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No. NEPRA/R/ADG(Trf)/TRF-568/Pehur-2021/18951-18953

October 5, 2022

Subject: **Decision of the Authority in the matter of Petition for Tariff Modification filed by Pakhtunkhwa Energy Development Organization (PEDO) for its 18 MW Pehur Hydropower Project [Case # NEPRA/TRF-568/Pehur-2021]**

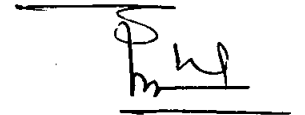
Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annex-I & Annex-II (19 Pages) in Case No. NEPRA/TRF-568/Pehur-2021.

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 Determination. In the event the Federal Government fails to notify the subject tariff Decision or refer the matter to the Authority for reconsideration, 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.

3. The Order Part along with Reference Tariff Table (Annex-I) and Debt Servicing Schedule (Annex-II) are to be notified in the official Gazette.

Enclosure: As above



05 x 22

(Syed Safeer Hussain)

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

CC:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.



**DECISION OF THE AUTHORITY IN THE MATTER OF PETITION FOR TARIFF
MODIFICATION FILED BY PAKHTUNKHWA ENERGY DEVELOPMENT
ORGANIZATION (PEDO) FOR ITS 18 MW PEHUR HYDROPOWER PROJECT**

INTRODUCTION

1. Pehur Hydropower Project (hereinafter referred to as the “**Project**”) is a 18 MW Project of the Pakhtunkhwa Energy Development Organization (hereinafter referred to as the “**Petitioner**” or “**PEDO**”). According to the Petitioner, it is located on the right bank of Indus river, immediately downstream of Tarbela reservoir. According to the Petitioner, the Project has been connected to the 132 kV Gadoon Grid Station.
2. The Authority awarded Generation License to the Project on November 26, 2009, while was modified vide LPM dated April 27, 2020. According to the Petitioner, the Project achieved COD on March 1, 2010. The Authority granted COD stage levelized tariff of Rs. 4.0180/kWh, at reference exchange rate of Rs. 84.9/US\$ to the Project on December 06, 2010 (hereinafter referred to as the “**Tariff Determination**”).

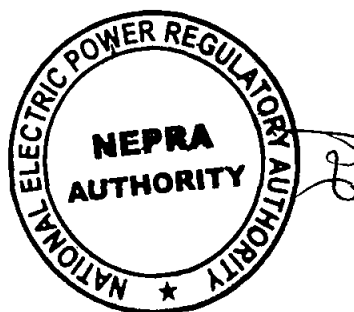
FILING OF TARIFF MODIFICATION PETITION

3. The Petitioner, vide letter dated June 24, 2021, filed tariff modification petition (hereinafter referred to as the “**Modification Petition**”) under Section 31 of NEPRA Act, 1997 read with Rule 3 of the NEPRA (Tariff Standards and Procedure) Rules, 1998 for modification of Authority’s determination dated December 6, 2010. The Modification Petition was admitted by the Authority on July 26, 2021, for further processing.
4. It is important to highlight here that CPPA-G vide letter dated March 13, 2020, submitted the subject project’s EPA for approval, but the Authority, vide letter dated July 23, 2020, advised that its tariff determination is on take or pay basis while the EPA has been agreed on take and pay basis, therefore, PEDO may file tariff modification petition to modify tariff to take and pay basis.

BACKGROUND OF THE CASE

5. The Authority consider it important to highlight that Pehur achieved COD on March 1, 2010, and since then supplied electricity to PESCO. The Project EPA was signed with CPPA-G on May 14, 2019, on Take & Pay basis with provision of exit/suspension clause. The Project opted to exit from its EPA in June 4, 2020, and since then it has been providing electricity to BPCs. It is also important to note that based on the executed EPA, Pehur has the provision to resume/re-enter the EPA and restart supplying electricity to the grid. Pehur’s EPA, however, is not approved by the Authority. It was also noted that Pehur is already wheeling electricity to 5 BPCs and accordingly the necessary changes have been made by NEPRA in the Pehur’s LPM vide its decision dated April 27, 2020.

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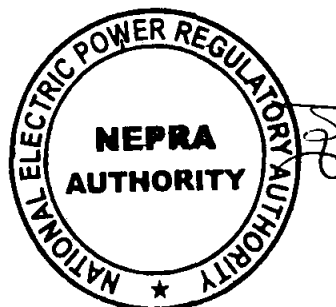
6. According to the Petitioner, the Project was awarded Generation License on November 26, 2009, while it achieved COD on March 1, 2010. According to the Petitioner, PEDO agreed with Peshawar Electric Supply Company (hereinafter referred to as “PESCO”) for supply of electricity at pre-COD rate of Re. 1/kWh till the COD. The Authority awarded final generation tariff at COD to the Project on December 6, 2010.
7. According to the Petitioner, PEDO coordinated with PESCO and CPPA-G several times for signing of EPA, but to no avail. However, later in 2019, according to the Petitioner, when the Supreme Court of Pakistan took suo moto action, the Central Power Purchasing Agency (hereinafter referred to as “CPPA-G”) agreed to negotiate and sign EPA which was finally signed on May 14, 2019, between PEDO and CPPA-G.
8. The Petitioner further submitted that in 2019, at the time of signing of EPA with CPPA-G, PEDO decided that electricity to be generated during the remaining useful life of the Project shall be sold to industrial consumers through wheeling. For this purpose, as per the Petitioner, it was required that the EPA must have an exit clause allowing PEDO to exit and subsequently execute an EPA with industrial consumers after approval from the Authority (which according to PEDO was taken by it through amendments in Generation License of the Project on April 27, 2020).
9. However, according to the Petitioner, CPPA-G and PEDO were restrained by the fact that NEPRA allowed tariff to the Project on two-step basis, i.e., higher tariff during the first 10 years for debt repayment. Therefore, according to the Petitioner, subject to the approval of the Authority, it agreed the following with CPPA-G in the EPA:

“the Parties agree that...for avoidance of doubt, it is clarified that the amount of delivered electrical output in kWh by the Seller since Commercial Operation Date to Effective Date will be paid by PESCO upon reconciliation through separate arrangement based on levelized tariff and indexed from time to time by NEPRA after deduction of already paid amount.”

10. The Petitioner further added that as per the existing Tariff Determination, payments against all tariff components need to be made based on units supplied, i.e., there is no capacity payment, however, there was a tariff step-down after 10th year that is proposed to be adjusted under this Modification Petition to align with the signed EPA.

HEARING

11. To proceed further, the Authority decided to conduct a hearing in the matter. Accordingly, the notice of admission/hearing, along with the list of issues, was published in newspapers on September 09 & September 10, 2021, and individual notices were sent to stakeholders on September 13, 2021. In response to individual notices, comments from Peshawar Electric Supply Company (PESCO) and Central Power Purchasing Agency (CPPA-G) were received vide letters dated October 4, 2021, which will be discussed under the relevant paras. No intervention requests were received.

