



**National Electric Power Regulatory Authority**  
**Islamic Republic of Pakistan**

2nd Floor, OPF Building, G-5/2, Islamabad.  
Ph: 9206500, 9207200 Fax : 9210215  
E-mail: office@nepra.org.pk

**Registrar**

No. NEPRA/R/LAG-77/1015-16

February 22, 2007

Director  
Foundation Power Co. (Daharki) Ltd.  
68 Tipu Road, Chaklala  
Rawalpindi


Subject: **Generation Licence No. IGSP/06/2007**  
**Licence Application No. LAG-77**  
**Foundation Power Company (Dahraki) Ltd. (FPCDL)**

Please refer to your application No. PD-4033/Daharki dated 17.01.2006 to NEPRA for a Generation Licence.

2. Enclosed here is Generation Licence No. IGSP/06/2007 granted by the Authority to Foundation Power Company (Daharki) Ltd. The Licence is granted to you pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

3. Please quote above mentioned Generation Licence No. in your future correspondence with the Authority.

DA/as above.

  
22.02.07  
(Mahjoob Ahmad Mirza)

Copy for information to Director General, Pakistan Environmental Protection Agency (Pak-EPA), House No. 311, Main Margalla Road, Sector F-11/3, Islamabad.

**National Electric Power Regulatory Authority  
(NEPRA)  
Islamabad – Pakistan**

**GENERATION LICENCE**

No. IGSPL/06/2007

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 (XL of 1997), the Authority hereby grants a Generation Licence to:

**Foundation Power Company Daharki Limited**

Incorporated under the Companies Ordinance, 1984  
Under Certificate of Incorporation

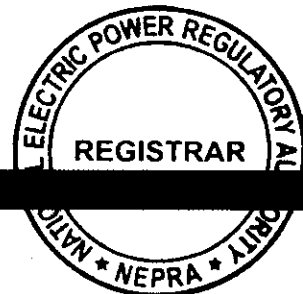
No. 00000004945/20051101 Dated November 10, 2005

For its Plant at Daharki Sindh  
(Installed Capacity: 179.05 MW Gross ISO)

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

Given under my hand this 22nd day of February, Two Thousand & Seven, and expires on 19th day of May, Two Thousand & Thirty Four.

  
\_\_\_\_\_  
Registrar



## Article 1 Definitions

1.1 In this Licence

- (a) "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997);
- (b) "Authority" means the National Electric Power Regulatory Authority constituted under section 3 of the Act;
- (c) "Licensee" means Foundation Power Company Daharki, Limited
- (d) "Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000.

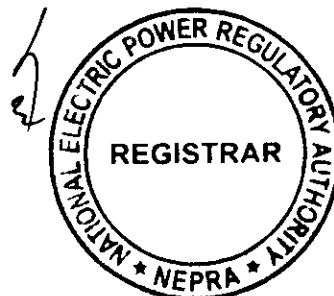
1.2 Words and expressions used but not defined herein bear the meaning given thereto in the Act or in the Rules.

## Article 2 Application of Rules

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

## Article 3 Generation Facilities

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



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

3.3 The Licensee shall provide the final arrangement, technical and financial specifications and other details specific to generation facilities before commissioning of the generation facilities.

#### **Article 4 Term**

4.1 The Licence is granted for a term of twenty five (25) years after the commercial Operation date.

4.2 Unless revoked earlier, the Licensee may ninety days (90) days prior to the expiry of the term of the Licence, apply for renewal of the Licence under the Licensing (Application and Modification Procedures) Regulation, 1999

#### **Article 5 Licence fee**

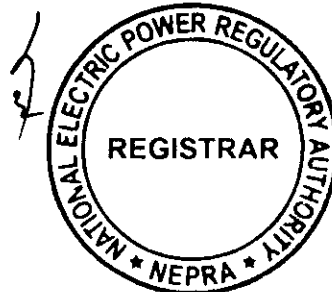
After the grant of the Generation Licence, the Licensee shall pay to the Authority the Licence fee, in the amount and manner and at the time set out in National Electric Power Regulatory Authority (Fees) Rules, 2002.

#### **Article 6 Tariff**

The licensee shall charge from its consumers only such tariff which has been approved by the Authority.

#### **Article 7 Competitive Trading Arrangement**

7.1 The Licensee shall participate in such measures 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 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 standards 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 conform to the relevant NEPRA rules on Performance Standards as may be prescribed by the Authority from time to time.

