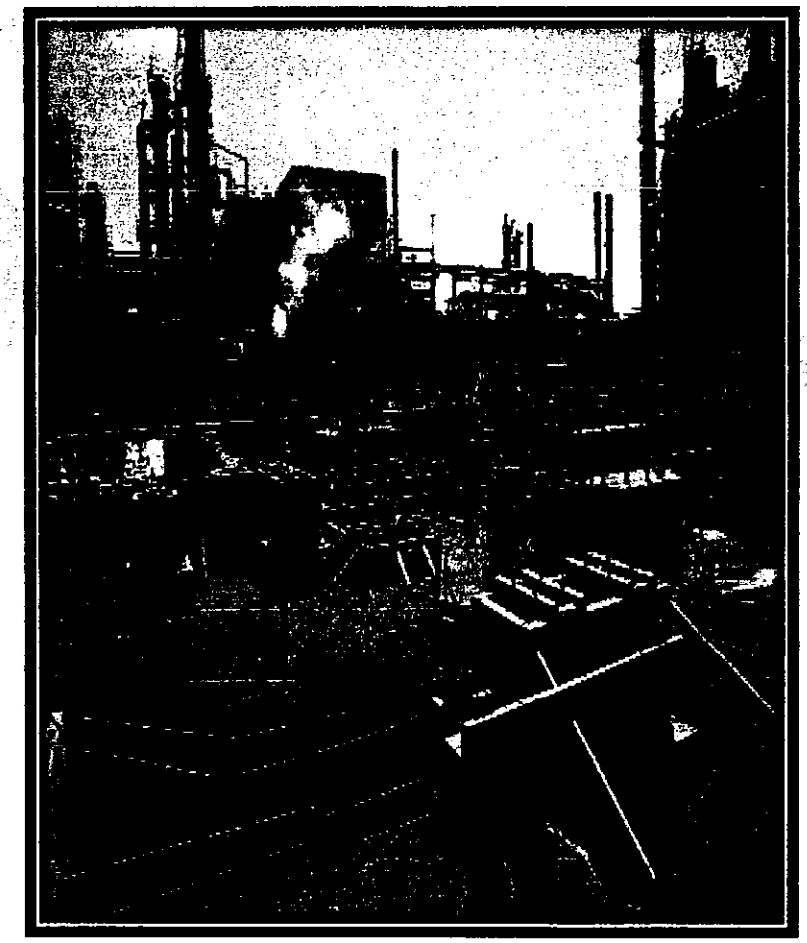
(All Turbine Cables and Penal would also be in Turbine Scope) (All Cooling Tower Cables and Panel would also be in Cooling Tower Scope)

(All Fuel Feeding and Ash Handling System Penal would also be in their Scope)

(All Water System cables and penal would also be in water system scope)

Annexure-XI
Client Scope

Civil foundation and building shall be completed by the owner at his own cost according to designs and drawings provided by TIE.



Annexure-XII
Vender List

Motors	China
VFDs	INVENT
Control System (PLC)	SEMEINS
Instruments	Yokogawa
MCCB	Terasaki Japan / ABB
Control valve	OMB / Equivalent
Mechanical and safety Valves	Zhongya valves China/ OMB China
Pumps	China
Boiler Tubes	Wuxi Huayou Special Steel co., Ltd
Super Heater	Wuxi Huayou Special Steel co., Ltd
Header	Wuxi Huayou Special Steel co., Ltd
Fans	TIE
Soot Blowers	TIE
Rotary valve	TIE
Panels	Local Manufactured
Cables	Fast / New Age Equivalent Cables

ARBITRATION

Any dispute between the Parties as to matters arising pursuant to this Contract which would not be settled within thirty (30) days the dispute shall be referred to the three member arbitration panel to be agreed between the Parties. Each party will select one arbitrator and both the arbitrators will select the third· arbitrator with their mutual consent, If parties fail to appoint arbitrators under this clause the matter of appointment of arbitrator shall be referred to the Court under the Arbitration Act of 1940. The award given by arbitrators shall be final and binding upon the Parties to this Agreement.

FORCE MAJEURE

The term "Force Majeure as employed herein shall mean the acts of God, strikes, lock-out or other industrial disturbances, acts of public enemy, wars, blockades, insurrection, riots, epidemics, landslides, earthquakes, storms, lightning, floods, washouts, civil disturbances, explosions and any other similar events, not within the control of either Party and which by the exercise of due diligence neither Party is able to overcome.

MUHAMMAD IMRAN

CEO

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www.tiecompanies.com or contact us on **+92 303777771** or

works@tie.com.pk

- Routine maintenance services.
- Steam Generation Monitory.
- Electricity Generation.
- Pressure & Temperature parameters.
- Implement and regulate the facility's preventive and corrective maintenance program.
- Critical *I* non-critical reactive repairs.
- Plant security covering entire fenced area.
- General shift operations for coordinating plant operation, maintenance & liaison with SM Traders
- Maintain critical spares for plant & equipment.

Planning and Development:

The project aims to transition to a green energy solution by replacing conventional natural gas systems with a biomass energy system. This strategic initiative will help in saving natural gas, reducing operational costs, and ensuring energy security by overcoming the challenges of gas shortages, which often lead to downtime in production.

Our aim is not only to ensure energy independence but also to protect the environment. By switching to a biomass energy system, we will significantly reduce stack gas emissions and mitigate the harmful environmental impact caused by burning fossil fuels. This project will help lower our carbon footprint and contribute to cleaner air and a healthier environment.

The existing gas-fired boilers will be replaced with a biomass boiler, utilizing renewable biomass fuel for steam generation. This will allow us to:

1. Eliminate dependence on natural gas supply.

2. Ensure uninterrupted production, overcoming delays caused by gas shortages.

3. Improve steam quality with superheated steam for turbine operations and production processes.

The superheated steam generated will efficiently drive the steam turbine, replacing gas generators to produce electricity, and will also be used to meet our production heat requirements. This dual utilization of steam will enhance overall energy efficiency and reliability.

After passing through the turbine, the steam will be condensed using a condenser system, and the condensed water will be returned to the biomass boiler in a closed-loop operation. This setup will optimize water usage and reduce resource wastage.

Supply and Distribution Planning

The electricity is generated through the steam turbine. This power will then be supplied through step-down transformer to SM Traders to meet their energy

requirements efficiently. This structured supply plan ensures stable and reliable power distribution, aligning with grid code requirements while supporting industrial operations without interruption.

Key Benefits of the Project:

Reduction in gas dependency and prevention of production losses due to shortages.
Improved steam quality through superheated steam for turbines and production processes.
Significant reduction in stack gas emissions, promoting environmental sustainability.
Stable and reliable power supply at 440V to SM Traders through a robust distribution system.
Enhanced operational efficiency and cost savings with renewable biomass fuel.
By implementing this green energy project, we are committed to ensuring reliable production, reducing operational downtime, delivering uninterrupted power to our partners, and contributing to a cleaner, greener future.

Monitoring and Facilities.

Monitoring of the 4 MWp Biomass Steam Turbine system operations will be conducted Engineering Head of SMP with Engineers and 1st Class attendants as well remotely through an advanced SCADA system. Critical parameters such as steam pressure, temperature, flow rate, turbine efficiency, and power generation output will be continuously monitored by the technical skilled staff on 24/7 ensure optimal performance.

The system will include real-time monitoring of the biomass boiler operation, combustion efficiency, steam quality, and condenser performance. Weather monitoring stations will also track ambient temperature, humidity, and wind conditions to assess external factors influencing system efficiency.

Electrical parameters, including transformer input/output, grid synchronization, and power export to SM Traders, will be monitored through the PLC-based SCADA system. The generated power at 11kV AC will be stepped down to 440V through transformers before supply to SM Traders. Alarms and notifications will be configured for critical conditions to ensure quick fault detection and rectification.

To ensure security and smooth operations, perimeter surveillance with CCTV systems and alert mechanisms will be implemented. The system will maintain historical data logs for performance analysis, maintenance planning, and compliance reporting. This integrated monitoring approach will help achieve uninterrupted energy supply, optimized turbine efficiency, and reliable operation for SM Traders.

SMT POWER (PVT) LTD
BIOMASS TURBINE FINANCIAL STATEMENTS (YEAR ENDING DEC 31)
PROJECTED BALANCE SHEET

	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Rupees in millions'								
ASSETS									
Non Current Assets									
Land & Property	388	388	338	388	388	388	388	388	388
Plant and equipment	-	796	743	690	637	584	531	478	425
	388	**1,184**	**1,131**	**1,078**	**1,025**	**972**	**919**	**866**	**813**
Pre operating / Preliminary exper	41	171	160	148	137	125	114	103	91
	429	**1,355**	**1,291**	**1,226**	**1,162**	**1,097**	**1,033**	**968**	**904**
Current Assets									
Investment	-	15	33	191	317	456	611	781	1,032
Trade Debts	-	-	91	95	100	105	110	116	122
Other Receivables	11	164	-	-	-	-	-	-	-
Cash & Bank balances	100	26	202	208	278	368	479	690	1,048
	111	**206**	**325**	**495**	**695**	**929**	**1,200**	**1,587**	**2,202**
	540	**1,561**	**1,616**	**1,721**	**1,857**	**2,027**	**2,233**	**2,555**	**3,106**
EQUITY AND LIABILITIES									
Share Capital & Reserve									
Authorized capital	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**
Issues, subscribed and paid up	50	50	50	50	50	50	50	50	50
Director Loan - Subordinated	189	384	384	384	384	384	384	384	384
Reserves	-	-	210	464	770	1,133	1,559	2,050	2,601
	239	**434**	**644**	**898**	**1,204**	**1,567**	**1,993**	**2,484**	**3,035**
Non Current Liabilities									
Long Term Financing	**280**	**930**	**887**	**740**	**572**	**382**	**165**	-	-
Current Liabilities									
Accrued markup	10	33	32	27	22	16	10	3	-
Creditors	-	-	53	56	59	62	65	68	71
Payable to Directors	11	164	-	-	-	-	-	-	-
	21	**197**	**85**	**83**	**81**	**78**	**75**	**71**	**71**
	540	**1,561**	**1,616**	**1,721**	**1,857**	**2,027**	**2,233**	**2,556**	**3,107**

Plant & Machinery cost include Turbine cost Rs. 240 millions, Boiler cost Rs 240 millions Fitting & construction 300 millions and duty & taxes of Rs. 16 million

Pre operating expenses include financial charges paid on outstanding finance availed before operation of the Biomass Turbine.

Chief Executive Officer

Director

SMT POWER (PVT) LTD

BIOMASS TURBINE FINANCIAL STATEMENTS (YEAR ENDING DEC 31)

PROJECTED PROFIT & LOSS ACCOUNT

Annual Year	2025	2026	2027	2028	2029	2030	2031	2032	2033
					Rupees in millions'				
Turnover	-	-	1,090	1,145	1,202	1,262	1,325	1,391	1,461
Other Income - net of withholding tax	-	-	3	17	28	41	55	70	93
	-	**-**	**1,093**	**1,162**	**1,230**	**1,303**	**1,380**	**1,461**	**1,554**
Less: Cost of Sales									
Fuel Cost	-	-	640	672	706	741	778	817	858
Repair & maintenance			18	19	20	21	22	23	24
Depreciation	-	-	53	53	53	53	53	53	53
Gross Profit	**-**	**-**	**382**	**418**	**451**	**488**	**527**	**568**	**619**
Less:									
Administrative, Selling & other expense	-	-	46	55	57	60	61	64	68
Financial charges	-	-	125	108	88	65	39	14	-
Profit before tax	**-**	**-**	**210**	**254**	**306**	**363**	**426**	**491**	**551**

Note:

Turbine projection based on existing SSGC billing with 5% p.a inflation factor.

Biomass fuel is available at Rs. 10 per kg but on prudent and safeside projection has been made @ Rs. 14.5 per kg (i.e cushion of 45% approx) to manage price fluctuation

Depreciation based on 15 year life. (striaght line basis)

Other income include profit on investment net of taxes.

Chief Executive Officer

Director

SMT POWER (PVT) LTD
BIOMASS TURBINE FINANCIAL STATEMENTS (YEAR ENDING DEC 31)
PROJECTED CASH FLOW STATEMENT

	2025	2026	2027	2028	2029	2030	2031	2032	2033
					Rupees in millions'				
CASH FLOW FROM OPERTAING ACTIVITIES									
Profit before tax	-	-	**210**	**254**	**306**	**363**	**426**	**491**	**551**
Adjustment for non cash items									
Depreciation	-	-	53	53	53	53	53	53	53
Amortization of Pre operating /	-	-	11	11	11	11	11	11	11
Finance cost	-	-	125	108	88	65	39	14	-
	-	-	**399**	**427**	**458**	**492**	**529**	**569**	**616**
(Increase)/decrease in current assets									
Trade debts & other receivables	(11)	(153)	74	(5)	(5)	(5)	(5)	(6)	(6)
	(11)	**(153)**	**473**	**422**	**454**	**487**	**524**	**564**	**610**
increase/(decrease) in current liabilities									
Creditors & accrued markup	10	23	53	(2)	(2)	(3)	(3)	(3)	(0)
Payable to Directors	11	153	(164)	-	-	-	-	-	-
	10	**23**	**361**	**420**	**451**	**485**	**521**	**560**	**610**
Taxes paid	-	-	-	-	-	-	-	-	-
Finance cost paid	-	-	(125)	(108)	(88)	(65)	(39)	(14)	-
Cash generated from operati	10	23	236	312	363	419	481	547	610
CASH FLOW FROM INVESTING ACTIVITIES									
Capital expenditure	(388)	(796)	-	-	-	-	-	-	-
Investment	-	(15)	(18)	(158)	(126)	(139)	(155)	(171)	(251)
Pre operating / Preliminary expe	(41)	(130)	-	-	-	-	-	-	-
	(429)	(941)	(18)	(158)	(126)	(139)	(155)	(171)	(251)
CASH FLOW FROM FINANCING ACTIVITIES									
Long term financing acquired	280	650	-	-	-	-	-	-	-
Long term financing repaid	-	-	(42)	(148)	(168)	(191)	(216)	(165)	-
Director loans-subordinated	189	195	-	-	-	-	-	-	-
Capital subscribed	50	-	-	-	-	-	-	-	-
	519	845	(42)	(148)	(168)	(191)	(216)	(165)	-
Net increase in cash and cash equivalents	100	(73)	176	6	70	90	111	211	359
Cash and cash equivalents at the beginning of the year	-	100	26	202	208	278	368	479	690
Cash and cash equivalents at the end of the year	**100**	**26**	**202**	**208**	**278**	**368**	**479**	**690**	**1,048**

Chief Executive Officer

Director

Feasibility Report

3(f)* **Annexure-L**

SMT Power (Private) Limited is planning to Install Bio Mass Turbine to reduce Gas consumption & produce Renewable Energy. The benefit of this project is to reduce carbon foot print & produce green energy. The initiative to install the project is to save natural gas for our future generation.

Feasibility For The Project attached

Biomass Turbine				
Based on Turbine (04 MW) & Boiler (30 tons 65 bar)				
	$	Rupees		
TURBINE COST (4 MW)	800,000	240,000,000	240,000,000	PKR
TURBINE BOILER COST (30 Tons & 65 Tons)	800,000	240,000,000	240,000,000	PKR
FITTINGS	500,000	150,000,000	150,000,000	PKR
CONSTRUCTION	500,000	150,000,000	150,000,000	PKR
TOTAL INVESTMENT REQUIRED				
EXCISE & DUTY		15,852,354	15,852,354	
Total Plant cost		795,852,354	795,852,354	
Land Cost		388,300,000	388,300,000	
Total Project Cost		1,184,152,354	1,184,152,354	

EXISTING POWER COST THROUGH OUR GENERATORS

Annual meters (on the basis of 1.8 millions per month)		21,600,000	21,600,000	meters
Gas consumption @ rate 3,128 per MMBTU	A	737,568,745	737,568,745	PKR
Yearly requirement to make 2,822 kwh power (YEARLY POWER => 24,382,080 KWH)	24,382,080	30.25	30.25	

EXISTING STEAM COST THROUGH OUR GAS BOILER

Annual meters		21,600,000	21,600,000	meters
Gas consumption @ rate 2,318 per MMBTU		293,135,885	293,135,885	PKR
STEAM COST	B	293,135,885	293,135,885	PKR
Salaries and other cost		10,000,000	10,000,000	PKR
TOTAL COST - EXISTING	C=A+B	1,040,704,630	1,040,704,630	PKR
		988,669,399	988,669,399	

POWER & STEAM COST THROUGH BIOMASS TURBINE GENERATED UNITS		BIOMASS	COAL	
Fuel consumption for one ton of steam				
FUEL in kg required to make one Kwh power		1.65	1.35	KG / KWH
Hourly requirement to make 2,822 kwh power (2,032,200 KW PER MONTH ON THE BASIS OF 1,129 KW PE		4,656	3,810	KG
Daily requirement to make 2,822 kwh power		111,751	91,439	KG
Yearly requirement to make 2,822 kwh power (YEARLY POWER => 24,382,080 KWH)	24,382,080	40,230,432	32,915,808	KG
Rate per kg				RS/KG
Year Consumption value		580,543,264	526,652,928	PKR
Salaries & other expense		31,200,000	31,200,000	PKR
Power & Misc expenses		6,000,000	6,000,000	PKR
Financial Expenses @ 14%		162,400,000	162,400,000	PKR
TOTAL COST TO PRODUCE ANNUAL POWER & STEAM BY USING TURBINE	D	780,143,264	726,252,928	PKR
Total KW per year		24,382,080	24,382,080	
Unit cost per KW		32.00	29.79	

Note : Land cost not included in total investment for calculation of payback period but financial charges are taken @ 14% on (Turbine investment of Rs. 780,000,000 + Land cost of Rs. 388,300,000) => (Total cost Rs. 1,168,300,000).


SM
GROUP
Since 1976

OUR

CORE VALUES

We upholds an unwavering commitment to integrity, fostering transparent relationships with clients and stakeholders, and consistently delivering denim products of the highest quality with honesty and reliability.

Ingrained in our fabric, driving us to pioneer cutting-edge technologies and creative solutions in denim manufacturing, ensuring we stay at the forefront of industry trends.

We aspire to redefine the denim industry by consistently pushing the boundaries of creativity, combining cutting-edge techniques with artisanal craftsmanship to deliver textiles that embody the epitome of innovation and style.

S.M.TRADERS, a leading textile manufacturer in Pakistan has consistently demonstrated growth, with a steady increase in volume and turnover over the years. For the financial year 2023-2024, our turnover exceeded PKR 12.5 billion, and we are poised to reach PKR 15 billion.

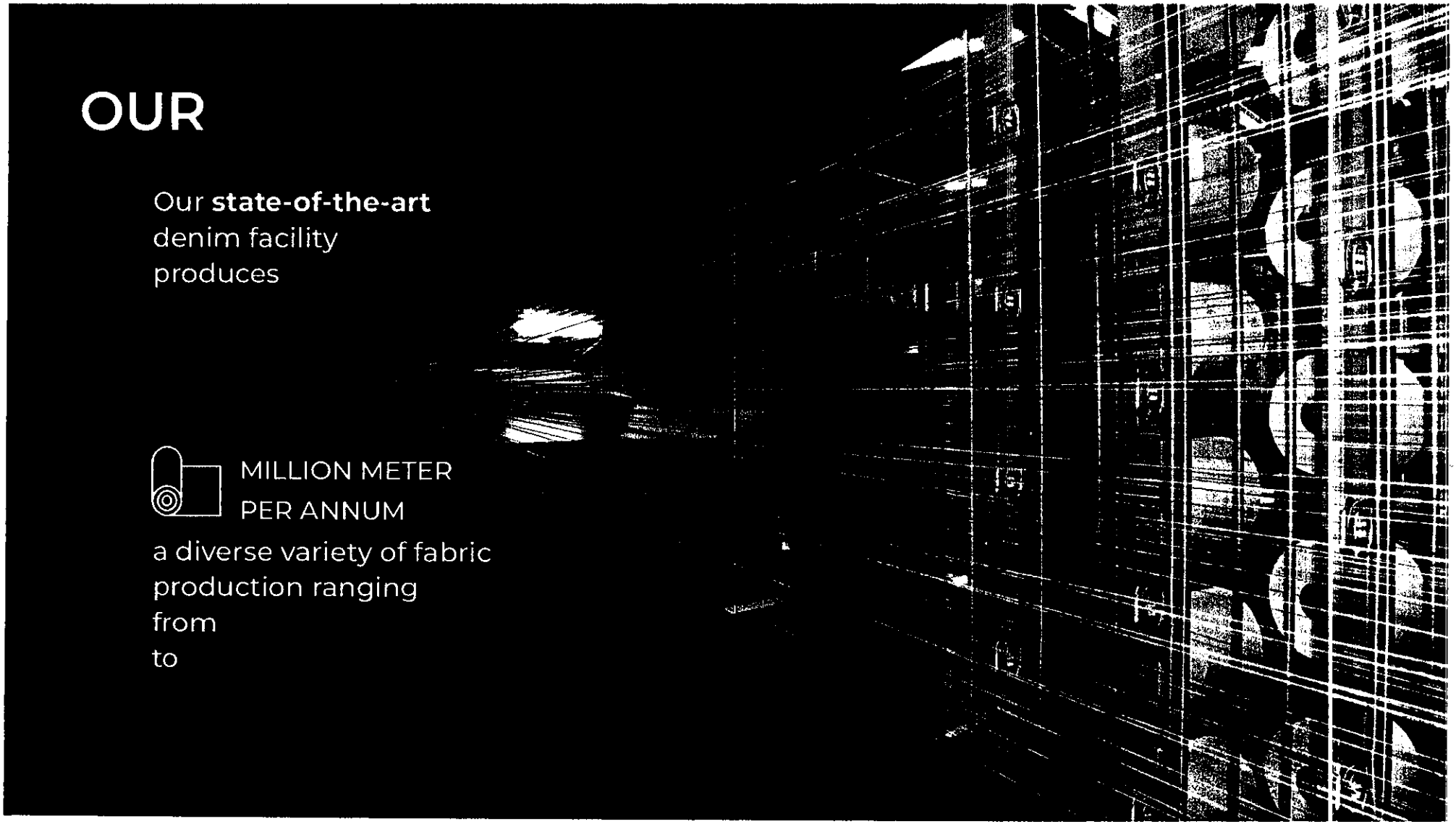
Our volume and turnover have been steadily increasing year over year. In 2023 and 2024, we successfully increased our turnover from PKR 9.7 billion per annum to over PKR 12.5 billion per annum.

OUR

Our **state-of-the-art**
denim facility
produces

MILLION METER
PER ANNUM

a diverse variety of fabric
production ranging
from
to



Given the present market conditions for exporters, the recent significant increase in gas prices, the absence of devaluation of the Pakistani Rupee, and other economic obstacles have created a challenging business environment. Therefore, it is essential for us to adapt and implement prudent business strategies.

In addition, our gas bill has increased significantly, from PKR 31 crore to PKR 111 crore. As a result, we must prioritize sustainability and utility bill reduction.

To achieve this, we propose implementing a green project involving the installation of a turbine and boiler that utilizes biomass.

[illegible] 1.16 Billion

Biomass Turbine and Boiler Details:

- Required Area for Biomass Turbine:* 25,000 to 30,000 square feet
- Power Generation:* 4 megawatts (MW)
- Connected Power:* 3.5 MW

Required Biomass Boiler: 30-ton, 65-bar boiler to operate the coil turbine.

Biomass Fuel Types:

- Wood chips
- Corn cobs
- Bagasse
- Rice husk
- Agricultural waste
- Sesame husk

We will extract 8-bar steam from the boiler for our process, with the remaining condensate collected from the condenser.

Particular	Rs. (M)	Debt Rs (M)	%	Equity Rs. (M)	%	Remarks
Land	380	285	75%	95	25%	Direct Payment to Buyer by 20th Dec
Boiler and Turbine	480	480	100%		0%	L/c Retirement by Bank
Erection and Contruction	300	165	55%	135	45%	Own and Bank Funding
Total Project Cost	**1160**	**930**	**80%**	**230**	**20%**	

Financing Tenor: 7 years with 2-year grace period with Prepayment Option
i.e. Premature payment permitted without penalty

- Total Financing Required: PKR 930 M (80% of total project cost)

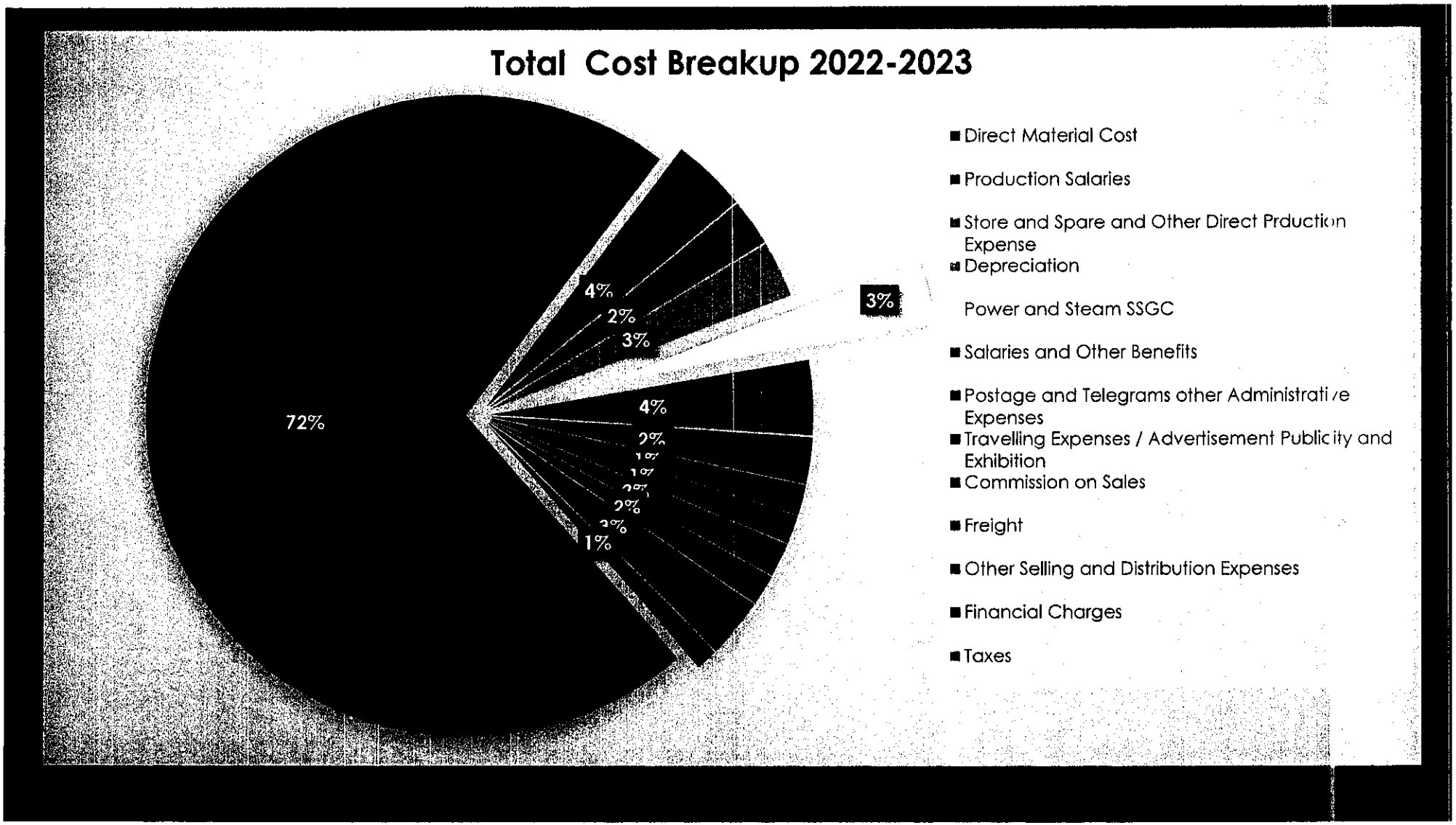
Power and Steam Sales: To S.M Traders at SSGC fuel supply rates

Land Acquisition: December 2024

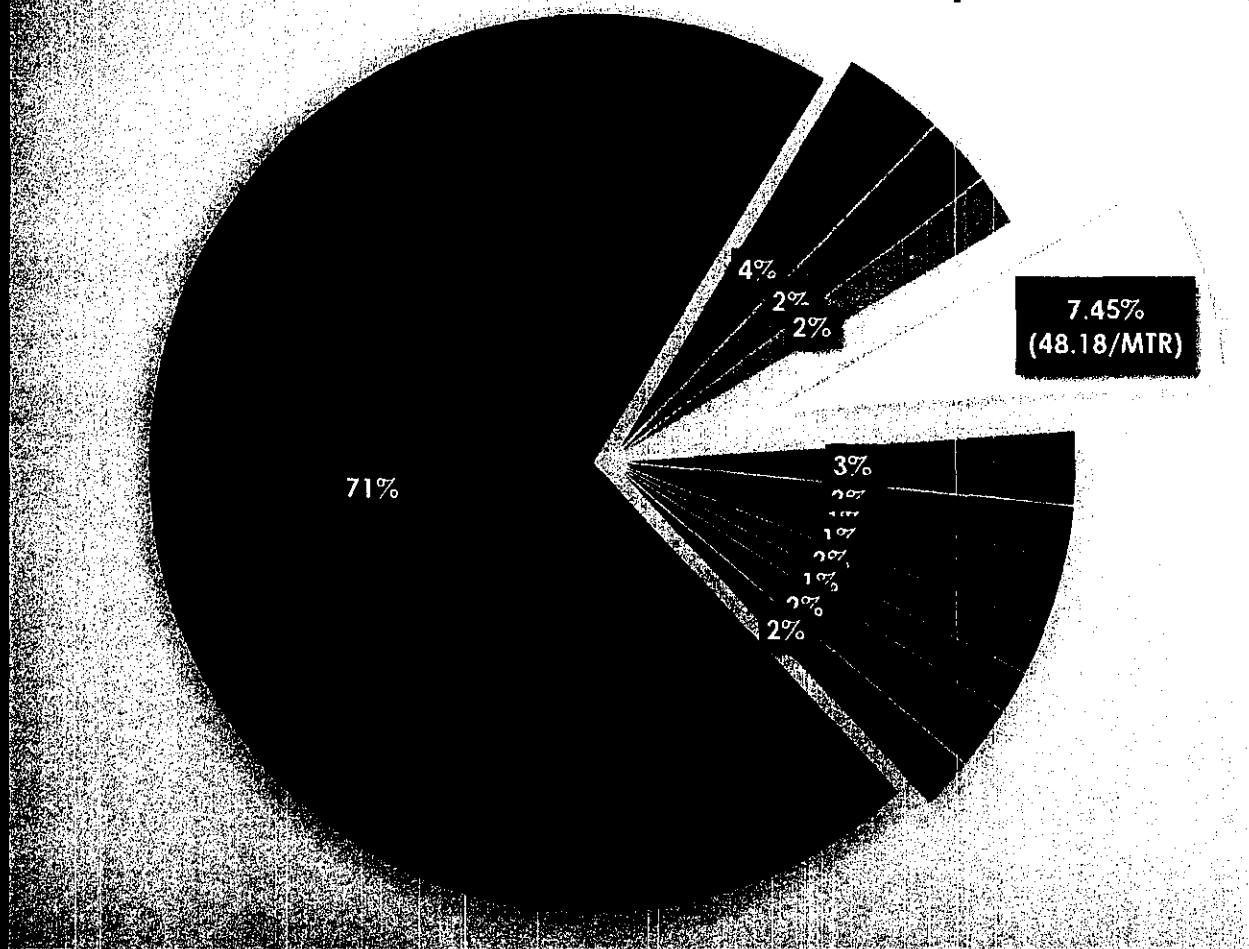
LC Opening till: January 2024 for 1 year and most probably Bank will retire LC in 6 to 9 months Civil Work Completion: Approximately 6 months

Erection and Operational Time: Estimated 6-8 months post-import of equipment
Total Project Duration: Approximately 14-18 months

