

**CENTRAL POWER GENERATION CO. LTD.**  
(GENCO-II)

☎ 0722 - 691088  
☎ 0722 - 679085  
✉ genco2\_guddu@yahoo.com

OFFICE OF THE

CHIEF EXECUTIVE OFFICER

No. CPGCL/CEO/23/

the TPS Guddu, March, 2023

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

Subject: **TARIFF PETITION FOR REVISION/MODIFICATION IN TARIFF DETERMINATION OF THE NEPRA DATED 24<sup>th</sup> FEBRUARY, 2006 FOR CENTRAL POWER GENERATION COMPANY LIMITED (CPGCL)**

Dear Sir,

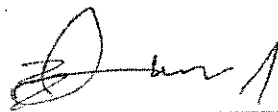
Central Power Generation Company Limited ("CPGCL") hereby submit this modification application (alongwith relevant documents) to the Authority pursuant to the NEPRA (Tariff Standards & Procedure) Rules, 1998, read with the Act XL of 1997 and all applicable rules and regulations made there under for modification of tariff for the Authority's Tariff Determination No. NEPRA/TRF-44/CPGCL-2005/2837-40, dated 24<sup>th</sup> February, 2006 pertaining to CPGCL's, Genco-II, TPS, Guddu (Old Blocks) located at Guddu ("Plant").

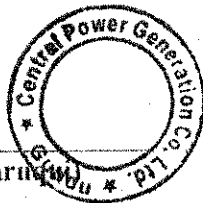
2. CPPA-G (Power Purchaser) vide his letter No. NEPRA/R/ADG(Tariff)/LAG-01/8127-29, dated: 26<sup>th</sup> May, 2022; has directed to file tariff modification petition as per Rule 3 (1) of the NEPRA (Tariff Standards and Procedures) Rules, 1998 to include Open Cycle tariff in the existing tariff of TPS Guddu (Old Blocks).

3. As per the direction of the NEPRA, Central Power Generation Company Limited (CPGCL), Guddu, has prepared a modification petition to include Open Cycle tariff in the existing tariff of TPS Guddu (Old Blocks).

4. We hereby request the authority to process this tariff modification at the earliest.

Thank you.

  
(Engr. Sabeeh-Uz-Zaman Farooqi)  
Chief Executive Officer  
Central Power Generation Company Limited



Forwarded please:  
☒ For Rec action ☐ for information

1. DG (Lic.)	2. DG (Admn./HR)
3. DG (M&E)	4. DG (CAD)
5. DG (Trf.)	6. Dir. (Fin.)
7. Dir. (Tech.)	8. Consultant
9. LA	10. Addl. Dir. (IT)

For kind information please  
1. Chairman  
2. M (Tech.)  
3. M (Lic.)  
4. M (Trf. & Fin)  
5. M (Law)

*D4 LR 07*

REGISTRAR OFFICE  
Diary No: 1356  
Date: 25-03

BEFORE THE NATIONAL ELECTRIC POWER  
REGULATORY AUTHORITY

Case No. \_\_\_\_\_

CENTRAL POWER GENERATION COMPANY  
LIMITED  
(GENCO-II)

..... Petitioner

in the matter of:

TARIFF MODIFICATION PETITION TO INCLUDE  
OPEN-CYCLE TARRIFF FOR OLD BLOCKS I & II  
UNDER RULE 3(1) OF THE NATIONAL ELECTRIC  
POWER REGULATORY AUTHORITY (TARIFF  
STANDARDS AND PROCEDURE) RULES, 1998

Index of Documents

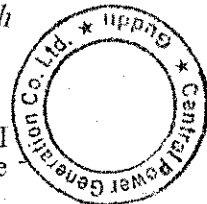
Memo of Petition	1 - 5A
Affidavit by CEO, CPGCL	5-B
Board Resolution	5-C
Annex-A: Authority's Tariff Determination dated 24 <sup>th</sup> February 2006	6-40
Annex-B: Authority's Tariff Determination dated 31 <sup>st</sup> March 2004	41-68
Annex-C: PPA relevant pages	69-71
Annex-D: Economic Merit Order	72-75
Annex-E: NEPRA letter dated 26 <sup>th</sup> May, 2022	76
Annex-F: NTDC Open Cycle letter sated 28 <sup>th</sup> September 2021	77
Annex-F/1: NTDC Open Cycle letter sated 4 <sup>th</sup> November 2021	78

PETITIONER / CENTRAL POWER GENERATION COMPANY  
LIMITED

Through



SABEEH-UZ-ZAMAN FARUQUI  
Chief Executive Officer / Authorized Representative



Central Power Generation Company Limited (GENCO-II)

Thermal Power Station Guddu, District Kashmore

Tel: 0722-691088 Fax: 0722-691085

Email: genco2\_guddu@yahoo.com, ceo@cpgcl.com.pk

BEFORE THE NATIONAL ELECTRIC POWER  
REGULATORY AUTHORITY

Case No. \_\_\_\_\_

CENTRAL POWER GENERATION COMPANY  
LIMITED  
(GENCO-II)

..... Petitioner

in the matter of...

---

TARIFF MODIFICATION PETITION TO INCLUDE  
OPEN-CYCLE TARRIFF FOR OLD BLOCKS I & II  
UNDER RULE 3(1) OF THE NATIONAL ELECTRIC  
POWER REGULATORY AUTHORITY (TARIFF  
STANDARDS AND PROCEDURE) RULES, 1998

---

The Petitioner submits as under: -

**I. RELEVANT FACTS**

1. Central Power Generation Company Limited ("CPGCL" or the "Petitioner") is a public limited company wholly owned by the Government of Pakistan ("GOP") incorporated on 26<sup>th</sup> October 1998 for the purpose of taking over the properties, rights, assets, obligations, and liabilities of the thermal power stations located at Guddu, Sukkur, and Quetta, formerly owned by the Water and Power Development Authority ("WAPDA"). The present petition is being filed through CPGCL's Chief Executive Office, Sabeeh-Uz-Zaman Farooqi, who has been duly authorized by the CPGCL's Board of Directors in this regard.
2. The total installed capacity available at the CPGCL's various thermal power stations ("TPS") is 2,400MW, however, the net dependable capacity available for generation and purchase is 1,641MW (after de-licensing of unit 1-4 in July-2019).
3. On 1<sup>st</sup> July 2002, CPGCL obtained generation license No. GL/02/2002, from National Electric Power Regulatory Authority (the "Authority") to operate the power plants inherited from WAPDA ("Generation License"). The Generation License was subsequently modified on 26<sup>th</sup> April 2013 to include the 747MW Combined-Cycle Power Plant at Thermal Power Station, Guddu ("747MW CCPP"), and again on 10<sup>th</sup> July 2019 to exclude Units 1-4 of TPS Guddu, and to extend the expiry of the Generation License to 30<sup>th</sup> June 2042.
4. Consequently, the Petitioner signed a Power Purchase Agreement and Amendment No. 1 with the Central Power Purchasing Agency (Guarantee) Limited ("CPPA-G") on 20<sup>th</sup> September 2015 ("PPA").

5. On 24<sup>th</sup> February 2006, the Authority approved the tariff determination<sup>1</sup> for Old Blocks I – IV of CPGCL's TPS Guddu. The detail of block-wise approved heat rates, as per para-30 of the determination, is tabulated as under:

Blocks	Heat Rates (BTU/kWh)	Thermal Efficiency (%)	FCC Tariff Rates (Rs./kWh)	Status
Block-I – Units 11 – 13	8,533	40%	1.9537	Operative
Block-II – Units 5 – 10	9,481	36%	2.1707	
Block-III – Units 03 – 04	11,377	30%	2.6048	De-licensed
Block-IV – Units 01 – 02	12,189	28%	2.7908	

6. It is pertinent to note that Block-I & II are Combined Cycle units, being operated on Natural Gas. Before this, on 31<sup>st</sup> March, 2004 the Authority allowed open-cycle operation @ 1.5 times of combined cycle tariff rates for Block-I & II.<sup>2</sup>
7. Furthermore, the PPA itself caters for open-cycle billing in the "Reference Tariff NEPRA Dated 24<sup>th</sup> February, 2006" under Table 1 of Schedule-VI<sup>3</sup> where an explanatory note to that table states:

*\*These rates are for combined cycle operation.  
If operated on simple cycle on the instructions  
of NTDC, these rates will be charged at the  
rate of 1.5 times;*

[Emphasis added]

8. However, on 24<sup>th</sup> February 2006, the Authority did not allow open-cycle operation as per terms of the tariff determination or the PPA, despite the fact that these blocks are more efficient and possesses higher position in merit order from RFO and RLNG based plants.
9. Gas Turbines of Block-I & II were remained in Economic Merit Order in Open Cycle mode till June, 2021 as well as operated time to time on the instructions of National Power Control Center (NPCC). Afterwards, on June 16<sup>th</sup>, 2021 Block-I & II of CPGCL were removed from Economic Merit Order for open cycle operation.
10. During the public hearing held on April 16<sup>th</sup>, 2022 regarding "fuel shortage on power plants and forced outage of plants" it has been noticed that some most economical units of GENCO-II were not being dispatched by NPCC due to non-availability of open cycle tariff rather some most expensive power plants having cost as high

<sup>1</sup> Annex-A

<sup>2</sup> Annex-B

<sup>3</sup> Annex-C

as Rs. 30/kWh were operated. Accordingly, Chairman NEPRA principally agreed and allowed open cycle operation of Gas Turbines Unit No. 7 to 12 on the basis of earlier determination dated March 29, 2004.

11. Subsequently, NPCC has issued Despatch Orders for operation of Gas Turbines on open cycle mode <sup>4</sup>and Petitioner operated these units accordingly within shortest possible time in the country's best interest. Furthermore, as per direction of Chairman NEPRA, letter sent to the Authority vide No. CPGCL/CEO/22/3932-37 dated April 19<sup>th</sup>, 2022 for restoration of Open Cycle Tariff in the light of Tariff determination of March 29<sup>th</sup>, 2004. In response, Director Technical NEPRA vide letter No. NEPRA/R/ADG(Tariff)/LAG-01/8127-29 dated 26<sup>th</sup> May, 2022 <sup>5</sup>has directed to file tariff modification petition as per Rule 3(1) of the NEPRA (Tariff) Standards and Procedures) Rules, 1998 to include Open Cycle tariff in the existing tariff of TPS Guddu for Block-I & II at the earliest.
12. The Petitioner follows the instructions of National Power Control Center ("NPCC" or "System Operator") for operation of plant on combined cycle and open-cycle of Block-I & II. The System Operator, when confronted with exigent circumstances in the power sector, required the petitioner to operate various gas turbines units under open-cycle operation, knowing full well that their associated steam generators are not available for technical reasons.

In all likelihood, the Petitioner will continue to be called upon by NPCC to conduct open-cycle operation of Block-I & II given the higher costs of running RFO and RLNG based power plants, as well as otherwise lack of sufficient cost-effective generation capacity in Pakistan at this time, and the exigent circumstances which have emerged in the power sector. Therefore, the Petitioner applies for modification of its Tariff on *inter alia*, the following grounds:

## II GROUNDS

- a. That, the Authority has in the past already allowed the Petitioner an open-cycle operations tariff in its earlier Tariff, clearly indicating the Petitioner's intention to provide electricity to the grid with maximum flexibility, including in those times when combined cycle operations were unavailable due to routine technical reasons.
- b. That, the Petitioner's open-cycle operations provided the benefit of additional electricity to the grid. To deprive the

<sup>4</sup> Annex-D

<sup>5</sup> Annex-E

(4)

Petitioner, a state-owned company, of the benefit of an additional tariff for open-cycle operations would be damaging to the public exchequer and would be taking undue advantage of the Petitioner's efforts.

