

**ALTERNATIVE  
AND  
RENEWABLE ENERGY  
POLICY  
2019**

**GOVERNMENT OF PAKISTAN**

# Table of Contents

1. Introduction
  - a. Background
  - b. Scope of Policy
  - c. Objectives of the Policy
  - d. Types of Projects
2. Project Development Options
  - a. Federally Procured Projects
  - b. Provincially Sponsored Projects
  - c. Private Projects
3. ARET Projects Selling to Public Utilities
  - a. Bidding Process
  - b. Project Site
  - c. Grid Connection, Offtake
  - d. Determination of Technology, Quantum and Location for Bidding Rounds
  - e. Variable Renewable Energy
  - f. Processing of Unsolicited Projects
  - g. Tariff Determination
  - h. Resources Variability Risk
  - i. Contractual Structure
  - j. Financial Incentives
4. Projects with Private Use or Sale to Third Parties
  - a. Project Registration
  - b. Types of Projects
  - c. Regulatory Approvals
  - d. Wheeling
  - e. Net Metering and Grid Spill-Over
  - f. Incentives
5. Institutional Framework
  - a. Legal and Regulatory Framework
  - b. One Window Institutional Support
  - c. Fees and Charges

## **FOREWORD**

Nature has blessed Pakistan with enormous renewable energy potential which can be utilized for power generation and to meet energy needs of the country. The Government of Pakistan (GoP) initiated development of Alternative and Renewable Energy (ARE) Sector under a phased, evolutionary approach constituting a strategic policy implementation roadmap under Policy for Development of Renewable Energy for Power Generation, 2006 (RE Policy 2006) to increase the deployment of ARE technologies (ARETs) in Pakistan. ARE promises a higher proportion of the national energy supply mix and helps ensure universal and affordable access to electricity in all regions of the country.

The GOP's strategic objectives of Energy Security, Affordability of Electricity, Availability for All, Environmental Protection, Sustainable Development, Social Equity and mitigation of Climate Changes are further harnessed under the ARE Policy 2019, developed by the Ministry of Energy (Power Division) in consultation with key stakeholders. ARE Policy 2019 aims to create a conducive environment for the sustainable growth of ARE Sector in Pakistan.

AREs have seen significant growth in different parts of the world in the last decade in terms of deployment, technological advancements and cost competitiveness. Experience under RE Policy 2006 coupled with international best practices provide the basis for a more comprehensive framework for ARE Policy, 2019. It has an expanded scope encompassing all alternative and renewable energy sources, competitive procurement and also addresses areas like distributed generation systems, off-grid solutions, B2B methodologies, and rural energy services. It carries forward most of the liberal and attractive incentives of RE Policy 2006 to maintain the investors' confidence, and places greater emphasis on aggressive growth of grid-connected ARET applications as well as a programmatic development of distributed ARE power generation market on more competitive terms.

It has been decided that rather than inducting RE projects on a reactive basis, a new policy direction is being set whereby Pakistan intends to have 20% of its generation capacity as

ARE technologies by 2025 and 30% by 2030 (20X25 and 30X30 target). It is estimated that such targets can be achieved but will require upgradation of the transmission infrastructure; this exercise will be undertaken in parallel , and where necessary as a pre-requisite. This target, together with over 30% hydel, will result in one of the most environmentally friendly and affordable electricity mix compared to the heavily dominated mix of imported fossil fuels in the past.

Salient features of the ARE Policy 2019 include variety of investment options for tapping different ARE resources for on-grid and off-grid applications as well as encouraging consumer driven applications and initiatives. Attractive policy instruments supplement GoP's open door initiatives for private investment in ARE sector in Pakistan as it is envisaged to contribute its share in strengthening and improving the power supply position of the country and help fueling rapid and environmentally sustainable economic growth.

