National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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No. NEPRA/ADG(Trf))/TRF-322/CPGCL-2015/ 9666-70 July 02, 2025

Subject: **Decision of the Authority in the matter of Second Tariff Modification Petition filed by Central Power Generation Company Limited for its 747 MW CCPP Guddu**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority (total 13 Pages) in the matter of Second Tariff Modification Petition filed by Central Power Generation Company Limited for its 747 MW CCPP Guddu in Case No. NEPRA/TRF-322/CPGCL-2015.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official Gazette pursuant to Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 within 30 days from the intimation of this Decision. In the event the Federal Government fails to notify the subject tariff Decision within the time period specified in Section 31(7), then the Authority shall notify the same in the official Gazette pursuant to Section 31(7) of NEPRA Act.

Wasim Anwar Bhinder

(Wasim Anwar Bhinder)

Enclosure: **As above**

Secretary,
Ministry of Energy (Power Division),
'A' Block, Pak Secretariat,
Islamabad

Copy to:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.
3. Chief Executive Officer, Central Power Purchasing Agency Guarantee Limited (CPPA-G), Shaheen Plaza, 73-West, Fazl-e-Haq Road, Islamabad
4. Chief Executive Officer, Central Power Generation Company Ltd. (CPGCL), Guddu Thermal Power Station, Guddu (Kashmore)

DECISION OF THE AUTHORITY IN THE MATTER OF SECOND TARIFF MODIFICATION PETITION FILED BY CENTRAL POWER GENERATION COMPANY LIMITED FOR ITS 747 MW CCPP, GUDDU.

BACKGROUND

1. Central Power Generation Company Limited (CPGCL-747MW or Petitioner) has set up a Combined Cycle Power Plant (CCPP) in Guddu, Sindh. The plant operates on Gas and HSD. The gross capacity of the plant is 747 MW while net capacity of the plant on gas is 720.791 MW. The power plant consisting two gas tribunes (GT-14 and GT-15) and one steam turbine (ST-16). The plant achieved commercial operations on December 17, 2014.

2. The tariff in respect of CPGCL-747MW was determined on April 26, 2016 and motion for leave for review of the tariff was decided on April 7, 2017.

3. CPGCL-747MW entered into a Gas Supply Agreement (GSA) on October 23, 2017 with Pakistan Petroleum Limited and gas is supplied to the plant through a dedicated gas pipeline from Kandhkot Gas Field located in Sindh. The term of this GSA is for the lease life of Kandhkot Gas Field.

4. CPGCL-747MW vide its letter dated July 30, 2020 filed first modification petition for inclusion of open cycle tariff for the subject power plant on the demand of system operator (NPCC). Subsequently, CPGCL-747MW vide letter dated October 19, 2020 submitted amendment to the modification petition to the extent of reducing ROE component from 15% to 10% consistent with the decision of the Cabinet Committee on Energy (CCOE) dated August 27, 2020. Decision in the matter was issued on December 28, 2020, wherein, open cycle operation was allowed without capacity charges except during allowed outages and ROE was reduced to 10% without indexation of USD/PKR parity. Review in the matter was decided on July 28, 2021, wherein, the Authority did not accept the request of the Petitioner for allowing open cycle retrospective i.e. 2014 and capacity charge during open-cycle operation beyond allowed outages. However, the Authority did allow USD indexation of ROE component.

FILING OF SECOND (2ND) TARIFF MODIFICATION PETITION

5. CPGCL submitted a tariff modification petition of the generation tariff under Rule 3(1) of the NEPRA Tariff (Standards & Procedure) Rules, 1998. The Summary of the Modification Petition is hereunder:

   i. Capacity Charges on Take and Pay basis (Rs./kWh) based on 50% availability factor for open cycle operations may be allowed with effect from July 10, 2022 i.e. from date when ST-16 became unavailable. The take and pay tariff will be

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based on presently available capacity of the Plant i.e. 483 MW (combined capacity of GT-14 and GT-15). The requested take and pay tariff is provided hereunder:

Description	Capacity Charge
Fixed O&M (Local)	0.3304
Fixed O&M (Foreign)	1.0124
Insurance	0.1918
Cost of working Capital	-
ROE	2.1928
Local Debt Servicing	0.3586
Foreign Debt Servicing	5.2174
Total	**9.3034**

ii. IRR of 15% for the 747 MW CCPP, which was allowed in 2017 Tariff may kindly be restored, subject to concurrence of the Power Division.

iii. Adjustment of heat rate for partial loading, degradation and other correction factors, as per the curves and data provided by OEM of GT-14 and GT-15, may be allowed.

iv. Startup cost for Steam Turbine and Gas Turbine for 747 MW CCPP may be allowed.

v. Any other better relief, which the Authority may consider appropriate in the circumstances may kindly be granted.

