National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

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

No. NEPRA/R/DL/LAG-305/ 13666-72

September 14, 2015

Mr. Abdul Rahim Rafi
Chief Executive Officer
Siddiqsons Energy Limited
26th Floor, Ocean Tower,
Plot G-3, Block-9, Clifton,
Karachi.

Subject: **Grant of Generation Licence No. IGSPL/65/2015**
Licence Application No. LAG-305
Siddiqsons Energy Limited (SDSEL)

Reference: Your application vide letter No. Nil, dated Nil (received on 09.04.2015).

Enclosed please find herewith Determination of the Authority in the matter of Application of "Siddiqsons Energy Limited (SDSEL)" for the "Grant of Generation Licence" along with Generation Licence No. IGSPL/65/2015 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to "Siddiqsons Energy Limited (SDSEL)" for its 350.00 MW Imported Coal based Thermal Generation Facility located at Plot No. 12, Eastern Industrial Zone at Port Qasim, Karachi in the Province of Sindh" pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

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

Enclosure: Generation Licence
(IGSPL/65/2015)

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14.09.15

(Syed Safeer Hussain)

Copy to:

1. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore
2. Chief Operating Officer, CPPA-G, 107-WAPDA House, Lahore
3. Managing Director, Private Power and Infrastructure Board (PPIB), 50-Nazimuddin Road, Sector F-7/4, Islamabad.
4. Chief Executive Officer, K-Electric Limited (KEL), KE House, 39-B, Sunset Boulevard, Phase II (Ext), DHA, Karachi.
5. Director General, Environment Protection Agency, Government of Sindh, Complex Plot No. ST-2/1, Korangi Industrial Area, Karachi.

National Electric Power Regulatory Authority (NEPRA)

Determination of the Authority in the Matter of Application of Siddiqsons Energy Limited for the Grant of Generation Licence

September 02, 2015
Case No. LAG-305

(A). Background

(i). The Government of Pakistan (GoP) has set up Private Power Infrastructure Board (PPIB) as a one window facilitator for the entrepreneurs interested in setting up new generation facilities.

(ii). In order to meet the future electricity/energy needs of the country and to improve the energy mix, the GoP has decided to install Generation Facilities/Thermal Power Plants (TPPs) operating on either imported or indigenous Coal. In order to implement the said initiative, PPIB has issued Letter of Intent (LoI) to various local and foreign investors/groups. PPIB also issued to Siddiqsons Limited (SDSL) the LoI for setting up an approximately 350.00 MW Imported Coal based Generation Facility/TPP at Port Qasim, Karachi, in the Province of Sindh.

(iii). In order to implement the project, the SDSL/the Sponsors of the project incorporated a Special Purpose Vehicle (SPV) in the name of Siddiqsons Energy Limited-SDSEL, as stipulated under the companies' ordinance 1984.

(B). Filing of Generation Licence Application

(i). In accordance with Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the NEPRA Act), SDSEL submitted an application on April 09, 2015 requesting for the grant of Generation Licence.

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(ii). The Registrar examined the submitted application to confirm its compliance with the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 (the "Regulations"). The Registrar observed that the application lacked some of the required information/documentation. Accordingly, SDSEL was directed for submitting the missing information/documentation. SDSEL completed the missing information/documentation on May 04, 2015. The Authority considered the matter in its Regulatory Meeting (RM-15-427), held on June 02, 2015 and found the form and content of the application in substantial compliance with Regulation-3 of the Regulations. Accordingly, the Authority admitted the application for consideration of the grant of the Generation Licence as stipulated in Regulation-7 of the Regulations. The Authority approved the advertisement [containing (a). the prospectus; (b). a notice to the general public about the admission of the application of SDSEL], inviting the general public for submitting their comments in the matter as stipulated in Regulation-8 of the Regulations. The Authority also approved the list of the relevant stakeholders for providing their comments or otherwise to assist the Authority in the matter. Accordingly, the advertisement was published in one Urdu and one English National Newspaper on June 06, 2015.

(iii). Apart from the above, separate letters were also sent to Government Ministries, their Attached Departments, Representative Organizations and Individual Experts etc. on June 10, 2015. The said stakeholders were directed for submitting their views/comments for the assistance of the Authority.

(C). Comments of Stakeholders

(i). In response to the above, the Authority received comments from four (04) stakeholders. These included The Federation of Pakistan Chambers of Commerce & Industry (TFoPCoC&I), Ministry of Petroleum and Natural Resources (MoP&NR), Pakistan Mineral Development Corporation (Pvt.) Limited (PMDCPL) and WAPDA Power Privatization Organization (WPPO) of National Transmission and Despatch Company Limited (NTDC). The comments of the above stakeholders are summarized below:

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(a). TFoPCoC&I remarked that sustainable electrification of the country demands a high level of local participation at all levels. The real impact and sustainability can be obtained through close collaboration of local private and financial sector firms. In view of the serious shortage of energy in the country, TFoPCoC&I strongly recommend to expedite the processing of all applications of power projects pending before the Authority. Further, TFoPCoC&I expressed its no objection to the issuance of Generation Licence to SDSEL;

(b). MoP&NR stated that the company intends to install a Coal Fired TPP operating on Imported/Local Coal. As the project does not require Natural Gas for its operation therefore, the ministry has no objection to the grant of Generation Licence to SDSEL;

(c). PMDCPL appreciated the proposal of SDSEL as this will help to overcome the energy crisis in the country. However, PMDCPL suggested that blending of local coal should also be considered for the project; and

(d). NTDC submitted that it has issued a concurrence for the site, location, fuel and technology of the proposed project.

(ii). The Authority considered the above comments of the stakeholders and found the same in favor of the grant of Generation Licence except to the observation of PMDCPL that blending of the local coal for the project may be considered.

(iii). The Authority decided to seek a clarification on the above observations of PMDCPL. In its rejoinder, the company/SDSEL submitted that the LoI of the project is based on imported coal therefore, the blending of local coal has not been envisaged as of now. However, the blending of the local coal may be

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considered subsequently if the local coal of compatible performance and characteristics is available in future.

(iv). In view of the above, the Authority considered it appropriate to process the application for the consideration of the grant of Generation Licence as stipulated in the Regulations and the NEPRA Licensing (Generation) Rules, 2000 (the Rules).

(D). Grant of Generation Licence

(i). Electricity is a fundamental element for the economic growth of any country. The electricity consumption per capita has a strong correlation to the Social Development Indices (Human Development Index-HDI, life expectancy at birth, infant mortality rate, and maternal mortality) and Economic Indices (such as GDP per capita).

(ii). Increasing electricity consumption per capita can directly stimulate faster economic growth and indirectly achieve enhanced social development. In short, the Economic Growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of electricity. In view of the said, the Authority is of the considered opinion that for sustainable development, all types of electric power generation resources including Coal (Imported/Indigenous), Hydel, Wind, Solar and other Renewable Energy (RE) resources must be tapped and developed on priority basis both in Public and Private Sectors.

(iii). The existing energy mix of the country is heavily skewed towards the costlier thermal Generation Facilities/TPPs, operating on Furnace Oil. The Import of expensive Furnace Oil results in depletion of the precious foreign exchange reserves of the country affecting the macro and micro stability of the country. In view of the said, an increase in the consumer end tariff is experienced which not only results in higher inflation but it also affects the competitiveness of the local Industry with its foreign peers. In order to address the said issues, the Authority considers it imperative that efforts must be made to change the energy mix towards cheaper fuels. With the depleting Natural Gas Reserves in the country and relatively longer lead time for the construction of Hydro Electric Power Projects, the

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Coal Power Plants are considered the best option in the Short and Medium Term Planning. Therefore, to reduce the Demand-Supply gap and to achieve sustainable development, it is vital that indigenous as well as imported Coal Projects are given priority for power generation and their development is encouraged. In view of the said, the Council of Common Interests (CCI) approved the Power Policy 2013 which envisages rationalizing the energy mix and reducing the Demand-Supply gap through Imported and Indigenous coal based power generation. In consideration of the said, the Authority is of the view that the proposed project of SDSEL is consistent with the provisions of Power Policy 2013.

(iv). The Authority has examined the details submitted by the sponsors about the proposed Generation Facility/TPP of SDSEL with reference to its location, the type of technology being deployed, interconnection arrangements for dispersal of electric power and other specific details. The Project will be located in the Eastern Industrial Zone of Port Qasim, Karachi, in the Province of Sindh. The Company has acquired land measuring about 100 acres. The Land Coordinates are (a). 24° 47' 20.09"N, 67° 22' 59.38E; (b). 24° 46' 48.16"N, 67° 23' 1.05"E; (c). 24° 47' 21.99"N, 67° 23'14.19"E and (d). 24° 46' 48.88"N, 67° 23'15.82"E.

(v). The Authority has observed that the proposed Generation Facility/TPP will be consisting of 1 x 350MW Super-Critical Unit with one Boiler, Steam Turbine and Generator. The boiler will be fueled by imported coal with the capability to burn local coal in future. The coal for the Project is expected to be imported from Indonesia and South Africa. The Imported Bituminous/Sub-Bituminous coal will be transported by ship and unloaded at a bulk terminal in Karachi. In this regard, the sponsors have signed a Memorandum of Understanding with Pakistan International Bulk Terminal. The Authority considers that the Supercritical Technology is very mature with many units in operation worldwide for many years with good track records. SDSEL has confirmed that the selected main parameters of the Steam Turbine and Boiler (571.1°C and 254.4 bar) of the Generation Facility/TPP are at the high end of the supercritical class. Further, SDSEL has confirmed that the Gross Efficiency of the proposed Generation Facility/TPP will be more than 40% (i.e. 40.20%) whereas the Net Efficiency of same will be greater than 39.00% and will result in less emission per unit of electricity generated. The Authority considers that the high efficiency of the

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proposed Generation Facility/TPP and the low cost of fuel (i.e. Imported Coal) will generate the lowest cost power and will provide an economically feasible solution to relieve power shortages in the country.

(vi). The Authority is satisfied that the NTDC has endorsed the site and parameters of the project. Further, NTDC has also confirmed about carrying out the required studies pertaining to the dispersal of electric power from the proposed Generation Facility/TPP. In this regard, it has been confirmed that the electric power from the Imported Coal based Generation Facility/TPP of SDSEL will be evacuated through 500 kV Transmission Line(s).

(vii). The term of a Generation Licence under the Rule-5 (1) of the Rules, is to be commensurate with the maximum expected useful life of the units comprised in a generating facility. As explained above, the proposed Generation Facility/TPP of SDSEL will be consisting of one (01) Steam Turbine Unit of 350.00 MW. According to the International benchmarks available, the useful life of a Steam Turbine is normally taken at least thirty (30) years from its Commercial Operation Date (COD). Further, SDSEL has also confirmed that it will be negotiating a Power Purchase Agreement (PPA) with the Power Purchaser having a term of thirty (30) years. In view of the said, the Authority hereby sets the term of the proposed Generation Licence of SDSEL to be thirty (30) years from its COD.