Internal Rate of Return (IRR): 32.94% / Payback Period: 3 years

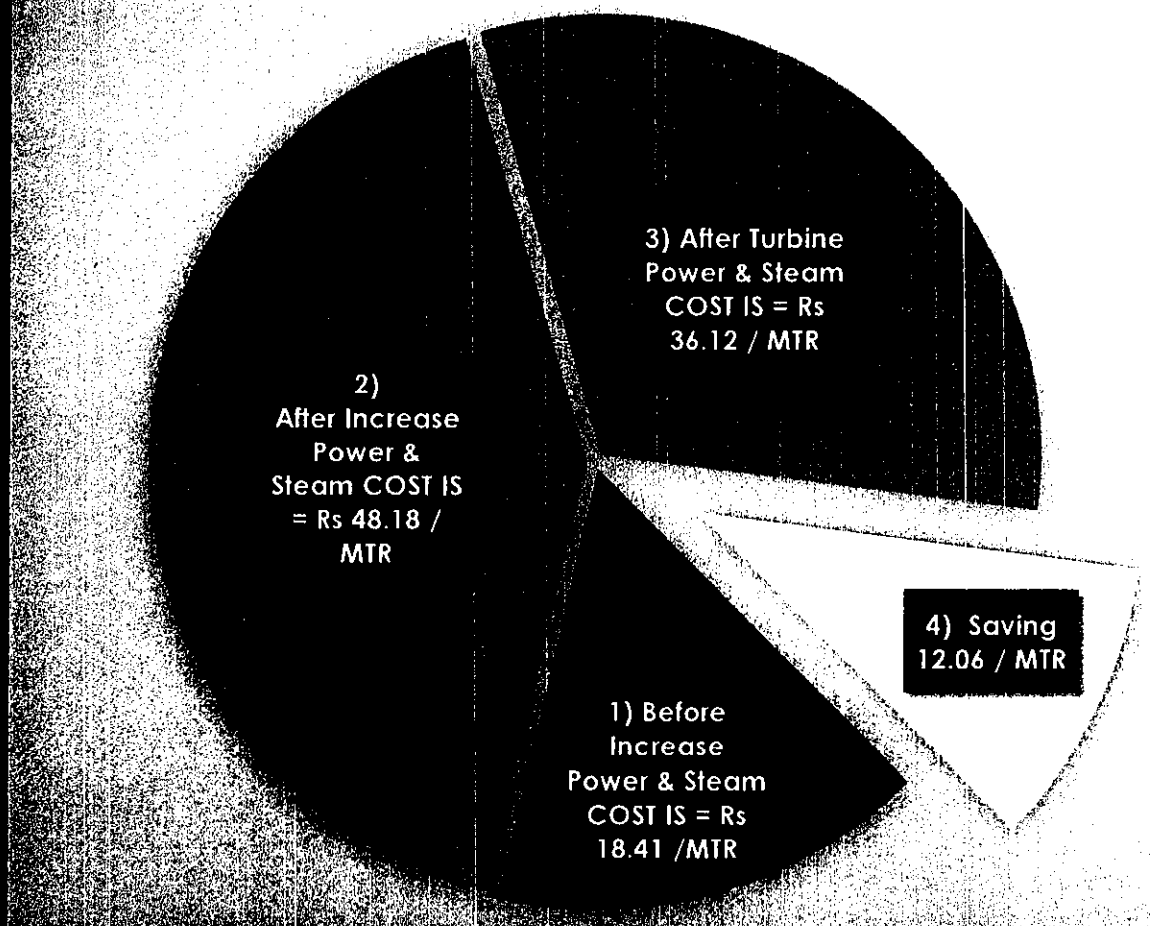

Total Cost Breakup 2022-2023
72%
4%
2%
3%
3%
4%
2%
2%
1%
Direct Material Cost
Production Salaries
Store and Spare and Other Direct Prduction Expense
Depreciation
Power and Steam SSGC
Salaries and Other Benefits
Postage and Telegrams other Administrati /e Expenses
Travelling Expenses / Advertisement Publicity and Exhibition
Commission on Sales
Freight
Other Selling and Distribution Expenses
Financial Charges
Taxes

Total Cost Breakup Jul-24 to Sep 24



- Direct Material Cost
- Production Salaries
- Store and Spare and Other Direct Prduct on Expense
- Depreciation
- Power and Steam SSGC
- Salaries and Other Benefits
- Postage and Telegrams other Administra ive Expenses
- Travelling Expenses / Advertisement Publi city and Exhibition
- Commission on Sales
- Freight
- Other Selling and Distribution Expenses
- Financial Charges

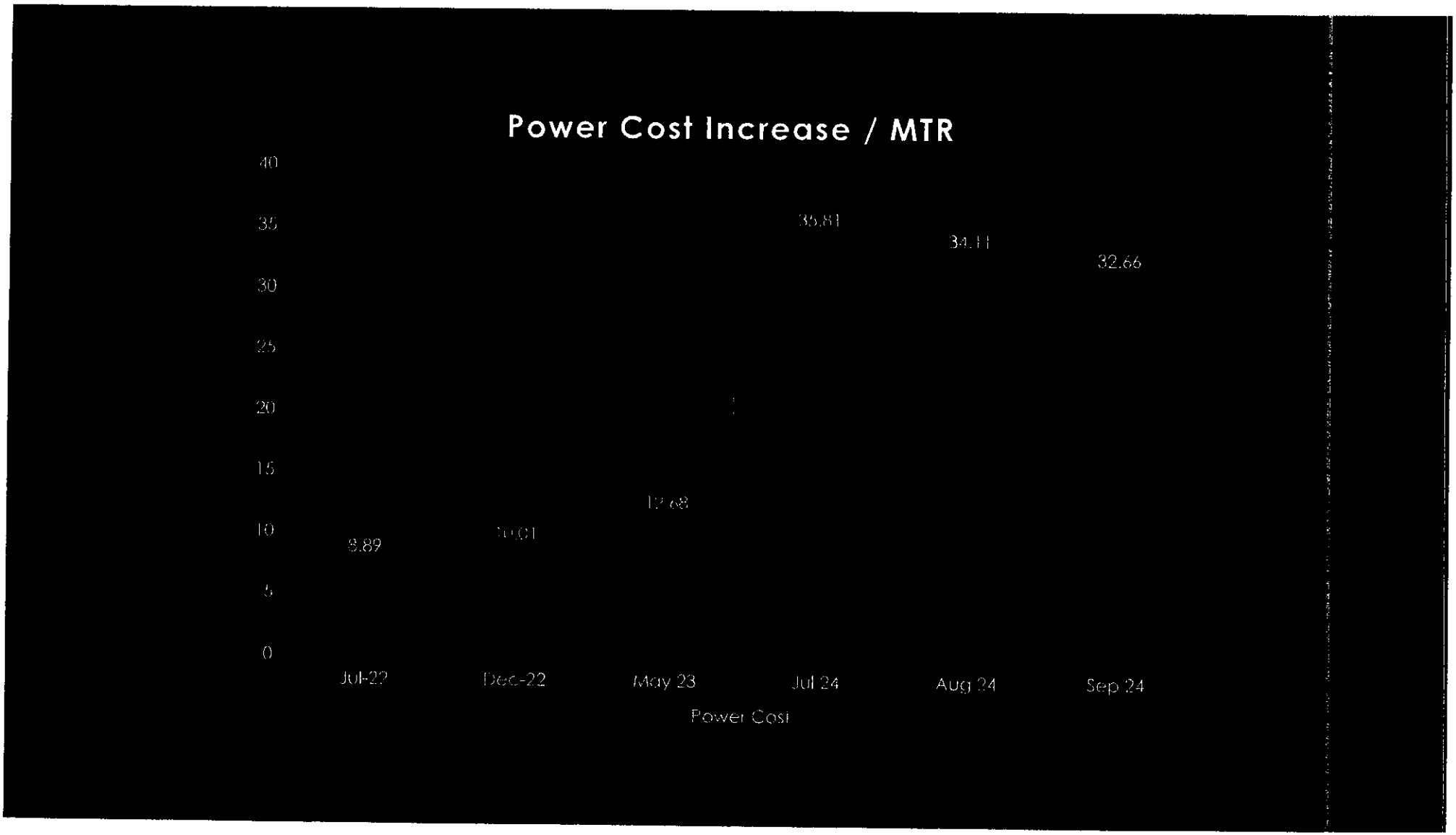
SSGC (POWER & STEAM COST) before rate increase / after rate increase / after Turbine

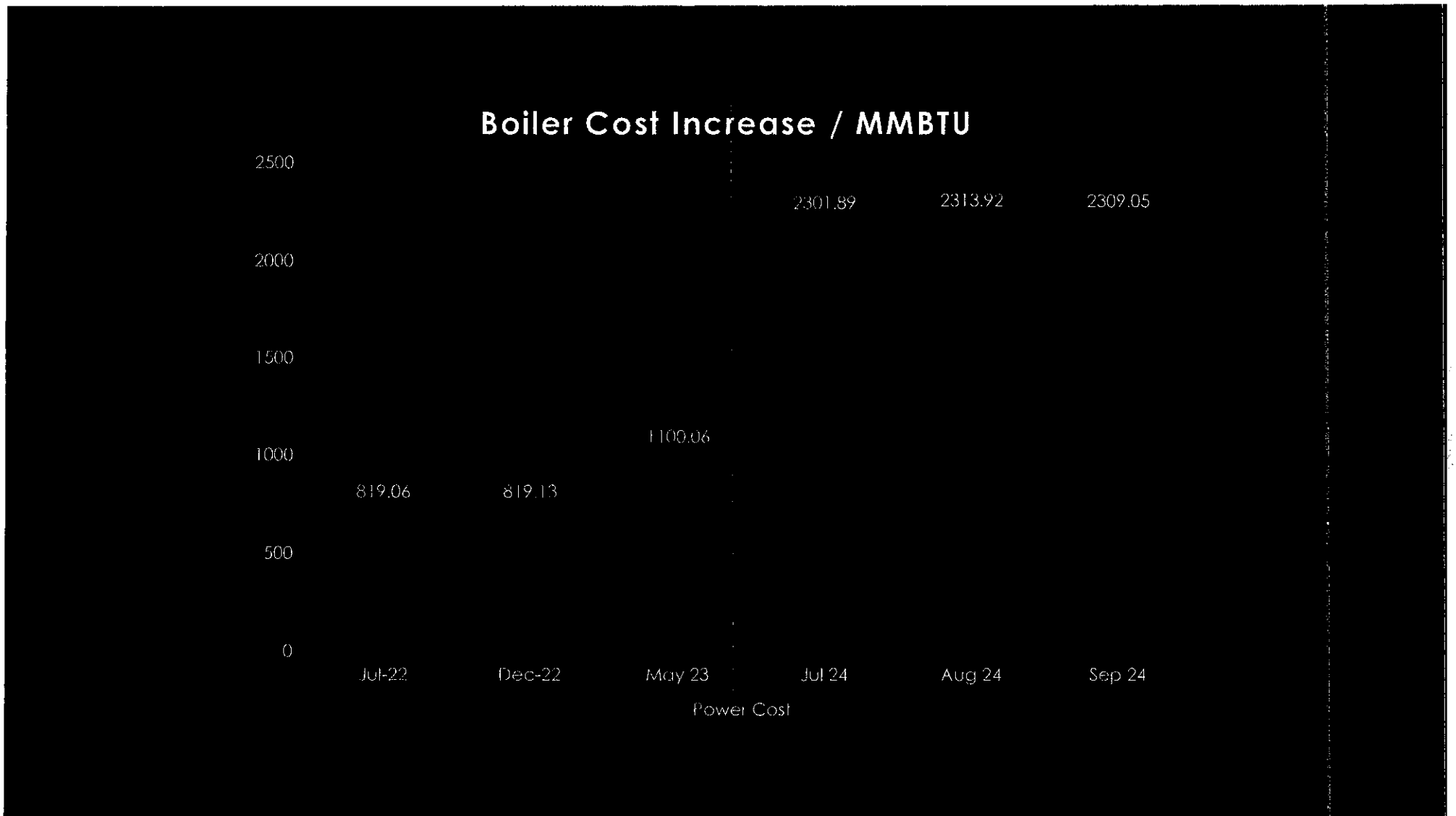


- **Before Increase (Power = Rs 10.86 / MTR + Boiler = Rs. 7.55 / MTR) = Rs. 18.41/ MTR**
- **After Increase (Power and Steam Cost) = Rs. 48.18/ MTR**
- **After Turbine (Power and Steam Cost) = Rs. 36.12/MTR**

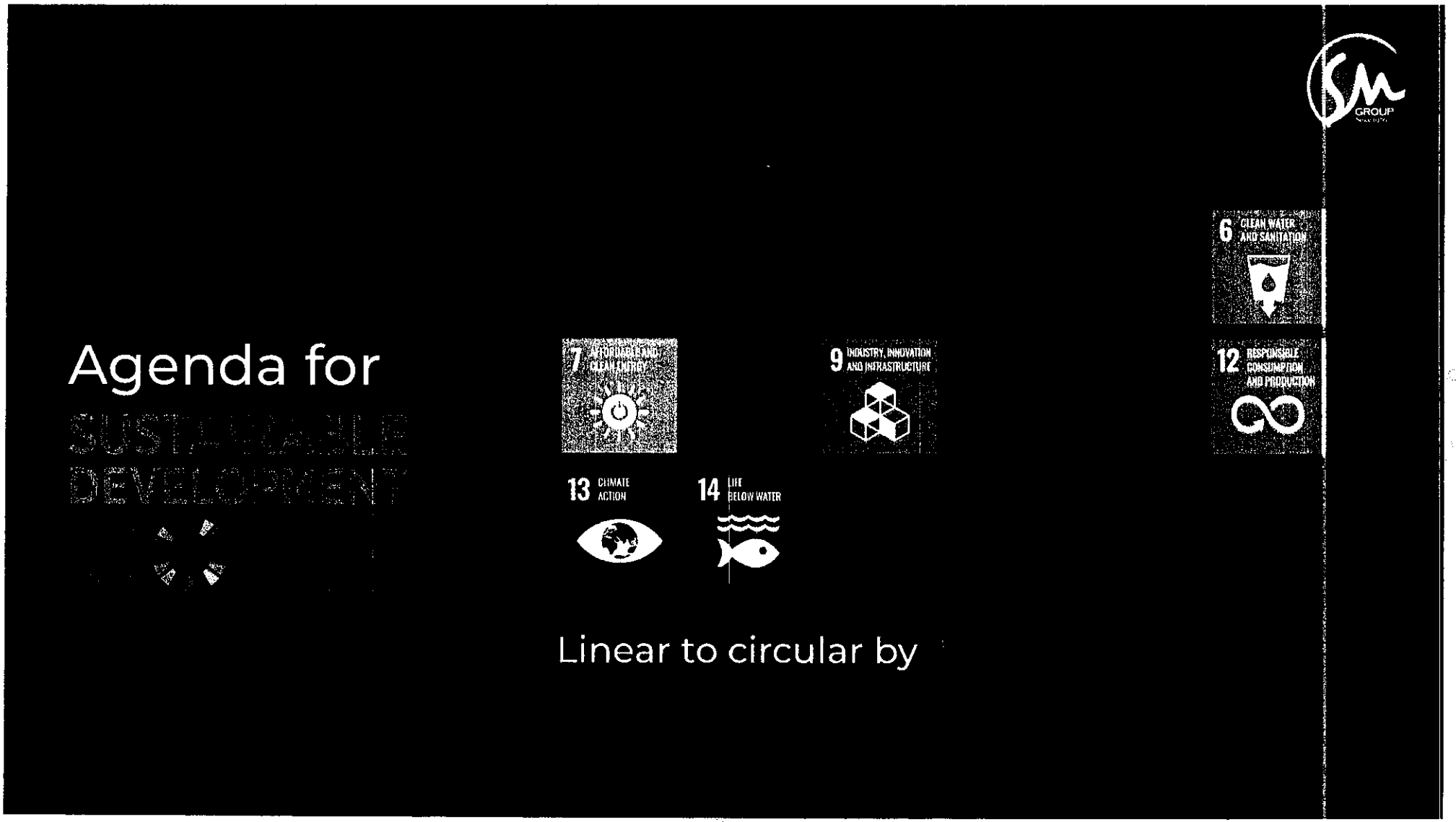
Saving Per MTR = Rs. 12.06

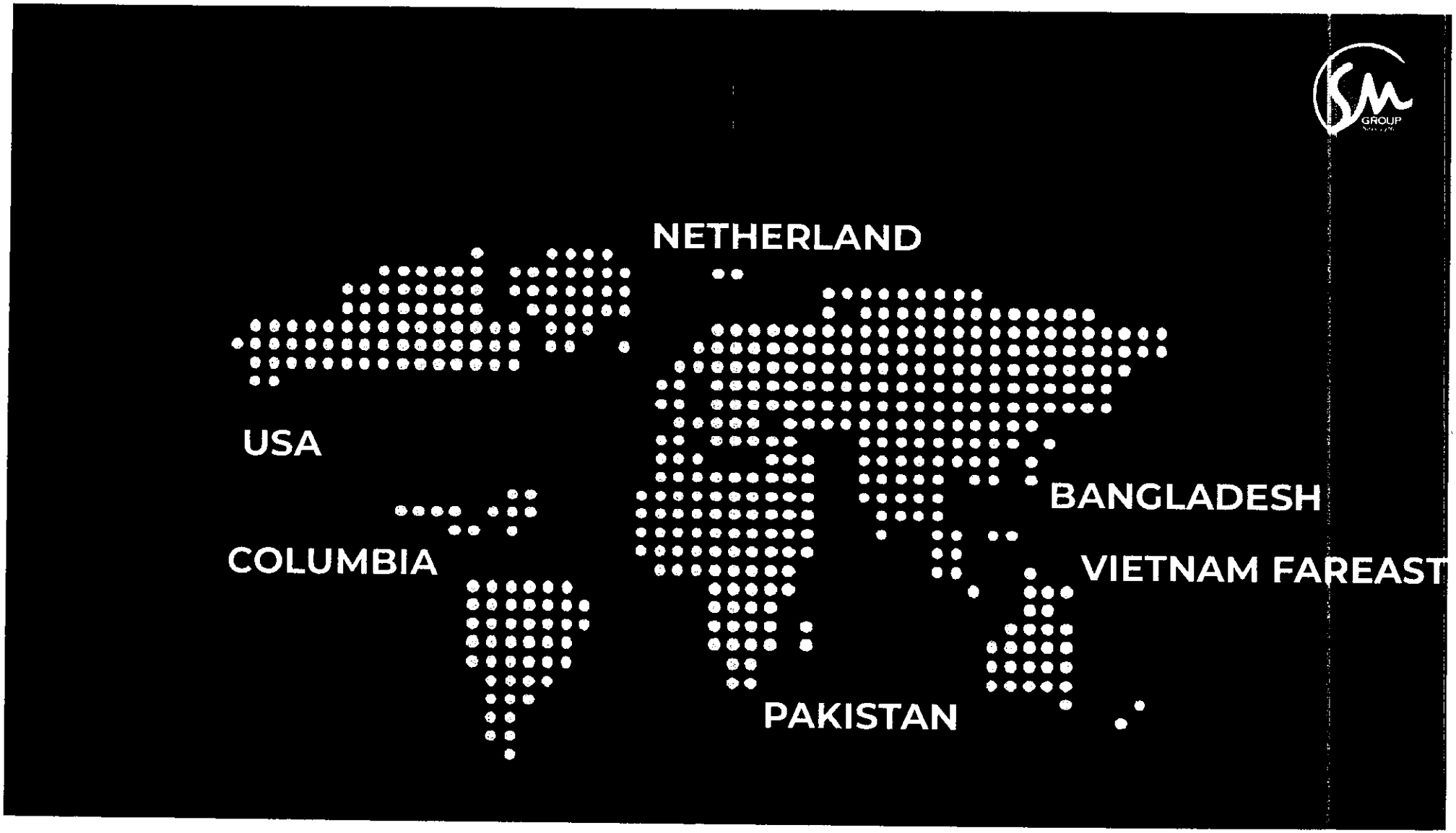
- **Total Production Per Anum = 21,600,000 MTRS**
- **Saving Per Annum = Rs. 260,563,364**
- **Pay Back Period = 3 Years**
- **IRR / ROI = 32.94%**


Power Cost Increase / MTR
40
35
30
25
20
15
10
5
0
9.89
35.81
34.11
32.66
Jul-22
Dec-22
May 23
Jul 24
Aug 24
Sep 24
Power Cost

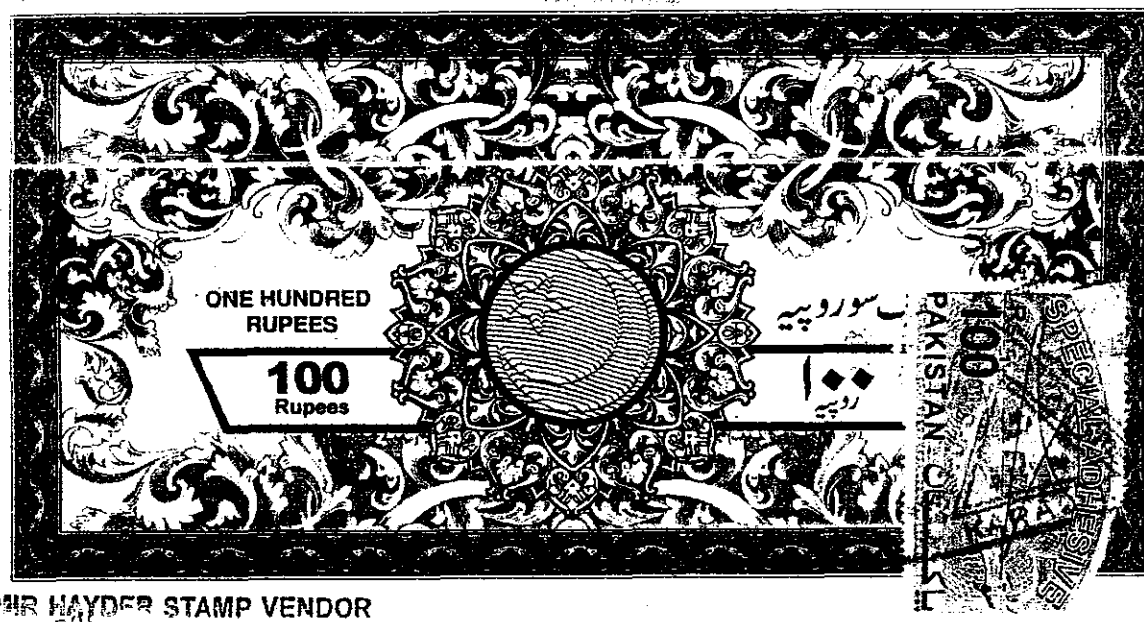

Boiler Cost Increase / MMBTU
2500
2000
1500
1000
500
0
819.06
819.13
1100.06
2301.89
2313.92
2309.05
Jul-22
Dec-22
May 23
Jul 24
Aug 24
Sep 24
Power Cost

POWER & STEAM COST THROUGH BIOMASS TURBINE GENERATED UNITS	BIOMASS
Fuel consumption for one ton of steam	220
FUEL in kg required to make one Kwh power	1.65
Hourly requirement to make 2,822 kwh power (2,032,200 KW PER MONTH ON THE BASIS OF 1.129 KW PER METER)	4,656
Daily requirement to make 2,822 kwh power	111,751
Yearly requirement to make 2,822 kwh power (YEARLY POWER => 24,382,080 KWH)	40,230,432
Rate per kg	**14.43**
Year Consumption value	580,541,264
Salaries & other expense	31,200,000
Power & Misc expenses	6,000,000
Financial Expenses @ 14% on Total including Land Rs.1160 m	162,400,000
TOTAL COST TO PRODUCE ANNUAL POWER & STEAM BY USING TURBINE	780,141,264
Total KW per per year	24,382,080
Unit cost per KW	32.00
PER METER COST	36.12
SAVING PER METER	**12.06**
Annual saving	**260,563,364**
Payback (IN YEARS)	**3**
IRR %	**32.94%**


Agenda for
SUSTAINABLE DEVELOPMENT
7 AFFORDABLE AND CLEAN ENERGY
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
6 CLEAN WATER AND SANITATION
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
Linear to circular by
SM GROUP


NETHERLAND
USA
BANGLADESH
COLUMBIA
VIETNAM FAREAST
PAKISTAN

AF543871 Annexure-M



SYED AMIR HAYDER STAMP VENDOR
Licence No. [illegible] 2024, 1st Floor Tajoomal Building
Opp. City Court Karachi
S. No. 2280
Issued to [illegible]
Through [illegible]
Purpose [illegible]
Value Rs. 100/- Dated 07 OCT 2024
Stamp Vendor Signatures

07 OCT 2024

Stamp Duty Court

07 OCT 2024

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

"Application for seeking Generation License"

ON BEHALF OF

SMT Power (Private) Limited

AFFIDAVIT

I, Irfan Merchant, holding CNIC No. 42301-2176616-5, CEO **SMT Power (Private) Limited**, being the duly authorized representative of SMT Power (Private) Limited, hereby confirm that the Applicant has not been earlier granted any generation license by the authority.

C. E. O.
SMT Power (Private) Limited
Date: 10 January, 2025

3(h)*

Annexure-N

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

"Application for seeking Generation License / Concurrence"

ON BEHALF OF

SMT POWER (PRIVATE) LIMITED

AUTHORIZED STATEMENT

I, Mr Irfan Merchant, CEO, **SMT Power (Private) Limited ("the Applicant")**, being the duly authorized representative of SMT Power (Private) Limited, hereby confirm that the Applicant has never been refused any grant of license / concurrence under the act of the Authority.

X

CEO
SMT Power (Private) Limited

Date: 10 January, 2025

SMT Power (Private) Limited

Date : 14-12-2024

EXTRACT OF RESOLUTIONS PASSED BY

THE BOARD OF DIRECTORS OF SMT POWER Private Limited (THE "COMPANY") IN A MEETING HELD ON October 30, 2024 AT ITS REGISTERED OFFICE

RESOLVED THAT the Company be and is hereby authorized to file application(s) before the National Electric Power Regulatory Authority (**"NEPRA"**) in relation to the grant of concurrence by NEPRA (the **"Application(s)"**). So that the Company is authorized to set up a 4MW generating facility located within the service territory of SM Traders) for the purpose of supplying electric power to SM Traders.

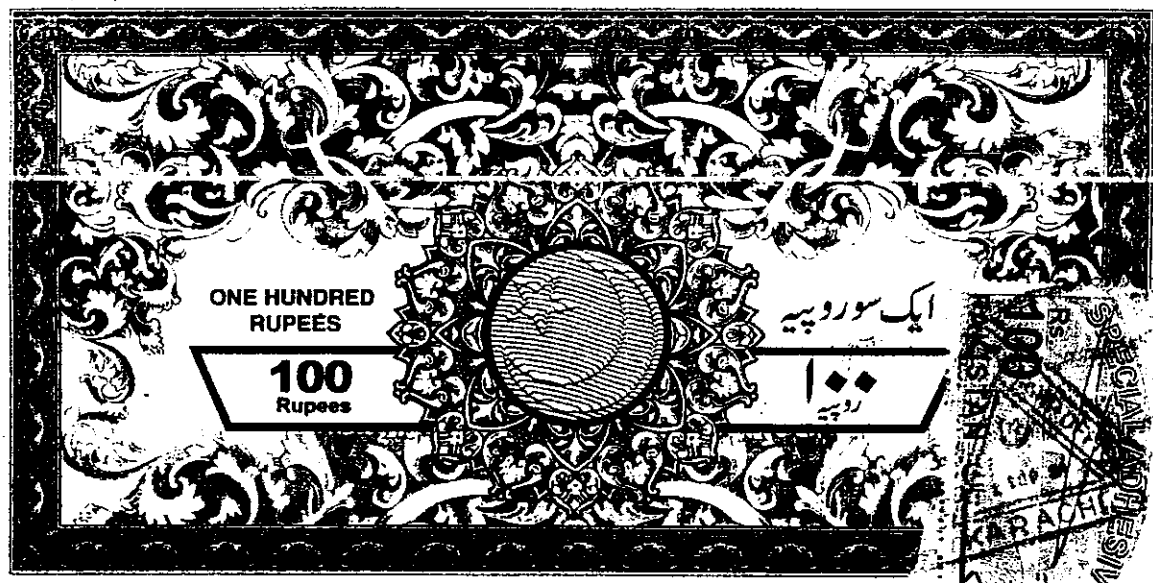
FURTHER RESOLVED THAT Mr. Farrukh Merchant, Director and Irfan Merchant Chief Executive Officer, (the **"Authorized Persons"**) are duly authorized singly and severally to file, submit and present the Application(s) (along with all annexes), affidavits, and any documents in support thereof before MYRA, sign the necessary documentation, pay the necessary filing fees, appear, or appoint a duly authorized representative 'to appear, and/or make any oral I written representations on behalf' of the Company before NEPRA, and undertake or do any matter(s) / act(s) necessary for the filing, submission, processing, completion and finalization of the Application(s), or incidental thereto.

Certified that the above resolutions: (i) were duly passed on October 30,2024 at a meeting of the board of directors of SMT POWER Private Limited held with the necessary quorum of directors; and (ii) has not been rescinded and remains in operation and that this is a true copy of the extract of the said resolutions.

Irfan Merchant

Chief Executive Officer
SMT POWER Private Limited

Plot No. D-11, South Avenue, Shahrah-E-Main Akhter Road, S. I. T. E. Karachi-75700, Pakistan.
Phone: +92 21 3256 2310-11, +92 21 3256 6970
E-mail: smtpower@smpcl.com.pk



07 OCT 2024

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

"Application for seeking Generation License"

ON BEHALF OF

SMT Power (Private) Limited

AFFIDAVIT

I, Mr. Irfan Merchant, holding CNIC No.42301-2176616-5, C. E. O. **SMT Power (Private) Limited** hereby solemnly affirm and declare that the contents of the accompanying Application for Generation License (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.

C. E. O.
SMT Power (Private) Limited
Date: 10 January, 2025

Schedule III (Regulation 3(4)(a)(A)(a)

1. **Annexure-Q**

WM TRADERS

Deals in all kinds of fuels & Refractory : Wood Chips, Wood Powder, Poltry Waste, Mustard, Koila, Sawdust

Date: 26 Dec 24 *Ref:*

WM TRADERS
C1-38 Block A, Gulshan-e-Millat, Korangi, Karachi
Cell: 0318-2626256 | Email: wmtraders66@gmail.com

DATE: 26 December 2024

TO:
SMT Power (Pvt) Limited
D-11 South Avenue, SITE, Karachi-75700, Pakistan
Phone: 00922132562310
Website: www.smgroup.com.pk

FUEL SUPPLY AGREEMENT

This Fuel Supply Agreement (the "Agreement") is made and entered into as of 26th December 2024 by and between:

1. WM Traders
A company duly registered and engaged in the supply of biomass fuels and related products, having its office at C1-38 Block A, Gulshan-e-Millat, Korangi, Karachi (hereinafter referred to as the "Supplier").

2. SMT Power (Pvt) Limited
A company operating a biomass boiler and a 4 MW steam turbine system, having its office at D-11 South Avenue, SITE, Karachi (hereinafter referred to as the "Buyer").

RECITALS:

WHEREAS, the Supplier agrees to supply fuels to the Buyer for use in its biomass boiler and 4 MW steam turbine system; and

WHEREAS, the Buyer agrees to procure fuels from the Supplier under the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants herein contained, the parties hereto agree as follows:

1. SUPPLY OF FUEL:

The Supplier agrees to supply, and the Buyer agrees to purchase, the following fuel products:

Rice Husk
Corn Cob
Wood Chips
Coal (Imported and Local)
Bagasse

The fuel shall meet the quality specifications outlined in Section 2 below.

2. FUEL QUALITY AND PARAMETERS:

The Supplier guarantees that the fuels supplied under this Agreement meet the following specifications:

Rice Husk:

GCV: 1595 kcal/kg
Ash Content: Max 16%
Moisture Content: Max 8%
Volatile Matter: 60%-65%
Fixed Carbon: 14%-18%
Sulfur Content: Max 0.1%

Corn Cob:

GCV: 2669 kcal/kg
Ash Content: Max 6%
Moisture Content: Max 12%
Volatile Matter: 68%-72%
Fixed Carbon: 14%-18%
Sulfur Content: Max 0.2%

Wood Chips:

GCV: 1938 kcal/kg
Ash Content: Max 10%
Moisture Content: Max 50%
Volatile Matter: 65%-70%
Fixed Carbon: 15%-20%
Sulfur Content: Max 0.1%

Coal (Imported & Local):

Calorific Value (GCV): Minimum of 4800 kcal/kg and maximum of 5000 kcal/kg
Moisture Content: Maximum of 12%
Ash Content: Maximum of 20%
Sulfur Content: Maximum of 1%
Volatile Matter: 25%-30%
Size Range: 0-50 mm
Fixed Carbon: 45%-50%

Bagasse:

GCV: 1959 kcal/kg
Ash Content: Max 8%
Moisture Content: Max 45%
Volatile Matter: 62%-68%
Fixed Carbon: 12%-16%
Sulfur Content: Max 0.1%

The fuels supplied shall be free from contaminants such as stones, metals, or other non-biomass materials to ensure uninterrupted and efficient operation of the Buyer's biomass boiler and steam turbine system.

If the delivered fuel fails to meet the above specifications, the Buyer reserves the right to reject the shipment, and the Supplier shall replace it promptly at their own expense.

3. QUANTITY AND DELIVERY SCHEDULE:

The Supplier shall deliver the fuel to the Buyer's facility at D-11 South Avenue, SITE, Karachi, as per the delivery schedule mutually agreed upon by both parties.

The Buyer shall provide a delivery schedule to the Supplier at least [number] days in advance.

4. PRICE AND PAYMENT TERMS:

The price for each type of fuel shall be detailed in Annex A of this Agreement.

Payment shall be made by the Buyer within [Insert Days] days of delivery and receipt of a valid invoice from the Supplier.

Late payments shall incur a penalty of [specify interest rate] per month on the outstanding amount.

