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Islamic Republic of Pakistan

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No. NEPRA/R/ADG(Trf)/TRF-554/MHP-2021/3004-3006
February 24, 2022

Subject: **Determination of the Authority in the matter of Petition for Tariff Modification filed by Pakhtunkhwa Energy Development Organization (PEDO) for 2.6 MW Machai Hydropower Project located at District Mardan, Khyber Pakhtunkhwa Province** (Case No. NEPRA/TRF-554/MHP-2021)

Dear Sir,

Please find enclosed herewith subject Determination of the Authority along with Annexure I & II (21 Pages) in Case No. NEPRA/TRF-554/MHP-2021.

2. The Determination 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 Determination 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 along with Annex-I (Reference Tariff) and Annex-II (Debt Servicing Schedule) of the Authority Determination is to be notified in the official Gazette.

Enclosure: As above

24/2/22

(Iftikhar Ali Khan)

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.

DETERMINATION IN THE MATTER OF PETITION FOR TARIFF MODIFICATION FILED BY PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION (PEDO) FOR 2.6 MW MACHAI HYDROPOWER PROJECT LOCATED AT DISTRICT MARDAN, KHYBER PAKHTUNKHWA PROVINCE

BACKGROUND

1. Machai Hydropower Project (hereinafter referred to as the "**Project**") is a low-head, run-of-the canal hydropower project of the Pakhtunkhwa Energy Development Organization (hereinafter referred to as "**PEDO**" or the "**Petitioner**") located on fall structure of Machai Canal, District Mardan of Khyber Pakhtunkhwa Province.

2. For this purpose, the Authority issued a generation license to the Project on November 17, 2013, and approved EPC stage generation tariff of Rs. 5.6200/kWh or US Cents 5.7938/kWh, on March 14, 2014 (hereinafter referred to as the "**Tariff Determination**"). The said tariff was single-part tariff with hydrological risk borne by the power purchaser.

FILING OF TARIFF MODIFICATION PETITION

3. The Petitioner, vide letter dated March 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 March 14, 2014.

4. The tariff modification petition was admitted by the Authority on April 06, 2021 for further processing.

HEARING

5. In order to proceed further, the Authority decided to conduct an online hearing in the matter. Accordingly, the notice of admission/hearing, along-with the list of issues, were published in newspapers on May 20, 2021, and individual notices were sent to stakeholders on May 21, 2021. The list of issues framed for this hearing were as follows:

   I Whether to allow Pre-COD sale of electricity at the tariff applicable for the first year of operations minus debt servicing component of tariff?

   II Whether to allow tariff on Take and Pay Basis?

   III Whether to allow debt repayment period of 30 years?

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IV Whether NEPRA (Selection of Operations and Maintenance Contractors by Generation Companies) Guidelines, 2021, shall be applicable in the instant case?

6. In response to individual notices, comments from Punjab Power Development Board (PPDB) were received. PPDB vide letter dated June 04, 2021, has supported the development of this Project to harness the indigenous resource. No intervention requests were received.

7. Hearing in the matter was held as per schedule on Tuesday, June 1, 2021, at 10:00 AM via Zoom which was participated by, among others, the Petitioner, the Petitioner's consultant but no representatives from Peshawar Electric Supply Company (hereinafter referred to as "**PESCO**") were present which was the power purchaser identified in the Tariff Determination. The Petitioner, with the support of its consultant, presented its case for modification in tariff.

8. Subsequent to the hearing, the Petitioner vide letter dated June 7, 2021, submitted additional submissions in support of its claims which are discussed under the relevant sections.

PESCO's Comments:

9. Since no representative from PESCO was present during the hearing, the Authority showed strong displeasure and vide letter dated June 10, 2021, directed PESCO, being the concerned DISCO, in the instant case, to submit its issue-wise responses. PESCO vide letter dated July 8, 2021, submitted its detailed response which included general comments with regards to the implementation status of the Project and issue-wise responses. Only the general comments submitted by PESCO are summarized here while the issues-wise comments are discussed under the relevant sections:

a. According to PESCO, the technical committee for commissioning tests has been constituted and that Project commissioning tests have been performed on May 18, 2020, duly witnessed by the Independent Engineer (IE). According to PESCO, the IE has also issued a readiness certificate after tests and that these facts have been communicated to PEDO vide letter dated June 17, 2020.

b. Further, according to PESCO, the Chief Secretary KP gave a statement in the honourable Supreme Court in the Suo-Moto case No. 13 of 2018 that the provincial and federal governments will resolve issues of generation projects of KP. Subsequently, according to PESCO, a report was submitted in the honourable

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Supreme Court of Pakistan wherein it was informed that an EPA will be signed by PESCO in the instant case and that PEDO may approach NEPRA for revision in tariff in lieu of assuming hydrological risk and redetermination of tariff on Take and Pay mode. According to PESCO, the honourable Supreme Court considered the submissions along with the complete report as part of the order of the Apex Court dated 12.07.18 and disposed of the matter accordingly.

c. Subsequently, according to PESCO, it requested PEDO vide a series of letters to provide documents required for execution of EPA, including certificate from the IE, tariff on Take and Pay basis as per Supreme Court of Pakistan's decision dated 12.07.2018 and actions taken as per NEPRA directions in the determination dated 14.03.2014.

d. Further, for the entire period during which the subject Project remained operational, PESCO has provided its own working of the units it has imported and exported from and to the Project. Finally, through its comments, PESCO has requested the Authority to review the following clauses of the order of the Authority in the instant case, but it was observed that PESCO has not stated in clear terms what is required to be done on these highlighted issues:

  e. Clause (i): The reference tariff has been calculated on the basis of net annual benchmark energy generation of 15.784 GWh, at an annual plant capacity factor of 70%, for installed capacity of 2.6 MW.

  f. Clause (vi): The above tariff is applicable for a period of thirty years commencing from the commercial operations date (COD).

  g. One Time Adjustment Clause (f): The interest during construction will be adjusted at COD on the basis of actual debt drawdowns (within the overall debt allowed by the Authority at COD), actual PKR/US$ exchange rate variation for foreign loan denominated in the US$ and actual interest rates not exceeding the limit of 6 months LIBOR per annum plus 0.6%, during the project construction period allowed by the Authority.

  h. Clause (i): At the COD for all project costs payable in PKR, the amounts allowed in US$ will be converted into PKR using the reference PKR/dollar rate of 97.