(viii). Regarding the Tariff of Generation Company (i.e. SDSEL) that it will charge the Power Purchaser, the Authority through its Determination No. NEPRA/TRF-313/SEL-2015/10440-10442, dated July 13, 2015 has granted SDSEL an Up-front Tariff for its Project. The Authority directs SDSEL to follow the terms and conditions of the granted Up-Front Tariff in letter and spirit and charge the Power Purchaser only such tariff which has been determined, approved or specified by the Authority as stipulated in Article-6 of its proposed Generation Licence.

(ix). As explained above, the proposed Generation Facility/TPP for which Generation Licence has been sought is based on Imported Coal. The Coal based Generation Facility/TPP may be harmful to environment because of emission of

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Green House Gases (GHG) and production of ash and other effluents. In this regard, SDSEL confirmed that proposed Generation Facility/Coal Power Plant will meet local regulatory emissions limits. It has been confirmed that dry low NO_x burners (implemented in an overall low NO_x combustion system) shall be installed in conformance with the local regulations for emission control. Extractive systems shall be used to monitor NO_x and SO_2. Continuous Emission Monitoring System (CEMS) shall be provided to measure emissions and produce all required data logging and reporting. The data logging and reporting system shall store adequate amount of data and automatically produce reports as required. According to the air dispersion modeling, if coal having Sulphur contents in excess of 0.5% is used then the Project may require a Flue Gas Desulphurization (FGD) unit. However, to keep flexibility in coal specifications and sourcing, it is envisaged that a FDG shall be installed to meet the mandatory regulatory environmental requirements. Electrostatic Precipitators (ESP) will be designed and installed which will be capable of being operated such that emissions do not exceed the limit of 50mg/Nm^3 when firing design coal. One set of pneumatic fly ash conveyor system will also be provided. There will be a concrete fly ash silos capable of storing the fly ash produced in fourteen (14) days. There will be discharge outlets at the bottom of fly ash silo which will be equipped with humidifying device to discharge wet fly ash which will be transported to ash yard by dump trucks. The bottom ash handling system shall provide for the collection and removal of bottom ash from the steam generator (pulverized coal type) furnaces. A completely dry type bottom ash removal system shall be provided. The sponsors have confirmed that the proposed Generation Facility/TPP will comply with the Environmental Standards of the country. Further, SDSEL has provided a copy of the Environmental Impact Assessment (EIA) submitted to Environmental Protection Agency Govt. of Sindh (EPAGoS) confirming that NEQs will be followed. The Authority has considered the submissions and directs SDSEL to get the matter expedited with EPAGoS for getting the approval of the EIA and obtain the required No Objection Certificate (NOC). The Authority directs SDSEL to complete all formalities at the earliest and submit the NOC within six (06) months of the issuance of the Generation Licence. Apart from the above, the Authority directs SDSEL to ensure that the Generation Facility/TPP conforms to the environment standards during the term of the Generation Licence. In view of the said, the Authority has included a separate article along with other terms and conditions that the Licensee will comply with

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relevant environmental standards. Further, the Authority also directs SDSEL to submit a report on a bi-annual basis, confirming that operation of its proposed Generation Facility/TPP is compliant with required Environmental Standards as prescribed by EPAGoS.

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

Authority

Syed Masood-ul-Hassan Naqvi
(Member)

Himayat Ullah Khan
(Member)

Khawaja Muhammad Naeem
(Member)

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

Brig. (R) Tariq Saddozai
(Chairman)

11/9/15

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14.09.15

National Electric Power Regulatory Authority (NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. IGSPL/65/2015

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

SIDDIQSONS ENERGY LIMITED

Incorporated under the Companies Ordinance, 1984
Under Corporate Universal Identification No. 0088316, Dated May 15, 2014

for its Imported Coal Based Thermal Generation Facility Located at Plot No. 12, Eastern Industrial Zone at Port Qasim, Karachi in the Province of Sindh

(Total Installed Capacity: 350.00 MW Gross)

to engage in generation business subject to and in accordance with the Articles of this Licence.

Given under my hand this 14th day of September Two Thousand & Fifteen and expires on 30th day of December Two Thousand & Forty Eight.

Registrar

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Article-1
Definitions

1.1 In this Licence

(a). "Act" means "the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997";

(b). "Authority" means "the National Electric Power Regulatory Authority constituted under Section-3 of the Act";

(c). "Bus Bar" means a system of conductors in the generation facility of the Licensee on which the electric power of all the generators is collected for supplying to the Power Purchaser;

(d). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility of the Licensee is commissioned;

(e). "CPPA-G" means "the Central Power Purchasing Agency (Guarantee) Limited or any other entity created for the like purpose;

(f). "Grid Code" means the grid code prepared by NTDC and approved by the Authority, as it may be revised from time to time by NTDC with the necessary approval of the Authority;

(g). "IEC" means International Electrotechnical Commission or any other entity created for the like purpose and its successors or permitted assigns;

(h). "IEEE" means the Institute of Electrical and Electronics Engineers and its successors or permitted assigns;

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(i). "Licensee" means "Siddiqsons Energy Limited" and its successors or permitted assigns;

(j). "NTDC" means National Transmission and Despatch Company Limited and its successors or permitted assigns;

(k). "Power Purchase Agreement" means the power purchase agreement, entered or to be entered into by and between the Power Purchaser and the Licensee, for the purchase and sale of electric energy generated by the generation facility, as may be amended by the parties thereto from time to time;

(l). "Power Purchaser" means the CPPA-G purchasing power on behalf of XW-DISCOs;

(m). "Regulation" means "the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999" as amended or replaced from time to time;

(n). "Rules" mean "the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000";

(o). "XW DISCO" means "an Ex-WAPDA distribution company engaged in the distribution of electric power".

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

Article-2
Application of Rules

This Licence is issued subject to the provisions of the Rules, as amended from time to time.

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Article-3
Generation Facilities

3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical and functional specifications and other details specific to the generation facility of the Licensee are set out in Schedule-I of this Licence.

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

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

Article-4
Term of Licence

4.1 The Licence is granted for a term of thirty (30) years from the COD of the generation facility.

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

Article-5
Licence fee

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

Article-6
Tariff

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

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Article-7
Competitive Trading Arrangement

7.1 The Licensee shall participate in such manner as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement. The Licensee shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority. Provided that any such participation shall be subject to any contract entered into between the Licensee and another party with the approval of the Authority.

7.2 Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

Article-8
Maintenance of Records

For the purpose of sub-rule (1) of Rule-19 of the Rules, copies of records and data shall be retained in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

Article-9
Compliance with Performance Standards

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

Article-10
Compliance with Environmental Standards

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

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10.2 The Licensee shall provide a certificate on bi-annual basis, confirming that the operation of its generation facility is in line with environmental standards as prescribed by the relevant competent authority.

Article-11
Power off take Point and Voltage

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

Article-12
Provision of Information

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

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

Article-13
Design & Manufacturing Standards

All the components of the generation facility/power plant shall be designed, manufactured and tested according to the latest IEC, IEEE or any other equivalent standards. All plant and equipment shall be unused and brand new.

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SCHEDULE-I

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

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Generation Licence
Siddiqsons Energy Limited
Plot No. 12, Eastern Industrial Zone
at Port Qasim, Karachi
in the Province of Sindh

