

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

1. **Shri Ashok Basu, Chairman**
2. **Shri Bhanu Bhushan, Member**
3. **Shri A.H. Jung, Member**

Petition No. 148/2005

In the matter of

Direction to NTPC to tie up and procure adequate quantum of Gas/RLNG for Anta, Auriya, Dadri CCGT stations and for settlement of issues relating to scheduling, metering and UI accounting of gas and liquid generation separately, levy of capacity charges proportional to gas fired generation, charging of variable charges as per actuals and supply of information.

And in the matter of

Punjab State Electricity Board, Patiala

.... **Petitioner**

Vs

1. National Thermal Power Corporation Ltd., New Delhi
2. Delhi Transco Ltd., New Delhi
3. Uttar Pradesh Power Corporation Ltd., Lucknow
4. Uttaranchal Power Corporation Ltd., Dehradun
5. Himachal Pradesh State Electricity Board., Shimla
6. Power Development Deptt, Govt. of Jammu & Kashmir, Srinagar
7. Power Department, Union Territory of Chandigarh, Chandigarh
8. Jaipur Vidyut Vitran Nigam Ltd., Jaipur
9. Ajmer Vidyut Vitran Nigam Ltd., Ajmer
10. Jodhpur Vidyut Vitran Nigam Ltd., Jodhpur
11. Haryana Vidyut Prasaran Nigam Ltd., Panchkula
12. Northern Regional Electricity Board, New Delhi
13. Northern Regional Load Despatch Centre, New Delhi .. **Respondents**

The following were present:

1. Shri T.P.S. Bawa, PSEB
2. Shri Padamjit Singh, PSEB
3. Shri V.K. Gupta, PSEB
4. Shri S.N.Goel, NTPC
5. Shri Manoj Saxena, NTPC
6. Shri A..K.Garg, NTPC
7. Shri V.K.Malhotra, NTPC

8. Shri S.R. Narasimhan, NRLDC
9. Shri Venkat S Tata, NRLDC

ORDER
(Date of Hearing: 12.9.2006)

This petition has been filed by the petitioner, with the following prayers, namely:

“(1) Direct Respondent No.1 to augment gas/RLNG supply to its ISGS/NCR stations so as to achieve an annual PLF of 80% or more on gas firing and to give a committed time schedule for achieving the same.

(2) Determine and allow the payment of capacity charges on the basis of capacity made available on gas/RLNG firing for the period 1/4/04 onwards.

(3) Issue suitable directions and formulate methodology for metering and UI accounting of gas fired energy and liquid fired energy separately. In particular to direct that mixed fuel (simultaneous gas & liquid) firing of GTs be discontinued forthwith for facilitating UI accounting separately for gas & liquid firing (till such time as target of achieving full gas supply and eliminating liquid firing is achieved.)

(4) Direct the respondent No.1 to give complete details regarding consumption, cost and GCV of gas/RLNG/liquid fuel actually consumed month wise from 4/04 onwards to date and to furnish the same in future on monthly basis.

(5) Direct the respondent No.1 to give all available details/data on actual gas fired and actual liquid fired generation and so for the period 4/04 onwards month wise to date and to furnish the same in future on monthly basis.

(6) Direct respondent No.1 to supply details of agreement/MoU/arrangement with GAIL/other supplier for supply of gas and RLNG.

(7) Allow recovery of fuel charges, liquid as well as gas, on basis of actuals from 4/04 till such time as adequate arrangement for augmenting gas/RLNG supply is made.

(8) Allow a reduced time period of 2 time blocks (of 15 minute each) for reduction of liquid fired MW schedule from ISGS/NCR stations in view of high cost of liquid fuel.

(9) Direct respondent No.1 to optimize the distribution of gas/RLNG within the NCR/ISGS stations.

(10) Pass any other order as may be deemed fit.”

2. The petitioner has submitted that there is shortage of gas for Anta GPS, Auraiya GPS and Dadri GPS, the gas-based generating stations owned by Respondent No. 1, (hereinafter referred to as “the respondent”). These gas-based generating stations are using liquid fuel, namely Naphtha/HSD (Liquid) to make up for shortage of gas. Price of Naphtha/HSD is very high and hence variable cost of the power generated through Naphtha/HSD is abnormally high. The petitioner has submitted that the variable charges on gas firing and liquid firing as per the bills raised by the respondent have escalated as under from April 2004 to September 2005.

