

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**Petition No.22/99****IA No.27/1999****AND****IA No.18/2000****Coram:**

1. Shri S.L. Rao, Chairman
2. Shri D.P. Sinha, Member
3. Shri G.S. Rajamani, Member
4. Shri A.R. Ramanathan, Member

In the matter of

Petition filed by NTPC for approval of tariff for Kayamkulam Combined Cycle Power Project

And in the matter of

National Thermal Power Corporation Ltd., Petitioner

VERSUS

Kerala State Electricity BoardRespondent

The following were present:

1. Shri M.G. Ramachandran, Advocate, NTPCPetitioner
2. Shri Shyam Wadhera, GM, NTPC -do-
3. Shri P.T. Yohannan, CE, KSEBRespondent
4. Shri K.R. Unnithan, EE, KSEB -do-

ORDER

The present petition has been filed by the petitioner, National Thermal Power Corporation Ltd. (NTPC), for approval of tariff in respect of Kayankulam Combined Cycle Power Station (Ky. CCPP).

2. Ky.CCPP has been set up by the petitioner dedicated to Kerala State. The Techno-Economic Clearance for this project with a capacity of 400 MW was accorded by the Central Electricity Authority (CEA) on 14-11-1994 at an estimated cost of Rs. 1271.63 crores including Interest During Construction (IDC) of Rs.76.10 crores. The cost of the project was revised to Rs.1310.58 crores, including Rs.76.10 crores on account of Interest During Construction (IDC) and Rs.38.95 crores on account of Working Capital Margin. The sanction was conveyed by

Ministry of Power vide its letter dated 21-8-1995.

3. Meanwhile, the petitioner entered into a Power Purchase Agreement (PPA) with the respondent on 6-1-1995. The provisions of the PPA dated 6-1-1995 relevant for the purpose of deciding the controversies raised by the parties are extracted below:

"Whereas NTPC is a Generating Company wholly owned by the Government of India and will be executing Kayamkulam Combined Cycle Power Station in State of Kerala hereinafter referred to as "Kayamkulam PS" and generally referred to as "Station" to be owned and operated by NTPC.

And whereas the Bulk Power Recipient is desirous of purchasing energy from NTPC's Kayamkulam PS and NTPC is willing to sell energy from Kayamkulam PS to the Bulk Power Recipient from the date of commissioning of Unit-I of Kayamkulam PS on mutually agreed terms and conditions mentioned hereunder:

2. INSTALLED CAPACITY

The installed capacity of Kayamkulam PS shall be 400 MW, subject to change after placement of orders for the main plant equipment.

2. COMMERCIAL OPERATION OF GENERATING UNITS

The dates of commercial operation of Generating Units at Kayamkulam PS shall be as declared by NTPC from time to time.

5.0 TARIFF

The tariff and terms and conditions for the energy to be supplied by NTPC from Kayamkulam PS shall be as per the notification (s) to be issued by Government of India, Ministry of Power from time to time under section 43 A of the Electricity (Supply) Act 1948 (as amended). The following would specifically be taken into account while working out tariff for Kayamkulam PS:

- i. The Station shall be based on the liquid fuel viz. Naptha/HSD/NGL. Gas shall be used as and when available. The liquid fuel can be imported or indigenous.
- ii. No specific notification has been issued by Govt. of India w.r.t. heat rate, calorific value and auxiliary consumption as applicable for liquid fuel fired Gas Turbine Combined Cycle or Open Cycle Power stations, and as such this matter would be taken up with Govt. of India and their decision would be binding on both the Parties. In the absence of the above decision, the matter would be mutually discussed and agreed to.

11.0. EFFECTIVE DATE AND DURATION OF AGREEMENT

The Agreement shall come into force from the date of signing of this Agreement for all purposes and intent and shall remain operative upto completion of five years from the date of commercial operation of last unit of Kayakulam PS provided that this Agreement may be mutually extended, renewed or replaced by another Agreement on such terms

and for such further period of time as the parties may mutually agree. In case Bulk Power Recipient continues to get power from Kayamkulam PS even after expiry of this Agreement without further renewal of formal extension thereof then all the provisions of this Agreement shall continue to operate till this Agreement is formally renewed, extended or replaced."