- c. That, the Petitioner's open-cycle operations were conducted on the instructions of NPCC, which knew full well that the Petitioner's routine maintenance work meant that only open-cycle operations could be undertaken at that time.
- d. That, the PPA in any case originally envisioned a higher tariff to be paid to the Petitioner for open-cycle operations. Furthermore, all previous Tariffs in any case, whether or not having expressly allowed open-cycle tariff, had impliedly accepted the open-cycle operations tariff by referring the issue of other assumptions to the PPA.
- e. That, open-cycle operations are far cheaper than other RFO and RLNG based power plants, and shall help combat the scourge of load shedding currently confronting Pakistan.
- f. Notwithstanding, the Petitioner filed the instant petition on 02-5-2023, and the petition was examined by the Authority, while examining the petition, the Authority pointed out that the Petitioner has submitted the petition without fee as required under Rule 3(1) of Tariff Rules, 1998. The Authority further observed that Petitioner has also not submitted a) Comparative schedules of charges costs, units price, and other items comprising the existing tariff and the proposed tariff and b) a Summary of evidence giving brief particulars of the data, facts, and evidence in support of the petition required under Rule 3(2)(f) of Tariff Rules. Hence, returned the petition to the Petitioner vide its letter dated 9<sup>th</sup> May 2023, to be filed after removing the deficiency.
- g. Pursuant to requirement of Rule 3(3)(d) of Tariff Rules, a comparative schedule of the reference tariff, current tariff, and proposed tariff is given as under:

Description	Reference Tariff	Current Tariff	Proposed Tariff
	Rs./kWh		
Block-I (Combined Cycle)	1.9537	8.9596	8.9596
Block-I (Open Cycle)	-	-	13.4394
Block-II (Combined Cycle)	2.1707	9.9547	9.9547
Block-II (Open Cycle)	-	-	14.9321
Gas Rate (Rs./MMBTU)	228.96	1,050	1,050

5

- h. National Transmission and Despatch Company Limited (NTDCL) issued letters dated 28<sup>th</sup> September 2021 and 4<sup>th</sup> November 2021 (**Annex-A**), wherein it has asked CPGCL and CPPA-G, with copy to chairman NEPRA, to arrange open cycle tariff of TPS Guddu old Units (Block-I & II), the contents of which are reproduced below:

open cycle units (even if it is 1.5 times of the combined cycle tariff) is still lesser than the tariff of RFO and some RLNG based power plants and their removal dispatch pool has reduced system capability as well as increase in energy mix cost. In addition the low gas off-take from dedicated Kandhkot Gas field may result in decline of national resources as indicated by MD-PPL. The open-cycle tariff of TPS Guddu for above mentioned units may be got approved from NEPRA so that energy demand could be fulfilled in optimum manner and short fall of power could be avoided.

Moreover, during the public hearing held on 16<sup>th</sup> April 2022 regarding *"fuel shortage on power plants and forced outage of plants"*, it has been noticed that some of the most economical units of GENCO-II were not being dispatched by NPCC due to non-availability of open cycle tariff. On the other hand, expensive power plants having cost as high as Rs. 30/kWh were operated. Accordingly, Chairman NEPRA principally agreed and allowed open cycle operation of Gas Turbines Unit No. 7 to 12 on the basis of earlier determination dated March 29, 2004.

Furthermore, as per direction of Chairman NEPRA, the Petitioner sent a letter to the Authority vide No. CPGCL/CEO/22/3932-37 dated 19<sup>th</sup> April 2022 for restoration of Open Cycle Tariff considering the Tariff determination of 29<sup>th</sup> March 2004. In response, Director Technical NEPRA vide letter No. NEPRA/R/ADG(Tariff)/LAG-01/8127-29 dated 26<sup>th</sup> May, 2022 has directed to file tariff modification petition as per Rule 3(1) of the NEPRA (Tariff) Standards and Procedures) Rules, 1998 to include Open Cycle tariff in the existing tariff of TPS Guddu for Block-I & II at the earliest<sup>6</sup>.

### III. PRAYER

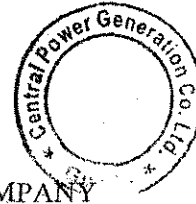
13. In view of the foregoing, it is humbly prayed that the Authority may kindly grant the following:
- a. Allow the Petitioner to undertake open-cycle operations of Block-I and Block-II units on the System Operator / NPCC's demand;

<sup>6</sup> Already annexed as Annex E

- (S-A)
- b. Allow the Petitioner an FCC tariff of 150% (1.5 times) for open-cycle operations on combined cycle tariff rates; the FCC in the existing Tariff dated 24<sup>th</sup> February 2006, on the basis of already approved heat rates.
  - c. Allow the Open Cycle tariff of Block-I & Block-II respectively w.e.f. 24<sup>th</sup> February, 2006, enabling the Petitioner to recover its prudent cost already incurred on Open Cycle Generation, on the instructions of NPCC from time to time.
  - d. Grant any other relief, which the Authority may consider appropriate in the circumstances.

Islamabad. 05.2023

PETITIONER / CENTRAL POWER GENERATION COMPANY  
LIMITED



Through

(SABEEH-UZ-ZAMAN FARUQUI)  
Authorized Representative / Chief Executive Officer





GHC

**CENTRAL POWER GENERATION COMPANY LIMITED  
(GENCO-II)**

☎ 0722 - 691050  
☎ 0722 - 679085  
✉ [saadgenco2@yahoo.com](mailto:saadgenco2@yahoo.com)

No. CPGCL/CS/BoD/DMoM/152/723

**COMPANY SECRETARY**

Date: 16.03.2023

**EXTRACT OF MINUTES OF 152<sup>ND</sup> BOD MEETING  
HELD ON FEBRUARY 09, 2023 AT ISLAMABAD**

**AGENDA ITEM NO. 7** TO CONSIDER & APPROVE DRAFT TARIFF MODIFICATION PETITION TO INCLUDE OPEN CYCLE TARIFF @ 1.5 TIMES FOR OLD GUDDU IN EXISTING TARIFF DATED 24TH FEBRUARY, 2006 UNDER SECTION 3(1) OF THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY (TARIFF STANDARD AND PROCEDURES) RULES, 1998 AND AUTHORIZE CEO, CPGCL TO FINALIZE THE DRAFT, SIGN AND SUBMIT THE TARIFF MODIFICATION PETITION TO NEPRA, ALSO AUTHORIZE CEO, CPGCL TO FINALIZE THE FEE STRUCTURE WITH M/S RIZWAN FAIZ ASSOCIATES, LEGAL COUNSEL.

The Board of Directors CPGCL (GENCO-II) has considered the subject matter in its 152<sup>nd</sup> meeting held on February 09, 2023 at Islamabad. After consideration, the Board resolved as under:

**"RESOLVED THAT Chief Executive Officer CPGCL be & is hereby authorized to file Tariff Modification petition before National Electric Power Regulatory Authority (NEPRA) under Rule 3(1) of the NEPRA (Tariff Standards and Procedures) Rules, 1998 to include Open Cycle Tariff @ 1.5 times for old Guddu Blocks (I & II) in the existing Tariff dated February 24, 2006 and to sign all necessary documents and perform all necessary acts, including payment of NEPRA fee, in this regard.**

**FURTHER RESOLVED THAT CEO CPGCL be & is hereby authorized to engage the services of a legal counsel for filing of above said petition and to negotiate & finalize the fee for such services in this regard."**

Detailed discussion is contained in the draft minutes, which are subject to confirmation in next Board Meeting.

This is for information, record and necessary action, please.

**MUHAMMAD SAAD SHABBIR**  
Company Secretary 16/03/2023

→ Cc: Chief Executive Officer, CPGCL (GENCO-II), Guddu.

**CENTRAL POWER PURCHASING AGENCY (GUARANTEE) LIMITED**

**POWER PURCHASE AGREEMENT FOR THE 1400 MW (NET AT  
REFERENCE CONDITIONS) POWER GENERATION COMPLEX AT  
CENTRAL POWER GENERATION COMPANY LIMITED**

Between



**Central Power Purchasing Agency (Guarantee) Limited**  
*(Acting on Behalf of the Distribution Companies)*  
**(The Power Purchaser)**

&



**Central Power Generation Company Limited**  
**(The Seller)**

*[Handwritten signatures]*

70

THIS POWER PURCHASE AGREEMENT (hereinafter this "Agreement") is entered into at Islamabad on the 20<sup>th</sup> day of September 2015 corresponding to the 5<sup>th</sup> day of Dhu al Hijjah 1436 A.H. by and between: -

CENTRAL POWER PURCHASING AGENCY (GUARANTEE) LIMITED, a guarantee limited company incorporated under the Companies Ordinance 1984 with its principal office at WAPDA House, Shahr-e-Quaid-e-Azam, Lahore, Pakistan (hereinafter referred to as the "Power Purchaser", which term shall include its successors and permitted assigns) of the first part;

And

and Shahid-e-Millat  
Secretariat, Feroz Avenue  
Islamabad.

CENTRAL POWER GENERATION COMPANY LIMITED (GENCO - II), a public limited company incorporated under the Companies Ordinance 1984 with its principal office at WAPDA House, Shahr-e-Quaid-e-Azam, Lahore, Pakistan (hereinafter referred to as the "Seller", which term shall include its successors and permitted assigns) of the second part.

The Purchaser and the Seller are hereinafter referred to individually as "Party" and collectively, as the "Parties".

WHEREAS: -

A. The Seller owns, maintains and operates a dual-fuel, gas and residual fuel oil fired electric power generation facility (the "Complex") located on the Site at Guddu, in District Kashmore, Sindh Province, Pakistan, with a Contract Capacity (as hereinafter defined) of 1400 MW, net at Mean Site Conditions (as hereinafter defined);

B. The Seller had previously entered into a power purchase agreement with the Power Purchaser on 01<sup>st</sup> September, 2015 (hereinafter "Previous PPA") wherein the rights and liabilities of the Parties, as well as those of the National Transmission and Despatch Company (hereinafter "NTDC") with regards to the sale, purchase, despatch, transmission, and commercial settlement of power purchase were set out;

C. Under the Government of Pakistan's (hereinafter "GOP") Power Policy 2015 (hereinafter "2015 Policy"), the commercial functions of power purchase from the generation companies that were hitherto exercised by were transferred to the Power Purchaser and this change was brought into effect through a Business Transfer Agreement between NTDC and the Power Purchaser dated 3<sup>rd</sup> June 2015 (hereinafter "2015 BTA");

D. In order to give full effect to the changes introduced by the 2015 Policy and

**SCHEDULE-VI****TABLE I**

**Reference Tariff**  
**NEPRA Tariff Dated 24.02.2006**

	Reference	Adjusted applicable
Net Dependable Capacity	1400 MW	1400 MW
Capacity Charge	Rs./kW/Month	Rs./kW/Month
A. Escalable Component	51.2244	130.0298
B. Non-Escalable Component	85.9202	85.9202
<b>Total Capacity Charge (A+B)</b>	<b>137.1446</b>	<b>215.9500</b>

BLOCKS	Energy Charge -- Rupees per kWh				
	Fuel (ref.)	Fuel (adj.)	Variable O&M	Total (ref.)	Total (Adj.)
Block-I - Gas	*1.9537	**5.0193	0.0689	2.0226	5.0882
Block-II - Gas	*2.1707	5.5768	0.0689	2.2396	5.6457
Block-III - Gas	2.6048	6.6921	0.0689	2.6737	6.7610
Block-III - Oil	5.2816	21.2633	0.0689	5.3505	21.3322
Block-IV - Gas	2.7908	7.17	0.0689	2.8597	7.2389

**Note: -**

- \* These rates are for combined cycle operation. If operated on simple cycle mode on the instructions of NTDC, these rates will be charged at the rate of 1.5 times.
- \*\* The adjusted rates are presently applicable on the basis of revised gas rates @588.23 Rs/MMBTU and F.O rates @76.255 Rs/M.Ton.