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10. During deliberations of the aforementioned issues for hearing, additional issues regarding the case came up which were not made part of the proceedings previously. Therefore, in order to seek comments of stakeholders, including the Petitioner, the Authority directed to conduct a hearing on those additional issues. The list of these additional issues is as follows:

    I Whether to allow insurance during operations at a maximum of 1.35% of EPC or otherwise?

    II Whether to reduce ROE & ROEDC from 17% with USD indexation to 10% without USD indexation, similar to the Federal Government recently allowed projects including WAPDA/GENCOs etc.?

    III Whether to allow Withholding Tax on Dividends @ 7.5% rate in the instant case or otherwise?

    IV Whether to include provision for claw back of excess return or otherwise?

11. Accordingly, another hearing in the matter was fixed for Wednesday, October 20, 2021, for which hearing notice, along-with the list of additional issues, were published in newspapers on October 14, 2021, and individual notices were sent to stakeholders on October 14, 2021. Hearing was held as per schedule. During the second hearing, representatives from CPPA-G were also present and their comments are addressed under the relevant issues.

ISSUES FOR THE HEARING

Whether to allow Pre-COD sale of electricity at the tariff applicable for the first year of operations minus debt servicing component of tariff?

12. According to the Petitioner, the Project has been operational since November 2016 and has been providing electricity to PESCO, however, the Project's COD could not be declared due to non-formation of metering committees which were to be formed subsequent to the execution of the EPA.

13. According to the Petitioner, PESCO intends to enter into an EPA on take and pay basis and, therefore, it has requested the Petitioner to obtain tariff on take and pay basis from the Authority.

14. The Petitioner stated that since the EPA has not been executed between the Petitioner and PESCO, the Petitioner has been unable to invoice PESCO. In this regard, the Petitioner has provided the details of the number of units exported before COD testing and installation of import/export meters and the units exported post-installation of import/export meters. The

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Petitioner further submitted that since the COD has not been declared, further electricity is being injected to the grid in addition to the details provided within the modification petition.

15. According to the Petitioner, there is no provision of pre-COD sale of electricity in the Authority's determination dated March 14, 2014, therefore, the Project cannot realize any revenue occurring out of Pre-COD supply of electricity to the grid.

16. In this regard, the Petitioner has provided precedents where the Authority had allowed Pre-COD sale of electricity to other projects including Pre-COD sale of energy applicable in tariff excluding principal repayment of debt component and interest component in the cases of upfront tariffs of hydel, wind and bagasse power projects. The Petitioner further highlighted the case of upfront tariff for small hydro power generation projects wherein pre-COD sale was allowed at applicable tariff excluding principal repayment of debt component and interest component. Similarly, the Petitioner submitted that in the case of Pak-Pattan Hydropower Project, the Authority allowed pre-COD sale at applicable tariff minus the repayment of debt and interest component.

17. Given the above, the Petitioner requested the Authority to allow a claim of compensation from the power purchaser i.e., PESCO for all electricity supplied into the grid system prior to the achievement of COD at the tariff rate applicable for the first year of operations minus the debt servicing component of tariff.

18. PESCO, vide letter dated July 8, 2021, submitted that the matter of tariff for Pre-COD Sale relates to NEPRA. However, according to PESCO, NEPRA has allowed pre-COD sale of electricity to power producers in the upfront tariff, subject to the terms and conditions of the PPA, at the applicable tariff excluding principal repayment of debt component and interest component while PEDO here requests to allow claim of compensation from PESCO for all electricity supplied to the grid system prior to the achievement of COD at the tariff rate applicable for the first year of operations minus the debt servicing component of tariff.

19. The Authority noted that sale of power before COD occurs when the plant is synchronized with the grid and the power is generated as a result of conducting certain tests such as initial capacity test, reliability run test, turbine governor operation; minimum load capability etc. These tests are generally called commissioning tests which are agreed well before COD through EPAs. In the instant case, it was noted that as per the information provided, no EPA has been agreed. However, as stated by the Petitioner, the Project has been providing electricity since November 2016, therefore, the Authority has decided to allow a tariff of variable O&M, which is also consistent with the Standard PPA of hydropower projects, as

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Pre-COD tariff in the instant case and the same shall be incorporated in the eventual EPA with concerned Buyer.

Whether to allow Tariff on Take and Pay Basis?

20. According to the Petitioner, the Authority determined tariff for the Project on "Take or Pay" basis whereby the hydrological risk was to be borne by the Power Purchaser, however, PEDO intends to enter into EPA with PESCO on "Take and Pay" basis because PEDO intends to incorporate an exit clause in the EPA so that it can enter into wheeling arrangement subsequently by exercising the exit clause.