ADMISSION AND HEARING

6. The Authority admitted the subject petition and notice of admission/hearing along with issues were made public on September 7 & 8, 2024 inviting comments/intervention from the stakeholders. Individual notices were issued on September 10, 2024.

7. The hearing in the matter was held on September 19, 2024 in the NEPRA Head office, Islamabad. Hearing was participated by the representatives of CPPA-G, CPGCL-747MW and NTDC.

8. Based on the contents of the tariff modification petition, following issues were framed for the hearing:

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i. Whether the requested Capacity Charges of Rs. 9.3034/kWh on Take and Pay basis on 50% availability factor for open operation with effect from July 10, 2022 is justified?

ii. Whether the request to allow requested IRR of 15% is justified?

iii. Whether the requested heat rate adjustments for partial loading, degradation and other correction factors, as per the curves and data provided by OEM of GT-14 & GT-15, are justified?

iv. Whether the requested startup cost is justified?

v. Whether the indefinite operation of a CCPP in open cycle is justified?

vi. Whether the suboptimal burning of gas in open cycle mode since July 10, 2022 is justified?

vii. Any other issue arising during the proceeding

COMMENTS FROM CPPA-G

9. In response to the notice of admission/hearing, only CPPA-G vide its letter dated September 27, 2024 provided the comments which shall be discussed under each issue.

CONSIDERATION OF THE SUBMISSIONS OF PETITIONER & STAKEHOLDERS, FINDINGS AND DECISION

10. The issue wise submissions, findings and decision are provided in the succeeding paragraphs:

ISSUE # 01: WHETHER THE REQUESTED CAPACITY CHARGE OF RS. 9.3034/KWH ON TAKE AND PAY BASIS ON 50% AVAILABILITY FACTOR FOR OPEN CYCLE OPERATION WITH EFFECT FROM JULY 10, 2022 IS JUSTIFIED?

11. CPGCL-747MW submitted that since ST-16 damage and is on forced outage, i.e. 10th July 2022, the power plant has been unavailable in combined cycle mode. As plant's existing tariff only allows payment of its capacity charge when plant is operated in combined cycle mode, CPPA-G has not paid plant's capacity charges from December 2022 (after accounting for certain utilized permitted outage periods). However, the plant holds a reasonably high position in the merit order, even in open-cycle mode, and its strategic location for load balancing has led NPCC to regularly issue dispatch instructions for GT-14 and GT-15 (when available, either together or individually). As a result, CPGCL-747MW has been

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operating in simple cycle mode without receiving the capacity charges. CPGCL-747MW is no longer in a position to pay for fixed and variable O&M costs of the plant and gas turbines major maintenance costs (combustion inspection, hot gas path and major inspections with the replacement of standard parts) occur on the basis of running hours, which accrue irrespective of plant's mode of operation. Additionally, CPGCL-747MW is also under an obligation to carry out debt servicing for the plant and CPGCL-747MW is no longer in a position to continue these payments in the absence of payment of capacity charges.

12. During the hearing, Petitioner apprised the Authority that fire incident on ST-16 occurred on July 10, 2022, due to extreme rains in Guddu, which caused flooding and a short circuit in steam turbine area of the 747 MW CCPP. Based on the investigation by VA Consultancy, it was revealed that the fire was caused by the extreme rain shower. CPGCL-747MW engaged NESPAK and ST-16's OEM i.e. HEI, to assess the damage and provide repair estimates which are approx. USD 41.2 million with a repair time of 24 to 28 months.