LOCATION PLAN FOR 350 MW IMPORTED COAL BASED POWER PLANT BIN QASIM KARACHI

National Highway

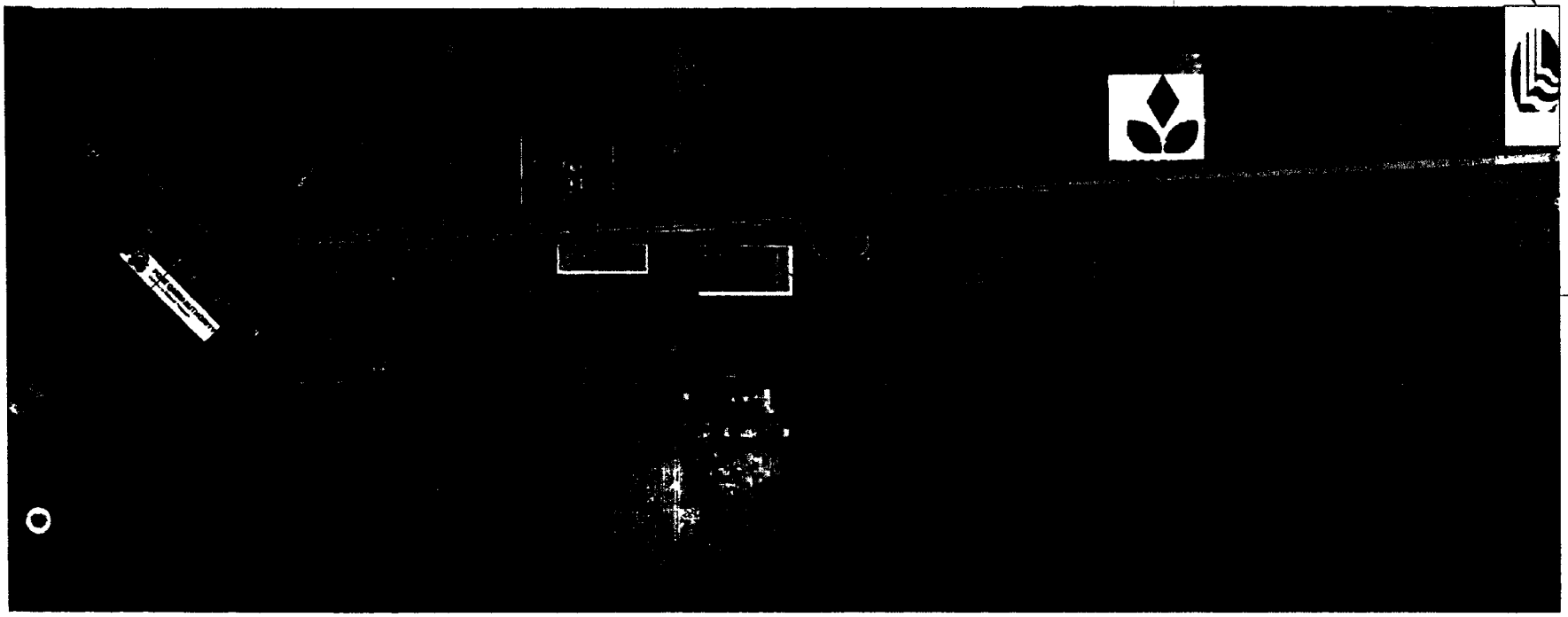
To Thatta

Bin Qasim Road

Engro Zarkhez Engro Polymers

SSGCL
RIAG Project

Lotte Pakistan Pvt Ltd



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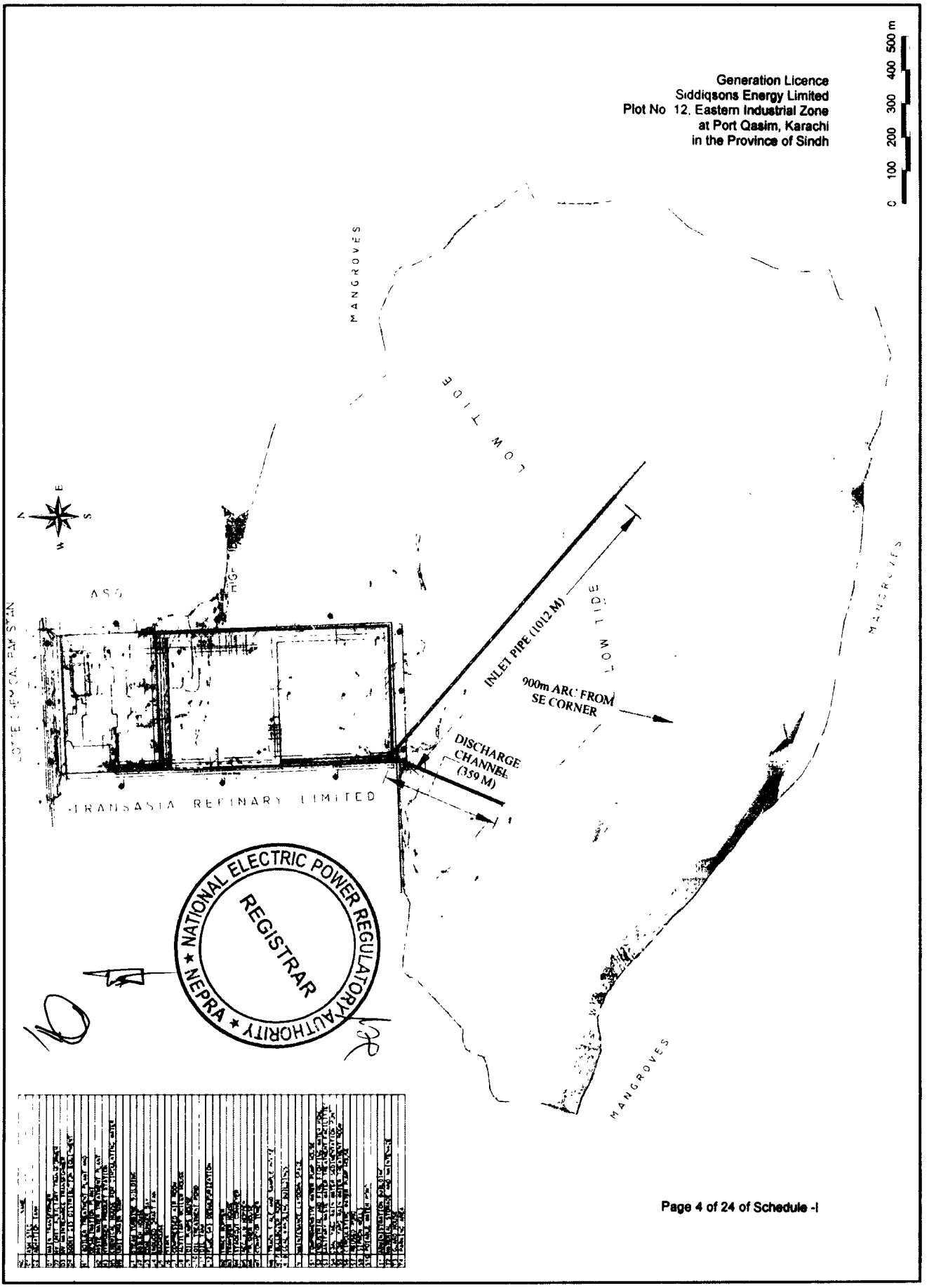
PAKISTAN ENGINEERING SERVICES (PVT) LTD
7 - B, COMMERCIAL AREA PHASE - V
D H A, LAHORE
email - info@pespk.com

PROJECT
350 MW IMPORTED
COAL BASED POWER
PLANT BIN-QASIM KARACHI

TITLE
LOCATION PLAN

DRAWN		DATE MARCH	REV No
DESIGNED		DRAWING NO	
CHECKED			
APPROVED			

Generation Licence
Siddiqsons Energy Limited
Plot No 12, Eastern Industrial Zone
at Port Qasim, Karachi
in the Province of Sindh



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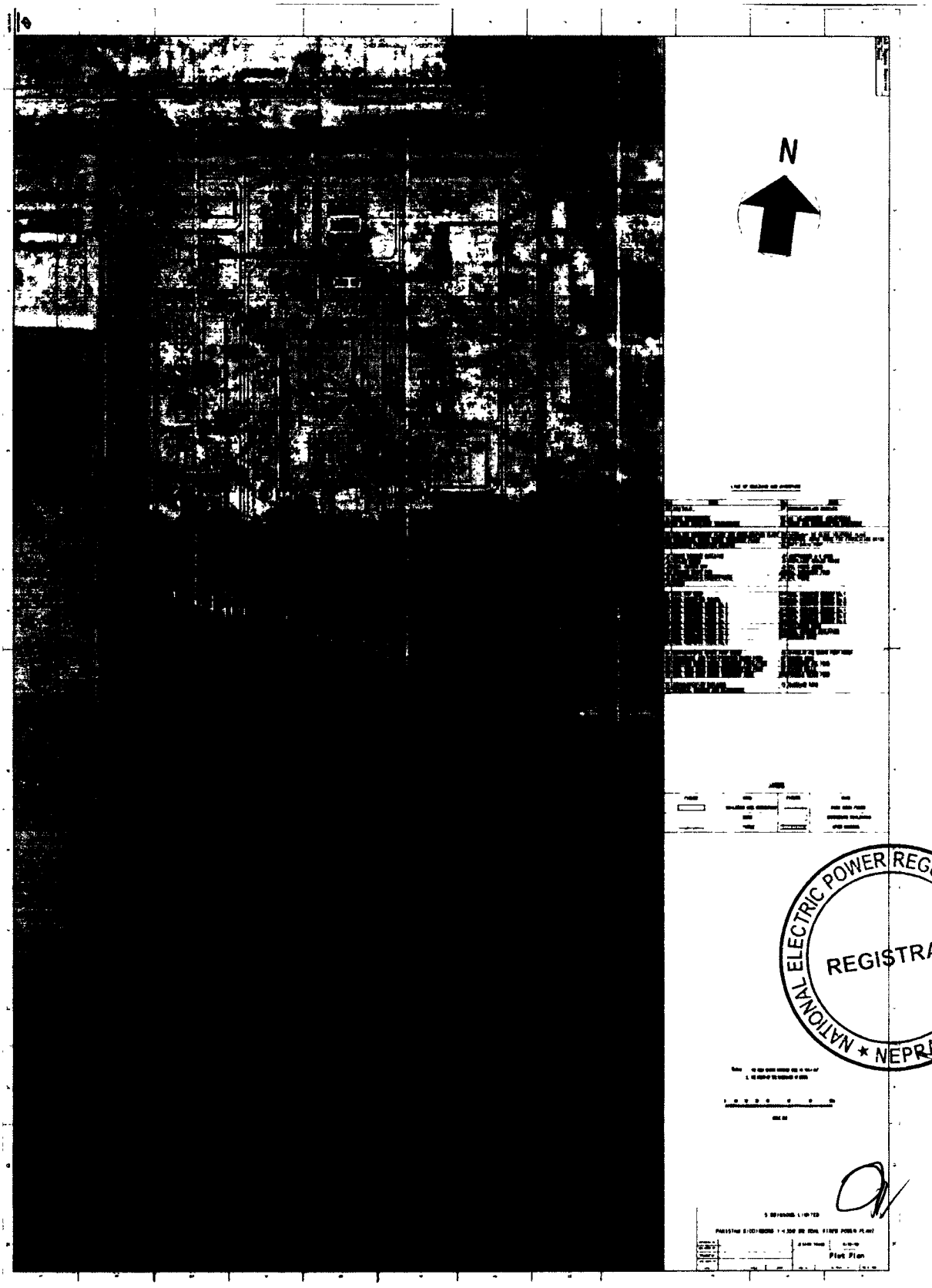

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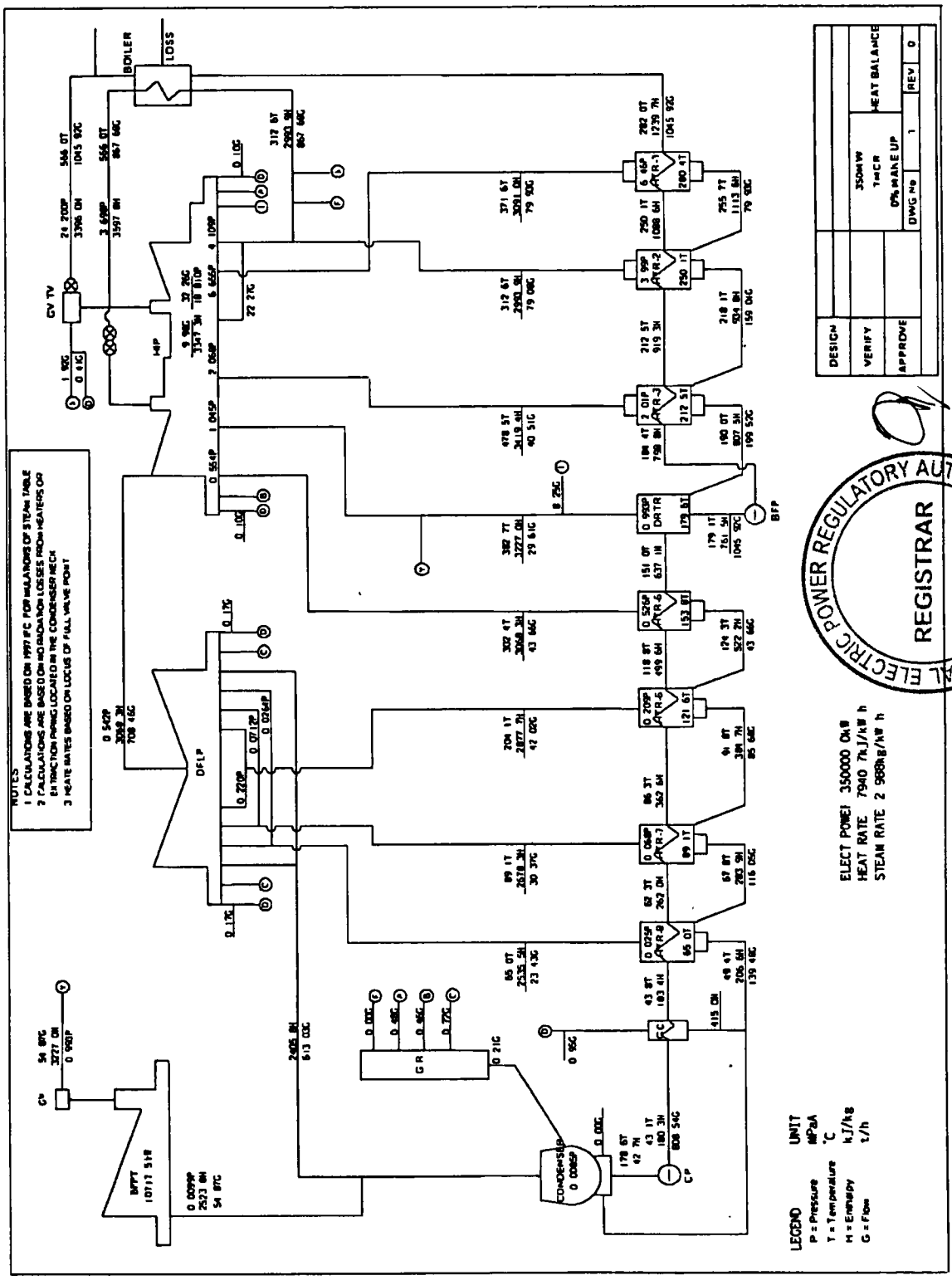

