National Electric Power Regulatory Authority

Islamic Republic of Pakistan

Registrar

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No. NEPRA/R/DG(Tech)/GCA-08/GNL(KE)-2024/ 2959-63 February 11, 2026

Subject: **DECISION OF THE AUTHORITY IN THE MATTER OF REQUEST FILED BY K-ELECTRIC FOR APPROVAL OF ENERGY PURCHASE AGREEMENT & RATES AND OTHER TERMS AND CONDITIONS OF PROCUREMENT FROM 15 MW SOLAR POWER PROJECT OF GHARO NEWGEN (PRIVATE) LIMITED**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority alongwith **Annex-I**, including Table-I & Table-II (total 31 pages) in Case No. NEPRA/GCA-08/GNL(KE)-2024.

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 Calendar days from the intimation of this Decision. In the event the Federal Government fails to notify the subject tariff Decision, within the time period specified in Section 31(7), then the Authority shall notify the same in the official Gazette pursuant to Section 31(7) of NEPRA Act.

Enclosure: As above

(Syed Zawar Haider)
Director

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

Copy to:

1. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad
2. Mr. Shehriyar Abbasi, Deputy Secretary, Cabinet Division, Cabinet Secretariat, Islamabad
3. Chief Executive Officer, K-Electric Limited (KEL), KE House, Punjab Chowrangi, 39-B, Sunset Boulevard, Phase-II, Defence Housing Authority, Karachi
4. Chief Executive Officer, Gharo Newgen Limited, 114CC-2, DHA Phase-6, Lahore

DECISION OF THE AUTHORITY IN THE MATTER OF REQUEST FILED BY K-ELECTRIC FOR APPROVAL OF ENERGY PURCHASE AGREEMENT & RATES AND OTHER TERMS AND CONDITIONS OF PROCUREMENT FROM 15 MW SOLAR POWER PROJECT OF GHARO NEWGEN (PRIVATE) LIMITED

1. K-Electric Limited ("KEL") vide its letter dated 08 August, 2024 submitted a request for approval of Energy Purchase Agreement ("EPA") & rates and other terms and conditions of procurement from 15 MW solar power project of Gharo Newgen (Private) Limited's ("GNL") to be located at Thatta, Sindh (the "Project").

2. The said request was filed under the NEPRA (Electric Power Procurement) Regulations, 2022 ("NEPPR"). In this regard, KEL referred to its Power Acquisition Plan ("PAP"), approved by the Authority on 17 May, 2024 ("PAP decision"), under which the Authority allowed KEL the procurement from the Project under the negotiated mode in accordance with Regulation 30 of the NEPPR.

3. The Authority, vide letter dated 03 October 2024, directed KEL to submit approval of its Board of Directors ("BOD") for the subject request. In response, KEL vide letter dated 15 October, 2024 submitted that the Project forms part of its long-term renewable energy induction plan approved by its BOD and is included in its PAP approved by the Authority on 17 May, 2024. Further, KEL stated that in compliance with the PAP decision, the subject request has been submitted along with a draft Energy Purchase Agreement ("EPA"), which is a standard document previously approved by its BOD and accepted by the Authority. KEL also informed that specific BOD approval for execution of the EPA with GNL shall be obtained after the Authority's approval of the subject request.

4. The decision of the Authority has been divided into two parts i.e., approval of rates and other terms and conditions and approval of EPA.

APPROVAL OF RATES AND OTHER TERMS AND CONDITIONS

5. The summary of key information as contained in the request of KEL, is provided as under:

Project Company	:	Gharo Newgen (Private) Limited
Main Sponsor	:	Mr. Rana Naseem
Capacity	:	15 MWp solar power plant
Interconnection	:	Gharo Grid Station at 11kV
Project Location	:	Deh Ghairabad No. 3 Taluka Mirpur Sakro, District Thatta, Sindh Pakistan
Land Area	:	54.44 Acres
Agreement Term	:	25 years from COD
Purchaser	:	K-Electric Limited
Plant Capacity Factor	:	22.85%

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Annual Energy Production	:	30.024 GWh per annum
Annual Degradation	:	0.45%
Anticipated Financial Close	:	31 December 2024
Construction Period	:	08 months from Financial Close
Project Cost		**USD Millions**
EPC Cost	:	8.450
Project Development Cost	:	0.318
Insurance during Construction	:	0.033
Financing Fee & Charges	:	0.207
Interest during Construction	:	0.445
Total Project Cost	:	**9.453**
Financing Structure	:	Debt: 80%, Equity: 20%
Debt Composition	:	100% Foreign
Interest Rate	:	SOFR+4.5%
Repayment Period	:	14 years + 1 year grace period
Return on Equity (USD based)	:	13% IRR based
Annual O&M Cost	:	USD 12,500 per MW per year
Annual Insurance Cost	:	0.5% of EPC cost
Tariff		**US Cents/kWh**
Year (1-14)	:	4.7984
Year (15-25)	:	1.6164
Levelized Tariff	:	**4.1988**
Levelized Tariff (PKR/kWh)		**11.6916**
Exchange rate	:	1 USD = PKR 278.45

6. Following one-time adjustments at Commercial Operations Date ("COD") have been proposed by GNL:

   i. Applicable foreign portion of the allowed EPC cost is to be adjusted on actual basis at COD on account of variation in PKR/USD parity and local portion of the EPC cost to be adjusted on actual basis with local inflation, on production of authentic documentary evidence to the satisfaction of the Authority.

   ii. Due to high inflation and significant PKR devaluation in recent years, foreign portion of non EPC cost is to be adjusted at COD based on average exchange rate over the construction period, and the local portion should be adjusted for change in local inflation based on average N-CPI over the same period.

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iii. Debt to equity ratio has been assumed at 80:20, which is to be adjusted as per actual at COD, subject to maximum equity of 25%.

iv. Debt servicing is based on 100% foreign financing with a tenor of 15 years (one-year grace period). However, the actual debt is to be adjusted based on the actual mix of foreign and local financing. In case of local financing the spread over KIBOR would be 2.25%. The principal repayment and cost of debt is to be adjusted at COD as per actual borrowing composition.

v. Interest during construction ("IDC") is to be adjusted as per actual based on actual disbursement of loans and prevailing SOFR and KIBOR rates during the construction period of the Project.

vi. Duties and/or taxes, not being of refundable nature, relating to the construction period directly imposed on the company up to COD, are to be allowed at actual upon production of verifiable documentary evidence to the satisfaction of the Authority.

vii. Any negative financial implementations resulting from changes in tax rates, duties etc. and currently applicable sales tax structure are to be adjusted in the project cost.

viii. Pre-COD insurance cost is to be adjusted at actual, subject to a cap of 0.5% of the EPC cost.

ix. Return on Equity is to be adjusted at COD in order to ensure an IRR based return of 13% on equity.

x. Return on equity during construction is to 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.

7. Following items have been proposed as pass-through by GNL:

i. The cost of land, after appraisal by a valuer recognized by the Pakistan Banks Association and the State Bank of Pakistan.

ii. The payments to workers welfare fund and workers profit participation fund.

iii. Zakat deduction on dividends, as required under the Zakat and Ushr Ordinance, 1980.

iv. No tax on income of the Company (including proceeds against sale of electricity to KEL) has been assumed. Income tax including advance income tax, corporate tax, turnover tax, general sales tax/provincial sales tax, and all other taxes, excise duties, levies, fees, etc., imposed by any federal/provincial entity, including local bodies and not of a refundable nature.

v. Taxes and custom duties on the import of plant and equipment, including Sindh cess.

vi. Any other taxes and charges, whether during the construction or operation period, including but not limited to sales tax on the EPC contract and withholding tax on the EPC offshore contract incurred by the company.

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vii. If the company is required to make payment of withholding tax on debt servicing the same shall be treated as pass-through item. KEL will reimburse to the company the actual amount paid on account of withholding tax.

viii. The withholding tax on dividends, up to a maximum of 7.5%, shall be paid by the shareholders of the company. However, if the Government of Pakistan alters the withholding tax rate on dividends from the current 7.5% (either increasing or decreasing it), such changes will be directly passed through to KEL. The ROE of 13% has been assumed in accordance with NEPRA determinations, which were based on a 7.5% withholding tax rate. If the withholding tax increases to, say, 15%, then the effective ROE for shareholders will be reduced to 11.05%.