21. Further, according to the Petitioner, PESCO, vide letter dated April 8, 2019, requested the Petitioner to get the tariff modified to take and pay basis so that it can enter into an EPA. Further, while highlighting the benefits of a take and pay based tariff, the Petitioner submitted that inter alia a tariff of take and pay basis will reduce the overall burden of capacity payments on consumers. Given the above, the Petitioner has requested the Authority to modify the tariff on a "take and pay" basis.

22. PESCO vide its comments dated July 8, 2021, submitted in this regard that PEDO considers it essential to mention here that the EPA provided was the draft and the same will be finalized after the fulfilment of all the codal formalities and existing prevailing rules/regulations. Any clause insertion cannot be the sole prerogative of a single party and the same would be reviewed and analysed and PESCO will proceed according to its obligations which include but not limited to the approval of PESCO BOD, GOP/MoE policies and NEPRA Rules & Regulations in vogue.

23. The Authority noted that it approved a single-part tariff for the Project based on net annual plant factor of 15.784 GWh and that for this Project, the hydrological risk was to be taken by power purchaser.

24. In the most recent decisions for hydro power projects, particularly Karora HPP, Jabori HPP, Lawi HPP and Koto HPP, NEPRA has 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 to be charged at 10%.

25. The Authority observed that the tariff in the instant case will not change as the benchmark energy on which the tariff is calculated will remain the same. However, the power purchaser and the end-consumers will benefit from the proposed arrangement as it will reduce the additional burden of capacity payments to be made in case of shortfall of water resource.

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26. Since the Petitioner itself has requested to change its tariff regime from the existing Take or Pay basis to Take and Pay basis, therefore, the same is being allowed meaning thereby that hydrological risk shall now be borne by the power producer and any excess generation beyond the determined annual benchmark energy shall be charged at 10% of the prevailing tariff. In case the PEDO wants to exit and sell the energy from Machai HPP to the buyer(s) other than the national grid/CPPA-G/DISCOs, then the terms of such arrangement shall be mutually agreed between parties to the EPA and, reflected in the draft EPA and submitted before the approval of the Authority.

Whether to allow a debt repayment period of 30 years?

27. According to the Petitioner, the Authority allowed tariff to the Project based on a 20-year debt repayment period, whereby a higher tariff is allowed in the initial 20 years and a lower tariff in the last 10 years. The Petitioner has requested the Authority to allow a debt term of 30 years which according to the Petitioner shall result in decreasing the levelized tariff from US Cents 5.7938/kWh to US Cents 5.3462/kWh. According to the Petitioner, in the case of similar hydropower projects, the Authority has also allowed tariffs on 30-year debt repayment periods.

28. Given the above, in order to reduce the tariff on a levelized basis, the Petitioner has requested the Authority to allow a debt repayment period to cover the entire tariff control period of 30-years.

29. The Petitioner vide letter dated June 7, 2021, submitted that PEDO is considering to take the Project for wheeling, whereby electricity of the Project shall be sold to industrial consumers in KPK Province. According to the Petitioner, the draft EPA shared with PESCO contains exit clauses and no concern has been raised by PESCO on the same. According to PEDO, if the debt period is increased to 30 years there cannot be any financial implications for PESCO, (if PEDO exits under the EPA for wheeling) however, there will be breakup cost and other commercial issues faced by the Purchaser if debt period is 20 years and a higher debt component is paid in the said period. According to PEDO, higher tariff for 20 years will reduce costs for consumers. Increase in debt period results in a net positive impact of USD 667,408 in present value terms if discounted at the rate of 10%.

30. PESCO vide its comments on this issue submitted that this matter relates to NEPRA, however, PEDO may have provided solid justification regarding their instant plea.

31. It is pertinent to mention here that the Project was approved by the Authority on the basis of 80:20 debt-equity ratio. The Authority approved 100% foreign debt with repayment

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period of 20 years and cost of debt of 6-month LIBOR + 0.60% spread. At the time of approval, the reference 6-month LIBOR was 0.5%, therefore, the total cost of debt worked out as 1.1%. Based on that, the levelized tariff, which was worked out on a discount rate of 10%, was Rs. 5.6200/kWh.

32. In the instant case, the request of the Petitioner to extend the approved debt of USD 6.32 million to 30 years has been reviewed and it was noted that the requested debt extension from 20 years to 30 years is favourable to consumers on NPV basis and that the Petitioner/ lender have also agreed to such a change in debt terms, therefore, the Petitioner's request in this regard is being granted.

33. Accordingly, an extension in debt tenor by 10 years, in the instant case, shall result in decrease of Rs. 0.4349/kWh in the reference levelized tariff that has been worked out using a discount rate of 10%.

Whether NEPRA (Selection of Operations and Maintenance Contractors by Generation Companies) Guidelines, 2021, shall be applicable in the instant case?

34. The Petitioner, vide letter dated June 7, 2021, submitted that PEDO, being a public entity, followed applicable public procurement rules and regulations for selection of O&M contractors. Applicable public procurement rules are substantially similar with NEPRA O&M Guidelines, 2021. Further, PEDO submitted that it has selected O&M contractor of the Project through a competitive bidding process in 2014. Moreover, the Petitioner submitted that these guidelines were issued in 2021 and that they are applicable to all upcoming power generation projects, therefore, these Guidelines does not apply to Machai Hydropower Project.

35. The Authority noted that NEPRA (Selection of Operation and Maintenance Contractors by Generation Companies) Guidelines, 2021, shall be applicable to all the upcoming power generation projects only and the subject project has acquired the Generation License before notification of the Guidelines. Hence, the Authority is of the view that these Guidelines shall not be applicable in the instant case, therefore, the issue stands addressed.