## 1. Introduction

### 1.1 Background

Power generation in Pakistan is sourced through a mix of thermal, hydel, renewables and nuclear power plants, with thermal power generation comprising the bulk, followed by hydel, renewable and nuclear. The initial policy for renewable energy projects (the “**RE Policy 2006**”) expired in March 2018 after having successfully launched the development of ARE projects in the country.. Initially, GOP introduced strong economic incentives in order to attract investment, remove barriers to project implementation, and ‘hand-hold’ pioneering projects through to successful commercial operations. The Policy for Alternative and Renewable Energy, 2019 (the “**ARE Policy 2019**”) provides the roadmap for further realizing the full potential of ARE in Pakistan yet promoting competitive pricing. This ARE 2019 policy is part of a broader National Electricity Plan (NEP) as per NEPRA section 13A (2) in particular the “*special provisions for ensuring the development of a sustainable renewable energy market with a dedicated and gradually increasing share in the electricity power sector*”.

ARE Policy 2019 provides a comprehensive framework encompassing wider scope not only for the purposes of generation for grid but also for encouraging renewable resources and utilization of ARE technologies (**ARET**) based applications by commercial and domestic consumers. The measures introduced in the ARE Policy 2019 are expected to set the requisite infrastructure in place so that ARE is fully mainstreamed and integrated within the country's energy planning, economic and social development process for the eventual benefit of the people of Pakistan.

A major directional change from the past, as envisioned in this ARE Policy 2019, is that rather than adding ARE projects just based on capacity needs, such projects shall also be solicited for displacement of more expensive fossil energy as long as they are cheaper. With current cost of renewable energy having become very competitive, if such energy can be obtained at a total cost which is lower than the "variable cost" of thermal fuels, then addition of such renewable capacity shall lower the average basket cost of generation for the system, regardless of whether capacity is needed or not and such renewable energy shall be higher on merit order than such thermal power. Hence, displacement of fossil fuels, with a lowering of average cost, becomes one of the drivers rather than capacity additions alone.

GOP is determined to pursue the stated policy objectives and strategies with the participation and collaboration of the private sector. The goal is to continue the envisaged sustained transition towards greater use of indigenous, clean and abundant ARE resources, which must be tapped in a meaningful and timely fashion and utilized towards the social and economic advancement to assist the country's overall development strategy.

## **1.2 Scope of Policy**

This policy covers all projects to be implemented with Alternative or Renewable Energy technologies for producing power whether for sale to a public utility or for private sale to a consumer if the producer wishes to avail any incentives available in this Policy. This includes projects that may be developed in Private Sector, Public Sector, or in Public Private Partnership. To the extent that a consumer wishes to generate power for his/her own use,

certain concessions available under this Policy still apply, but are already codified in other regulations or statutory orders and, therefore, do not require any specific action by such a consumer under this Policy per se. While the policy is structured to cover projects to be inducted in the NTDC/DISCO system, it does cover projects in the Karachi Electric (“KE”), or any other privatized utility in the future, to the extent that they wish to avail the concessions provided herein; however, any contractual arrangements for projects in KE, or any other privatized utility in the future, shall remain the responsibility of the parties with no obligation of the Government of Pakistan. NEPRA, as the regulator, shall be responsible for ensuring compliance to its procedures for privatized utilities.

The technologies covered under this Policy are both conventional Renewable Energy sources including solar, wind, geothermal, and biomass, as well as Alternative technologies like biogas, syngas, waste to energy (WTE), energy storage systems, Ocean/Tidal Waves, as well as all kinds of hybrids thereof. However, hydro projects shall not be covered under this policy. In addition, any proprietary technology, or new technology to be developed during the applicability of this ARE 2019 Policy, would also fall under its ambit. Consequently, any project for sale of electricity to a public utility or a private sale shall be able to avail applicable benefits hereof.

All relevant parties shall be bound by the terms of this Policy including, but not limited to, NTDC, CPPA-G, DISCOs, AEDB, NEPRA, KE and provincial energy boards to the extent they fall within this policy.

### **1.3 Objectives of Policy**

The long-term integrated energy plan of Pakistan envisages four guiding principles: sustainability, affordability, responsibility (of use) and availability. The ARE 2019 Policy, as a component of the overall plan, has a vision of the development of an efficient, sustainable, secure, affordable, competitive and environment friendly power system while promoting indigenization of energy resources and development of local manufacturing capabilities in such technologies.