ANNEX -



ANNEX -

72

**NATIONAL TRANSMISSION & DESPATCH COMPANY LTD.**

PHONE: 051-8311557  
EXCHANGE: 051-9258177, 9258178  
FAX NO. 051-9250851

OFFICE OF THE  
GENERAL MANAGER (SO)  
NATIONAL POWER CONTROL CENTRE,  
SECTOR H-8/1, ISLAMABAD.

No. 7611-24/GM (SO)/PPC/MO

Dated: 16/05/2022

**OFFICE ORDER**

**SUBJECT: REVISED MERIT ORDER**

Reference: CPPA-G/MIT/5022-28

Dated: 14.05.2022

Revised Merit order based on revised fuel prices (received to this office on 14-05-2022 Time: 11:13 hrs) for the economic despatch of thermal power plants (GENCO'S & IPPs) effective from 16-05-2022 (Time 00:00 Hrs) is hereby issued for implementation.

(Engr. Sajjad Akhtar)  
General Manager (S.O)  
NPCC, NTDC Islamabad

**DISTRIBUTION:**

1. Chief Engineer (Operation Planning), NPCC, NTDC, Islamabad
2. Chief Engineer (Network Operation), NPCC, NTDC, Islamabad
3. Director Private Power Control, NPCC, NTDC, Islamabad
4. Director Power Control, NPCC, NTDC, Islamabad.
5. NPCC Control Room, all Supervisory Shift Engineers.

**COPY TO:**

1. PS to Secretary Ministry of Power (Energy) for information please.
2. Special Secretary, Power Division for information please.
3. M.D (NTDC), WAPDA House Lahore for information please.
4. Registrar NEPRA, NEPRA Tower Islamabad.
5. Chief Financial Officer (CFO CPPA-GL), Shaheen Plaza, Plot no. 73-West, Blue Area Islamabad.
6. Chief Technical Officer (CTO CPPA-GL), Shaheen Plaza, Plot no. 73-West, Blue Area Islamabad.
7. Chief Technical Officer (GENCO Holding), OPF Building G-5/2 Islamabad.
8. General Manager Power System Planning NTDC, 4<sup>th</sup> Floor PIA Building Lahore.
9. Director I.T NTDC, WAPDA House Lahore.

# MERIT ORDER

Based on Revised Fuel Prices, Effective From 16-05-2022 Time, 00:00 Hrs

Sr.No.	Plant Groups	Fuel Type	Other Cost Rs./KWh	Fuel Cost Rs./KWh	VO&M Cost Rs./KWh	Specific Cost Rs./KWh	Status in Last Merit Order
1	UCH (up to 152.375 MWh)	Gas	0.06654	1.57845	0.44489	2.08988	1
2	LIBERTY Power (Up to 61,004 MWh)	Gas	-	2.48730	0.54480	3.03210	2
3	Engro Power Ther	Coal	-	2.62830	1.70850	2.63680	3
4	747 MW GUDDU (CCP)	Gas	-	3.94510	0.66160	3.95670	4
5	KAPCO B-I (Unit 11-13)	Gas	-	4.36852	0.40395	7.24837	5
6	Guddu (CCP)	Gas	-	7.31270	0.60890	7.98160	6
7	Foundation Power	Gas	-	8.88815	0.71940	7.82455	7
8	GTPS Faisalabad B-IV (Unit 6-9)	Gas	-	7.76800	0.16280	7.93180	8
9	KAPCO B-II	Gas	-	7.43781	0.81507	7.92288	9
10	Engro PowerGen	Gas	-	7.38622	0.63320	7.99942	10
11	Guddu (CCP) B-II (Unit 5-10)	Gas	-	8.12600	0.06660	8.18360	11
12	UCH-II	Gas	-	7.83032	0.41630	8.23662	12
13	UCH (above 152.375 MWh)	Gas	0.06654	7.93320	0.44489	8.41463	13
14	KAPCO B-III	Gas	-	7.72358	0.99282	8.71640	14
15	HCPCL	Gas	1.65980	6.71361	0.83750	9.43771	15
16	747 MW GUDDU (CC)	Gas	-	6.57260	0.66160	9.53420	16
17	Muzaffargarh B-II (Unit 4)	Gas	-	9.46890	0.16250	9.83140	17
18	Muzaffargarh B-I (Unit 3)	Gas	-	9.46230	0.16260	9.84490	18
19	Jamshoro B-II (Unit 4)	Gas	-	8.66879	0.09250	9.74930	19
20	Muzaffargarh B-I (Unit 1)	Gas	-	9.69440	0.16250	9.84690	20
21	Jamshoro B-II (Unit 3)	Gas	-	8.86160	0.09250	9.95410	21
22	Muzaffargarh B-I (Unit 2)	Gas	-	9.81200	0.16260	9.97460	22
23	Jamshoro B-II (Unit 2)	Gas	-	10.12630	0.09250	10.21880	23
24	Muzaffargarh B-III (Unit 5)	Gas	-	10.08360	0.16250	10.22810	24
25	Muzaffargarh B-III (Unit 6)	Gas	-	10.32860	0.16260	10.49230	25
26	KAPCO B-I (B/Cycle)	Gas	-	10.31273	0.44035	10.65313	26
27	Guddu (W/Cycle)	Gas	-	10.86905	0.04890	11.83795	27
28	KAPCO B-II (B/Cycle)	Gas	-	11.30172	0.51607	11.71679	28
29	Jamshoro B-I (Unit 4)	Mix (****)	-	12.06480	0.08150	12.15700	29
30	Guddu (W/Cycle)	Gas	-	12.18760	0.06890	12.28440	30
31	Jamshoro B-I (Unit 3)	Mix (****)	-	12.32950	0.08250	12.42200	31
32	KAPCO B-III (B/Cycle)	Gas	-	11.55537	0.09250	12.67010	32
33	Jamshoro B-II (Unit 2)	Mix (****)	-	12.86660	0.08150	12.75890	33
34	LIBERTY Power (Above 61,004 MWh)	Gas	-	12.28080	0.64480	12.93160	34
35	Lucky Electric Power Company	Coal	-	12.37460	0.41930	12.89390	35
36	Muzaffargarh B-II (Unit 4)	Mix (****)	-	20.13190	0.16250	20.29440	36
37	Muzaffargarh B-I (Unit 3)	Mix (****)	-	20.16165	0.16260	20.32485	37
38	Muzaffargarh B-I (Unit 1)	Mix (****)	-	20.69140	0.16260	20.76990	38
39	Muzaffargarh B-I (Unit 2)	Mix (****)	-	20.87870	0.16260	21.04130	39
40	Muzaffargarh B-III (Unit 6)	Mix (****)	-	21.42700	0.16250	21.58950	40
41	Jamshoro B-II (Unit 4)	Mix (****)	-	21.92285	0.09250	22.01835	41
42	Muzaffargarh B-II (Unit 3)	Mix (****)	-	22.00835	0.16250	22.17135	42
43	Jamshoro B-I (Unit 3)	Mix (****)	-	22.39310	0.09250	22.48560	43
44	Jamshoro B-II (Unit 2)	Mix (****)	-	23.00950	0.09250	23.10155	44
45	NPPMC - HBS (CC)	RLNG	-	23.99620	0.23620	24.23240	45
46	China Power HUB Qan QO	Coal	-	23.76900	0.53400	24.28700	46
47	NPPMC - Balochi (CC)	RLNG	-	24.16477	0.28350	24.44827	47
48	QATPL - Bhikhi (CC)	RLNG	-	24.22784	0.68150	24.88934	48
49	ALTERNATIVE ENERGY LTD. (Ph-II)	RLNG	-	24.35825	1.15240	25.48745	49
50	HUBCO	RFO	-	25.76710	0.28790	26.05500	50
51	NPPMC - HBS (CC)	HSD	-	26.02687	0.30840	26.34527	51
52	NPPMC - Balochi (CC)	HSD	-	26.10145	0.33440	26.43385	52
53	PORT QASIM	Coal	-	26.38840	0.21960	26.60800	53
54	QATPL - Bhikhi (CC)	HSD	-	26.69317	0.98460	27.67777	54
55	Devs Energy	RLNG	-	28.11350	0.69790	28.81140	55
56	KAPCO B-I	HSD	-	28.86044	0.44270	29.32322	56
57	Sahjwal Power	Coal	-	29.27260	0.21660	29.48920	57
58	Chenab Power Company Ltd	RLNG	-	29.51950	0.44290	29.96240	58
59	Hishore Power	RLNG	-	29.66976	0.78690	30.24666	59
60	Sapphire Electric Co	RLNG	-	29.81950	0.74810	30.26460	60