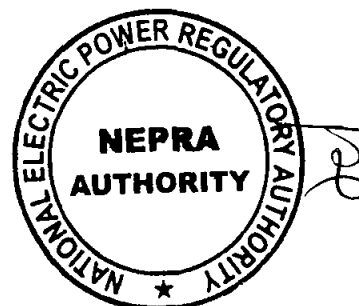




12. The hearing was held as per schedule on Monday, September 20, 2021, at 11:30 AM via Zoom which was participated by, among others, the Petitioner and the Petitioner's consultant. The Petitioner, with the support of its consultant, presented its case for modification in tariff.

SCOPE OF THE INSTANT TARIFF MODIFICATION & ISSUE OF ARREARS

13. The Authority considered the facts brought before it during the hearing and subsequently through written submission by various stakeholders. It was observed that Pehur is supplying power to the grid since its COD and it has already exited the EPA since June 04, 2020. Therefore, in the opinion of the Authority any change in the existing tariff is expected to impact the arrear payment to be made to PEDO for the Pehur HPP. To discuss the issue of arrear and to see the future arrangement of Pehur's supply of power to BPC and its re-entry to the EPA, the Authority called a separate meeting of the key stake holders on Jul 28, 2022. For this purpose, notices were sent to the Petitioner, CPPA-G & PESCO to seek their comments on the past arrear payment and the future of Pehur HPP in light of the approved CTBCM framework and NEPRA (Electric Power Supplier) Regulation 2022.
14. The Authority observed that since the timing of re-entry is unknown at this point of time therefore, , the Authority has decided that this tariff modification shall be applicable to the period beginning March 01, 2010 (COD) till June 04, 2020. In case, PEDO wants to re-enter and sell the energy from Pehur HPP to the national grid/CPPA-G/DISCOs, then such a re-entry shall be governed under the then applicable rules/regulation subject to the prior approval of the Authority.
15. On the second issue of arrear payment, the Authority observed that during a separate proceeding in 2017, the issue of arrear payments of Pehur was brought to the notice of the Authority, and the Authority, vide letter dated August 29, 2017, directed CPPA-G to pay the arrear amount based on actual energy supplied. However, when CPPA-G signed EPA with Pehur dated May 14, 2019, the Authority noted with displeasure that the responsibility for these arrears was shifted to PESCO for which PESCO strongly objected to in its comments on PEDO's modification petition.
16. During the meeting on July 28, 2022, on the issue of non-compliance of the above, the representative of CPPA-G made it clear that EPAs are subservient to the decision of the Authority so, any decision made in this regard will be complied with. Based on the above, the Authority hereby directs CPPA-G once again to ensure arrears payments since COD (net of payment already received by PEDO on account of Pehur sale to PESCO/CPPA-G) at the rate modified through this decision. CPPA-G shall ensure payment is made to PEDO by CPPA-G within 30 days of issuance of Authority's decision.





ISSUES, SUBMISSION OF THE PETITIONER & FINDINGS OF THE AUTHORITY

Whether to allow Tariff on Take and Pay basis instead of Take or Pay basis

17. According to the Petitioner, the Authority determined its tariff on Take or Pay basis as the Order part of the Tariff Determination of the Authority in the instant case states the following:

"Payment on account of hydrological risk shall be made by the Power Purchaser on the basis of benchmark energy production based on the average historical hydrology for that particular month."

18. The Petitioner further submits that, however, para 17.2 of the Tariff Determination states the following:

"The issue of hydrological risk and hydrology should be agreed between the power producer and power purchaser with mutual consent and needs to be settled in PPA."

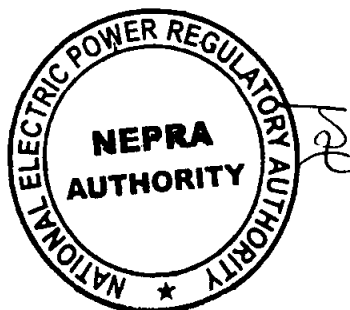
19. Given the above, according to the Petitioner, PEDO and CPPA-G agreed in the EPA, a tariff based on Take and Pay whereby hydrological risk shall be borne by the power producer. The Petitioner further submitted that PEDO intended to incorporate an entry/exit clause in the EPA, so that it can subsequently enter into a wheeling arrangement, therefore, it signed an EPA based on Take and Pay based tariff.

20. According to the Petitioner, the CPPA-G, vide letter dated March 13 2020, requested NEPRA's approval to the EPA, however, the Authority, vide letter dated July 23, 2020, directed the following:

"Tariff granted to the Projects are on 'take or pay' basis instead of 'take and pay' basis, which is still valid and operative as the same have not been amended or revised by the Authority. However, if PEDO or CPPA-G require any amendment in tariff determination of subject project, they may file a tariff modification petition in prescribed manner."

21. Accordingly, the Petitioner has filed the instant modification petition. According to the Petitioner, a take and pay based tariff will reduce the overall burden of capacity payments on the CPPA-G and the consumers which is also acknowledged by the Authority in its State of Industry Report.
22. According to the Petitioner, under-utilization of take or pay power plants increases capacity burden of CPPA-G and also result in accumulation of circular debt. The Petitioner further submits that the Authority in the case of similar hydropower projects has also allowed tariff on take and pay basis whereby hydrological risk was to be borne by the power producer.
23. Given the above, the Petitioner has requested the Authority to modify the tariff to Take and Pay basis. The Petitioner also requested the Authority to direct CPPA-G/PESCO for early

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payment of PEDO's receivables in respect of energy supplied from COD to the signing of EPA.

24. CPPA-G, vide letter dated October 4, 2021, submitted the following regarding this issue:

PEDO in its application has requested the Authority to modify the tariff on Take and Pay basis instead of Take and Pay basis

However the EPA of the captioned project has been signed on "Take and Pay" basis and while finalizing the EPA, PEDO requested to incorporate an entry/exit clause which will facilitate subject project to enter into the wheeling agreement at a later stage by exercising the exit clause, if they want such arrangement as per the terms and conditions defined therein.

Therefore, Take and Pay regime was opted instead of Take or Pay in the EPA in order to avoid potential additional capacity charges arising due to possible provocation of exit clause by PEDO. Further it is highlighted that Take and Pay has been supported by the State of Industry Report in order to save consumers from capacity payments.

Therefore, CPPA-G is also of the view that Tariff of subject hydropower project may kindly be modified by Authority from "Take or Pay" basis to "Take and Pay" basis.