Whether to allow insurance during operations at a maximum of 1.35% of EPC or otherwise?

36. No written comments have been received from the Petitioner on this issues, however, during the second hearing, the Petitioner submitted that we are not requesting modification of the determined 1.35% of EPC cost as insurance during operations, however, the same

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should be enough to cover the cost of insurance to be procured by NICL. The Petitioner further submitted that it obtained insurance during construction from NICL which accounts for as 0.79% of EPC which actually varies. Therefore, the Petitioner has requested a cap of 0.8% of EPC as cap for insurance during operations.

37. In this regard, the representative of CPPA-G, during the second hearing, submitted that the Authority in 2018 issued Guidelines for Tariff Benchmarks which allows for 1% of EPC as the cost for insurance during operations for projects like the one under discussion. Therefore, the same should be brought in line with the Guidelines as insurance risks, with the passage of time have been mitigated in other projects as well. However, the CPPA-G vide letter dated November 05, 2021, submitted that the same may be aligned with the recently issued decisions of the Authority for P&G Energy, Iran Pak, Shafi Energy, Moro Power Company which is 0.4% of the EPC cost (capped) subject to its downwards revision only based on actual.

38. The Authority noted that it had allowed insurance during operations to the Project at a maximum of 1.35% of the EPC cost. However, the Petitioner itself, during the second hearing, had agreed to insurance cost with a maximum cap of 0.8% of EPC cost. The Authority has hence decided to decrease the insurance during operations cost of the instant Project from the existing cap of 1.35% of EPC to a maximum cap of 0.8% of EPC or actual whichever is lower. Accordingly, insurance component decreases from Rs. 0.5452/kWh to Rs. 0.3231/kWh.

Whether to reduce ROE & ROEDC from 17% with USD indexation to 10% without USD indexation, similar to the Federal Government recently allowed projects including WAPDA/GENCOs etc.?

39. No written comments have been received from the Petitioner on this issues, however, during the second hearing, the Petitioner submitted that firstly, the main objective of the decision of CCOE dated August 27, 2020, was to reduce capacity charges. According to the Petitioner, when it has itself requested a tariff in the instant case based on Take and Pay regime, its Project falls outside of the purview the CCOE's aforementioned decision.

40. Secondly, according to the Petitioner, in the said CCOE's decision, QA Solar return was reduced to 12% on Take and Pay basis, so reduction in QA Solar's return should be the starting point in the instant case. The Petitioner further submitted the risks associated with a solar project are not consistent to the risks associated with a hydro project. According to the Petitioner, the construction period of a solar project is typically 8 to 10 months versus 3 to 4 years in the instant case and the hydrological risks associated with the Project are higher than

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the solar irradiance risks. Given the above, according to the Petitioner, neither WAPDA nor solar are comparable in terms of risks associated with the instant Project.

41. The Petitioner finally submitted that as a reference, the latest (September bidding) rate of 15-year PIB is 10.4% in PKR, however, the instant Project is exposed to a number of risks. According to the Petitioner, the returns earned from the Project are planned to be invested in other similar projects and that the Petitioner will not receive any other allocation on this account, therefore, such drastic reduction in return will disturb the Petitioner's entire planning. The Petitioner also submitted that although the case is pending in the high court, if decided, the Project may be exposed to a 30% tax as it is a provincial government entity.

42. In this regard, the representative of CPPA-G, during the second hearing and vide letter dated November 05, 2021, submitted that the equity invested by the Petitioner in the instant Project is PKR based, therefore, there should be no USD exchange rate indexation on the ROE component. The representative of CPPA-G further submitted that with regards to the requested 17% return, there is enough liquidity in the market and that this is a state owned entity, therefore, 10% return, without USD or other indexations, is sufficient because these are their own funds as mentioned in the Authority's determination for Karora and in line with WAPDA projects like Neelum Jhelum and other PEDO projects.

43. The Authority has considered the submissions of the Petitioner and other stakeholders on the issue and noted that the Project was allowed tariff in March 2014 where USD based 17% IRR was allowed based on the then market conditions, therefore, its comparison with recent HPPs (such as Karora, Koto, Jabori and Lawi, where returns of 13% were allowed in November 2021 from the previous 10% return), may not be prudent. However, being a provincial government funded project (Rs based equity), no more USD indexation shall be allowed. Therefore, a 17% PKR based return assuming monthly cash flows with no USD indexation is thus being allowed to the project. Accordingly, combined ROE & ROEDC components decrease from Rs. 2.0088/kWh to Rs. 1.8675/kWh.

Whether to allow withholding tax on dividends @ 7.5% rate in the instant case or otherwise?

44. No written comments have been received from the Petitioner on this issues, however, during the second hearing, the Petitioner submitted that the instant tariff was determined in 2014 and that the Authority had not removed this provision for projects while re-determining tariffs for which it had previously allowed withholding tax (WHT) on dividends. Therefore, the Petitioner has requested the Authority not to remove this provision in the instant case as well. Further, the Petitioner submitted that if the same is removed, the Project

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the applicable withholding tax on dividends in the instant case shall increase to 15%. Finally, the Petitioner submitted that this is as per actual based on actual dividend payouts and that the Petitioner is not in a position to pay dividends even in the next 10 years.

45. In this regard, the representative of CPPA-G, during the second hearing, submitted that withholding tax on dividends is a risk of the sponsor and that it should not be borne by the end-consumers. The representative further referred to Authority's Tariff Benchmark Guidelines issued in 2018 and submitted that it states that withholding tax on dividends shall not be allowed as pass-through item in any technology. Therefore, the CPPA-G requested the Authority to disallow withholding tax on dividends in the instant case. Further, vide letter dated November 05, 2021, the CPPA-G reiterated that WHT on dividends is the tax on the income of the shareholder, not on the income of the project company, therefore, it may not be allowed as pass-through item and requested the Authority that the same may not be allowed as a pass-through item to the Company.