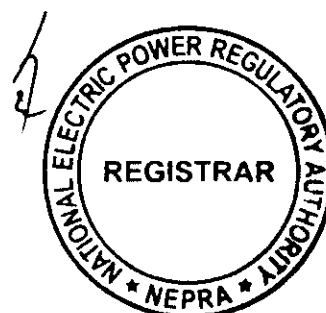
### **Article 10 Compliance with Environmental Standards**

The Licensee shall conform to the environmental standards as may be prescribed by the relevant competent authority from time to time.

### **Article 11 Provision of Information**

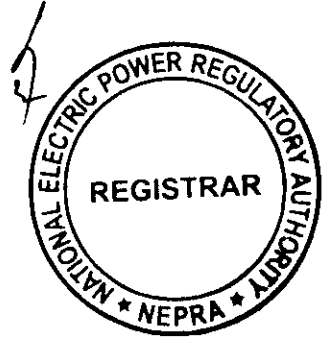
11.1 The obligation of the licensee to provide information to the Authority shall be in accordance with Section 44 of the Act.

*[Handwritten signatures]*



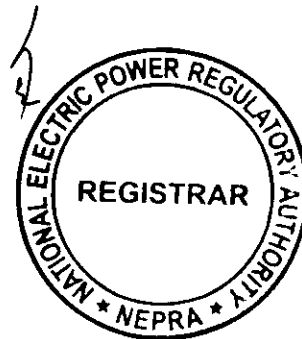
11.2 The licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or have been in the control or possession of the licensee.

*[Handwritten marks: a signature, a checkmark, and other scribbles]*



## **SCHEDULE-I**

The location, size (capacity in MW) technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the Generation Facilities of the Licensee.



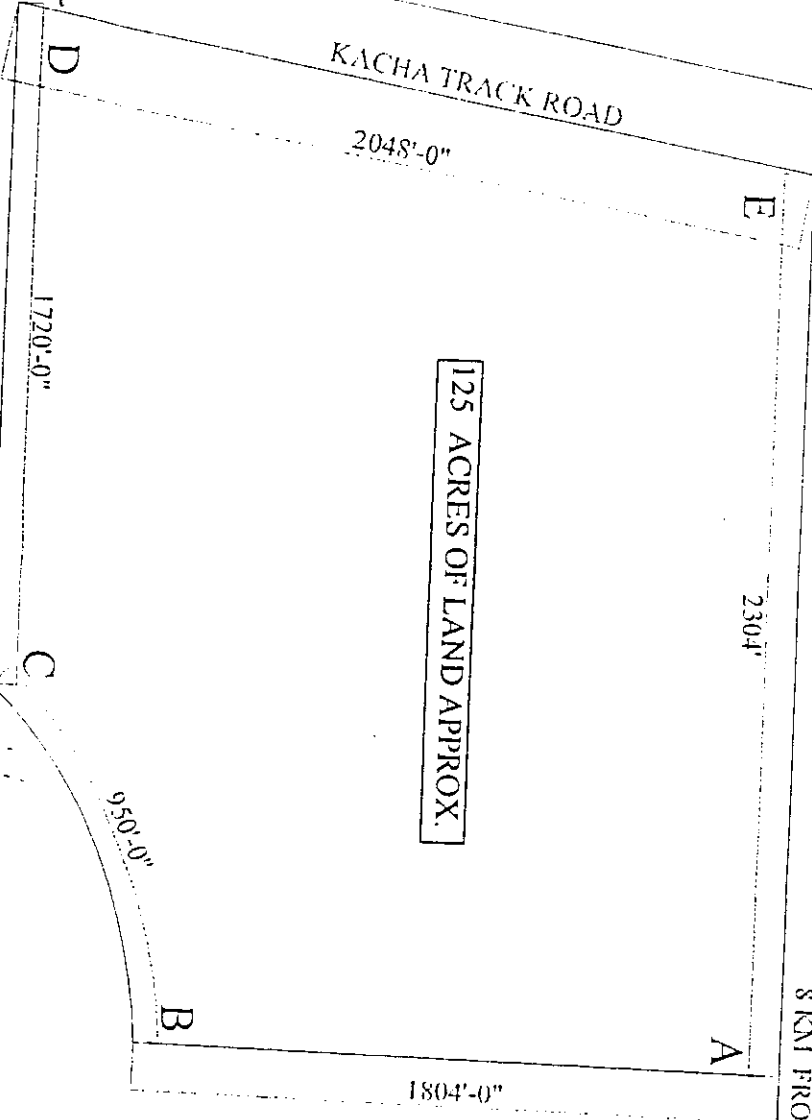
**SITE MAP OF 175 MW FOUNDATION POWER COMPANY LIMITED.**