8. The Authority decided to conduct a hearing and following list of issues were framed and approved by the Authority for discussion during the hearing:

i. What criteria has been used to select a party for tariff negotiation?

ii. Has KEL complied with requirement of Regulation 30 of NEPPR and direction of the Authority given in the determination dated 17 May, 2024 with respect to approval of Power Acquisition Program of KEL?

iii. Whether the negotiated tariff shall result in a decrease in the Energy Purchase Price of KEL specially during the debt-retiring period as well as in the long run?

iv. Are the proposed solar PV modules, inverters and Balance of Plant to be deployed for the Project are of the latest technology, meet international standards of quality and operations, and are consistent with the concurrence application that the company has submitted?

v. Whether the proposed project cost of USD 0.63 million per MW is justified and it reflects current market conditions of the solar business which is at its lowest and continue to decline?

vi. Has the NEPRA (Selection of EPC Contractors by IPPs) Guidelines, 2017 in the matter been followed in letter and spirit to arrive at EPC cost of the project or there are any exceptions to it and what are the justification for the same?

vii. What is the basis of the proposed Capacity Utilization Factor of 22.85% mentioned in the tariff proposal and whether it is justified? Has any feasibility study been conducted in this regard?

viii. Whether the claimed O&M cost of the project is justified and is reflective of the current market conditions in the country? Is there any possibility to further reduce this cost considering the fact that most of the work force required for O&M is now available locally?

ix. Will the project adhere to the NEPRA (Selection of Operation and Maintenance Contractors by Generation Companies) Guidelines, 2021, during operation of the generation facility or any exception is envisaged and basis of the same?

x. Whether the cost of debt i.e., SOFR + CAS + 4.5% and claimed IRR of 13% (USD based) is justified?

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xi. Whether the claimed insurance cost i.e., 0.4% of the EPC during construction and 0.5% during operation is justified?

xii. Whether the procurement from 15 MW GNL at the proposed negotiated levelized tariff of US Cents 4.1988/kWh is justified and comparable with tariff arrived at through the latest rounds of competitive auctions by KEL?

xiii. How is negotiated tariff more advantageous for electricity consumers compared to a competitive bidding tariff?

xiv. Will it be prudent to connect the generation facility at 11 kV voltage considering the system reliability aspects? Has any analysis been carried out to consider higher voltages for dispersal of power and if so, what factors have led to drop the proposal? What will be mechanism to fund the cost of the interconnection?

xv. Whether the pass-through claims are justified?

xvi. Whether the construction period of 8 months is justified considering the size of the project and availability of the solar panels in the market?

xvii. Whether the proposed indexation mechanism for one-time for COD adjustment and quarterly indexation for respective tariff components are justified?

xviii. Whether the tariff structure and indexation scheme should be the one as approved in the case of RFPs or conventional Cost plus?

xix. Whether the proposed terms of the contract are justified or otherwise?

xx. Any other issue(s) with the approval of the Authority?

9. The advertisements for the hearing were published in "The News" on 04 December, 2024 and in "Express News" on 05 December, 2024. Individual notices of hearing were also issued to the stakeholders, considered relevant in the matter, on 04 December, 2024. Further, the approved list of issues, as indicated above, was placed on NEPRA's website for discussion during the hearing. The hearing in the matter was held as per the schedule which was attended by the representatives of KEL, GNL, and others. Subsequent to the hearing, KEL vide letter dated 24 January, 2025 also submitted its written response on above framed issues of the hearing. The discussion, analysis, and decisions of the Authority on each issue with respect to the subject request are set out in the ensuing paragraphs.

I. What criteria has been used to select a party for tariff negotiation?

10. KEL submitted that it received an unsolicited proposal from GNL in 2023 for the Project under Regulation 30 of the NEPPR. KEL evaluated the proposal considering GNL's commitment to fast-track the Project's implementation, and the owner's prior experience in project development. Additionally, KEL informed that the availability of land with the sponsor and its proximity to the grid were also considered in the evaluation. Based on these considerations, KEL sought approval of the Project under the PAP, which was accordingly approved by the Authority.

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11. The Authority noted that while the NEPPR allows procurement of power under the negotiated mode from the projects connected at 11 kV, the said regulations are silent about the explicit criteria to be followed for the selection of a party under this mode. Nonetheless, the Authority has reviewed the factors considered by KEL to select GNL for negotiation of the tariff and procurement of electricity, and finds KEL's justification in this regard to be satisfactory.

II. Has KE complied with requirement of Regulation 30 of NEPPR and directions of the Authority given in the determination dated 17 May 2024 about the approval of Power Acquisition Program (PAP) of KE?

III. Whether the negotiated tariff shall result in a decrease in the EPP of KE specially during the debt retiring period as well as in the long run?

12. KEL submitted that it has complied with the requirements of Regulation 30 of NEPPR, as reflected in the table below:

Regulation 30 of NEPPR	Compliance	Remarks
(1a) – Prudency of Procurement	✓	Included in approved KEL PAP
(1b) – Adequacy of Distribution System	✓	
(1c) – Details of Generation Facility along with negotiated rates and others	✓	
(1d) – Analysis for decrease in average power purchase price	✓	
(1e) – Analysis of impact on the basket price	✓	
(5) – Submission of Power Purchase Agreement	✓	Draft EPA has been shared by KEL with NEPRA along with Proposal of GNL.

13. KEL further submitted that it has filed the instant request in compliance with the directions of the Authority issued in its PAP decision. Regarding the analysis of displacement of expensive electricity, KEL submitted that, unlike baseload plants which contribute to both capacity and energy requirements, renewable energy projects are intermittent in nature and contribute primarily to energy requirements by supplying comparatively cheaper power. KEL informed that it evaluated the impact of the Project on its own generation and power purchase costs by assessing the expected displacement of generation from expensive fuel sources and submitted the following results:

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a. Savings During Debt Servicing Period: The project is expected to bring savings of **PKR 95 million per annum** during the debt servicing period (tariff assumed at US cents 4.7984/KWh).

b. Savings After Debt Servicing Period: After the debt servicing period, the project is expected to bring savings of **PKR 370 million per annum** (tariff assumed at US cents 1.6164/KWh).

14. KEL submitted that the displacement analysis was carried out based on the marginal cost principle, whereby the economic benefits of the Project were evaluated by comparing its cost with the replacement cost of the marginal (last dispatched) plant in KEL's system and the National Grid, during both the debt servicing and post-debt servicing periods. For this purpose, price levels prevailing in August 2024 were assumed, including energy and fuel prices for KEL as well as for NTDC system. Further, a constant import of 1,700 MW was assumed from NTDC throughout the study horizon. The methodology involved two iterations, one with the proposed Project and the other without it, while plant dispatch in each case was determined on the basis of Economic Merit Order ("EMO"), taking into account the relevant technical parameters.

Decision of the Authority

15. The Authority noted that compliance with Regulation 30 of NEPPR had also been discussed and addressed in the PAP decision. With respect to the Authority's directions issued vide PAP decision, KEL was required to:
    i. assess the prudency of the negotiated tariff based on prevailing equipment costs and cost of funds, and;
    ii. conduct a comprehensive assessment of displacement of expensive electricity in order to essentially check and confirm the basis on which this capacity was optimized in the IGCEP and included in the PAP.

16. For requirement no (i), it was observed that KEL did not provide any documentary evidence to substantiate the negotiation process or to demonstrate how the tariff was benchmarked against prevailing equipment prices and financing costs. However, during the hearing, KEL informed that the proposal was finalized with GNL after multiple rounds of negotiations. KEL further expressed that any potential tariff reductions arising from a decline in solar module and inverter prices may be reflected in NEPRA's final decision. In this regard, the Authority has already assessed the project cost based on current market prices which is discussed in the relevant issue of this decision. With respect to requirement no (ii), i.e., displacement of expensive electricity, the Authority has considered the submissions made by KEL and found them satisfactory.

IV. Are the proposed solar PV modules, inverters and Balance of Plant (BOP) to be deployed for the project are of the latest technology, meet international standards of quality and operations, and are consistent with the concurrence application that the company has submitted?