46. After having considered the submissions of the Petitioner and other stakeholders, the Authority, with regards to the issue of withholding tax on dividends, has decided that in order to remain consistent with recent determinations and considering the fact that WHT on dividends is not the Project company's liability, rather investors' liability, therefore, WHT on dividends, in the instant case, is being disallowed.

Whether to include provision for claw back of excess return or otherwise?

47. No written comments have been received from the Petitioner on this issues, however, during the second hearing, the Petitioner submitted that there is no clarity as to how the mechanism shall be applicable in the instant case. According to the Petitioner, it is understood that this concept stems from thermal projects where heat rate related issues resulted in projects for those projects, however, the instant case is a hydropower project that is requesting a Take and Pay tariff by assuming hydrological risk. The Petitioner further submitted that in the case of those thermal projects, the excess projects have been seen to be due to delayed payments in interest, fuel efficiency, heat rate testing and O&M, and that these cannot be related with hydropower projects.

48. The Petitioner further submitted that it needs to be ascertained whether an IRR or ROE has been allowed by the Authority, as both are fundamentally different and that in case the Authority has determined an IRR, the same cannot be reopened as it was determined for the entire tariff control period. Therefore, clarity on the claw back mechanism is required.

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49. In this regard, the representative of CPPA-G, during the second hearing, submitted that in case it is ascertained that the Project has earned excess return due to whatever reasons, it is the right of the consumer that the same should be clawed back and in this regard, technology has no role in determining whether a project may or may not be able to earn excess return. Further, the representative of CPPA-G submitted that the Authority, in the cases of Tapal and Gul Ahmed has determined the mechanism of claw back.

50. The CPPA-G vide letter dated November 05, 2021, further submitted that an effective claw back mechanism may also be introduced for claw back of excess return for the subject project so that any excess profit/gains over and above the regulated returns (on which tariff would be based) can be passed on to the electricity consumers in line with the practice carried out by the Authority in the cases of Tapal Energy and Gul Ahmed Energy.

51. The Authority considered the submissions of the Petitioner and the comments of CPPA-G, and decided that the return allowed to the Project shall be considered maximum ceiling and that return earned beyond the stated limit, if any, shall be adjusted, for which a claw back mechanism shall be prescribed at the time of COD.

ORDER

52. 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, the Authority hereby determines and approves the following generation tariff along with the terms and conditions for Machai Hydropower Project of Pakhtunkhwa Energy Development Organization (the Petitioner) for delivery of electricity to Power Purchaser:

Tariff Components	Years 1-30 Rs./kWh	Indexation
Fixed O & M		
- local	0.5746	CPI - General
- foreign	0.1436	US$/PKR & US CPI
Insurance	0.3231	US$/PKR
Debt service	1.5228	US$/PKR & LIBOR
Return on equity	1.5338	NIL
Return on equity during construction	0.3336	NIL

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Variable O & M - local	0.1197	CPI - General
- foreign	0.1197	US$/PKR & US CPI
Total	4.6710	

i) The reference tariff has been calculated on the basis of net annual benchmark energy generation of 15.784 GWh, at annual plant capacity factor of 70%, for installed capacity of 2.60 MW.

ii) The above charges will be limited to the extent of net annual energy generation of 15.784 GWh. Net annual generation supplied to the power purchaser in a year, in excess of benchmark energy of 15.784 GWh will be charged at 10% of the prevalent approved tariff.

iii) The tariff is based on Take & Pay basis accordingly a single part tariff has been allowed to the Project.

iv) In the above tariff no adjustment for carbon emission reduction receipts, has been accounted for. However, upon actual realization of carbon emission reduction receipts, the same shall be distributed between the power purchaser and the petitioner in accordance with the approved mechanism given in the applicable government policy.

v) The reference PKR/dollar rate has been taken as 97.

vi) The above tariff is applicable for a period of thirty years commencing from the commercial operations date (COD).

vii) Annual ROE & ROEDC components at 17% (XIRR) assuming monthly payments has been approved. These components shall not be indexed with PKR to USD exchange rate.

viii) The component wise tariff is indicated at Annex-I.

ix) Debt Servicing Schedule is attached as Annex-II.

I. <u>One Time Adjustments</u>

The following onetime adjustments shall be applicable to the reference tariff:

a. Civil works, installation and other services will be allowed price escalations at COD, for a term not exceeding the construction period allowed by the Authority. No price adjustment shall be payable on the portion of contract price paid to the contractor as an advance payment. The weight age of each subcomponent, its applicable index and reference value are summarised below:

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Component	Currency of index	Weight age	Published source of Index	Reference value
Fixed	-	58%	Not applicable	-
Labor				
- Local	Rupee	10%	Government of Pakistan (minimum wages for unskilled labor)	Rs. 250/day
- Expatriate	Foreign currency	3%	Proxy index	100
Fuel	Rupee	15%	Pakistan State Oil (cost of one liter of ordinary petrol plus five liters of high speed diesel)	425.85
Cement	Rupee	6%	State Cement Corporation, Federal Bureau of Statistics, Government of Pakistan (cost of one ton of standard port land cement - bagged for northern areas)	6,100
Reinforcing steel	Rupee	8%	Federal Bureau of Statistics, Government of Pakistan (cost of one ton of deformed grade 40 reinforcing steel bars of number eight size - 25 mm diameter)	59,250
		100%		