(Paise/unit)

	April 2004	September 2005	April 2004	September 2005
	Gas-fired	Gas-fired	Liquid-fired	Liquid-fired
Anta	92.22	104.19	373.65	668.26
Auraiya	94.1	108.08	369.02	671.22
Dadri	92.95	106.79	485.61	627.21

3. According to the petitioner, because of high cost of liquid fuel, the beneficiaries are not scheduling the capacity on liquid fuel and, therefore, the capacity remains idle. The regional beneficiaries are, therefore, requesting the respondent to arrange RLNG, the cheaper source of fuel

from GAIL or any other source from time to time. The petitioner reportedly offered to provide the gas at its own initiative on short-term basis. It has been alleged that the respondent did not take any action for procurement of RLNG, though the opportunity for this was available. Ministry of Petroleum and Natural Gas formulated “Hydro Carbon Vision” in 1999 when the supply and demand position for gas was estimated, as given hereunder, which showed that the respondent was aware of future scenario of gas shortage :

(in MMSCMD)

Year	01-02	06-07	11-12	19-20	2024-25
Supply	70	64	78	84	-
Demand	151	231	313	-	391

4. The petitioner has further submitted that Dahej LNG terminal was being set up in 2003-04 primarily to meet the requirements of Power Sector and 10% equity had been earmarked for the respondent. The failure of the respondent to secure a 10% equity participation in Dahej Project knowing the gas shortage scenario had adversely affected RLNG supply to NCR/ ISGS stations, and is partly responsible for the present gas crisis. Past events indicate that while the respondent was making efforts to tie up long-term gas supply contracts for its new projects such as Kawas and Gandhar Extension Projects (1300 MW each), the existing NCR/ISGS Stations have been left out. Whereas Dahej terminal had a supply contract of 5 MTPA, the terminal had an actual capacity to handle 6.5 MTPA which implies that 1.5 MTPA equivalent to 6 mmscmd was

available as spare capacity. While the issue of gas shortage was raised repeatedly in NREB/CEA/GOI forum, the margin of 1.5 MTPA remained unutilized, which could have been tied up by the respondent. A result of gas shortage at the generating stations owned by the respondent, the petitioner is adversely affected by reduction in quantum of gas fired energy and increase in liquid fuel fired energy resulting in payment of capacity charges without corresponding benefit of gas fired generation. High price of liquid fuels (Naphtha/HSD) is unduly benefiting the respondent in UI accounting as per the scheduling and UI accounting procedure adopted by the NRLDC/NREB.

5. The respondent, in its affidavit dated. 16.1.2006 has submitted as follows:

(i) During the year 2004-05 and 2005-06 (April-Nov, 05), GAIL has supplied on an average 6.30 MCMD and 5.88 MCMD respectively, this includes APM gas supplied and RLNG from IOCL &BPCL to Anta, Auraiya and Dadri gas stations, which was only 87% and 81% respectively of the linkages.

(ii) GAIL, vide their letter dated 3.3.2005, curtailed gas allocation to its generating stations further by 2.1 MCMD on account of PMT gas taken out of the ambit of Administered Price Mechanism(APM) w.e.f. 1.4.2005, out of which resulted in reduction of supply of about 1.69 MCMD to the respondent's gas-based generating stations, in NR/NCR.

(iii) The respondent has stated that with its sustained efforts and support from Ministry of Power, it had been able to arrange restoration w.e.f. 5.5.2005, of which 1.69 MCMD was diverted to NR/NCR stations.

(iv) In order to enhance the gas supply, the respondent has been continuously taking up with all the gas/LNG suppliers for tying up additional gas. During the year 2005-06, the following gas /RLNG could be tied up for the gas-based generating stations in NR/NCR:

Quantity (MCMD)	Supply source	Destination station
0.1 (RLNG)	From BPCL on fall back basis	Auraiya
0.20 (RLNG)	From IOCL on fall back basis	Dadri
0.50 (RLNG)	From GAIL on fall back basis	Faridabad

6. After the first hearing of the matter, the Commission by its order dated 30.1.2006 directed the respondent to finalise detailed time schedule for augmenting supply of gas to Northern Region gas-based generating stations. The time schedule so finalized and metering and UI accounting for gas and liquid fuel separately was to be first discussed at the Northern Regional Power Committee. Accordingly, NRPC Secretariat convened a meeting on 17.3.2006 to discuss the above-noted specific issues. After

considering the summary record of discussions of the meeting and hearing the parties on 25.4.2006, the Commission directed that:

(a) The existing schedule, the metering and UI accounting procedure notified in terms of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 (hereinafter referred to as "The 2004 regulations) shall continue to be followed strictly.

(b) To allay the apprehension of the petitioner regarding under-declaration of gas-based capacity, the respondent shall advise the gas availability for the next day based on information available with it, which is taken for declaring the plant capacity available with gas firing. The actual gas consumed on the previous day along with gas meter readings shall also be furnished to the Northern Regional Load Despatch Centre, on day-by-day basis for being duly recorded.