17. KEL submitted that the proposed solar PV modules, inverters, and BOP to be deployed for the Project are of the latest technology and meet international standards of quality and operations. Additionally, it was confirmed that they are consistent with the concurrence application of GNL. Following details of equipment are given in the request:

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Component	Specification	Brand
PV Module	• Tier1 • N-Type mono bifacial • IEC certified	JA Solar/Longi
Inverter	• Tier 1 • IEC certified • Modular Technology	Sungrow / Huawei / TBEA or equivalent
Balance of Plant	• IEC Certified • Compliance with C5 corrosion	TBEA, QRE or equivalent Bilal Switchgear Engineering (Pvt) LTD, Tariq Electric Pvt Ltd, Siemens or equivalent Cables from any reputable local or foreign supplier
Tracking System		Optimum Trackers, Arctech or equivalent

Decision of the Authority

18. The Authority noted that the proposed solar PV modules and inverters are of Tier-1 category, which is in line with regulatory expectations for utility scale solar projects. Accordingly, KEL and GNL are directed to ensure that the actual equipment deployed at site conforms to the proposed specifications and reflects the latest available technology. The compliance and verification of the installed equipment shall be carried out at the time of COD by KEL, as power purchaser, through an independent engineer or firm.

V. Whether the proposed project cost of USD 0.63 million per MW is justified and it reflects current market conditions of the solar business which is at its lowest and continue to decline?

19. KEL submitted that EPC cost at the time of submission of the proposal was found competitive, especially considering the Project's location in a coastal area and the specific C5 level protection required for the balance of plant, such as single-axis trackers. However, the PV module prices have subsequently declined which may be reflected in the decision of the Authority. The breakup of claimed project cost of USD 0.63 Million /MW, as provided in the KEL's request is as follows:

Particulars	USD Million/MW	USD Million	Technology/Basis
Module	0.110	1.650	630W N-type bifacial double glass monocrystalline modules
Inverters, String Combiner Boxes & AC/DC Cables	0.073	1.098	2x4.4MVA and 1x3.3MVA
Civil Works	0.079	1.188	Foundations for central inverter stations, control rooms, offices and storage facilities site preparation, boundary walls, roads and other civil infrastructure

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Single Axis Sun tracking system	0.102	1.526	Single-Axis Horizontal Tracking System (1P/2P Configuration) C5 Corrosion-Resistant Structure (Magnelis / ZM Coating)
Electrical Balance of Plant	0.053	0.788	11kV switchgear with four (04) outgoing feeders metering panels, auxiliary transformers, battery backup, SCADA systems, cooling systems, fire protection, lighting, and other ancillary electrical systems
Electrical Works	0.071	1.065	electrical works, including the installation of solar panels, inverter stations, switchgear, AC/DC and earthing cables, and other electrical components and service
Electrical design, Engineering and supervision cost	0036	0.539	Electrical design, Engineering and supervision cost
Transportation	0.021	0.321	94 containers for sea freight from China Port to Karachi Port at an average cost of USD 1,950 per container, other in land transportation, port and shipping charges
EPC Cost	**0.545**	**8.176**	
Degradation	0.018	0.275	0.45% of EPC Cost
Insurance during construction	0.002	0.033	0.4% of the total EPC cost, in line with NEPRA's benchmark
Project Development Cost	0.021	0.319	• Feasibility study cost, other engineering studies and environmental approvals; • Establishment of the Company and maintaining it in good standing; • Legal advisory charges • Project advisors including tax and corporate advisors; • Cost related to KE's letter of credit to under the EPA; • Cost relating to various permits necessary for the Project • Management cost, salaries and wages, utilities, travelling and conveyance, security, office supplies

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			cost, rent rates and taxes, medical and travel insurance, fees and subscription, vehicles running and maintenance, repair and maintenance, printing stationery and periodical, miscellaneous and other expenses.
Financing Fees & Charges	0.013	0.207	2.75% of total debt
IDC	0.051	0.445	As per the debt terms and claimed construction period
Total Project Cost	**0.630**	**9.453**	

Decision of the Authority

20. **EPC Cost:** To evaluate the EPC cost claimed in the KEL request, the Authority reviewed prevailing market prices of solar modules, inverters, and BOP based on multiple online spot price sources and reports published by credible institutions. The civil works cost was assessed with reference to said cost allowed in comparable solar projects. The review indicated that prevailing prices of modules, inverters, and transportation are lower than those claimed in the KEL request, whereas the assessed civil works cost for a similar-sized project and the prevailing BOP cost (including mounting structures and electrical equipment) are found higher than the claimed values. Based on the overall assessment, the Authority considered the total EPC cost claimed in the request, i.e. USD 0.545 million/MW (USD 8.176 million), to be reasonable and decided to approve the same. The Authority further decided that PKR/USD variation shall be allowed for up to a maximum of 75% of the total EPC cost, subject to submission of authentic documentary evidence (such as import documents) to the satisfaction of the Authority. The remaining 25% of the EPC cost (being the minimum level) shall be fixed in PKR at the exchange rate prevailing on the date of financial close, and the equivalent USD amount for this portion of EPC cost shall be worked out at COD based on the applicable exchange rate on the date of payments.

21. **Degradation:** The Authority considered this claim and observed that advancements in solar PV technology, particularly the double-glass modules, have enhanced durability and reduced degradation risks. The Authority further noted that international literature and data for tier-one modules indicate a lower annual degradation rate, even as low as 0.35%. It was also observed that in recent competitive bidding rounds, bidders had proposed an annual degradation rate of 0.4% in their technical submissions. Accordingly, the Authority has decided to allow an annual degradation rate of 0.4%, as the maximum cap. The Authority has further decided that the impact of degradation is not being allowed upfront in the project cost, as stated in the request. Instead, the same shall be accounted for based on actual occurrence, with the maximum cap of 0.4%, with a downward adjustment mechanism to be applied accordingly. The details of this mechanism shall be finalized in the EPA.

22. **Insurance during construction:** The Authority has considered this claim and found it reasonable, being in line with the NEPRA (Benchmarks for Tariff Determination) Guidelines, 2018 ("Benchmark Guidelines

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2018"). Accordingly, the Authority has decided to allow insurance during construction up to a maximum of 0.4% of the approved EPC cost for the Project, which works out to approximately USD 0.016 million (calculated restricting it to the allowed construction period). The insurance cost shall be adjusted at actual at the time of COD, subject to submission of authentic documentary evidence to the satisfaction of the Authority, and the allowed amount, with the exchange rate of Rs. 280.55/USD, shall be considered as the maximum limit. The equivalent USD at COD shall be calculated based on the applicable exchange rates on the date of payment.

23. **Project Development Cost:** The Authority has evaluated the Project Development Cost ("PDC") claim while comparing it with the PDC cost allowed to other solar PV projects, and has decided to allow the claimed USD 0.319 million under this head. PDC shall be adjusted at actual at the time of COD, subject to submission of authentic documentary evidence to the satisfaction of the Authority, and the allowed amount, with the exchange rate of Rs. 280.55/USD, shall be considered as the maximum limit. The equivalent USD at COD shall be calculated based on the applicable exchange rates on the date of payment.

24. **Financing Fees & Charges:** The Authority has considered the claim and, in line with its decisions for comparable renewable energy projects and the stipulations of the Benchmark Guidelines 2018, has decided to allow financing fees and charges at the rate of 2% on the approved debt portion of the allowed capital cost. Accordingly, the amount allowed under this head works out to be approximately USD 0.141 million. This cost head shall be adjusted at actual at the time of COD, subject to submission of authentic documentary evidence to the satisfaction of the Authority, and the allowed amount, with the exchange rate of Rs. 280.55/USD, shall be considered as the maximum limit. The equivalent USD at COD shall be calculated based on the applicable exchange rates on the date of payment.

25. **Interest during Construction:** Based on the approved debt terms and equal drawdowns for the allowed construction period of six (06) months, the Interest during Construction ("IDC") works out to be around USD 0.162 million, which is hereby approved. The terms of financing used to work out the aforesaid amount of IDC is discussed in the ensuing relevant section. The allowed IDC shall be re-computed at COD, for the allowed construction period, starting from the date of financial close, on the basis of actual drawdowns (within the overall debt allowed by the Authority at COD) by applying 3-month SOFR, applicable as per the terms of financing.

26. In view of the above discussions, the project cost being approved is tabulated below:

Particulars	USD Million
EPC Cost	**8.175**
Insurance Cost	0.016
Project Development Cost	0.319
Financing Fees & Charges	0.141
Interest During Construction	0.162
Total Project Cost	**8.813**
Total Project Cost (USD million/MW)	**0.588**

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VI. Has the NEPRA (Selection of Engineering, Procurement and Construction Contractor by Independent Power Producers) Guidelines, 2017 in the matter been followed in letter and spirit to arrive at EPC cost of the project or are there any exceptions to it and what are the justification for the same?