5. DELIVERY AND RISK OF LOSS:

The Supplier shall be responsible for the safe transportation of the fuels to the Buyer's designated location. Risk of loss and title to the fuel shall pass to the Buyer upon delivery to the Buyer's premises.

6. INSPECTION AND ACCEPTANCE:

The Buyer reserves the right to inspect and test the fuels upon delivery. If the fuel is found to be non-compliant with the agreed specifications, the Buyer may reject the shipment, and the Supplier must replace the deficient fuel promptly at no additional cost.

7. TERM AND TERMINATION:

This Agreement shall remain in effect for a period of one year commencing on the date first written above.

Either party may terminate this Agreement with 30 days written notice. In the event of a material breach of this Agreement, the non-breaching party may terminate the Agreement immediately.

8. FORCE MAJEURE:

Neither party shall be held liable for any delay or failure to perform its obligations under this Agreement due to events beyond their reasonable control, including but not limited to natural disasters, strikes, or governmental actions.

9. GOVERNING LAW AND DISPUTE RESOLUTION:

This Agreement shall be governed by the laws of Pakistan. Any disputes arising from this Agreement shall be resolved through negotiation. If unresolved, the matter shall be referred to arbitration under the rules of KCCI Pakistan.

10. CONFIDENTIALITY:

Both parties agree to maintain the confidentiality of any proprietary information exchanged under this Agreement. This clause shall survive the termination of the Agreement.

11. MISCELLANEOUS:

This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof and supersedes all prior agreements or understandings.

Any amendments to this Agreement must be made in writing and signed by both parties.

SIGNATURES:

For WM Traders:
Name: Muhammad Waqas
Designation: CEO

Signature: _____

Date: 26 - DEC - 24

For SMT Power (Pvt) Limited:
Name: S.M. Zahid Alam
Designation: G.M Engineering

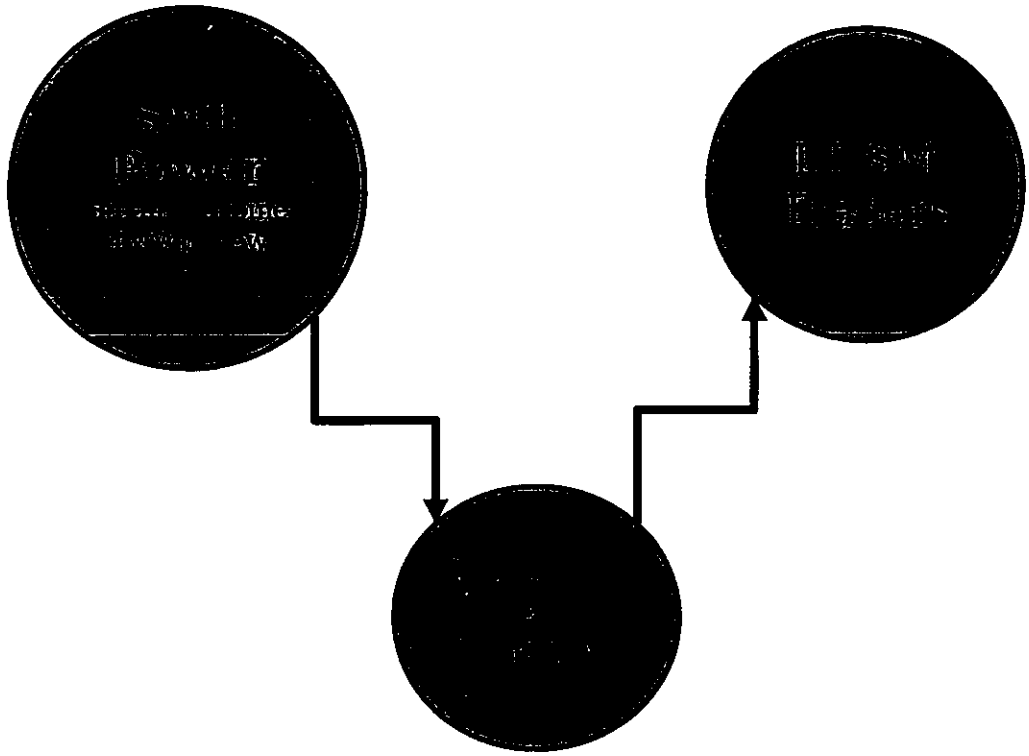
Signature: _____

Date: 26/Dec/24

Interconnection Study

The electric power generated from the Generation Facility/ Steam Turbine Power Plant of the Company shall be dispersed to the load center of SM Traders.

The proposed Interconnection Arrangement/Transmission Facility for dispersal of electric power comprises the direct 11KV lines of approximately 150 to 200-meter length to be laid from the 11 KV bus bar of the Generation Facility/Steam Turbine Power Plant to Transformer of the SM Traders.



Environmental Impact Assessment Study

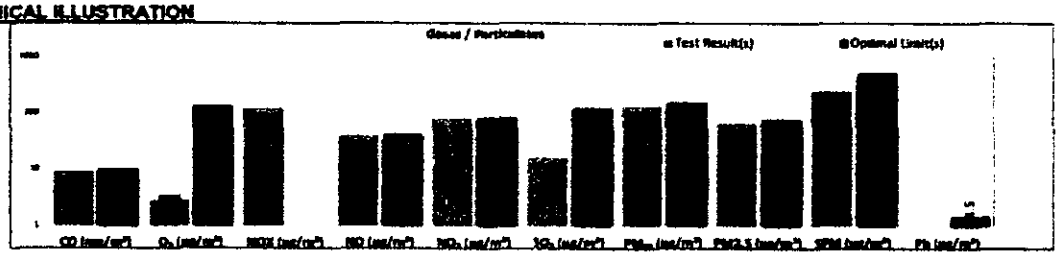
AIR QUALITY MONITORING TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243		**Report No. AMT/IBE/NOV-24/AQ/AL-13325**	
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	**Sampling Date**	25-Nov-24
Sample Description	Air Quality Test	**Reporting Date**	02-Dec-24
LOCATION DETAILS			
Sampling Area	Boiler Area	**Sampling Type**	Indoor Air Quality

1	Carbon Monoxide	CO (mg/m³)	Non Dispersive Infrared Method	8.9	10
2	Ozone	O_3 (µg/m³)	ASTM D-5156	2.8	130
3	Oxides of Nitrogen as NOX	NOX (µg/m³)	ASTM D-3608	117.0	...
4	Oxides of Nitrogen as NO	NO (µg/m³)	ASTM D-3608	38.4	40
5	Oxides of Nitrogen as NO_2	NO_2 (µg/m³)	ASTM D-3608	78.6	80
6	Sulphur Dioxide	SO_2 (µg/m³)	ASTM D-2914	15.9	120
7	Particulate Matter (10-Microns)	PM_{10} (µg/m³)	PM Analyzer (Laser Diode)	128	150
8	Particulate Matter (2.5-Microns)	PM2.5 (µg/m³)	PM Analyzer (Laser Diode)	63	75
9	Particulate Matter (suspended)	SPM (µg/m³)	PM Analyzer (Laser Diode)	241	500
10	Lead	Pb (µg/m³)	AAS Method (EPM Filter paper)	ND	1.5

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.
Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AMS TEC (PRIVATE) LIMITED

Reviewed By
Incharge (Environmental Laboratory)

Repudiation: This report is not valid for any judicial use and free from all claims. All test results and report is valid for the time of sampling (as per mentioned date) and particular sample (as per descriptions given by client). Maximum possible safety measure are applied but Aims Tec (pvt) Ltd. doesn't undertake any liability for the scope of methodology used, accuracy and validity of results, which may influence by any unavoidable factors. In case of any query, must contact within a week from the reporting date. After one week of work execution your query will not be entertained.

NOISE EXPOSURE TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243		**Report No. AMT/IBE/NOV-24/NE/AL-13327**	
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	**Sampling Date**	25-Nov-24
Sample Description	Noise Emisson	**Reporting Date**	02-Dec-24

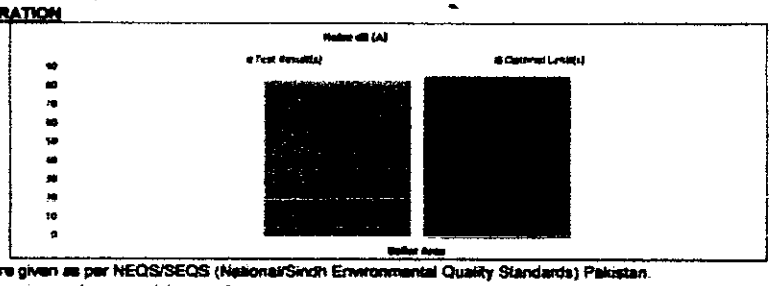
LOCATION DETAILS

Sampling Area	As Mention Below	**Sampling Type**	Grab Sample

1	Noise background (daytime)	dB /A)	ASTM E-1124	Boiler Area	93.1	85

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.
Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AIMS TEC (PRIVATE) LIMITED

Reviewed By
Incharge (Environmental Laboratory)

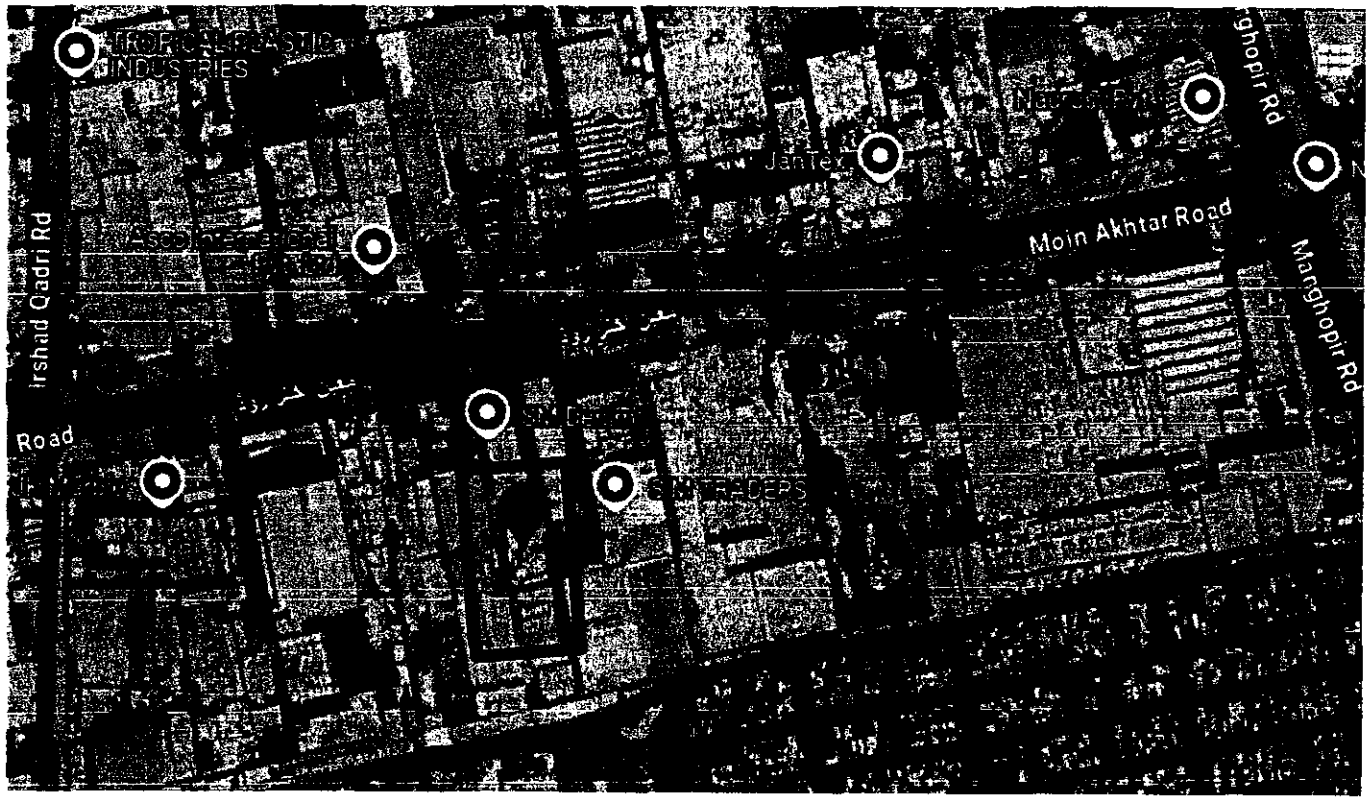
Postal Address: Plot No, B-56 / Sector 6-H, Mehran Town, Korangi Industrial Area, Karachi-74900, Pakistan.
Cell: +92-321-922-1123
URL: www.aimstec.com.pk
Email: info@aimstec.com.pk / operations@aimstec.com.pk

4(i)* **Annexure-T**

Location (Location maps, site map, Land)

The project site is located near the D-11 South Avenue, Site Karachi No.75700, The site is 20.8 km away from Jinnah International Airport, Karachi.

Latitude (North)	Longitude (East)
24°90'43.9"N	67°01'22.3"E



4(ii)* Annexure-U

Technology, Size of the Plant, Number of Units

While designing the system, we have the following data Power

Require	3.5
MWH	
Steam Require	15 TPH

Power House Capacity **4 MWH**

Boiler Capacity	30 TPH
Boiler Design Pressure	68 Kg/cm^2 (g) Pressure.
Boiler Type	Fludized Bed
Fuel	Wood, Saw Dust, Rice Husk, Corn Cobs, Sesam Husk, Coal
Turbine Capacity	4 MWH
Type	Extraction Condensing

Fuel: Type, Imported/indigenous, Supplier, Logistics, Pipelines etc

1. Fuel Types:

Biomass Fuels: Corncob, Bagasse, Sesame Husk, Rice Husk
Coal: Lakra Coal (domestic).

2. Fuel Source:

Biomass fuels are sourced locally from agricultural waste and processing units.
Lakra Coal is obtained from domestic coal mines within Pakistan.

3. Fuel Supply:

Biomass fuels are contracted with local suppliers for regular delivery based on plant requirements.

Coal supply agreements are in place with both domestic and international vendors for reliable procurement.

4. Logistics:

Biomass Fuels:
Transported by road using covered vehicles to prevent moisture absorption.

Coal:
Lakra Coal: Delivered via road or rail from nearby mines.
Imported Coal: Shipped to the nearest port, then transported to the site via road or rail.

5. Fuel Storage:

Biomass fuels are stored in separate covered sheds with proper ventilation to maintain fuel quality.
Coal is stored in designated coal yards equipped with drainage systems and dust suppression measures.

6. Fuel Pipelines:

No pipelines are required, as all fuels are solid and transported by conventional means (road/rail).

7. Infrastructure and Handling:

The plant has dedicated unloading facilities, including a weighbridge and conveyor systems for efficient fuel handling.

Safety protocols, including fire suppression systems, are in place for storage areas.

8. Fuel Characteristics:

RICE HUSK (3000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Rice Husk
New Turbine Steam Consumption with Extraction (64 Bar, 480C) 6.5 Ton/MW
Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

CORN COBS (3200 Kcl/kg)
Steam Generation (65 Bar,490C) 3.6 TPH / Ton of Corn Cobs New Turbine Steam Consumption (64 Bar, 490C) 6.5 Ton/MW Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

SESAME HUSK (3300 Kcl/kg)
Steam Generation (65 Bar,490C) 3.3 TPH / Ton of Sesam Husk New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

RA COAL (4000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Lakhra Coal (Low steam generation due to High Sulfur and high Ash).
New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW Power Generation 4000 KWH
Auxiliary 400 KWH
Available Power 3600 KWH

4(iv)* Annexure-W

Emission Values

EPA Certificate No : EPA/LAS/Certificate-13 (SEPA-2014)

GASEOUS EMISSION TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243		**Report No. AMT/IBE/NOV-24/GE/AL-13328**	
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	**Sampling Date**	25-Nov-24
Sample Description	Gaseous Emission	**Reporting Date**	02-Dec-24

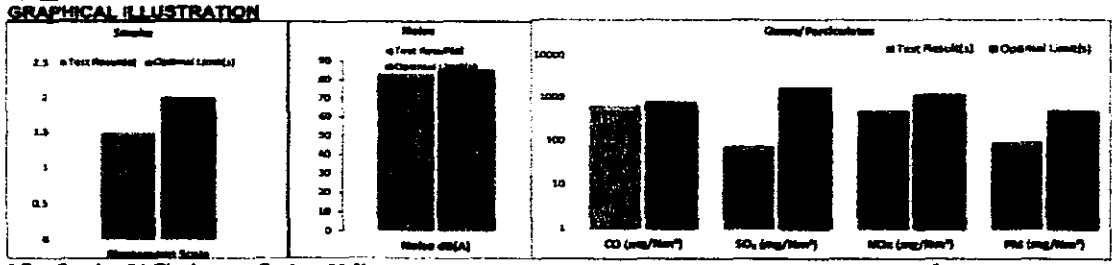
EQUIPMENT DETAILS

Name	Boiler-Bio mass	**Make**	Wuxi Jieneng
Model	2017	**Serial No**	S-3753
Capacity	15.0 Ton	**Fuel Type**	Coal

S.No	Parameter(s)	Units	EPA Reference	Test Result(s)	Optimal Limit(s)
1	Smoke	Ringlemann Scale	ASTM D-2156	1.5	2
2	Carbon Monoxide	CO (mg/Nm³)	ASTM D-6522	681	800
3	Sulphur Dioxide	SO_2 (mg/Nm³)	ASTM D-6522	78	1700
4	Oxides of Nitrogen	NOx (mg/Nm³)	ASTM D-6522	532	1200
5	Particulate Matter	PM (mg/Nm³)	ASTM D-3685	98	500
6	Noise (at 7.5m distance)	Noise dB(A)	ASTM E-1124	83.1	85

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



* For Smoke: 01 Ringlemann Scale = 20 %.

Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan
Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AIMS TEC PRIVATE LIMITED

Reviewed By
Incharge (Environmental Laboratory)

Repudiation: This report is not valid for any judicial use and free from all claims. All test results and report is valid for the time of sampling (as per mentioned date) and particular sample (as per descriptions given by client). Maximum possible safety measure are applied but Aims Tec (pvt) Ltd. doesn't undertake any liability for the scope of methodology used, accuracy and validity of results, which may influence by any unavoidable factors. In case of any query, must contact within a week from the reporting date. After one week of work execution your query will not be entertained.

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Email: info@aimstec.com.pk / operations@aimstec.com.pk

UKAS 3026 | LICENSE OF WEIGHT & MEASURES GOVERNMENT OF SINDH | SEPA APPROVED CERT NO. 13

4(v)* Annexure-X

Cooling water Source: Tube Wells, Sea / River / Canal, Distance from Source etc

Cooling Water Flow	2000 Cubic Meter Hour
Inlet Water Temperature	42 C
Out Let Water Temperature	32 C
Pressure	3.5 Bar

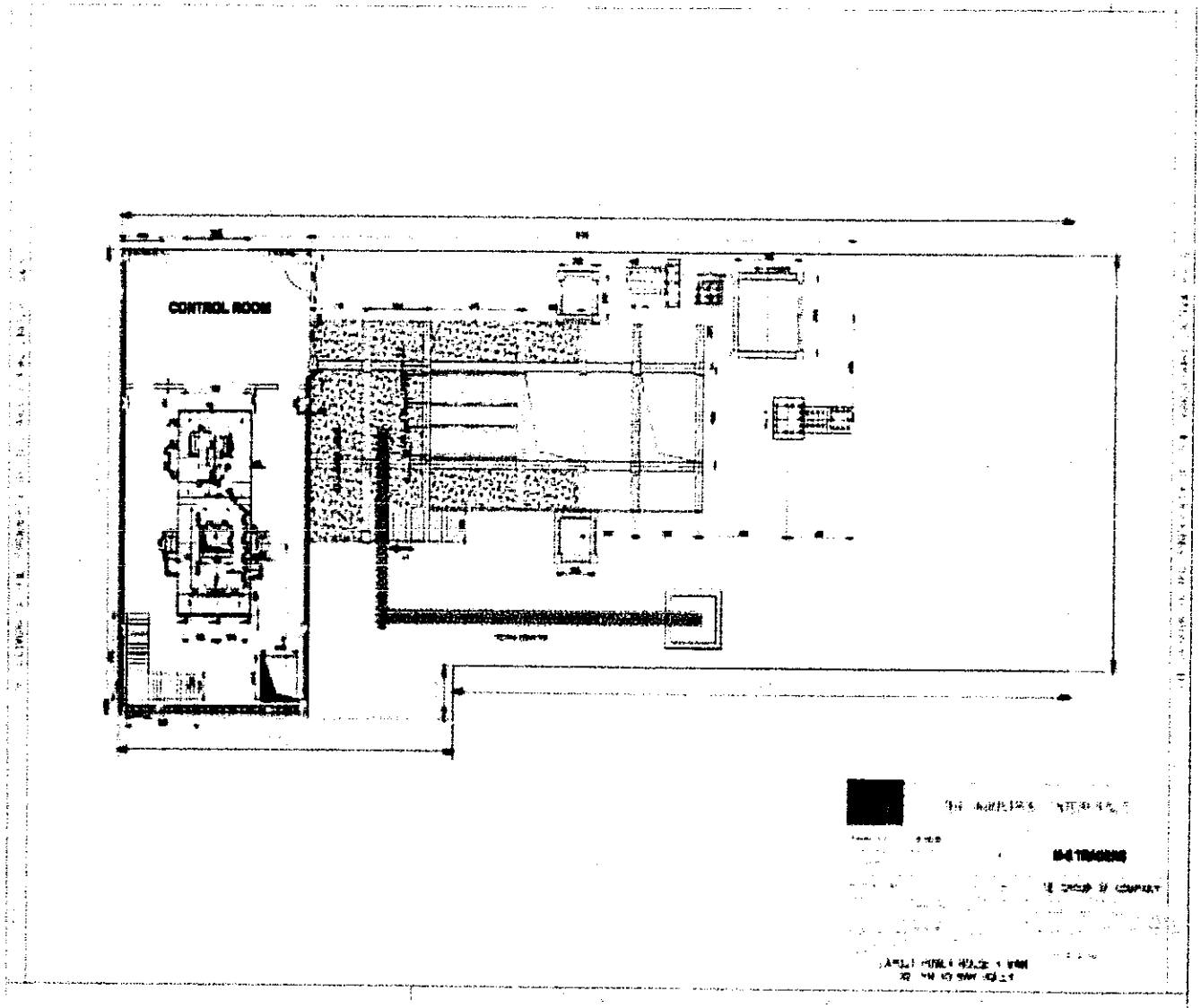
WATER SYSTEM

Bore Water Storage Tank (50 Ton)

R.O / Demin Plant(20 TPH)

Soft Water Storage Tank (100 Ton)

Infrastructure: Roads, Rail, Staff Colony, Amenities



Project Commencement and completion schedule with milestones

Installation and commissioning phase of the project period would be 18 months.

Safety plans, Emergency Plans

The function of fire-fighting system is to supply water to the main risk areas of the boiler and turbine power plant.

The fire protection system is required for early detection, containment and suppression of fires. A comprehensive fire protection system shall be provided to meet the above objective and all statutory and insurance requirements of the National Fire Protection Association (NFPA).

The fire-fighting system shall consist of the following:

Portable Fire Extinguishers
Dry Chemical Powder, CO2 and foam-type extinguisher system shall be provided. The equipment shall be designed as per NFPA 10.

Fire Alarm & Detection System

Fire detection system for the boiler and Turbine power plant will provide early detection of fire and raise alarm. A comprehensive fire protection system shall be planned to meet the above objective and meet all statutory and insurance requirements of the National Fire Protection Association (NFPA).
A multitude of systems will be provided to combat various types of fires in different areas of the plant and
all such systems for various areas shall form a part of a centralized protection system for the entire plant. Fire alarm system detection system shall be provided in following areas:

- Firm alarm and signaling in all electrical/instrumentation panel rooms.
- Manual call points and Electric Horns in outdoor areas.

Plant Characteristics

Characteristics generation voltage power factor frequency automatic generation controlling ramping rate control metering and instruments.
Complete Heat (15 Tph) and Power (3.5 MWH) Solution

(Steam Turbine 4 MWH, Boiler 30 TPH, 65 Bar)

Plant Characteristics

Power Require	3.5 MWH
Steam Require	15 TPH
Power House Capacity	**4 MWH**
Boiler Capacity	30 TPH
Boiler Design Pressure	68 Kg/cm^2 (g) Pressure.
Boiler Type	Fludized Bed
Fuel	Wood, Saw Dust, Rice Husk, Corn Cobs, Sesam Husk, Coal
Turbine Capacity	4 MWH
Type Extraction Condensing	
Type of Boiler	Single Drum, Membrane wall type Natural Circulation
Combustion system	Fluidized Bed
N.C.R. (Normal Continuous Rating):	30 TPH.
Pressure at outlet of MSSV:	68 Kg/cm2 (g)
Fuel:	**Biomass and Coal**
Type of installation:	Out door
Type of Furnace construction:	Membrane type
Draft system	Balanced draft
Support	Bottom supported on RCC construction
Steam Temperature at outlet of MSSV:	480± 10°C at MCR
Feed water temp. at De-aerator inlet/ outlet :	80°C / 105°C Feed
water temperature at outlet of Economizer:	225°C
Flue gas temperature after Air Heater:	Less Than 160°C
Design Ambient Temperature for Performance Test:	45Deg C
Design Code:	ASME

GRATE AREA

Grate Area (Approx.)	No. of Fuel feeders
Affective Bed Area 17 M^2	3 Nos.

BOILER DRUM

Material	SA- 516-Gr 70

BOILER TUBES

Particulars	Furnace	Boiler Bank	Super-heater	Economizer

Tube OD (mm)	61.1	49.1	38	38.1
Thickness (mm)	5.1	5.1	4	3.8
Material Quality	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA 213 T-11 or BS-3059 Part II Gr.762 Alloy Steel T-91 Seamless	SA-210 A1 or BS-3059 / Gr.440 Part II HFS

HEATING SURFACE APPROX. (M^2)

Furnace and Boiler Bank	Super-heater	Economizer	Air-heater/ Steam Heater
810	150	400	850

Note: Heating surface area can vary according to final design.

DRAFT EQUIPMENTS

Particulars	Capacity M^3/Sec.	Head mm wg	Fan RPM	Temp. □C	Drive	Qty. Nos.
ID Fan	32	350	1450	360	Direct	1
FD Fan	18	650	1450	40	Direct	1
SA Fan	04	800	2980	160	Direct	1

Note: All fans are excess 35% of the design.

SOOT BLOWERS

Make / Type	Bank	Super-heater	Economizer	Air Heater
TIE	1 Nos.	01 Nos.	1Nos.	01No.
Type	Retractable	Retractable	Stationary	Stationary

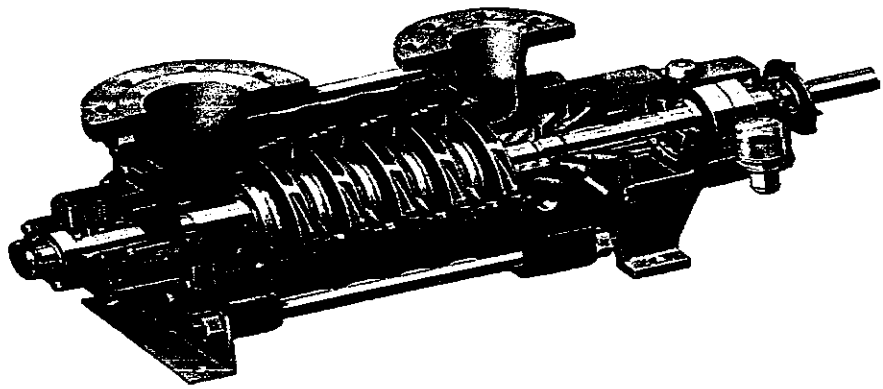
FEED WATER PUMPS

Type	Capacity (M^3/hr.)	Head Mtrs.	R.P.M.	Temp. □C	Qty. Nos.

Multistage Centrifugal Motor Driven	40	855	2950	125	2 (1 W+1 S)

H.P CHEMICAL DOSING SYSTEM

Type	:	**H.P.**
No. of Pumps	:	1 No.
No. of dosing tank	:	1 No.



BOILER DRUM, HEADERS and TUBES:
Boiler pressure parts shall be constructed in accordance with the ASME specifications with flanged ends or welded ends to promote cleaning and inspection.

BLOW DOWN ARRANGEMENT: (IBD Tank)

Continuous blow down equipment as per ASME complete with all piping up to Blow down tank shall be provided.

ECONOMIZER:

An economizer of suitable heating surface shall be provided for the boiler. The economizer shall be complete with Carbon steel quality economizer coils, supports, thermo wells for measuring inlet and outlet water temperature, casing and ducting, soot blower, lagging etc. The economizer shall be designed in accordance with the requirement of ASME.

COMPLETE STRUCTURE:

AIR PRE-HEATER AND TUBES:
Air heater of suitable heating surface to heat the air by flue gases required for combustion for the boiler. The air-heater shall be complete in all respects with Carbon Steel ERW tubes, tube plates, supports, dampers, casing and ducting etc.

FLY ASH ARRESTOR (MULTI SWIRLER DUST COLLECTOR):
A suitable dust collector of multi-swirler type having vertical fins of hard cast iron shall be provided to reduce the contents in the flue gases leaving Chimney. The dust collector shall be located on the suction side of the ID Fan.

DUCTINGS AND DAMPERS:
Necessary mild steel ducting of 3 mm thick in case of air duct and 3 mm thick in case of gas duct with stiffeners shall be provided for boiler comprising of cold air ducting extending between the forced draft fan discharge and air inlet of air heater, hot air ducting from the air heater outlet to the furnace, flue gas ducting connecting the boiler with its accessories up to inlet of Chimney.

Necessary regulating and isolating dampers at suitable points shall be provided for the efficient operations and maintenance of the boiler.
Suitable galleries and ladders with grating or open steel flooring for affording access to the essential levels of the boiler plant complete with hand railings curb angles and supports shall be provided.

REFRACTORY AND INSULATION:
All supporting steel work, hangers thrust brackets and castings for the furnace shall be provided for the boiler. All refractory material including standard and high grade refractory tiles and bricks, adequate quantity of high grade refractory cement, cast able refractory bricks for furnace and high temperature zones shall be as per ASME. Insulating materials for the exposed portion of the boiler, steam and mud drum, integral pipe work from the feed pumps to the boiler, steam pipe, gas and air ducting shall also be supplied. All insulated surfaces of ducting and piping shall be lagged with suitable G.I sheeting

DEAERATOR TANK
PUMPS
SOOT BLOWER
BED
FANS
FEEDERS, SPREADERS
WET SCRUBBER + CHIMNEY (For Clean Environment) VALVES
AND MOUNTINGS

POWER	**4 MWH**
TYPE OF TURBINE	**EXTRACTION**
CONDENSING EXTRACTION QTY	**0 to 15 TPH**
EXTRACTION PRESSURE	**10 BAR**

RICE HUSK (3000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Rice Husk
New Turbine Steam Consumption with Extraction (64 Bar, 480C) 6.5 Ton/MW
Power Generation
4000 KWH

Auxiliary	400 KWH
Available Power	3600 KWH

Rice Husk Price AVG	Rs.14000/Ton
KWH Cost fuel Based	Rs.29/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.31.5/KWH (15 TPH Steam Free)

CORN COBS (3200 Kcl/kg)

Steam Generation (65 Bar,490C) 3.6 TPH / Ton of Corn Cobs New Turbine Steam Consumption (64 Bar, 490C) 6.5 Ton/MW Power

Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Corn Cobs Price AVG	Rs.15000/Ton
KWH Cost fuel Based	Rs.30/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.32.5/KWH (15TPH Steam Free

SESAME HUSK (3300 Kcl/kg)

Steam Generation (65 Bar,490C) 3.3 TPH / Ton of Sesam Husk New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW

Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH

Sesame Husk Price AVG

Rs.12000/Ton KWH Cost fuel Based

Rs.26.20/KWH

O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.28.7/KWH (15 TPH Steam Free)

LAKHRA COAL (4000 Kcl/kg)
Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Lakhra Coal (Low steam generation due to High Sulfur and high Ash).New Turbine Steam Consumption (64 Bar, 490C) 6.5Ton/MW

Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH

Sesame Husk Price AVG

Rs.16000/Ton KWH Cost fuel Based

Rs.33/KWH

O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.35.5/KWH

WATER SYSTEM

Raw Water Storage Tank (50 Ton)	01 No.
R.O / Demin Plant (20 TPH)	01 No.

(Depending upon the Condensate)

Soft Water Store

GE Tank (100 Ton) 01 No.

Motors	China
VFDs	INVENT
Control System (PLC)	SIEMENS
Instruments	Yokogawa
MCCB	Terasaki Japan / ABB
Control valve	OMB / Equivalent
Mechanical and safety Valves	Zhongya valves China/
OMBChina Pumps	China
Boiler Tubes	Wuxi Huayou Special Steel co., Ltd
Super Heater	Wuxi Huayou Special Steel co., Ltd
Header	Wuxi Huayou Special Steel co., Ltd
Fans	TIE
Soot Blowers	TIE
Rotary valve	TIE
Panels	Local Manufactured
Cables	Fast / New Age Equivalent Cables

Control, Metering, Instrumentation and Protection

Monitoring and Controlling of the system are based on Scada.