16/5/2022 h 192 f

# MERIT ORDER

Based on Revised Fuel Prices, Effective From 16-05-2022 Time: 00:00 Hrs

51	Self Power	RLNG	-	28.52220	0.75380	30.27570	48
52	Nandipur (CC)	RLNG	-	28.80300	0.74790	30.55090	50
53	Muzaffargarh B-II (Unit 4)	RFO	-	30.79480	0.18250	30.95740	75
54	Muzaffargarh B-I (Unit 3)	RFO	-	30.84080	0.18250	31.00330	76
55	Orient Power Company Ltd	HSD	-	30.98421	0.72810	31.12031	78
56	KAPCO B-I	RLNG	-	30.80437	0.44038	31.24472	52
57	Haimore Power	HSD	-	30.39931	1.09200	31.45191	80
58	Sapphire Electric Co	HSD	-	30.38977	1.07540	31.46517	83
59	Self Power	HSD	-	30.39349	1.08750	31.48099	81
70	Muzaffargarh B-I (Unit 1)	RFO	-	31.51840	0.16250	31.68090	88
71	Jamshoro B-I (Unit 1)	RFO	-	31.85940	0.09250	32.05190	83
72	Muzaffargarh B-I (Unit 2)	RFO	-	31.04840	0.16250	32.10790	91
73	KAPCO B-II	HSD	-	31.69662	0.59331	32.29193	104
74	PAKGEN Power Ltd.	RFO	-	32.09398	0.28411	32.37810	118
75	ALTERN ENERGY LTD. (Ph-I)	RLNG	-	31.20832	1.15240	32.42072	84
76	RLUSCH	RLNG	-	32.48367	0.48689	32.98047	54
77	Muzaffargarh B-III (Unit 5)	RFO	-	32.78840	0.16250	32.95290	97
78	Atlas Power	RFO	-	31.28930	1.73080	32.98030	88
79	Nishat Chunian Power Ltd	RFO	-	31.51700	1.72590	33.04290	89
80	KAPCO B-I	RFO	-	32.65880	0.75380	33.41943	115
81	Attock Gen	RFO	-	31.71980	1.75160	33.47140	92
82	Muzaffargarh B-III (Unit 6)	RFO	-	33.68730	0.16250	33.84980	102
83	Engro Power Gen	HSD	-	33.33523	0.64630	33.98153	103
84	Liberty Power Tech Limited	RFO	-	32.12403	1.88550	34.00953	101
85	Jamshoro B-II (Unit 4)	RFO	-	34.18920	0.09250	34.28170	87
86	KAPCO B-III	HSD	-	32.78108	1.50333	34.28439	109
87	KAPCO B-II	RLNG	-	33.78721	0.61607	34.30228	56
88	FKPCL	RLNG	-	33.75792	1.75348	35.01140	58
89	Jamshoro B-II (Unit 3)	RFO	-	34.92460	0.09250	35.01710	73
90	Nishat Power Ltd	RFO	-	33.81270	1.73080	35.54270	90
91	REL	RFO	-	34.59899	0.89182	35.59081	99
92	Narwal Power	RFO	-	34.36870	1.60760	35.87730	112
93	KAPCO B-III	RLNG	-	34.94442	0.88282	35.83724	58
94	Jamshoro B-II (Unit 2)	RFO	-	35.89180	0.09250	35.98430	87
95	KAPCO B-II	RFO	-	35.84007	1.07519	36.91526	117
96	Muzaffargarh B-II (Unit 4)	Mix (****)	-	36.81805	0.18250	36.98055	69
97	Muzaffargarh B-I (Unit 3)	Mix (****)	-	36.87136	0.18250	37.03385	70
98	SABA	RFO	-	37.52350	0.28420	37.80770	114
99	Muzaffargarh B-I (Unit 1)	Mix (****)	-	37.88720	0.16250	37.82970	77
100	Muzaffargarh B-I (Unit 2)	Mix (****)	-	38.16945	0.18250	38.33195	82
101	GTFS Faisalabad B-IV (Unit 5-S)	RLNG	-	38.23310	0.18250	38.39560	60
102	Muzaffargarh B-III (Unit 6)	Mix (****)	-	38.18100	0.16250	38.32350	93
103	LALPIR (Pvt) Ltd	RFO	-	39.28812	0.28411	39.59223	110
104	Muzaffargarh B-III (Unit 8)	Mix (****)	-	40.21180	0.18250	40.37410	98
105	Muzaffargarh B-II (Unit 4)	RLNG	-	42.84129	0.18250	43.00370	65
106	Muzaffargarh B-I (Unit 3)	RLNG	-	42.90190	0.18250	43.08440	68
107	Jamshoro B-II (Unit 4)	Mix (****)	-	42.88485	0.09250	43.07705	86
108	KAPCO B-I (S/Cycl)	HSD	-	43.32066	0.44270	43.76344	118
109	Muzaffargarh B-I (Unit 1)	RLNG	-	43.81800	0.16250	43.97850	71
110	Jamshoro B-II (Unit 3)	Mix (****)	-	43.90135	0.09250	43.99385	100
111	Muzaffargarh B-I (Unit 2)	RLNG	-	44.39350	0.18250	44.55600	74
112	Jamshoro B-II (Unit 2)	Mix (****)	-	45.09480	0.09250	45.18740	105
113	Muzaffargarh B-III (Unit 8)	RLNG	-	45.53180	0.18250	45.69410	85
114	KAPCO B-I (S/Cycl)	RLNG	-	46.20656	0.44038	46.64690	94
115	Muzaffargarh B-III (Unit 6)	RLNG	-	46.73990	0.18250	46.89840	95
116	KAPCO B-II (S/Cycl)	HSD	-	47.54495	0.59331	48.14024	119
117	KAPCO B-I (S/Cycl)	RFO	-	48.98340	0.75383	49.74723	121
118	KAPCO B-III (S/Cycl)	HSD	-	49.17159	1.50333	50.67492	120
119	KAPCO B-II (S/Cycl)	RLNG	-	50.88082	0.51507	51.39588	106
120	Jamshoro B-II (Unit 4)	RLNG	-	51.77890	0.09250	51.87240	107
121	Jamshoro B-II (Unit 3)	RLNG	-	52.07910	0.09250	52.87060	108
122	KAPCO B-III (S/Cycl)	RLNG	-	52.41863	0.89228	53.40945	111
123	Jamshoro B-II (Unit 2)	RLNG	-	54.28890	0.09250	54.38050	113
124	KAPCO B-I (S/Cycl)	RFO	-	53.76611	1.07519	54.83630	122

MP  
15/5/2022  
19

## MERIT ORDER

Based on Revised Fuel Prices, Effective From 16-05-2022 Time: 00:00 Hrs

The calculation of fuel cost Rs./kWh and O&M cost Rs./kWh has not been calculated by NPCC Islamabad. The same has been communicated to NPCC by Chief Financial Officer CPPA-G vide letter No. CPPA-G/MT/5022-28, dated 14-05-2022 received in the office of General Manager (System Operation) through Email dated 14-05-2022, because NPCC has no any Data regarding heat rate, fuel cost and O&M cost etc.

### Notes:

- 1 Fuel Index for HUBCO also includes Heat Rate & C-Value on the basis of 100% load. The PLAC payable to HUBCO must be kept in view by NPCC. The bonus payable to IPPs when dispatch exceeds the bonus threshold specified in the PPAs of the respective IPPs must be kept in view.
- 2 General Sales Tax is not included in the above calculations.
- 3 RFO rates are on per Metric Ton, HSD rates are on per Litre, Gas rates are in MMBTU except KAPCO.
- 4 Other cost of Uch Power is due to Excise duty on gas.
- 5 RFO Revised Rates are calculated on the basis of weighted average fuel stock as provided by relevant IPP is used for merit order. Where accurate fuel stock position is not available, latest FCC rate is used for merit order.
- 6 Latest available RLNG rates as notified by OGRA have been used.
- 7 Fixed costs have not been used for merit order compilation pursuant to SDC 14.3.2 of the Grid Code 2005.
- 8 Plant Availability on Any specific Fuel must be confirmed before the Dispatch is given. Cost of transmission losses on dispatch of plants may be given due consideration.
- 9 The FCC rates have been assumed at 100% plant factor i.e. unity Part Load Correction factor. These rates may vary at different operation / Dispatch level after application of Part Load Correction (PLAC) factors given in the PPA. Therefore, PLAC be taken into account before issuing dispatch instructions.
- 10 The dedicated gas projects require minimum dispatch of 50% against their availability on gas under respective PPAs, otherwise, shortfall energy have to be paid.
- 11 Open Cycle tariff included in line with NEPRA direction to NPCC to give dispatch to Open Cycle vide NPCC letter no 10577-82 dt 16-04-22.

- \*\* Mixed: 50% FO and 50% Gas
- \*\*\*\* Mixed: 50% FO and 50% RLNG
- \*\*\*\*\* Mixed: Gas and RLNG

- Note:
- 1- System Operator will ensure stable power supply in accordance with the Grid Code clause SDC 1.4.3 Page 185 Grid Code and specially the subclause 1.4.3.3 Page 185 Grid Code & subclause 1.4.3.4 Page 186 Grid Code
  - 2- Merit list issued is only a part of that Grid Code for operation.
  - 3- System Operator will give first priority to smooth, stable, uninterrupted power supply by utilizing all available resources as per demand.

Chief Technical Officer (GENCOs Holding Co.)

Chief Technical Officer (CTO CPPA-G)

General Manager Power System Planning (NTDC)

Chief Financial Officer (CFO CPPA-G)

General Manager (System Operation) NPCC (NTDC)  
Convener





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

NEPRA Office Building, G-5/1, Attaturk Avenue (East), Islamabad  
Phone: 051-9206500, Fax: 051-2600026  
Website: [www.nepra.org.pk](http://www.nepra.org.pk), Email: [registrar@nepra.org.pk](mailto:registrar@nepra.org.pk)

**OFFICE OF THE  
REGISTRAR**

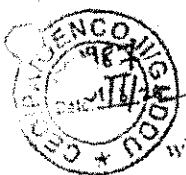
No. NEPRA/R/ADG(Tariff)/LAG-01/ 8127-29

May 26, 2022

Chief Executive Officer  
Central Power Generation Company Ltd  
Guddu Thermal Power Station Guddu  
Tehsil Kasimore, District Jacobabad



Subject: DIRECTION TO FILE TARIFF MODIFICATION PETITION TO  
INCLUDE OPEN CYCLE TARIFF OF TPS GUDDU



Reference is made to your letter No. CPGCL/CEO/22/3932-37 dated April 19, 2022 wherein open cycle tariff @1.5 times of combined cycle rate has been requested on the basis of tariff determination dated March 29, 2004 for operation of TPS Guddu units.

2. You are hereby directed to file Tariff Modification petition as per Rule 3 (1) of the NEPRA (Tariff Standards and Procedures) Rules, 1998 to include Open Cycle tariff in the existing tariff of TPS Guddu (old blocks), at the earliest.

(Syed Zafar Haider)  
Director

**Copy to:**

Managing Director,  
National Transmission and Despatch Co. Ltd. (NTDC)  
414 WAPDA House Shabrah-e-Quaid-e-Azam  
Lahore

Chief Executive Officer  
Central Power Purchase Agency Guarantee Ltd  
Shahen Plaza, 73-West, Fazl-e-Haq Road, Islamabad



**CENTRAL POWER GENERATION CO. LTD.**  
(GENCO-II)

☎ 0722 – 691088  
☎ 0722 – 679085  
✉ genco2\_guddu@yahoo.com

OFFICE OF THE  
CHIEF EXECUTIVE OFFICER

No. CPGCL/CEO/23/2042

the TPS Guddu, 22 September, 2023

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

Subject: **TARIFF PETITION FOR REVISION / MODIFICATION IN TARIFF DETERMINATION OF THE NEPRA DATED 24<sup>TH</sup> FEBRUARY, 2006 FOR CENTRAL POWER GENERATION COMPANY LIMITED (CPGCL)**

Central Power Generation Company Limited ("CPGCL") was submitted Tariff Modification Petition on 29-05-2023 (copy attached) to include open cycle tariff in existing tariff determination vide No. NEPRA/TRF-44/CPGCL-2005/2837-40, dated 24<sup>th</sup> February, 2006 pertaining to CPGCL's, Genco-II, TPS, Guddu (Old Blocks).

2. CPGCL desires to add the adjustment of heat rate under partial loading and other correction factors for ambient conditions as per attached OEM's curve (curves attached) as per international standard in tariff modification petition dated 29-05-2023. CPGCL is continuously operating machines on partial loading on the instructions of NPCC (system operator), resultantly the heat rates increased, and company is bearing financial loss.

