



**K-Electric Renewable Energy Addition Plan**  
September 2022

## Contents

<b>1. Introduction</b> .....	3
<b>2. KE Planned Renewable Additions</b> .....	4
<b>2.1. 3 x 50 MW Solar Power Projects in Lasbela, Balochistan</b> .....	4
<b>2.2. 350 MW Sindh Solar Energy Projects (SSEP)</b> .....	6
<b>2.3. 82 MW Uzghor Hydel Power Plant</b> .....	8
<b>3. Other Renewable Projects</b> .....	9
<b>3.1 LOIs / Interest for Renewable Projects</b> .....	9
<b>3.2 Request for Proposal (RFP) for RE Project</b> .....	10
a) RFP on Land procured by KE .....	10
b) RFP for projects in the vicinity of KE grid and infrastructure .....	11
<b>3.3 Discussion with Hydel Projects</b> .....	11
<b>4. Challenges and NEPRA Support</b> .....	12
<b>5. Conclusion</b> .....	14

## 1. Introduction

K-Electric Limited (KE) has powered Karachi for over one hundred years and is the largest and only vertically integrated power utility in Pakistan. KE is responsible for the generation, transmission, and distribution of power to its regulated consumers.

Through a network spanning across 6,500 square kilometers, KE supplies power to all residential, commercial, industrial and agricultural areas that fall under the city's ambit and beyond, serving over 2.5 million customers across Karachi, Dhabeji and Gharo in Sindh, and Uthal, Vinder and Bela in Balochistan.

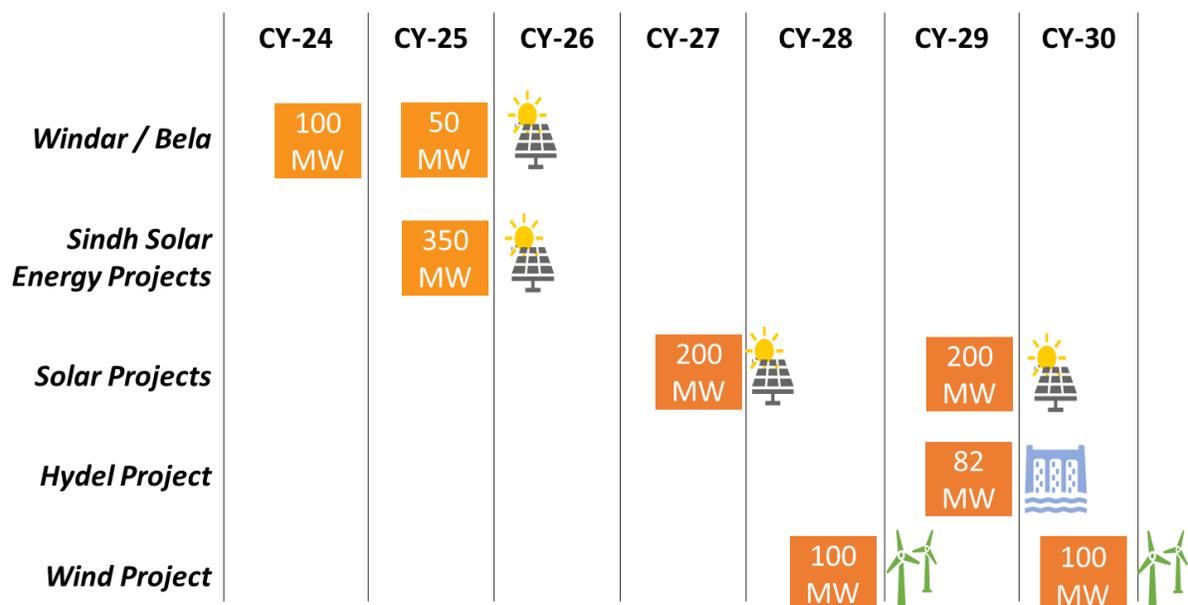
Karachi being Pakistan's premier industrial and financial hub, is the growth center of the country. To maintain sustainable growth for the Company and Karachi, induction of affordable resources of power in the KE system is paramount, to phase away from expensive and inefficient generation and diversify the generation fuel mix thereby reducing KE's basket price going forward.

To meet the ever-increasing demand of its consumers, KE plans to add c. 2,200 MW of new plants, based on both renewables and indigenous resources, in its fleet from CY-24 to CY-30.

With regards to plan for induction of renewables, KE is currently following a robust and aggressive plan to add c. 1,200 MW by CY-30 through a development pipeline of over 2,000 MW. This planned focus on renewable sources of power generations will benefit customers in the long run by ensuring reliable, affordable, and clean electricity for all.