- Main Stop valve + Non Return Valve
- Safety valves (01 Nos for SH, and 2 Nos for Drum)
- Feed water line valves
- De-aerator tank valves
- Blow-down valves
- Soot-Blower controlling valves (All types of valves etc.)

CASING We shell use M.S sheets for casing according to design.

CONTROL SYSTEM

PLC
Ethernet Cable
Analog Inputs 16 Channel card
Analog Outputs 16 Channel card
Digital Inputs 32 Channel card
Digital Outputs 32 Channel card
RTD Inputs 12 Channel card
Thermocouple inputs08 Channel card

OPERATOR WORKSTATION

CPU with LCD / Scada

FIELD INSTRUMENT EQUIPMENT

Furnace Draught Pressure Transmitter

Steam drum level transmitter Qty 2
Main steam pressure transmitter
De-aerator level transmitter

De-aerator pressure transmitter Feed water pressure transmitter Feed water flow transmitter Steam flow transmitter Orifice Plates for Feed Water Flow and Steam Flow

AUTO CONTROL VALVE

Feed Water Control valve	Qty 1
De-aerator pressure control valve	Qty 1
De-aerator temperature control valve	Qty 1
Steam Temp Control	Qty 1

TEMPERATURE INDICATIONS

Feed water temperature Type PT 100
Main Steam Temperature Type PT 100
Furnace Temperature Type PT 100
After Economizer Temperature Type PT 100
After Air Heater Temperature Type PT 100
Stack Gas Temperature Type Pt 100

ANALYZER METER

TDS Meter

PH Meter

INDUCTION MOTORS/GEAR MOTORS

Electric Motor for ID Fan	Qty. 1
Rating:	160 kW
RPM:	990
Voltage:	410 - 415 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Efficiency	E - 2
Electric Motor for FD Fan	Qty.1
Rating:	220 kW
RPM:	1480 RPM
Voltage:	410 - 415 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Efficiency	E – 2
Electric Motor PA Fan	35 KW with 2890 RPM
Feed Water Pump Motors	Qty.2

Rating:	According to Pump manufacturer
Voltage	410 - 415VAC
Ambient Temperature	45C
RPM:	2950

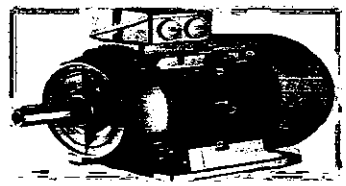
Qty.3

Feeder Gear Motors

Rating:	7.5 kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F

Rotary Valve Gear Motors Qty.4

Rating:	1.5kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F



VARIABLE SPEED DRIVES

Variable Speed Drives for ID Fan Qty.1

Rating:	160 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA

FUEL FEEDING SYSTEM

Shredder (Fuel size inlet 6 inches X 72 inches)	01 No.
Grader (6mm x 6 mm) for Bed)	
Shredder to Grader Conveyor and reverse	01 Set
Main Feeding Conveyor	01 No.
Feeding Bin (1 hour Storage of Coal)	01 No.

ASH HANDLING SYSTEM

Screw Conveyors	04 No.
Main Screw Conveyor	01 No.
Ash Bin (3 Hour Storage Capacity)	01 No.

HT Cables **Turbine Main Penal to Transformer**

Transformer **11 Kv to 400 v**
Lt Cables **Transformer to Boiler Penal**
Synchronizing System
(All Boiler Cables and Penal included in Boiler Scope)

(All Turbine Cables and Penal would also be in Turbine Scope) (All Cooling Tower Cables and Panel would also be in Cooling Tower Scope)
(All Fuel Feeding and Ash Handling System Penal would also be in their Scope)
(All Water System cables and penal would also be in water system scope

SMT Power (Private) Limited

The Registrar
National Electric Power Regulatory Authority
2nd floor, OPF Building, Sector G-5/2,
Islamabad

Date : 07-02-2025

Subject: Requisite information / Documents for Application for Grant of Electric Power Generation / Concurrence for 4MW at SMT Power (Private) Ltd, Sindh, Pakistan

Reference : Your letter No : NEPRA/R/GCA-100/1448 Dated January 27, 2025 (received on 28 January, 2025)

Refer to above mentioned subject, enclose please find the documents as per following :

Regulation	Information/Documents Required	Page #
3(f)	Feasibility Study duly prepared in the manner specified under Regulation 3(f) of the Regulations.	1-81
3(g)	An affidavit stating whether the applicant has been granted any other license under the Act. The affidavit is required to be duly signed and sworn before a person lawfully authorized to take and receive affidavits.	82
3(7)	An affidavit as to the correctness, authenticity, and accuracy of the application. The affidavit is required to be duly signed and sworn before a person lawfully authorized to take and receive affidavits.	83
Schedule III (Regulation 3(4)(A)(a)(A)(e)		
3	Environment Impact Assessment Study	84-86
4(i)	Technology, size of the plant, number of units. SMT has not provided the Number of Units of its power plant.	87-90
4(vii)	Project commencement and completion schedule with milestones.	91

Above Documents is filled with triplicate along with each set.

Shaheen Merchant
Director

Plot No. D-11, South Avenue, Shahrah-E-Moin Akhter Road, S. I. T. E. Karachi-75700, Pakistan.
Phone: +92 21 3256 2310-11, +92 21 3256 6970
E-mail: smtpower@smgroup.com.pk

Detail Feasibility Study of BIOMASS TURBINE

SMT Power (Private) Limited

Table Of Contents:

1. Introduction

2. Project Details and Prospective

3. Fuel Supply

4. The Type, Technology, Model, Technical Details and Design of Facilities

1. Introduction

1.1. Project overview

SMT Power (Private) Limited (SMTPPL) is planning to install 4 MW Co-generation Power project at Karachi, Sindh Pakistan to reduce Gas consumption & produce Renewable Energy. The Project consists of 4 MW condensing and extraction steam turbine along with high pressure and high-temperature steam generator.

SMTPPL will provide electricity to SM Traders. The benefit of this project is to reduce carbon foot print & produce green energy. The initiative to install the project is to save natural gas for our future generation.

1.2. Document Scope

The document offers a comprehensive feasibility report aiming to secure a Power Generation License, focusing on establishing a biomass-fired power plant in Pakistan. It outlines key project objectives, evaluating meteorological, seismic, and biomass factors. Detailed analysis covers plant capacity, technology, construction needs, staffing, and resource procurement, including demobilization and site restoration considerations. Operational aspects emphasize health, safety, and environmental standards, prioritizing personnel training. Extensive coverage spans fuel supply, infrastructure, and facility specifications, encompassing design basis, control systems, security, and electrical infrastructure. Detailed examination extends to water treatment, civil design, and electrical aspects, addressing equipment selection, layouts, protections, and safety measures.

1.3. Definition and Abbreviations

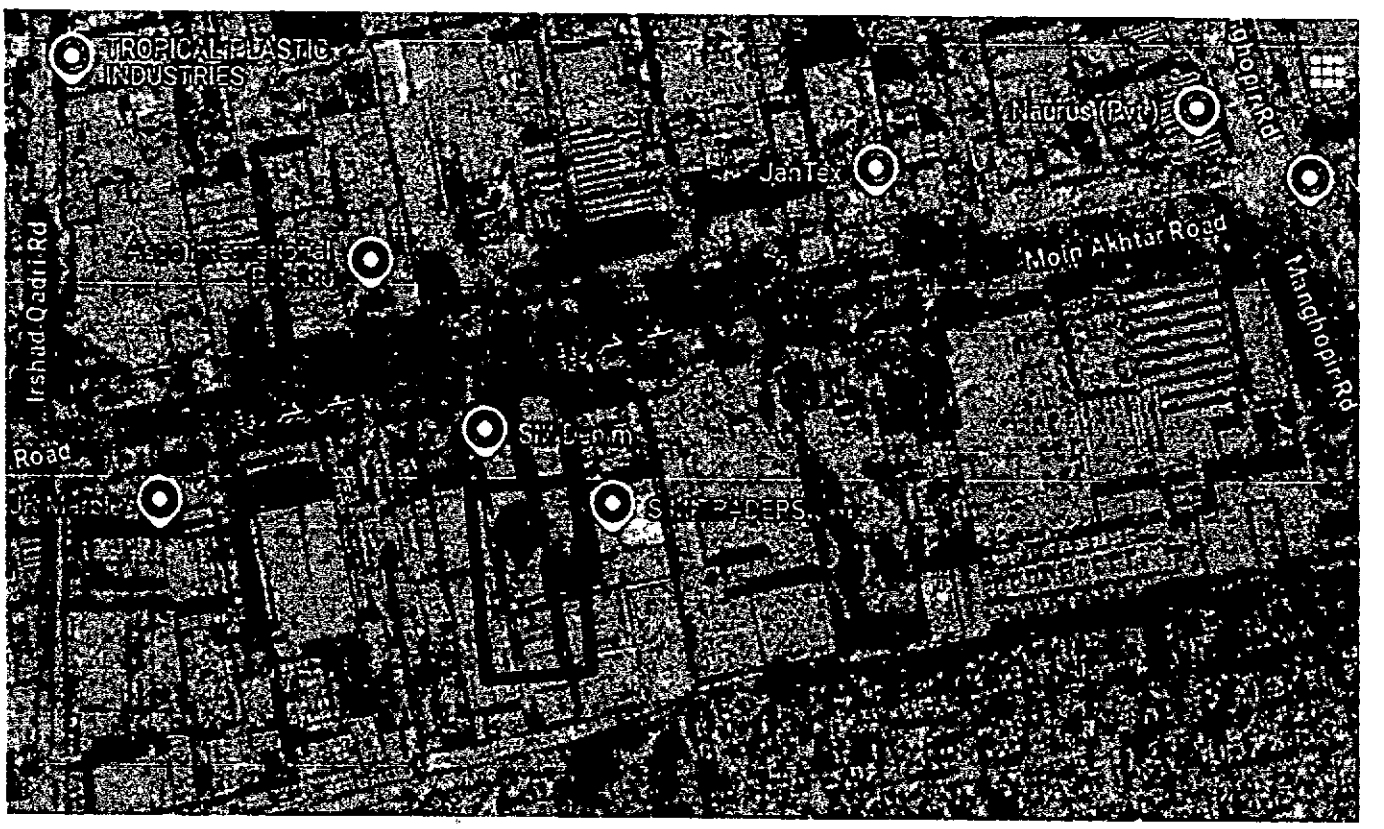
1.3.1. Definitions

Buyer:	SMT Power (Private) Limited. In this document the word Buyer and SMTPPL are interchangeable and mean the same.
Vendor:	Means any and all persons, firms, partnerships, companies, bodies, entities, or a combination thereof including sub-vendors who are providing equipment, material, and services to perform duties.
Project:	4MW Biomass Fired Co generation Power Plant

1.4 Location (Location maps, site map, Land).

The project site is located near the D-11 South Avenue, SITE Karachi No.75700, The site is 20.8 km away from Jinnah International Airport, Karachi.

Latitude (North)	Longitude (East)
24°90'43.9"N	67°01'22.3"E



1.5 Project Activities

The proposed project shall involve the following activities

- Construction & Commissioning Activities
- Operation Activities

2. Project Details and Prospective

2.1 Description of the plant

2.1.1 Proposed Plant Projected Specifications

The broad parameters of the project are as follows:

- **Installed Capacity** : 4000 kW
- **Turbine Capacity** : 4 MW Extraction/Condensing
- **Boiler Type** : Single Drum Membrane Type

Travelling/step/vibratory Grate Biomass fired (to be decided yet) Boiler

- **Boiler Installed Capacity** : 30 TPH, 65 Bar(g), 500°C
- **Fuel** : Biomass (Locally Available)
- **Grate Type** : Travelling/Step Vibratory Grate
- **Construction / Commissioning Period** : 18 Months
- **Project Operational Capacity** : **4000 KW**

- **Total Net Power Generation** : 4000 kW
- **Boiler Operational Capacity** : 30 TPH
- **For 3500 kW Generation** : **25 TPH**

2.1.2 Major Systems of the Proposed Plant

The major systems of the proposed plant include. Biomass handling and processing system

- Fuel preparation system
- Fuel handling and conveying system
- Fuel feeding system
- Single Drum Membrane Type Steam Generator
- Extraction-Condensing Steam Turbine
- Electrical Power Generator
- Flue Gas Treatment System
- Cooling Water System

- Ash Handling System
- Utilities and Waste Management System
- Boiler Feed Water Treatment System
- Fire Fighting System

2 .1. 3 Technology Description of the Proposed Power Plant

SMT Power (Private) Limited is interested in technology that is the latest and proven. The 11.0 MPa, 543 °C System is identified with assumptions of 4 MW gross output, 30TPH net extraction as offering a significantly superior return on investment. This configuration strikes a balance between substantial fuel savings and a modest increase in capital investment.

Specifications of Extraction Condensing Steam Turbine:

- **Gross Power Output** : 4 MW
- **Type** : Condensing
- **Stage** : Multistage, Nozzle Governed
- **Nominal Steam Inlet Pressure** : 65 Bar(g)
- **Nominal Steam Inlet Temperature** : 500 °C

Specifications of Generator:

- **Voltage Level** : 11,000 V
- **Frequency** : 50 Hz
- **Power Factor** : 0.8
- **Insulation Class** : F

Specifications of Boiler:
The biomass-fired boiler is a top-supported natural circulating boiler with a single drum, consisting of a rigid water-cooled frame that supports the heating surfaces and steam drum. The boiler features a membrane wall construction, which is water-cooled and fully gastight. Due to its welded construction, water-cooled frame, and low wall thickness of the steam drum, the boiler can react very quickly to load changes and can be started faster compared to other types of boilers.

Key Parameters of the Boiler:

2. **Type**	:	Single Drum Membrane Type
3. **Evaporation Capacity**	:	30 TPH
4. **Steam Pressure**	:	65 Bar(g)
5. **Steam Temperature**	:	500 °C ± 3 °C
6. **Grate**	:	Travelling/Step Vibratory Grate
7. **Draft**	:	Balanced
8. **Furnace Type**	:	Membrane Type Water-Cooled
9. **Fuel**	:	Biomass (Agriculture Waste)
10. **Feed Water Temperature**	:	196°C
11. **Boiler Efficiency on LCV**	:	88%
12. **Flue Gas Temperature**	:	145°C

2.2 Power Plant Construction

The proposed power plant shall take approximately 18 months for construction installation and commissioning. SMTPPL plans to start the construction activity for the proposed power plant by the start of April 2025 and expected to commission/operation shall be started by the end of July 2026.

Typical activities that are conducted during civil construction are listed below:

- Construction camp setup and mobilization of contractors

Excavation for foundations

Laying of foundations

- Masonry work

- Concrete work

- Asphalt work (pavement, roads, etc.)

- Finishing (plastering, painting, etc.)

The power plant and ancillary equipment, brought to the site by road in sections, shall be

erected on-site and commissioned. Typical activities that are conducted during plant erection are listed below:

- Site fabrication (equipment/pipe supports, equipment assemblies, etc.)

- Placement of the vessels and equipment (Steam turbine) on the foundations

- Laying of pipes; Welding, joining, etc.

- Electrical installation (cabling, switch gear, transformers, etc.)

- Instrument installation (field instruments, control room instruments, instrument cabling, etc.) and painting etc.

2.2.1 Resources Consumption and Supplies

2.2.1.1 Staffing

It is expected that around 150-200 skilled and unskilled personnel shall be required during construction activities of the project. Local people shall also be hired for unskilled and semi-skilled work during project activities.

2.2.1.2 Water & Electricity Sourcing

Water required during the peak construction period shall be taken from a groundwater well(s). Potable water collected for the power plant shall meet NEQS for drinking water and WHO guidelines. Electricity from the SM Traders shall be the primary source during the construction, testing, and commissioning phase and afterward. Other supplies required during the construction phase includes office and camp supplies.

2.2.1.3 Construction Material Sourcing

During the construction, a large amount of construction material shall be required. This shall include steel, cement, sand, and aggregates for road and pavement construction. Construction materials shall be mainly procured from the Punjab.

2.2.2 Demobilization and Site Restoration

- On completion of the construction and commissioning phase, the construction contractor shall demobilize the site and construction camp. Temporary infrastructure shall be decommissioned, and sites shall be restored. This shall involve:

- Removing the temporary construction camp

- Closing all the temporary waste pits

- Removing all waste and leftover construction materials from the site

- Leveling and restoration of areas.

2.3 Power Plant Operations

A brief description of the whole process of the power plant (SMTPPL) is mentioned below,

The proposed power plant shall be a Biomass-Fired Power Plant

- A biomass storage shed shall be constructed at the project site.

- Highly refined quality water of is fed into the boiler to avoid internal scaling. Exhaust gases shall be passed through ESP/Bag Filter to minimize its corrosively for ambient air.

- Super heated steam @ P: 9.8 MPa & T: 480°C shall be produced to generate power through extraction-condensing type steam turbine generators (STG).

- Low-pressure exhaust steam is passed through a Water-Cooled Condenser

(WCC) equipped with Cooling Tower for cold water supplies.

- Bottom ash shall be disposed-off by landfill.

- The proposed power plant shall produce about 17 MW gross.

2.4 Health, Safety, and Environmental Management Standards

The construction and operational phase of the project shall have to meet the requirements of health, safety, and environmental standards and HSE Policy of SMTPPL. SMTPPL standards highlight commitment on prioritizing health and safety of all its employees, contractors and visitors involved in its activities and confer overriding commitment towards minimizing impact of its activities on the natural environment. Moreover, the following procedures and arrangements shall be done during all phases of project activities.

- Personal Protective equipment (PPE's)

- Complete first Aid Facility

- Fire Protection & Prevention

- Emergency preparedness plan and procedures. Safety measures for excavation/openings

- Proper House Keeping

- Maintenance & Equipment Inspections

- Electricity Safety;

- Safe usage of Hand & Power Tools

- Standard Scaffoldings & Ladders

- Proper hoisting, cranes & lifting etc.

- Standard welding procedures

- Safe handling of hazardous materials: Chemicals & Gas Cylinders

- Safe working above ground levels

- Necessary Weather Protection Measures

- Safe working at confined places

- Avoid working at fragile roofing & materials

- Strict compliance of Warning signs

- Proper Waste Management plan and procedures

Environmental Impact Assessment of the Unit

Based on the provided testing report and operational data, the environmental impact of the power unit has been comprehensively assessed as follows:

Air Quality Management:

The unit operates using a 30 TPH fluidized bed biomass boiler, which utilizes fuels such as corncob, bagasse, sesame husk, rice husk, lakra coal, and imported coal.

Emissions testing indicates controlled levels of CO_2, SO_2, and particulate matter, adhering to regulatory limits for the region.

The inclusion of co-generation and a 4 MW turbine optimizes energy efficiency and reduces reliance on fossil fuels, thereby lowering greenhouse gas emissions.

Water Conservation and Quality:

The in-house Reverse Osmosis (RO) plant ensures minimal water wastage through recycling and re-usability measures.

Water treatment systems meet the required standards, with treated wastewater discharge aligning with environmental compliance policies.

Solid Waste Management:

Ash generated from the biomass boiler is re-purposed for use in cement manufacturing and agricultural applications, minimizing landfill impact.

A strict waste segregation and disposal process ensures that hazardous materials are handled responsibly.

Energy Efficiency:

The integration of a co-generation system utilizes waste heat to generate usable energy, significantly reducing the carbon footprint of the unit.

Biomass fuels offer a renewable energy source, contributing to sustainability goals and reducing dependence on non-renewable resources.

Compliance and Monitoring:

The unit adheres to ISO 14001 standards for environmental management systems.

Continuous monitoring systems are in place to track emissions, water quality, and waste output, ensuring compliance with environmental regulations.

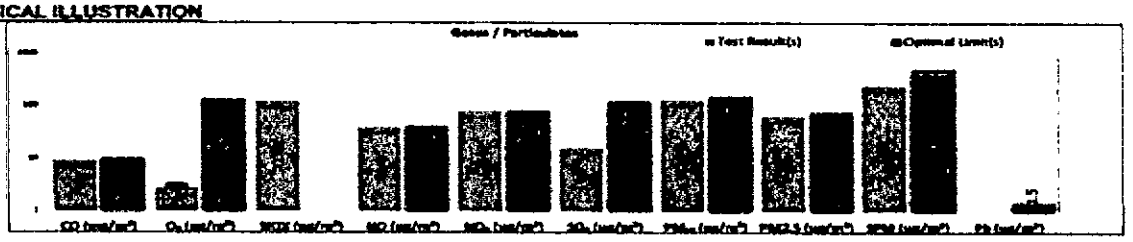
AIR QUALITY MONITORING TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243			Report No. AMT/IBE/NOV-24/AQ/AL-13325
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shahbaz	Sampling Date	25-Nov-24
Sample Description	Air Quality Test	Reporting Date	02-Dec-24
LOCATION DETAILS			
Sampling Area	Boiler Area	Sampling Type	Indoor Air Quality

S.No	Parameter(s)	Unit(s)	Test Method	Test Result(s)	Optimal Limit(s)
1	Carbon Monoxide	CO (mg/m³)	Non Dispersive Infrared Method	8.9	10
2	Ozone	O_3 (µg/m³)	ASTM D-5156	2.8	130
3	Oxides of Nitrogen as NOX	NOX (µg/m³)	ASTM D-3608	117.0	- -
4	Oxides of Nitrogen as NO	NO (µg/m³)	ASTM D-3608	38.4	40
5	Oxides of Nitrogen as NO_2	NO_2 (µg/m³)	ASTM D-3608	78.6	80
6	Sulphur Dioxide	SO_2 (µg/m³)	ASTM D-2914	15.9	120
7	Particulate Matter (10-Microns)	PM_{10} (µg/m³)	PM Analyzer (Laser Diode)	128	150
8	Particulate Matter (2.5-Microns)	PM2.5 (µg/m³)	PM Analyzer (Laser Diode)	63	75
9	Particulate Matter (suspended)	SPM (µg/m³)	PM Analyzer (Laser Diode)	241	500
10	Lead	Pb (µg/m³)	AAS Method (EPM Filter paper)	ND	1.5

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.

Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AIMS TEC (PRIVATE) LIMITED

Reviewed By
Incharge (Environmental Laboratory)

Repudiation: This report is not valid for any judicial use and free from all claims. All test results and report is valid for the time of sampling (as per mentioned date) and particular sample (as per descriptions given by client). Maximum possible safety measure are applied but Aims Tec (pvt) Ltd. doesn't undertake any liability for the scope of methodology used, accuracy and validity of results, which may influence by any unavoidable factors. In case of any query, must contact within a week from the reporting date. After one week of work execution your query will not be entertained.

EPA Certificate No: EPA/LAB/Certificate-13 [SEPA-2014]

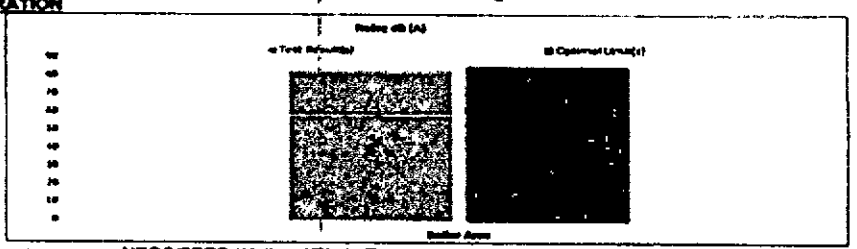
NOISE EXPOSURE TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243		Report No. AMT/IBE/NOV-24/NE/AL-13327	
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	Sampling Date	25-Nov-24
Sample Description	Noise Emission	Reporting Date	02-Dec-24
LOCATION DETAILS			
Sampling Area	As Mention Below	Sampling Type	Grab Sample

S.No	Parameter(s)	Unit(s)	Methodology	Location	Test Result(s)	Optimal Limit(s)
1	Noise background (daytime)	dB (A)	ASTM E-1124	Boiler Area	83.1	85

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan
Expert Opinion: will be given only on special request.

Sample Analyzed By
(Field Analyst)

AMS TEC (PRIVATE) LIMITED

Reviewed By
Incharge (Environmental Laboratory)

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2.5 Training & Development

The contractor shall provide training, including on-site and training in the English language, so that such training is complete before the commencement date, for suitably qualified and experienced O&M personnel by Progress Event schedule, to provide such personnel with the knowledge required to operate the Power Station in accordance with the O&M manuals, the manufacturer's instructions and guidelines, and the level of competence of a reasonable and prudent operator. The contractors shall undertake to train at site installation, operation and maintenance of the offered plant equipment's, engineering personnel selected by the owner. The period and nature of training for the individual personnel shall be agreed upon mutually between the contractors and the owner covering the following areas as a minimum in order to enable these personnel to individually take the responsibility of operating and maintaining the power station in a manner acceptable by the owner.

-Training on flue gas analyzers, as well as other Steam Generators/Turbine Generators/related E & I system equipment including related electrical areas such as generators and excitation systems.

-Training for special packages for various PLC/DCS-based systems

The contractors shall provide the training equipment and materials during the training period. All the software, films, video CDs, transparencies, notes, etc. used in the training program shall remain the property of the owner at the end of the agreement. The contractor's supervisory and erection personnel deputed to site works shall continuously and intensively instruct and train the Owner's personnel engaged in the erection or operation and maintenance of the plant at the site during erection, testing, and commissioning as well as during operation and maintenance. This shall cover all aspects of site work on the plant including special instructions and care required in attending to various jobs, whether or not they are incorporated in the relevant manuals.

3. Fuel Supply

3.1 Fuel Type and availability

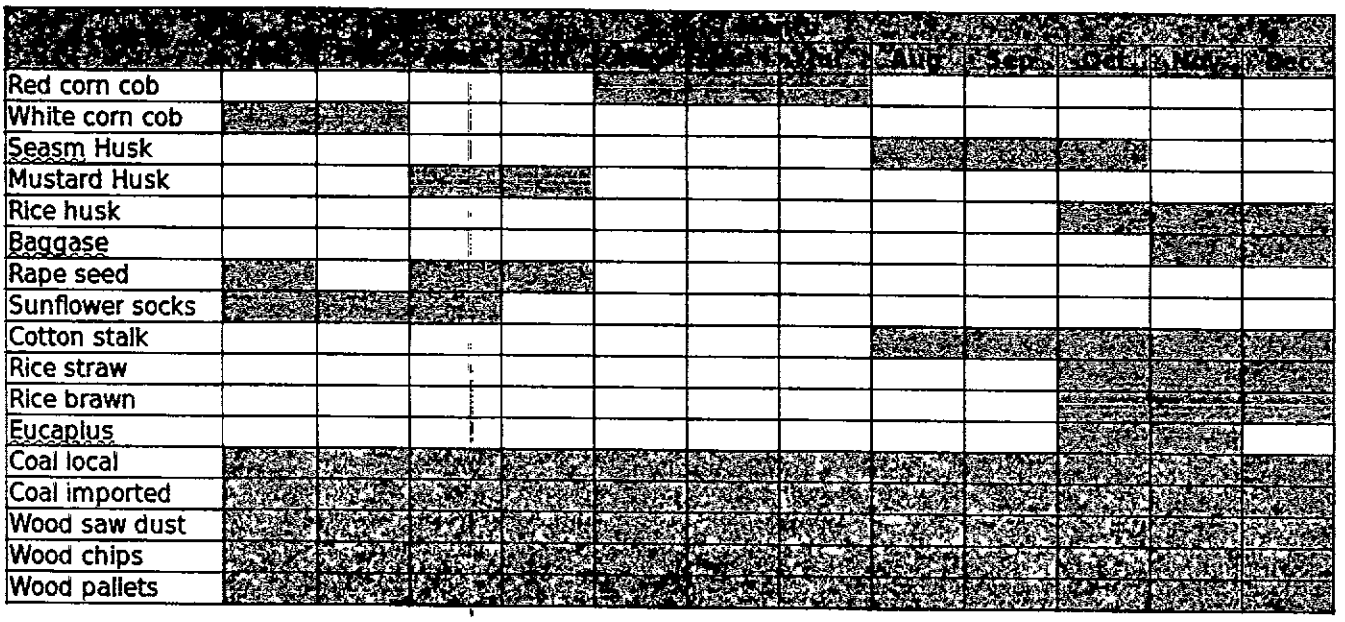
Biomass (Agricultural Waste) / Coal are selected as fuel for this project. Biomass emerges as a promising, cost-effective, and sustainable alternative with the potential to address both energies needs and environmental concerns

3.2 Selected Types of Fuels

The following types of fuels are selected for power generation that are readily available in Pakistan.

- Bagasse 2- Rice Husk 4- Corn Cob (Red) 5- Corn Cob (White) 7- Brassica 8- Mustard Straw 3- Rice Straw 6- Corn Stalks 9- Wood Chips 10- Cotton Stalks 11- Coal 12- Sugarcane Trash 13- Maize Husk 14- Wheat Straw

3.3 Seasonal Availability Chart for Biomass of Pakistan



3.4 Annual production potential of crop residue in Pakistan

The annual production potential of crop residue biomass and their use is given as follow:

Biomass Residues	Theoretical Potential	Technical Potential	Past Annual Usage (%)
Bagasse	11,790	4,224	35.8
Rice husk	1,288	557	43.2
Corn cob	599	67	11.2
Corn husk	400	45	11.3
Cotton stalk	25,865	2,764	10.7
Wheat straw	16,323	2,604	16.0
Rice straw	6,438	2,784	43.2
Sugarcane trash	4,716	1,690	35.8
Maize stalk	2,270	256	11.3
Total	69,689	14,991	21.5

3.5 Composition of Biomass (Proximate and Ultimate Analysis)

Parameter	Unit	Corn Cob	Corn Stover	Corn Stalk	Wheat Straw	Rice Husk	Brassica	Bagasse	Coal Foreign
Specific Energy									
Gross Calorific Value	kJ/ KG	14856	14912	16206	16670	16126	15072	10249	23550.75
Net Calorific Value	kJ/ KG	12526	13972	14185	14777	14816	14053	8360	22776.19
Proximate Analysis (ar)									
Total Moisture	%	15	7.58	13.17	8.61	11	11	48	8
Volatile Matter	%	75	65.68	59.83	70.41	66	65	64.79	21
Ash	%	3.2	13.13	11.52	8.65	18	12	2.91	7.5
Fixed Carbon	%	13.92	13.61	17	16.11	17	22	11.82	38
Total Sulfur	%	0.15	0.31	0.18	0.21	0.17	0.16	0.02	0.33
Ultimate Analysis (ar)									
Carbon (C)	%	42.7	38.36	48.23	43.11	38	42.79	49.2	58.5
Hydrogen (H)	%	6.49	6.65	6.18	5.81	6	6.06	4.69	3
Nitrogen (N)	%	0.25	0.57	0.81	0.63	0.8	0.84	0.18	0.9
Oxygen (O)	%	50.41	40.85	31.08	50.45	37	40	43	4
Ash Fusion Temp. (reducing)									
Initial deformation Temp	°C	970	990	990	920	>1500	1080	1100	1150
Spherical (Softening) Temp	°C	1000	1000	1000	990	>1500	1240	1240	1210
Hemispherical Temp	°C	1030	1040	1040	1061	>1500	1275	1270	1200
Fluid Temperature	°C	1100	1070	1100	1100	>1500	1305	1352	1250
Ash Analysis (db)									
Silica (SiO_2)	%	63.6	58.8	67.02	41.52	95.4	17.2	73	38.5
Alumina (Al_2O_3)	%	5.85	8.81	2.15	1.01	0.1	7.9	6.7	16.5
Manganese (Mn_3O_4)	%	2.11	3.65	3.65	1.98	0.3	9.6	3.2	0.01
Calcium (CaO)	%	3.5	5.83	6.78	8.08	0.4	34	2.8	0.1
Iron (Fe_2O_3)	%	2.95	4.23	1.01	0.7	0.1	1.5	6.3	†
Phosphate (P_2O_5)	%	2.42	1.35	0.94	4.45	0.5	1.5	4	0.1
Sodium (Na_2O)	%	0.45	1.26	0.4	0.6	-	0.5	1.1	0.1
Potassium (K_2O)	%	8.42	10.56	5.24	31.9	1.8	17.7	2.4	0.2
Titanium (TiO_2)	%	0.6	0.31	0.13	0.07	-	0.3	-	0.5
Sulfate (SO_3)	%	1.14	0.57	2.42	3.33	-	7.5	0.4	-
Other Impurities	%	8.96	3.64	10.23	6.36	1.4	2.3	0.1	-

3.6 Transportation Modes

Biomass transportation primarily utilizes tractor trolleys, trucks, or similar road-based transport modes in Pakistan due to their accessibility and suitability for local roads.

3.7 Accessibility

Pakistan's road network supports the movement of biomass from local sources to power generation facilities, ensuring relatively easy access and transport feasibility.

3.8 Supply Chain Management

Biomass resources are locally abundant, reducing transportation distances and fostering a dependable and consistent supply chain.