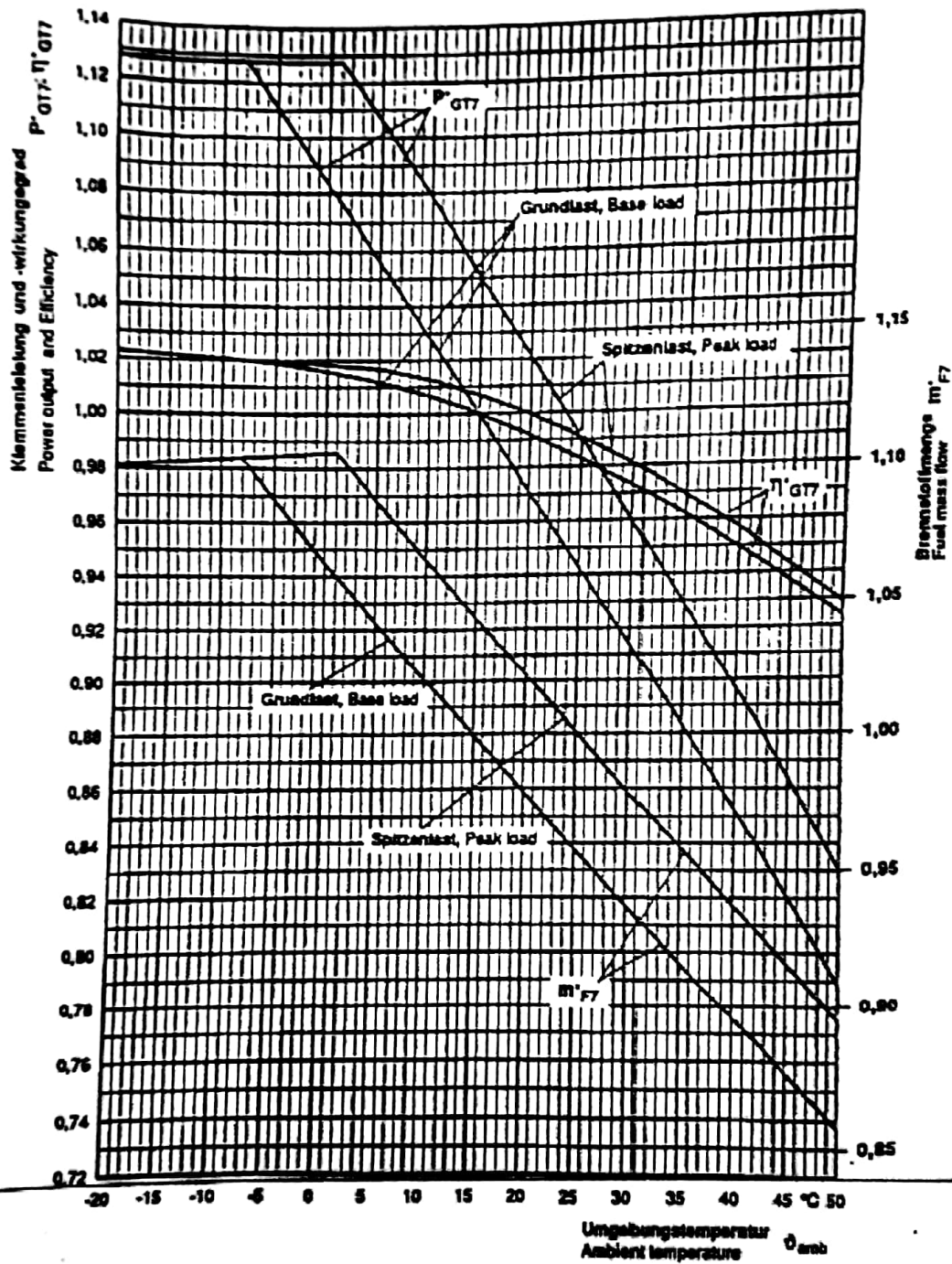
3. Submitted for kind consideration please.

**(Junaid Ahmad Baig)**  
Chief Executive Officer  
Central Power Generation Company Limited

Gasturbine  
Gas Turbine  
V94.2

Kleinstleistung und -wirkungsgrad  
über Umgebungstemperatur  
Power Output and Efficiency at Generator  
Terminals vs Ambient Temperature

Fig. 11

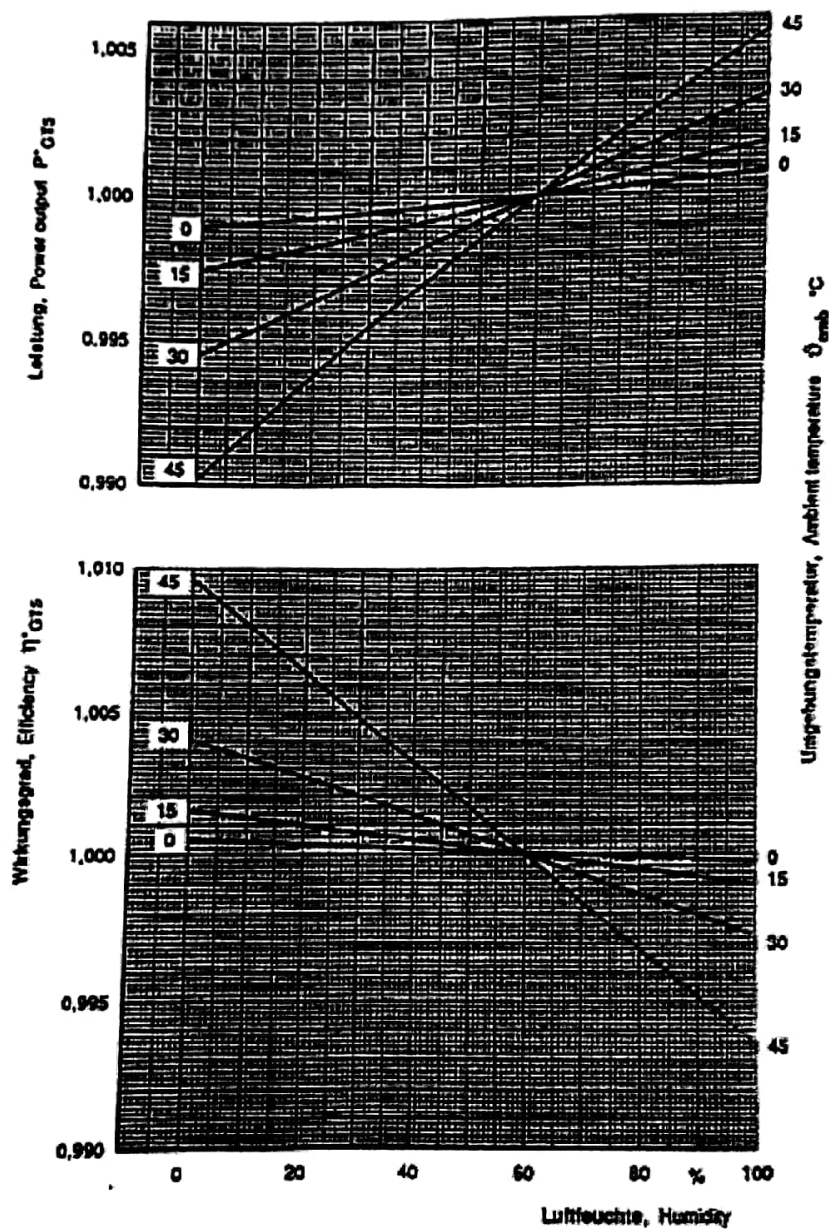


Die Angaben, besonders in der ersten Spalte, sind nur als Richtwerte zu verstehen. Sie sind nicht verbindlich und können sich bei Änderungen der Betriebsbedingungen ändern.

RESTRICTED

Siemens AG  
Energietechnik

M-TGRT 91115  
02/82

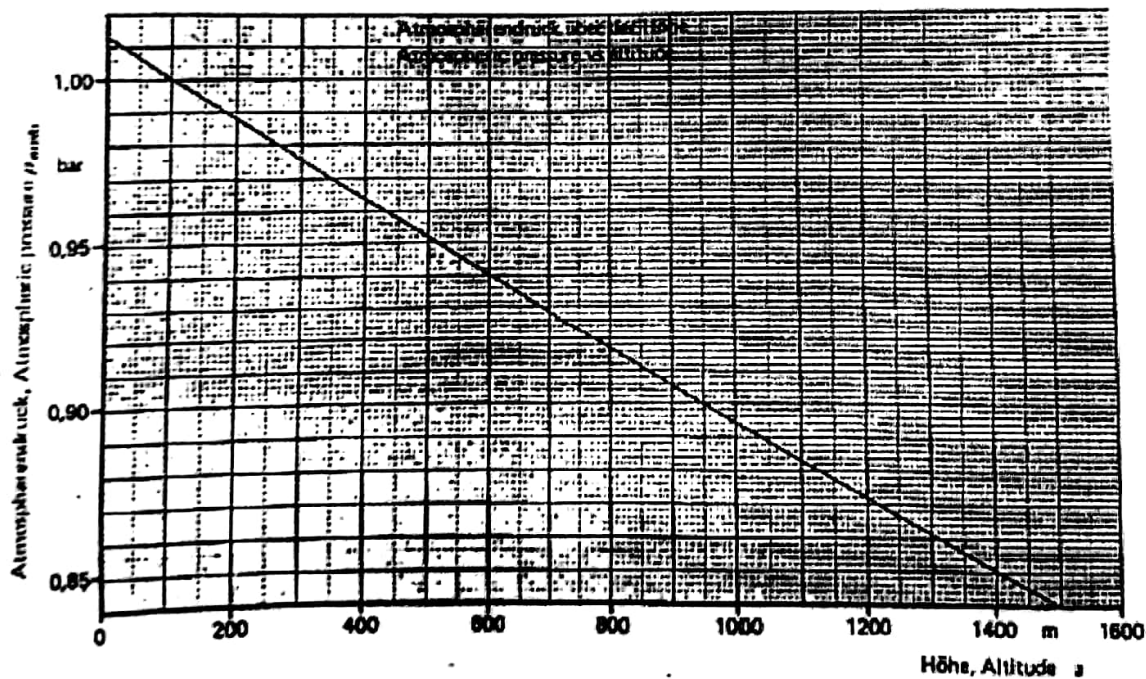
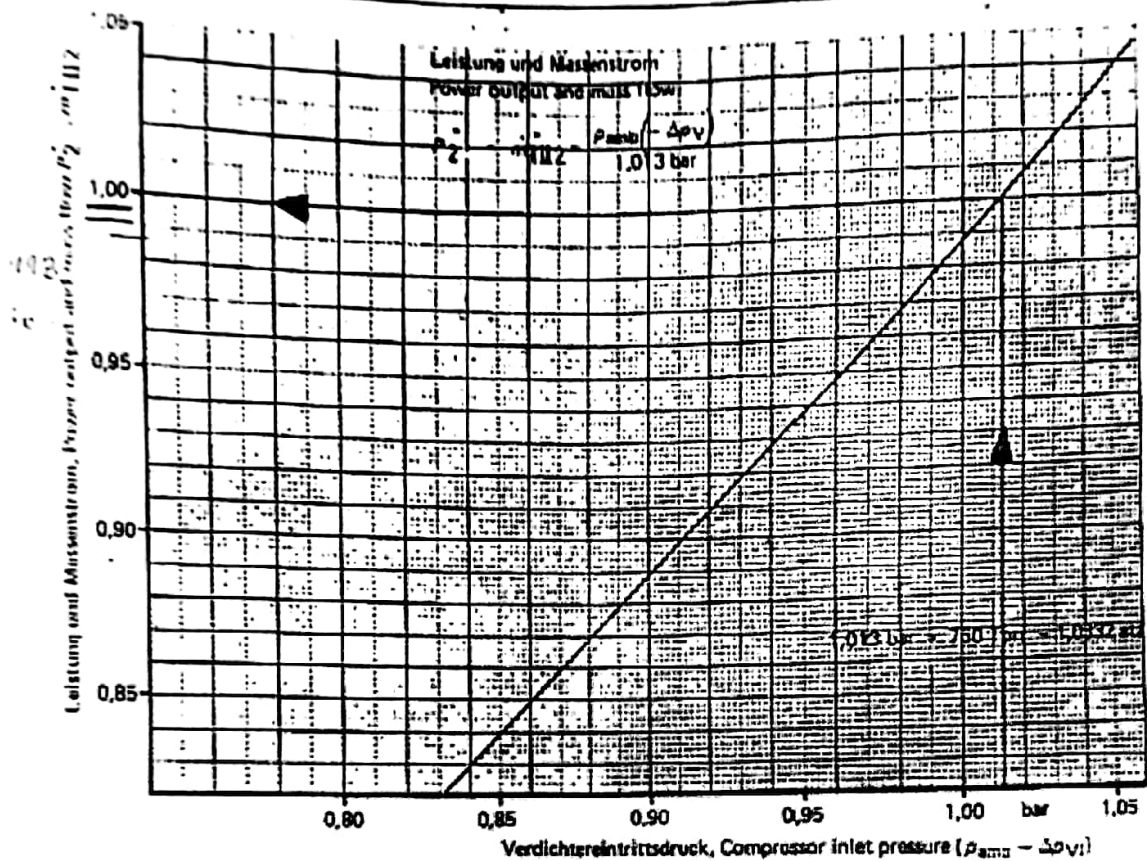