## 2. KE Planned Renewable Additions

KE's future renewable power procurement plan focuses on addition of at least 1,200 MW renewable projects, under IPP mode. This emphasizes the shift towards clean and affordable power in conformity with the GoP Policy and targets in ARE Policy 2019 and National Electricity Policy / National Electricity Plan. The timeline as provided by KE to NTDC for inclusion in the IGCEP 2022 is as follows:



*Note: KE is in the process of conducting a techno-commercial renewable integration and optimization study. KE's capacity addition plan and their timelines are subject to the recommendation of this study, and related corporate and regulatory approvals.*

KE is under discussion with several project developers for planned additions of 1200 MW as stated above.

The following section of the report provides an overview and the status for the projects under advanced development.

### 2.1. 3 x 50 MW Solar Power Projects in Lasbela, Balochistan

#### Project Overview

KE is undertaking 3 x 50 MW Solar Project(s) in the Winder, Uthal and Bela region of Balochistan via competitive bidding mechanism as stipulated under the NEPRA Competitive Bidding Tariff Regulations, 2017, whereby KE is the Relevant Agent and the Power Purchaser.

These are strategic projects for KE to improve the reliability of power supply for these regions as KE is also planning to install new 132 kV lines / grids from Hub to Bela. These

initiatives are expected to improve the service delivery, pave way for industrial growth, increase employment in the region and socially uplift the adjoining areas. Proposed 3 x 50 MW solar power projects entail a combined landmark investment of c. USD 200 Million in the region (including upgradation of transmission structure).

Tremendous interest was shown for these Solar Projects by local and international investors, in the form of 56 Expression of Interests (EOIs) that were submitted, which were finally brought down to 22 pre-qualified applicants. Once the bidding process for the generation projects is concluded, the successful Bidder will have majority shareholding and management control in the SPV, while KE may participate as a non-controlling shareholder with the successful bidder. Such discussion will only be initiated upon culmination of the bidding process in a clear and transparent manner. The Bidding process will be overseen by an independent consultant, who will be part of the Bid Evaluation Committee and the Bid Evaluation report would be submitted to NEPRA prior to the Letter of Interest (LOI) being issued to the Successful Bidder.

Moreover, the land for the 3 x 50 MW Solar Projects will be provided by GoB. Successful Bidder will be responsible for development and financial close of the projects with KE providing the necessary support required.

In June 2021, KE had completed all requisite technical studies and submitted them as part of the Request for Proposal (RFP) package to NEPRA and the prospective bidders for the projects in Lasbela. The RFP was earlier submitted in April 2021.

Milestones achieved since inception including following:

Milestones	Date
Advertisement seeking EOIs	07-Aug-2020
EOIs received from 56 parties	21-Aug-2020
Issuance of Prequalification Document	05-Nov-2020
Submission of Prequalification Applications from the Applicants	21-Dec -2020
Submission of RFP to NEPRA and issuance to Prequalified Applicants	28-Apr-2021
Submission of Feasibility Studies to NEPRA for the three sites	30-Jun-2021
NEPRA hearing on RFP	22-Sep-2021

## Project Timeline

Milestones	Date (T+ x months)
Land allocation by GoB	T
Bid submission	T+2
Bid evaluation, selection of Successful Bidder and LOI award	T+4
Submission of Bid Evaluation Report to NEPRA	T+5
Signing of JVA and Formation of SPV	T+6
Filing of GL and tariff application with NEPRA	T+7
GL and tariff approval by NEPRA*	T+8
Approval of EPA by NEPRA*	T+9
Transfer of land by GoB to SPV	T+11
Financial close – Winder and Bela	T+14
Financial close – Bela 2	T+21
COD – Winder and Bela	T+24
COD – Bela 2	T+31

\* *proposed and subject to confirmation by NEPRA*

## 2.2. 350 MW Sindh Solar Energy Projects (SSEP)

To increase solar power generation and access to electricity in the province of Sindh, Sindh Energy Department (SED) in collaboration with the World Bank Group (WB) will undertake as one of the components of the Sindh Solar Energy Project (SSEP), a 400 MW of Utility-Scale Solar Park to be developed by the private sector under a competitive bidding model, bifurcated into:

- Single or multiple solar projects with cumulative capacity of 350 MW to be set up in KE's serviced territory
- Remaining 50 MW Project in Jamshoro district, with Central Power Purchasing Agency (CPPA) as the power off-taker

KE, WB and SED signed a Memorandum of Understanding (MoU) on 10 December 2021 for the development of 350 MW solar projects.