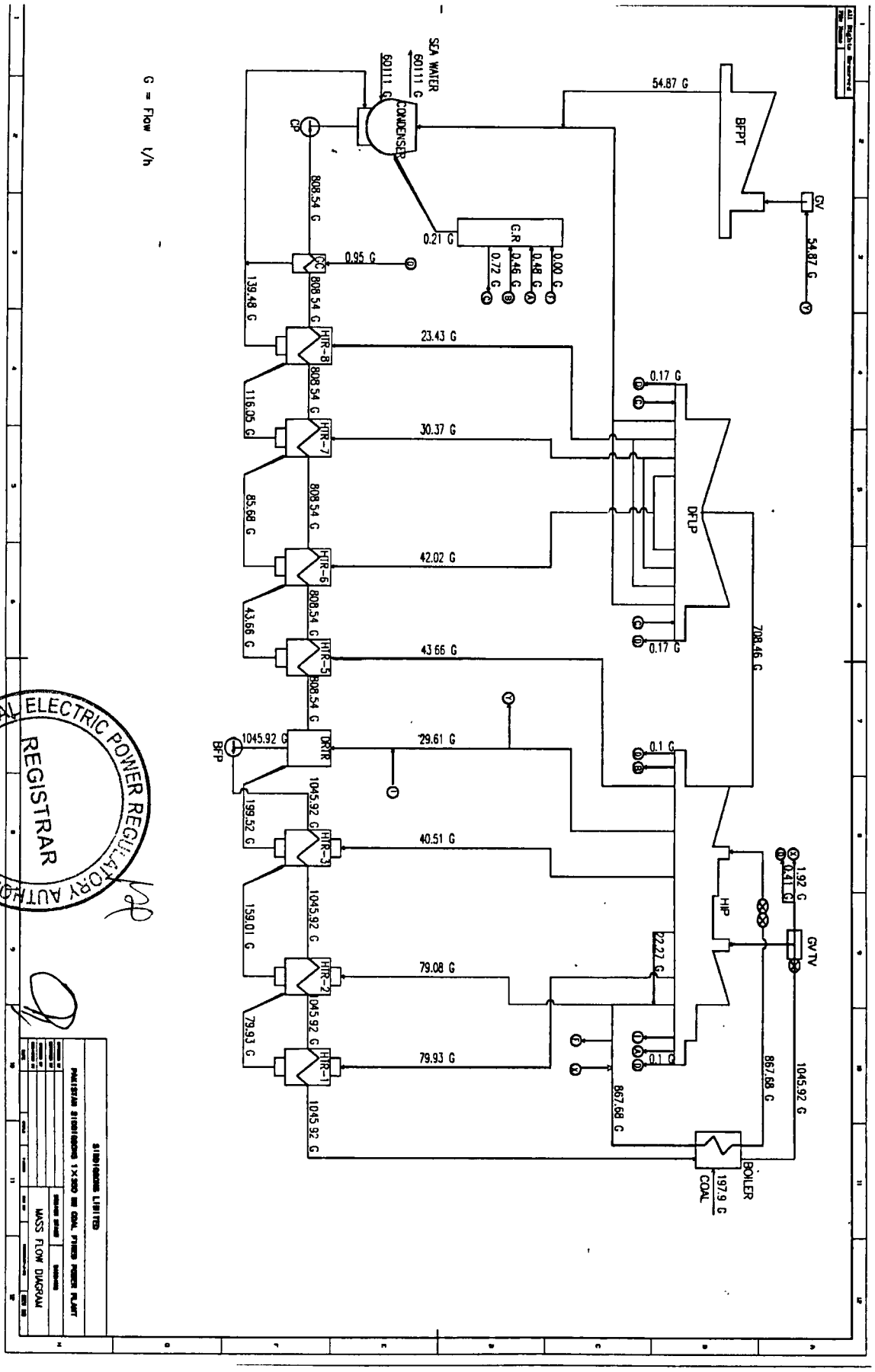

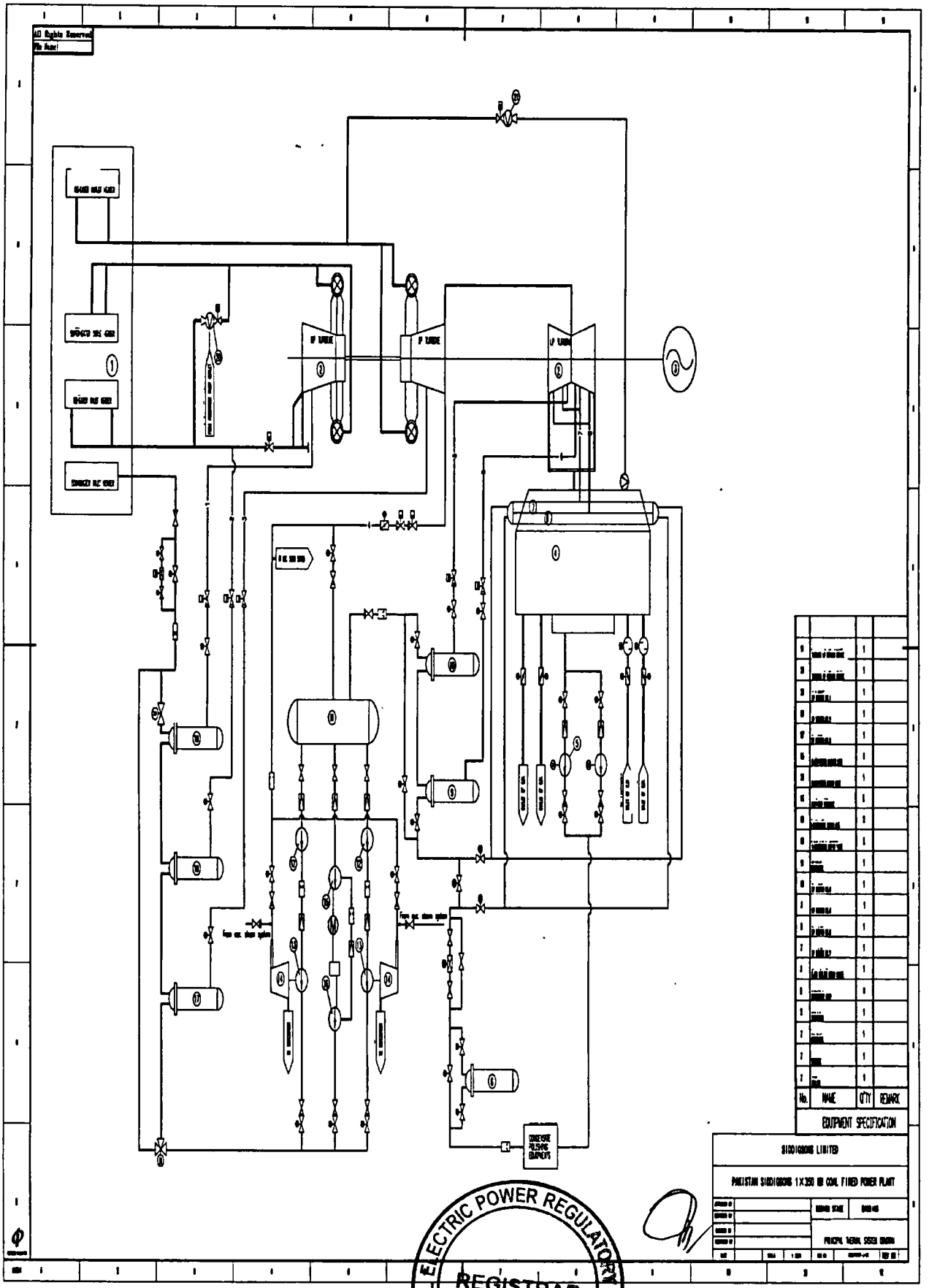

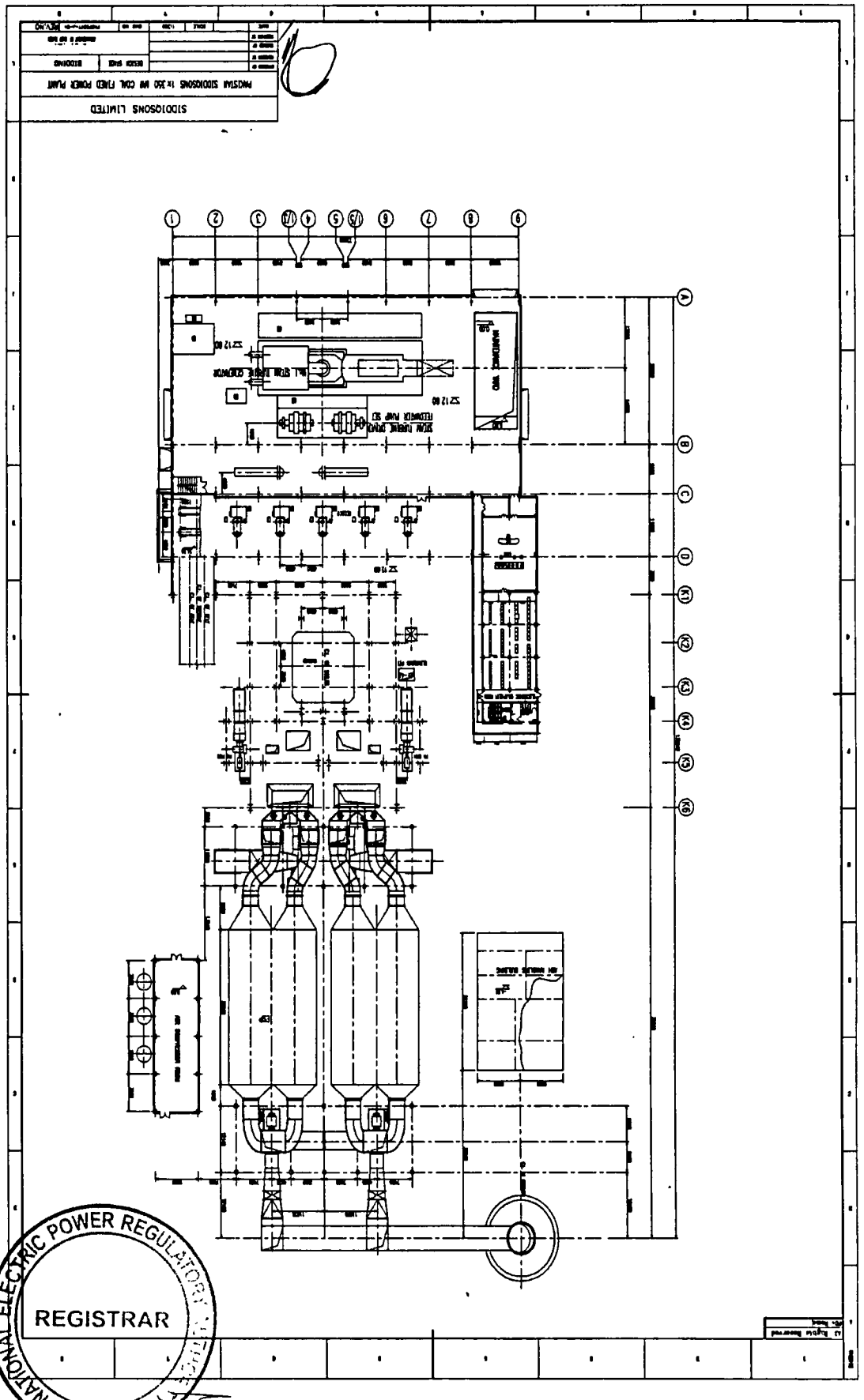