Moreover CPPA-G is already taking burden/ additional liability that is caused due to the fact that Pehur HPP has exited EPA with CPPA-G causing an increase in the basket price.

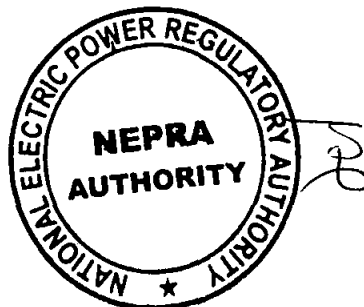
However, if the same practice will be followed by the other IPPs/ Power Plants having tariff less than the basket price similar to Pehur HPP tariff then the collective chunk of IPPs will have adverse impact on the basket price. Therefore, NEPRA may please look into the matter and devise project sharing mechanism for the power project having exit clause in EPA/PPA in order to avoid additional burden on the end consumer.

25. The above comments of CPPA-G were forwarded to PEDO, vide letter dated November 3, 2021. PEDO, vide letter dated November 22, 2021, replied to the comments of CPPA-G. Regarding the issue of tariff on Take and Pay, PEDO submitted the following comments:

CPPA-G supported the request made by PEDO in its petition for tariff modification to modify tariff on Take and Pay basis instead of Take or Pay basis.

26. Regarding the issue of exit from EPA, PEDO submitted the following reply:

CPPA-G/PESCO signed EPA after 10 years of COD. CPPA-G/PESCO supplied the electricity received from the Project to consumers for almost 10 years, while PEDO remained unpaid due to non-signing of EPA.





The "exit" from EPA was allowed by CPPA-G on the basis that tariff regime for the Project shall be revised from "Take or Pay" to "Take and Pay" basis. Under "Take and Pay" arrangement, hydrological risk is to be borne by power producer, which was previously borne by power purchaser i.e., CPPA-G. This resulted in reduction of capacity cost burden on CPPA-G on retrospective basis.

National Electricity Policy requires provision of a level playing field to all market participants. Any restrictions or hindrance created in operation of a level playing field is against the spirit of National Electricity Policy.

Comments of CPPA-G are 'general in nature' implemented pursuant to NEPRA (Wheeling of Electric Power) Regulations 201. Authority should encourage wheeling in order to promote competitive electricity market in the country.

27. PESCO, vide letter dated October 4, 2021, submitted its comments with regards to tariff on take and pay basis which are as follows:

PEDO is supplying power to five bulk power consumers (BPC) at a mutually agreed rate of Rs. 7.55/kWh instead of NEPRA determined tariff. Therefore, it is incorrect that allowing tariff on Take and Pay basis will reduce the overall burden of capacity payment on CPPA-G and the consumers.

28. PESCO's comments with regards to the issue of arrear payments are as follows:

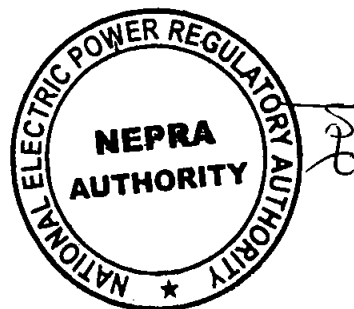
In this regard, it is stated that CPPA-G vide letter No. CEO/CPPA/DGM(R)/MT-H&S/PEDO SHPPs/22366-70, dated 17.09.2019 submitted to PESCO the Energy Purchase Agreement (EPA), signed between CPPA-G & PEDO in respect of 18 MW Pehur. In response, PESCO vide letters No. 483-85 dated 10.10.2019 & No. 519-20 dated 31.10.2019 informed CPPA-G as per NEPRA decision no. NEPRA/SAT-1/TRF-150/14769-71 dated 29.8.2017.

Moreover, CPPA-G was also informed about the PESCO BOD meeting held on 18th December 2017, wherein it was decided that the payment of arrears will be paid by CPPA-G since commercial operation date of the power house as per NEPRA decision dated 29.08.2017.

CPPA-G and PESCO are separate legal entities and in absence of PESCO representation, it is an illegal act of CPPA-G.

PESCO cannot pay the receivables due to the following reasons:

- 1) Since COD of Pehur Power Project, PEDO had submitted invoices at the rate of Rs. 1/kWh instead of NEPRA determined tariff and in compliance to Sales Tax Act 1990, PESCO has made payments to the said invoices. Moreover, no liability has been*





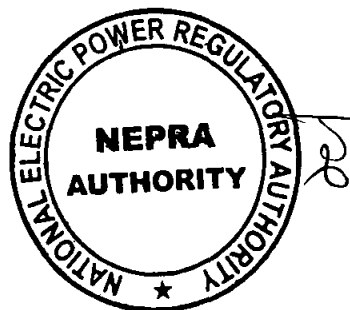
created in light of sales tax act 1990, and there is no supporting document as required under the sales tax act 1990, with PEDO, regarding its claim.

- 2) The commercial nature of transaction and audit of the financial statements require PEDO to either disclose its receivables in financial statements and issue Debtors Confirmation, however, no such evidence exists.*
- 3) PEDO has raised invoices of Rs. 1 per unit to PESCO, which has been paid by PESCO up to November 2017 amounting to Rs. 361.704 million*
- 4) CPPA has also charged the units of Pehur to all DISCOs including PESCO through Basket rate on monthly basis, hence the arrears calculation can only be made by CPPA by deducting the payment made by PESCO which has been provided to CPPA on monthly basis as well as a consolidated statement of Rs. 361.704 million has also been provided separately to CPPA-G.*
- 5) It is also worth mentioning here that CPPA-G has submitted the information pertaining to Pehur Power House units to NEPRA in its monthly FPA Decisions and any variations in the energy component is already charged to consumers. To revise determination of tariff at such a belated stage will result in double charging of the units to DISCOs/Consumers.*

In addition to the above, it is worth mentioning that the NEPRA Authority vide its decision dated 12th December, 2020 under Regulation-11(ii) allowed settlement of the excess energy at the energy charge part of the NEPRA approved tariff.

FINDINGS OF THE AUTHORITY

29. The considered the submissions of the Petitioner and other stakeholders on the issue and noted that Petitioner and the CPPA-G have mutually agreed to shift to a Take and Pay based tariff regime. The Authority noted that this proposed shift shall not result in any change in the determined benchmark energy of 57.7 GWh, therefore, there shall be no change in the tariff due to a shift in the tariff regime. However, the Authority observed that the Power Purchaser and the end-consumers will benefit from the proposed arrangement as it will reduce the additional burden of payments to be made in case of under-utilization of the plant. The Authority also noted that the Petitioner's request was consistent with the Authority's most recent decisions for hydro power projects, particularly Karora HPP, Jabori HPP, Lawi HPP and Koto HPP, where it determined tariffs on take and pay basis wherein the hydrological risk was to be borne by the power producer with bonus energy, produced beyond their respective plant factors is to be charged at 10% of prevailing tariff.
30. In view of the above, the Authority decided that the tariff regime shall be based on Take and Pay in accordance with the request of the Petitioner, meaning thereby that hydrological risk shall now be borne by the power producer.