4. Ky.CCPP consists of two gas turbines and one steam turbine, with an ultimate capacity of 359.58 MW. The petitioner filed this petition for approval of tariff for two units of gas turbines of 116.6 MW each, stated to have been declared for commercial operation for open cycle w.e.f. 1-1-99 and 1-5-99. The tariff is stated to have been calculated by the petitioner based on the terms of the PPA dated 6-1-1995 and the norms notified by the Government of India vide notification dated 30-3-1992, except for heat rate which has been considered as approved by CEA vide letter dated 18-3-1996, for design of gas turbines similar to Ky.CCPP. According to the CEA's letter dated 18-3-1996, the normative Heat Rates for the then existing gas projects of NTPC, namely Anta, Auraiya, Dadri, Kawas and Gandhar, are 2100 K Cal/KWhr for Combined Cycle Operation and 3150 K cal/KWhr on GCV basis for simple cycle operation. The petitioner has sought the Commission's approval to the terms and conditions and tariff of power being supplied from the projects as detailed in Annexure "A" to the petition.

5. The petitioner filed an Interlocutory Application (No.27/99), stating that the respondent, Kerala State Electricity Board (KSEB), since the commencement of the commercial operation of Gas Turbines has been making payment at an *ad hoc* provisional rate of Rs.2.75/KWh. According to the petitioner, the payment made by the respondent was grossly inadequate in comparison with the two-part tariff payable under Government of India notification dated 30-3-1992, and agreed to between the petitioner and respondent in the meeting held on 21 and 22-6-1999, resulting in accumulation of huge amount of arrears. The petitioner has prayed for an interim order for payment of provisional tariff on two-part basis.

6. During pendency of the petition, the steam turbine of Ky.CCPP is stated to have been declared commercially operative w.e.f. 1.3.2000. Therefore, the petitioner filed an interlocutory Application (No.17/2000) for amendment of the petition and approval to the terms and conditions and tariff of power being supplied w.e.f. 1-3-2000 consequent to commercial declaration of steam turbine, as per the details contained in Annexure "A" to the amendment application. Another Interlocutory Application (No.18/2000) has been filed by the petitioner for interim order for payment of provisional tariff on two-part basis for the power being supplied for the Combined Cycle Operation w.e.f. 1-3-2000 pending finalisation of tariff by the Commission. The respondent is making provisional payment @ Rs.3.50/KWh consequent to commencement of Combined Cycle Operation.

7. The prayer for amendment of the main petition contained in IA 17/200 has already been allowed. We propose to deal with IA 27/1999 and IA 18/2000 through this order.

8. The replies to the main petition as also the IAs filed by the petitioner, have been filed by the respondent. The respondent has admitted to provisional payment @ Rs.2.75/KWh since 1-1-1999 and @ Rs. 3.50/KWh w.e.f. 1-3-2000 and that the electricity being generated from two Gas Turbine units is being provided to it. The respondent has, however, denied that these units were declared on commercial operation w.e.f. 1-1-1999 and 1-5-1999. According to the respondent, before commercial operation of a gas turbine unit, the capacity has to be established by conducting Performance Guarantee test. Despite repeated requests by the respondent, the petitioner has not apprised it of the results of the Performance Guarantee test and thus the petitioner has failed to demonstrate the capacity. Therefore, according to the respondent, the project cannot be said to be commercially operative. It is further contended by the respondent that it is not

liable to pay the fixed charges during the period the plant was on Open Cycle Operation and the fixed charges are payable only after the commencement of the Combined Cycle Operation. The respondent has admitted its liability to pay the variable charges during the Open Cycle Operation. In regard to Station Heat Rate, it is the contention of the respondent that the Station Heat Rate as laid down in Government of India notification dated 30-3-1992, as amended vide notification dated 6-11-1995, would apply and that CEA's letter dated 18-3-1996 has no application to Ky.CCPP. According to Government of India notification dated 30-3-1992 as amended vide notification dated 6-11-1995, the Station Heat Rates for Gas and Naphtha based stations are given below:

For Open Cycle 2900 K cal/KWh

For Combined Cycle 2000 K cal/KWh

9. In view of the contentions raised by the parties, the following preliminary issues arise for our determination:

- a. Whether the plant can be declared to be in commercial operation without capacity demonstration by the petitioner (OPR)
- b. Whether the respondent has no liability to pay for the fixed charges during the Open Cycle Operation (OPR)
- c. Whether the Station Heat Rate is to be calculated based on the CEA's letter dated 18-3-1996 (OPP).