13. In support of its submissions, CPGCL-747MW shared the GENCO Holding Company Limited's (GHCL) letter dated January 10, 2024, wherein, CPGCL-747MW requested Ministry of Energy-Power Division (MoE) for the assistance to arrange funding for rehabilitation of ST-16 and also informed to MoE that CPGCL's BOD directed CPGCL's management to convey the funds situation to MoE with request to seek assistance and commitment for arrangement of funds required for rehabilitation of ST-16.

14. However, in response, MoE, on January 31, 2024, informed to GHCL that Power Division has no funding stream for such repairs and advised that GENCO-II needs to discuss this issue at their Board level and take appropriate actions. GHCL through letter dated February 1, 2024 conveyed MoE's response to CPGCL's CEO, and advised that matter may be discussed in CPGCL's Board of Directors meeting for deliberation and appropriate action at company level for early restoration of ST-16.

15. Given the circumstances, CPGCL-747MW sought tariff modification to receive capacity charges on take and pay basis at 50% availability factor during open-cycle operation, so that actual cost of generation as well as operation and maintenance of plant can be recovered. The proposed tariff would apply to the currently available capacity of the plant i.e. 483 MW (combined capacity of GT-14 and GT-15). CPGCL-747MW submitted that when any GT is put in operation in open-cycle mode, the total capacity price for GT should be paid regardless of the load dispatch and tariff for open-cycle should be from retrospective i.e. July 10, 2022.

16. CPPA-G in its comments submitted that the capacity charges are justified to the extent the plant is 'available' and hence, the Authority is requested to review its earlier decision that

"No capacity charges shall be paid during operation of the plant in open cycle except during allowed outage under the PPA."

17. Notwithstanding the above, the request of CPGCL to have "take & pay" tariff based on 50% availability factor for open cycle operations is not justified. On one side, CPGCL is requesting for "take & Pay" tariff and on the other side it has requested to fix the CPP as per available capacity irrespective of dispatch by NPCC being for partial or full load of the plant. Moreover, the basis of 50% availability factor (reduced from current 92% availability factor) which will escalate the CPP requires rationalization based on actual operations of power plant during last 2-3 years on open cycle mode. Nevertheless, in case the Authority decides to consider 'take & pay' tariff for CPGCL, then whole tariff needs to be based on unit delivered basis without any linkage with any sort of outage allowances.

18. The submissions of the Petitioner and CPPA-G have been examined and the Authority noted with concern that ST-16 has been non-operational since 2022, which limits the plant's ability to generate power in a combined-cycle mode (i.e. it is only capable of open-cycle operation). This affects the efficiency and overall capacity of the plant, impacting its contribution to the grid.

19. It is a standard practice that capacity payments are allowed to plant based on availability and no capacity payment is allowed except during the allowed outage in simple cycle mode. Granting capacity charges for open-cycle operation shall be inconsistent with industry norms. Open-cycle operation is significantly less efficient and has higher operational costs due to increased fuel consumption, making it costlier for the power purchaser. Despite the plant's reduced capacity and resulting deductions in allowed tariff, the plant has not taken corrective actions to address the issue of its ST-16 unavailability. This is critical point because, without corrective measures, the plant cannot ensure combined cycle operations and will continue to be run on simple cycle operations at increased tariff/rate. Keeping all in view, the Authority considers that in such a scenarios if the full tariff/capacity payments are allowed, it could undermine the incentive for the plant to become fully available and improve its operational efficiency. Moreover, CPGCL's focus on securing capacity payments diverts attention from a more beneficial and long-term solution i.e. rehabilitating the steam turbine (ST-16) to restore the plant's combined cycle functionality. Combined cycle operation not only maximize efficiency and reduces fuel costs but also aligns with the requirements for capacity payments. Rehabilitating ST-16 would bring the plant back to optimal operational levels, ensuring it can achieve higher availability and output at lower cost per kWh, benefiting both CPGCL and the power purchaser.