3.9 Logistics and Efficiency

The chosen modes of transportation offer efficient delivery of biomass quantities, with regular and well-managed schedules to maintain a steady supply. Biomass transportation accounts for proper handling practices and maintaining quality and quantity standards during transit and storage at the facility.

4. The Type, Technology, Model, Technical Details, and Design of Facilities

4.1 Principle on Unit Selection:

i. The main equipment shall be of high pressure/temperature and proven design.
ii. The main and auxiliary equipment has advanced technology, good quality, high reliability, and availability.
iii. The unit has high efficiency. The project is a newly built project. At this stage, one unit of 4 MW shall be installed, although the present operational capacity shall be 3.5 MW.

4.2 Main Equipment and Parameters

Specifications of Extraction Condensing Steam Turbine are as follows:

Power Output	:	4 MW
Type	:	Extraction Condensing
Stage	:	Multistage, Nozzle Governed
Nominal Steam Inlet Pressure	:	65 Bar(g)
Nominal Steam Inlet Temperature	:	500 °C

Specifications of Generator are as follows:

• Voltage Level	:	11,000 V
• Frequency	:	50 Hz
• Power Factor	:	0.8
• Insulation Class	:	F

Specifications of Boiler:

• Type	:	Single Drum Membrane Type
• Evaporation Capacity	:	30 TPH
• Steam Pressure	:	65 Bar(g)
• Steam Temperature	:	500 °C ± 3 °C
• Grate	:	Travelling/Step Vibratory
• Fuel	:	Biomass (Agriculture Waste) / Alternative Fuel
• Feed Water Temperature	:	200 °C
• Boiler Efficiency on LCV	:	88%
• Flue Gas Temperature	:	145 °C

4.3 PROJECT SPECIFICATIONS

Power House Capacity	4 MWH
Boiler Capacity	30 TPH
Boiler Design Pressure	68 Kg/cm^2 (g) Pressure.
Boiler Type	fluidized Bed
Fuel	Wood, Saw Dust, Rice Husk, Corn Cobs, Coal, Sesam Husk
Turbine Capacity	4 MWH
Type	Extraction Condensing

BOILER DATA

Boiler Design Data	Annexure - I
Technical Specification of Boiler	Annexure –II
Boiler Scope of Supply Mechanical	Annexure - III
Boiler Scope of Supply Instruments	Annexure - IV
Boiler Scope of Supply Electrical	Annexure - V
STEAM TURBINE, STEAM PIPE LINE	Annexure – VI
COOLING TOWER AND PUMPS, PIPES	Annexure – VII
FUEL FEEDING & ASH HANDLING SYSTEM	Annexure – VIII
WATER SYSTEM	Annexure -- IX
ELECTRICAL SYSTEM	Annexure – X
CLIENT SCOPE	Annexure –XI
VENDOR LIST	Annexure - XII

Annexure-I
Boiler Design Data

TECHNICAL SPECIFICATIONS AND SCOPE OF 30 TPH, 68 Kg/cm2

THE TYPE OF BOILER SELECTED IS:-

Combustion system	Fluidized Bed
N.C.R. (Normal Continuous Rating):	30 TPH.
Pressure at outlet of MSSV:	68 Kg/cm2 (g)
Fuel:	**Biomass and Coal**
Type of installation:	Out door
Type of Furnace construction:	Membrane type
Draft system	Balanced draft
Support	Bottom supported on RCC construction
Steam Temperature at outlet of MSSV:	480±
10°C at MCR Feed water temp. at De-aerator inlet/ outlet :	80°C /
105°C Feed water temperature at outlet of Economizer:	225°C
Flue gas temperature after Air Heater:	Less
Than 160°C Design Ambient Temperature for Performance Test:	45Deg
C	
Design Code:	ASME

Boiler would be Membrane wall type and fluidized Bed with Secondary Air Cyclone Effects furnace combustion as per ASME standards.

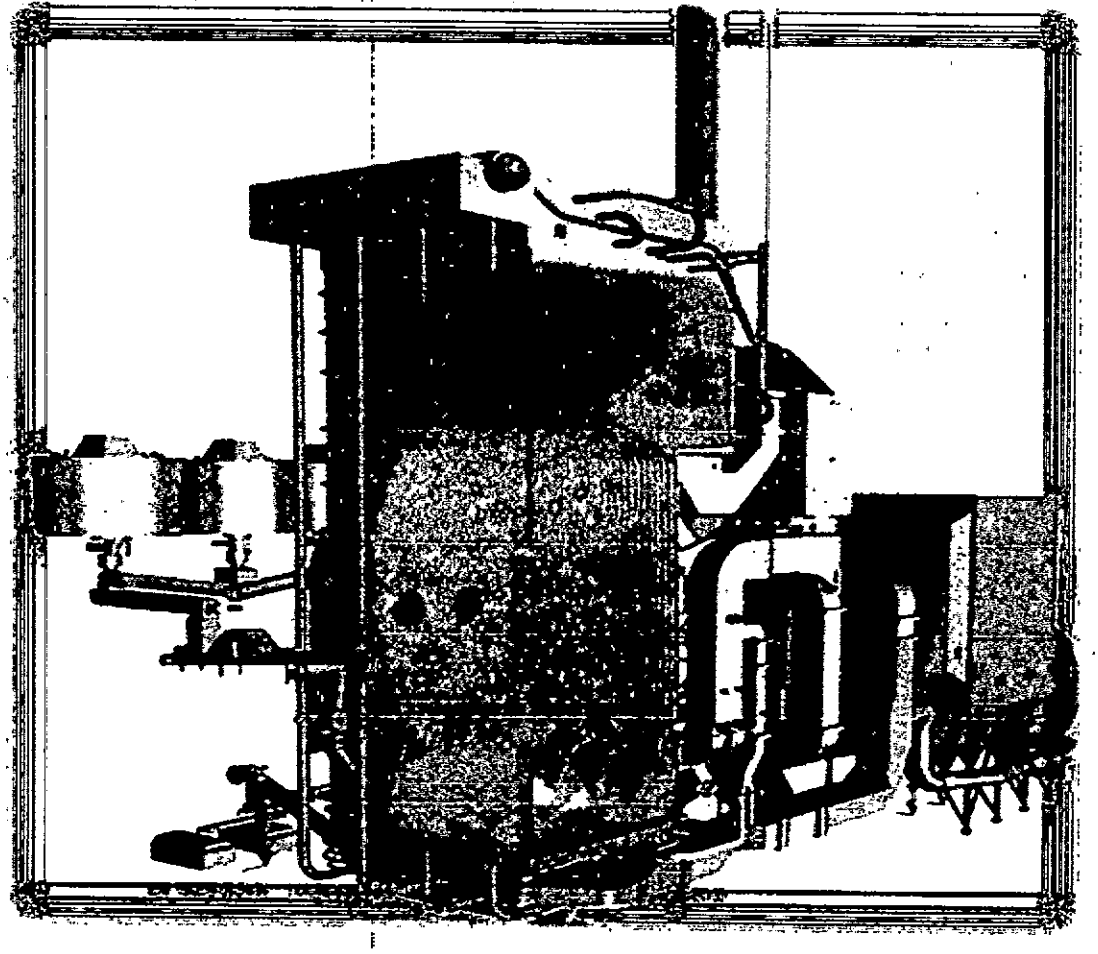
All equipment such as ID, FD and PA fans will be according to Venty design, which would ensure trouble free working of the boiler.

Bed would be completely shop assembled before dispatch which would ensure smooth working at site with benefits of Fuel flexibility, High efficiency.

Proven and sturdy rotary fuel feeders to ensure continuous feeding of fuel into the furnace.

Special design drum internals to ensure high steam purity. Sturdy boiler structure design

All ducting shall be above ground level.



Annexure-I
Technical Specifications of Boiler

GRATE AREA

Grate Area (Approx.)	No. of Fuel feeders
Effective Bed Area 17 M^2	3 Nos.

BOILER DRUM

Material	SA- 516-Gr 70

BOILER TUBES

Particulars	Furnace	Boiler Bank	Super-heater	Economizer
Tube OD (mm)	61.1	49.1	38	38.1
Thickness (mm)	5.1	5.1	4	3.8

Material Quality	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA-210 A1 or BS-3059/ Gr.440 Part II HFS	SA 213 T-11 or BS-3059 Part II Gr.762 Alloy Steel T-91 Seamless	SA-210 A1 or BS-3059 / Gr.440 Part II HFS

HEATING SURFACE APPROX. (M^2)

Furnace and Boiler Bank	Super-heater	Economizer	Air-heater/ Steam Heater
810	150	400	850

Note: Heating surface area can vary according to final design.

DRAFT EQUIPMENTS

Particular s	Capacity M^3/Sec.	Head mm wg	Fan RPM	Temp. □C	Drive	Qty. Nos.
ID Fan	32	350	1450	360	Direct	1
FD Fan	18	650	1450	40	Direct	1
SA Fan	04	800	2980	160	Direct	1

Note: All fans are excess 35% of the design.

SOOT BLOWERS

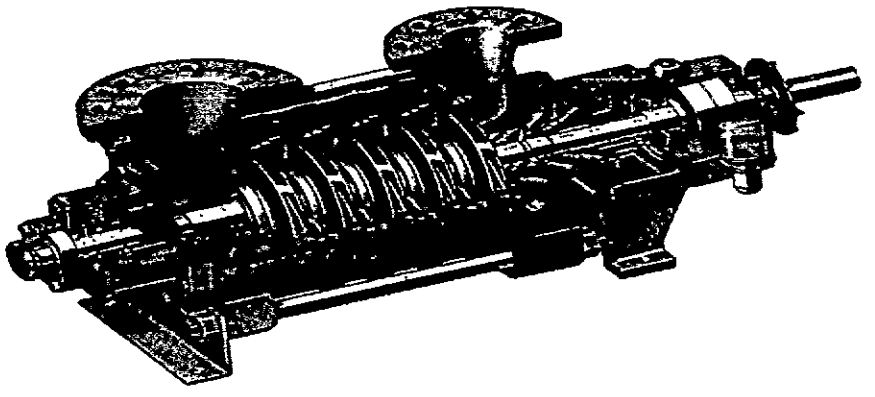
Make / Type	Bank	Super-heater	Economizer	Air Heater
TIE	1 Nos.	01 Nos.	1Nos.	01No.
Type	Retractable	Retractable	Stationary	Stationary

FEED WATER PUMPS

Type	Capacity (M^3/hr.)	Head Mtrs.	R.P.M.	Temp. □C	Qty. Nos.
Multistage Centrifugal Motor Driven	40	855	2950	125	2 (1 W+1 S)

H.P CHEMICAL DOSING SYSTEM

Type	:	**H.P.**
No. of Pumps	:	1 No.
No. of dosing tank	:	1 No.



Annexure-III

Boiler Scope of Supply (Mechanical)

BOILER DRUM, HEADERS and TUBES:

Boiler pressure parts shall be constructed in accordance with the ASME specifications with flanged ends or welded ends to promote cleaning and inspection.

BLOW DOWN ARRANGEMENT: (IBD Tank)

Continuous blow down equipment as per ASME complete with all piping up to Blow down tank shall be provided.

ECONOMIZER:

An economizer of suitable heating surface shall be provided for the boiler. The economizer shall be complete with Carbon steel quality economizer coils, supports, thermo wells for measuring inlet and outlet water temperature, casing and ducting, soot blower, lagging etc. The economizer shall be designed in accordance with the requirement of ASME.

COMPLETE STRUCTURE:

AIR PRE-HEATER AND TUBES:

Air heater of suitable heating surface to heat the air by flue gases required for combustion for the boiler. The air-heater shall be complete in all respects with Carbon Steel ERW tubes, tube plates, supports, dampers, casing and ducting etc.

FLY ASH ARRESTOR (MULTISWIRLER DUST COLLECTOR):

A suitable dust collector of multi-swirler type having vertical fins of hard cast iron shall be provided to reduce the contents in the flue gases leaving Chimney. The dust collector shall be located on the suction side of the ID Fan.

DUCTINGS AND DAMPERS:

Necessary mild steel ducting of 3 mm thick in case of air duct and 3 mm thick in case of gas duct with stiffeners shall be provided for boiler comprising of cold air ducting extending between the forced draft fan discharge and air inlet of air heater, hot air ducting from the air heater outlet to the furnace, flue gas ducting connecting the boiler with its accessories up to inlet of Chimney.
Necessary regulating and isolating dampers at suitable points shall be provided for the efficient operations and maintenance of the boiler.
Suitable galleries and ladders with grating or open steel flooring for affording access to the essential levels of the boiler plant complete with hand railings curb angles and supports shall be provided.

REFRACTORY AND INSULATION:
All supporting steel work, hangers thrust brackets and castings for the furnace shall be provided for the boiler. All refractory material including standard and high grade refractory tiles and bricks, adequate quantity of high grade refractory cement, cast able refractory bricks for furnace and high temperature zones shall be as per ASME. Insulating materials for the exposed portion of the boiler, steam and mud drum, integral pipe work from the feed pumps to the boiler, steam pipe, gas and air ducting shall also be supplied. All insulated surfaces of ducting and piping shall be lagged with suitable G.I sheeting

DEARATOR TANK

PUMPS
SOOT
BLOWER BED
FANS
FEEDERS, SPREADERS
WET SCRUBBER + CHIMNEY (For Clean Environment) VALVES AND MOUNTINGS

iv. Main Stop valve + Non Return Valve
v. Safety valves (01 Nos for SH, and 2 Nos for Drum)
vi. Feed water line valves
vii. De-aerator tank valves
viii. Blow-down valves
ix. Soot-Blower controlling valves (All types of valves etc.)

Annexure-IV

Boiler Scope of Supply

CONTROL SYSTEM

PLC

Ethernet Cable

Analog Inputs 16 Channel card

Analog Outputs 16 Channel

card Digital Inputs 32 Channel

card Digital Outputs 32

Channel card RTD Inputs 12

Channel card

Thermocouple inputs08 Channel card

OPERATOR WORKSTATION

CPU with LCD

FIELD INSTRUMENT EQUIPMENT

Furnace Draught Pressure Transmitter

Steam drum level transmitter

Qty 2 Main steam pressure transmitter

De-aerator level transmitter

De-aerator pressure

transmitter Feed water

pressure transmitter Feed

water flow transmitter

Steam flow transmitter

Orifice Plates for Feed Water Flow and Steam Flow

AUTO CONTROL VALVE

Feed Water Control valve — Qty 1

De-aerator pressure control valve — Qty 1

De-aerator temperature control valve — Qty 1

Steam Temp Control — Qty 1

TEMPERATURE INDICATIONS

Feed water temperature

Type PT 100

Main Steam Temperature

Type PT 100

Furnace Temperature Type

PT 100

After Economizer Temperature Type

PT 100

After Air Heater Temperature

Type PT 100

Stack Gas Temperature

Type Pt 100

ANALYZER METER

TDS Meter PH

Meter

Annexure-V

Boiler Scope of Supply (Electrical)

INDUCTION MOTORS/GEAR MOTORS

Electric Motor for ID Fan — Qty. 1

Rating:	160 kW
RPM:	990
Voltage:	410 - 415 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Efficiency	E - 2

Electric Motor for FD Fan — Qty.1

Rating:	220 kW
RPM:	1480 RPM
Voltage:	410 - 415 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Efficiency	E - 2
Electric Motor PA Fan	35 KW with 2890 RPM

Feed Water Pump Motors — Qty.2

Rating:	According to Pump manufacturer
Voltage	410 - 415VAC
Ambient Temperature	45C
RPM:	2950

Feeder Gear Motors	Qty. 3
Rating:	7.5 kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F
Rotary Valve Gear Motors	Qty.4
Rating:	1.5kW
Voltage:	400 VAC
Ambient Temperature:	45 Deg C
Insulation Class:	F

VARIABLE SPEED DRIVES

Variable Speed Drives for ID Fan	Qty.1
Rating:	160 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA
Digital In/Out:	Available

Variable Speed Drives for FD Fan	Qty.1
Rating:	220 KW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA
Digital In/Out:	Available

Variable Speed Drives for Feeders	
Rating:	5.5 kW
Frequency:	50 HZ
Rated Voltage:	415 VAC
IP Class:	IP 20
Analog Output:	4-20 mA

ELECTRIC PANELS

All Panel Components Will Be Make of European and Japanese Standards

System cabinet

With Fan, Louvers, light and door switch Size: 800X600X2200

Fused terminal blocks

Incoming of MCCS (Motor Control Centers) With On/Off Indicators

Voltmeter with selector switch
Ammeter with selector switch
Main copper buss bar

Main ACB

Soot blower retractable motors

ERECTION MATERIALS

Complete Electrical Material

Cable Trays

Conduit pipe and their accessories

Cable Glands

Thimbles

G.I Piping and their accessories **Signal Cables (Consider 100 Ft) Power Cables (Consider 100 Ft)**

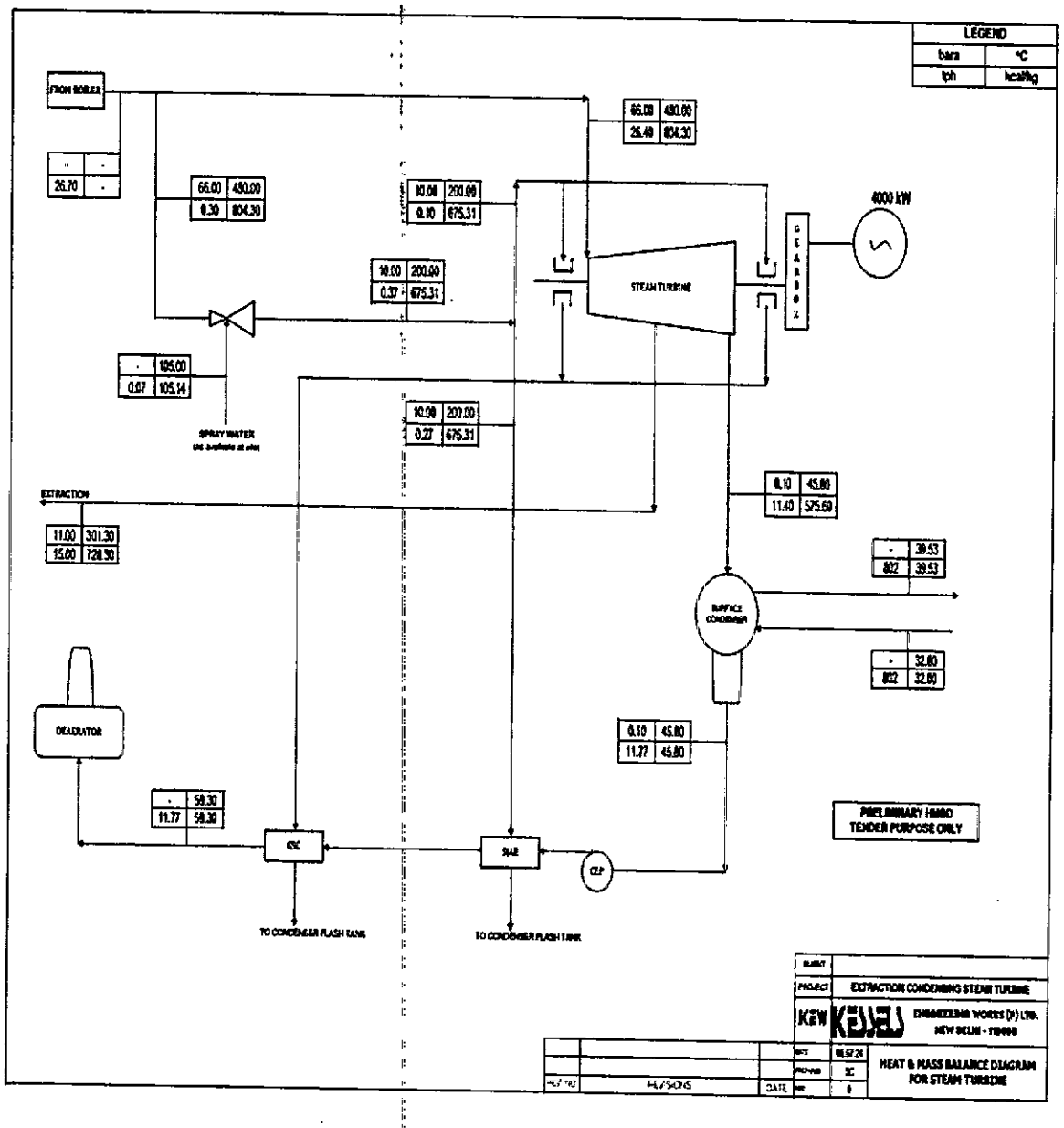
Annexure-VI

STEAM TURBINE

POWER — 4 MWH

TYPE OF TURBINE
CONDENSING EXTRACTION QTY — EXTRACTION
0 to 15 TPH

EXTRACTION PRESSURE — **10 BAR**



RICE HUSK (3000 Kcl/kg)

Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Rice Husk

New Turbine Steam Consumption with Extraction (64 Bar, 480C)

6.5 Ton/MW Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Rice Husk Price AVG	Rs.14000/Ton
KWH Cost fuel Based	Rs.29/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.31.5/KWH (15 TPH Steam Free)

CORN COBS (3200 Kcl/kg)

Steam Generation (65 Bar,490C) 3.6 TPH / Ton of Corn Cobs

New Turbine Steam Consumption (64 Bar, 490C)

6.5 Ton/MW Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Corn Cobs Price AVG	Rs.15000/Ton
KWH Cost fuel Based	Rs.30/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.32.5/KWH (15TPH Steam Free)

SESAME HUSK (3300 Kcl/kg)

Steam Generation (65 Bar, 490C) 3.3 TPH / Ton of Sesam Husk

New Turbine Steam Consumption (64 Bar, 490C)

6.5Ton/MW Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Sesame Husk Price AVG	Rs.12000/Ton
KWH Cost fuel Based	Rs.26.20/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.28.7/KWH (15 TPH Steam Free)

LAKHRA COAL (4000 Kcl/kg)

Steam Generation (65 Bar,490C) 3.5 TPH / Ton of Lakhra Coal

(Low steam generation due to High Sulfur and high Ash).

New Turbine Steam Consumption (64 Bar, 490C)

6.5Ton/MW Power Generation	4000 KWH
Auxiliary	400 KWH
Available Power	3600 KWH
Lakhra Coal Price AVG	Rs.16000/Ton
KWH Cost fuel Based	Rs.33/KWH
O&M	Rs.2.5/KWH
KWH Cost without Financing	Rs.35.5/KWH

Annexure-VII

COOLING TOWER, PUMPS & PIPES

COOLING TOWER	1 Set
Cooling Water Flow	2000 Cubic Meter Hour
Inlet Water Temperature	42 C
Out Let Water Temperature	32 C
Pressure	3.5 Bar
PUMPS	2 Nos
Capacity	2200 Cubic Meter Hour
Pressure	3.8 Bar
PIPES Dia	400 mm

Annexure-VIII

FUEL FEEDING, ASH HANDLING

FUEL FEEDING SYSTEM

Shredder (Fuel size inlet 6 inches X 72 inches)

01 No. Grader (6mm x 6 mm) for Bed)

Shredder to Grader Conveyor and reverse	01 Set
Main Feeding Conveyor	01 No.
Feeding Bin (1 hour Storage of Coal)	01 No.

ASH HANDLING SYSTEM

Screw Conveyors	04 No.
Main Screw Conveyor	01 No.
Ash Bin (3 Hour Storage Capacity)	01 No.

Annexure-IX
WATER SYSTEM

WATER SYSTEM

Raw Water Storage Tank (50 Ton) 01 No.

R.O / Demin Plant (20 TPH)

01 No. (Depending upon the Condensate)

Soft Water Storage Tank (100 Ton) 01 No.

Annexure-X
ELECTRICAL SYSTEM

HT Cables	**Turbine Main Penal to Transformer**
Transformer	**11 Kv to 400 v**
Lt Cables	**Transformer to Boiler Penal**
Synchronizing System	

(All Boiler Cables and Penal included in Boiler Scope)

(All Turbine Cables and Penal would also be in Turbine Scope) (All Cooling Tower Cables and Panel would also be in Cooling Tower Scope)

(All Fuel Feeding and Ash Handling System Penal would also be in their Scope)

(All Water System cables and penal would also be in water system scope)

Annexure-XI

Client Scope

Civil foundation and building shall be completed by the owner at his own cost according to designs and drawings provided by TIE.

Annexure-XII

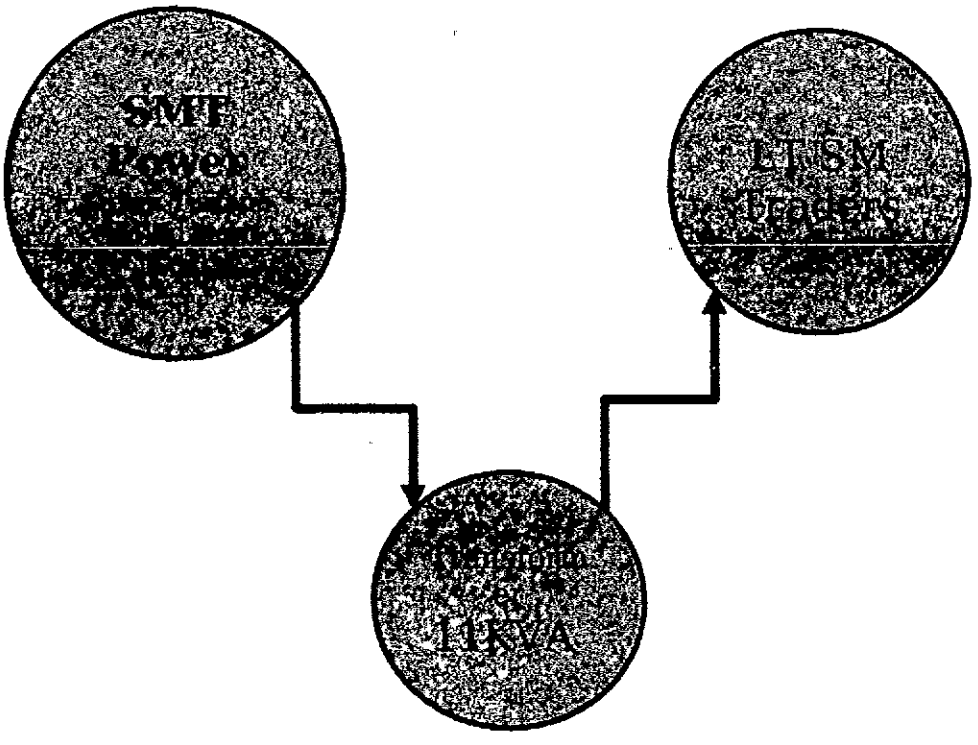
Vender List

Motors	China
VFDs	
Control System (PLC)	SEMEINS
Instruments	Yokogawa
MCCB	Terasaki Japan / ABB
Control valve	OMB / Equivalent
Mechanical and safety Valves	Zhongya valves China/ OMB China
Pumps	Chin a
Boiler Tubes	Wuxi Huayou Special Steel co., Ltd
Super Heater	Wuxi Huayou Special Steel co., Ltd
Header	Wuxi Huayou Special Steel co., Ltd
Fans	TIE
Soot Blowers	TIE
Rotary valve	TIE
Panels	Local Manufactured
Cables	Fast / New Age Equivalent Cables

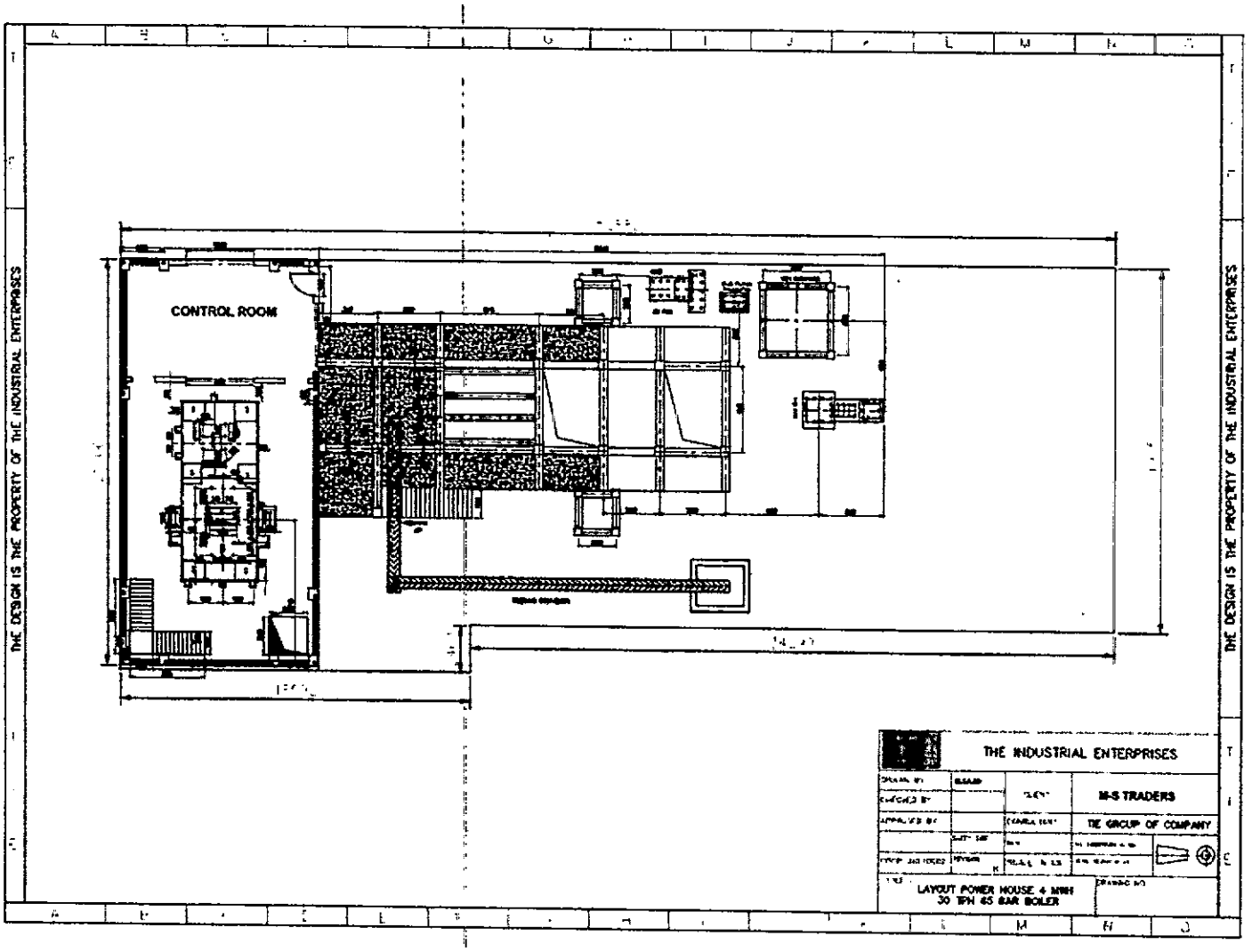
4.4 System Interconnection

The electric power generated from the Generation Facility/ Steam Turbine Power Plant of the Company shall be dispersed to the load center of SM Traders.

The proposed Interconnection Arrangement/Transmission Facility for dispersal of electric power comprises the direct 11KV lines of approximately 150 to 200-meter length to be laid from the 11 KV bus bar of the Generation Facility/Steam Turbine Power Plant to Transformer of the SM Traders.



4.5 Design of the Facility



4.6 Expected Life of Facility

Expected life of the facility is 25 years.

4.7 I & C Design Scope

This design scope includes the thermal control of boiler and its auxiliary system, turbine and its auxiliary system, deaerator& feed water system, circulating water systematic.

4.8 Level of I & C

4.8.1 Control Mode

This term project uses a DCS monitoring system control method to control and regulate the boiler system, turbine system and auxiliary system. According to the arrangement of plant, some system shall set DCS remote I/O stations, such as Circulating water pump system, Fuel oil pump system, etc.

The balance of plant shall adopt PLC control or on-site control mode and the PLC control system shall communicate with plant DCS system.

The unit is monitored and controlled via mouse/keyboard and LCD in the central control room. For safety and reliability, emergency measures are considered against "DCS" failure, that is, some hard-manual operations are reserved (for example, MFT push button, Drum emergency water releasing valve push button, emergency stop turbine push button, AC lube oil pump start/stop push button, DC lube oil pump start/stop push button, etc.).

The DCS network of unit covers:

- Control of Boiler and Its Auxiliary System

- Control of Turbine and Its Auxiliary System

- Control of Auxiliary System (Deaerator & Feed Water System, Etc.)

-Electrical System

- Circulating Water System (DCS Remote I/O Station)

- Fuel Oil Pump System (DCS Remote I/O Station)

The PLC System shall cover

- Fuel Handing System

- Air Compress System

- Cooling Tower System

- Water Treatment System;

4.9 Arrangement of Central Control Room and Electronic Equipment Room

Based on the arrangement of thermal equipment and auxiliary production equipment in the main building, one Central Control Room (CCR) and one Electrical Equipment Room (EER) shall be adopted for the main building thermal system.

4.9.1. Arrangement of Central Control Room

DCS operator stations, Electrical station, printer console supervising screen, etc. are arranged in the central control room which is on 8.00mfloor.