1002-5

Einfluß des Verdichtereintrittsdruckes  
Influences of Compressor inlet pressure

Fig. 3



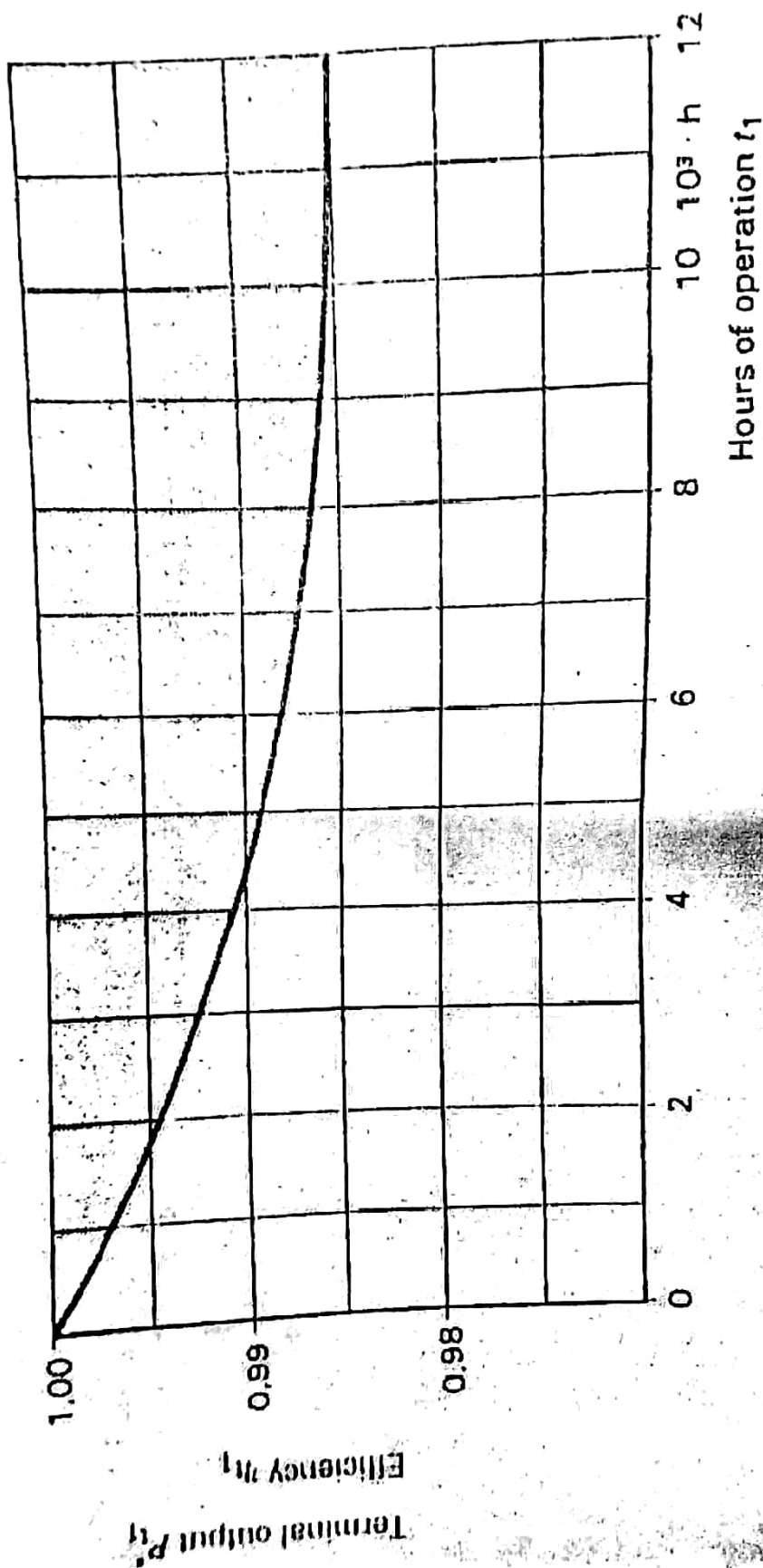
Kraftwerk Union

M-TGRT 83038  
04830E

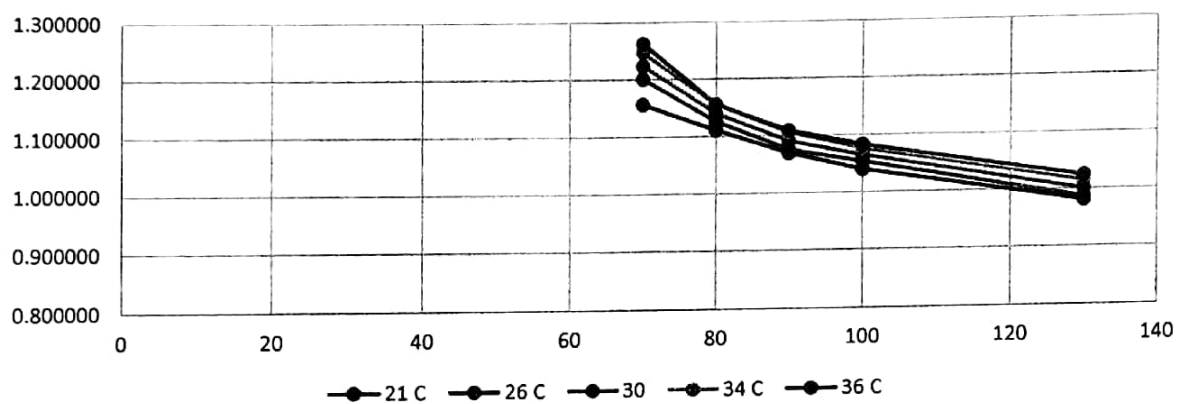
A-3

# Effect of aging on output and efficiency

Conditions: Machine clean, adherence to specifications for air and fuel



**PARTIAL LOAD CURVE  
415 MW CCP**



A-5

**General Electric Model PG9171 Gas Turbine  
Guddu F6251 Post-Uprate**

**Estimated Performance**

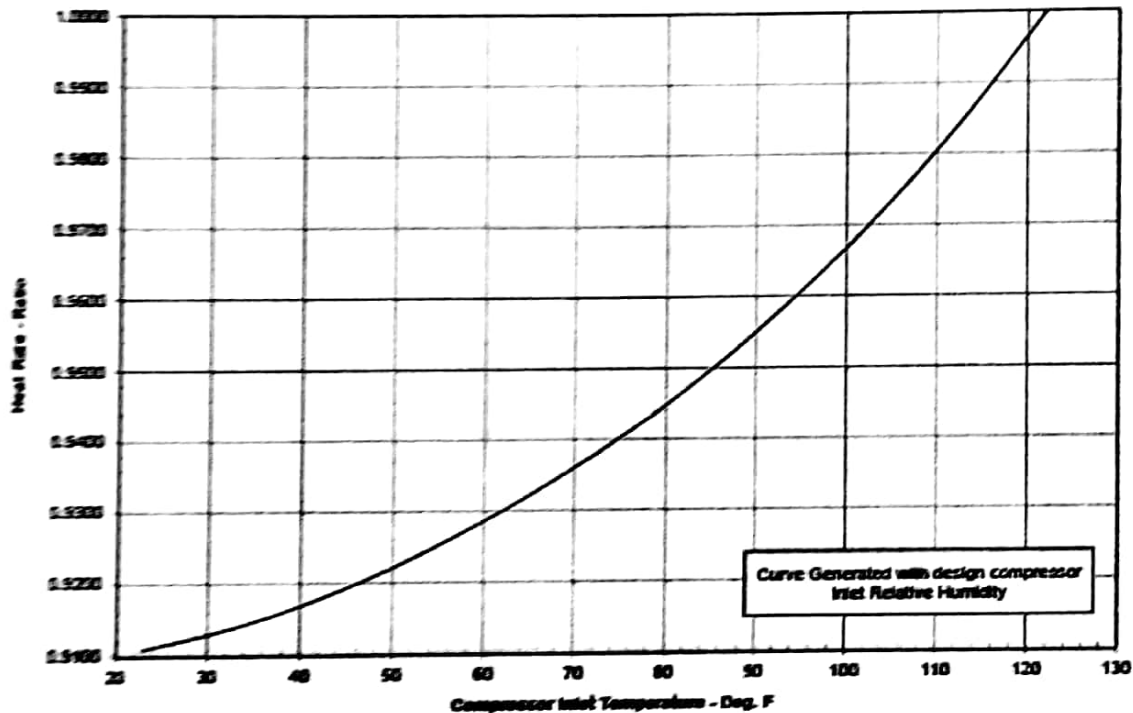
**Effect of Compressor Inlet Temperature on Heat Rate**

Design Values Referenced on 101H0032 Rev - Sheet 1

Fuel Gas

Mode: Base

Gas Turbine Generator(s) 307546 ONLY



	Units	21.00	34.00	48.00	62.00	69.00	78.00	89.00	100.00	111.00	122.00
Compressor Inlet Temperature	F										
Heat Rate Ratio		0.91000	0.91423	0.91846	0.92269	0.92692	0.93115	0.93538	0.93961	0.94384	0.94807

CRAB Jun 91  
01/25/94

101H0032 Rev -  
Sheet 4

This document contains GE proprietary information and may not be used or disclosed to others except with written permission of the GE company.