NEW DAHAR WAI CANAL

DAV LEGHARI ROAD  
 20'-0" WIDE

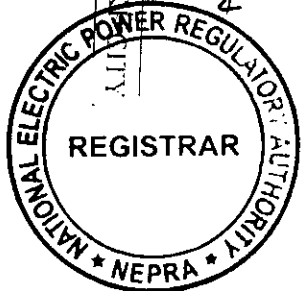
8 KM FROM DAHARKI CITY

**125 ACRES OF LAND APPROX.**



**LENGEND OF COORDINATES**

- A= 27°-59'-18" N  
69°-40'-16" E
- B= 27°-59'-10" N  
69°-40'-34" E
- C= 27°-58'-56" N  
69°-40'-36" E
- D= 27°-58'-37" N  
69°-40'-37" E
- E= 27°-58'-48" N  
69°-40'-13" E







DAHARKI-SFYD-Y-001

DAHARKI-SFYD-Y-001

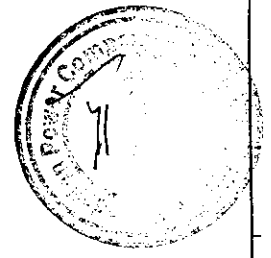
FOR REFERENCE

LEGEND

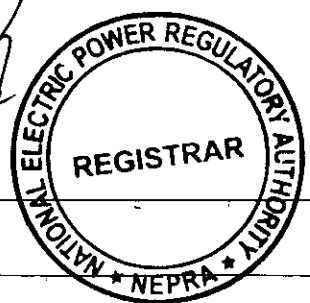
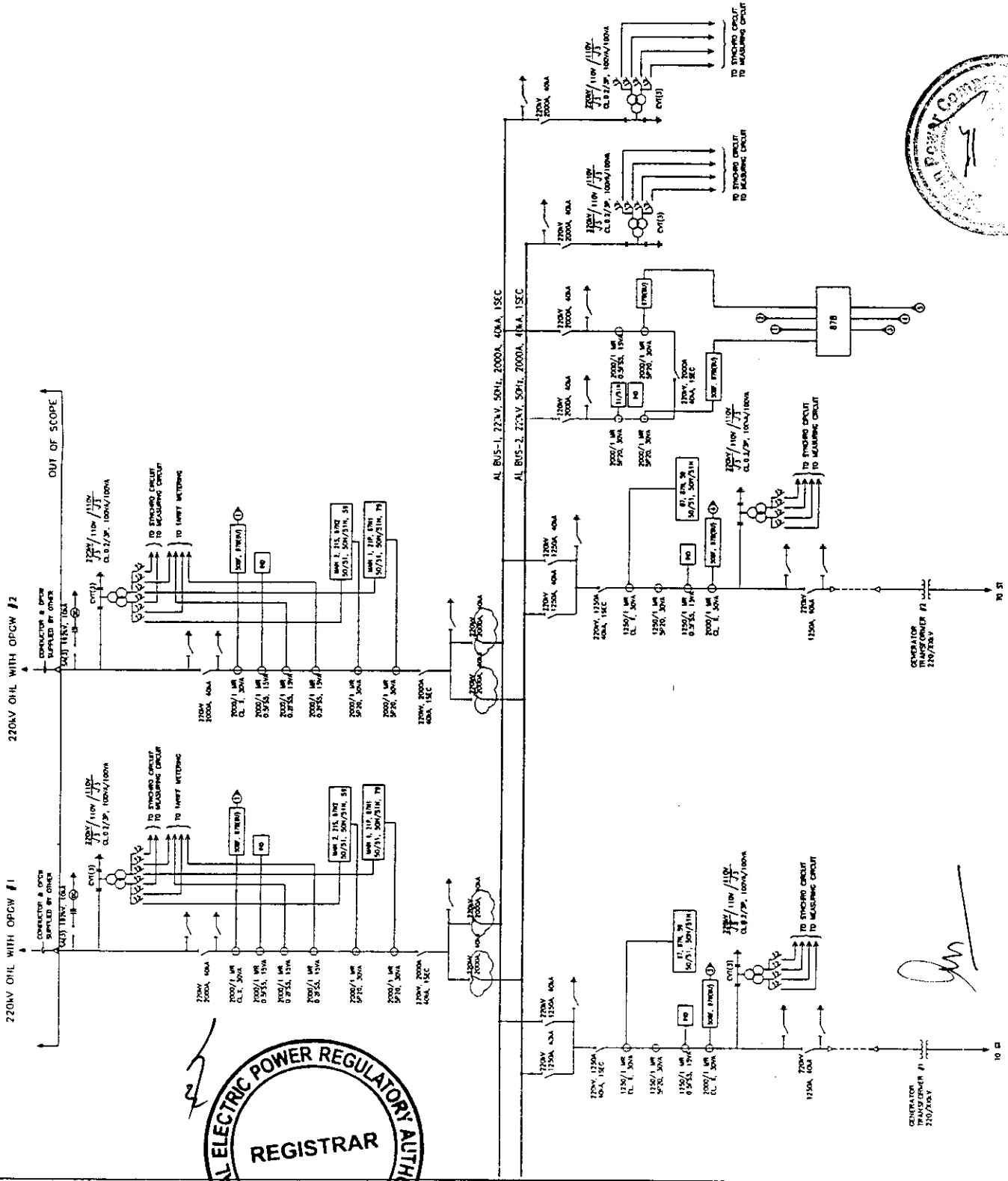
- 216 DISTANCE PROTECTION FOR O/L FEEDER - MAIN 1
- 217 DISTANCE PROTECTION FOR O/L FEEDER - MAIN 2
- 218 DIRECTIONAL OVERCURRENT PROTECTION - MAIN 1
- 219 DIRECTIONAL OVERCURRENT PROTECTION - MAIN 2
- 220 PHASE AND EARTH OVERCURRENT PROTECTION - MAIN 1
- 221 PHASE AND EARTH OVERCURRENT PROTECTION - MAIN 2
- 222 OVERCURRENT PROTECTION - MAIN 1
- 223 OVERCURRENT PROTECTION - MAIN 2
- 224 GENERATOR/TRANSFORMER DIFFERENTIAL PROTECTION
- 225 LOW IMPEDANCE BUSBAR PROTECTION
- 226 LOW IMPEDANCE BUSBAR PROTECTION
- 227 CONTROL UNIT FOR LOW IMPEDANCE BUSBAR PROTECTION
- 228(1) UNIT FOR LOW IMPEDANCE BUSBAR PROTECTION
- 228(2) UNIT FOR LOW IMPEDANCE BUSBAR PROTECTION
- 229 PROTECTION/RESTRAINT