27. KEL submitted that, since GNL intends to undertake the Project under a self-EPC mode, without awarding a formal EPC contract, the NEPRA (Selection of Engineering, Procurement and Construction Contractor by Independent Power Producers) Guidelines, 2017 (the "2017 Guidelines") do not apply. However, to ensure cost transparency, GNL issued a Request for Proposal ("RFP") and received bids from five (05) contractors. Three (03) of these bids met the technical requirements, and the cost stated in the request is lower than the lowest of the received bids. This process was carried out to maintain competitiveness and transparency, even though the abovementioned Guidelines were not applicable in this case.

Decision of the Authority

28. The Authority noted that the above-mentioned 2017 Guidelines are applicable only to projects where an EPC contract for the whole or part of the project is to be awarded. The said guidelines neither restrict nor prohibit the implementation of projects under a self-EPC mode. Accordingly, where a project is undertaken under self-EPC without the award of a formal EPC contract, the 2017 Guidelines are not applicable. In the present case, therefore, the Authority finds the response of KEL to be justified.

VII. What is the basis of the proposed Capacity Utilization Factor of 22.85% mentioned in the tariff proposal and whether it is justified? Has any feasibility study been conducted in this regard?

29. KEL submitted that the Capacity Utilization Factor ("CUF") of 22.85%, as mentioned in the request, is based on simulations conducted by GNL using two reputable weather sources, i.e. Solargis and Meteonorm. These sources are widely recognized and used both in Pakistan and internationally for solar energy projects. The analysis indicates a P50 CUF of 22.85% based on Solargis data, while the Meteonorm-based assessment reflects a P50 CUF of 21.35%. It was also informed that GNL conducted a feasibility study using its in house expertise, which allowed the company to save time while ensuring a comprehensive evaluation of the Project's potential and viability.

Decision of the Authority

30. The Authority noted that estimated first-year energy generation of approximately 30.02 GWh has been estimated for the Project, based on which the annual CUF is worked out as 22.85%. The proposed configuration includes 630W N-type bifacial, double-glass, mono-crystalline solar PV modules, though GNL has indicated that the exact module wattage may vary at the time of EPC procurement, subject to market availability and technological advancements. The Authority observed that, in light of ongoing technological improvements, bifacial modules deployed with single-axis tracking systems have demonstrated 15% to 25% higher energy yield compared to fixed-tilt systems, as referred in the

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international literature. Furthermore, operational data from the nearby Gharo Solar Power Project (having the same technology) reflects an annual capacity factor in the range of 23% to 25.2%. In view thereof, the Authority decided to allow a CUF of 23.3% for the Project. The Authority further directs GNL to ensure that the total installed capacity of the Project does not exceed 15 MW (DC). Following energy sharing mechanism shall be applied for annual energy exceeding the approved CUF:

Annual Capacity Utilization Factor (CUF)	% of prevalent tariff to be allowed to power producer
Above 23.3% till 24%	0%
Above 24% till 24.7%	10%
Above 24.7% till 25.4%	20%
Above 25.4% till 26.1%	30%
Above 26.1%	40%

VIII. Whether the claimed O&M cost of the project is justified and is reflective of the current market conditions in the country? Is there any possibility to further reduce this cost considering the fact that most of the work force required for O&M is now available locally?

IX. Will the project adhere to the NEPRA (Selection of Operation and Maintenance Contractors by Generation Companies) Guidelines, 2021, during operation of the generation facility or any exception is envisaged and basis of the same?

31. KEL submitted that the claimed O&M cost of USD 12,500 per MW for the Project is justified in light of site-specific challenges, including corrosion risks, monsoon-related dewatering, cleaning requirements for bifacial modules, and security concerns in the coastal Gharo region. KEL further explained that while larger projects, such as the 100 MWp Zorlu Solar project, may be managed with lower O&M costs of around USD 9,000 per MW, the relatively higher cost for smaller projects like that of GNL is attributable to the allocation of fixed costs, such as personnel, administrative, and overhead expenses, over a smaller capacity, resulting in a higher per MW cost. KEL also submitted that although the availability of local workforce may support cost management, the operational complexities associated with smaller projects justify the higher O&M estimate. Additionally, KEL clarified that GNL does not intend to engage an external O&M contractor and will undertake O&M activities internally; therefore, the NEPRA (Selection of Operation and Maintenance Contractors by Generation Companies) Guidelines, 2021 (the "O&M Guidelines") are not applicable.

Decision of the Authority

32. To evaluate this claim, the Authority reviewed the O&M costs approved for comparable solar PV projects and also gave due consideration to the submissions regarding the relatively higher O&M requirements of tracking systems and the smaller size of the Project. Based on this assessment, the Authority has decided to approve O&M cost of Rs. 42.083 million per annum for the Project. This approval includes the cost of land lease/rent, which is consistent with the precedents of the Authority that where the land is owned by the sponsor, the rentals of land is allowed in the O&M component of tariff, instead of making the cost of land as a part of the project cost.

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33. Consistent with recent tariff determinations for solar PV projects, the Authority has decided to allow the entire O&M cost in local currency, which shall be subject to annual indexation based on changes in the N-CPI, in accordance with the mechanism provided in the Order part of this approval. Any savings in the actual O&M cost, after including the land lease/rentals, compared to the allowed O&M cost, if realized, shall be fully passed on to the consumers.

34. With respect to compliance with the O&M Guidelines, the Authority noted that the O&M Guidelines provide for both engagement of an external O&M contractor and self-O&M by the companies. The O&M Guidelines are applicable to power generation projects implemented under different tariff regimes, where a generation company intends to engage an O&M contractor at any stage during the project life. The Authority further observed that in cases of self-O&M, the O&M Guidelines require evaluation of the proposed O&M cost through an independent consultant and approval by the Authority to ensure transparency and cost efficiency. Accordingly, the Authority has allowed GNL to undertake self-O&M, subject to strict compliance with the applicable sections of the O&M Guidelines.

X. Whether the cost of debt i.e., SOFR + CAS +4.5% and claimed IRR of 13% (USD based) is justified?

Cost of Debt

35. KEL submitted that the proposed cost of debt is SOFR (Secured Overnight Financing Rate) + CAS (Credit Adjustment Spread) + 4.5% is justified considering the prevailing market conditions. It was submitted that 100% foreign financing with a servicing tenor of 14 years (with one year grace period) has been used in the request. It was stated that the actual debt is to be adjusted based on the actual mix of foreign and local financing at the time of COD.

Decision of the Authority

36. Whilst the request has been submitted based on 100% foreign loan, GNL did not submit any term sheet for the financing. As per Benchmark Guidelines, 2018, for renewable energy projects availing foreign financing, the spread not exceeding 4.25% has been allowed. Accordingly, the Authority has decided to approve the tariff at the margin of 4.25% over term SOFR. The Authority noted that the CAS was allowed only for those projects whose financing agreements were linked to LIBOR, in order to account for the difference between the legacy benchmark (LIBOR) and the replacement reference rate (SOFR) during the transition period. Since the financing for the Project will be based on a new contract, therefore, the CAS shall not be applicable. The tariff in this approval has been computed using 100% foreign financing, using the SOFR value of 3.65166%, as prevailing on 31 December, 2025 and the margin of 4.25%. The tariff shall be adjusted at actual mix of financing (local or foreign or mix) at COD, while applying the applicable terms strictly in accordance with the Benchmark Guidelines, 2018. In case the company is able to secure financing at a margin lower than the allowed benchmark i.e., lower than 4.25% in case of foreign financing, and 2.25% in case of local financing, the resulting savings shall be shared between the power purchaser and the power producer in the ratio of 60:40, respectively. Further, the Authority has accepted the proposed

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debt tenor of fourteen (14) years for tariff computation, being reasonable and in line with precedents in comparable cases.

Return on Equity

37. KEL submitted that the proposed 13% USD based cost of equity aligns with recent NEPRA determinations, reflecting the expected risk and return profile for similar projects and meeting investor requirements. It was requested that an Internal Rate of Return ("IRR") of 13% be permitted, with any taxes on revenues and income treated as pass-through items. GNL argued that this return is consistent with NEPRA's benchmark. Additionally, GNL requested that the Return on Equity during Construction ("ROEDC") be adjusted at COD based on actual equity injections (within the overall equity limit set by NEPRA) during the construction period, as was allowed in previous solar tariffs.