20. The Authority recognizes the operational and financial challenges faced by CPGCL-74 MW due to prolonged unavailability of ST-16. However, the current request for capacity

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charges in open-cycle mode fails to address the root cause of issue. Instead of perpetuating a sub-optimal operational model, the plant must prioritize the rehabilitation of ST-16 to restore combined cycle functionality, which offers improved efficiency, reducing fuel consumption and lower the cost per kWh for the power purchaser. A fully operational 747 MW CCPP would strengthen system reliability and merit order dispatch, benefiting the national grid. CPGCL-747MW must urgently engage with stakeholders– including MoE, GHCL and lenders– to secure the necessary funding and expedite repairs. The Authority emphasizes that reliance on open-cycle operation is neither beneficial for the power purchaser nor for the power plant.

21. In light of the above and after careful considerations, the Authority has decided to allow only fuel cost and variable O&M components (on Rs./kWh basis) for open cycle operations to CPGCL-747MW in line with the decision taken in the other power plants. No capacity charge components are allowed during such operations except for the allowed outage period under the PPA, wherein capacity charge are admissible.

22. It is observed that heat rate tests for open & combined cycle operations of CPGCL-747MW have not yet been conducted. CPPA-G and CPGCL-747MW are hereby directed to expedite the testing process by engaging an independent engineer, with CPPA-G's representatives present, and submit the test report(s) for the onetime adjustment. Further, as directed in the decision dated April 7, 2017, CPGCL-747MW is once again directed to conduct an Initial Dependable Capacity (IDC) test to determine net capacity.

ISSUE # 02: WHETHER THE REQUEST TO ALLOW/RESTORE IRR OF 15% IS JUSTIFIED?

23. The Petitioner contended that that given the present economic scenarios and the financial constraints of the GoP's, CPGCL-747MW is heavily relies on ROE component to fund the rehabilitation of ST-16. The currently approved ROE component in tariff is insufficient for this purpose and is far below the industry-standards.

24. CPGCL-747MW further submitted that in the absence of external funding and government's financial support, higher IRR is necessary to make the ST-16 rehabilitation project financially feasible. The Ministry of Energy (Power Division) in its letter dated January 31, 2024 explicitly refused to provide funding for rehabilitation of ST-16. Therefore, CPGCL-747MW requested the Authority for restoration of 15% IRR originally allowed in 2017 tariff determination.

25. During the hearing, CPGCL-747MW reiterated that in its 2017 tariff determination, the Authority – after comprehensive examining the costs associated with construction of 747

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MW CCPP– allowed CPGCL-747MW an IRR of 15% against 16% claimed by CPGCL-747MW. Accordingly, CPGCL requested the reinstatement of 15% IRR (not ROE) approved previously in 2017 tariff determination.

26. CPGCL-747MW in its petition submitted that it is in process of seeking the Federal Government's concurrence for this request, as the 2020 reduction in IRR was based on a decision by the CCoE dated August 27, 2020. Thus, CPGCL-747MW's request is contingent on the Power Division's endorsement.

27. CPPA-G, in its letter dated September 27, 2024, remarked that "*Return on Equity (ROE) has already been reduced from 15% to 10% by NEPRA in line with Cabinet Committee on Energy decision dated 27th August 2020, therefore, CPPA-G offers no further comment*".

28. The submissions of the Petitioner have been examined and noted that the MoE did not provide any formal concurrence – either during the hearing or through official correspondence– to support the requested IRR restoration. Instead, CPPA-G and CPGCL-747MW on April 14, 2025 filed a joint application for reduction of tariff components as per the Memorandum of Understanding (MOU) dated January 22, 2025, wherein among others, it is requested to revise ROE component to 13% at exchange rate of Rs. 168/USD, with no future indexation. The subject application is under-process and separate decision shall be issued in due course.

ISSUE# 03: WHETHER THE REQUESTED HEAT RATE ADJUSTMENTS FOR PARTIAL LOADING, DEGRADATION AND OTHER CORRECTION FACTORS, AS PER THE CURVES AND DATA PROVIDED BY OEM OF GT-14 & GT-15, ARE JUSTIFIED?

29. The Petitioner submitted that in its initial tariff petition filed on June 4, 2015, it sought an adjustment of heat rate of plant due to partial loading, in accordance with the calculation method/curve provided by OEM (M/s GE) of GT-14 and GT-15, as documented in GEK 116403 (updated version). However, in its 2016 initial tariff determination, the Authority decided that partial loading adjustments shall be dealt in accordance with the standard practice and shall be addresses in PPA, and the same principle was reiterated by the Authority in 2017 tariff determination.