# **General Electric Model PG9171 Gas Turbine Guddu F6251 Post-Uprate**

## **Estimated Performance**

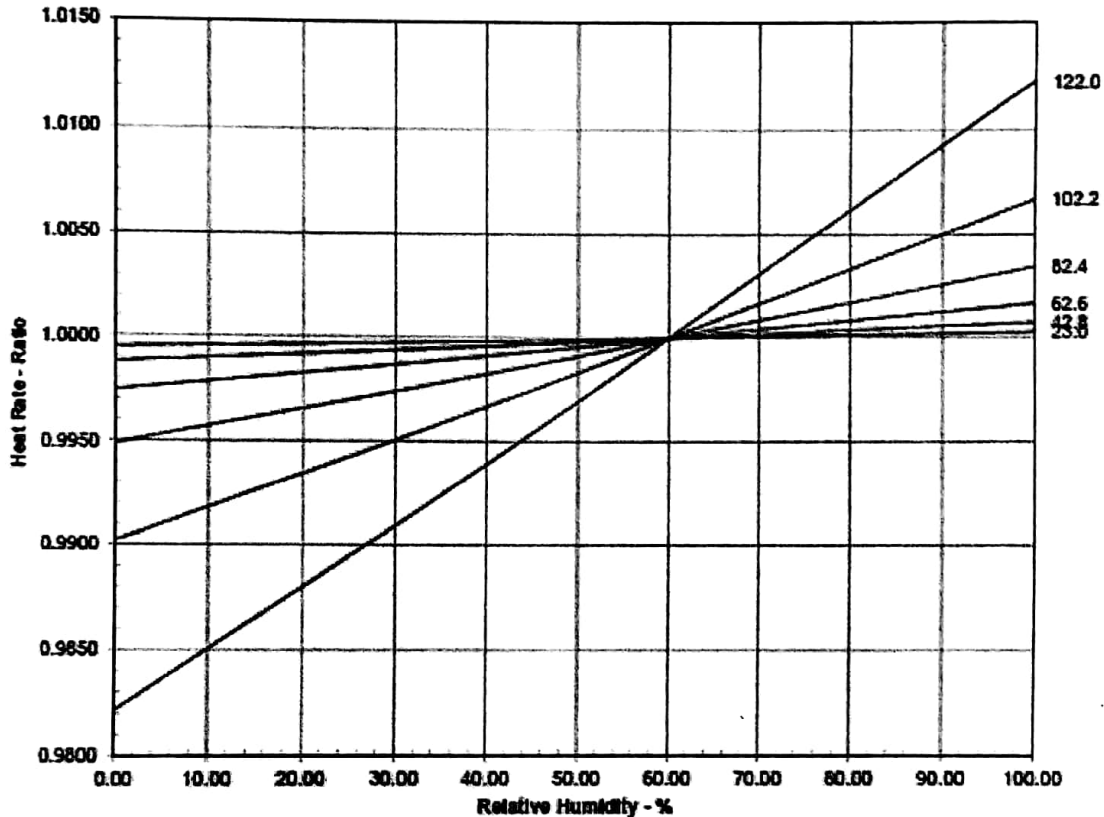
Effect of Relative Humidity on Heat Rate at Different Compressor Inlet Temperatures

Design Values Referenced on 101H0032 Rev - Sheet 1

Fuel: Gas

Mode: Base

Gas Turbine Generator(s) 282546 ONLY



		Compressor Inlet Temperature - Deg. F					
Relative Humidity - %		23.0	42.8	62.6	82.4	102.2	122.0
		60.0	1.00000	1.00000	1.00000	1.00000	1.00000
	0	0.99982	0.99983	0.99747	0.99491	0.99024	0.98212
	20	0.99958	0.99922	0.99631	0.99360	0.98346	0.96799
	40	0.99934	0.99861	0.99416	0.98929	0.97672	0.95394
	50	0.99922	0.99861	0.99358	0.98915	0.97635	0.95696
	60	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
	70	1.00008	1.00020	1.00042	1.00065	1.00165	1.00306
	80	1.00016	1.00039	1.00083	1.00172	1.00332	1.00616
	100	1.00032	1.00078	1.00169	1.00344	1.00666	1.01231

Chua Jun Yi  
01/25/14

101H0032 Rev -  
Sheet 6

This document contains GE proprietary information and may not be used or disclosed to others except with written permission of the GE company.

B-2

# General Electric Model PG9171 Gas Turbine Guddu F6251 Post-Uprate

## Estimated Performance

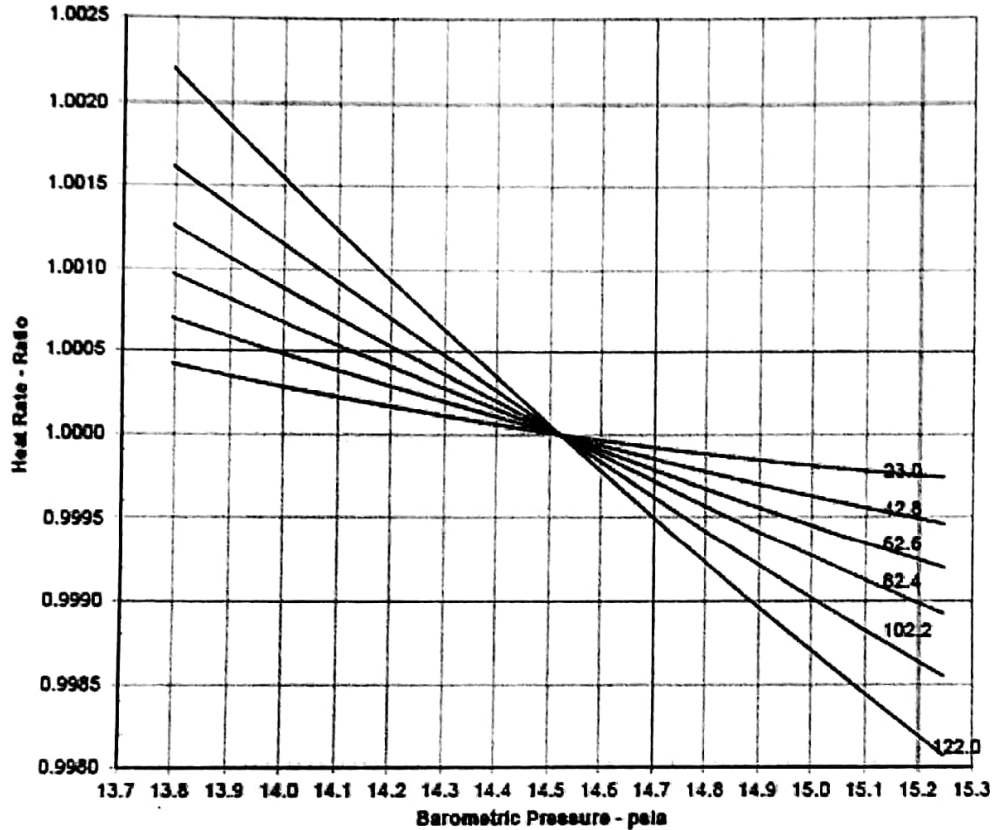
Effect of Barometric Pressure on Heat Rate at Different Compressor Inlet Temps

Design Values Referenced on 101H0032 Rev - Sheet 1

Fuel: Gas

Mode: Base

Gas Turbine Generator(s) 282546 ONLY



		Compressor Inlet Temperature - Deg. F					
		23.0	42.8	62.6	82.4	102.2	122.0
Barometric Pressure - psia	13.79	1.00042	1.00070	1.00097	1.00126	1.00162	1.00221
	13.94	1.00032	1.00055	1.00076	1.00099	1.00128	1.00173
	14.08	1.00023	1.00040	1.00056	1.00073	1.00095	1.00126
	14.23	1.00015	1.00026	1.00037	1.00048	1.00063	1.00084
	14.52	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
	14.81	0.99988	0.99977	0.99966	0.99955	0.99940	0.99920
	14.96	0.99983	0.99966	0.99950	0.99933	0.99911	0.99882
	15.10	0.99978	0.99956	0.99935	0.99913	0.99882	0.99844
	15.25	0.99974	0.99946	0.99920	0.99892	0.99854	0.99807

Chua Jun Yi  
01/25/14

101H0032 Rev -  
Sheet 16

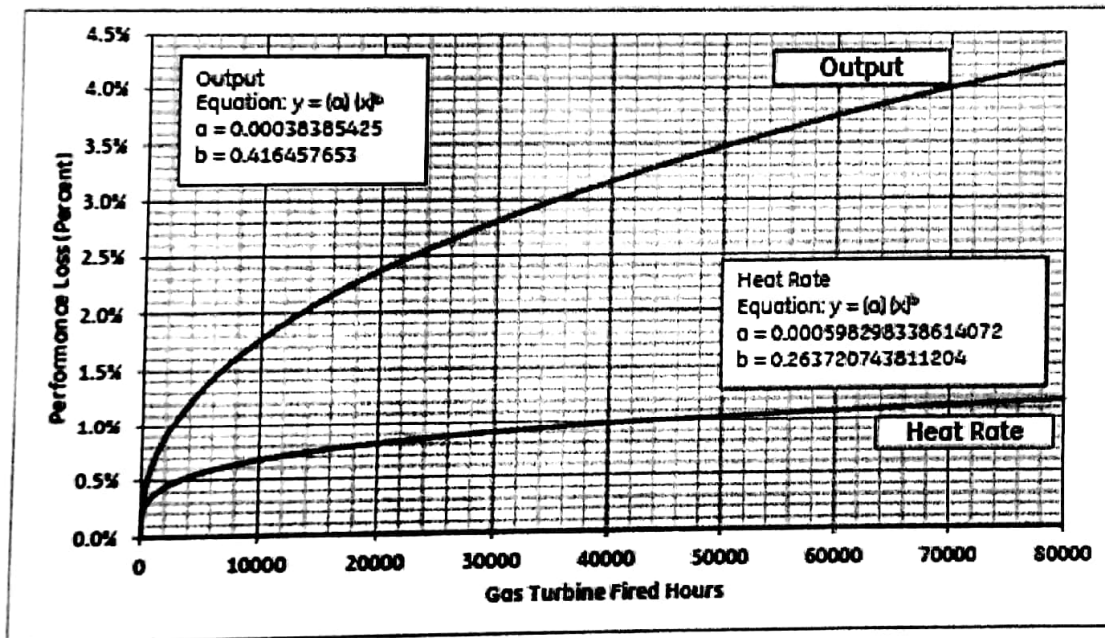
This document contains GE proprietary information and may not be used or disclosed to others except with written permission of the GE company.

B-3

## Expected "E Class" Gas Turbine Only Performance Loss Following Normal Maintenance and Off-Line Compressor Water Wash

The aged performance effects represented by these curves are based on the following:

- Performance is relative to the guarantee level
- All gas turbine equipment shall be operated and maintained in accordance with GE's recommended procedures for operation, preventive maintenance, inspection and both on-line and off-line cleaning.
- All operations shall be within the design conditions specified in the relevant technical specification.
- A detailed operational log shall be maintained for all relevant operational data, to be agreed amongst the parties prior to commencement of contract.
- GE technical personnel shall have access to plant operational data, and site visits prior to conducting a performance test. The owner will clean and maintain the equipment. The degree of cleaning and maintenance will be determined based on the operating history of each unit, atmospheric conditions experienced during the period of operation, the preventive and scheduled maintenance programs executed, and the results of the GE inspection.
- The gas turbine will be shut down for inspection and off-line compressor water wash, as a minimum, immediately prior to performance testing to determine performance loss. The gas turbine performance test shall occur within 100 fired hours of these actions.
- Demonstration of gas turbine performance shall be in accordance with test procedures that are mutually agreed upon.