The DCS station mainly houses LCD (not less than 24 inches) and, mouse/keyboard for the DCS.

Steam drum water level TV, steam drum electrical contact water level gauge, DCS graphic display screen, plant CCTV video display screen, and LED display screen are set on the supervising screen.

4.9.2 Arrangement of Electronic Equipment Room

The DCS cabinets, I &C power supply cabinets, turbine cabinet, Electrical system cabinets, etc. are set in the electronic equipment Room. DCS engineer station and printers are set in the engineer station room.

4.10 I & C Automation Function

A set of DCS shall be provided for Units in the project. Power supplies shall be respectively provided according to Turbine, Boiler, Electrical, and Auxiliary System (deaerator &feed water system, etc.)

The automation function of DCS mainly consists of the following systems:

- Data Acquisition System (DAS)

- Modulating Control System (MCS)

- Sequential Control System (SCS)

The DCS shall be designed to achieve high levels of reliability by dual redundancy and provide self-diagnostics. Any single component failure shall not affect the operation of other parts of the system. The system parameters, alarm, and self-diagnostic function shall be highly displayed on LCD and printed out

4.11 Distributed Control System (DCS)

The hardware system shall be implemented using field-proven experiential, 0 advanced, reliable digital technology of the microprocessor-based distributed control type.

All control processors and I/O modules in the system shall be of standardized, modular, plug- in construction and shall clearly show the identification of all components and have applicable LCD diagnostic indications.

All modules in the system shall be capable of on-line removal and replacement. Guidance and interlocks shall be provided to prevent the operated modules and other modules from damage and faults during removal or insertion of the modules. Module addresses shall not be position dependent, but modules shall function in any slot of a cabinet.

The number of types and sizes of modules shall be kept to a minimum to reduce the extent and cost of spare parts required. All DCS modules should be anti-corrosive coating

4.11.1 Processor Modules

Processor functions in the distributed processing units shall be functionally dedicated to enhance the reliability of system. The functional processor modules shall utilize the process

information gathered by the I/O processing functions to implement both modulating control and digital control.

If RAM is used it shall be backed up by batteries to support storage. Batteries shall be replaceable without interfering with equipment operation and the loosing of data.

All CPU load shall not exceed 60% load. A processor module shall be able to be removed, modified or restarted without affecting operation of other processor modules.

Upon failure of one processor module, the system shall automatically switch to the redundant processor module in a bump less fashion and alarm the fault at the Operator Station. The redundant processor module shall have parallel access to the system and shall continuously receive all changes (including those in configuration in the controlling processor module) and update itself while in the backup state

4.11.2 Process Input / Output (I/O)

The I/O processing system shall be as smart as is practical to reduce control system processing load and shall perform functions such as scanning, data setting, digitization inputs and outputs, linearization, cold junction compensation for Thermocouple, process point quality checking and conversion of engineering units, etc. All signals of input and output shall be processed by independent devices.

The detection of Open circuit, break circuit and input signal over the technical system permission for Thermocouple, RTD and 4-20mA signal shall be provided. Each function shall be performed during the point is scanned.

A power failure of a processor module shall not cause pulse inputs to lose readings accumulated at the time of the power failure and shall not limit the ability of accumulator for acquisition reading.

The signal processing for the Thermocouple, RTDs, transducer inputs in a redundant scheme shall be performed in separate modules. No individual I/O module failure should result in any other equipment failure or trip.

4.11.3 System Cabinet

The system cabinets shall contain all controllers, I/O modules, power supplies, Foreign Device Interfaces, Network Interface Modules, Network Processor Modules etc. System cabinets and termination cabinets shall be capable of accepting cable entry from the bottom. All cabinets shall have front and rear access only.

All components within the cabinets shall be pre-wired to terminal blocks or utilize cable connectors.

Termination facilities for thermocouple extension wire shall include reference junction temperature compensation.

All system cabinets shall be of standard

4.11.4 Engineering System

The engineering system is a part of the overall plant control system that shall be operated from a workstation based located in the Engineering room.

The engineering system shall be designed as a single engineering system that enables the engineer to access all system configurations with a uniform user graphic interface. The licenser of the hardware supply shall make the software development for the engineering and diagnostic systems.

The engineering system shall enable us to perform all detail engineering for commissioning, modification updating, documentation and on-line self-diagnostic routines

4.12 Security Monitoring System

Information and security monitoring system includes CCTV, Access Control System, Fire detection and alarm system, supervisory information system (SIS).

4.12.1 CCTV

CCTV shall be installed for the project. The system includes 50 monitoring points (the biomass handling system is excluded). The CCTV subsystem shall be placed in the following areas:

- Turbine House Subsystem

- Central Control Building Subsystem

- BOP Subsystem

- Security Subsystem

All cabinets for these areas shall be placed at the local EER.

4.12.2 Fire Detection and Alarm System

A fire detection and alarm system shall be set for the project. The system shall be designed following the Pakistan fire code, and local-related design specifications shall be taken as a reference. Fire detection and fire alarm zone comprise the main powerhouse zone, BOP zone, and non-plant area. A central control panel shall be provided in CCR, and sub-panels shall be provided in the zone of the turbine house, water treatment plant zone, coal handling zone, and non-plant zone. The central control panel and sub-panel shall be interconnected to form a looped network. The control and alarm console shall be installed in CCR.

4.13 Turbine Digital Electro-Hydraulic Control System (DEH)

A digital electro-hydraulic control system (DEH) shall be supplied by Turbine manufacturer and choose Woodward (505) brand.

4.14 Turbine Emergency Trip System (ETS)

The turbine emergency trip function shall be implemented via PLC and shall be supplied by Turbine manufacturer.

4.15 Field Instrument

All field instruments and control system including process switch, transmitter, gauge for pressure, thermometer, level, flow, temperature and specialties, etc. primary elements for flow, temperature, shall be supplied for normal control, protection, monitoring of the boiler, turbine and generator. All field instruments shall be NEMA4X standards. All process connections with field instruments should be through Stainless Steel tubing and fittings.

4.15.1 Pressure measurement

The transmitter shall be smart type based on HART protocol. Pressure and difference pressure sensing elements shall be non-hysteresis type unless otherwise specified. The transmitter shall be 2-wire type and output signal shall be 4-20mA. All pressure gauges should be provided with isolation valves. The process switches for pressure, temperature, flow shall be of snap acting, single-pole, double-throw type (SPDT), able to switch 15 amps, continuous at 250 V ac or more and 0.5 amp continuous at 1 10Vdc or more.

4.15.2 Temperature Measurement

The primary element of temperature measurement shall be of the thermocouple, resistance temperature detector (3-wire) or thermometer.

Thermocouples (Type K) and Resistance Thermometer Detectors (RTD) are the most commonly used. All Temperature measurement gauges should be provided with separate thermowells.

4.15.3 Flow Measurement

Flow measurement device shall adopt orifice plate, vortex flow meter, wing air flow measurement device and other types.

All flow transmitters should be provided with 3-way manifold valve block assembly.

4.15.4 Level Measurement

Level measurement device shall adopt differential head type, ultrasonic type, capacitance type, magnetic type, bi-color water indicator type and others type level meter.

4.16 Cable and Cable T ray

- Cable tray shall select hot-dip galvanizing type.

- All power and control cables for 400/220 VAC should be PVC/SWA/PVC, and

- Armored copper Cables of 1000 Volts.

- Computer cables should be sub shielded and total shielded copper cables of

size 1.3 to 1.5mm2. The thermocouple shall select extension cables.

- All instrument Cables should be shielded by twisted pair 99.9%copper cable.

4.17 Configuration of Main Monitoring and Control Equipment

1. This project shall adopt state-of-the-art DCS control system, since it has high

cost/ performance ratio, and can fully utilize system functions. Besides, it can also prolong unit service life, save operation and maintenance expense.

Consequently, the producing cost can be reduced, and production managing level and market competitiveness can be improved.

2. Main L & C Equipment

• Transmitters with internationally recognized brand (smart type) shall be

adopted.

• Critical logic switches of pressure, level, flow and temperature shall

adopt internationally recognized brands.

• Critical analyzers shall adopt internationally recognized brands.

• High temperature & pressure sampling valve, drain valve shall adopt

imported product.

3. Actuator

Internationally recognized brands shall be adopted for automatic adjusting

elements and critical actuators. Intelligent integrated electric actuators shall be selected.

4.18 I & C Laboratory

The laboratory equipment shall be configured according to the requirement of I & C system. Special maintenance and testing equipment shall be supplied together with individual automatic system.

5.1. Project Cost

Application Submitted to Meezan Bank for Loan of Rs. 930 Million. And balance financing of Rs. 230 Million, will be made by Directors.

Total Project cost will be around Rs. 1,160 Millions.

- Indicative term sheet of Meezan Bank attached.
- Audited Financial statement of parent company (SM Traders) attached.

Payback Period

Biomass Turbine				
Based on Turbine (04 MW) & Boiler (30 tons 65 ber)				
	$	Rupees		
TURBINE COST (4 MW)	800,000	240,000,000	240,000,000	PKR
TURBINE BOILER COST (30 Tons & 65 Tons)	800,000	240,000,000	240,000,000	PKR
FITTINGS	500,000	150,000,000	150,000,000	PKR
CONSTRUCTION	500,000	150,000,000	150,000,000	PKR
TOTAL INVESTMENT REQUIRED	2,600,000	780,000,000	780,000,000	PKR
EXCISE & DUTY		15,852,354	15,852,354	
Total Plant cost		795,852,354	795,852,354	
Land Cost		388,300,000	388,300,000	
Total Project Cost		1,184,152,354	1,184,152,354	

EXISTING POWER COST THROUGH OUR GENERATORS

Annual meters (on the basis of 1.8 millions per month)		21,600,000	21,600,000	meters
per meter cost		34.15	34.15	RS/METER
Gas cousumption @ rate 3,124 per MMBTU	A	737,568,745	737,568,745	PKR
Yearly requirement to make 2,822 kwh power (YEARLY POWER => 24,382,080 KWH)	24,382,080	30.25	30.25	

EXISTING STEAM COST THROUGH OUR GAS BOILER

Annual meters		21,600,000	21,600,000	meters
per meter cost		13.57	13.57	Rs/meter
Gas cousumption @ rate 2,318 per MMBTU		293,135,885	293,135,885	PKR
STEAM COST	B	293,135,885	293,135,885	PKR
Salaries and other cost		10,000,000	10,000,000	PKR
TOTAL COST - EXISTING	C=A+B	1,040,704,630	1,040,704,630	PKR
PER METER COST		48.18	48.18	METER C(
		988,669,399	988,669,399	

POWER & STEAM COST THROUGH BIOMASS TURBINE GENERATED UNITS		BIOMASS	COAL	
Fuel consumption for one ton of steam		220	180	
FUEL in kg required to make one Kwh power		1.65	1.35	KG / KWH
Hourly requirement to make 2,822 kwh power (2,032,200 KW PER MONTH ON THE BASIS OF 1,129 KW PE		4,656	3,810	KG
Daily requirement to make 2,822 kwh power		111,751	91,433	KG
Yearly requirement to make 2,822 kwh power (YEARLY POWER => 24,382,080 KWH)	24,382,080	40,230,432	32,915,808	KG
Rate per kg		14.43	16	RS/KG
Year Consumption value		580,541,264	526,652,928	PKR
Salaries & other expense		31,200,000	31,200,000	PKR
Power & Misc expenses		6,000,000	6,000,000	PKR
Financial Expenses @ 14%		162,400,000	162,400,000	PKR
TOTAL COST TO PRODUCE ANNUAL POWER & STEAM BY USING TURBINE	D	780,141,264	726,252,928	PKR
Total KW per year		24,382,080	24,382,080	
Unit cost per KW		32.00	29.79	
PER METER COST		36.12	33.62	
SAVING PER METER		12.06	14.56	
Annual saving	E=C-D	260,563,366	314,451,702	PKR
Payback (04 YEARS)	Investment/E	3.05	2.53	YEARS

Note : Land cost not included in total investment for calculation of payback period but financial charges are taken @ 14% on (Turbine investment of Rs. 780,000,000 + Land cost of Rs. 388,300,000) => (Total cost Rs. 1,160,000,000).

Meezan Bank
The Premier Islamic Bank

15-January 2025

To

Mr. Shaheen Merchant
Director
SMT Power (Pvt) Limited
Plot # D-11 South Avenue SITE Area
Karachi

Dear Sir,

INDICATIVE TERM SHEET

Meezan Bank Limited (hereinafter referred to as "Bank") is pleased to offer indicative term sheet to SMT Power (Pvt) Limited

Facility Type – 1	**Sight LC under Agency Agreement**
Facility Amount	PKR 480,000,000 (Pak Rupees Four hundred Eighty Million Only)
Purpose	For import of Complete 1x4 MWH MCR Power House, Boiler Capacity 30 TPH, 68 kg/CM2 Pressure / Biomass and Coal Fired Boiler, STEAM Turbine, Pipeline.
Profit Rate	APSOC subject to 85% discount in 1st Quarter and Subsequent Qrts (0.10% p.q) and 0.10% retirement Charges.
Tenor	At Sight
Security	• Lien over import documents • Nil Cash margin or as per SBP requirement whichever is higher. • PG of all Partners along with PNWS

Facility Type – 1A	**Diminishing Musharaka – Plant & Machinery**
Facility Amount	PKR 480,000,000 (Pak Rupees Four hundred Eighty Million Only)
Purpose	For retirement of LC Sight documents
Profit Rate	Matching Kibor + 1%
Tenor	7 Yeas including 02 years Grace period WITH Prepayment option
Security	• 15% Equity Participation in shape of Duties & Taxes, treated to be as customer participation (if applicable) • Direct Debit Authority. • DM Asset to be covered against takaful coverage with all mandatory clauses. • 1st exclusive hypothecation charge over imported machinery with 25% margin duly registered with STR. • PG of all Partners along with PNWS.

Facility Type – 2	**Diminishing Musharaka – Purchase of Land**
Facility Amount	PKR 285,000,000 (Pak Rupees Two Hundred Eighty Five Million Only) [Land Value Rs.380,000,000/- MBL Share 75% Customer Share 25%
Purpose	For purchase of Land located at SITE Industrial Area [Plot # D-10, A2 & D-10 A4, measuring 0.25 Acre each]
Profit Rate	Matching Kibor + 1%
Tenor	7 Yeas including 02 years Grace period WITH Prepayment option
Security	• 25% Equity Participation • Direct Debit Authority. • DM Asset to be covered against takaful coverage with all mandatory clauses (if applicable). • 1st exclusive hypothecation charge over Land with 25% margin duly registered with STR • PG of all Directors along with PNWS.

Facility Type – 3	Diminishing Musharaka – Construction & Erection
Facility Amount	PKR 165,000,000 (Pak Rupees One Hundred Sixty five Million Only) Total Cost Rs.300,000,000/- MBL Share 55% Customer Share 45%
Purpose	For Erection and Construction over purchase Land located at SITE Industrial Area. [Plot # D-10, A2 & D-10 A4, measuring 0.25 Acre each]
Profit Rate	Matching Kibor + 1%
Tenor	7 Yeas including 02 years Grace period With Prepayment option
Security	• 45% Equity Participation • Direct Debit Authority. • DM Asset to be covered against takaful coverage with all mandatory clauses 9if applicable). • 1st exclusive hypothecation charge over Land with 25% margin duly registered with STR • PG of all Directors along with PNWS.

- **Premature payment without early termination charges.**
- **Total Project cost is around Rs.1,551 Mn and MBL participation Rs.930 Mn**
- **Subordination of Directors Loan amounting to Rs.189 Mn**
- **Overall Equity participation will be 60% MBL and 40% SMT Power (Pvt) Limited.**
- **Processing charges as per SOC**
- **Corporate Guarantee of M/s.S.M Traders to cover the entire exposure.**

The terms outlined in this Indicative Term Sheet are for discussion purposes and does not constitute a commitment, agreement in principle or other agreement or obligation by Meezan Bank Limited to provide financing. The above-mentioned facilities are subject to internal approvals, execution and satisfactory review of all documentation including but not limited to security perfection and other necessary formalities.

The Facilities shall be governed by the rules and regulations of the Government of Pakistan and the State Bank of Pakistan (SBP), including the Prudential Regulations, Foreign Exchange Manual and the regulations issued for Islamic Banking and applicable AAOIFI standards for Islamic financing transactions but not restricted to regulations of the State Bank of Pakistan, now in force and as amended from time to time, and credit restrictions imposed by SBP from time to time.

M/s. S.M.T Power (Pvt) Limited shall keep the contents of this indicative terms sheet strictly confidential and shall not disclose the terms contained herein to any person other than the company's Directors and Senior Management on a need to know basis only.

We shall appreciate if you could kindly arrange return of the duplicate of this indicative term sheet signed by the authorized signatories of M/s. S.M.T Power (Pvt) Limited as your acceptance of aforementioned terms, enabling us to process your credit proposal. Please note that this indicative term sheet is valid for acceptance by 31 Jan 2025

Warm Regards,

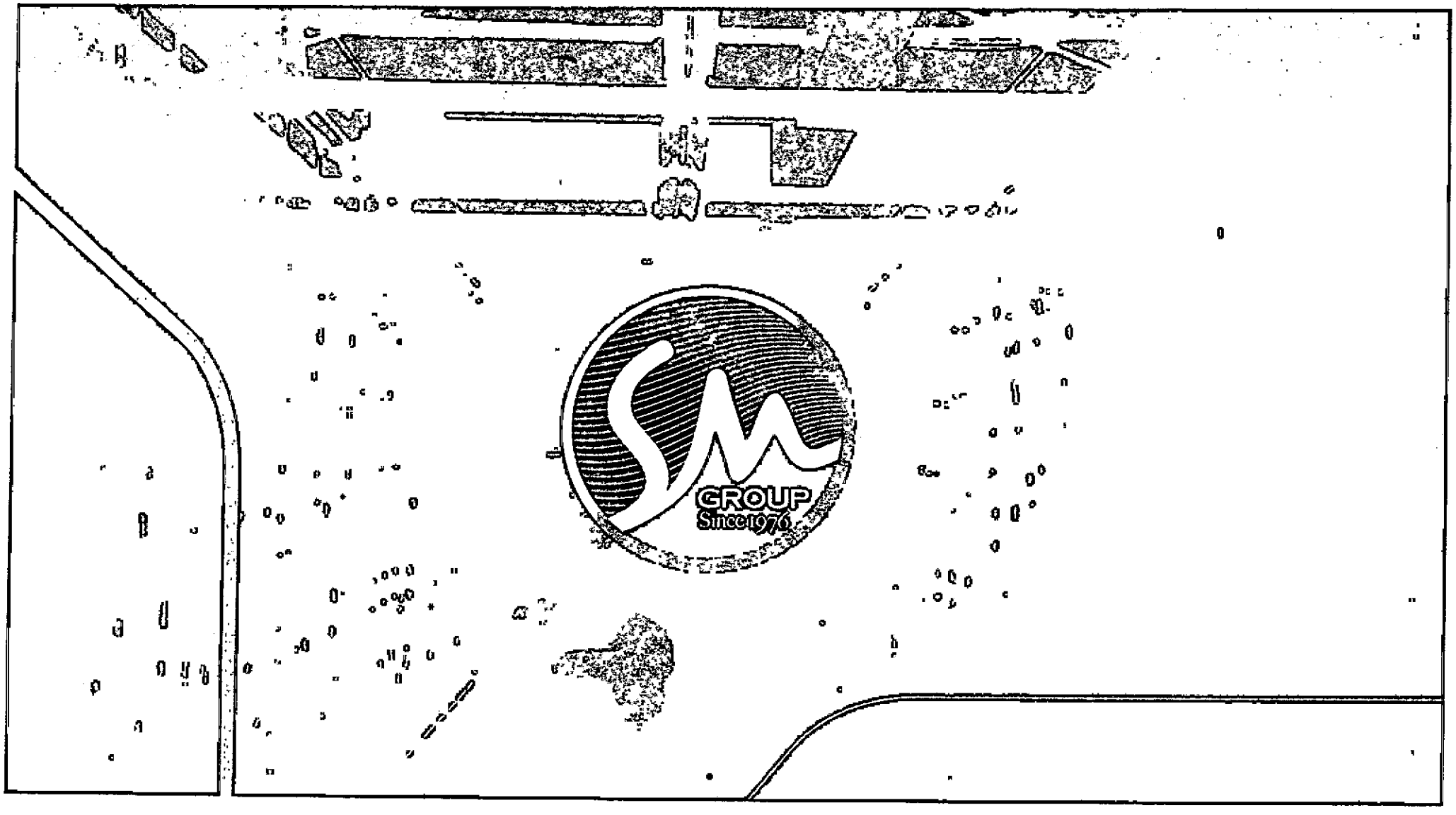
Khurram Waqar Ahmed
Hub Manager – SITE Area
Vice President

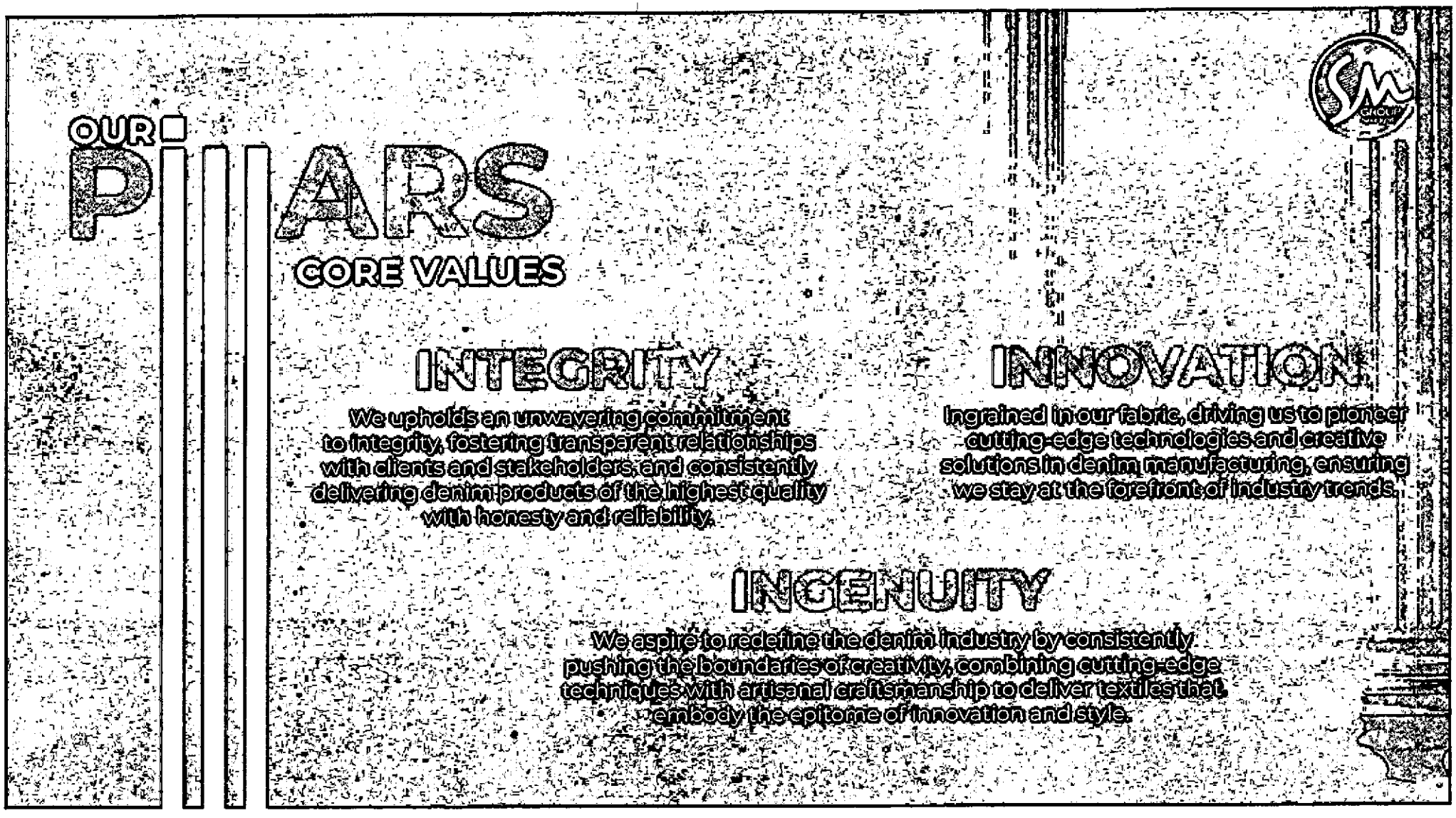
Muhammad Aslam Mahar
Regional Credit Manager
Senior Vice President

Agreed & Accepted by:

For and on Behalf of
M/s. S.M.T Power (Pvt) Limited

5.3 Financial Plan Analysis

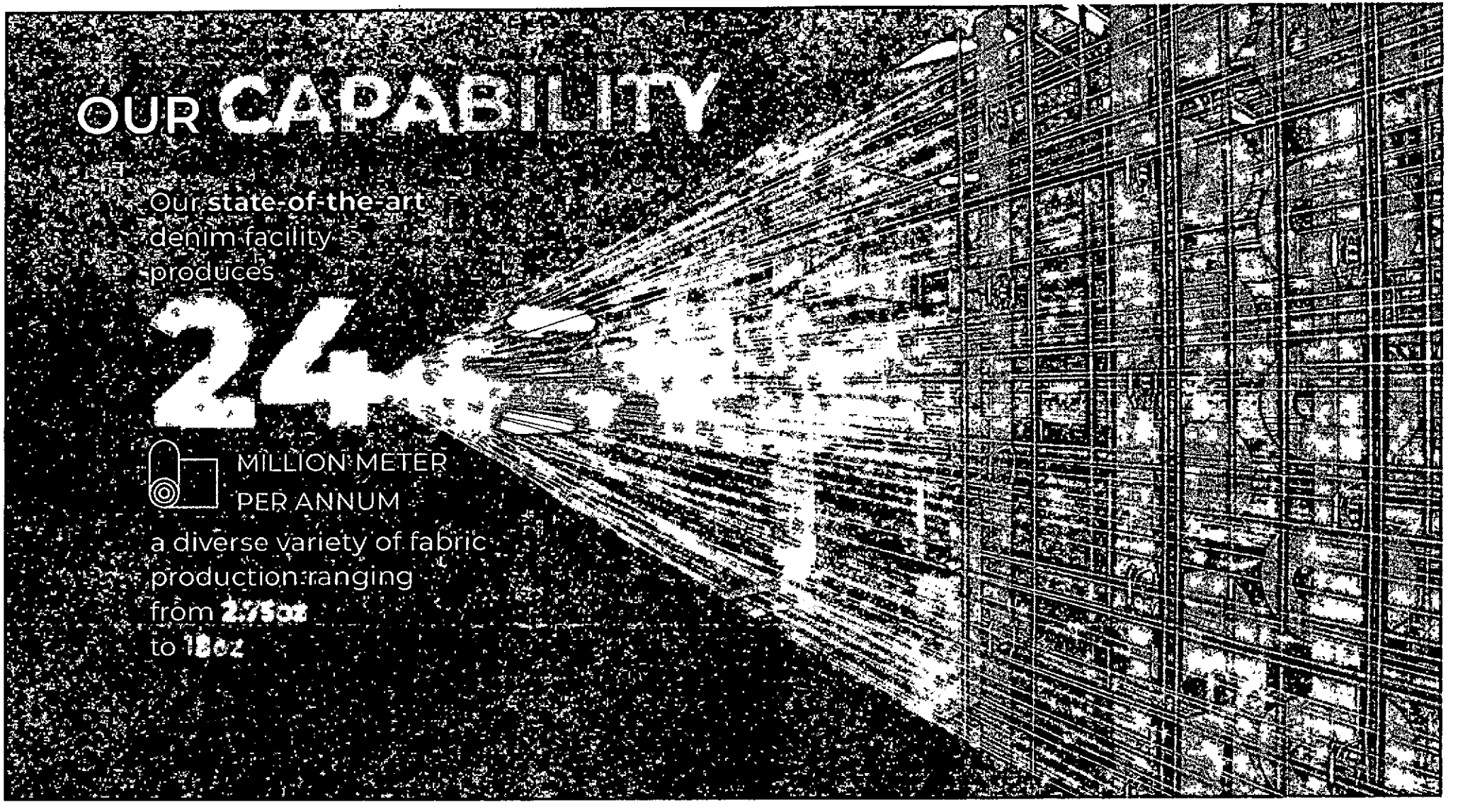



OUR
PILLARS
CORE VALUES
INTEGRITY
We upholds an unwavering commitment to integrity, fostering transparent relationships with clients and stakeholders, and consistently delivering denim products of the highest quality with honesty and reliability.
INNOVATION
Ingrained in our fabric, driving us to pioneer cutting-edge technologies and creative solutions in denim manufacturing, ensuring we stay at the forefront of industry trends.
INGENUITY
We aspire to redefine the denim industry by consistently pushing the boundaries of creativity, combining cutting-edge techniques with artisanal craftsmanship to deliver textiles that embody the epitome of innovation and style.

ABOUT US

S.M.TRADERS, a leading textile manufacturer in Pakistan has consistently demonstrated growth, with a steady increase in volume and turnover over the years. For the financial year 2023-2024, our turnover exceeded PKR 12.5 billion, and we are poised to reach PKR 15 billion.

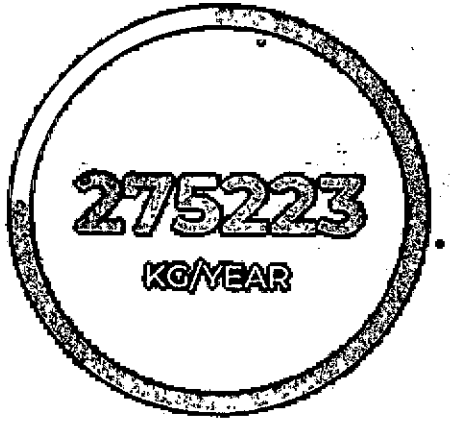
Our volume and turnover have been steadily increasing year over year. In 2023 and 2024, we successfully increased our turnover from PKR 9.7 billion per annum to over PKR 12.5 billion per annum.


OUR CAPABILITY
Our state-of-the-art denim facility produces
24
MILLION METER PER ANNUM
a diverse variety of fabric production ranging from 2.75oz to 18oz

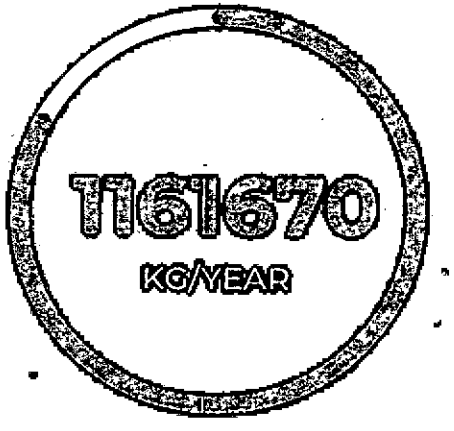
SUSTAINABILITY

CARBON FOOT PRINT REDUCTION INITIATIVES

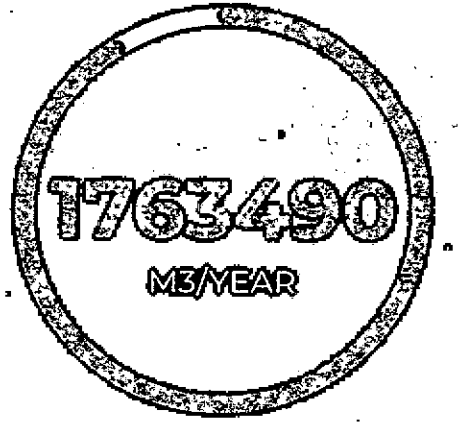
Energy efficient moters



LED Bulbs



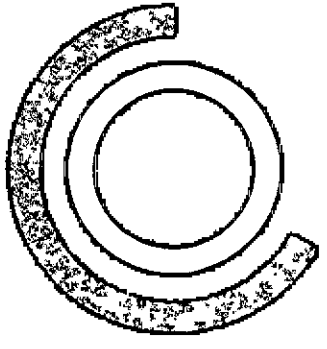
Compressors



New Gensets

SUSTAINABILITY

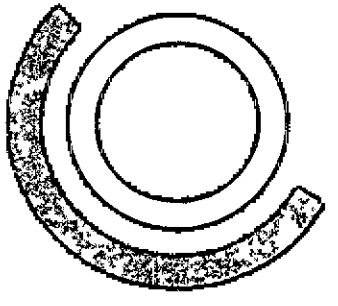
WATER RECYLING



77,256,758

L/YEAR

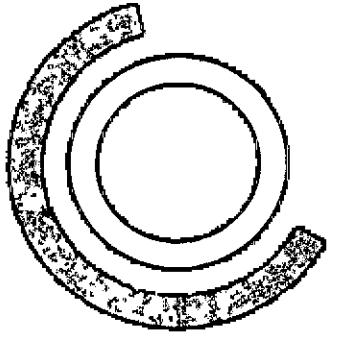
Dyeing
water reuse



34,406,000

L/YEAR

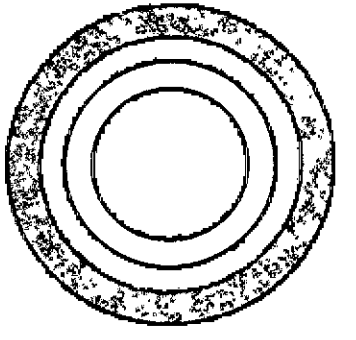
Sanfor
water reuse



111,662,810

L/YEAR

Annual
water saving



10

L/M

Saving
per meter

S.M.T. POWER (PVT) LTD

Given the present market conditions for exporters, the recent significant increase in gas prices, the absence of devaluation of the Pakistani Rupee, and other economic obstacles have created a challenging business environment. Therefore, it is essential for us to adapt and implement prudent business strategies.