The main objectives of the ARET 2019 are:

- To safeguard the environment by increasing the share of “green” energy in the overall energy mix
- To provide the least cost power generation while keeping other constraints in mind
- To ensure fast track and transparent development of ARET power projects
- To encourage and ensure utilization of indigenous resources
- To encourage private sector investment while securing competitive rates of return

Specific targets are being set under this Policy and may be amended from time-to-time through executive action rather than Policy amendment. Presently, the GOP has set the target of at least [20%] renewable energy generation by capacity by year 2025 and at least [30%] by 2030 (20X25 and 30X30 target). In order to achieve these targets, the GOP will procure a larger percentage of new capacity from ARE Policy 2019, keeping in mind constraints of base load versus variable generation requirements and the hybrid solutions of ARET that are nearing base load capacity factors.

#### **1.4 Types of Projects**

This policy covers projects for Renewable Energy as well as Alternate Energy Technologies, as follows:

- Biomass (including but not limited to bagasse, agricultural waste, and other waste)
- Geothermal
- Ocean /Tidal Wave energy
- Solar (PV or Thermal, or any technology that uses heat and/or light of the sun to make electricity)
- Wind
- Storage Technologies (Battery systems, Cells of all types, compressed gas, pumped storage)
- Biogas using any organic material (except fossil fuels)

- Energy from Waste (including but not limited to municipal solid waste, industrial waste, sewage, Refuse Derived Fuel).
- Hydrogen or Synthetic Gas (made from any source except fossil fuels)
- Hybrids of any of the above Technologies

The Policy shall also cover projects of retrofitting of existing solar and wind projects to convert them into hybrid units. Any technology not identified above but determined by the AEDB to be Renewable Energy or Alternative Energy Technology shall also be included, from time to time.

## **2. Project Development Options**

### **2.1 Federally Procured Projects**

The GoP may process, and award if deemed appropriate, projects that are intending to sell electricity to the national grid or -WAPDA DISCOs (XDISCOs). In addition to economic displacement, GoP shall also utilize IGCEP as a tool, considering the policy objectives and targets set under ARE Policy 2019. NTDC shall also be part of this long term plan such that any additions to the transmission system that are needed to support this capacity addition shall be cleared before any procurement.

This process will be an ongoing annual process which shall be calibrating the required capacity as well as displacement options, on analytical basis, in a proactive, transparent and competitive manner rather than a reactive project by project development approach.

#### **2.1.1 Competitive Bidding – Mode One**

The first mode, and the one expected to be the most commonly used, is open and transparent process based on Competitive Bidding. In this case, the GoP shall routinely announce new capacity requirements, after confirming the purchase and the interconnection commitments from the relevant federal entities. A tender may be based either on a single technology (ie solar, wind etc) or following multiple technology procurement with one or more identified interconnection point(s) and a required date for completion. A feasibility study is not necessary for this bidding process, but this may include projects where a feasibility study has been completed by some agency already. In each case, the bidding document shall provide an evaluation methodology for determining the lowest bidder, with price being the main, but possibly not the only determinant. The locations will be geographically spread based on several considerations, including resources mapping, load centers, interconnection availability at low cost, and distribution to support balanced development footprint across the country. It is expected that this bidding process will be conducted every year and the information for the schedule shall be available online at the AEDB website. AEDB shall reserve the right to reject any and all bids, as shall be specified in the bidding documents.

Other details related to competitive bidding including but not limited to the qualification criteria and share of local sourcing will be part of the bidding document.

### **2.1.2 Government To Government (G2G) – Mode Two**

In certain cases, the GOP may find it strategically important to execute projects under Government to Government (G2G) frameworks. Such commitments will result after negotiations with other government, under such framework agreements, where such procurement will be commercially viable based on the national priorities and in accordance with the laws of Pakistan.

### **2.1.3 Unsolicited Projects – Mode Three**

The third method is for unsolicited projects. Such projects shall be entertained only for new technologies, or where proprietary right exist for the sponsor, and shall require feasibility study and shall be allowed on a “cost plus” method, if approved by the AEDB as qualifying.

