

## **Framework Guidelines**

## **Fast Track Solar PV Initiatives 2022**

GOVERNMENT OF PAKISTAN

2022

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## INTRODUCTION

Nature has blessed Pakistan with enormous renewable energy potential which can be utilized for power generation and to meet energy needs of the country. Amongst RE resources, Solar energy resource is the only one that is available all across the country. Owing to technological advancements of Solar PV technology and decline in its prices over the last decade, Solar PV energy is now amongst the cheapest form of energy globally. Solar PV energy promises a higher proportion of the national energy supply mix and can help in increasing the share of clean indigenous power generation sources while ensuring supply of inexpensive electricity. This is also evident from the reduction in tariffs of solar power in Pakistan over the years and now Indicative Generation Capacity Expansion Plan (IGCEP) also contemplates an addition of substantial quantum through Solar PV energy generation as the least cost option.

Increased and highly variable prices of oil, liquefied natural gas, and coal in international markets have increased the cost of generating electricity using imported fuels. The price of imported fuels has dramatically increased in recent years which has resulted in sharply depleting the foreign exchange reserves of Pakistan as a consequence of which the average generation cost has increased substantially.

In order to ensure the GOP's policy objectives of energy security, affordability of electricity, environmental protection, and sustainable development, the GOP envisions to deploy solar power on a fast track basis to eventually complement and/or substitute the expensive imported fossil fuels currently being used for power generation. This not only will ensure savings of foreign reserves that are being incurred on import of expensive fossil fuels for power generation but will also help in provision of affordable electricity supply to consumers and pave the way for a sustainable power sector in the long run.

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## **1 OBJECTIVES & SCOPE**

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### **1.1 OBJECTIVES**

The main objectives of these initiatives are:

- Substitution of expensive imported fossil fuels used for power generation with Solar PV energy deployments to the extent feasible resulting in lowering the average system generation cost that will help creating a sustainable power sector;
- Utilization of existing transmission networks to the maximum for off-take of electric power for Federally-owned public power utilities (FPUs);
- Easing the pressure on foreign exchange reserves through reduced reliance on imported fossil fuels;
- To ensure value for money through (a) an open and transparent competitive bidding process; and/or (b) Government-to-Government (G2G) mode;
- Enabling, encouraging and participation of private sector investment (local and foreign) in RE deployment in a transparent manner.

### **1.2 SCOPE**

Solar PV deployments under these initiatives are as follows:

- i. Substitution of Expensive Imported Fossil Fuels with Solar PV Energy
- ii. Solar PV Generation on 11 kV Feeders
- iii. Solarization of Public Buildings

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## **2 APPLICATIONS**

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### **2.1 SUBSTITUTION OF EXPENSIVE IMPORTED FOSSIL FUELS WITH SOLAR PV ENERGY**

#### *2.1.1 Background*

Under this initiative, Solar PV based power generation capacity shall be solicited for substitution of expensive imported fossil fuels used for power generation

This will bring about lowering of the average basket cost of generation for the system by utilizing solar energy during the day time in substitution of the imported fossil fuels based thermal generation at that time while utilizing the same thermal power generation capacity at night to meet the peak demand at that time.

### 2.1.2 Framework Guidelines

- i. Appropriate capacity for Solar PV generation will be procured based on CPPA identification of imported fuel based thermal power plants whose fuel can be substituted with solar energy during the day according to the technical and contractual limitations.
- ii. Such fuel substitution capacity shall be established in IPP mode through a competitive bidding or G2G process.
- iii. Project land shall be acquired by NTDC and provided to the project sponsors on lease by the Government of Pakistan through AEDB.
- iv. Grid Interconnection will be provided by NTDC.
- v. CPPA will purchase all power generated by the project.
- vi. Term of the project shall be 25 Years on BOOT basis.
- vii. Bid bond, performance guarantee and fees for different stages of the process will be as per Annexure-1.
- viii. Total foreign exchange cost component of the project shall be arranged by the successful bidder through foreign funding sources.
- ix. NEPRA may determine a unit based (PKR per kWh) benchmark tariff for conducting the competitive bidding by AEDB. However, the competitive bidding may also be carried out without setting up of a benchmark tariff.
- x. Single-stage, two-envelope bidding approach will be adopted.
- xi. Only the following indexations / adjustments shall be allowed:
  - a) Eighty percent (80%) of the total tariff shall be indexed for exchange rate variations (USD/ PKR) at COD and thereafter quarterly throughout the term;
  - b) Remaining twenty percent (20%) of the total tariff shall be adjusted one-time at COD; &
  - c) Interest rate indexation for LIBOR/SOFR and KIBOR shall be provided.
- xii. Tariff under G2G mode must be lower than the Tariff achieved through competitive bidding process under this initiative.
- xiii. Projects are required to achieve Financial Closing (FC) within six (06) months of issuance of the Letter of Support (LOS) and COD within ten (10) to twenty four months (24) months after achievement of FC depending on the project size.
- xiv. All machinery, equipment and other related goods and materials required for deployment of Solar PV projects shall be exempted from all import related duties and taxes. If required necessary amendments in the relevant laws will be initiated by FBR.