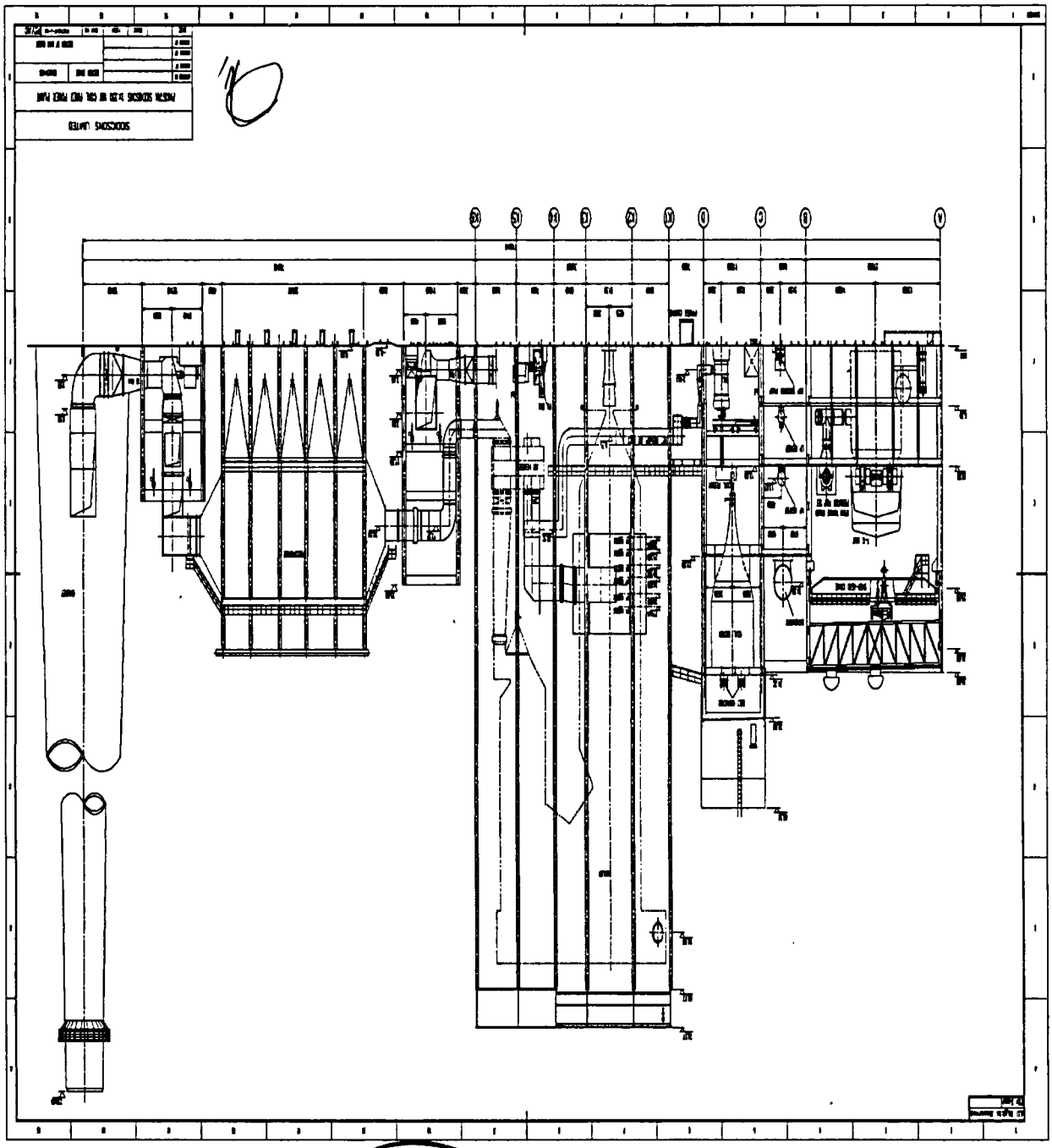

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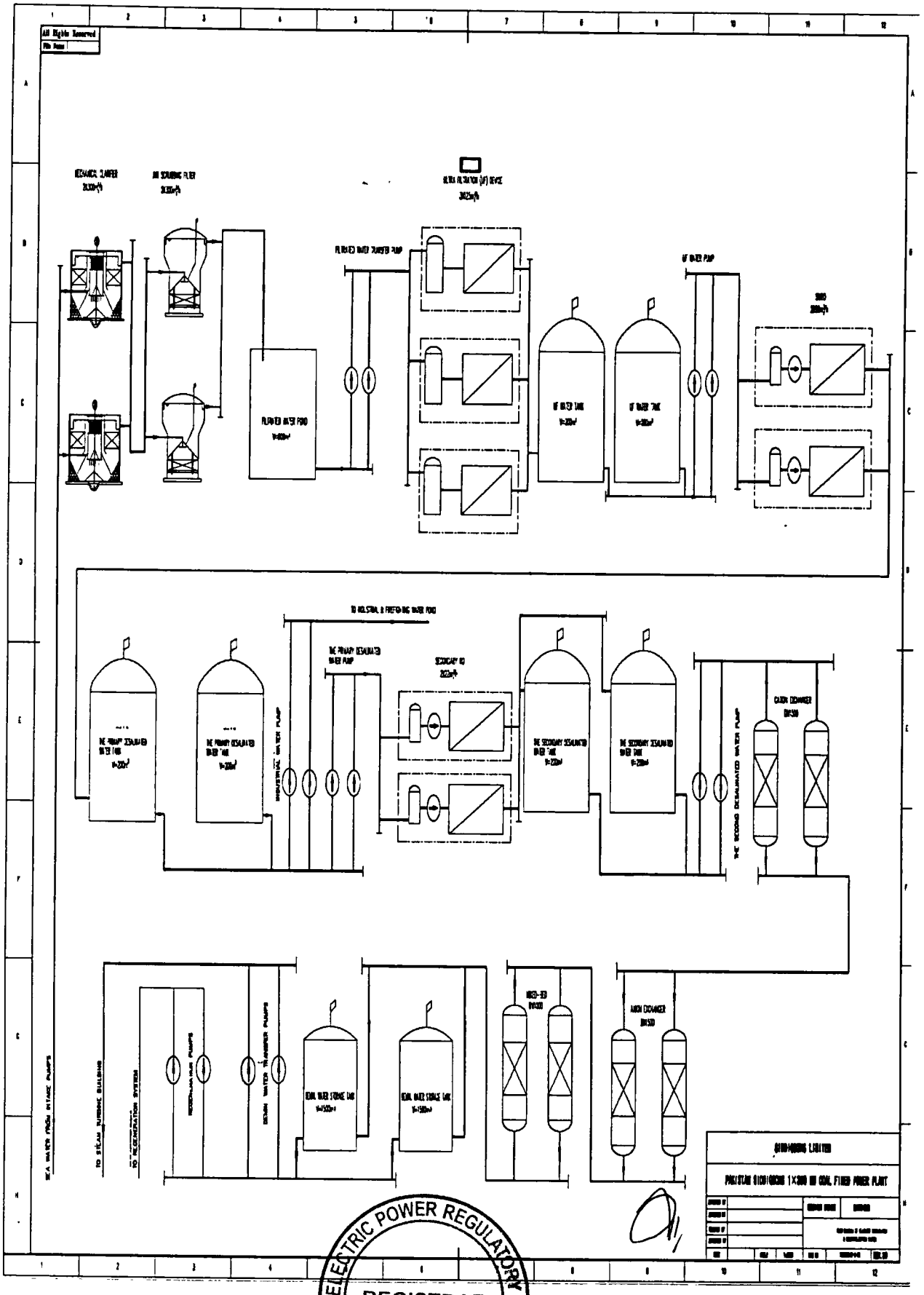