## **2.2 Provincial Role**

Article 157 of The Constitution of Pakistan allows the Provinces to develop their own power generation projects, lay transmission lines, distribute electricity, and even set their own tariffs, if the power generated is for use within the boundary of the relevant Province. Recognizing these constitutional rights, the Provinces are free to institute their own policies for projects where neither the power off-take is by a federal entity nor the interconnection by NTDC/DISCO if they wish to do so under Article 157. In such cases, there shall be no financial or contractual commitment of the Federal Government, or any of its entities, whatsoever.

If a Province proposes a project that is proposed to sell power to CPPA-G/DISCO and/or requires evacuation by NTDC/DISCOs, the same shall be brought to the AEDB for processing, and if approved, for implementation.

## **2.3 Method of Selection of Projects**

A technical steering committee headed by Additional Secretary of Ministry of Energy (Power Division) and comprising of AEDB, and Provincial Energy Departments/secretaries shall review the project proposals submitted by the provinces /GB as well as location of projects to be procured by the Federal government. The said committee will be a sub-committee of AEDB which shall come into force upon approval of this policy. The technical steering committee, shall have CPPA-G and NTDC as non-voting members to allow for consultation with CPPA-G and NTDC in terms of evacuation based on locational studies for variable energy resource and purchase needs, and prepare a provisional procurement plan of CPPA-G by March 31 of such year, and present it to the AEDB for approval,. The final plan shall be required to be approved latest by June 30 of such year, to allow bidding before the end of the year. The objective of the steering committee is to empower the provinces in decision what projects are to be recommended, and where, while consulting the key stakeholders (CPPA-g, NTDC, AEDB) towards synergizing efforts for accelerated and distributed adoption of ARE technologies in the grid. Majority decision of the provinces in the steering committee, which is technically viable, shall be submitted to AED Board for final approval.

A project with new technology (defined as technology using which not project is not in construction or operation in the country), shall be given preference by the technical steering committee as long as the expected tariff is lower than the average basket cost of generation. For technologies that are already deployed, the mode of procurement shall be bidding only, and the locations shall be recommended by the technical steering committee.

## **2.4 Captive Power & Business to Business (B2B) Power Projects**

In addition to projects that plan to sell electricity to public utility companies, projects selling their electric generation on a private basis are also encouraged. This includes self-use projects/captive power projects as well as Business to Business (B2B) projects that intend to avail the policy benefits provided herein. A simplified licensing regime shall be available to the same as described hereinafter.

If a Project is based on an Off-Grid or Distributed Generation System, where the same is not in response to a public procurement process through an open tender, but intends to sell electricity on a retail basis to multiple buyers, the same shall require licensing and tariff approvals from NEPRA as described in Section 4.

### **3. Processing of ARET Projects Selling to Public Utilities**

#### **3.1 Bidding Process**

Bids shall be periodically invited by AEDB, after AEDB has gotten prior confirmation of evacuation by NTDC/DISCO and purchase by CPPA-G/DISCO, through an International Competitive Bidding process using lowest evaluated tariff as the main determinant. These bids shall be for a block of capacity, with some minimum and maximum sizes of projects that can be proposed. After evaluation of bids, the LOS shall be issued by AEDB to the successful bidder(s). The bidding shall be conducted by AEDB as per guidelines approved by NEPRA.

The RFP for such projects will contain all requisite information needed from the buyers necessary for the preparation of a proper technical and financial bid. The documents will also explain the evaluation criteria to be employed in scoring the bids. If necessary, AEDB may hold a pre-bid conference to facilitate exchange of information, giving equal and adequate opportunity to all prospective bidders to seek clarification on project requirements.

A bank guarantee based on the project's installed generation capacity [\$/MW] basis shall be required from each bidder at the time of submission of bids. After selection to the successful bidder(s), the same shall be submitted for confirmation of NEPRA before confirming the award. After NEPRA approval, the successful bidder(s) shall be required to post a performance bank guarantee (PG) based on project capacity, on a [\$/MW] basis, in favor of the AEDB for issuance of the LOS. This PG shall be valid for a period of six (06) months in excess of validity of the LOS. After submission of the PG by a successful bidder, the bank guarantees of the winning bidder, as well as all other unsuccessful bidders shall be returned, and the LOS(s) issued to successful bidder(s). Upon issuance, the LOS shall exclusively govern the awarded project and supersede all previously issued letters and instruments until the project achieves the financial closure. The level of these guarantees shall be specified in the bidding documents.