30. As aforementioned, the PPA between CPGCL and CPPA-G had already been executed at this point (in September 2015). Although the draft Amendment No. 02 to PPA has already been initiated by the parties, and submitted to the Authority for the approval, even after its eventual execution by the parties, CPPA-G's stance in respect of any payment under PPA is that such payment must be expressly covered under the tariff for the plant in question.

However, the Authority through letter September 12, 2024 has returned the amendment No.02 to PPA of CPGCL for inclusion of Guddu 747 CCPP (Block-V) with direction to submit a separate PPA for Guddu 747 and also directed CPPA-G to carry-out heat rate tests of Guddu 747 plant in combined and open cycle operations.

31. In response to above directions, CPPA-G vide its letter dated December 17, 2024 made following submissions:

    a. *The return of the amendment and furnishing of PPA is direction which contradicts the regulatory regime in terms of NEPRA (Electric Power Procurement) Regulations 2022, effective from 6th December 2022, which has placed the primacy of power acquisition with the supplier of the last resort for new electric power procurement as categorically contained in Regulation No.08 thereof. Thus, CPPA-G is constrained from processing any new electric power procurement/PPA/EPA. The submission of PPA amendment is strictly in line with the permissibility accorded by Regulation 33 whereby the Legacy Contracts and amendments falling within the given scope are process-able by CPPA-G.*

    b. *Draft amendment along with schedule has been submitted to NEPRA. Schedule and Forced Outages allowance of 8% would be allowed by NEPRA accordingly.*

    c. *Schedule-4 will include for correction curve of old Blocks as previously these were not included in existing PPA.*

    d. *CPPA-G has already asked CPGCL for heat rate test of Guddu 747 MW CCPP.*

    e. *Reference parameters are according to OEM data and NEPRA Generation License and Tariff Determination.*

32. In view of above, CPPA-G submitted that the proposed amendment No. 02 be considered, in light of the submissions of CPPA-G.

33. During hearing, CPGCL-747MW apprised that it currently receives only the energy purchase price without partial load adjustment charges (PLAC), which did not even cover the fuel costs. The Petitioner sought approval for open-cycle fuel cost components, including PLAC, start-up costs, and degradation charges. The Petitioner emphasized that system operator has continuously operated CPGCL-747MW in open-cycle mode until ST-16 is re-stored due to its strategic location, load balancing for north-south connectivity, plant position on merit order, utilization of indigenous gas etc. CPGCL-747MW highlighted that

it is only plant in mid-country which support the system and operating under current tariff (without capacity payment) results in total financial losses and is unsustainable.

34. Accordingly, CPGCL-747MW requested to allow (i) adjustments to the heat rate of 747MW CCPP in accordance with the correction curves and other relevant data supplied by OEM of GT-15 and GT-15; (ii) allow heat rate adjustment for partial loading; and (iii) allow heat rate adjustment for degradation as per the data supplied by OEM.

35. CPPA-G in its comments stated that heat rate adjustment factors for partial loading and degradation are available in PPAs of all gas/RLNG based combined cycle power plants. Moreover, there is no provision in gas/RLNG PPAs regarding other correction factors for heat rate adjustment including ambient temperature, barometric pressure, relative humidity, system frequency, fuel quality and cooling water temperature etc. post COD as these other correction factors are only utilized during heat rate test calculations for gauging one-time thermal efficiency in open or combined cycle mode of power plants. For open cycle-based operation, the PPAs of NPPMCL Balloki, NPPMCL HBS and QATPL Bhikki have the provision of Heat Rate Adjustment factors for partial loading of gas turbine(s) post COD on combined cycle mode. These PPAs have also the provision of Heat Rate Adjustment factors for degradation of Gas Turbine(s) post COD on open cycle mode but prior to COD on combined cycle mode. Keeping above in view, CPGCL-747MW may be allowed Heat Rate Adjustment factors for Partial Loading and degradation only for GT-14 and GT-15 based on OEM curves with the further direction to carry-out the Heat Rate test in open-cycle mode as also required by the Authority in its earlier decisions.