In addition, our gas bill has increased significantly, from PKR 31 crore to PKR 111 crore. As a result, we must prioritize sustainability and utility bill reduction.

To achieve this, we propose implementing a green project involving the installation of a turbine and boiler that utilizes biomass.

S.M.T POWER (PVT) LTD

Project cost : PKR 1.16 Billion

Biomass Turbine and Boiler Details

- Required Area for Biomass Turbine:* 25,000 to 30,000 square feet
- Power Generation:* 4 megawatts (MW)
- Connected Power:* 3.5 MW

Required Biomass Boiler: 30-ton, 65-bar boiler to operate the coil turbine.

We will extract 8-bar steam from the boiler for our process, with the remaining condensate collected from the condenser.

Biomass Fuel Types:

- Wood chips
- Corn cobs
- Bagasse
- Rice husk
- Agricultural waste
- Sesame husk

BANK FINANCING BY MEEZAN BANK

Bank Financing:

Particular	Rs. (M)	Debt Rs (M)	%	Equity Rs. (M)	%	Remarks
Land	380	285	75%	95	25%	Direct Payment to Buyer by 20th Dec
Boiler and Turbine	480	480	100%		0%	L/c Retirement by Bank
Erection and Contruction	300	165	55%	135	45%	Own and Bank Funding
Total Project Cost	1160	930	80%	230	20%	

Financing Tenor: 7 years with 2-year grace period with Prepayment Option i.e. Premature payment permitted without penalty

Total Financing Required: PKR 930 M (80% of total project cost)

Revenue Model

Power and Steam Sales: To S.M Traders at SSGC fuel supply rates

Project Time Line

Land Acquisition: December 2024

LC Opening till: January 2024 for 1 year and most probably Bank will retire LC in 6 to 9 months Civil Work Completion: Approximately 6 months

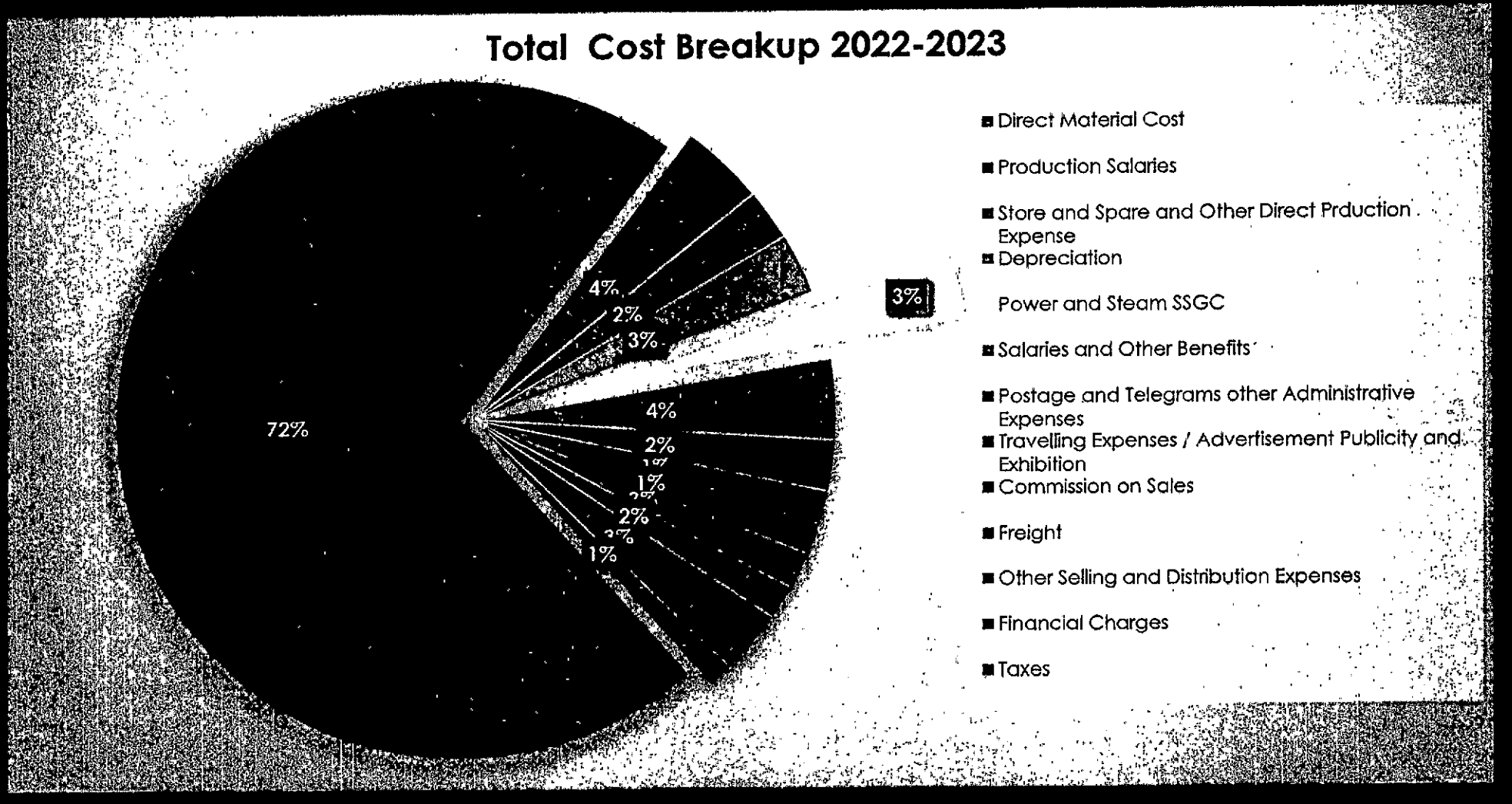
Erection and Operational Time: Estimated 6-8 months post-import of equipment

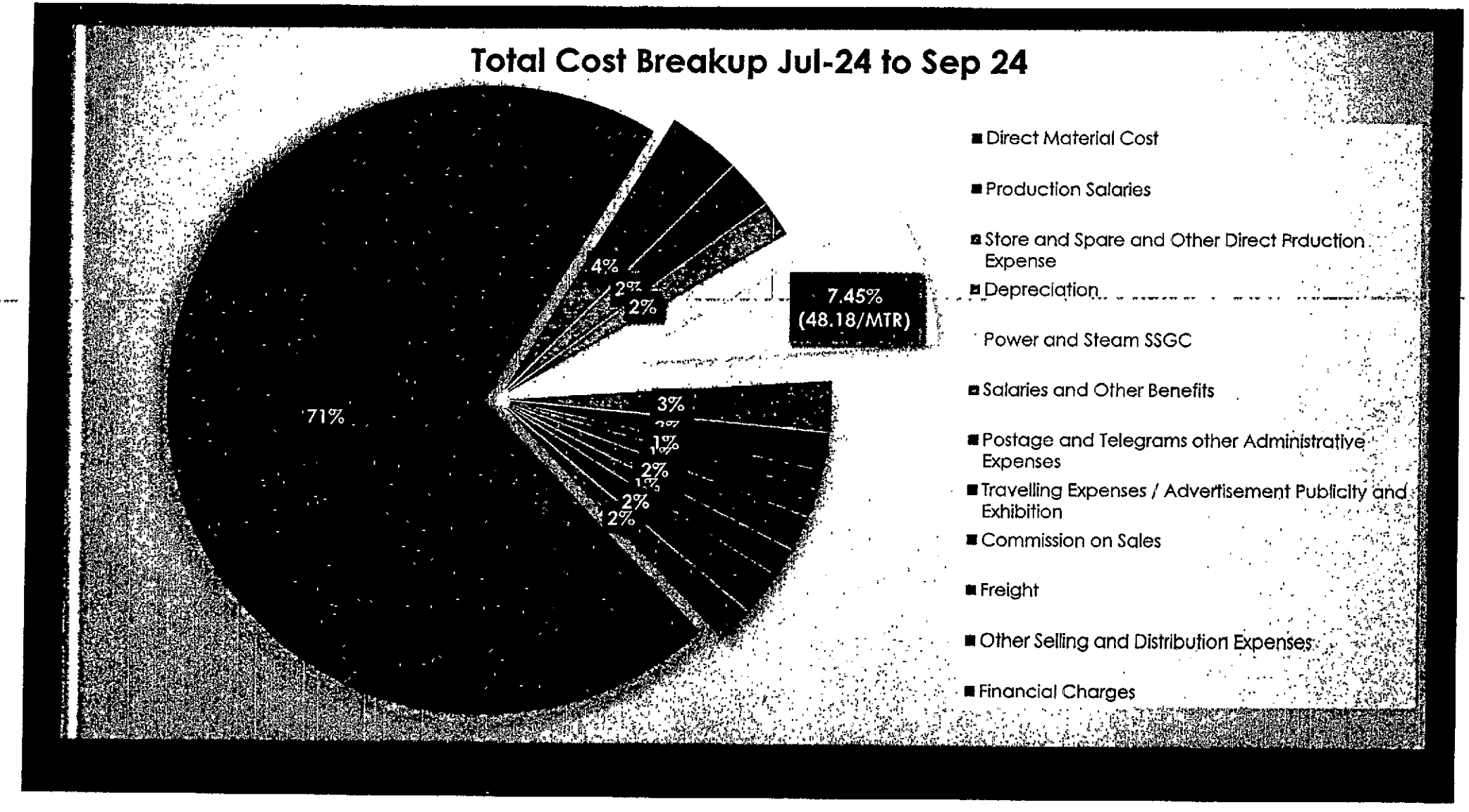
Total Project Duration: Approximately 14-18 months

Financial Highlights

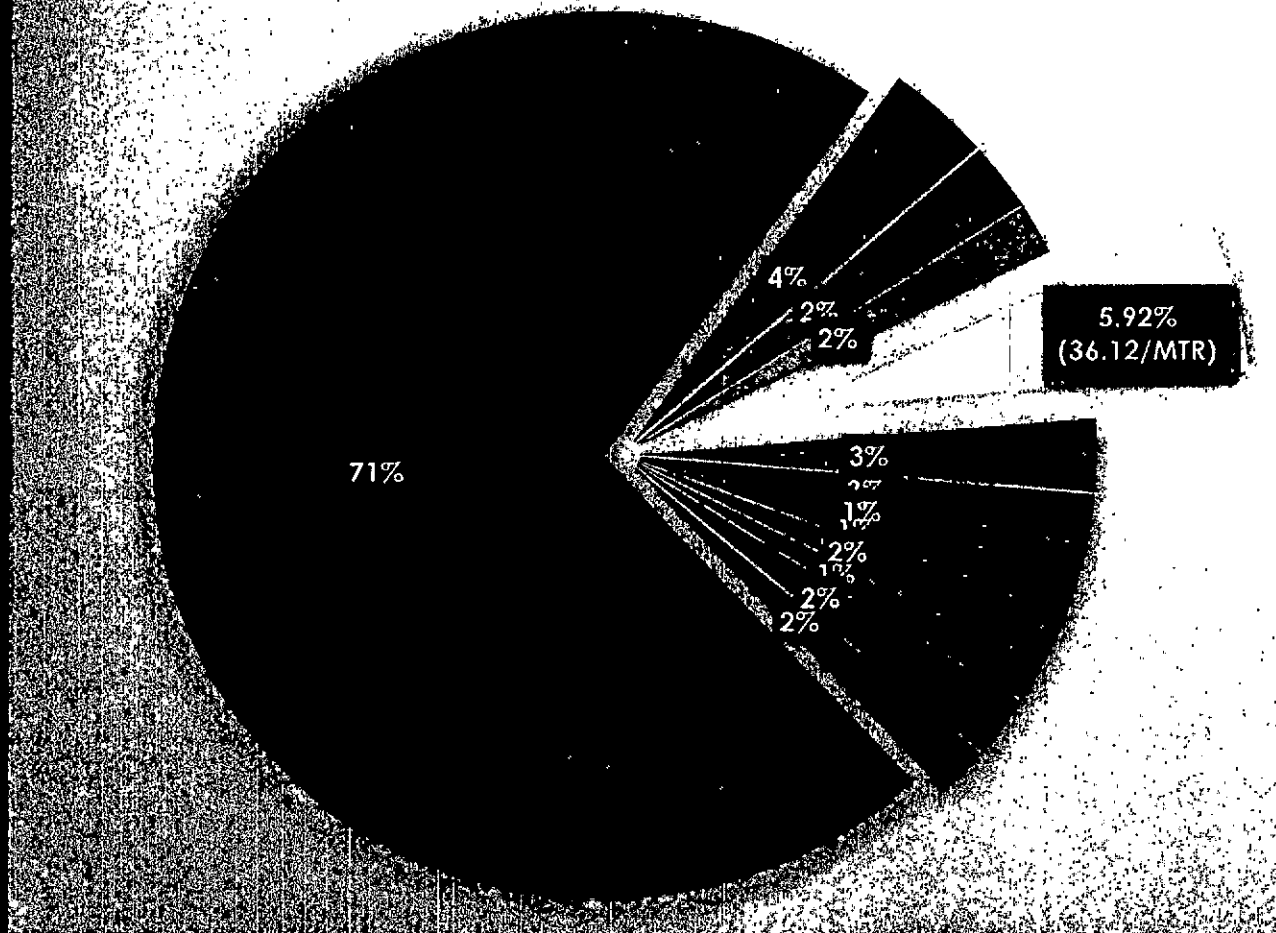
Internal Rate of Return (IRR): 32.94% / Payback Period: 3 years

Total Cost Breakup 2022-2023



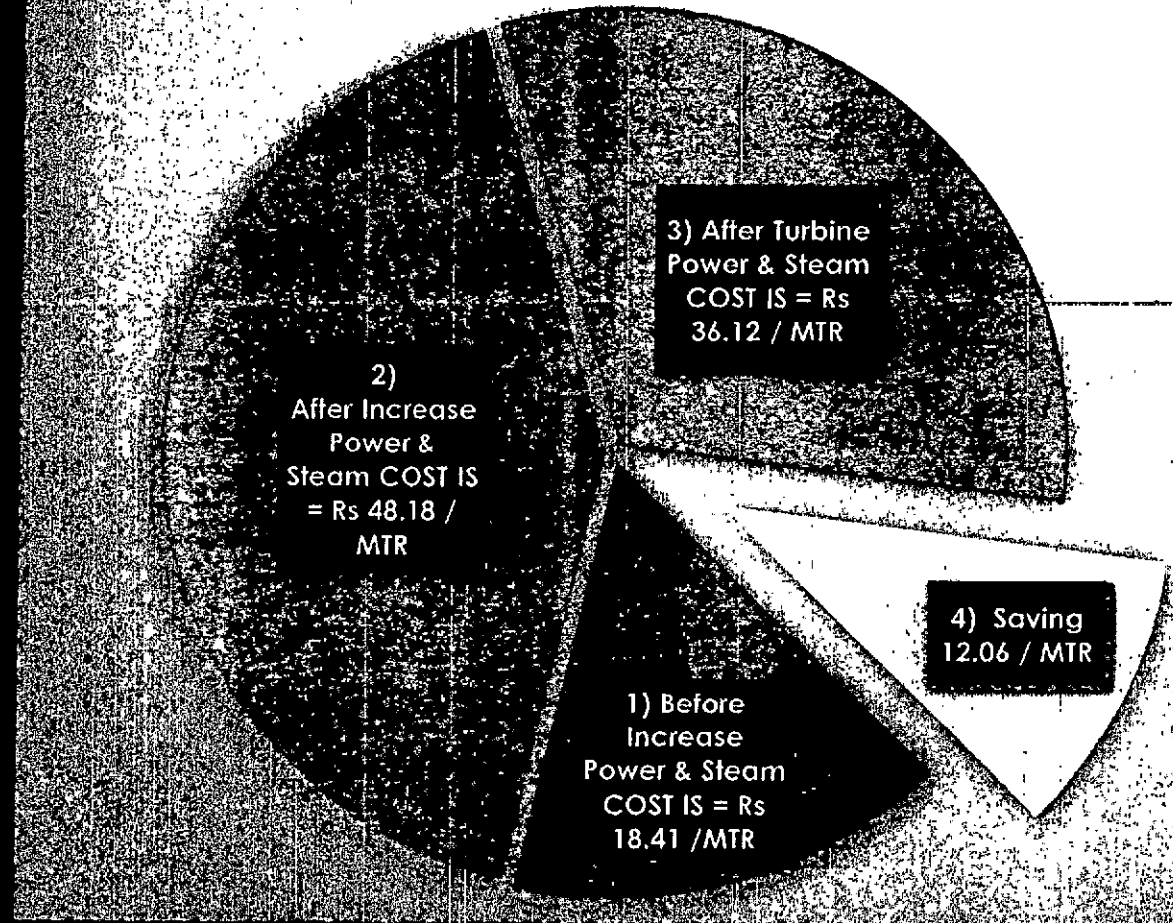

Total Cost Breakup Jul-24 to Sep 24
71%
4%
2%
2%
7.45%
(48.18/MTR)
3%
2%
2%
2%
Direct Material Cost
Production Salaries
Store and Spare and Other Direct Prduction Expense
Depreciation
Power and Steam SSGC
Salaries and Other Benefits
Postage and Telegrams other Administrative Expenses
Travelling Expenses / Advertisement Publicity and Exhibition
Commission on Sales
Freight
Other Selling and Distribution Expenses
Financial Charges

Total Cost Breakup after Turbine



- Direct Material Cost
- Production Salaries
- Store and Spare and Other Direct Production Expense
- Depreciation
- Power and Steam SSGC
- Salaries and Other Benefits
- Postage and Telegrams other Administrative Expenses
- Travelling Expenses / Advertisement Publicity and Exhibition
- Commission on Sales
- Freight
- Other Selling and Distribution Expenses
- Financial Charges

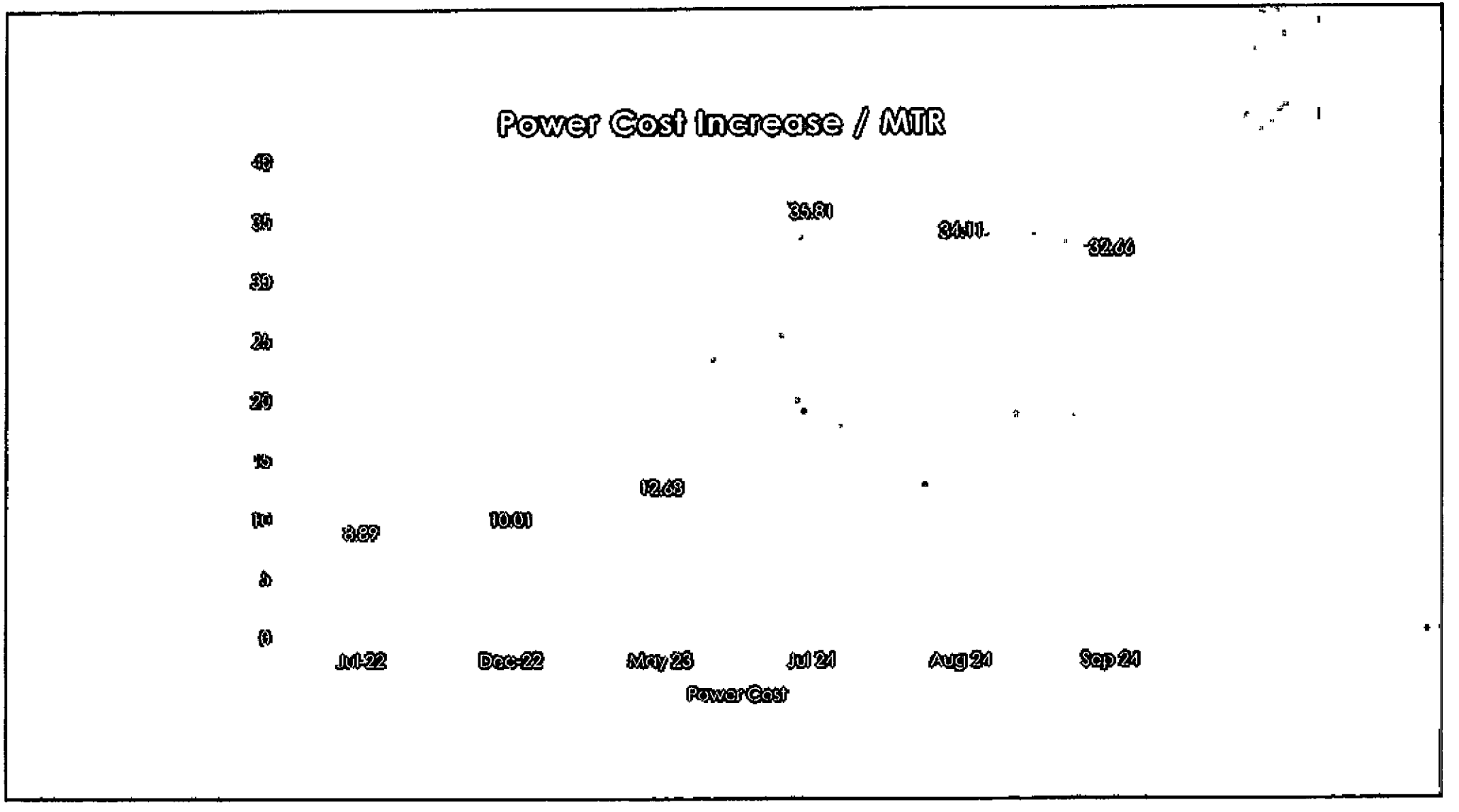
SSGC (POWER & STEAM COST) before rate increase / after rate increase / after Turbine

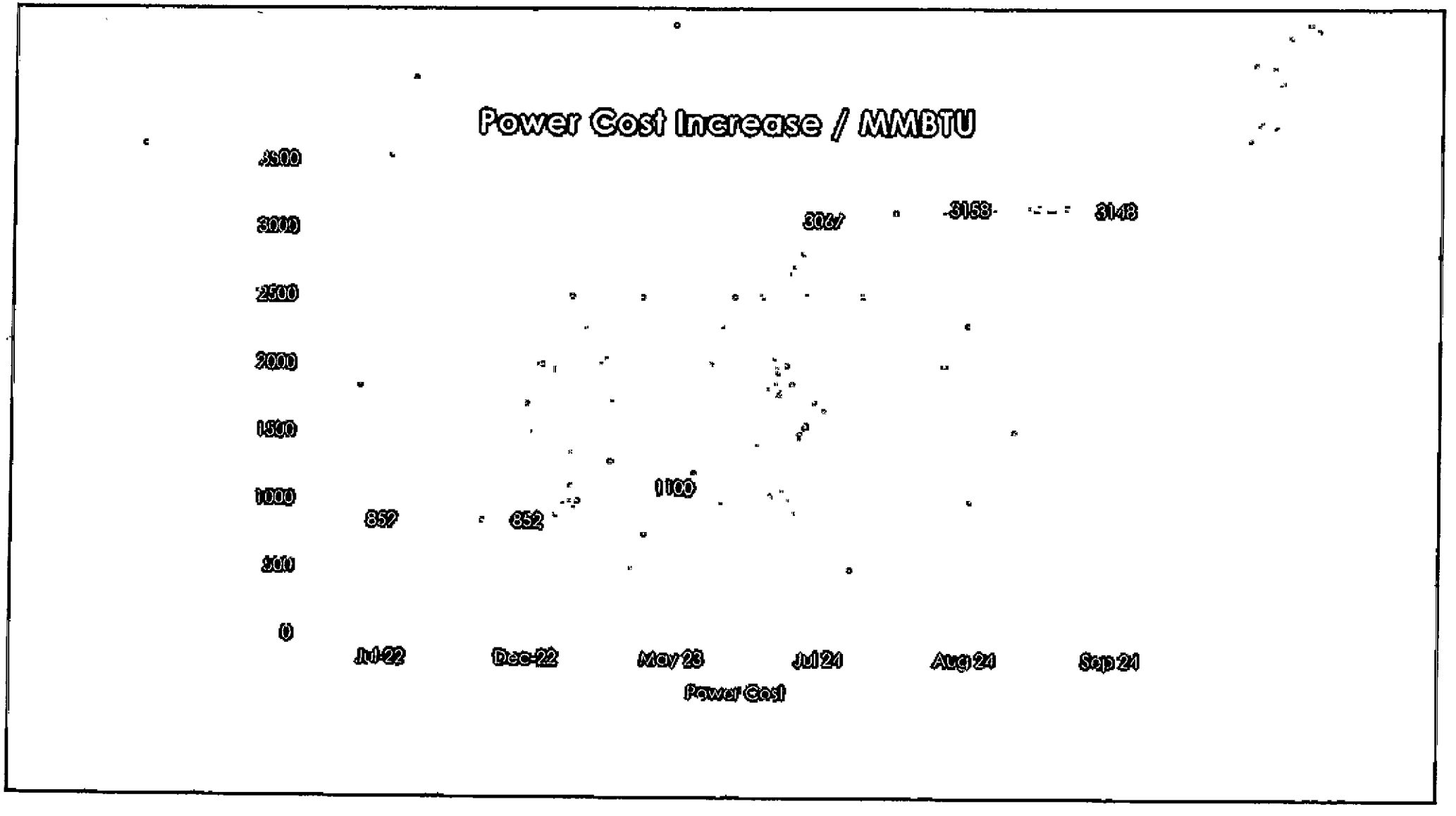


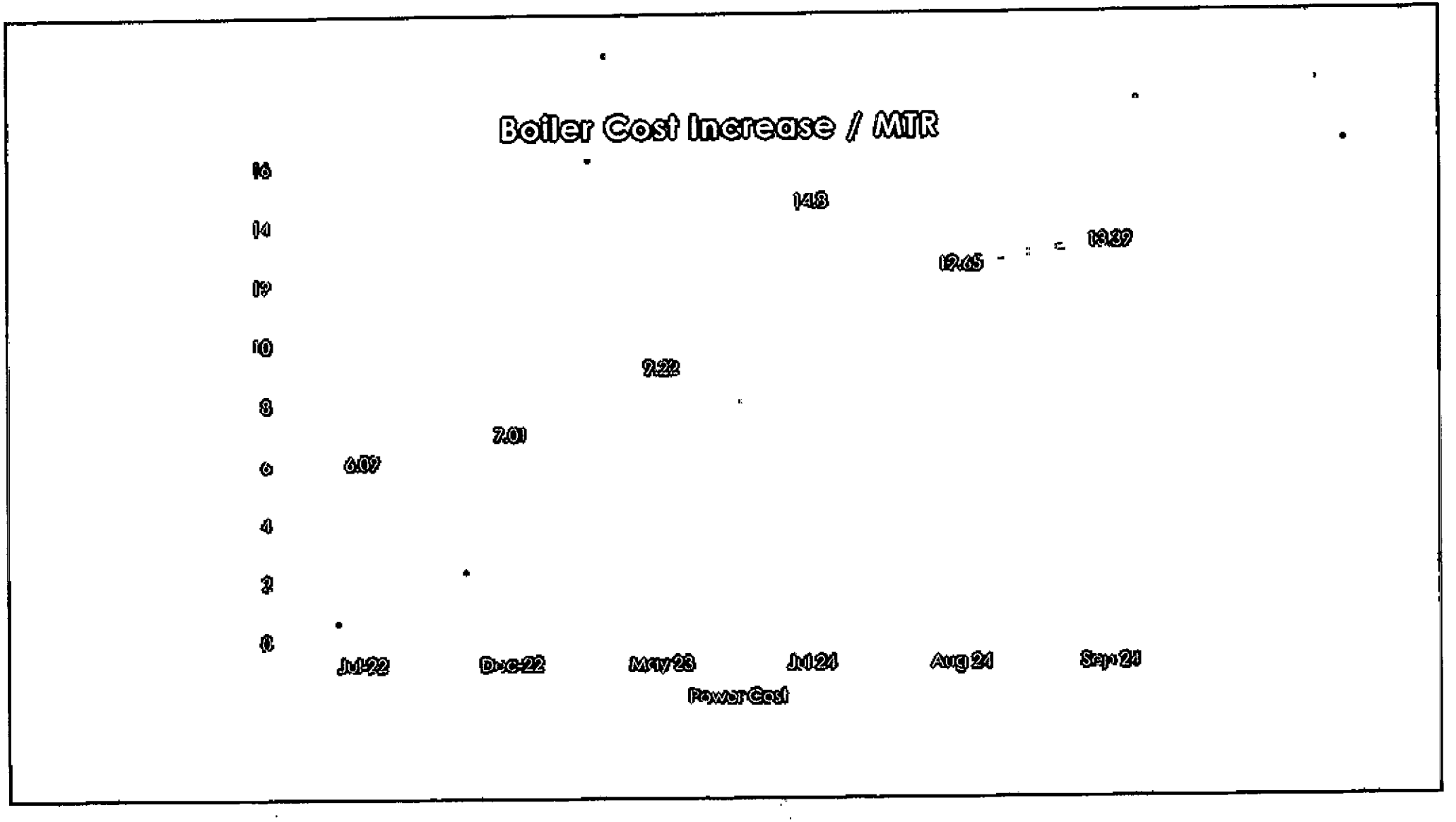
- **Before Increase (Power = Rs 10.86 / MTR + Boiler = Rs. 7.55 / MTR) = Rs. 18.41/ MTR**
- **After Increase (Power and Steam Cost) = Rs. 48.18/ MTR**
- **After Turbine (Power and Steam Cost) = Rs. 36.12/MTR**

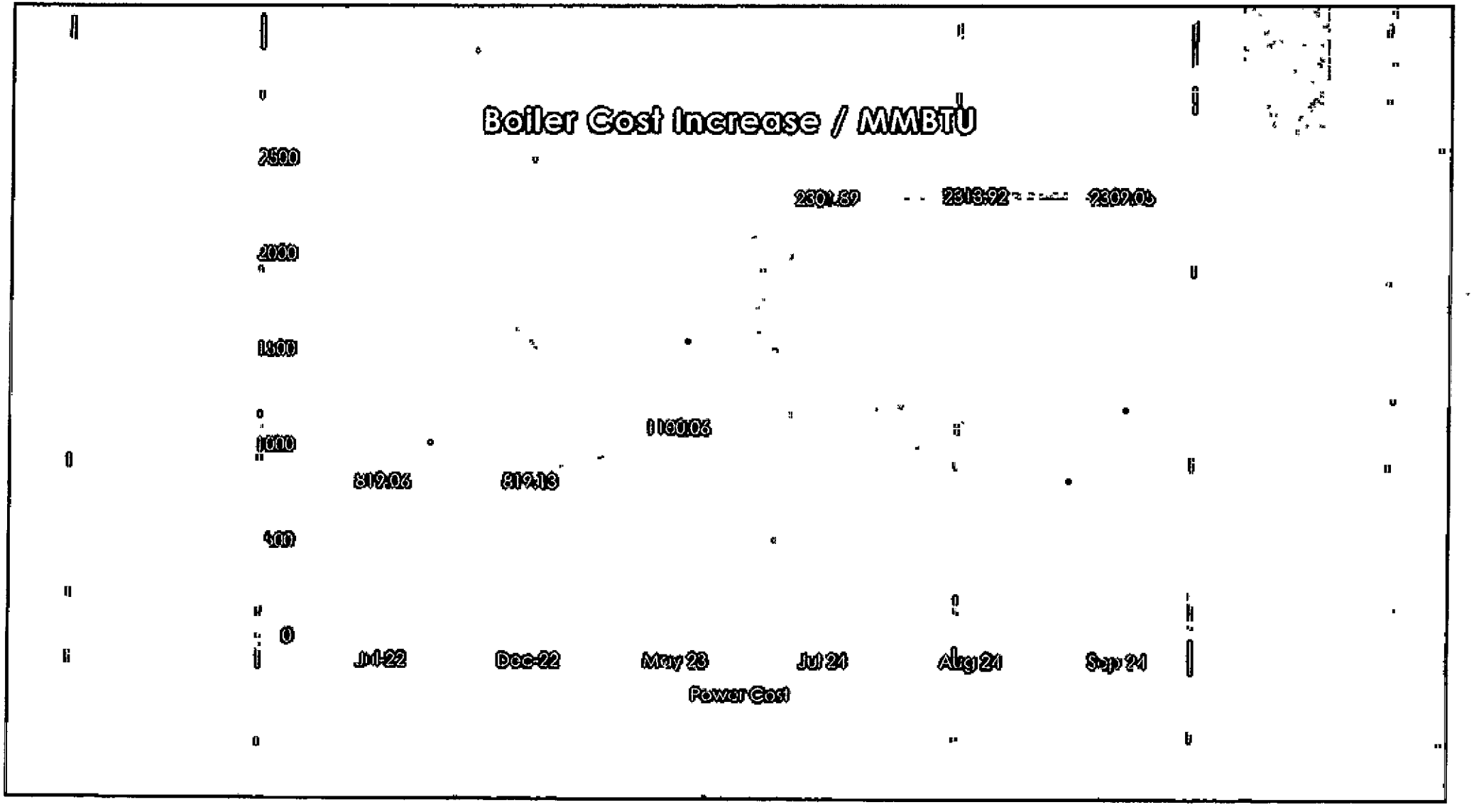
Saving Per MTR = Rs. 12.06

- **Total Production Per Anum = 21,600,000 MTRS**
- **Saving Per Annum = Rs. 260,563,364**
- **Pay Back Period = 3 Years**
- **IRR / ROI = 32.94%**