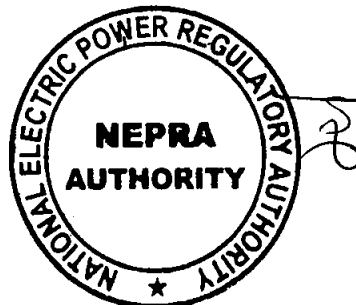
Whether to allow Debt Term of 25 Years Instead of 10 Years

31. According to the Petitioner, the Authority allowed tariff to the Project on a 10-year debt repayment term whereby higher tariff is allowed in the initial 10 years and a lower tariff in the last 15 years. The Petitioner has requested the Authority to adjust the same to arrive at the same tariff over the tariff control period.
32. According to the Petitioner, the tariff for the first 10 years is higher and the electricity for such period has already been sold. Keeping in view, according to the Petitioner, CPPA-G allowed an exit from the EPA, in the best interest of the consumers.
33. The Petitioner further submitted that it had already served 'exit notice' as per clause (l) of the EPA for entering in wheeling arrangements with BPCs as per Authority's approval dated April 27, 2020. The Petitioner is of the view that approval of revised tariff structure by the Authority will resolve the matter of unpaid receivables of the last 10 years from CPPA-G/PESCO.
34. According to the Petitioner, if the debt term is increased to 25 years, the benchmark applicable annual tariff for the first 10 years will be reduced from Rs. 4.8159/kWh to Rs. 4.3143/kWh. The Petitioner submitted that if the requested change is approved by the Authority, the amount of indexed receivables for the past 10 years will decrease from Rs. 2,209 million to Rs. 2,036 million.
35. The Petitioner also submitted that the Authority in the case of a similar hydropower projects also spread the debt over 25-years. Given the above, the Petitioner has requested the Authority to allow a debt period of 25 years to the Project.
36. CPPA-G vide letter dated October 4, 2021, submitted the following comments regarding this issue:

Since the PEDO is financing the Pehur Hydropower Project from its own resource (HDF) and using an opportunity cost of fund. It is therefore suggested that interest rate may be rationalized to 6 months KIBOR without any spread in line with other PEDO HDF funded projects such as Koto Hydropower Project in order to pass on the relief to electricity consumers by extending the term from 10 to 25 years.

It is appraised that the project company has proposed the spreading of debt period over the term of the project, which reflects the change in levelized tariff from Rs. 4.81/kWh to Rs. 4.3/kWh. Moreover, if the levelized tariff of Rs. 4.81, which is proposed by the Project company will be given, then the opportunity of getting Rs. 2.3/kWh for the rest of the 15 years cannot be availed.

It is a known fact that the subject company exit the EPA with CPPA-G on June 4, 2020 and is selling energy to BPC currently under wheeling arrangement @ Rs. 7.55/kWh. The Wheeling charges per kWh are around Rs. 1.12/kWh. Therefore, the total revenue of the





project per kWh is around Rs. 6.43/kWh which is considerably greater than Rs. 2.3/kWh.

Hence, CPPA-G is of the considered opinion that the Project Company should share such profits with the consumers, due to the reason that till date 40% of the debt component is being parked with the Power Purchaser in such mechanism which will be eventually passed on to consumers.

Moreover, CPPA-G is already taking burden/ additional liability that is caused due to the fact that Pehur HPP has exited the EPA with CPPA-G causing an increase in basket price.

37. The above comments of CPPA-G were forwarded to PEDO vide letter dated November 3, 2021. PEDO vide letter dated November 22, 2021, replied to the comments of CPPA-G. Regarding the issue under discussion, PEDO submitted the following reply:

PEDO has already exited from its EPA with CPPA-G (through clause (I) of its EPA with CPPA-G) and is supplying electricity to industrial consumers through wheeling. Extending the term from 10 to 25 years will result in reduction of debt component of tariff in the initial 10 years, which will provide relief to CPPA-G/consumers.

Authority in para 15.2 of tariff determination dated December 6, 2010 allowed a maximum ceiling of interest at KIBOR + 3%. Authority is humbly requested to maintain the earlier decision.

Pehur's cost of debt is based on HDF's source of funds which is not risk-free investment. The Authority is requested to consider risks associated with investment by HDF in the Project.

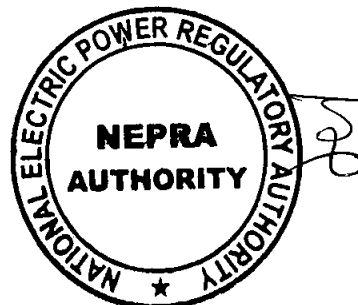
It is also highlighted that because of conversion into Take and Pay tariff structure of Project, the risk of default of debt servicing for HDF is higher compared to debt raised in Take or Pay based projects.

In case of WAPDA, the Authority has allowed a cost of relent loans @ 12.52% for FY 2021, which is higher than commercial lending rate of KIBOR plus spread.

Lastly CPPA-G has referred to the case of Koto Hydropower Project for rationalization of spread. It is pertinent to mention that incase of Koto Hydropower Project, PEDO has filed a motion for leave for review and decision in this regard is pending with the Authority.

FINDINGS OF THE AUTHORITY

38. In the instant case, the Authority allowed tariff based on 70:30 capital structure and approved debt of Rs. 722.33 million with interest rate of 15.36% (3-month KIBOR 12.36% + spread of 3%) to be repaid in 10 years.





39. The Authority noted that the cost of debt in the instant case was such that an extension shall result in an increase in the levelized tariff. Therefore, the extension in the debt repayment period is being allowed from the existing 10-year period to a 25-year period, to the extent that such extension doesn't increase the overall levelized tariff based on then applicable average 3-month KIBOR (9.75%) for the period starting from COD of March 01, 2010 to when the plant exited the EPA i.e., June 04, 2020. Accordingly, the cost of debt works out to be 12.21% (9.21% KIBOR + 3% Spread), on which the overall levelized tariff doesn't increase. The Authority further decided that since average KIBOR of 9.21% has been used to re-determine the debt servicing component for the requested 25 years terms therefore, there shall be no periodic KIBOR indexation/adjustment during the time since COD to Jun04, 2020.

Whether to Allow Insurance During Operations at A Maximum of 1.35% of EPC?