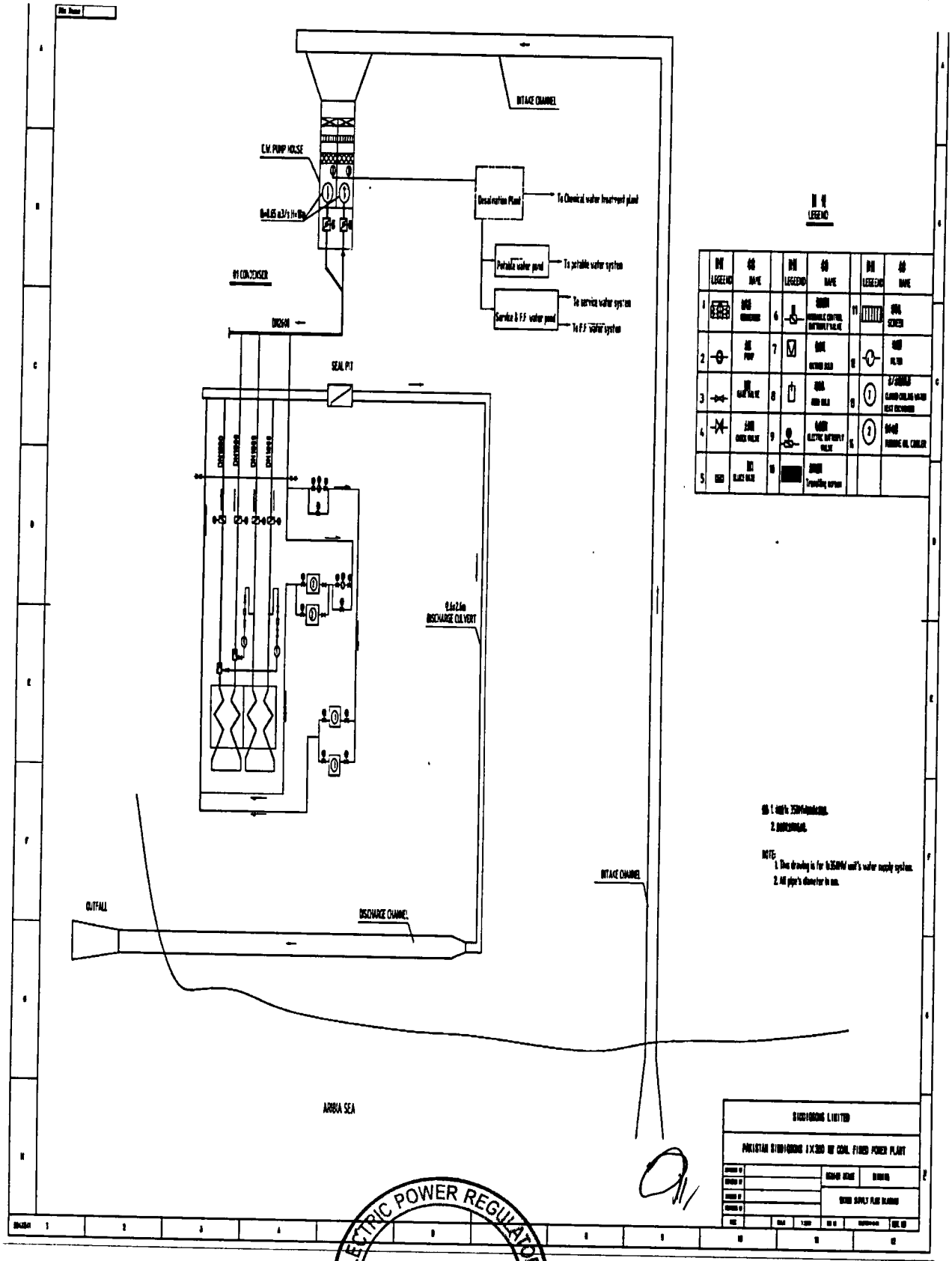

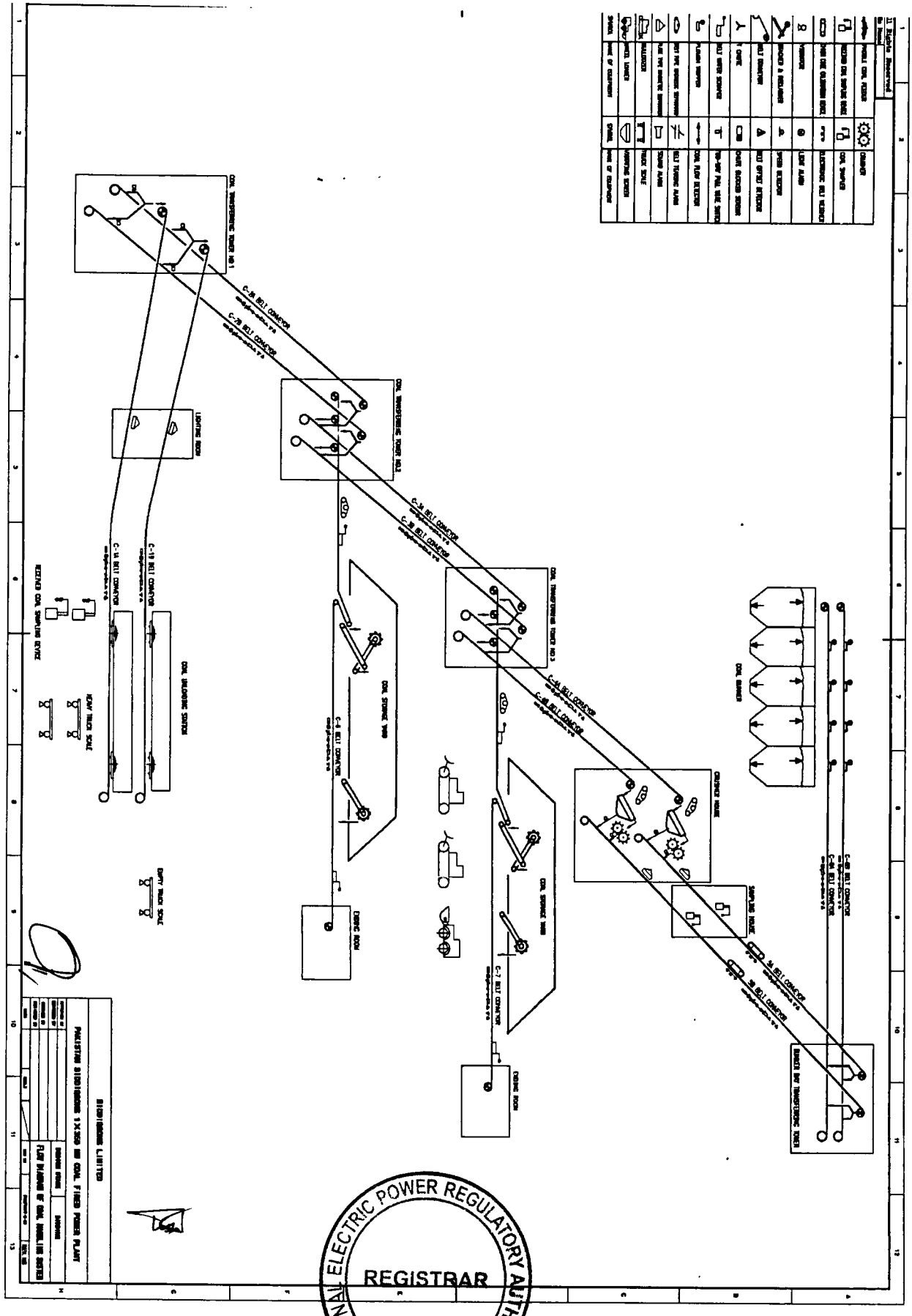

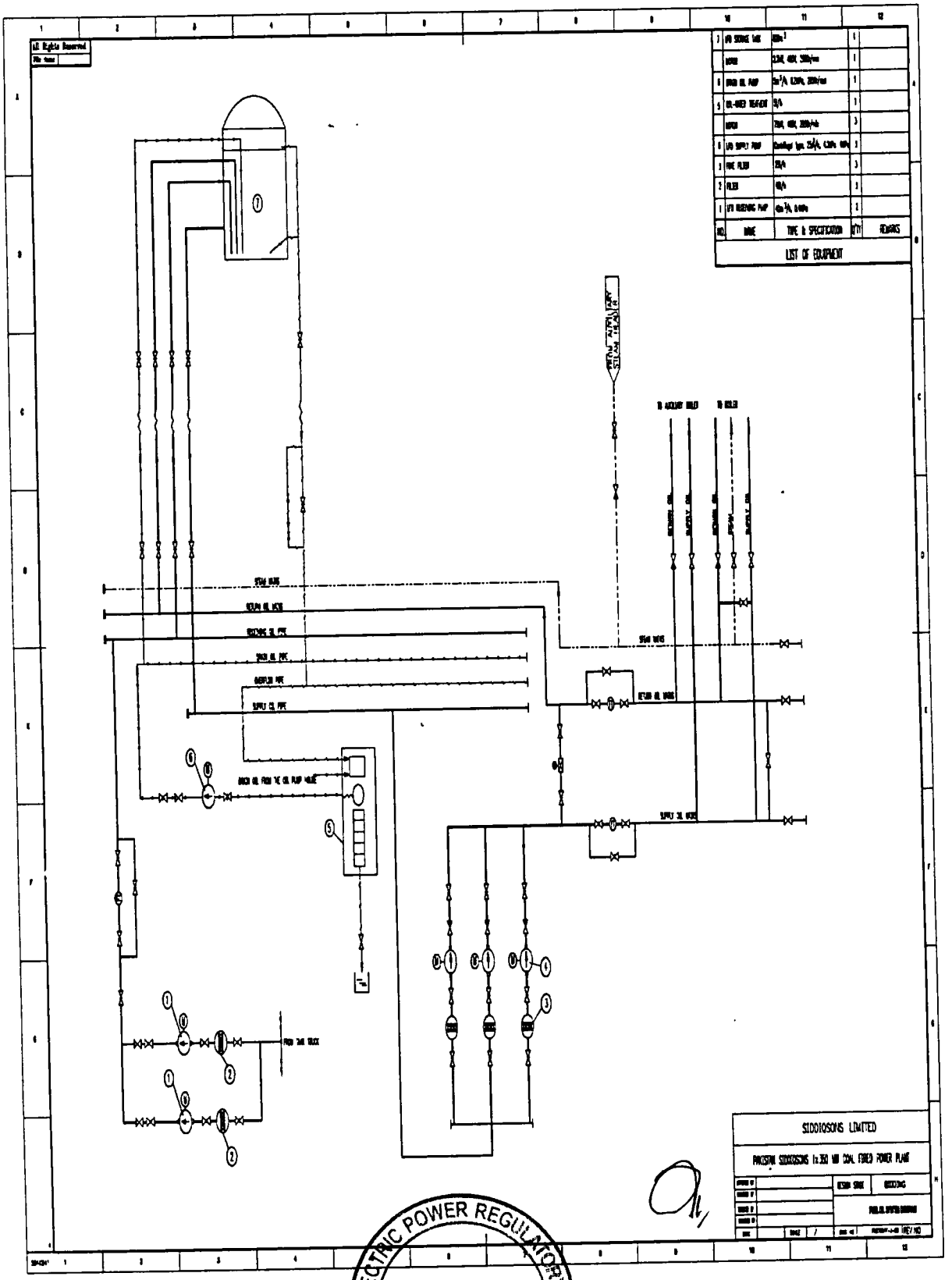

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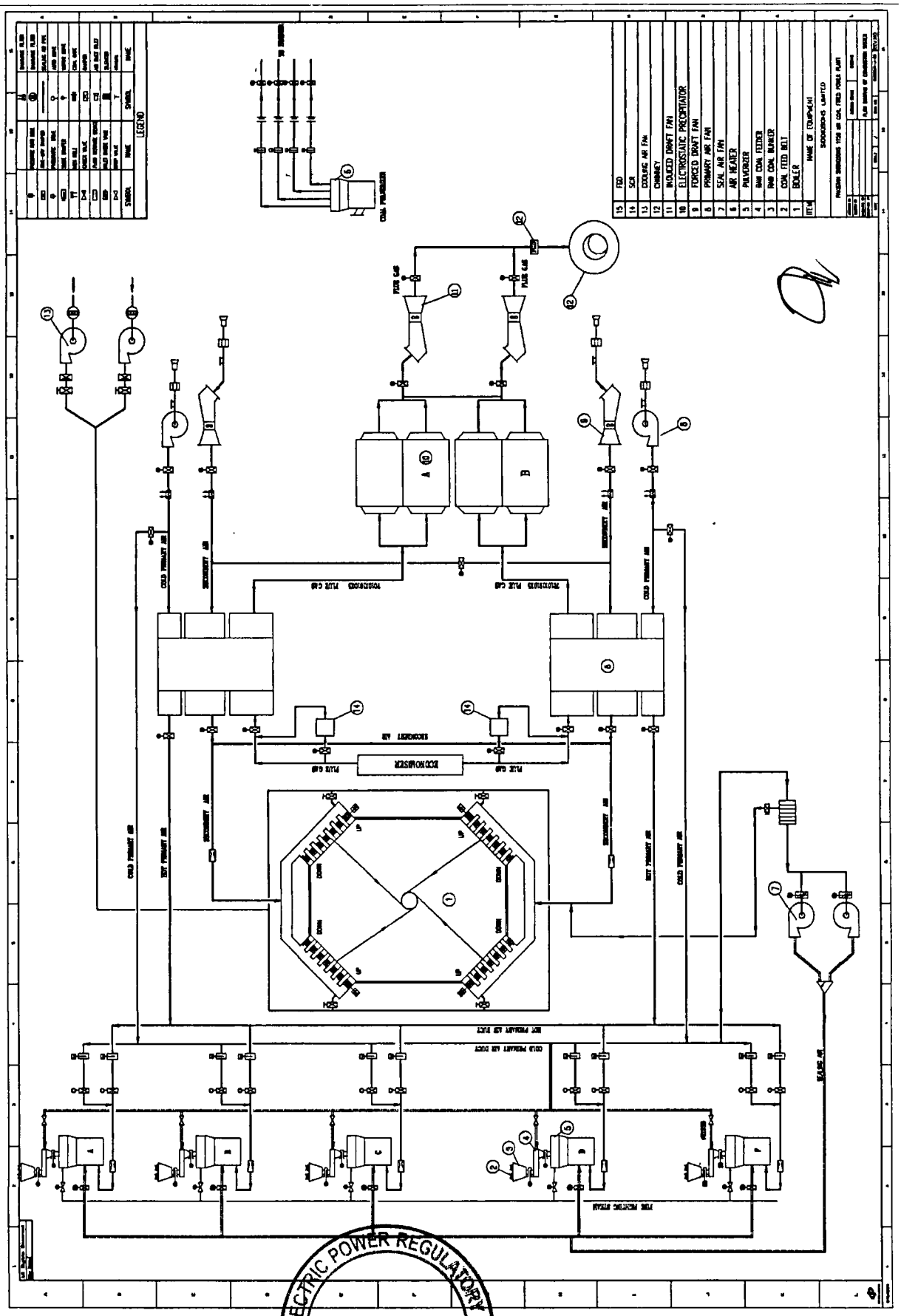