The EPC contract provides that "Proxy index is proposed @ 2.50% per annum payable in US $ or in equivalent Pak Rs. at the exchange rate at the time of payment."

b. Duties and/or taxes, not being of refundable nature, imposed on the petitioner up to the commencement of its commercial operations will be subject to adjustment at actual on COD, as against US $ 0.117 million allowed now, upon production of verifiable documentary evidence to the satisfaction of the Authority.

c. Recovery of the interconnection cost incurred by the petitioner, if any, at the COD stage, will be allowed after it submits a detailed plan duly endorsed by the power purchaser and authentic verifiable documents, to the satisfaction of the Authority, that these costs have been actually incurred in a prudent manner.

d. Spares will be adjusted on actual basis at COD, not exceeding the maximum ceiling of US $ 0.398 million, on production of authentic documentary evidence by the petitioner.

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e. Financial charges will be adjusted at COD on the basis of actual expense, up to a maximum of 3% of the total debt allowed (excluding the impact of interest during construction and financial charges), on production of authentic documentary evidence.

f. The interest during construction will be adjusted at COD on the basis of actual debt draw downs (within the overall debt allowed by the Authority at COD), actual PKR/US$ exchange rate variation for foreign loan denominated in US $ and actual interest rates not exceeding the limit of 6 months LIBOR per annum plus 0.60%, during the project construction period allowed by the Authority.

g. The return on equity during construction will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD), during the project construction period allowed by the Authority.

h. At the COD for all project costs payable in PKR, the amounts allowed in US $ will be converted into PKR using the reference PKR/dollar rate of 97.

i. Any liquidated damages, penalties, etc. (by whatever name called), actually recoverable by the petitioner from the EPC contractor(s), pertaining to the construction period allowed by the Authority, will be adjusted in the project cost.

j. The reference tariff table shall be revised at COD while taking into account the above adjustments. The petitioner shall submit its request to the Authority within 90 days of COD for necessary adjustments in tariff.

II. Pass-Through Items

If any tax, non-refundable in nature, is imposed on the Petitioner, the exact amount paid by the Petitioner shall be reimbursed by the power purchaser to the Petitioner on production of original receipts. This payment will be considered as a pass-through payment spread over a 12 months period. Furthermore, in such a scenario, the Petitioner shall also submit to the power purchaser details of any tax shield savings and the power purchaser shall deduct the amount of these savings from its payment to the Petitioner on account of taxation. However, withholding tax on dividends shall not be a pass through item.

III. Hydrological Risk

Hydrological risk shall be borne by the Power Producer.

IV. Indexations:

The following indexation shall be applicable to the reference tariff:

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i) <u>Indexation applicable to O&M</u>

The local part of O&M cost will be adjusted on account of local inflation and O&M foreign component will be adjusted on account of variation in dollar/rupee exchange rate and US CPI. Quarterly adjustments for inflation and exchange rate variation will be made on 1st July, 1st October, 1st January and 1st April respectively on the basis of latest available information with respect to CPI - General (notified by the Pakistan 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 indexations will be as follows:

$$F\ O\&M_{(LREV)} = F\ O\&M_{(LREF)} * CPI\text{-}G_{(REV)} / CPI\text{-}G_{(REF)}$$

$$F\ O\&M_{(FREV)} = F\ O\&M_{(FREF)} * US\ CPI_{(REV)} / US\ CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$$

$$V\ O\&M_{(LREV)} = V\ O\&M_{(LREF)} * CPI\text{-}G_{(REV)} / CPI\text{-}G_{(REF)}$$

$$V\ O\&M_{(FREV)} = V\ O\&M_{(FREF)} * US\ CPI_{(REV)} / US\ CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$$

Where:

$F\ O\&M_{(LREV)}$	=	The revised applicable fixed O&M local component of tariff
$F\ O\&M_{(FREV)}$	=	The revised applicable fixed O&M foreign component of tariff
$V\ O\&M_{(LREV)}$	=	The revised applicable variable O&M local component of tariff
$V\ O\&M_{(FREV)}$	=	The revised applicable variable O&M foreign component of tariff
$F\ O\&M_{(LREF)}$	=	The reference fixed O&M local component of tariff for the relevant period
$F\ O\&M_{(FREF)}$	=	The reference fixed O&M foreign component of tariff for the relevant period
$V\ O\&M_{(LREF)}$	=	The reference variable O&M local component of tariff for the relevant period
$V\ O\&M_{(FREF)}$	=	The reference variable O&M foreign component of tariff for the relevant period
$CPI\text{-}G_{(REV)}$	=	The revised consumer price index (general)

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$CPI - G_{(REF)}$ = 179.94 consumer price index (general) of June 2013 notified by the Pakistan Bureau of Statistics

$US\ CPI_{(REV)}$ = The revised US CPI (all urban consumers)

$US\ CPI_{(REF)}$ = 233.504 US CPI (all urban consumers) for the month of June 2013 as notified by the US Bureau of Labor Statistics

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

$ER_{(REF)}$ = The reference TT & OD selling rate of US dollar as notified by the National Bank of Pakistan - Current reference 97

ii) Adjustment of insurance component

In case of insurance denominated in US $, insurance cost component of tariff will be adjusted on account of US$/PKR exchange rate variation on annual basis. Further, insurance component of the reference tariff will be adjusted as per actually incurred prudent costs, subject to maximum of 0.8% of the EPC cost, on annual basis upon production of authentic documentary evidence by the Petitioner. If no insurance cost has been incurred during the operation phase of the power plant or the same is part of the O&M Cost, the assumed calculated tariff component shall be excluded from the tariff components at the COD stage.

iii) Adjustment for LIBOR variation

The interest part of debt service component will remain unchanged throughout the term except for the adjustment due to variation in 6 months US $ LIBOR, while spread of 0.60% on 6 months US $ LIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (LIBOR_{(REV)} - 0.50\%) / 2$$

Where:

ΔI = the variation in interest charges applicable corresponding to variation in 6 months US $ LIBOR. ΔI can be positive or negative depending upon whether 6 months US $ LIBOR $_{(Rev)}$ per annum > or < 0.50%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each half year under adjustment.