NOTE: THE RATING AND DATA OF EACH DEVICE AS SHOWN AND MENTIONED IN THIS DRAWING AND PROTECTION FUNCTION ETC. MAY BE CHANGED DURING DETAILED DESIGN.

| REV. | DATE      | DESCRIPTION    | PREPARED BY | CHECKED BY | CLIENT |
|------|-----------|----------------|-------------|------------|--------|
| 1    | 14 DEC 08 | ISSUED FOR R/O |             |            |        |
| 2    | 14 JAN 09 | ISSUED FOR R/O |             |            |        |



*[Handwritten signature]*



SCALE NONE REV. NO 1  
 PROJECT TITLE DAHARKI 175MW  
 COMBINED CYCLE POWER PLANT, PAKISTAN  
 DRAWING TITLE 220KV SWITCHYARD  
 PROTECTION AND METERING SINGLE LINE DIAGRAM  
 PROJECT DRAWING NO. DAHARKI-SFYD-Y-001  
 DATE 14/12/08

NOTE

- Legend
- Circuit Breaker
  - Step Transformer
  - Busbar
  - Line
  - Motor
  - Impedance
  - Generator
  - Control
  - AUTOMATIC START TRANSFER SWITCH
  - MANUAL TRANSFER SWITCH
  - REFERENCE SYMBOL

FOR PROPOSAL

THIS DRAWING IS THE PROPERTY OF NEPRA. IT IS NOT TO BE COPIED OR USED IN ANY WAY WITHOUT THE PERMISSION OF NEPRA.