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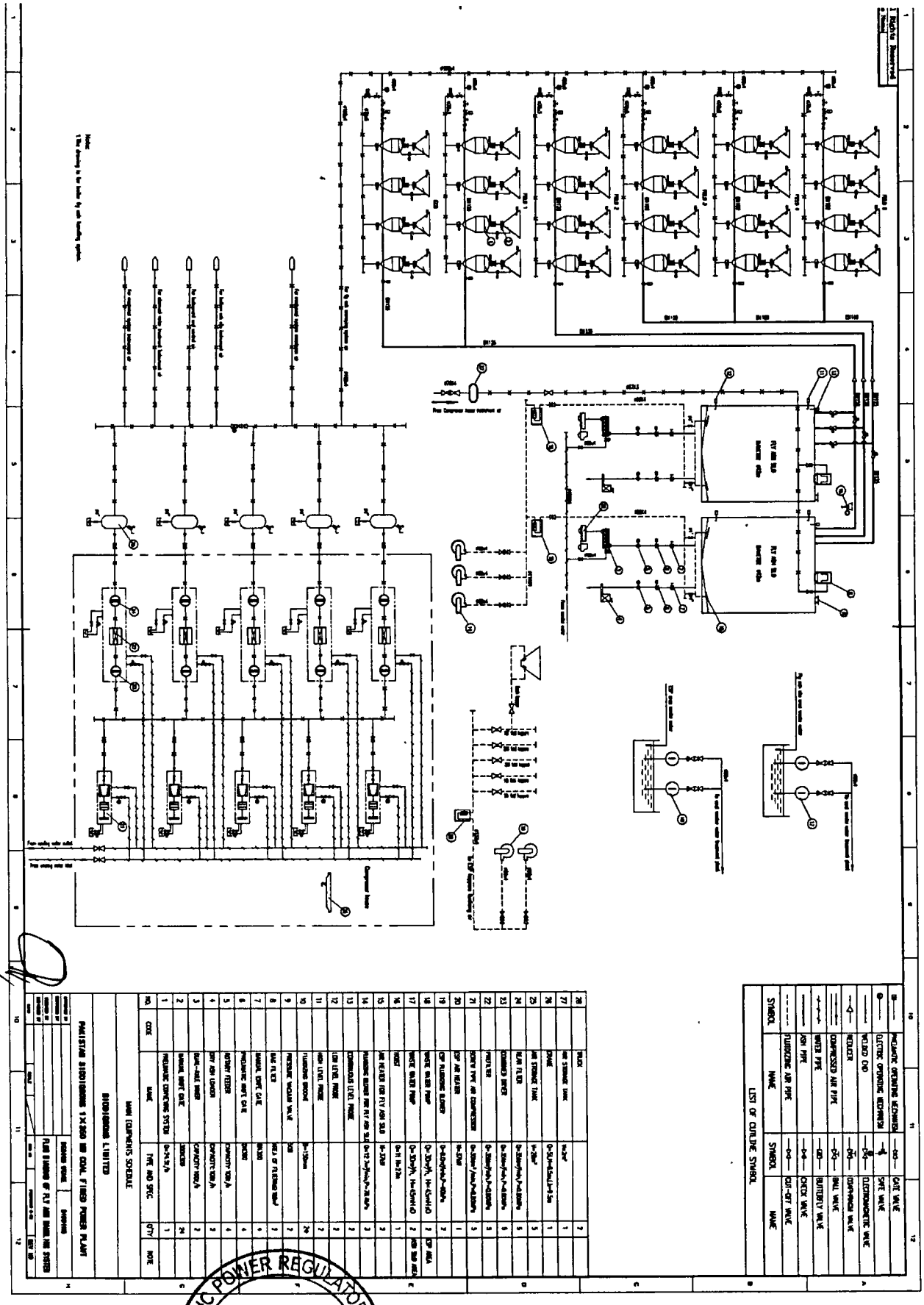

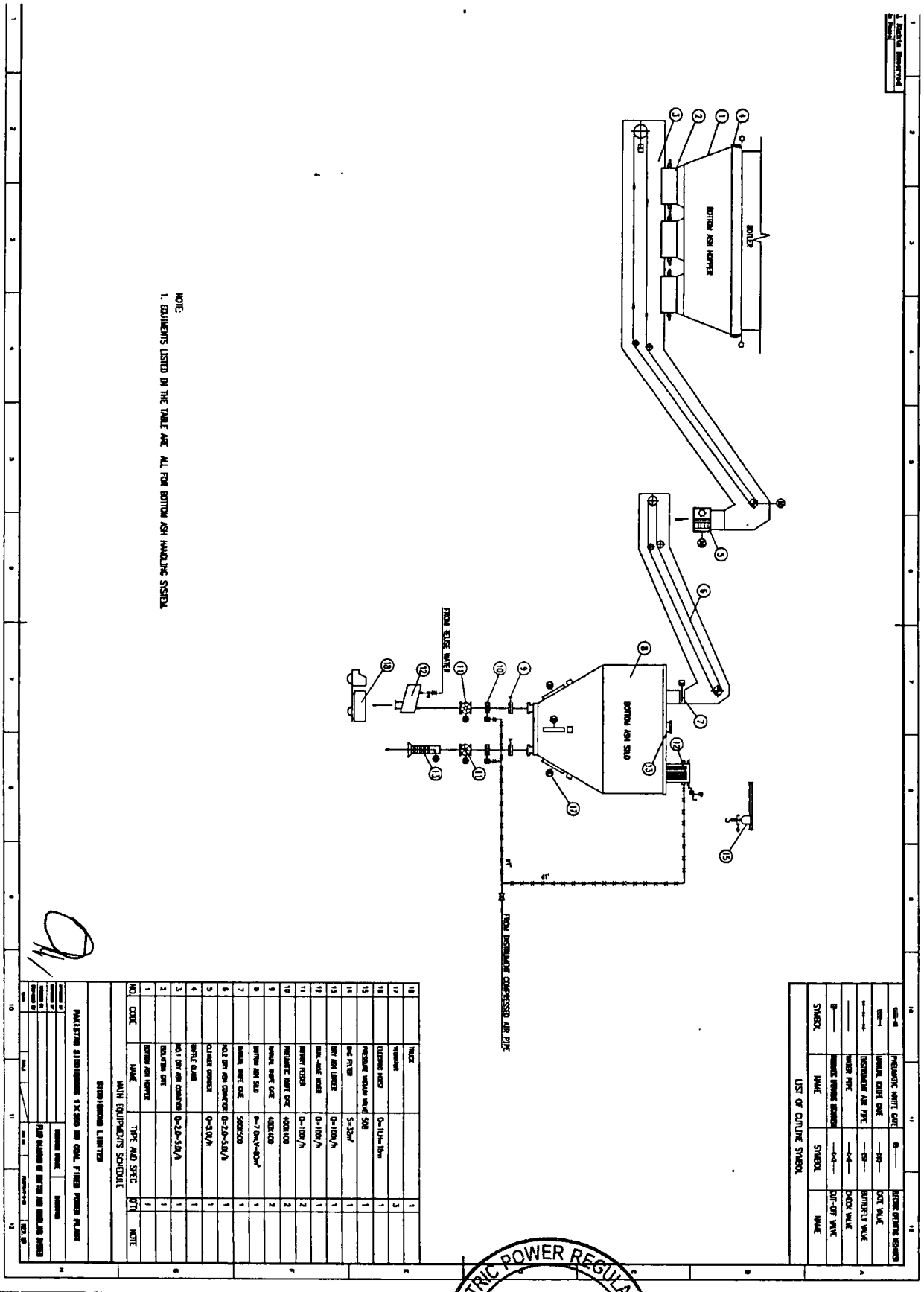

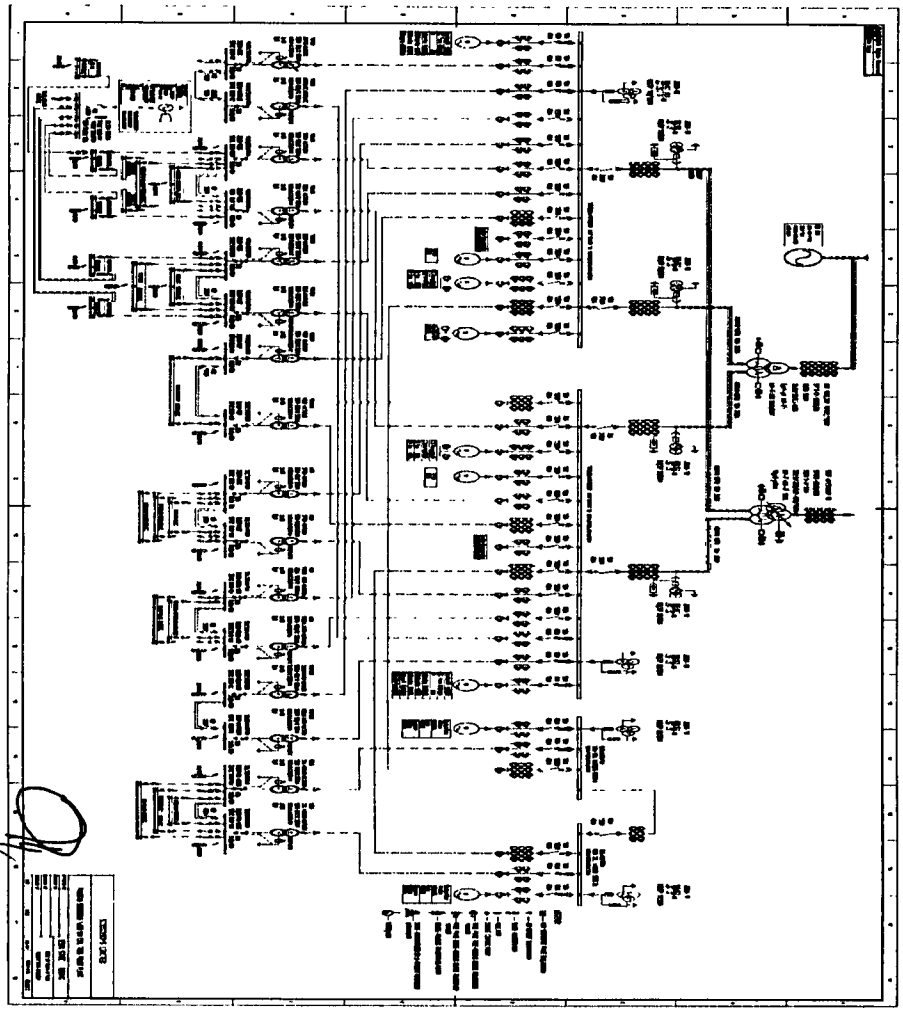

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Interconnection Facilities/ Transmission Arrangements for Dispersal of Power from the Generation Facility

The electric power from the Imported Coal based generation facility/power plant of the Licensee/Siddiqsons Energy Limited (SDSEL) will be dispersed to the National Grid.