J. Young  
11/26/2013

GE Company Proprietary  
This document contains proprietary information to the GE Company and may not be used or disclosed to  
other except with written permission of GE Company

S44MA434  
Rev. 1

B-4

## Correction Curve for Pakistan Guddu Power Plant

## Combined Cycle Performance

## Heat Rate vs. Ambient Temperature

Estimated Performance

Load: Base Load

Fuel: Gas

Ambient Temperature= 30 °C

Barometric Pressure= 1004 mbara

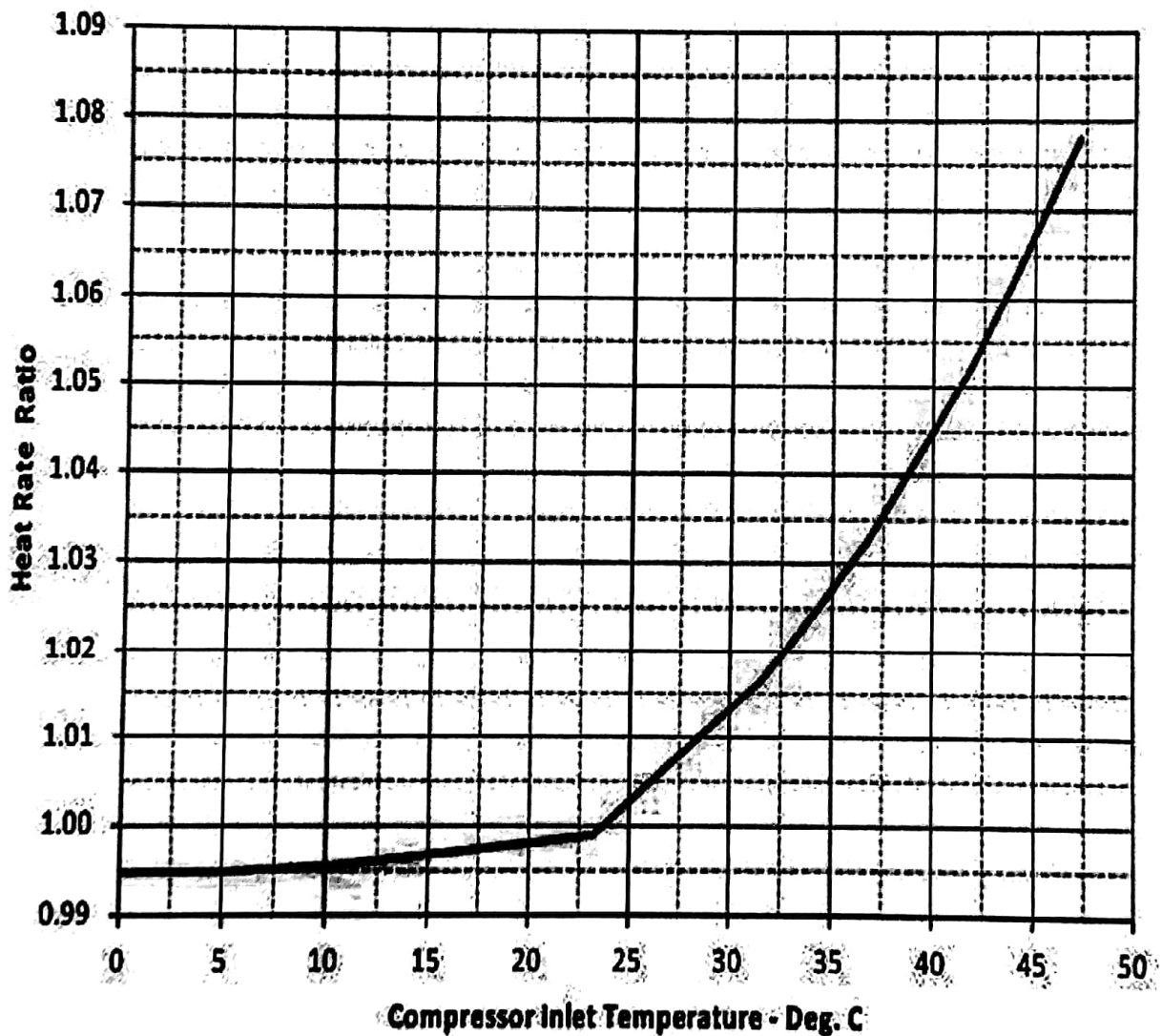
Relative Humidity= 50.00 %

Shaft speed = 3000 rpm

Fuel LHV = 33007 kJ/kg

Gas Fuel H/C Ratio = 3.94

## Evaporative coolers off



Compressor Inlet Temperature - Deg.C	0	8.25	16.49	23.21	31.48	38.73	47.22
Heat rate Ratio	0.99574	0.99601	0.99680	0.99790	0.99937	1.00000	1.01734

HEI 23/11/2014

E29E1HT-NG-02

R-0

**Correction Curve for Pakistan Guddu Power Plant  
Combined Cycle Performance**

**Heat Rate vs. Relative Humidity at Different Compressor Inlet Temperature**

Estimated Performance

Load: Base Load

Fuel: Gas

Ambient Temperature= 30 °C

Barometric Pressure= 1004 mbara

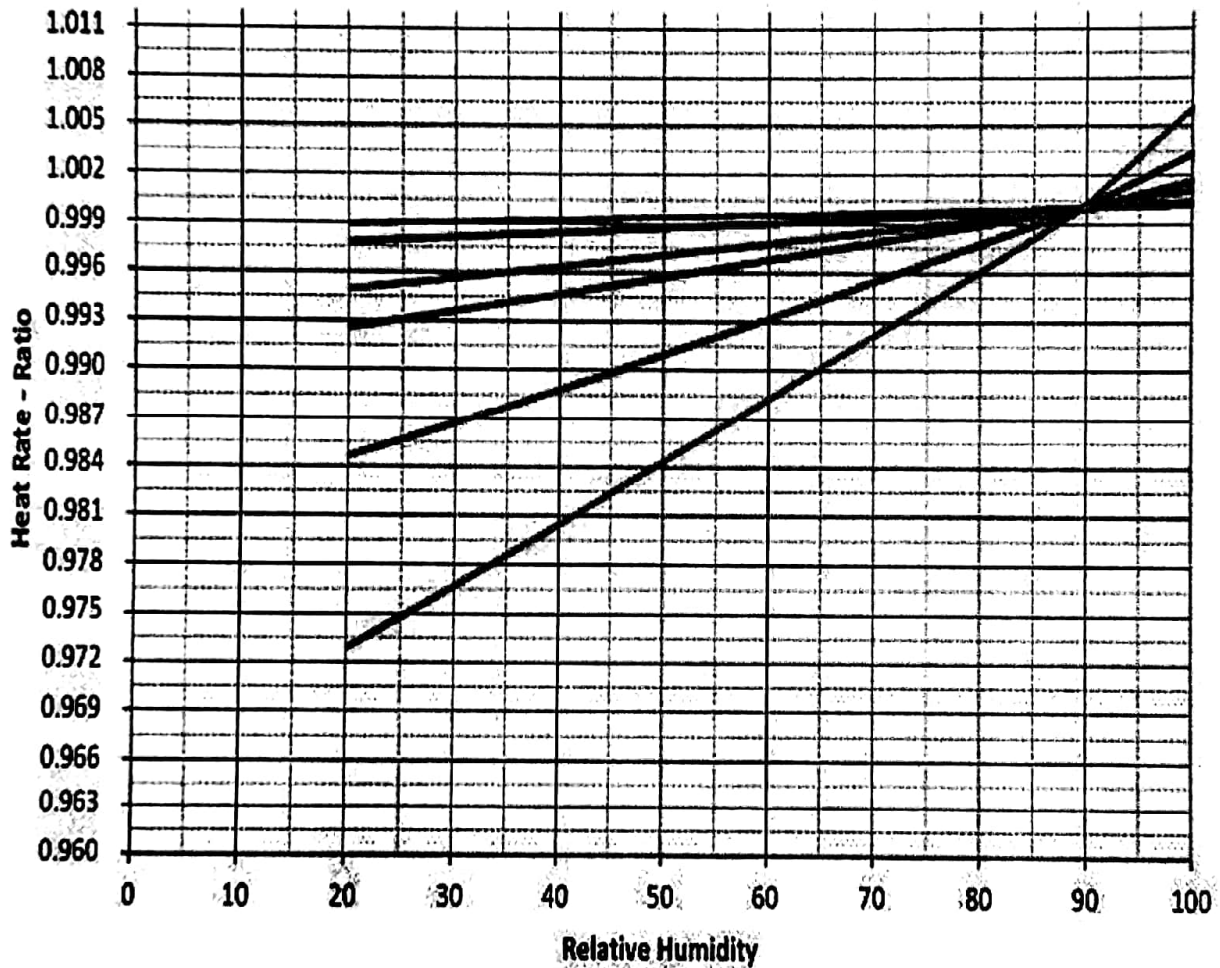
Relative Humidity= 50.00 %

Shaft speed = 3000 rpm

Fuel LHV = 33007 kJ/kg

Gas Fuel H/C Ratio = 3.94

Compressor Inlet Temperature - Deg.C      — 0 — 9.4 — 23.2 — 28.3 — 37.8 — 47.2



Relative Humidity	Compressor Inlet Temperature - Deg.C					
	0	9.4	23.2	28.3	37.8	47.2
20	0.9984	0.9975	0.9949	0.9928	0.9842	0.9728
40	0.9994	0.9984	0.9956	0.9935	0.9849	0.9735
60	0.9999	0.9989	0.9961	0.9940	0.9854	0.9740
80	1.0004	0.9994	0.9966	0.9945	0.9859	0.9745
100	1.0009	0.9999	0.9971	0.9950	0.9864	0.9750
99.4	1.0008	0.9998	0.9970	0.9949	0.9863	0.9749
100	1.0009	0.9999	0.9971	0.9950	0.9864	0.9750

HEI 10/12/2014

E29E1HT-NG-04



**CENTRAL POWER GENERATION CO. LTD.**  
(GENCO-II)

☎ 0722 - 691088  
☎ 0722 - 679085  
✉ [genco2\\_guddu@yahoo.com](mailto:genco2_guddu@yahoo.com)

OFFICE OF THE  
CHIEF EXECUTIVE OFFICER

No. CPGCL/CEO/23/2041

the TPS Guddu, 22- September, 2023

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

Subject: **APPLICATION FOR INTERIM TARIFF AGAINST TARIFF MODIFICATION PETITION FILE BY CENTRAL POWER GENERATION COMPANY LIMITED REGARDING TARIFF DETERMINATION OF THE NEPRA DATED 24<sup>TH</sup> FEBRUARY, 2006**

Central Power Generation Company Limited ("CPGCL") was submitted Tariff Modification Petition on 29-05-2023 (copy attached) to include open cycle tariff in existing tariff determination vide No. NEPRA/TRF-44/CPGCL-2005/2837-40, dated 24<sup>th</sup> February, 2006 pertaining to CPGCL's, Genco-II, TPS, Guddu (Old Blocks).

2. In this regard, CPGCL is hereby requested to the Authority to allow requested tariff (open cycle tariff, partial loading and other correction factors) as an interim arrangement under clause 4(7) of NEPRA (Tariff Standards and Procedures) Rules 1998. CPGCL is continuously operating machines on open cycle mode and on partial loading on the instructions of NPCC and CPPA-G (Power Purchaser) is considering Energy invoices on combine cycle tariff rates, by doing this, CPGCL is facing financial loss.

3. Submitted for kind consideration please.

(Junaid Ahmad Baig)  
Chief Executive Officer  
Central Power Generation Company Limited