(c) The above exercise shall be carried for a period up to 31.8.2006 for Dadri GPS, Anta GPS and Auraiya GPS in the Northern Region.

7. The petitioner by affidavit dated 17.7.2006 made additional submissions for separate scheduling for APM/PMT, RLNG and liquid fuels.

8. We shall first consider prayers at Nos. (1), (2), (6) and (9) pertaining to augmentation of gas/RLNG supply to achieve an annual PLF of 80% or more on gas firing and payment of capacity charges on the basis of capacity made available on gas/RLNG firing, as these are inter-related. The 2004 Regulations provide for declaration of capacity of the gas Turbine Generating Stations on Gas Fuel and Liquid Fuel separately. Whereas the responsibility of arranging the fuel, gas as well as liquid fuel, is that of the generator, the price of fuel is pass through in energy charges based on specified operational norms. Therefore, concern of the beneficiaries regarding augmentation of additional gas/RLNG is understandable and should be appreciated in the back drop of high cost of liquid fuel as compared to price of RLNG/PMT gas. However, on the question of augmenting gas/RLNG so as to achieve a PLF of 80% or more on gas, a view can only be taken after going into the historical background of allocation of gas, need of liquid fuel firing and after reviewing the firm availability of additional gas/RLNG on long term basis.

9. The gas-based generating stations at Anta, Auraiya and Dadri were set up primarily for use of natural gas as the main fuel. The linkage of gas received as per Gas Supply Agreements (GSA) between the respondent and GAIL for the above gas generating stations are as under :

(in MMSCMD)

Station	Gas Linkage
Anta GPS	1.75
Auraiya GPS	2.49
Dadri GPS	3.00
Total	7.24

10. The above linkage of gas was sufficient for about 70% PLF corresponding to the normative PLF of about 68.5% prevailing at that time. The full Fixed Charge recovery as per the tariff notifications issued by the Central Government was linked to PLF of 62.78%, including deemed generation. However, the Gas Supply Agreement with GAIL was one-sided with no firm commitment on the supply of allocated gas and without any penal provisions for short supply of gas.

11. The country was facing acute energy shortages and additional gas over and above the allocation was not available from GAIL and therefore it was decided in the NREB forum in the year 1997 that under the prevailing energy shortage situation, the respondent should go ahead and establish necessary dual fuel firing facilities at its gas-based generating stations and obtain adequate linkage of liquid fuel to fully utilize the available capacity. Accordingly, the above three generating stations of Northern Region were provided with dual fuel firing facility. For this purpose, liquid fuel storage facilities were created. As such, the requirement of Northern Region grid was met from the above generating stations with the generation from gas

and liquid fuel together. The Commission, therefore, provided for separate scheduling of the capacity on gas and liquid with a view to afford an option to the beneficiaries to avail the plant capacity, for which gas was not available, by asking for it to be run on liquid fuel and paying its cost.

12. Since the difference between the price of liquid fuel and the price of gas in the domestic market was not too large at that time, the beneficiaries had no objection to purchase the extra power generated by using liquid fuel. The problem arose when the price of all petroleum products were linked to the price of crude oil in international market from 2002 onwards and with the rise of crude oil price in international market, the price of liquid fuel (Naphtha and HSD) also went up many fold in domestic market by the year 2003-04. The gas price on the other hand which was on APM did not increase in the same proportion as compared to the liquid fuel. The beneficiaries therefore, are reluctant to purchase power based on liquid fuel due to high cost and as a result a substantial capacity remains unutilized.

13. In the mean time, a market for LNG has also developed in the world due to shifting of focus on building generation capacity on gas instead of coal because of environmental considerations. Further, at the domestic front new gas fields were found in Panna-Mukta-Tapti (PMT) and Kutch Basin in Gujarat. With this development the Northern Region beneficiaries requested the respondent to arrange cheaper RLNG fuel from GAIL or any

other available source. The petitioner as also other constituents in the region also offered to the respondent to provide the gas at their initiative on short-term basis though this was with the condition that the additional power generated from the fuel so arranged should be exclusively provided to them.