36. The submissions of the Petitioner and comments of CPPA-G have been reviewed. The Authority has considered that these matters pertain to PPA and directed to address the same in the respective PPA.

ISSUE# 04: WHETHER THE REQUESTED STARTUP COST IS JUSTIFIED?

37. The Petitioner submitted that in the 2017 tariff determination, the Authority approved Rs. 552.58 million as start-up costs for CPGCL-747MW during the testing and commissioning phase of the plant. However, since then, CPGCL-747MW has been bearing start-up costs of plant on its own, without any recovery through its tariff. Hence, it requested that the start-up costs of units of 747 MW CCPP be include in O&M costs of these units.

38. The Petitioner also stated that CPGCL-747MW's PPA with CPPA-G (which is being applied, for now, to the 747 MW CCPP) includes provisions for the start-up costs. However, the computation of these costs is a tariff-related matter, and as per CPPA-G, the payment of these costs would require the inclusion of start-up costs in CPGCL-747MW's tariff.

39. The Petitioner highlighted that the two other power generation companies (GENCOs) – Jamshoro Power Company Limited (JPCL or GENCO-I) and Northern Power Generation Company Limited (NPGCL or GENCO-III) – have already been granted start-up costs for their units in the Authority's decisions. This precedent supports CPGCL-747MW's request for similar treatment. CPGCL-747MW provide following calculations for the start-up costs of the units of 747 MW CCPP:

Start-up Costs for Gas Turbines, GT- 14 & GT-15 (Fig: Pak Rs.)

Mode of Start-up	Fuel Consumption				Cost of Steam Source (Rs.)	Auxiliary used in Start-up (kWh)	Cost of Auxiliary used (Rs.)	Total Start-up cost (Rs.)
	Natural Gas Consumption	CV	Heat Input	Cost of Natural Gas (Rs.)				
Open Cycle (60 mins)	1 MMCFT	820 BTU/CFT	820 MMBTU	861,000	Nil	1,500	17,962	878,962
Cost of Natural Gas:			Rs. 1,050/MMBTU					
Cost of Auxiliary Power:			Rs. 11.9745/KWh					

Note: *Auxiliary consumption is to be taken from the auxiliary energy meters of both Gas Turbines.*

Start-up Costs for Steam Turbine ST-16 (Fig: Pak Rs.)

Mode of Start-up	Cost of Steam Source (Rs.)	Auxiliary Used in Start-up (KWh)	Cost of Auxiliary Used (Rs.)	Total Start-up cost (Rs.)
Hot (100 mins)	77,000	39,425	472,095	549,095
Warm (360 mins)	77,000	141,930	1,699,541	1,776,541
Cold (660 mins)	77,000	260,205	3,115,825	3,192,825
Cost of Demineralized Water		Rs. 50/M. Ton		
		Rs. 11.9745/KWh		

40. CPPA-G supported CPGCL-747MW's request for the inclusion of start-up costs in the determination and stating that NEPRA has already allowed the star-up cost to JPCL, therefore, the same star-up cost be allowed to CPGCL-747MW in line with the cost allowed to other similar entities after due diligence of the Parties under the PPA. In addition to above comments, CPPA-G Further submitted that the request of the Petitioner to include the startup cost as part of O&M cost may not be allowed by the Authority.

41. The submissions of the Petitioner and comments of CPPA-G have been reviewed. The Authority has considered that these matters pertain to PPA and directed to address the same in the respective PPA.

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ISSUE# 05: WHETHER THE INDEFINITE OPERATION OF CCPP IN OPEN CYCLE IS JUSTIFIED?

42. CPGCL-747MW during the hearing submitted that in case of non-availability of steam turbine of combined cycle thermal power plant (CCPP), it is wise decision to operate the gas turbines of 747 MW CCPP in open-cycle mode due to following reasons:

    i. CPGCL operates GT-14 & GT-15 using raw, non-pipeline indigenous gas, the unit is less expensive. Hence, reducing reliance on imported fuels.

    ii. In open-cycle mode, the plant's merit order position i.e. 13 is higher than other fuels like RFO, RLNG, HSD etc.

    iii. The requested tariff of Rs. 21.2779/kWh (EPP plus CPP) for plant is still less than the other similar IPPs in combine cycle mode like Haveli Bahadur Shah, Balloki and Rousch Power plants etc.

    iv. The CCPP's open cycle operation can help balance the load on the power grid, preventing overloading or unloading of other power plants.

    v. The CCPP's strategic location and its ability to provide power in open-cycle mode are crucial for maintaining north-south grid connectivity and stability, particularly during peak demand or grid emergencies.

    vi. It demonstrates a proactive approach for maximum the utilization of indigenous resources, showing adaptability and resilience in the face of challenges.