Power Cost Increase / MTR
40
35
30
25
20
15
10
5
0
3.89
10.01
12.63
35.81
34.11
32.66
Jul-22
Dec-22
May 23
Jul 24
Aug 24
Sep 24
Power Cost


Power Cost Increase / MMBTU
3500
3000
2500
2000
1500
1000
500
0
852
852
1100
3067
3158
3148
Jul-22
Dec-22
May-23
Jul-24
Aug-24
Sep-24
Power Cost


Boiler Cost Increase / MTR
16
14
12
10
8
6
4
2
0
6.09
7.01
9.22
14.8
12.65
13.39
Jul-22
Dec-22
May-23
Jul-24
Aug-24
Sep-24
Power Cost


Boiler Cost Increase / MMBTU
2500
2000
1500
1000
500
0
819.06
819.13
1190.06
2301.89
2313.92
2307.05
Jul-22
Dec-22
May 23
Jul 24
Aug 24
Sep 24
Power Cost

POWER & STEAM COST THROUGH BIOMASS TURBINE GENERATED UNITS	BIOMASS
Fuel consumption for one ton of steam	**220**
FUEL in kg required to make one Kwh power	1.65
Hourly requirement to make 2,822 kwh power (2,032,200 KW PER MONTH ON THE BASIS OF 1.129 KW PER METER)	4,656
Daily requirement to make 2,822 kwh power	111,751
Yearly requirement to make 2,822 kwh power (YEARLY POWER => 24,382,080 KWH)	40,230,432
Rate per kg	**14.43**
Year Consumption value	580,541,264
Salaries & other expense	31,200,000
Power & Misc expenses	6,000,000
Financial Expenses @ 14% on Total including Land Rs.1160 m	162,400,000
TOTAL COST TO PRODUCE ANNUAL POWER & STEAM BY USING TURBINE	**780,141,264**
Total KW per per year	24,382,080
Unit cost per KW	32.00
PER METER COST	36.12
SAVING PER METER	**12.06**
Annual saving	**260,563,364**
Payback (IN YEARS)	**3**
IRR %	**32.94%**

SUSTAINABILITY

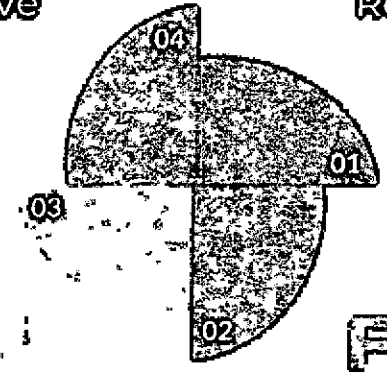
MATERIAL

RECYLED

Coolmax eco made
Repreve

COTTON

Post consumer waste
Recover



CHEMICAL

ZDHC Approved
Indican

FIBER

Refibera
Renewcell
Ecovero
Naia

INDICAN

Joseph Egli Italia

Most advance state of the art
Effluent Treatment Plant of Pakistan,
Bio based

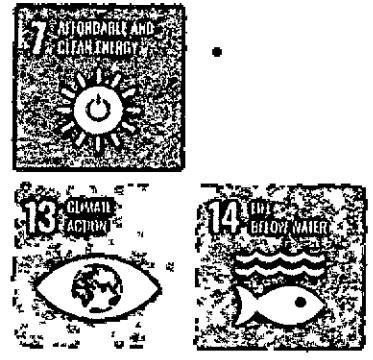
To produce 1 ton of denim yarn, SM denim patented double vario dyeing process indican, used half the resources of conventional rope dyeing process

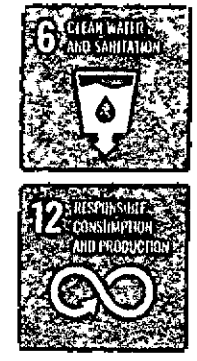
Affluent is clearer than regular dyed, 40% less cost of affluent treatment in ETP

Indicanfabrics are enginnered to produce high LSF and low EIM scores

Most advanced state of the art sustainable indigo dye-plant in Pakistan

2030 Agenda for SUSTAINABLE DEVELOPMENT GOALS





Linear to circular by 2026

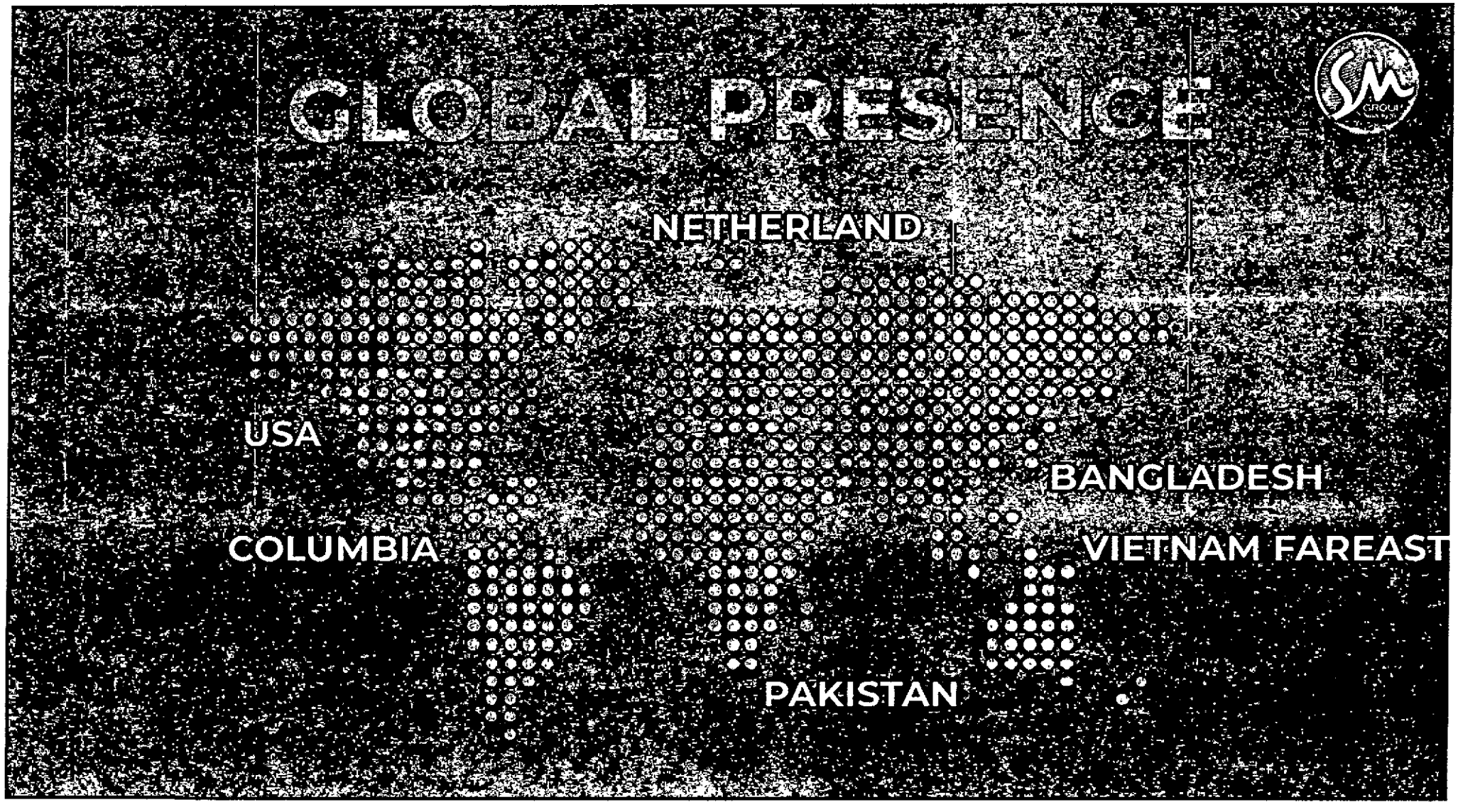
PARTNERS & CUSTOMERS

INDITEX Calvin Klein Jeans TOMMY HILFIGER RESERVED

RIVER ISLAND BESTSELLER MANGO TOM TAILOR

s.Oliver Pepe Jeans LONDON F&F PRIMARK Sainsbury's Buckle

KIABI LIU·JO next GARCIA NEW YORKER AMERICAN EAGLE OUTFITTERS UNIQLO


GLOBAL PRESENCE
NETHERLAND
USA
BANGLADESH
COLUMBIA
VIETNAM FAREAST
PAKISTAN

6. Basic Design of Balance of Plant

6.1 Water Treatment System

The water source for this project is well water

6.1.1 Water Source Quality

Water analysis' reports have been provided; the data is as follows:

6.1.2 Water Treatment System

System Function

• To provide make-up water with its quality meeting the requirement of unit's safe and good operation.

• To provide high purity water to the places such as laboratories, sampling and any other system where high purity water is used as well.

• To provide high purity water for equipment cleaning, washing, testing and protecting when shut off, etc.

6.2 Description of System

a. System Flow Process

The principal flow diagram of water treatment system is as follows:

Well water -> raw water tank -> dual media filter cartridge filter -» first stage RO ROP buffer tank -> second stage RO -» middle water reservoir tank -> EDI device -> Demin Water storage tank using point.

b. System Scope

In this project, water treatment system is comprised of the following: • ROP pre-treatment system

- ROP (first stage ROP +second stage ROP)

- EDI system

- ROP Chemical dosing system

- Output of water treatment system

- Output of system: 2x1 6m3/h Q

- Quality of demineralized water

The quality of water treatment plant outlet water is as follows:

- Conductivity: 0.2ps/cm (25°C)

- Silica dioxide; 20pg/1

- PH: 8.8-9. 3

c. Operating and Controlling

The whole water treatment system shall be operated automatically. Reverse osmosis equipment shall be shut down and turned into chemical cleaning step when either of following condition exists:

• Pressure drop of film exceeds the preset value.

• Desalination ratio of film is less than the present value.

• Water output is less than the present value.

• When either of following phenomenon occurs, reverse osmosis device shall be shut

down

d. Equipment Location

In this project, the equipment and control & instrument panel shall be located in the new building.

e. Chemical Dosing System for Turbine and Boiler Plant

- To maintain water chemical condition of thermal system and prevent scaling & corrosion.

- To maintain appropriate pH value in feed water to prevent corrosion by injecting

ammonia to Demine. Water pump outlet pipeline.

-To remove residual oxygen in feed water by injecting hydrazine to deaerator water tank's downstream.

- To improve pH value in boiler water and prevent residual hardness depositing

in boiler by injecting phosphate.

f. System Scope

Chemical dosing system consists of the followings:

- Ammonia injecting in DM water system

- Hydrazine injecting in feed water system

- Phosphate injecting in boiler water system

6.3 Design condition

a. Chemicals:

Hydrazine: liquid with concentration of 40 %(m/m), stored in barrel

Ammonia: liquid with concentration of 30%, stored in steel bottle

Tri-sodium phosphate: crystal with concentration of >951/c)/o

b. System Description

Each unit shall be equipped with one set of chemical dosing equipment which includes one

set of ammonia dosing equipment, one set of hydrazine dosing equipment and one set of tri-sodium phosphate dosing equipment.

c. Ammonia Injecting in DM Water System

Liquid ammonia in steel bottle shall vaporize and be rationally injected into the agitating solution tank through transfer pump and measuring tank, then diluted to the concentration of 3%, finally pumped to DM water pump's outlet pipeline. PH value of DM water shall be controlled to be 8. 8-9. 3 by ammonia injection.

d. Hydrazine Injecting in Feed Water System

Concentrated hydrazine solution stored in barrel shall be rationally injected into the agitating

solution tank through transfer pump and measuring tank, then diluted to the concentration of 0.3%, finally pumped into deaerator water tank downstream. Residual oxygen in feed water shall be controlled to be less than the limited value to weaken oxygen corrosion by hydrazine injection.

e. Phosphate Injecting in Boiler Water System

Solid and powder phosphate is dissolved in agitating solution tank and diluted to the concentration of 1%, then pumped into steam drum. Phosphate dosage shall be controlled by controlling P043- content.

f. Operating and Controlling

In this project, ammonia and hydrazine metering pump's dosage can be regulated by frequency. Ammonia solution dosage in DM water shall be adjusted by water flow and PH value of DM water. Hydrazine dosage in feed water shall be regulated by feed water flow. Phosphate dosage shall be controlled by manually.

g. Cooling Water Dosing System

The Cooling Water dosing system includes ant scale dosing system and dosing system. Ant scale dosing system shall be supplied for Cooling Water. In this system, one solution tank and two dosing pumps shall be supplied for cooling water. During the normal operation, one dosing pump operates and one standby. Dosing system shall be supplied for Cooling Water. In this system, one solution tank and two dosing pumps shall be supplied for cooling water. During the normal operation, one use and one standby.

h. Steam & Water Sampling System

Steam & water sampling and analyzing system are located in the main building. Chemical laboratory, analysis instruments and equipment in the project, chemical laboratory rooms shall be designed to perform the following operations:

Water analysis: this is the chemical and physical analysis of water used in the steam power plant cycle process, especially the analysis of characteristics which may destruct and/or decrease the unit performance, such as: conductivity, PH, hardness, alkalinity, silica content, ammonium, oxygen, phosphate, iron, copper, sodium, etc.

i. Biomass Analysis and Sample Preparation

This is the chemical and physical analysis of Biomass used in steam power plants, in order to shop Equipment, know the unit performance, handling characteristics and the constituents which can aggravate unit performance such as: heat value, water content, ash, volatile matter,

j. Lubricating Oil Analysis:

This is the chemical and physical analysis of lubricating oils used in steam power plants, in order to determine the performance of the oils. The analysis shall establish the oil properties and composition including carbon residue, flash point, specific weight, neutrality, viscosity, surface tension, Sulphur content etc.

k. Flue Gas Analysis

This is the chemical and physical analysis of the flue gas in order to know the combustion quality and content of undesirable substances in the gas, e.g. dew point, content of 02, C02, CO, S02, and NOx.

ONE HUNDRED RUPEES

100 Rupees

STAMP VENDOR
1st Floor Taljoomal Building
Opp: City Court Karachi

07 OCT 2024

Mirza Mazhar Shehzad (Advocate High Court) Mob: 0333-9211172 OATH COMMISSIONER Karachi-Pakistan

Stamp Office, City Court Karachi

03 OCT 2024

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

"Application for seeking Generation License"

ON BEHALF OF

SMT Power (Private) Limited

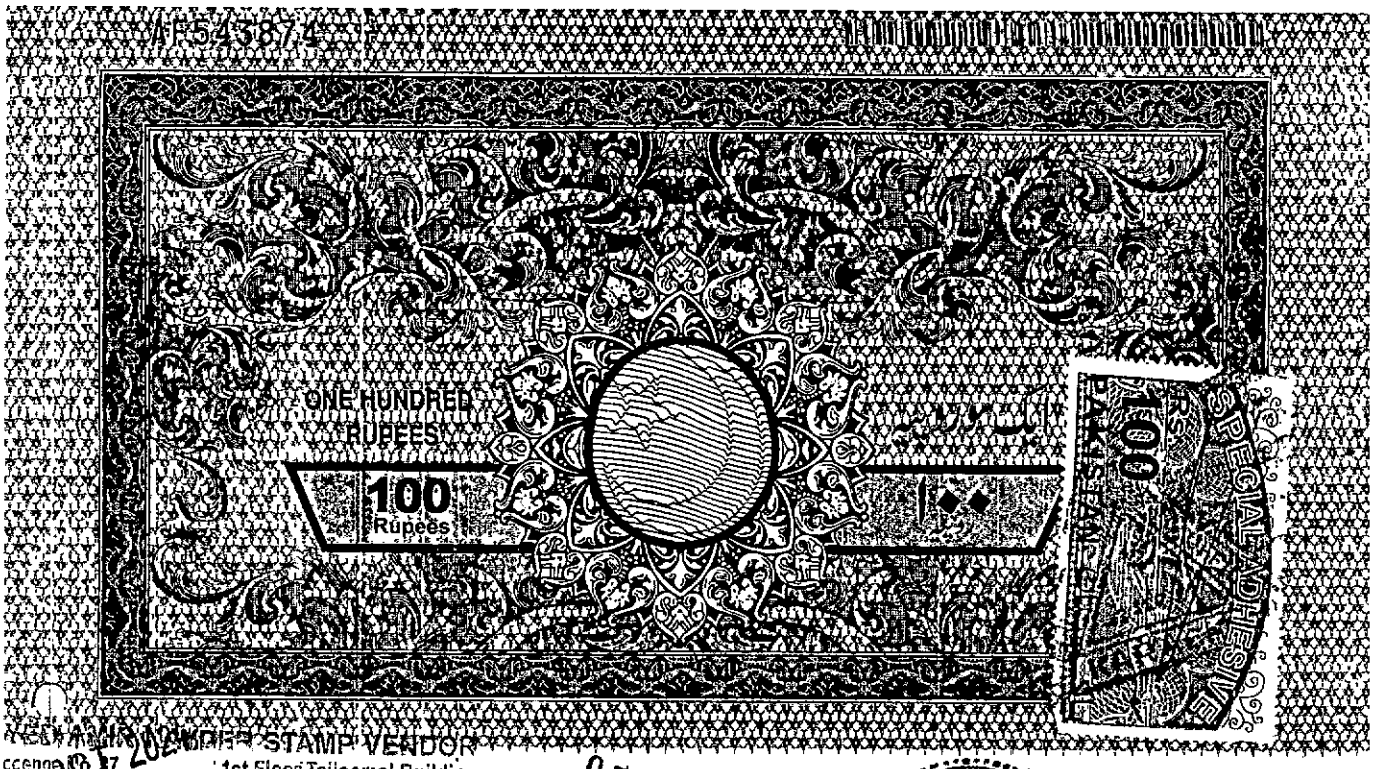
AFFIDAVIT

I, Mr. Irfan Merchant, holding CNIC No.42301-2176616-5, CEO, **SMT Power (Private) Limited** hereby solemnly affirm and declare that the contents of the accompanying Application for Generation License (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.

CEO
SMT Power (Private) Limited
Date: 10th January, 2025

ATTESTED
Mirza Mazhar Shehzad
Advocate High Court
Oath Commissioner
Mob: 0333-9211172
Karachi-Pakistan



1st Floor Taljoomal Building
Sindh High Court Karachi

07 OCT 2024

Mirza Mazhar Shehzad (Advocate High Court)
Mob: 0333-9211173
OATH COMMISSIONER
Karachi-Pakistan

Stamp Office, City Court
Karachi

03 OCT 2024

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

"Application for seeking Generation License"

ON BEHALF OF

SMT Power (Private) Limited

AFFIDAVIT

I, Irfan Merchant, holding CNIC No, 42301-2176616-5, CEO **SMT Power (Private) Limited**, being the duly authorized representative of SMT Power (Private) Limited, hereby confirm that the Applicant has not been earlier granted any generation license by the authority.

CEO

SMT Power (Private) Limited

Date: 10th January, 2025

ATTESTED
Mirza Mazhar Shehzad
Advocate High Court
Oath Commissioner
Mob: 0333-9211173
Karachi-Pakistan

Schedule III Regulation 3(4)(a)(A)(e)

3. Environmental Impact Assessment of the Unit

Based on the provided testing report and operational data, the environmental impact of the power unit has been comprehensively assessed as follows:

Air Quality Management:

The unit operates using a 30 TPH fluidized bed biomass boiler, which utilizes fuels such as corncob, bagasse, sesame husk, rice husk, lakra coal, and imported coal.

Emissions testing indicates controlled levels of CO_2, SO_2, and particulate matter, adhering to regulatory limits for the region.

The inclusion of cogeneration and a 4 MW turbine optimizes energy efficiency and reduces reliance on fossil fuels, thereby lowering greenhouse gas emissions.

Water Conservation and Quality:

The in-house Reverse Osmosis (RO) plant ensures minimal water wastage through recycling and reusability measures.

Water treatment systems meet the required standards, with treated wastewater discharge aligning with environmental compliance policies.

Solid Waste Management:

Ash generated from the biomass boiler is repurposed for use in cement manufacturing and agricultural applications, minimizing landfill impact.

A strict waste segregation and disposal process ensures that hazardous materials are handled responsibly.

Energy Efficiency:

The integration of a cogeneration system utilizes waste heat to generate usable energy, significantly reducing the carbon footprint of the unit.

Biomass fuels offer a renewable energy source, contributing to sustainability goals and reducing dependence on non-renewable resources.

Compliance and Monitoring:

The unit adheres to ISO 14001 standards for environmental management systems.

Continuous monitoring systems are in place to track emissions, water quality, and waste output, ensuring compliance with environmental regulations.

AIR QUALITY MONITORING TEST REPORT

Ref. No. AMT/IBE/NOV-24/ENV-1921/JR-2243			Report No. AMT/IBE/NOV-24/AQ/AL-13325
Client Name	Ilyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shehbaz	Sampling Date	25-Nov-24
Sample Description	Air Quality Test	Reporting Date	02-Dec-24
LOCATION DETAILS			
Sampling Area	Boiler Area	Sampling Type	Indoor Air Quality

S.NO	Parameter(s)	Unit(s)	Methodology	Test Result(s)	Optimal Limit(s)
1	Carbon Monoxide	CO (mg/m³)	Non Dispersive Infrared Method	8.9	10
2	Ozone	O_3 (µg/m³)	ASTM D-5156	2.8	130
3	Oxides of Nitrogen as NOX	NOX (µg/m³)	ASTM D-3608	117.0	...
4	Oxides of Nitrogen as NO	NO (µg/m³)	ASTM D-3608	38.4	40
5	Oxides of Nitrogen as NO_2	NO_2 (µg/m³)	ASTM D-3608	78.6	80
6	Sulphur Dioxide	SO_2 (µg/m³)	ASTM D-2914	15.9	120
7	Particulate Matter (10-Microns)	PM_{10} (µg/m³)	PM Analyzer (Laser Diode)	128	150
8	Particulate Matter (2.5-Microns)	PM2.5 (µg/m³)	PM Analyzer (Laser Diode)	63	75
9	Particulate Matter (suspended)	SPM (µg/m³)	PM Analyzer (Laser Diode)	241	500
10	Lead	Pb (µg/m³)	AAS Method (EPM Filter paper)	ND	1.5

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION

Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.

Expert Opinion: will be given only on special request

Sample Analysed By
(Field Analyst)

AIMS TEC (PRIVATE) LIMITED

Reviewed By
Incharge (Environmental Laboratory)

Repudiation: This report is not valid for any judicial use and free from all claims. All test results and report is valid for the time of sampling (as per mentioned date) and particular sample (as per descriptions given by client). Maximum possible safety measure are applied but Aims Tec (pvt) Ltd. doesn't undertake any liability for the scope of methodology used, accuracy and validity of results, which may influence by any unavoidable factors. In case of any query, must contact within a week from the reporting date. After one week of work execution your query will not be entertained.

EPA Certificate No: EPA/LAB/Certificate-13 (SEPA-3014)

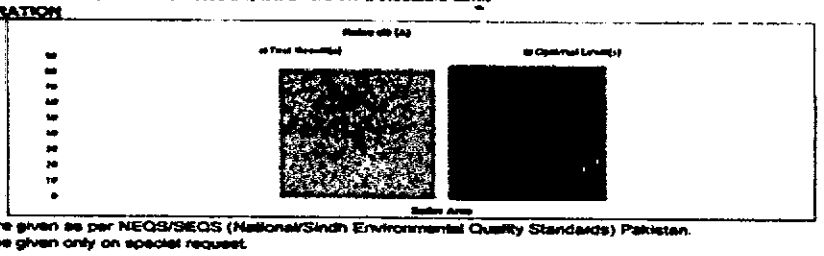
NOISE EXPOSURE TEST REPORT

Ref. No. AMT/IDE/NOV-24/ENV-1921/JR-2243		Report No. AMT/IDE/NOV-24/NE/AL-13327	
Client Name	Dyas Boiler Engineering Services		
Client Address	D-10-A, South Avenue, Shahra-e-Moin Akhtar, Site Area, Karachi-75700		
Contact Person	Mr. Shahbaz	Sampling Date	25-Nov-24
Sample Description	Noise Emission	Reporting Date	02-Dec-24
LOCATION DETAILS			
Sampling Area	As Mention Below	Sampling Type	Grab Sample

S.No	Parameter(s)	Unit(s)	Methodology	Sampling area	Test Result(s)	Optimal Limit(s)
1	Noise background (daytime)	dB (A)	ASTM E-1124	Boiler Area	83.1	85

Abbreviations: NA= Not Available, ND= Not Detected, BDL= Below Detectable Limit

GRAPHICAL ILLUSTRATION



Note: Optimal limits are given as per NEQS/SEQS (National/Sindh Environmental Quality Standards) Pakistan.
Expert Opinion: will be given only on special request.

Sample Analysed By
(Field Analyst)

AIMS TEC PRIVATE LIMITED

Reviewed By
Incharge (Environmental Laboratory)

Repudiation: This report is not valid for any judicial use and free from all claims. All test results and report is valid for the time of sampling (as per mentioned date) and particular sample (as per descriptions given by client). Maximum possible safety measure are applied but Aims Tec (pvt) Ltd doesn't undertake any liability for the scope of methodology used, accuracy and validity of results, which may influence by any unavoidable factors. In case of any query, must contact within a week from the reporting date. After one week of work execution your query will not be entertained.

Postal Address: Plot No. B-56 / Sector 6-H, Mehran Town, Korangi Industrial Area, Karachi-74900, Pakistan.
Cell: +92-321-922-1123
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4(i) Technology, Size of the Plant, and Number of Units

Technology and Infrastructure:

The power plant employs advanced cogeneration technology to maximize energy utilization, leveraging both steam and electricity production from a single process.

A 30 TPH fluidized bed biomass boiler powers the plant, offering high efficiency in converting biomass and coal fuels into usable energy.

The Reverse Osmosis (RO) system and water treatment facilities support the plant by providing high-quality water for industrial processes.

Size of the Plant:

The plant operates with a total capacity of 4 MW, supporting both operational energy needs and surplus power generation.

Steam generated through the biomass boiler supports various industrial operations, enhancing the facility's overall productivity.

Number of Units:

The power plant comprises three high-efficiency engines powered by natural gas, supported by a biomass boiler for steam generation.

A single 4 MW turbine is integrated into the system to optimize electricity production, with plans for further infrastructure expansion in the future.

Principle on Unit Selection:

The main equipment shall be of high pressure/temperature and proven design.

The main and auxiliary equipment has advanced technology, good quality, high reliability, and availability.

The unit has high efficiency. The project is a newly built project. At this stage, one unit of 4 MW shall be installed, although the present operational capacity shall be 3.5 MW.

Main Equipment and Parameters
Specifications of Extraction Condensing Steam Turbine are as follows:

Power Output	:	4 MW
Type	:	Extraction Condensing
Stage	:	Multistage, Nozzle Governed
Nominal Steam Inlet Pressure	:	65 Bar(g)
Nominal Steam Inlet Temperature	:	500 °C

Specifications of Generator are as follows:

• Voltage Level	:	11,000 V
• Frequency	:	50 Hz
• Power Factor	:	0.8
• Insulation Class	:	F

Specifications of Boiler:

• Type	:	Single Drum Membrane Type
• Evaporation Capacity	:	30 TPH
• Steam Pressure	:	65 Bar(g)
• Steam Temperature	:	500 °C ± 3 °C
• Grate	:	Travelling/Step Vibratory
• Fuel	:	Biomass (Agriculture Waste)
• Feed Water Temperature	:	200 °C
• Boiler Efficiency on LCV	:	88%
• Flue Gas Temperature	:	145 °C

Proposed Plant Projected Specifications

The broad parameters of the project are as follows:

- **Installed Capacity** : 4000 kW
- **Turbine Capacity** : 4 MW Extraction/Condensing
- **Boiler Type** : Single Drum Membrane Type

  Travelling/step/vibratory Grate Biomass fired (to be decided yet) Boiler

- **Boiler Installed Capacity** : 30 TPH, 65 Bar(g), 500°C
- **Fuel** : Biomass (Locally Available)
- **Grate Type** : Travelling/Step Vibratory Grate
- **Construction Period** : 18 Months
- **Project Operational Capacity** : **4000 KW**

- **Total Net Power Generation** : 4000 kW
- **Boiler Operational Capacity** : 30 TPH
- **For 3500 kW Generation** : **25 TPH**

Major Systems of the Proppsed Plant

The major systems of the proposed plant include. Biomass handling and processing system

- Fuel preparation system
- Fuel handling and conveying system
- Fuel feeding system
- Single Drum Membrane Type Steam Generator
- Extraction-Condensing Steam Turbine
- Electrical Power Generator
- Flue Gas Treatment System
- Cooling Water System
- Ash Handling System
- Utilities and Waste Management System
- Boiler Feed Water Treatment System

- Fire Fighting System

Technology Description of the Proposed Power Plant

SMT Power (Private) Limited (SMTPPL) is interested in technology that is the latest and proven. The 11.0 MPa, 543 °C System is identified with assumptions of 4 MW gross output, 30TPH net extraction as offering a significantly superior return on investment. This configuration strikes a balance between substantial fuel savings and a modest increase in capital investment.

Specifications of Extraction Condensing Steam Turbine:

- **Gross Power Output** : 4 MW
- **Type** : Condensing
- **Stage** : Multistage, Nozzle Governed
- **Nominal Steam Inlet Pressure** : 65 Bar(g)
- **Nominal Steam Inlet Temperature** : 500 °C

Specifications of Generator:

- **Voltage Level** : 11,000 V
- **Frequency** : 50 Hz
- **Power Factor** : 0.8
- **Insulation Class** : F

Specifications of Boiler:
The biomass-fired boiler is a top-supported natural circulating boiler with a single drum, consisting of a rigid water-cooled frame that supports the heating surfaces and steam drum. The boiler features a membrane wall construction, which is water-cooled and fully gastight. Due to its welded construction, water-cooled frame, and low wall thickness of the steam drum, the boiler can react very quickly to load changes and can be started faster compared to other types of boilers.

Key Parameters of the Boiler:

- **Type** : Single Drum Membrane Type
- **Evaporation Capacity** : 30 TPH
- **Steam Pressure** : 65 Bar(g)
- **Steam Temperature** : 500 °C ± 3 °C
- **Grate** : Travelling/Step Vibratory Grate
- **Draft** : Balanced
- **Furnace Type** : Membrane Type Water-Cooled
- **Fuel** : Biomass (Agriculture Waste)
- **Feed Water Temperature** : 196°C
- **Boiler Efficiency on LCV** : 88%
- **Flue Gas Temperature** : 145°C

4(vii) Project Commencement and Completion Schedule with Milestones

The project involves the installation of a 4 MW turbine and associated infrastructure, scheduled for completion within 18 months. The timeline is as follows:

Period	Tasks
September 2024 to October 2024	Incorporation of project company
	Identification of project land and initial yield study
	Land searching & Negotiation
November 2024 to March 2025	**Project Planning and Design**
	Finalize design specifications for the turbine and auxiliary systems
	Procure necessary materials and equipment.
	Obtain approvals and permits from relevant authorities.
April 2025 to October 2025	**Civil Work**
	Prepare the site, including leveling and excavation
	Construct turbine foundations and auxiliary structures.
	Install drainage and utility systems
August 2025 to March 2026	**Mechanical Work**
	Deliver and assemble the turbine and related components.
	Install piping, ducting, and steam distribution systems.
	Perform alignment and calibration of mechanical equipment.
Feb 2026 to April 2026	**Electrical Work**
	Install power distribution cabling and wiring.
	Set up control panels and safety mechanisms.
	Integrate the turbine with existing electrical infrastructure.
May 2026	**Water Line Installation**
	Lay water pipelines for turbine cooling and auxiliary processes.
	Connect pipelines to the RO plant and test for leaks and flow consistency.
June 2026 to July 2026	**Testing and Commissioning**
	Conduct comprehensive system testing, including mechanical, electrical, and hydraulic performance checks.
	Perform safety and quality assurance inspections.
	Train operational staff and hand over the project for commercial use.

4(xi) Annexure-DD

Efficiency Parameters

i	Design Efficiency of 4 MWp AC	29 %
ii	Gross Efficiency of power plant at mean site condition%	29 %
iii	Net Efficiency of power plant at mean site condition%	32%