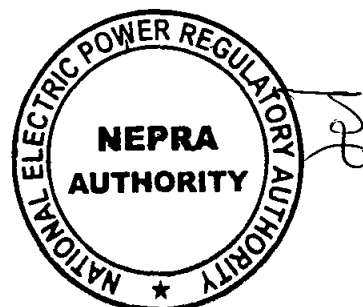
40. According to the Petitioner, it requested for insurance during operations at the time of Tariff Determination, however, since no documentary evidence was provided along with the tariff petition, the Authority decided to allow insurance component once PEDO finalizes its insurance arrangements and submits documentary evidence in this regard and accordingly allowed insurance during operations to be considered for a later decision up to a maximum of 1.35% of the EPC costs.
41. According to PEDO, it has obtained All Risk Insurance policy for the Project from the National Insurance Company Limited (NICL). The Petitioner has also provided details of the insurance payments made to NICL from 2011-12 to 2020-21 amounting to a total of Rs. 39.9 million.
42. According to the Petitioner, the Authority in case of similar hydropower projects has also allowed insurance during operations. In view of the earlier decision in the Tariff Determination, the Petitioner has requested the Authority to allow cost of insurance during operations to the Project.
43. Regarding the issue of insurance during operations, CPPA-G vide letter dated October 04, 2021, submitted that the following:

Insurance during operations may be allowed at a rate of 0.75% of EPC cost (capped) as it has been allowed by the Authority in other wind/solar projects.

FINDINGS OF THE AUTHORITY

44. The Authority consider it important to mention the following para 18.2 of the tariff determination on the insurance cost:

In the absence of any documentary evidence, the Authority has decided not to allow insurance cost at this point in time. However, the Authority considered that the insurance component will be considered as and when SHYDO finalizes its insurance arrangements and submits



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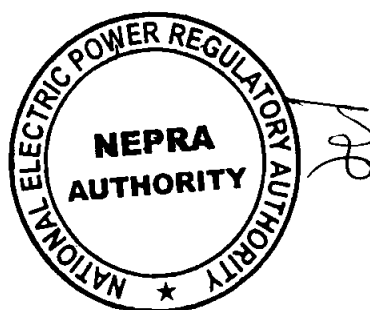
*the documents to the Authority for consideration and decision thereon up to a maximum
limit of 1.35% of the EPC cost.*

45. On the basis of the above, the determined tariff did not include an insurance during operations component for the Project. PEDO has now submitted that insurance has been procured for Pehur HPP. The documentary evidence indicates that the actual insurance cost during the past years ranges from 0.34% to 0.7% with an average of 0.55% of the EPC cost. This information suggests that the insurance component is well below the allowed limit.
46. Based on the above, the Authority has decided to allow the insurance component through this Modification Petition to the Petitioner. However, for adjustment/reimbursement of insurance cost, the Petitioner shall submit all the documentary evidence to the satisfaction of the Authority for annual adjustment of past insurance costs as per actual which shall not exceed what has been submitted to NEPRA as evidence during the proceeding of the instant petition.

Whether to reduce ROE & ROEDC from 17% IRR to 10% IRR?

47. This issue was not part of the Petitioner's request, but was included keeping in view the Authority's recent determinations of hydropower projects.
48. The Authority noted that since the Project was allowed tariff in December 2010 when USD based 17% IRR was allowed based on the then market conditions, therefore, its comparison with the recent PEDO's HPPs (Karora, Koto, Jabori and Lawi, where returns of 13% were allowed in November 2021), and with previous HPPs of PEDO (Daral Khwar and Machai, where returns of 17% were allowed through modification in their respective tariffs in 2022) may not be prudent.
49. The Authority further noted that in the case of Machai and Daral Khwar, 17% XIRR was allowed without any dollar indexation. These projects were awarded tariffs for 30 years for which the impact of dollar indexation for the future was considered a significant burden on the end consumer. The Authority observed that since the plant has stopped selling power to the grid a change in the indexation of its ROE component shall have no impact on the end consumers in the future.
50. So, based on the above, the USD based 17% return is being maintained, however, the same shall be XIRR based, to adjust for the difference in the monthly payment of such return vs the annual cash flow assumption taken in tariff.
51. Thus, the return approved shall be USD based 17% XIRR (with USD indexation). Further, a USD indexation mechanism for ROE/ROEDC components is being added to the order part.
52. The return allowed to the Pehur shall be considered the maximum ceiling and that return earned beyond the stated limit, if any, shall be adjusted, for which a claw back mechanism shall be prescribed later.

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Whether to continue allowing WHT on dividends @7.5% in the instant case or not?

53. This particular issue was also not raised by the Petitioner in its Modification Petition, however, was added due to the fact that the Authority, in the recent decisions, has decided to discontinue provision of withholding tax (WHT) on dividends as pass-through item.
54. Regarding the issue of WHT on dividends, CPPA-G vide letter dated October 4, 2021, submitted the following comments:

CPPA-G is of the view that withholding tax on dividends is the tax on the income of the shareholder, not on the income of the project company therefore should not be allowed as pass-through item. Further, the Authority, in its approved Tariff Guideline clearly states that the WHT on dividend shall not be allowed as pass-through item. In view of the above, WHT on dividend should not be allowed as pass-through item to the Company.

FINDINGS OF THE AUTHORITY

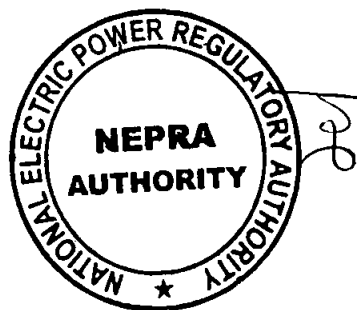
55. In order to remain consistency with recent determinations and considering the fact that WHT on dividends is not a tax on PEDO or any other power project company, rather it is a tax on investors, the Authority has decided that WHT on dividends, in the instant case, is being disallowed.

Whether the benchmark net annual energy of the plant of 57.7 GWh is justified?

56. This particular issue was also not raised by the Petitioner in its Modification Petition, however, the same was added to ascertain any negative impact of the Petitioner's request to shift from take or pay to take and pay based tariff regime.
57. The Authority noted that since commissioning, Pehur has not delivered the approved annual benchmark energy of 57.7 gWh due to various reasons identified by PEDO itself. As decided above, the hydrological risk is now to be borne by the power producer which means payment to the PEDO is to be made on actual energy supplied. However, for tariff computation purposes, a benchmark energy shall be required for which the Authority has decided to maintain its earlier decision in the matter and decided to assume benchmark energy of 57.7 GWh for tariff calculation purposes.