43. CPPA-G, in its comments, submitted that the plant operation is beneficial even on open cycle on the following grounds:

    i. Due to its geographical location, operation of the plant seems indispensable for system stability even though the plant is operated by the system operator on open cycle.

    ii. It will replace the next costlier plant in the merit order, consequently, contribute to the reduction of basket price.

    iii. Therefore, operation on open cycle may be allowed as it will ensure the stability of the system and reduce the cost of power generation.

44. The submissions of the Petitioner and CPPA-G have been examined. As informed by CPGCL-747MW that they are actively working to repair ST-16 and return the plant to combined cycle operation as soon as possible and also engaged NESPAK and ST-16's OEM

i.e. Harbin Electric International, to provide repair estimates which are approx. USD 41.2 million with a repair time of 24 to 28 months. However, due to shortage of funding, CPGCL-747MW has been unable to rehabilitate the ST-16 timely. Additionally, MoE has refused to provide financial assistance for restoration of ST-16.

45. It is evident from the submissions of the Petitioner that rehabilitation of ST-16 is not possible in near future. The operation of plant in open cycle is a forced decision. Even on open cycle, the cost of electricity is cheaper than the next plants in the merit order. In case it falls in the merit order but dispatch is not given due to sub-optimal operation then the next costlier plant shall have to be operated and consumers will have to pay higher price as compared to open cycle price. Therefore, the Authority decided to allow the operation of CPGCL in open cycle till the restoration of the plant in the combined cycle.

ISSUE# 06: WHETHER THE SUBOPTIMAL BURNING OF GAS IN OPEN CYCLE MODE SINCE JULY 10, 2022 IS JUSTIFIED?

46. CPGCL-747MW during the hearing asserted that in case of non-availability of ST-16, the burning of gas in open cycle mode is not suboptimal due to the following reasons:

    i. Maintaining system stability.

    ii. Dedicated pipeline for 747 MW power plant.

    iii. CPGCL is bearing the maintenance cost of gas pipeline.

    iv. Strategic importance for north-south connectivity of the national grid.

    v. Utilization of indigenous gas, reducing reliance on imported fuels. This can contribute to energy security and reduce foreign exchange rate

47. CPGCL-747MW further apprised that they are actively working to repair ST-16 and return the plant to combined cycle operation as soon as possible. Once ST-16 is repaired, the plant will be able to operate more efficiently.

48. CPPA-G, in its comments, submitted following:

    The issue of suboptimal burning arose where the plant operations are costlier than other plants; available on merit order as well as gas can be diverted to other efficient plant(s). In the instant case, gas is being supplied through a dedicated pipeline, which cannot be diverted to any other efficient plant(s) or to SNGPL system. Further, the plant is operated for system stability and reliability and is even

economical on open-cycle and therefore, suboptimal burning of gas in open cycle mode is justified.

49. The submissions of the Petitioner and CPPA-G have been examined. Burning gas in open cycle when the steam turbine is not available is sub-optimal but this is a forced decision as steam turbine is not available. Even on open cycle, the cost of electricity is cheaper than the next plants in the merit order. In case the subject plant do not fall in the merit order, gas shall not be used and in case it falls in the merit order but dispatch is not given due to sub-optimal operation then the next costlier plant shall have to be operated and consumers will have to pay higher price as compared to open cycle price. Specifically, when demand exceeds supply or grid stability is at risk, the use of open cycle mode is necessary measure to meet demand or to prevent blackouts.

AUTHORITY

Engr. Rafique Ahmed Shaikh
Member

Amina Ahmed
Member

Engr. Maqsood Anwar Khan
Member

Waseem Mukhtar
Chairman

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