(2). The Interconnection Facilities (IF)/Transmission Arrangements (TA) for supplying to National Grid from the above mentioned generation facility shall be at 500 KV level. The dispersal/interconnection arrangement for supplying to National Grid will be consisting of a 500 KV Double Circuit (D/C) Transmission Line measuring about 180 Kilometer (Quad Bundled of AASC Greeley Conductor) connecting the generation facility with 500 KV Matiari Grid Station of NTDC.

(3). Any change in the above mentioned IF/TA for dispersal of electric power as agreed by the Licensee and the Power Purchaser shall be communicated to the Authority in due course of time.

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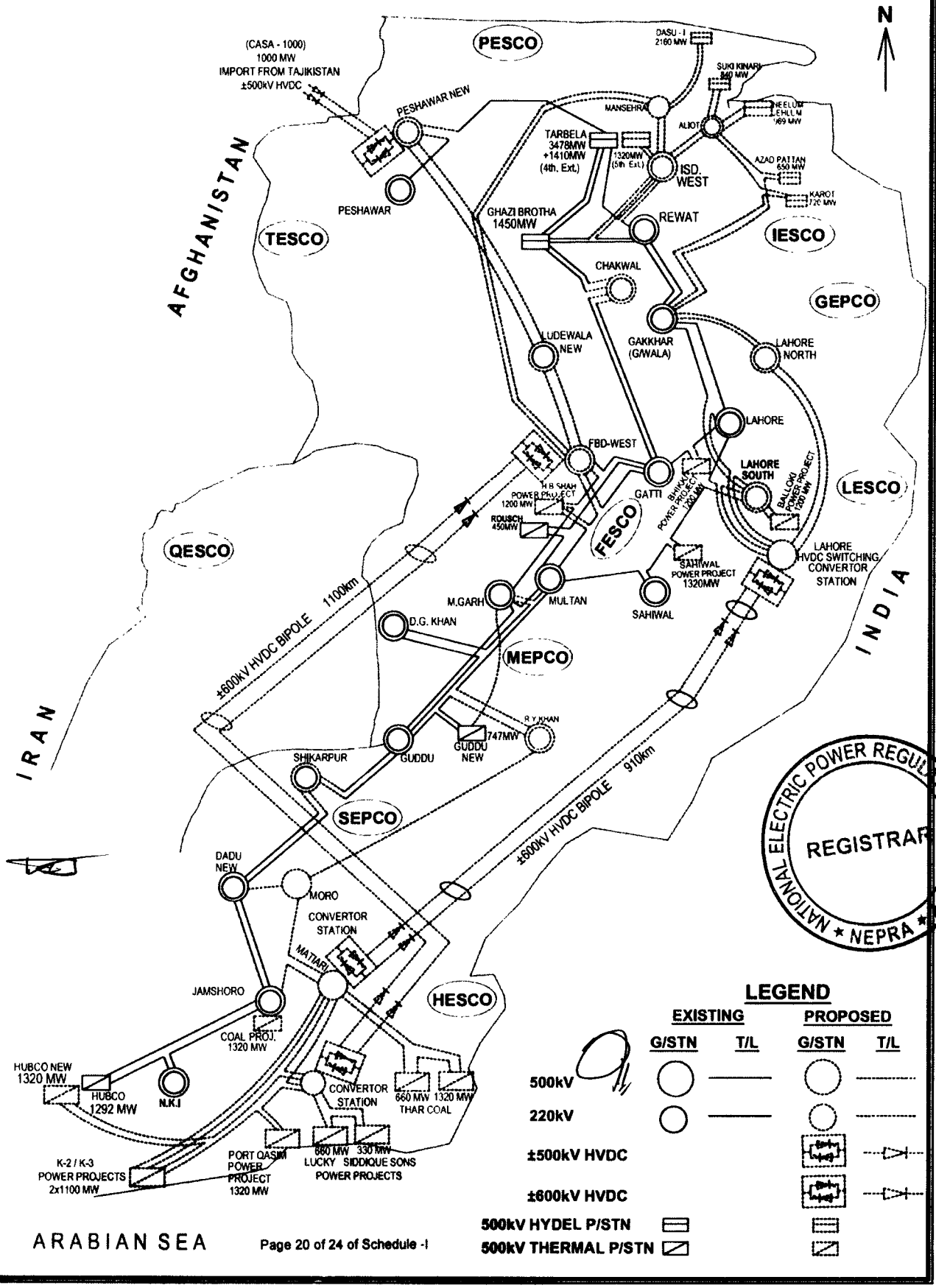
Generation Licence
Siddiqsons Energy Limited
Plot No. 12, Eastern Industrial Zone
at Port Qasim, Karachi
in the Province of Sindh



Detail of Generation Facility/Thermal Power Plant

(A). General Information

(i).	Name of Company/ Licensee	Siddiqsons Energy Limited
(ii).	Registered Office	7th Floor, Siddiqsons Tower, 3 J.C.H. Society, Block 7 & 8, Shahrah-e-Faisal, Karachi, Province of Sindh, Pakistan
(iii).	Business Office	27th Floor, Ocean Tower, Plot G-3, Block-9, Clifton, Karachi, Province of Sindh, Pakistan
(iv).	Location of the Generation Facility/ Power Plant	Plot No. 12, Eastern Industrial Zone, at Port Qasim, Karachi, in the Province of Sindh.
(v).	Type of Generation Facility/ Power Plant	Thermal Generation Facility

(B). Configuration of Generation Facility

(i).	Installed Capacity/Size of the Generation Facility/ Power Plant	350.00 MW	
(ii).	Type of Technology	Conventional Thermal Power Generation Facility with Super Critical Boiler and Steam Turbine	
(iii).	Number of Units/Size (MW)	1 x 350 MW	
(iv).	Unit Make/Model/Type & Year of Manufacture Etc.	Steam turbine	Super-critical, condensing Steam Turbine/ Dongfang Turbine Corp. Ltd. / Shanghai Electric Group Co.,Ltd./ Harbin Turbine Co., Ltd./ Alstom / Siemens / Hitachi / Siemens / Toshiba or Equivalent
		Boiler	Supercritical thermal power unit, once-through, single pass, single reheat, balanced draft

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			radiant furnace, dry bottom / Dongfang Boiler Group Co., Ltd./ Harbin Boiler Co., Ltd./ Shanghai Electric Group Co., Ltd./ B&W(Beijing) Co., Ltd./ Alstom/ Ansaldo/ Foster Wheeler or Equivalent
(v).	COD of the Generation Facility/ Power Plant (Anticipated)	December 31, 2018	
(vi).	Expected Useful Life of the Generation Facility/ Power Plant from COD	30 years	

(C). Fuel/Raw Material Details

(i).	Primary Fuel	Imported Bituminous/Sub-Bituminous Coal	
(ii).	Start-Up Fuel	Light Diesel Oil (LDO)	
(iv).	Fuel Source for each of the above (i.e. Imported/Indigenous)	Primary Fuel	Start-Up Fuel
		Bituminous/Sub-Bituminous Coal from Indonesia, South Africa, Botswana, Ukraine, Australia, Columbia, USA and others	Indigenous/Imported
(v).	Fuel Supplier for each of the above	Primary Fuel	Start-Up Fuel
		Dharti Commodities General Trading or others	Shell Pakistan/Pakistan State Oil/Any other OMC Company
(vi).	Supply Arrangement for each of the above	Primary Fuel	Start-Up Fuel

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	Fuels	Through Ships, Jetty of Pakistan International Bulk Terminal (PIBT) and to Site through Trucks etc.	Through Oil Tankers
(vii).	No of Storage Bunkers/Tanks/ Open Yard	Primary Fuel	Start-Up Fuel
		One open yard	One oil tank
(viii).	Storage Capacity of each Bunkers/Tanks/ Open Yard	Primary Fuel	Start-Up Fuel
		About 315, 000 Tons	1x 500m^3
(ix).	Gross Storage	Primary Fuel	Start-Up Fuel
		About 315, 000 Tons	1 x 500m^3

(D). Emission Values

		Primary Fuel	Start-Up Fuel
(i).	SO_x (mg/Nm^3)	<450	As per NEQ
(ii).	NO_x (mg/Nm^3)	<200	-do-
(iii).	PM	<50	-do-

(E). Cooling System

(i).	Cooling Water Source/Cycle	The cooling water is from adjacent sea channel of Port Qasim south of the site. Once through sea water cooling system will be adopted for plant design.

(F). Plant Characteristics

(i).	Generation Voltage	20-22kV
(ii).	Frequency	50Hz

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(iii).	Power Factor	0.8 (lagging)-0.95(leading)		
(iv).	Automatic Generation Control (AGC) (MW control is the general practice)	AGC Unit is included in the NCS, and AGC Unit can accept command signal from Despatch. The command signal is converted to analog, and then the analog transmitted to the DCS via hardware to achieve the AGC function.		
(v).	Ramping Rate (MW/min)	Under 30% MCR	Between 30% to 50% MCR	Between 50% to 100% MCR
		13.20MW/Min	19.80 MW/Min	33.00 MW/Min
(vi).	Time required to Synchronize to Grid	Hot Start	Warm Start	Cold Start
		0.75 hours	2.00 hours	4.25 hours

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SCHEDULE-II

The Installed/ISO Capacity (MW), De-Rated Capacity At Mean Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity At Mean Site Conditions (MW) of the Generation Facilities of Licensee is given in this Schedule

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SCHEDULE-II

(1).	Total Gross Installed Capacity of the Generation Facility/Power Plant	350.00 MW
(2).	De-rated Capacity of Generation Facility/Power Plant at Reference Site Conditions	322.00 MW
(3).	Auxiliary Consumption of the Generation Facility/Power Plant	031.50 MW
(4).	Total Installed Net Capacity of Generation Facility/Power Plant at Reference Site Condition	290.50 MW

Note

All the above figures are indicative as provided by the Licensee. The Net Capacity available to Power Purchaser for dispatch will be determined through procedure(s) contained in the Power Purchase Agreement or any other applicable document(s).

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