Decision of the Authority

38. The Authority has considered the submissions regarding the request for allowance of a 13% USD denominated IRR, having exchange rate indexation, and the request for adjustment of ROEDC at COD. It was observed that although USD-denominated returns with exchange rate indexation have been allowed in earlier determinations, the evolving regulatory and macroeconomic environment warrants a more prudent approach. Allowing USD-based returns transfers the entire foreign exchange risk to consumers and exposes tariffs to volatility, which is inconsistent with the objective of tariff stability. The Authority further noted that the Project does not involve any foreign equity participation; therefore, there is no corresponding foreign currency exposure on the equity side to justify USD-denominated returns, and allowing the same results in an unbalanced allocation of risk in favor of the investor. The Authority also considered the broader policy direction under recent sectoral reforms, wherein returns on generation assets have been rationalized and converted into PKR-denominated returns to remove or reduce foreign exchange exposure, enhance tariff predictability, and align returns with the actual currency composition of project costs. Accordingly, considering all the above stated factors, the Authority has decided to allow a PKR-denominated Return on Equity ("ROE") at the rate of 17% on IRR basis. The ROEDC shall be adjusted at COD based on actual equity injections, within the limit approved by the Authority. Taxes shall be dealt in accordance with terms as detailed in the order part of this approval.

XI. Whether the claimed insurance cost i.e., 0.4% of the EPC during construction and 0.5% during operation is justified?

39. KEL has submitted that the claimed insurance cost for the Project is based on a rate of 0.4% of the EPC cost during the construction phase, in line with NEPRA's benchmark. For the operational phase, GNL has proposed an insurance cost of 0.5% of the EPC cost, which is slightly higher than the standard of 0.4% due to the smaller size of the Project. According to KEL, this increased rate aims to adequately cover the unique risks and fixed costs associated with a smaller Project, ensuring sufficient risk exposure coverage.

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Decision of the Authority

40. The Authority has noted that the insurance cost during construction is intended to cover the expenses related to the insurance of equipment shipment and construction activities, while the insurance during operations covers risks such as machinery breakdown, revenue shortfalls and others. According to the Benchmark Guidelines, 2018, insurance costs during construction and operation are set at 0.40% of the EPC cost. This guideline has been consistently applied in the approval of insurance costs for solar PV projects whose tariffs were determined after the issuance of these guidelines. Accordingly, the Authority has decided to approve insurance @ 0.4% of EPC for the construction and operation period. The insurance during operation will be subject to annual adjustment as per the mechanism given in the order part of this decision.

XII. Whether the procurement from 15 MW Gharo Newgen (Pvt) Ltd at the proposed negotiated levelized tariff of US Cents 4.1988/kWh is justified and comparable with tariff arrived at through the latest rounds of competitive auctions by KEL?

XIII. How is negotiated tariff more advantageous for electricity consumers compared to a competitive bidding tariff?

41. KEL submitted that the Project was included in its PAP in August 2023, with the aim of fast-track commissioning by FY 2025. During the hearing, KEL acknowledged the decrease in solar panel and inverter prices and indicated that any potential tariff reductions may be incorporated into NEPRA's final decision. KEL also pointed out that during the competitive bidding process, it received bid tariffs ranging from US Cents 3.4062/kWh to 4.0363/kWh for larger projects ranging from 50 MW to 150 MW, but emphasized that the current Project is smaller in scale.

42. KEL submitted that competitive bidding and negotiated tariffs operate under separate regimes, with negotiated procurement allowed under Regulation 30 of NEPPR when competitive bidding is not feasible. Since the Project was separately identified in KEL's PAP and subsequently approved by NEPRA, KEL argued that the Project's fast-track commissioning offers significant advantages for electricity consumers.

Decision of the Authority

43. The Authority noted that the subject Project forms part of KEL's approved PAP for fast-track induction. KEL's acknowledgment regarding the decline in solar PV module and inverter prices, since the time the proposal was negotiated, have also been taken into account. While comparing the proposed rates and terms and conditions with tariffs discovered through recent competitive bidding for larger solar projects, the Authority observed that such bids were conducted at different times and for significantly larger capacities, where economies of scale result in lower tariffs; therefore, a direct like-for-like comparison is not appropriate. Nonetheless, the approved tariff of approximately US Cents 3.7746/kWh falls within, and in certain cases below, the tariffs observed in recent competitive procurements, indicating alignment with bidding results. The Authority further noted that the Project is being processed pursuant to Regulation 30 of the NEPPR, wherein the rates and terms and conditions of procurement are determined based on an independent assessment of prudent and reasonable costs using current market data, thereby largely mitigating risks typically addressed through competitive bidding. Although, in the absence of a competitive

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process, it cannot be conclusively established whether a lower tariff could have been discovered, the Authority is sufficiently satisfied that the rates and terms and conditions of procurement being approved reflects current market conditions and remains competitive. It is also important to note that the Project has been allowed a ROE on a PKR basis, thereby reducing the exposure of a significant portion of the tariff to exchange rate variations, as compared to the structure approved under the competitive bidding approvals, making it more advantageous and consumer-centric in this respect. Moreover, the fast-track implementation of the Project is expected to deliver timely consumer benefits through early availability of low-cost renewable energy, fuel cost savings, diversification of the generation mix, and reduced exposure to international fuel price volatility. Accordingly, the Authority considers the procurement of power from the Project at the rates, being approved in this decision, to be prudent, reasonable, and consistent with the regulatory framework.

XIV. Will it be prudent to connect the generation facility at 11 kV voltage considering the system reliability aspects? Has any analysis been carried out to consider higher voltages for dispersal of power and if so, what factors have led to drop the proposal? What will be mechanism to fund the cost of the interconnection?

44. KEL submitted that connecting the Project at 11 kV voltage is considered a prudent choice due to several factors: the plant's proximity to the Gharo Grid (approximately 7 km away), the Project's small size (15 MW), and the feasibility of connecting at 11 kV. Connecting to a higher voltage transmission system, such as 132 kV, would require significant additional investment in the plant's switchyard, which is not practical for a project of this size. Furthermore, constructing the 11 kV line would be feasible to meet the existing and future load requirements of the surrounding area. Accordingly, KEL proposed to construct the 11 kV lines for the Project, subject to NEPRA approval of the required investment.

Decision of the Authority

45. The Authority noted that, during the PAP approval proceedings, KEL was required to justify the adequacy of the existing distribution system to reliably receive and evacuate power from the Project. Nevertheless, considering the Project's capacity, distance from the grid, and the cost implications of higher voltage interconnection, nearby load requirement, the Authority is of the view that connection at 11 kV is a prudent and cost-effective option for the instant Project. Accordingly, the submissions made by KEL are found to be acceptable. Additionally, it was noted that KEL, being the power purchaser in the instant case, has not originally sought approval for any dedicated investment related to the interconnection and evacuation of power from this Project. However, it is noted that vide its review decision on investment plan issued on 20 October 2025, the Authority, upon the request of KEL, has allowed the flexibility in the scope of distribution segment, under which the investment in the interconnection for the Project can be addressed. Any costs due to delays in timely completion of the interconnection for the Project, as well as any losses or operational issues arising from its connection at 11 kV level, which are attributable to KEL, shall not be passed on to consumers.

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XV. Whether the pass-through claims are justified?

46. KEL submitted that GNL has based its pass-through claims on actual cost incidences, which are essential for securing investor's interest and ensuring the Project's financial viability. KEL requested NEPRA to approve the pass-through claims for this Project in line with its previous tariff determinations for solar projects. Produced below table shows the pass throughs as stated in the request and the decision of the Authority on each of these requests:

Requested	Decision of the Authority
The payments to workers welfare fund and workers profit participation fund have been assumed to be reimbursed as pass-through at actual by KE;	Allowed, the treatment shall be made part of EPA, as per precedents.
Zakat deduction on dividends, as required under the Zakat and Ushr Ordinance, 1980 is considered a pass-through item;	Allowed, the treatment shall be made part of EPA, as per precedents.
No tax on income of the company (including proceeds against sale of electricity to KEL) has been assumed. Income tax including advance income tax, corporate tax, turnover tax, general sales tax/provincial sales tax, and all other taxes, excise duties, levies, fees, etc., imposed by any federal/provincial entity, including local bodies and not of a refundable nature, will be treated as pass-through items;	In case the company is obligated to pay any tax on its income from generation of electricity, or any duties and/or taxes, not being of refundable nature, are imposed on the company, the exact amount paid by the company on these accounts shall be reimbursed on production of original receipts, as a pass-through.
Taxes and custom duties on the import of plant and equipment, including Sindh cess, will be treated as a pass-through item.	Duties and taxes, including custom duties and cess, not being of a refundable nature, relating to the construction period directly imposed on the GNL up to the COD, will be allowed at actual upon production of verifiable documentary evidence to the satisfaction of the Authority. The Alternative and Renewable Energy Policy, 2019 ("ARE Policy, 2019") states certain conditions, fulfillment of which can result in the exemption of duties on the import of items, those are being manufactured locally also. In case GNL imports any plant, machinery or equipment that is