ORDER

58. In pursuance of section 7(3)(a) of the Regulation of Generation, Transmission, and Distribution of Electric Power Act, 1997 read with NEPRA (Tariff Standards & Procedure) Rules, 1998, Pakhtunkhwa Energy Development Organization (hereinafter "PEDO" or the "Petitioner") is allowed to charge for its Pehur Hydropower Project, the following specified/approved tariff for delivery of electricity to the Central Power Purchasing Agency (hereinafter referred to as "CPPA-G" or the "Power Purchaser"):



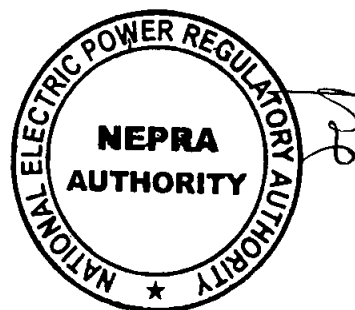


TARIFF TABLE

Tariff Components	Year 1-25 (Rs./kWh)	Indexation
Fixed O&M Local	0.6783	WPI
Debt Service	1.6079	NIL
Return on Equity	0.9710	US\$/PKR
ROEDC	0.2248	US\$/PKR
Variable O&M — Foreign	0.0675	US\$/PKR & US CPI
Variable O&M — Local	0.0675	WPI
Water Use Charge	0.1500	WPI

- i. The tariff has been calculated on the basis of benchmark net annual energy production of 57.7 GWh. Net energy annual energy supplied to the Power Purchaser in a year, in excess of benchmark energy of 57.7GWh will be charged at 10% of prevailing tariff.
 - ii. The tariff is based on Take & Pay accordingly a single part tariff has been allowed to the Project.
 - iii. This tariff modification shall be applicable from the period beginning March 01, 2010 (COD) till June 04, 2020. Beyond the applicable period, in case, PEDO wants to re-enter and sell the energy from Pehur HPP to the national grid/CPPA-G/DISCOs, then such a re-entry shall be governed under the then applicable rules/regulation subject to the prior approval of the Authority.
 - iv. Authority hereby directs CPPA-G to ensure arrears payments since COD (net of payment already received by PEDO on account of Pehur sale to PESCO/CPPA-G) at the rate modified through this decision. CPPA-G shall ensure payment is made to PEDO by CPPA-G within 30 days of issuance of Authority's decision.
 - v. In the above tariff no adjustment for CERs has been accounted for. However, upon actual realization of CERs, the same shall be dealt with in accordance with the approved mechanism as given in the Federal Government's Policy for Renewables.
 - vi. Annual ROE & ROEDC components at 17% (XIRR) assuming monthly payments has been approved.
 - vii. The component-wise tariff is indicated at **Annex-I**.
 - viii. Debt Service Schedule is attached as **Annex-II**.
59. The following indexations shall be applicable to reference tariff:

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I. Pass-Through Items

No provision for income tax has been accounted for in the tariff. If PEDO is obligated to pay any tax on its income, the exact amount paid by the company shall be reimbursed to CPPA-G to PEDO on production of original receipts. This payment will be considered as a pass-through (as Rs./kWh) hourly payment spread over a 12 months period in addition to the capacity purchase price proposed in the reference tariff. Furthermore, in such a scenario, PEDO shall also submit to CPPA-G details of any tax shield savings and CPPA-G shall deduct the amount of these savings from its payment to PEDO on account of taxation. However, withholding tax on dividends shall not be a pass through item.

II. Hydrological Risk

Hydrological risk shall be borne by the Power Producer.

III. Indexations

The following indexation shall be applicable to the reference tariff:

a) Indexation applicable to O&M

The local part of O&M cost will be adjusted on account of Inflation (WPI) and O&M foreign component will be adjusted on account of variation in dollar/Rupee exchange rate and US CPI. Quarterly Adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1st July, 1st October, 1st January & 1st April respectively on the basis of the latest available information with respect to WPI (notified by the Federal Bureau of Statistics), US CPI (notified by US Bureau of Labor Statistics) and revised TT & OD Selling rate of US Dollar as notified by the National Bank of Pakistan. The mode of indexation will be as under:

(i) Fixed O&M

$$F O\&M_{(L,REV)} = 0.6783 * WPI_{(REV)} / 159.31$$

Where:

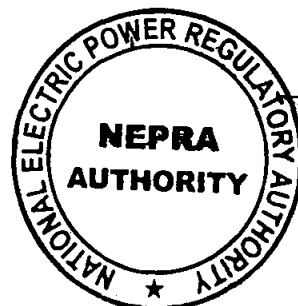
$$F O\&M_{(L,REV)} = \text{the revised applicable Fixed O\&M Local Component indexed with WPI}$$

$$WPI_{(REV)} = \text{the Revised Wholesale Price Index (Manufacturers)}$$

$$WPI_{(REF)} = 159.31 \text{ wholesale price index (Manufacturers) of February 2010 notified by the Federal Bureau of Statistics}$$

FA

NA





(ii) **Variable O&M**

The formula for indexation of Variable O&M component will be as under:

$$V O\&M_{(FREV)} = 0.0675 * US CPI_{(REV)} / 216.741 * ER_{(REV)} / 84.90$$

$$V O\&M_{(LREV)} = 0.0675 * WPI_{(REV)} / 159.31$$

Where:

$V O\&M_{(FREV)}$ = the revised applicable Variable O&M Foreign component indexed with US CPI and currency fluctuation

$V O\&M_{(LREV)}$ = the revised applicable Variable O&M Local component indexed with WPI

$US CPI_{(REF)}$ = 216.741 US CPI for the month of February 2010

$ER_{(REV)}$ = the revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

$WPI_{(REV)}$ = the revised wholesale Price Index (Manufacturers)

$WPI_{(REF)}$ = 159.31 wholesale price index (Manufacturers) of February 2010 as notified by the Federal Bureau of Statistics

b) **Water Use Charge**

Water Use Charge will be paid on units delivered basis and will be indexed with Wholesale Price Index (WPI) annually.

$$WUC_{(REV)} = 0.1500 * WPI_{(REV)} / 159.31$$

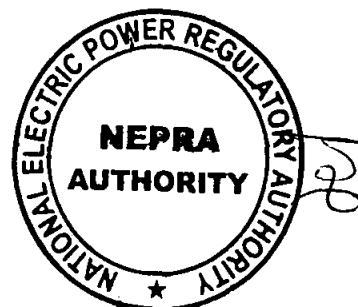
Where

$WUC_{(REV)}$ = the revised Water Use Charge component indexed with Wholesale Price Index (WPI)

$WPI_{(REV)}$ = the revised wholesale Price Index (Manufacturers)