FOUNDATION POWER COMPANY (DAHARKI) LIMITED

DAHARKI COMBINED CYCLE POWER PLANT  
 (175MW CCCTP)

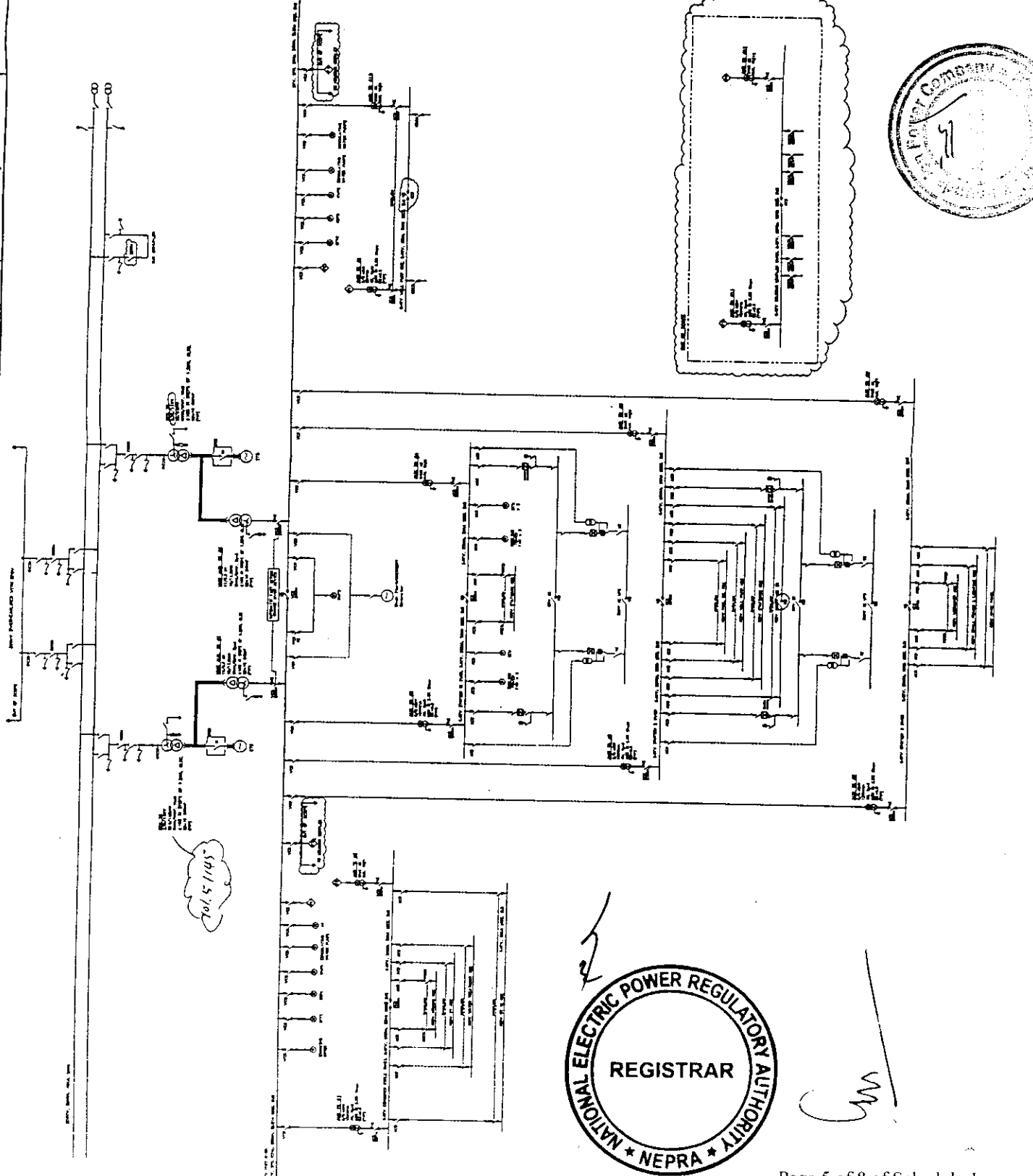
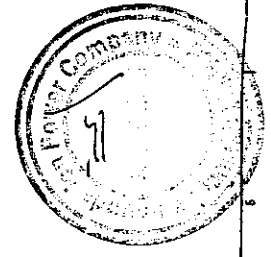
ELECTRICAL  
 KEY SINGLE LINE DIAGRAM

FOUNDATION POWER COMPANY (DAHARKI) LIMITED

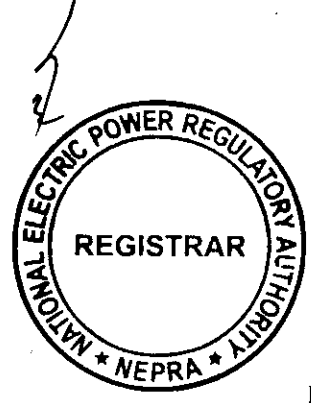
DAHARKI COMBINED CYCLE POWER PLANT (175MW CCCTP)