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-II) on a bi-annual basis at the relevant calculations date.

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Note:
Adjustments on account of inflation, foreign exchange rate variation, LIBOR variation and actual insurance will be approved and announced by the Authority within fifteen working days after receipt of the petitioner's request for adjustment in tariff in accordance with the requisite indexation mechanism stipulated herein.

V. Terms and Conditions of Tariff:

Design & Manufacturing Standards:

Hydro power generation system shall be designed, manufactured and tested in accordance with the latest IEC standards or other equivalent standards. All plant and equipment shall be new.

Emissions Trading/ Carbon Credits:

The petitioner shall process and obtain emissions/carbon credits expeditiously and credit the proceeds to the power purchaser as per the applicable government policy and the terms and conditions agreed between the petitioner and the power purchaser.

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. The above tariff and terms and conditions shall be incorporated as the specified tariff approved by the Authority pursuant to Rule 6 of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 in the power purchase agreement between the petitioner and the power purchaser.

iii. In case the PEDO wants to exit and sell the energy from Machai HPP to the buyer(s) other than the national grid/CPPA-G/DISCOs then the terms of such arrangement shall be mutually agreed between parties to the EPA and, reflected in the draft EPA and submitted before the approval of the Authority.

iv. 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.

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v. Pre COD sale of electricity is allowed to the Project company, subject to the terms and conditions of EPA, at the applicable tariff only including variable O&M component. However, pre-COD sales will not alter the required commercial operations date

vii. 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. Maqsood Anwar Khan)
Member

(Engr. Rafique Ahmed Shaikh)
Member

16/2/22

(Rehmatullah Baloch)
Member

(Tauseef H. Farooqi)
Chairman

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24/2/22

Annex-I

Pakhtunkhwa Hydel Development Organization
MACHAI HYDROPOWER PROJECT
REFERENCE TARIFF

Year	Variable O&M Local	Variable O&M Foreign	Fixed O&M Local	Fixed O&M Foreign	Insurance	Return on Equity (ROE)	ROE During Construction	Loan Repayment	Interest Charges	Total Tariff
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh
1	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.0988	0.4240	4.6710
2	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1109	0.4119	4.6710
3	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1232	0.3997	4.6710
4	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1356	0.3873	4.6710
5	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1481	0.3747	4.6710
6	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1608	0.3621	4.6710
7	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1736	0.3493	4.6710
8	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1865	0.3363	4.6710
9	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.1996	0.3232	4.6710
10	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2128	0.3100	4.6710
11	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2262	0.2966	4.6710
12	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2397	0.2831	4.6710
13	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2534	0.2694	4.6710
14	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2672	0.2556	4.6710
15	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2812	0.2416	4.6710
16	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.2953	0.2275	4.6710
17	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3096	0.2132	4.6710
18	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3241	0.1988	4.6710
19	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3387	0.1842	4.6710
20	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3535	0.1694	4.6710
21	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3684	0.1545	4.6710
22	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3835	0.1394	4.6710
23	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.3987	0.1241	4.6710
24	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.4142	0.1087	4.6710
25	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.4298	0.0931	4.6710
26	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.4455	0.0773	4.6710
27	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.4615	0.0614	4.6710
28	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.4776	0.0452	4.6710
29	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.4939	0.0289	4.6710
30	0.1197	0.1197	0.5746	0.1436	0.3231	1.5338	0.3336	1.5104	0.0125	4.6710
Levelized Tariff	**0.1197**	**0.1197**	**0.5746**	**0.1436**	**0.3231**	**1.5338**	**0.3336**	**1.2058**	**0.3171**	**4.6710**

The above charges will be limited to the extent of net annual energy generation of 15.784 GWh. Net annual generation supplied to the power purchaser in a year, in excess of benchmark energy of 15.784 GWh will be charged at 10% of the prevalent approved tariff.

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Pakhtunkhwa Hydel Development Organization **Annex - II**