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	also manufactured locally, in accordance with the Customs General Order of the Federal Board of Revenue, the related duties shall be reimbursed to the GNL subject to fulfillment of conditions as given in the ARE Policy 2019, for which certification shall be obtained from Private Power and Infrastructure Board.
Any other taxes and charges, whether during the construction or operation period, including but not limited to sales tax on the EPC contract and withholding tax on the EPC offshore contract incurred by the Company, will be treated as pass-through;	The approved EPC cost is inclusive of these taxes/charges, therefore, no additional cost on this account is allowed as pass through.
If the company is required to make payment of withholding tax on debt servicing the same shall be treated as pass-through item. KEL will reimburse to the company the actual amount paid on account of withholding tax.	Shall be allowed as a pass through, as and when incurred and paid.
The withholding tax on dividends, up to a maximum of 7.5%, shall be paid by the shareholders of the company. However, if the Government of Pakistan alters the withholding tax rate on dividends from the current 7.5% (either increasing or decreasing it), such changes will be directly passed through to KEL. The ROE of 13% has been assumed in accordance with NEPRA determinations, which were based on a 7.5% withholding tax rate. If the withholding tax increases to, say, 15%, then the effective ROE for shareholders will be reduced to 11.05%.	Not Allowed.

XVI. Whether the construction period of 8 months is justified considering the size of the project and availability of the solar panels in the market?

47. KEL has submitted that the Project is intended to be completed on a fast-track basis for which GNL has committed to achieve the commercial operations within eight (8) months of signing the EPA.

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Decision of the Authority

48. The Authority noted that during the PAP decision proceedings as well as at the time of submission of the negotiated tariff, KEL and GNL submitted that the Project is capable of fast-track commissioning owing to the availability of land, readiness of the site, and the developers' demonstrated experience in the development and construction of solar PV projects within Pakistan. The Authority further noted that the Project is of a relatively small capacity (15 MW) and, considering the prevailing market availability of solar modules and BOP, it is not expected to face procurement constraints. The Authority also noted that the prior experience of the Project sponsor in successfully executing similar projects reduces the risk of construction delays and supports timely completion. In view of the foregoing, the Authority is of the view that a six (06) months construction period is reasonable, and has decided to allow the same.

XVII. Whether the proposed indexation mechanism for one-time adjustment is justified?

49. KEL in the request stated a conventional cost-plus one-time tariff adjustment.

Decision of the Authority

50. The Authority noted that under the cost-plus tariff mechanism, key project cost components, including EPC, non-EPC, and IDC, are subject to one-time adjustment in accordance with the specified terms and conditions. The objective is to allow only prudently incurred costs and to ensure that consumers are not burdened with additional expenses arising from delays, cost overruns, or non-performance attributable to the project sponsors or other parties. Accordingly, a similar one-time adjustment mechanism is being approved for the Project, the details of which are provided in the Annex-I of this decision.

XVIII. Whether the tariff structure and indexation scheme should be the one as approved in the case of RFPs or conventional Cost plus?

51. KEL in its request submitted the tariff structure and indexation mechanism as approved by the Authority in the cost-plus tariff decisions. During the hearing and subsequently vide letter dated 24 January, 2025, KEL submitted that subsequent to successful completion of its competitive bidding processes, KEL had discussions with GNL on this matter and GNL has shown its willingness to accept the tariff structure and indexation mechanism as approved by NEPRA for the competitive bidding regime.

Decision of the Authority

52. The Authority observed that majority of the tariff determinations for the renewable energy projects have been issued under the 2006 RE Policy. The said policy governs tariff determination, inter alia, under the cost-plus regime, and explicitly provides for component wise indexation, including annual CPI based indexation of O&M costs, exchange rate adjustments for foreign denominated returns and debt servicing, where applicable, etc.

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53. The ARE Policy, 2019 envisages competitive bidding as the preferred tariff and procurement mechanism for mature technologies such as solar PV projects. In this regard, the Government of Pakistan approved Fast Track Solar PV Framework, whereby it introduced a standardized tariff and indexation mechanism, exclusively for competitive bidding projects. Under this mechanism, indexation was to be applied to the overall levelized tariff without disclosure of underlying cost components. This mechanism was adopted in PPIB and KEL led competitive bidding processes, after due approval by the Authority.

54. Considering that the tariff for the instant Project has not been arrived at through a competitive bidding process and instead has been submitted for approval based on a proposal negotiated between the power purchaser and the power producer, the Authority considers it appropriate to approve the structure and mechanism of indexation as approved under the cost-plus regime, as also originally claimed in the request. This approach is consistent with the framework adopted in similar cases and aligns with the Authority's established precedents for such approvals.

XIX. Whether the proposed terms of the contract are justified or otherwise?

55. KEL submitted that the proposed contract follows KEL standard EPA and ensures alignment with established practices and regulatory frameworks. The contract terms are based on previously executed EPAs that have been approved by NEPRA, reflecting consistency with industry norms.

Decision of the Authority

56. The Authority has considered the proposed Project's life of twenty-five (25) years with a corresponding debt repayment period of fourteen (14) years for the purpose of tariff determination and tariff levelization, and found it consistent with earlier precedents. Whilst ARE Policy, 2019 talks about the risks associated with long-term EPAs amid rapid technological change and declining costs, the Authority noted that the primary consideration is the protection of consumer interests, and it has been ensured that consumers got to bear only their equitable share of debt servicing obligations as with some lesser tenor EPAs, post which they get the incentive of significantly cheaper electricity. The Authority also noted the risk of exit by the seller with completion of front-loaded debt repayment; accordingly, the approval is being granted on the condition that no early termination, exit, or migration to the market shall be permitted without prior approval of the Authority, which shall ensure that consumer interests remain fully safeguarded.

EPA APPROVAL

57. The Authority considered the EPA submitted by KEL and noted that certain terms and conditions therein are bilateral in nature, while others are linked to the approval of the rates, charges and other terms and conditions of procurement by the Authority and grant of concurrence to GNL. The Authority further noted that the schedules to the EPA have not been submitted, which may be attributed to pending approval of the rates, charges and other terms and conditions of procurement and grant of concurrence by the Authority. Accordingly, after detailed deliberations, the Authority has decided to approve the rates, charges and other

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terms and conditions of procurement and the EPA, subject to the directions contained in the Order part of this Decision.

Order

58. In pursuance of Regulation 30 of NEPPR, the Authority hereby approves the EPA submitted by KEL for procurement of electric power of 15 MW from GNL subject to the following:

i. KEL is directed to make following changes in the EPA prior to its execution:

a. The definition of Contract Capacity shall be revised to reflect DC capacity instead of AC.

b. Provisions with regards to Maintenance of Purchaser Interconnection Facilities (PIF) shall be incorporated exactly as reflected in the EPAs executed in the CPPA-G pool.

c. The definition and other relevant clauses with regards to Average Daily Energy prior to COD shall be aligned with the provisions of EPAs executed in the CPPA-G pool.

d. KEL to review and designate those months for maintenance to GNL where system peak demand and solar irradiance are relatively lower.

e. The provisions with respect to Credit Cumulative Energy and Short fall energy, and all other relevant clauses, shall be incorporated in the EPA on similar lines as reflected in EPAs in the CPPA-G pool.

ii. The EPA shall include and be aligned with this Decision and with the Tariff Approval, which includes rates, charges and other terms and conditions of procurement, as approved by the Authority and attached herewith as Annex-I.

iii. After incorporating the afore stated requirements and amending the EPA accordingly, and grant of concurrence, KEL is directed to submit the complete and finalized schedules of the EPA for approval of the Authority.

iv. KEL may execute the EPA, complete in all respects including the approved schedules, after grant of concurrence by the Authority.

v. The duly executed EPA along with schedules shall be submitted to the Authority for its record and information.

vi. Any provision of the EPA which is contrary to this Decision and Annex-I or any other direction of the Authority shall be *ipso facto* void and of no legal effect.

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59. The Order part of this decision along with Annex I (including Table-I and Table-II) shall be notified in the official Gazette.