Commencement of Commercial Operation

10. According to the respondent, the Fixed Charge is paid by the respondent for the capacity and hence it is imperative that the capacity details of the turbines should be demonstrated by the petitioner. Further, for commercial and economical operation of the grid, the capacity of each generating unit is to be established for merit order despatch and planned operations. Since the capacity has not been demonstrated by the petitioner, the plant cannot be deemed to have been commercially in operation. The petitioner has stated that in terms of clause 2.2 of the PPA, the declaration of commercial operation of the generating units is within its exclusive domain and after such a declaration, the PPA fastens it with an obligation to supply electricity. According to the petitioner, Performance Guarantee tests, etc. are the matters between it and the equipment supplier..

11. We have given our anxious consideration to the issue raised by the respondent. On careful consideration of the matter, we are of the opinion that the PPA between the parties does not provide for Performance Guarantee tests or the capacity demonstration by the petitioner. These cannot be considered to be pre-requisite for commencement of commercial operation, after which the petitioner has an obligation to supply power as per the terms of the agreement. However the generator should be able to supply to the extent demanded by the beneficiary with reference to the capacity for which fuel charges are payable. There is no whisper mention in the reply filed by the respondent that the petitioner has in many manner defaulted in the supply of power since declaration of commercial operation by it. Therefore, we accept the contention of the petitioner that the commercial operations of the station commenced w.e.f. 1-1-1999 in respect of Gas Turbine Unit I, 1-5-1999 in respect of Gas Turbine Unit II and 1-3-2000 in respect of Steam Turbine Unit. As stated by the petitioner as per clause 2.2. of PPA the requirement is a declaration by the petitioner which has been done. It has also been established that the petitioner never defaulted in supply for want of capacity declaration. The respondent has been paying for the power drawn @ Rs.2.75/KWh since 1-1-1999 and @ Rs.3.50/ Kwh for Combined Cycle Operation. Therefore, the respondent through its own conduct has accepted the commencement of commercial operations of the plant.

Nevertheless, for the satisfaction of the respondent, the petitioner should have no qualms on the issue of capacity demonstration.

Liability of the respondent to pay for the Fixed Charges during open cycle operation

12. According to the respondent, it has no liability to pay for the fixed charges before commencement of the Combined Cycle Operations. Relying upon certain clauses of the PPA, it has been contended on behalf of the respondent that its contractual obligations under the PPA are for the Combined Cycle Power Plant and the date of commercial operation of the Steam Turbine Unit becomes the date of commercial operation of the Combined Cycle. Clause 5 (vii) of the PPA stipulates that before commissioning of the Combined Cycle, the Variable Charge would be based on the norms of Heat Rate and Auxiliary consumption for Open Cycle. In the light of this provision, it has been argued by the respondent that the PPA does not provide for payment of Fixed Charges during Open Cycle Operation, but provides for payment of the Variable Charges only. The reliance has also been placed by the respondent on Government of India's notification dated 30-3-1992, as amended from time to time, according to which the actual capital expenditure incurred on completion of project shall be the criteria for fixation of tariff and in case of multi-unit project, the percentage of capital cost as specified by the CEA in its Techno-Economic Clearance shall be considered for fixation of tariff on commercial operation of the progressive units. In the light of these provisions of the Government of India's notification dated 30-3-1992, it has been contended that the petitioner should have got the fixed charge apportioned unit-wise and intimated to the respondent before claiming Fixed Charges during the Open Cycle Operation. It has been argued that in the absence of such an apportionment after obtaining the CEA's approval, the respondent has no liability to pay for Fixed Charges during the Open Cycle Operation.

13. In view of the contention raised, we, in terms of our order dated 6-3-2000, had sought views of CEA on this issue. We have been advised by CEA that the Fixed Charges are payable after any individual gas turbine is put into commercial operation and that Fixed Charges are payable even in Open Cycle Operation. On the question of unit-wise allocation of fixed costs, it has been stated that for calculating IDC of Ky.CCPP at the time of Techno-Economic Clearance, 55% of the total capital cost was allocated to Gas Turbine units (Open Cycle) with equal allocation to individual GT Units. In other words, the remaining 45% of the capital cost is allocated to Steam Turbine unit.
14. In view of the categorical advice of CEA, we reject the plea raised by the respondent that the Fixed Charges are not payable for the Open Cycle Operation. We accordingly hold that the respondent is liable to pay the Fixed Charges w.e.f. 1-1-1999 for GT-I and w.e.f. 1-5-1999 for GT-II when the plant was in Open Cycle Operation in accordance with the allocation made by CEA at the Time of Techno-Economic Clearance asnd adverted in the preceding para.