$WPI_{(REF)}$ = 159.31 wholesale price index (Manufacturers) of February 2010 notified by the Federal Bureau of Statistics

fil *NA*





c) Return on Equity & Return on Equity During Construction

The return on equity component of tariff including return on equity during construction will be adjusted on the basis of revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan according to the following formula:

$$ROE_{(REV)} = ROE_{(REF)} * ER_{(REV)} / 84.90$$

$$ROEDC_{(REV)} = ROEDC_{(REF)} * ER_{(REV)} / 84.90$$

Where:

$$ROE_{(REV)} = \text{Revised return on equity component of tariff expressed in Rs./kWh}$$

$$ROE_{(REF)} = \text{Reference return on equity component of tariff expressed in Rs./kWh}$$

$$ROEDC_{(REV)} = \text{Revised return on equity during construction component of tariff expressed in Rs./kWh}$$

$$ROEDC_{(REF)} = \text{Reference return on equity during construction component of tariff expressed in Rs./kWh}$$

$$ER_{(REV)} = \text{The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan}$$

d) Adjustment Of Insurance During Operation

No insurance during operation component has been assumed. However, for adjustment/reimbursement of insurance cost, the Petitioner shall submit all the documentary evidence to the satisfaction of the Authority for annual adjustment of past insurance costs as per actual which shall not exceed what has been submitted to NEPRA as evidence during the proceeding of the instant petition. Accordingly, actual past insurance components year-wise shall be determine for reimbursement purposes.

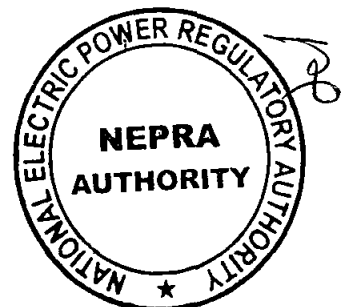
IV. Terms and Conditions

Power Curve of the Hydel Power Complex:

The power curve of the Hydel Power plant shall be verified by the Power Purchaser, as part of the Commissioning tests according to the latest IEC standards and shall be used to measure the performance of the hydel generating units.

Emission Trading/ Carbon Credits:

PEDO would process and obtain emissions/carbon credits expeditiously and credit the proceeds to the Power Purchaser as per the policy issued by the Federal Government and agreed terms between the generator and the Power Purchaser.






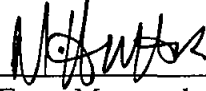
V. Others:


- i. The Authority has allowed/approved only those cost(s), term(s), condition(s), provision(s), etc. which have been specifically approved in this tariff determination. Any cost(s), term(s), condition(s), provision(s), etc. contained in the tariff petition or any other document which are not specifically allowed/approved in this tariff determination, should not be implied to be approved, if not adjudicated upon in this tariff determination.
- ii. In case the company earns annual profit in excess of the approved return on equity (including ROEDC), then that extra amount shall be shared between the power producer and consumers through a clawback mechanism to be decided by the Authority at the time of COD tariff adjustment.
- iii. The above terms and conditions shall be made part of the EPA and the same shall be submitted before the Authority for approval.

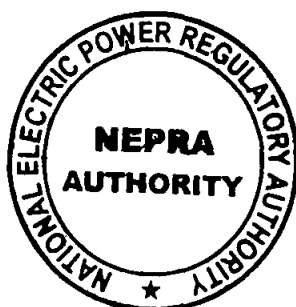
The order along with reference tariff table and debt service schedule as attached thereto are recommended for notification by the Federal Government in the official gazette in accordance with Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.


AUTHORITY


(Engr. Rafique Ahmad Shaikh)
Member


(Engr. Maqsood Anwar Khan)
Member


(Tauseef H. Farooqi)
Chairman




17
05 x 22

18 MW Pehur Hydropower Project TARIFF TABLE

Year	Variable O&M Local	Variable O&M Foreign	Water Use Charge	Fixed O&M Local	Return on Equity	ROE During Construction	Loan Repayment	Interest Charge	Total
	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh
1	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.0832	1.5247	3.7670
2	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.0939	1.5141	3.7670
3	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.1059	1.5021	3.7670
4	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.1194	1.4886	3.7670
5	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.1346	1.4733	3.7670
6	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.1519	1.4561	3.7670
7	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.1713	1.4367	3.7670
8	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.1931	1.4148	3.7670
9	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.2178	1.3901	3.7670
10	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.2457	1.3623	3.7670
11	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.2771	1.3309	3.7670
12	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.3125	1.2955	3.7670
13	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.3524	1.2555	3.7670
14	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.3975	1.2105	3.7670
15	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.4483	1.1597	3.7670
16	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.5055	1.1024	3.7670
17	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.5702	1.0378	3.7670
18	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.6430	0.9649	3.7670
19	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.7252	0.8827	3.7670
20	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.8179	0.7900	3.7670
21	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.9224	0.6855	3.7670
22	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	1.0403	0.5676	3.7670
23	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	1.1733	0.4347	3.7670
24	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	1.3232	0.2847	3.7670
25	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	1.4923	0.1156	3.7670
Levelized Tariff	0.0675	0.0675	0.1500	0.6783	0.9710	0.2248	0.2857	1.3222	3.7670

The above rate is limited to an annual energy production upto 57.704 GWh. Any generated energy beyond 57.704 GWh an year will be charged at 10% of the prevailing tariff.

Net Capacity at COD

17.9 MW

Exchange Rate at COD

84.9 PKR/US\$

US CPI

216.741

WPI (Manufacturers)