AUTHORITY

(Engr Maqsood Anwar Khan)
Member

(Amina Ahmed)
Member

(Waseem Mukhtar)
Chairman

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ANNEX-I

APPROVAL OF TARIFF IN RESPECT OF 15 MW SOLAR POWER PROJECT OF GHARO NEWGEN (PRIVATE) LIMITED

1. In pursuance of section 7(3) (a) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 ("NEPRA Act") read with other applicable provisions under the rules and regulations made under the NEPRA Act, the Authority hereby approves the following rates and terms and condition of procurement from Gharo Newgen (Private) Limited ("GNL") for its 15 MW solar power project for delivery of electricity to KEL:

Rs./kWh

Tariff Components	Year 1-14	Year 15-26
Operation and Maintenance Cost	1.3745	1.3745
Insurance during Operations	0.2996	0.2996
ROE	2.5526	2.5526
ROEDC	0.1382	0.1382
Debt Servicing	7.6699	-
Total	**12.0349**	**4.3650**

- Levelized tariff works out to be Rs. 10.5897/kWh (US Cents 3.7746/kWh).
- The aforementioned tariff is applicable for twenty-five (25) years.
- The tariff has been worked out on Build Own and Operate basis.
- EPC cost of USD 8.175 million has been approved.
- Project Development Cost of Rs. 89.36 million has been approved as maximum limit subject to adjustment at actual at COD.
- Insurance during construction of Rs. 4.59 million has been approved as maximum limit subject to adjustment at actual at COD.
- Financing fee of Rs. 39.56 million has been approved as maximum limit subject to adjustment at actual at COD.
- Debt to Equity of 80:20 has been approved.
- Tariff has been computed on 100% foreign financing.
- Return on Equity during construction and operation of 17% (PKR based) has been allowed.
- Debt Servicing has been worked out using three months SOFR (3.65166%) + Spread (4.25%).
- Debt Service shall be paid in the first fourteen (14) years of commercial operation of the plant.
- Construction period of six (06) months has been allowed for the workings of ROEDC and IDC.
- IDC and ROEDC have been worked out using equal drawdown for the allowed construction period.
- Insurance during Operation has been calculated as 0.40% of the allowed EPC Cost.
- O&M Cost, inclusive of land rental/lease, of Rs. 42.08 million per annum has been allowed.

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- Net Annual Capacity Utilization Factor of 23.3% has been approved.
- Degradation factor of 0.4% per year has been approved.
- Reference Exchange Rate of 280.55 PKR/USD has been used.
- Detailed component wise tariff is attached as **Table-I** of this approval.
- Debt Servicing Schedule is attached as **Table-II** of this approval.

A. One-time adjustment:

i. The approved EPC cost, up to maximum of 75%, shall be allowed PKR/USD variation based on production of authentic documentary evidence (such as import documents) to the satisfaction of the Authority. The minimum of 25% of the EPC costs is fixed in PKR at the exchange rate as prevailing on the date of financial close, and the equivalent USD of that amount will be recalculated at COD on the basis of applicable ER on the date of payment.

ii. PDC, Insurance during construction and Financing Fee and Charges shall be adjusted at actual at the time of COD considering the approved amount as the maximum limit. The amounts allowed on these accounts in USD will be converted in PKR using the reference PKR/USD rate of 280.55 to calculate the maximum limit of the PKR amount to be allowed at COD. At the time of COD, the equivalent USD amount for these cost heads shall be re-computed, on the exchange rates prevailing on the respective payment dates during the approved construction period.

iii. The amounts payable by the company, on account of EPC cost, PDC, Insurance during Construction and Financing Fee & Charges, till the date of COD, shall be given approval upon payment of such amount as per the mechanism given in (i) and (ii) above.

iv. Duties and/or taxes, including cess, not being of refundable nature, relating to the construction period, directly imposed on the company up to COD, will be allowed at actual, upon production of verifiable documentary evidence to the satisfaction of the Authority.

ARE Policy, 2019 states certain conditions, fulfillment of which can result in the exemption of duties on the import of items, those are being manufactured locally also. In case GNL imports any plant, machinery or equipment that is also manufactured locally, in accordance with the Customs General Order of the Federal Board of Revenue, the related duties shall be reimbursed to the GNL subject to fulfillment of conditions as given in the ARE Policy 2019, for which certification shall be obtained from Private Power and Infrastructure Board.

v. IDC will be recomputed at COD on the basis of actual timing of debt draw downs (for the overall debt allowed by the Authority at COD) during the project construction period from financial close.

vi. For full/part of conventional local or foreign loans or a mix of both, if availed by the company, the IDC shall also be allowed adjustment for change in applicable KIBOR/SOFR.

vii. The tariff has been determined on debt: equity ratio of 80:20. The tariff shall be adjusted on actual debt: equity mix at the time of COD, subject to equity share of not more than 20%. For equity share of more than 20%, the same shall be treated as debt.

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viii. For full or part of local or foreign loan, if any, the savings in the approved spreads shall be shared between the power purchaser/consumer and power producer in the ratio of 60:40.

ix. ROEDC will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD) for the project construction period of six (06) months allowed by the Authority.

x. For the above adjustments, the Construction period of six (06) months or actual whichever is lower shall be considered.

B. Indexations

Adjustment of O&M and insurance shall be made on annual basis. Adjustment of Debt Servicing Component shall be made on quarterly basis upon the final terms approved by the Authority. The indexation mechanisms are given hereunder:

i) Operation and Maintenance Costs

O&M components of tariff shall be adjusted based on revised rates of local Inflation (N-CPI) as notified by Pakistan Bureau of Statistics according to the following formula;

L. $O\&M_{(REV)}$	=	L. $O\&M_{(REF)}$ * N-$CPI_{(REV)}$ / N-$CPI_{(REF)}$
Where;		
L. $O\&M_{(REV)}$	=	The revised O&M Local Component of Tariff
L. $O\&M_{(REF)}$	=	The reference O&M Local Component of Tariff
N-$CPI_{(REV)}$	=	The revised N-CPI (General)
N-$CPI_{(REF)}$	=	The reference N-CPI (General) of 280.53 of December 2025

ii) Insurance during Operation

The actual insurance cost for the minimum cover required under contractual obligations with the power purchaser, not exceeding 0.4% of the approved EPC cost, will be treated as pass through. Insurance component of reference tariff shall be adjusted annually as per actual upon production of authentic documentary evidence to the satisfaction of the Authority according to the following formula:

AIC	=	$Ins_{(REF)}$ / $P_{(REF)}$ * $P_{(ACT)}$
Where;		

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AIC	=	Adjusted insurance component of tariff
$Ins_{(REF)}$	=	Reference insurance component of tariff
$P_{(REV)}$	=	Reference premium @ 0.4% of approved EPC Cost at Rs. 280.55
$P_{(ACT)}$	=	Actual premium or 0.4% of the approved EPC Cost, converted into PKR on exchange rate prevailing at the time of insurance premium payment (as notified by the National Bank of Pakistan) of the insurance coverage period whichever is lower

iii) **<u>Indexations applicable to debt</u>**

The principal and interest components of foreign debt will be adjusted on quarterly basis, on account of revised TT & OD selling rate of USD, as notified by the National Bank of Pakistan as at the last day of the preceding quarter, over the applicable reference exchange rate. The interest part of tariff component for the foreign loan shall also be adjusted with respect to change in applicable SOFR, wherein the change will be calculated according to the following formula:

ΔI	=	$(P_{(REV)} * (SOFR_{(REV)} - 3.65166\%) * ER_{(Rev)}/\text{Annual Energy})$
Where;		
ΔI	=	The variation in interest charges applicable corresponding to variation in 3-month SOFR. ΔI can be positive or negative depending upon whether 3-month $SOFR_{(REV)}$ per annum > or < 3.65166%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment.
$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order at Table-II), on a quarterly basis at the relevant calculations date.
$SOFR_{(REV)}$	=	Revised 3-month SOFR as at the last day of the preceding quarter.
$ER_{(REV)}$	=	Revised TT & OD selling rate of USD, as notified by the National Bank of Pakistan as at the last day of the preceding quarter

Note: In case of local financing, the applicable indexation mechanism shall be incorporated at the time of COD adjustment decision.