Applicaition of Station Heat Rate

15. The Variable Charge has been calculated by the petitioner by taking into account the Station Heat Rate of 2100 K cal/KWh for Combined Cycle Operation and of 3150 k cal/KWh for simple or Open Cycle Operation, based on CEA's letter dated 18-3-1996, wherein CEA had intimated Station Heat Rate for five projects, including Kawas Power station. According to the petitioner, the equipment purchased for Ky.CCPP was similar to the equipment ordered for Kawas Gas Power Station and, therefore, its claim was justified. The respondent has questioned the claim of the petitioner and has averred that Station Heat Rate as prescribed under Government of India's notification dated 30-3-1992 and amended vide notification dated 6-11-1995 should apply. According to the respondent, since Ky.CCPP had not started operationsperforming on the date of issue of CEA's letter dated 18-3-1996, Station Heat Rate mentioned therein does not apply to the project in question. On the other hand, the petitioner

argued that the notification dated 6-11-1995 is prospective in operation and cannot be extended to Ky.CCPP, the Techno-Economic Clearance for which was accorded by CEA on 14-11-1994.

16. In our order dated 17-4-2000 we had directed the petitioner to base its claim for the Variable Charges by taking into account the Station Heat Rate of 2900 K cal/KWh during the Open Cycle Operation, in keeping with Government of India's notification dated 30-3-1992, as amended. However, in view of the controversy regarding the applicability of norms of heat rate variation, we referred the matter to CEA for its views on the issue. A reply received from CEA on the controversy, was circulated among the parties at the hearing. We now proceed to record our findings on this issue.
17. The Government of India's notification dated 30-3-1992, as it originally stood, laid down the "Station Heat Rate for the gas base stations" as 2900 K cal/ KWh for Open Cycle and 2000 K cal/KWh for Combined Cycle. However, through the notification dated 6-11-1995, the Station Heat Rate prescribed for gas based stations was extended to Naphtha based stations as well by substituting the words "station heat rate for gas and Naphtha based stations" for the original words "station heat rate for gas based stations." Clause 3.3 of the notification dated 30-3-1992 provides that the notification shall be applicable for determining the tariffs for sale of electricity from such generating stations whose financial package for investment is approved by CEA on or after its publication in the Official Gazette. On the principle of this provision, the petitioner has argued that the notification dated 6-11-1995 does not govern the Ky.CCPP as in this case the financial package was approved before publication of the amendment notification dated 6-11-1995.
18. Clause 5 (ii) of the PPA dated 6-1-1995 provides provides that the matter in regard to heat rate, etc. would be taken up with Government of India for decision as no specific notification had been issued for liquid fuel fired Gas Turbine Combined or Open Cycle Power Stations by then and that decision would be binding on both the parties. As per the agreement in In the absence of such a decision, the matter would be mutually discussed and agreed to. Therefore, the petitioner could have taken up the matter with the Government of India in terms of PPA since the details of the equipment installed at Ky.CCPP were known to the petitioner. But no such steps seem to have been taken by the petitioner and accordingly the decision of the Government of India on this issue, specific to this plant has not become available. The normative Heat Rates conveyed by CEA to the petitioner are limited to 5 stations specified therein. As it transpires from the said letter dated 18-3-1996, the conclusion in regard to normative heat rates was arrived at by CEA after analysis on the basis of design details as well as actual performance data furnished by the petitioner to CEA. However, no such analysis has been conducted by CEA for Ky.CCPP as the plant had not been commissioned at that time. The fact of the matter is that CEA's letter itself provides that for all future gas turbine projects belonging to the petitioner, the prevalent norms as per Government of India notification would apply. The Government of India's notification dated 30-3-1992 as amended vide notification dated 6-11-1995, was in force on 1-1-1999 when the Ky.CCPP became commercially operational. In these circumstances, we hold that for the purposes of Station Heat Rate, the Government of India notification dated 30-3-1992 as amended vide notification dated 6-11-1995, is applicable to Ky.CCPP. Our finding is proximate to the intention of the parties demonstrated through PPA. There appears no justification to apply normative Station Heat Rates as per CEA's letter dated 18-3-1996 because it was never intended by the parties and it was never brought to the notice of the respondent by the petitioner., CEA, to whom a reference was made by us, has also supported this view. It has been stated by CEA that Heat Rates prescribed under its letter dated 18-3-1996 are is not relevant for the purpose of Ky.CCPP. We do not find any merit in the contention of the petitioner that in view of clause 3.3 of Government of India notification, dated 30-3-1992, the Station Heat Rates prescribed for Naphtha based plants under notification dated 6-11-1995, do not apply to Ky.CCPP, since the financial package for