SED will be the Relevant Agent for the Project and will be responsible for carrying out the competitive bidding process including the RFP submission to NEPRA, bid evaluation and contract award to the Successful Bidder(s).

Sites for the Projects have been identified by the SED at Deh Halkani and Deh Mitha Ghar, with a requirement of 612 acres of land for each site, for which land allocation from relevant Government of Sindh (GoS) authorities is under process. The Scrutiny Committee meeting on land allocation and pricing was held on 08 September 2022 wherein we understand the land was principally allocated to the Project (formal confirmation or Minutes of the Meeting are still awaited). SED is now expected to undertake feasibility studies and initiate Grid Interconnection Studies (GIS) through its consultant.

**Indicative Project Timeline as provided by Bridge Factor (Process is being controlled by SED as Relevant Agent and their consultants Bridge Factor)**

Milestones	Date
Formal land allocation by GoS*	Oct-2022
Initiation of project technical studies*	Oct-2022
Issuance of EOI by GoS	Oct-2022
Finalization of project technical studies and RFP document	Jan-2023
Submission of RFP to NEPRA and EOI applicants	Jan-2023
RFP hearing by NEPRA**	Mar-2023
RFP approval by NEPRA**	May-2023
Deadline for submission of bids	Jul-2023
Evaluation of bids and selection of successful bidder	Sep-2023
Submission of bid evaluation report to NEPRA	Oct-2023
Formation of SPV by successful bidder	Oct-2023
Filing of tariff and GL application with NEPRA	Nov-2023
GL and tariff approval by NEPRA**	Dec-2023
Finalization of project agreements and submission of EPA to NEPRA	Jan-2024
Approval of EPA by NEPRA**	Feb-2024
Financial Close	May-2024

Milestones	Date
<p>COD</p> <p><i>*The case for land allocation and pricing has been forwarded to the Cabinet for final approval. Technical projects studies will commence after approval from the Cabinet. Hence this is dependent on decision of the cabinet and will accordingly reflect in the timeline</i></p> <p><i>** Proposed and subject to confirmation by NEPRA</i></p>	<p>Mar-2025</p>

Expected COD for the Projects is CY-25 and added as a KE's committed project for IGCEP 2022 shared with NTDC.

### 2.3. 82 MW Uzghor Hydel Power Plant

The proposed 82.25 MW, Turtonas-Uzghor Hydropower Project ("TUHPP") is in Chitral district of KPK, located at a distance of 390 km from Islamabad, spanning over an area of 52.7 acres. It is a run of the river project, located on River Golen Gol, upstream of existing WAPDA HPP.

On 21 December 2021, KE issued a letter to indicate KE's potential interest in power procurement to the project. The project already has a generation license granted in December 2020 and has completed environmental and feasibility studies. The feasibility stage tariff was determined by NEPRA in April 2021 for which a review petition was filed by the project. NEPRA in its review determination on 29 July 2021, has directed the Project to supply power under CTCBM. TUHPP is further reviewing the decision since TUHPP will be supplying power to KE, an SOLR, for the regulated consumers, and hence will require a tariff from NEPRA. In this regard, KE requests NEPRA to consider their request favorably. Further, TUHPP has been included by KE in its list of committed projects.

It is pertinent to mention that the addition of low-cost hydro power to KE system will benefit the electricity consumers through reduction of KE basket price and will help diversify KE's generation fuel mix. The project will further match the seasonal demand requirement by catering to serve during peak summer months.

***The development of the wheeling structure would be the most critical element for the success of this project with KE, opening the doors for future evacuation of hydel power by KE.***

Expected COD for the project is CY-29 and added as a KE committed project for IGCEP 2022 shared with NTDC.

### 3. Other Renewable Projects

#### 3.1 LOIs / Interest for Renewable Projects

In addition to the above, KE has issued formal LOIs to the following projects:

- **500 MW GO Energy Floating Solar Project** – One of the prospective projects that KE is considering is procurement of ~ 500 MW of power from floating solar at Keenjhar Lake. The project has also been provided an LOI by GoS to develop this Project at Keenjhar Lake. The project has completed pre-feasibility and the Grid Interconnection Studies will commence shortly. KE is keen to support this Project since it is a novel and new technological approach towards solar which has been recently gaining ground globally.

The LOI was issued on 07 July 2022, with a validity of 18 months or lapse of GoS LOI, whichever is earlier.