Machai Hydropower Project

Debt Servicing Schedule

	30-Year Debt					Annual	Annual	Annual Debt
Period	Principal Million US$	Repayment Million US$	Mark-Up Million US$	Balance Million US$	Debt Service Million US$	Principal Repayment Rs./kWh	Interest Rs./kWh	Servicing Rs./kWh
	6.32	0.09	0.03	6.23	0.1239			
	6.23	0.09	0.03	6.14	0.1239			
1	6.32	0.18	0.07	6.14	0.2478	1.0988	0.4240	1.5228
	6.14	0.09	0.03	6.05	0.1239			
	6.05	0.09	0.03	5.96	0.1239			
2	6.14	0.18	0.07	5.96	0.2478	1.1109	0.4119	1.5228
	5.96	0.09	0.03	5.87	0.1239			
	5.87	0.09	0.03	5.77	0.1239			
3	5.96	0.18	0.07	5.77	0.2478	1.1232	0.3997	1.5228
	5.77	0.09	0.03	5.68	0.1239			
	5.68	0.09	0.03	5.59	0.1239			
4	5.77	0.18	0.06	5.59	0.2478	1.1356	0.3873	1.5228
	5.59	0.09	0.03	5.50	0.1239			
	5.50	0.09	0.03	5.40	0.1239			
5	5.59	0.19	0.06	5.40	0.2478	1.1481	0.3747	1.5228
	5.40	0.09	0.03	5.31	0.1239			
	5.31	0.09	0.03	5.21	0.1239			
6	5.40	0.19	0.06	5.21	0.2478	1.1608	0.3621	1.5228
	5.21	0.10	0.03	5.12	0.1239			
	5.12	0.10	0.03	5.02	0.1239			
7	5.21	0.19	0.06	5.02	0.2478	1.1736	0.3493	1.5228
	5.02	0.10	0.03	4.93	0.1239			
	4.93	0.10	0.03	4.83	0.1239			
8	5.02	0.19	0.05	4.83	0.2478	1.1865	0.3363	1.5228
	4.83	0.10	0.03	4.73	0.1239			
	4.73	0.10	0.03	4.64	0.1239			
9	4.83	0.20	0.05	4.64	0.2478	1.1996	0.3232	1.5228
	4.64	0.10	0.03	4.54	0.1239			
	4.54	0.10	0.02	4.44	0.1239			
10	4.64	0.20	0.05	4.44	0.2478	1.2128	0.3100	1.5228
	4.44	0.10	0.02	4.34	0.1239			
	4.34	0.10	0.02	4.24	0.1239			
11	4.44	0.20	0.05	4.24	0.2478	1.2262	0.2966	1.5228
	4.24	0.10	0.02	4.14	0.1239			
	4.14	0.10	0.02	4.04	0.1239			
12	4.24	0.20	0.05	4.04	0.2478	1.2397	0.2831	1.5228
	4.04	0.10	0.02	3.93	0.1239			
	3.93	0.10	0.02	3.83	0.1239			
13	4.04	0.20	0.04	3.83	0.2478	1.2534	0.2694	1.5228
	3.83	0.10	0.02	3.73	0.1239			
	3.73	0.10	0.02	3.63	0.1239			
14	3.83	0.21	0.04	3.63	0.2478	1.2672	0.2556	1.5228
	3.63	0.10	0.02	3.52	0.1239			
	3.52	0.10	0.02	3.42	0.1239			
15	3.63	0.21	0.04	3.42	0.2478	1.2812	0.2416	1.5228
	3.42	0.11	0.02	3.31	0.1239			
	3.31	0.11	0.02	3.21	0.1239			
16	3.42	0.21	0.04	3.21	0.2478	1.2953	0.2275	1.5228
	3.21	0.11	0.02	3.10	0.1239			
	3.10	0.11	0.02	2.99	0.1239			
17	3.21	0.21	0.03	2.99	0.2478	1.3096	0.2132	1.5228
	2.99	0.11	0.02	2.89	0.1239			
	2.89	0.11	0.02	2.78	0.1239			
18	2.99	0.22	0.03	2.78	0.2478	1.3241	0.1988	1.5228
	2.78	0.11	0.02	2.67	0.1239			
	2.67	0.11	0.01	2.56	0.1239			
19	2.78	0.22	0.03	2.56	0.2478	1.3387	0.1842	1.5228
	2.56	0.11	0.01	2.45	0.1239			
	2.45	0.11	0.01	2.34	0.1239			
20	2.56	0.22	0.03	2.34	0.2478	1.3535	0.1694	1.5228
	2.34	0.11	0.01	2.23	0.1239			
	2.23	0.11	0.01	2.12	0.1239			
21	2.34	0.22	0.03	2.12	0.2478	1.3684	0.1545	1.5228
	2.12	0.11	0.01	2.01	0.1239			
	2.01	0.11	0.01	1.89	0.1239			
22	2.12	0.23	0.02	1.89	0.2478	1.3835	0.1394	1.5228
	1.89	0.11	0.01	1.78	0.1239			
	1.78	0.11	0.01	1.67	0.1239			
23	1.89	0.23	0.02	1.67	0.2478	1.3987	0.1241	1.5228
	1.67	0.11	0.01	1.55	0.1239			
	1.55	0.12	0.01	1.43	0.1239			
24	1.67	0.23	0.02	1.43	0.2478	1.4142	0.1087	1.5228
	1.43	0.12	0.01	1.32	0.1239			
	1.32	0.12	0.01	1.20	0.1239			
25	1.43	0.23	0.02	1.20	0.2478	1.4298	0.0931	1.5228
	1.20	0.12	0.01	1.09	0.1239			
	1.09	0.12	0.01	0.97	0.1239			
26	1.20	0.24	0.01	0.97	0.2478	1.4455	0.0773	1.5228
	0.97	0.12	0.01	0.85	0.1239			
	0.85	0.12	0.00	0.73	0.1239			
27	0.97	0.24	0.01	0.73	0.2478	1.4615	0.0614	1.5228
	0.73	0.12	0.00	0.61	0.1239			
	0.61	0.12	0.00	0.49	0.1239			
28	0.73	0.24	0.01	0.49	0.2478	1.4776	0.0452	1.5228
	0.49	0.12	0.00	0.37	0.1239			
	0.37	0.12	0.00	0.25	0.1239			
29	0.49	0.24	0.00	0.25	0.2478	1.4939	0.0289	1.5228
	0.25	0.12	0.00	0.12	0.1239			
	0.12	0.12	0.00	0.00	0.1239			
30	0.25	0.25	0.00	(0.00)	0.2478	1.5104	0.0125	1.5228

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