ELECTRICAL KEY SINGLE LINE DIAGRAM

FOUNDATION POWER COMPANY (DAHARKI) LIMITED



701.5/105



## Plant Details\*

### 1. General Information

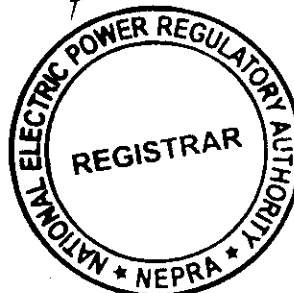
|      |                             |  |
|------|-----------------------------|--|
| i.   | Name of Applicant           | Foundation Power Company (Daharki) Limited         |
| ii.  | Registered Office           | Fauji Towers, 68 Tipu Road, Chaklala, Rawalpindi   |
| iii. | Plant Location              | Approx. 8 km from Daharki city on Dad Leghari Road |
| iv.  | Type of Generation Facility | Thermal Generation (Combined Cycle)                |

### 2. Plant Configuration

|       |  |  |
|-------|--|--|
| i.    | Plant Size Installed Capacity Gross ISO                      | 179.05 MW  |
| ii.   | Type of Technology   | Combined Cycle Power Plant                               |
| iii.  | Number of Units/Size (MW)                                    | 1x114.9 MW (Gas Turbine)<br>1x64.15 MW (Steam Turbine)   |
| iv.   | Unit Make & Model  | Gas Turbine – GE9171E<br>Steam Turbine – Fauji Japan/FTE |
| v.    | De-rated Capacity at site conditions                         | 177.54 MW  |
| vi.   | Auxiliary Consumption  | 6.057 MW   |
| vii.  | Commissioning and Commercial Operation date                  | 20-05-2009 (Tentatively)                                 |
| viii. | Expected Life of the Facility from Commercial Operation Date | 25 Years   |

\* As provided by the Applicant

*(Handwritten signatures)*



### 3. Fuel Details

|       |   |   |
|-------|---|---|
| i.    | Primary Fuel                                | Low Btu Gas (517 – 540 Btu/Scf)         |
| ii.   | Back-up Fuel                                | High Speed Diesel (HSD)                 |
| iii.  | Fuel Source<br>(Imported/Indigenous)        | Indigenous                              |
| iv.   | Fuel Supplier                               | Mari Gas Company Limited (MGCL)         |
| v.    | Supply Arrangement                          | By a Gas Pipelines from Mari Gas Fields |
| vi.   | No of Storage Tanks<br>of Backup Fuel (HSD) | 01                                      |
| vii.  | Storage Capacity of<br>each HSD Tank        | 6500 m <sup>3</sup>                     |
| viii. | Gross Storage of HSD                        | 6500 m <sup>3</sup> (Net Storage)       |

### 4. Emission Values

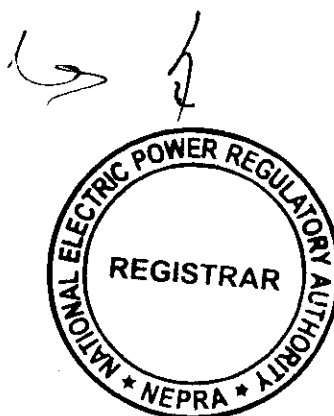
|      |                  |   |
|------|------------------|---|
| i.   | SO <sub>x</sub>  | SO <sub>2</sub> : 35**  |
| ii.  | NO <sub>x</sub>  | 115 mg/Nm <sup>3</sup> at 15% dry O <sub>2</sub> (by %volume) |
| iii. | PM <sub>10</sub> | 50 mg/Nm <sup>3</sup>   |

\*\*0.2 metric tons per day (tpd) per MWe of capacity

### 5. Cooling System

|    |                               |   |
|----|-------------------------------|---|
| i. | Cooling Water<br>Source/Cycle | Well and/or Canal water / Close Cycle (Cooling Tower) |
|----|-------------------------------|---|