- xv. Profits and gains derived from sale of electricity by an IPP from an electric power generation project shall be subject to 15% income tax for the term of the project.
- xvi. In addition to the GOP Guarantee, the payment under the EPA will be ensured on 60<sup>th</sup> day after invoice through bank debit from a dedicated solar account to be maintained by CPPA.

## **2.2 SOLAR PV GENERATION ON 11 KV FEEDERS**

### *2.2.1 Background*

Significant number of electricity consumers in Pakistan suffer from poor power quality (scheduled & unscheduled outages, low voltage, etc.). Decentralized, medium-scale Solar PV power can contribute cost-efficiently to alleviate some of these problems by feeding directly into the medium-voltage (MV) network, thereby improving the local losses and voltage situation. Furthermore, the injection of Solar PV power into the MV network would provide cheap electricity into the national grid without any augmentation or major upgrade of the grid infrastructure. Accordingly, Solar PV projects of suitable capacity upto maximum 4 MW will be procured through competitive bidding process at 11 kV feeder level.

### *2.2.2 Framework Guidelines*

- i. Suitable Solar PV capacity will be installed at 11 kV Feeders of the DISCOs through Competitive Bidding.
- ii. NEPRA will provide a unit based (PKR per kWh) benchmark tariff for conducting the competitive bidding by DISCOs.
- iii. A single-stage, two-envelope bidding approach will be adopted.
- iv. Fifty percent (50%) of the total tariff will be indexed on quarterly basis with Pakistan CPI up to maximum of 15%. No other indexation will be provided for the term of the project.
- v. Projects are required to achieve COD within two hunder (200) days from the date the EPA is signed.
- vi. DISCO will purchase all power generated by the projects under an EPA.
- vii. Term of the project shall be 25 Years on BOO basis which may be extended with mutual consent of the parties subject to approval by NEPRA.
- viii. Bid bond, performance guarantee and fees for different stages of the process will be furnished by the bidders as per Annexure-1.

- ix. Payment under the EPA will be guaranteed on 30<sup>th</sup> day after invoice through first charge on collection account of DISCOs that will be assigned to the IPPs in lieu of the IA/GoP Guarantee.
- x. Fiscal incentives for Solar PV projects under the laws of Pakistan prevalent on the date of the bid submission will continue to apply.

## 2.3 SOLARIZATION OF PUBLIC SECTOR BUILDINGS

### 2.3.1 *Background*

Solarization of public sector buildings is a well recognized concept particularly in developing world that helps in meeting certain portion of electricity load through clean solar energy technology, reduce electricity bills of public offices and relieve electricity utilities/ distribution companies from long-term dues besides encouraging Solar PV deployment on small to medium size buildings of common house-holds and commercial buildings.

### 2.3.2 *Framework Guidelines*

- i. Building-specific Solar PV net-metering based systems will be installed through Bidding by public sector entities on (i) Lease Model (10 year BOOT basis); and (ii) Own-cost model.
- ii. Government departments will provide space for Solar PV installations.
- iii. Minimum annual energy yield will be guaranteed by the vendor/ lessor.
- iv. All power generated by Solar PV systems will become property of the Government department.
- v. For Lease Model, fixed quarterly payment will be determined through bidding and the quarterly payments will be guaranteed in advance for first eight years and remaining two years in arrears through Revolving Bank Guarantee or any other appropriate arrangement ensuring timely payment to Lessor.
- vi. AEDB will prepare the model bidding documents / contract agreements and support the public sector entities for procurement net-metering based solar PV systems by the said entities, wherever required.
- vii. AEDB will facilitate in carrying out the third-party validation of all installations under this initiative prior to commissioning of the systems whereafter the systems will be maintained by the relevant public sector entities.

## 2.4 **TARIFF**

For all modes of procurement as stipulated herein, the tariff shall be denominated in Pakistan Rupees.



**FEE AND CHARGES PAYABLE**

<b>Sr. #</b>	<b>Instances of Payment</b>	<b>Fee and Charges</b>	<b>Timing</b>
(1)	(2)	(3)	(4)
1	Issuance of RFP	US\$ 500	On or before the issuance of RFP
2	Bid Processing Fee	US\$ 500/MW with an upper cap of US\$ 50,000	On or before submission of bids
3	Bid Bond	US\$ 10,000/MW	On or before submission of bid
4	Performance Guarantee	US\$ 20,000/MW	Before issuance of Letter of Support (LOS)
5	Project Processing Fee/ LOS Issuance Fee	US\$ 800 /MW Min US\$ 20,000 Max US\$ 400,000	Before issuance of Letter of Support (LOS)
6	Upon Achievement of Financial Closing	US\$ 500/MW Min US\$ 10,000 Max US\$ 200,000	On or before financial closing date