- **500 MW Hybrid Power Project** – the project is located at Mirpur Sakro, District Thatta and has completed and shared the Feasibility Study with KE while Grid Interconnection Study is underway.
- **225 MW Wind Power Plants (WPPs)**

The following four WPPs approached KE in March 2021 for purchase of power, after the WPPs were included in Category III projects through the decision of Cabinet Committee on Energy (CCOE) Case No. CCE-12/04/2019 (V) dated 04 April 2019 (“the Decision”).

- 25 MW Moro Power Company (Pvt) Limited
- 100 MW Norinco International Thatta Power (Pvt) Limited
- 50 MW Iran-Pak Wind Power (Pvt) Limited
- 50 MW Sino-well (Pvt) Limited

The WPPs had valid cost-plus tariffs which was not notified by the Ministry of Energy (MOE) citing the Decision which directed the Category III Projects to be made part of AEDB’s competitive bidding process. The WPPs had already undertaken several development milestones including land acquisition and had also been in discussion with STDC for construction of more than 100 km transmission line connecting the WPPs to KE.

As the projects were in advance stage of development with secured Generation License(s) and Tariff(s), KE expressed its desire to facilitate the projects. However, before moving forward, it was imperative for KE to obtain clarity on the transmission facility and the validity/applicability of the tariff since as per their respective tariff

decisions, the financial close requirement of August 2021 was required within 5 months of our initial discussions with the WPPs.

In view of KE's interest and to gain certainty that the WPPs can progress with KE as the power purchaser, KE issued a consolidated LOI to the WPPs on 16 July 2021, for purchase of 225 MW of power with following CPs:

1. Commitment from STDC for construction of transmission line and grid for interconnection with KE Grid /Filing of Wheeling Tariff with NEPRA
2. Obtain formal clarity from NEPRA on tariff
3. Completion of Load Flow/Stability and Short-Circuit Studies (collectively referred as the "Grid Interconnection Study") on KE Grid
4. Obtain Licensee Proposed Modification (LPM) and Tariff Approval from NEPRA

The Authority has held a hearing on the tariff mechanism for these WPPs on 26 May 2022, whereby it was deliberated whether the WPPs shall be awarded a cost-plus tariff or if they shall be instructed to follow the competitive bidding regime. Clarity on applicable tariff and construction of Transmission line are two critical milestones which has significant impact on Project timelines.

- **200 MW Renewable Project by Ladies Fund**

KE has also expressed potential interest in power procurement from Ladies Fund (having capacity up to 200 MW with 50 MW solar capacity in the 1<sup>st</sup> phase). KE engagement is conditional to the results of relevant technical studies including the Bankable Feasibility Study, load flow, short circuit and stability, and necessary regulatory approvals, The project has recently completed the pre-feasibility which has been shared with international lenders and are now in the process of preparing bankable feasibility study.

### **3.2 Request for Proposal (RFP) for RE Project**

Considering that Government land availability and allocation remains one of the most critical items in project development which takes substantial amount of time with the provincial government authorities for its identification, pricing, and allocation, and delays the overall project timeline significantly, KE is planning to circulate RFPs for c. 500 MW Renewable Projects in the following manners:

#### **a) RFP on Land procured by KE**

In line with the prevalent NEPRA Competitive Bidding Tariff Regulations, 2017 ("Regulations") and upcoming NEPRA (Electric Power Procurement) Regulations, 2022, KE is in the process of identifying private land for procurement itself to initiate a competitive bidding process for a new renewable project for a capacity of 250 MW – 300 MW.

KE is currently in the process of developing the RFP for the project and the project is envisioned for commissioning beyond FY-25.

#### **b) RFP for projects in the vicinity of KE grid and infrastructure**

KE is in the process of developing a site neutral RFP close to KE's **grid and transmission infrastructure** in the Gharo/Dhabeji area, where it would invite developers to bid for the capacity for delivery at the interconnection point and the developers would be responsible for all the activities including procurement of land, and the submitted bids would be based on all relevant costs.

The capacity for this RFP is expected to be in the range of **150 – 200 MW** under an IPP mode. KE will carry out the competitive bidding process as Relevant Agent and enter into Energy Purchase Agreement with the successful bidder upon securing relevant approvals.

KE is currently in the process of developing the RFP and firming up the technical details and modalities for this novel approach to competitive bidding, which is intended to be a fast-track process. This capacity is envisioned for commissioning beyond FY-25.

### **3.3 Discussion with Hydel Projects**

KE has also initiated discussions with large hydro developers for power off take by KE via wheeling.