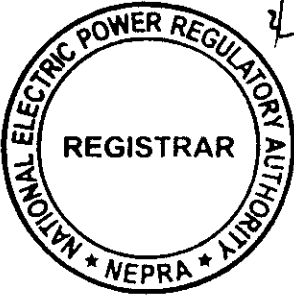
*Am*  
*W*  
*6*



**6. Plant Characteristics**

|                                 |  |   |                         |
|---------------------------------|--|---|-------------------------|
| i.                              | Generation Voltage   | 10.5 kV – 15 kV   |                         |
| ii.                             | Frequency  | 50 Hz   |                         |
| iii.                            | Power Factor   | 0.8 Lagging – 0.95 Leading                                  |                         |
| iv.                             | Automatic Generation Control   | Yes   |                         |
| v.                              | Ramping Rate   | To be provided later on                                     |                         |
| vi.                             | Time required to Synchronize to Grid and loading the complex to full load. | Open Cycle Mode   |                         |
|                                 |  | Ventilating   |                         |
|                                 |  | Speed up to 3000 r.p.m                                      | To be provided later on |
|                                 |  | Synchronization   |                         |
|                                 |  | Combined Cycle Mode   |                         |
|                                 |  | Cold Start (from filling of drum to synchronization)        | To be provided later on |
|                                 |  | start up time from synchronization till base load operation |                         |
|                                 |  | Start up  |                         |
| Cold Start time (total approx.) |  |   |                         |

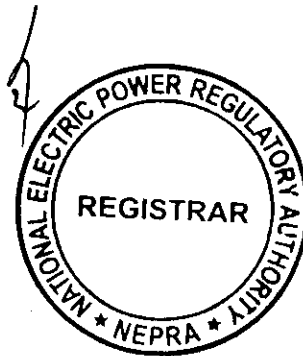
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## SCHEDULE-II

The net capacity of the Licensee's Generation Facilities

*mm*

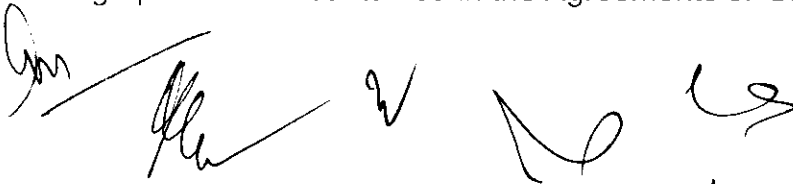


## SCHEDULE-II\*

|    |  |            |
|----|--|------------|
| 1. | Installed Capacity Gross ISO                 | 179.05 MW  |
| 2. | De-rated Capacity at Site Conditions         | 177.54 MW  |
| 3. | Auxiliary Consumption                        | 6.057 MW   |
| 4. | Net Capacity of the Plant at Site Conditions | 171.483 MW |

**Note**

All the above figures are indicative as provided by the Licensee. The Net Capacity available to NTDC for dispatch and other purchasers will be determined through procedures contained in the Agreements or Grid Code.



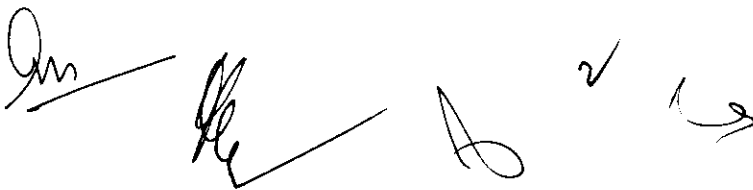
\* As provided by the applicant



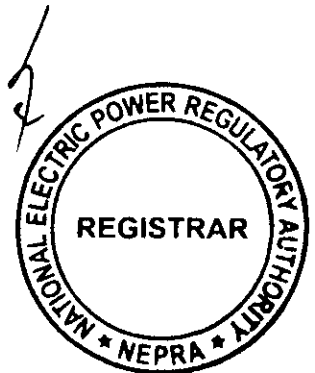
**\*  
INTERCONNECTION SCHEME FOR THE  
POWER DISPERSAL OF THE PLANT**

The power of the power plant shall be dispersed to system directly within HESCO load center at 220/132 KV voltage level as follows:-

1. A new 220/132 KV Grid station (Rohri New) with 2x160 MVA, 220/132 KV transformer, approximately 5Km away from existing Rohri grid towards Kahirpur.
2. A new 220 KV D/C (Twin Bundled) Rail Conductor with an approximate length of 115 KM connecting New 220 KV Rohri Grid Station with Proposed Thermal Power Plant of M/s Foundation Power Company Dharki Limited.
3. A double circuit In-Out arrangement on Lynx measuring approximately 2 KM of the existing 132 KV D/C transmission line from Rohri to Khairpur/Gumbat at the new 220 KV Rohri Grid Station.



\* As proposed in the feasibility report submitted by the applicant and agreed by NTDC vide letter no. COO/CPA/CE-II/3079, dated March 29, 2006.