14. The Commission is concerned with liquid fuel capacity remaining unutilized and is of the view that the respondent should make all out efforts for augmenting supply of gas/RLNG. The Commission vide order dated 31.1.2006 allowed the respondent three months time to finalize detailed time schedule for augmenting supply of gas to its gas-based generating stations. The respondent gave a detailed presentation on 17.3.2006 at NRPC Forum, dwelling upon the efforts being made for augmenting gas/RLNG supplies to Anta GPS, Auraiya GPS and Dadri GPS. As per the presentation, the total gas availability in the country, at present, is around 91 MMSCMD, all of which is tied up. As against the requirement of about 10.1 MMSCMD gas for full capacity utilization at Dadri, Anta and Auraiya, the present linkage of the respondent from GAIL is only 5.8 MMSCMD. The respondent is making efforts to arrange additional gas/RLNG from GAIL through spot markets and to tie up arrangements for RLNG from all available sources like Petronet – LNG, IOCL, BPCL, Shell etc. The beneficiaries have appreciated the efforts made by the respondent being made for augmentation of gas supplies. During the subsequent hearing on 12.9.2006, the respondent submitted that it was continuously pursuing with Govt. of India for maintaining supply

of APM gas as per allocation. To augment the gas supply further, the respondent has been procuring RLNG from spot market since June 2006 through open tenders and as a result declaration from gas-based generating stations on gas has significantly improved. The respondent informed that it was in discussion with major gas suppliers viz., PMT Consortium, Petronet LNG Ltd., GSPCL for supply of gas on long-term basis. However, the supply position of RLNG/ additional gas on long-term basis was very fluid and any commitment at this stage was not possible. The picture is expected to become clear by 2009 when gas from new gas field starts flowing. In view of the above, the Commission seeks to impress upon the respondent to make all endeavors to arrange additional gas/RLNG to maximize generation on gas/RLNG. However, we are not inclined to fix any time limit knowing that additional gas/RLNG is not easily available on long-term basis. Similarly, it would not be appropriate to link the availability of 80% to the availability of gas alone. Therefore, the prayers at Nos. (1) and (2) above cannot be allowed, except for a general direction to the respondent for arranging gas/RLNG supply to the extent possible, and in a cost-effective manner.

15. The prayers at Nos. (3) to (5) and (7) relate to issues arising out of scheduling, metering and UI accounting of capacity declared on gas and liquid fuel separately. According to the petitioner the capacity on gas and liquid fuel is scheduled separately, but for the UI accounting purpose, total declared capacity and scheduled capacity of the generating station is

considered. According to the petitioner, the above procedure of scheduling and UI accounting is beneficial to the respondent in the following manner:

“The generator may declare more capacity on liquid fuel, which is very costly and getting the energy charges paid on the basis of scheduled generation. Whereas, in actual he may generate more on gas resulting in savings on account of difference in energy charges on liquid fuel and the gas. “

16. The petitioner has, therefore, sought for the separate UI accounting for the capacity on gas as well as on liquid fuel. The petitioner had submitted estimates giving the quantum of profits to the respondent by way of substituting liquid fired by gas firing, that is, generating on gas and billing as per liquid schedules under ABT regime. The profits on fuel plus UI for 2004-05 and 2005-06 were estimated at Rs.280 crore each year. Adding 59.6% tax on profit the additional burden on State beneficiaries would be about Rs.480 crore per year. As a check against exorbitant profit, the respondent was asked to furnish actuals of fuel consumption month-wise in terms of quantity and GCV for period 1.4.2004 onwards.

17. The petitioner has further stated that C&AG report 8 of 2006 has audited the gas-based generating stations owned by the respondent for period 1999-2000 to 2003-04. For 2003-04 the report has given figures of ACTUAL gas fired and ACTUAL liquid fired generation vis-avis schedule. The “scheduled” generation figures of C&AG have been cross- checked with REA and have been found to be matching. C&AG report has established that during 2003-04 Auraiya Gas generated 174.5 MUs in

excess of the schedule on gas and 145 MUs less than schedule on liquid. As per this assessment, in effect, at Auraiya GPS 145 MU of liquid fuel schedule was actually achieved through gas firing. Thus, the beneficiaries were billed on liquid rate for generation done through gas. This assessment, if correct, is a serious matter. Let the respondent verify this from the available records, and submit the factual report to the Commission within one month of this order.

18. Procurement of RLNG by the respondent having a variable rate in the range of Rs.4.50 has almost eliminated liquid firing at present. To ensure correct implementation of Merit Order and ABT, three separate availability declarations are required to be given by the respondent for gas, RLNG and liquid respectively, particularly because of the wide price difference between APM gas and RLNG.

19. In absence of any procedure/methodology to correlate actual generation with scheduled generation separately for each type of fuel, the only alternative is for the respondent is to furnish daily, fortnightly and monthly data of gas, RLNG and liquid fuel consumed, and the generation schedules are required to be correlated to fuel consumption on daily basis.