159.31



18 MW Pehur Hydropower Project
Debt Servicing Schedule

Period	Local Debt				Debt Service Million Rs.	Annual Principal Repayment Rs./KWh.	Annual Interest Rs./KWh	Annual Debt Servicing Rs./KWh
	Principal Million Rs.	Repayment Million Rs.	Mark-Up Million Rs.	Balance Million Rs.				
1	722.33	1.15	22.05	721.18	23.1962	0.0832	1.5247	1.6079
	721.18	1.18	22.01	720.00	23.1962			
	720.00	1.22	21.98	718.78	23.1962			
	718.78	1.26	21.94	717.53	23.1962			
	717.53	1.29	21.90	716.23	23.1962			
2	716.23	1.33	21.86	714.90	23.1962	0.0839	1.5141	1.6079
	714.90	1.37	21.82	713.53	23.1962			
	713.53	1.42	21.78	712.11	92.7846			
	712.11	1.46	21.74	710.65	23.1962			
	710.65	1.50	21.69	709.15	23.1962			
3	709.15	1.55	21.65	707.80	23.1962	0.1059	1.5021	1.6079
	707.80	1.60	21.60	706.00	23.1962			
	706.00	1.65	21.55	704.36	92.7846			
	704.36	1.70	21.50	702.68	23.1962			
	702.68	1.75	21.45	700.92	23.1962			
4	700.92	1.80	21.40	699.11	23.1962	0.1194	1.4886	1.6079
	700.00	6.89	85.90	699.11	92.7846			
	699.11	1.86	21.34	697.28	23.1962			
	697.26	1.91	21.28	695.35	23.1962			
	695.35	1.97	21.23	693.38	23.1962			
5	693.38	2.03	21.17	691.35	23.1962	0.1346	1.4733	1.6079
	699.11	7.77	85.02	691.35	92.7846			
	691.35	2.09	21.10	689.25	23.1962			
	689.25	2.16	21.04	687.10	23.1962			
	687.10	2.22	20.97	684.87	23.1962			
6	684.87	2.29	20.91	682.58	23.1962	0.1519	1.4561	1.6079
	691.35	8.76	84.02	682.58	92.7846			
	682.58	2.36	20.84	680.22	23.1962			
	680.22	2.43	20.76	677.79	23.1962			
	677.79	2.51	20.69	675.28	23.1962			
7	675.28	2.58	20.61	672.70	23.1962	0.1713	1.4367	1.6079
	682.58	9.88	82.90	672.70	92.7846			
	672.70	2.66	20.53	670.04	23.1962			
	670.04	2.74	20.45	667.30	23.1962			
	667.30	2.83	20.37	664.47	23.1962			
8	664.47	2.91	20.28	661.56	23.1962	0.1931	1.4148	1.6079
	672.70	11.15	81.64	661.56	92.7846			
	661.56	3.00	20.19	658.55	23.1962			
	658.55	3.09	20.10	655.46	23.1962			
	655.46	3.19	20.01	652.27	23.1962			
9	652.27	3.29	19.91	648.99	23.1962	0.2178	1.3901	1.6079
	661.56	12.57	80.21	648.99	92.7846			
	648.99	3.39	19.81	645.60	23.1962			
	645.60	3.49	19.71	642.11	23.1962			
	642.11	3.60	19.60	638.51	23.1962			
10	638.51	3.71	19.49	634.81	23.1962	0.2457	1.3623	1.6079
	648.99	14.18	78.61	634.81	92.7846			
	634.81	3.82	19.38	630.99	23.1962			
	630.99	3.94	19.26	627.05	23.1962			
	627.05	4.06	19.14	623.00	23.1962			
11	623.00	4.18	19.02	618.82	23.1962	0.2771	1.3308	1.6079
	634.81	15.99	76.80	618.82	92.7846			
	618.82	4.31	18.89	614.51	23.1962			
	614.51	4.44	18.76	610.08	23.1962			
	610.08	4.57	18.62	605.50	23.1962			
12	605.50	4.71	18.48	600.79	23.1962	0.3125	1.2955	1.6079
	618.82	18.03	74.75	600.79	92.7846			
	600.79	4.86	18.34	596.93	23.1962			
	596.93	5.01	18.19	593.00	23.1962			
	593.00	5.16	18.04	588.77	23.1962			
13	588.77	5.32	17.88	584.45	23.1962	0.3524	1.2555	1.6079
	600.79	20.34	72.45	584.45	92.7846			
	584.45	5.48	17.72	579.96	23.1962			
	579.96	5.65	17.55	575.31	23.1962			
	575.31	5.82	17.38	569.51	23.1962			
14	569.51	5.99	17.20	563.52	23.1962	0.3975	1.2105	1.6079
	588.77	22.94	66.85	563.52	92.7846			
	563.52	6.18	17.02	557.34	23.1962			
	557.34	6.37	16.83	549.97	23.1962			
	549.97	6.56	16.64	538.41	23.1962			
15	538.41	6.76	16.44	531.65	23.1962	0.4483	1.1597	1.6079
	557.34	25.87	66.92	531.65	92.7846			
	531.65	6.97	16.23	524.68	23.1962			
	524.68	7.18	16.02	517.50	23.1962			
	517.50	7.40	15.80	510.11	23.1962			
16	510.11	7.63	15.57	502.48	23.1962	0.5055	1.1024	1.6079
	531.65	28.17	63.61	502.48	92.7846			
	502.48	7.86	15.34	494.62	23.1962			
	494.62	8.10	15.10	486.52	23.1962			
	486.52	8.34	14.85	478.18	23.1962			
17	478.18	8.60	14.60	469.58	23.1962	0.5702	1.0378	1.6079
	502.48	32.90	59.86	469.58	92.7846			
	469.58	8.86	14.33	460.72	23.1962			
	460.72	9.13	14.06	451.58	23.1962			
	451.58	9.41	13.78	442.17	23.1962			
18	442.17	9.70	13.50	432.47	23.1962	0.6430	0.9649	1.6079
	469.58	37.11	55.68	432.47	92.7846			
	432.47	9.99	13.20	422.48	23.1962			
	422.48	10.30	12.90	412.18	23.1962			
	412.18	10.61	12.58	401.57	23.1962			
19	401.57	10.94	12.26	390.63	23.1962	0.7252	0.8827	1.6079
	432.47	41.86	50.94	390.63	92.7846			
	390.63	11.27	11.92	379.35	23.1962			
	379.35	11.62	11.58	367.74	23.1962			
	367.74	11.97	11.23	355.77	23.1962			
20	355.77	12.34	10.86	343.43	23.1962	0.8179	0.7900	1.6079
	390.63	47.20	45.58	343.43	92.7846			
	343.43	12.71	10.48	330.72	23.1962			
	330.72	13.10	10.10	317.62	23.1962			
	317.62	13.50	9.70	304.12	23.1962			
21	304.12	13.91	9.28	290.20	23.1962	0.9224	0.6855	1.6079
	343.43	53.23	39.56	290.20	92.7846			
	290.20	14.34	8.86	275.87	23.1962			
	275.87	14.78	8.42	261.09	23.1962			
	261.09	15.23	7.97	245.86	23.1962			
22	245.86	15.69	7.50	230.17	23.1962	1.0403	0.5676	1.6079
	290.20	60.03	32.75	230.17	92.7846			
	230.17	16.17	7.03	214.00	23.1962			
	214.00	16.66	6.53	197.34	23.1962			
	197.34	17.17	6.02	180.17	23.1962			
23	180.17	17.70	5.50	162.47	23.1962	1.1733	0.4347	1.6079
	230.17	67.70	25.06	162.47	92.7846			
	162.47	18.24	4.96	144.23	23.1962			
	144.23	18.79	4.40	125.44	23.1962			
	125.44	19.37	3.83	106.07	23.1962			
24	106.07	19.96	3.24	86.11	23.1962	1.3232	0.2847	1.6079
	162.47	76.36	16.43	86.11	92.7846			
	86.11	20.57	2.63	65.56	23.1962			
	65.56	21.20	2.00	44.35	23.1962			
	44.35	21.84	1.35	22.51	23.1962			
25	22.51	22.51	0.89	0.00	23.1962	1.4923	0.1156	1.6079
	86.11	86.11	6.87	0.00	92.7846			