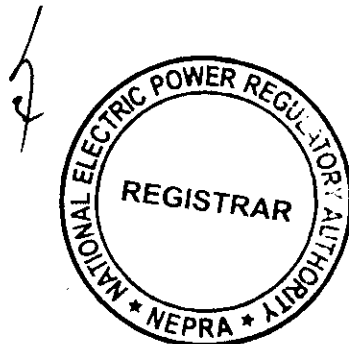


**FINALIZATION OF LOCATION AND CAPACITY IN THE MATTER OF GRANT OF  
GENERATION LICENCE TO  
FOUNDATION POWER COMPANY (DAHARKI) LIMITED**

Foundation Power Company (Daharki) Limited (FPCDL), a wholly owned subsidiary of Fauji Foundation, filed an application for grant of Generation Licence under Section 15 of NEPRA Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997), for setting up a 202 MW (Gross ISO) Combined Cycle Power Plant utilizing low Btu (517-540 Btu/SCF) gas. Initially the plant was proposed to be located at a distance of 2.5 km from Kobhar Railway Station on Lahore-Karachi railway line, district Daharki Province of Sindh.

2. A determination was made by the Authority on July 13, 2006 for the grant of Generation Licence based on documentation provided by the Company for capacity of 202 MW (Gross ISO), 184 MW de-rated on site and 180 MW net capacity. The location indicated by FPCDL was at a distance of 2.5 KM from Kobhar Railway Station in District Daharki.

3. Prior to issuance of Generation Licence by the Registrar, FPCDL requested for a reopening of the tariff proceedings indicating a revised site location and reduced installed ISO capacity. The revised installed capacity was indicated as 179.05 MW; de-rated (site) capacity 177.54 MW and net capacity 171.483 MW, with auxiliary consumption as 6.057 MW. The location was also changed (from the earlier "2.5 Km from Kobhar Railway Station") to "8 Km from Daharki city" on Dad Laghari Road, in District Daharki.



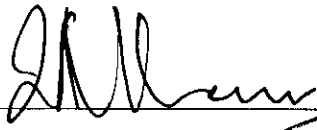
4. The issuance of the Licence by the Registrar was put on hold vide Authority decision dated 06-10-2006 till finalization of the location and capacity under consideration in the tariff determination case. The Authority gave its determination on tariff on October 21, 2006 based on the revised net capacity of 171.483 MW.

5. The matter regarding revision in net capacity and change in location was also referred to PPIB in response to which PPIB has given their "No Objection" to the grant of Generation Licence.


6. The Authority has considered the matter and approves the incorporation of the revised information with respect to location and capacity(ies) in Schedule-I, Schedule-II and Interconnection Arrangements as attached to this determination. Generation Licence to Foundation Power Company Daharki Limited be issued by the Registrar accordingly.

**Authority**

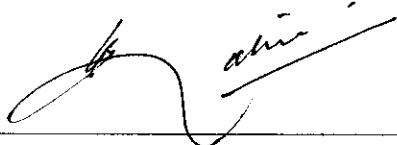
Zafar Ali Kahn  
Member

  
\_\_\_\_\_ 22/2/07

Nasiruddin Ahmed  
Member

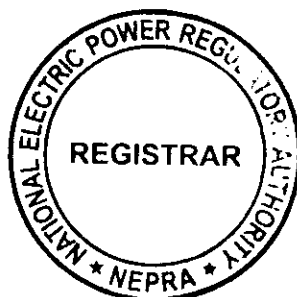
  
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Abdul Rahim Khan  
Member

  
\_\_\_\_\_

Lt. Gen. (R) Saeed uz Zafar  
Chairman

  
\_\_\_\_\_

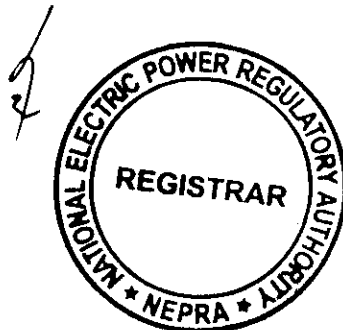


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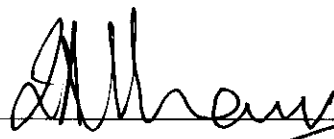
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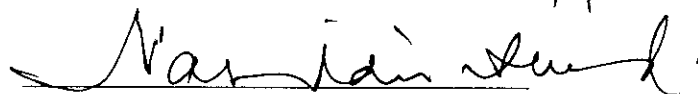
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#### Authority

Zafar Ali Kahn  
Member

  
22/2/07

Nasiruddin Ahmed  
Member



Abdul Rahim Khan  
Member



Lt. Gen. (R) Saeed uz Zafar  
Chairman