20. The respondent has submitted that RLNG is being fired at gas based generating stations based on the generation schedules received. The respondent is presently declaring availability on the gas on the basis

of combined availability on APM gas and RLNG. The respondent has informed NRPC that the use of cheaper gas would be given priority during the actual operations. The balance capacity is declared on liquid.

21. The respondent has further submitted that the beneficiaries have been insisting for separate scheduling for capacity of RLNG and APM gas in view of difference in Energy Charges on APM gas and that on RLNG. The respondent has pointed out the difficulties in giving separate declaration for gas and RLNG because in case of two DCs, it is likely that costlier power may get scheduled during peak hours only resulting in large variations in the flow rate of the gas.

22. As per Northern Regional Power Committee (NRPC), there appears to be no fool-proof mechanism to bifurcate the actual generation into gas and liquid generation separately. C&AG report is not offering any assistance to us in resolving the issue in regard to gaming by under declaring capacity based on gas firing and thus making undue financial gains. Further, net generation may vary based on actual auxiliary consumption. On the electrical side, only the total generation of the generating units/stations can be authentically metered, and it is not possible to actually meter what energy has come from gas firing and what from liquid firing, particularly in case of mixed firing. This practical aspect has to be kept in view.

23. The petitioner has sought separate UI accounting for the capacity on gas as well as on liquid fuel. The petitioner's apprehension is that Declared Capability (DC) on gas-fired generation is based on normative station heat rate (SHR) and quantity of gas available whereas actual station heat rate is lower by 3-6%. As such, the generating station is able to achieve DC by using 3-6% lesser gas. This quantity of gas is then utilized to substitute liquid firing or/ and to earn UI through extra generation when frequency is low.

24. In our view, separate UI accounting for the capacity on gas and on liquid fuel is neither possible nor necessary. This is because UI energy is the difference between actual (metered) energy and scheduled energy. As it is not physically possible to meter the gas-fired and liquid fired energy separately, UI energy cannot be determined separately. Only the total net UI energy of the station can be, and is, being determined. Further, by replacing liquid firing by gas firing, theoretical UI for one will be positive, and for the other would be negative, the net effect being zero. Only a faithful declaration of availability on gas/RLNG based on availability of gas/RLNG would take care of the concern of the beneficiaries regarding scheduling of higher capacity on liquid fuel. Another problem cited by the respondent is that while generation scheduling is being done as per IEGC on a day-ahead basis from 00.00 hrs. to 24.00 hrs, the day-ahead availability of gas is being given by GAIL from 06.00hrs of a day to 06.00 hrs of the next day. The respondent is directed to discuss this aspect with

GAIL, and arrange at least the additional recording of gas supply meters at 0000 hours of each day. The respondent has further explained the methodology of booking of price of APM gas and RLNG. APM gas is booked first to the extent of availability indicated by GAIL and the balance is booked as RLNG. Even so, it should be possible for the respondent to declare the MW availability for APM gas and RLNG separately, based on the normal pattern and advise from GAIL. As such, the prayers at Nos. 3, to 5 and 7 are allowed to the extent indicated above.

25. With regard to prayer at No. (6), the Commission has already issued direction to the respondent to furnish the relevant details in this regard vide order dated 31.1.2006.

26. The prayer at No. 8 is regarding reducing the time period of 2 time blocks (of 15 minute each) for reduction of liquid-fired MW schedule from ISGS/NCR stations in view of high cost of liquid fuel. As per the scheduling procedure envisaged in the IEGC, the revised schedules are applicable from the 6th time block, whereas the gas supplier needs minimum two to three hours notice i.e. 8-12 time blocks in case of change in gas off take quantity. Moreover, there may also be practical difficulty in granting the prayer, since the gas flow rate has to be more or less the same through out the day to maintain proper gas pressure and flow in the gas pipeline. We, therefore, cannot accept the petitioner's plea for reducing the time period for the change of schedule from 4/6 time blocks

to 2 time blocks (of 15 minute each) for reduction of liquid fired MW schedule from ISGS/NCR stations.

27. With regard to prayer at No. (9) seeking direction to the respondent to optimize distribution of gas/RLNG within the NCR/ISGS stations, we feel that the respondent, as a responsible CPSU, is already taking care of this aspect. There is no need for such a direction, particularly because there is no reason for him to distribute the gas/RLNG in a sub-optimal manner.

28. With the above, the present petition is disposed of.

**Sd/-
(A.H. JUNG)
MEMBER**

**Sd/-
(BHANU BHUSHAN)
MEMBER**

**Sd/-
(ASHOK BASU)
CHAIRPERSON**

New Delhi dated the 6th February, 2007