KE has been engaged with PEDO for the development of hydro projects in province of KPK, for KE's off-take. A working level joint development group has been constituted, comprising of the representative from both entities. The group has conducted several meetings during which PEDO has suggested the names of certain private hydel projects, that can be considered for KE's power off-take. KE is currently evaluating the projects based upon their tariffs and development status, and plans to further engage with the project developers, to select the most optimal project for meeting KE's demand needs.

## 4. Challenges and NEPRA Support

The challenges that are being faced by KE for the procurement of renewable energy on which NEPRA support is required are listed below:

- **Land Allocation**

Land allocation via government entities remains one of the critical issues in project development. This is a cumbersome process which takes substantial time of the provincial government authorities in land identification, pricing, and allocation, which delays the overall project timeline significantly.

In order to mitigate the risk of delayed land allocation, KE is considering a two-pronged approach:

- Procurement of its own land, where it is currently in the process of identifying potential and feasible options.
- Working on the development of a site neutral RFP, where the developers would be responsible for all the pre-bid activities including procurement of land, and bid.

- **Wheeling / Procurement of Power outside KE's Territory**

Since KE is responsible for the security of supply and economical prices for its consumers, it needs Indigenous resources like Hydel and local coal along with renewable resources in its fleet for reduction in basket price of KE. To induct indigenous resources, the development of the wheeling structure is most critical element for the success of projects like Uzghor Hydel project and for other future power evacuation options based on hydel / other indigenous resources by KE.

We understand that draft Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022 have already been circulated to stakeholders and is currently under review phase, which once approved, will repeal the existing Wheeling Regulations 2016, and will cover all regulatory aspects of a wheeling arrangement.

- **Policy and Tariff Challenges**

KE believes that enactment of new solarization policy for only public sector will limit interest of the private project developers towards only the public sector instead of KE grid. Further, the incentives available to Projects under AEDB/PPIB framework should be applicable to IPPs contracting with KE to ensure level playing field.

Further the annual indexation mechanism under the existing benchmark tariff (2.5% per annum) set by NEPRA may be re considered to accurately account for inflation, exchange rate variations and a one-time true up of cost components at COD.

Accordingly, it is imperative that the benchmarks and indexations under the new solarization policy should be applicable on both public and private sector i.e., KE projects so that the benefit is available to all the consumers of Pakistan on the same tariff regime and adequate and successful participation is ensured in KE's projects as well.

### **Request for NEPRA Support**

We believe that Authority's support is of immense importance and will act as catalyst in expediting the Project timelines. Therefore, we humbly request the Authority to provide support in following areas:

- Authority's concurrence and support for the approval of site neutral RFP to be developed by KE
- Wheeling of power through from outside KE territory
- Inclusion of KE IPPs in the new solarization policy and other incentives available under AEDB / PPIB framework to ensure level playing field
- Re-consideration of Benchmark Tariff keeping in view the new solar policy, adequate reflection of costs, adequate returns to investors, and current economic parameters

## 5. Conclusion

As elaborated in detail above, KE is actively pursuing a multifaceted strategy to induct renewables on a fast-paced basis. KE is also in the process of conducting a renewable integration study based on international standards which would either endorse or provide guidelines to augment its current plans. NEPRA is requested to extend support in providing expeditious approvals and ensuring adequate recovery of costs and return to investors to keep the sector attractive. The Authority is also requested to consider that any incentives offered to investors for setting up projects in the public domain are replicated for the private utilities.

<b>Approaches</b>	<b>Projects</b>
<b>1</b> With Provincial Governments	<ul style="list-style-type: none"> <li>• 3 x 50 MW Projects with GoB</li> <li>• 350 MW SSEP with GoS</li> </ul>
<b>2</b> With Private Developers	<ul style="list-style-type: none"> <li>• 500 MW Hybrid Power Project</li> <li>• 500 MW GO Energy Floating Solar Project</li> <li>• 200 MW Renewable Ladies Fund</li> <li>• 225 MW Wind Power Projects (WPPs)</li> </ul>
<b>3</b> KE as Relevant Agent (KE controlled)	<ul style="list-style-type: none"> <li>• KE Own land</li> <li>• Site neutral bidding in close proximity to the KE grid and infrastructure</li> </ul>

Also, in consideration of the current geopolitics situation, climate crisis, low cost of renewable power projects, and the exorbitantly high costs of imported fuels in the Country which have resulted in historically high tariffs for the consumers, RE projects investors in turn must be incentivized to develop and execute these projects at a fast pace.

In the end, we humbly request the Authority to support renewable projects in any way possible so that these projects can be inducted in the system expeditiously.