this project was approved after publication of the notification dated 30-3-1992. The question was left open in the PPA to be decided by the Government which decision is implied now by the amendment for Naphtha based plants vide notification dated 6-11-1995. As such the petitioner shall charge variable charges as per the Heat Rates Contained in Notification of 30-3-1992 as amended by the notification of 6-11-1995.

19. The Government of India accorded sanction for the project with capacity of 400 MW at an estimated cost of Rs.1310.58 crores. The completion cost of the project is Rs.1134.37 crores for the established capacity of 359.58 MW. We had sought a clarification from CEA whether the revised cost had its approval in view of the reduction in capacity from 400 MW to 359.58 MW. CEA has informed that no such proposal for approval of the revised cost had been received from the petitioner. The petitioner has submitted that the approval of CEA for the revised cost is not necessary because the completion cost falls within the over all ceiling of the approved cost of the project. Be that as it may, in view of the reduction in capacity of the plant from 400 MW to 359.58 MW, we consider it appropriate that the revised cost should be approved by CEA. We, therefore, direct that the petitioner shall forward to CEA the proposal for approval of the revised cost of the project immediately separately for Open Cycle and Combined Cycle and CEA shall communicate its decision on the proposal to all concerned, including the Commission within two months of receipt of the proposal. Meanwhile, the petitioner shall be entitled to Variable Charges as already directed and 90% of the fixed charges tariff calculated as claimed by the petitioner in IA No.17/2000 which shall be paid by the Respondent immediately. on the basis of directions contained in the preceding paragraphs. We sum up our findings and directions as under:

- a. The various units of the plant are shall be in commercial operation as declared by the petitioner, without any demonstration of capacity or Performance Guarantee Test.
- b. The petitioner shall demonstrate to the respondent the capacity of the plant within three months of this order. In case the respondent is not satisfied with the capacity demonstration, the matter shall be reported to the Commission. This direction is without prejudice to the petitioner's rights flowing out of the direction at (a) above.
- c. The petitioner is entitled to recover the Fixed Charges during the Open Cycle Operation based on the cost allocation intimated by CEA and referred to in earlier part of this order.
- d. The Station Heat Rates notified by the Central Government for the Open Cycle Operation and Combined Cycle Operation shall apply to this project.
- e. The petitioner shall immediately submit the proposal for approval of the revised capital cost to CEA who shall communicate its decision to all concerned within two months of receipt of the proposal.
- f. (f)The petitioner shall prefer bills for the provisional tariff (both for the fixed as well as the variable charges) in the light of the directions contained in the preceding sub-paras. The respondent shall, however, be liable to pay the Variable Charges in the light of our findings recorded above and only 90% of the tariff on account of Fixed Charges so claimed by the petitioner, pending approval of the revised cost of the project by CEA, after adjusting for on account payments already made. The Respondents shall make the payment immediately..

20. We make it clear that the above directions relate to payment of provisional tariff and are only interim in nature. The final tariff shall be determined in the light of the norms and terms and conditions to be notified by the Commission.

21. 21.With the above directions, IAs 27/1999 and 18/2000 stand disposed of.

22. Before parting with the case, we place on record our appreciation for the assistance

rendered by the CEA in arriving at just and fair decision on the rival contentions raised in this case.

Sd/-
(A.R. Ramanathan)
Member

Sd/-
(G.S. Rajamani)
Member

Sd/-
(D.P. Sinha)
Member

Sd/-
(S.L. Rao)
Chairman

New Delhi the 24thJuly, 2000.