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C. Terms and Conditions

The following terms and conditions shall apply to the determined tariff:

- All plant and equipment shall be new and of acceptable standards. The verification of the plant and equipment will be done by the independent engineer/firm at the time of the commissioning of the plant duly appointed by the power purchaser. The petitioner is required to ensure that all the equipment is installed as per the details/specifications given in the generation concurrence and tariff/EPA approvals.
- The O&M Cost and the corresponding mechanism thereof as approved shall be applicable for 25 years from COD. During this time, GNL shall submit, on an annual basis, documentary evidence duly supported by an independent verification/report reflecting actual O&M expenditures. Any savings realized in actual O&M costs, after accounting for land lease/rentals, vis-à-vis the approved O&M cost shall be fully passed on to the consumers. Further, in the event GNL intends to engage an O&M contractor at any stage during the tariff control period, it shall be mandatory to strictly comply with the NEPRA (Selection of Operation and Maintenance Contractors by Generation Companies) Guidelines, 2021, without any exception.
- This tariff will be limited to the extent of net annual energy generation supplied to the power purchaser up to 23.3% net annual plant capacity factor. Net annual energy generation supplied to the power purchaser in a year, in excess of 23.3% net annual plant capacity factor will be charged at the following tariffs:

Annual Capacity Utilization Factor (CUF)	% of prevalent tariff to be allowed to power producer
Above 23.3% till 24%	0%
Above 24% till 24.7%	10%
Above 24.7% till 25.4%	20%
Above 25.4% till 26.1%	30%
Above 26.1%	40%

- The risk of solar resource shall be borne by the power producer.
- The maximum plant PV capacity shall not exceed 15 MWp.
- No adjustment for certified emission reductions has been accounted for. However, upon actual realization of carbon credits, the same shall be distributed between the power purchaser and the power producer in accordance with the applicable GOP Policy, as amended from time to time.
- The savings in the approved limit of spread over foreign/local loan shall be shared between power purchaser and power producer in the ratio of 60:40 at the time of COD or during any time of loan tenor, as applicable.

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- The company will have to achieve financial close within one (01) year from the date of issuance of tariff determination. This tariff will no longer remain valid, if financial close is not achieved, for whatever reason, within the prescribed timeline.

- The targeted maximum construction period from time of financial close is six (06) months. No adjustment will be allowed in this tariff to account for financial impact of any delay in project construction. However, the failure of the company to complete construction within six (06) months will not invalidate the tariff granted to it.

- No compensation for pre-COD sale of electricity is to be allowed to the power producer.

- In case the company is obligated to pay any tax on its income from generation of electricity, or any duties and/or taxes, not being of refundable nature, are imposed on the company, the exact amount paid by the company on these accounts shall be reimbursed on production of original receipts. Further, if the company is required to make payment of withholding tax on the interest payment on foreign loans, being non-refundable and non-adjustable, the same shall be treated as pass-through item. However, withholding tax on dividend shall not be passed through.

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Table-I

REFERENCE TARIFF TABLE

Year	O&M Local	Insurance	Return on Equity	Return on Equity during Construction	Principal Repayment Foreign	Interest Charges Foreign	Tariff
	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh		Rs. / kWh
1	1.3745	0.2996	2.5526	0.1382	2.6417	5.0282	12.0349
2	1.3745	0.2996	2.5526	0.1382	2.8567	4.8132	12.0349
3	1.3745	0.2996	2.5526	0.1382	3.0893	4.5806	12.0349
4	1.3745	0.2996	2.5526	0.1382	3.3407	4.3292	12.0349
5	1.3745	0.2996	2.5526	0.1382	3.6126	4.0573	12.0349
6	1.3745	0.2996	2.5526	0.1382	3.9066	3.7633	12.0349
7	1.3745	0.2996	2.5526	0.1382	4.2246	3.4453	12.0349
8	1.3745	0.2996	2.5526	0.1382	4.5684	3.1015	12.0349
9	1.3745	0.2996	2.5526	0.1382	4.9402	2.7297	12.0349
10	1.3745	0.2996	2.5526	0.1382	5.3423	2.3276	12.0349
11	1.3745	0.2996	2.5526	0.1382	5.7771	1.8928	12.0349
12	1.3745	0.2996	2.5526	0.1382	6.2473	1.4226	12.0349
13	1.3745	0.2996	2.5526	0.1382	6.7557	0.9142	12.0349
14	1.3745	0.2996	2.5526	0.1382	7.3056	0.3643	12.0349
15	1.3745	0.2996	2.5526	0.1382	-	-	4.3650
16	1.3745	0.2996	2.5526	0.1382	-		4.3650
17	1.3745	0.2996	2.5526	0.1382	-		4.3650
18	1.3745	0.2996	2.5526	0.1382	-		4.3650
19	1.3745	0.2996	2.5526	0.1382	-		4.3650
20	1.3745	0.2996	2.5526	0.1382	-		4.3650
21	1.3745	0.2996	2.5526	0.1382	-		4.3650
22	1.3745	0.2996	2.5526	0.1382	-		4.3650
23	1.3745	0.2996	2.5526	0.1382	-		4.3650
24	1.3745	0.2996	2.5526	0.1382	-		4.3650
25	1.3745	0.2996	2.5526	0.1382	-		4.3650
Levelized Tariff	1.3745	0.2996	2.5526	0.1382	3.3231	2.9016	10.5897

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Table-II

Debt Servicing Schedule - Foreign (100%)						
Relevant Quarters	Outstanding Debt (USD)	Principal Repayment (USD)	Interest (USD)	Total Debt Service (USD)	Annual Principal Repayment Rs./kWh	Annual Interest Rs./kWh
1	7,050,704	69,972	139,281	209,253	2.6417	5.0282
2	6,980,732	71,354	137,898	209,253		
3	6,909,378	72,764	136,489	209,253		
4	6,836,614	74,201	135,052	209,253		
5	6,762,413	75,667	133,586	209,253	2.8567	4.8132
6	6,686,746	77,162	132,091	209,253		
7	6,609,585	78,686	130,567	209,253		
8	6,530,899	80,240	129,012	209,253		
9	6,450,659	81,825	127,427	209,253	3.0893	4.5806
10	6,368,833	83,442	125,811	209,253		
11	6,285,392	85,090	124,163	209,253		
12	6,200,301	86,771	122,482	209,253		
13	6,113,531	88,485	120,768	209,253	3.3407	4.3292
14	6,025,046	90,233	119,020	209,253		
15	5,934,813	92,015	117,237	209,253		
16	5,842,797	93,833	115,419	209,253		
17	5,748,964	95,687	113,566	209,253	3.6126	4.0573
18	5,653,277	97,577	111,676	209,253		
19	5,555,700	99,504	109,748	209,253		
20	5,456,196	101,470	107,783	209,253		
21	5,354,726	103,475	105,778	209,253	3.9066	3.7633
22	5,251,251	105,519	103,734	209,253		
23	5,145,733	107,603	101,650	209,253		
24	5,038,130	109,729	99,524	209,253		
25	4,928,401	111,896	97,356	209,253	4.2246	3.4453
26	4,816,505	114,107	95,146	209,253		
27	4,702,398	116,361	92,892	209,253		
28	4,586,037	118,659	90,593	209,253		
29	4,467,378	121,003	88,249	209,253	4.5684	3.1015
30	4,346,375	123,394	85,859	209,253		
31	4,222,981	125,831	83,421	209,253		
32	4,097,150	128,317	80,936	209,253		
33	3,968,833	130,852	78,401	209,253	4.9402	2.7297
34	3,837,981	133,437	75,816	209,253		
35	3,704,545	136,072	73,180	209,253		
36	3,568,472	138,760	70,492	209,253		
37	3,429,712	141,502	67,751	209,253	5.3423	2.3276
38	3,288,210	144,297	64,956	209,253		
39	3,143,913	147,147	62,105	209,253		
40	2,996,766	150,054	59,199	209,253		
41	2,846,712	153,018	56,234	209,253	5.7771	1.8928
42	2,693,694	156,041	53,212	209,253		
43	2,537,653	159,123	50,129	209,253		
44	2,378,529	162,267	46,986	209,253		
45	2,216,263	165,472	43,780	209,253	6.2473	1.4226
46	2,050,790	168,741	40,512	209,253		
47	1,882,049	172,074	37,178	209,253		
48	1,709,975	175,474	33,779	209,253		
49	1,534,502	178,940	30,313	209,253	6.7557	0.9142
50	1,355,562	182,475	26,778	209,253		
51	1,173,087	186,079	23,173	209,253		
52	987,008	189,755	19,498	209,253		
53	797,253	193,504	15,749	209,253	7.3056	0.3643
54	603,749	197,326	11,927	209,253		
55	406,423	201,224	8,029	209,253		
56	205,199	205,199	4,054	209,253		

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