The said PG will secure the successful bidder's obligations to execute the security package and other relevant agreements and achieve financial close within the specified time period, failing

which it shall be liable to cancelation and encashment of the guarantee, subject to any extension allowed in the terms of the LOS. In addition, the sponsors may also be required to reimburse the cost of any feasibility study utilized (if so indicated in the bidding documents). The said performance guarantee shall be in the form of an irrevocable, direct-pay letter of credit, issued by an “A” rated (or above) scheduled bank in Pakistan acceptable to, encashable at a counter in Pakistan, in the form provided for with the RFP.

More details shall be provided in the RFP itself for every round of bidding.

### **3.2 Project Site**

The primary responsibility for acquisition of appropriate land and rights of way as well as the cost of acquisition will be on account of the Project company. However, the relevant provincial/GB agencies will facilitate the Project in the acquisition of land for the Project if requested, while meeting all applicable laws and regulations. If the land to be used is owned by the Provincial Government, it may lease it to the Project based on its governing regulations at the prescribed lease rental.

Generally, for competitive tenders, the AEDB will identify the interconnection point(s) and not a specific location for the proposed project since it will be block of capacity being bid, rather than one individual project. However, in some cases, the AEDB may work with provincial authorities and identify a specific piece of land, that may then be made a part of the bidding process.

### **3.3 Grid Connection, Off-Take**

Subject to written confirmation of interconnection and purchase by NTDC/DISCO and CPPA-G/DISCO respectively, , it shall be mandatory for the power purchaser to buy all the electricity offered to them by the ARE project, as per terms of the concession agreements, to be signed by them after the LOS is issued.

Electricity shall be purchased from the projects at off-take voltage on the basis of grid connectivity criteria of NTDC as laid down in the grid code and approved by NEPRA. In case of 11 kV as off-take voltage, the distribution code, if existing, of respective DISCO shall also be applicable.

If an ARE project is approved by CPPA-G/DISCO for purchase of power after it has complied with its regulatory requirements and NTDC/DISCO confirms interconnection as per grid interconnection study, NTDC or DISCO (depending on the voltage) shall be required to build this interconnection as long as it is less than [15] km for projects up to 49 mw or [30] km for projects above 49 MW. This commitment for building the interconnection shall be in writing and shall specify the time frame for completion.

A flexible interconnection regime aimed at selecting the most feasible technical and economical scheme for such Projects is being introduced. If an ARE Project selects a site that exceeds the specified distance, NTDC/DISCO shall not be obliged to build such interconnection until a mutually agreeable commercial agreement for funding the cost of such interconnection is reached amongst the parties and approved by NEPRA, if required, as a part of the generation license.

### **3.4 Technology, Quantum and Location for Bidding Rounds**

The objective of this ARE Policy 2019, as it relates to addition of projects with mature technologies, is to lower the average basket cost of generation in Pakistan. With that objective, the need for capacity addition will only be one driver, while the displacement of more expensive fossil energy with cheaper all-in cost of renewable energy will be the other driver. Therefore, even if there is no need for capacity addition, but it is determined that addition of new ARE projects can be done at a total unit cost that is lower than the energy cost of fossil fuels being displaced in merit order dispatch scenarios, then new capacity may be solicited.

The AEDB, with representation of all provinces, and based on recommendation of the technical steering committee, shall decide the best location to add renewable projects. Such RE projects

with hybrid or singular technologies will provide maximum advantage to the grid via steady flow of energy within a given interconnection capacity. However, for certain geographic locations, GoP may decide to develop projects based on single ARE technologies (even with lower capacity factors) on account of socio-economic considerations of the populace. Identification of optimal sites will be based on all the data/studies available, which are to be procured through bidding. First, based on the relative prices at any point in time, the relative load factors, and the time to completion will be used to decide how much wind and how much solar will be added. With this mapping done, the Wind projects will be located in the wind corridors and the solar projects will be spread around the country. The division of solar around the country in the various provinces will depend on the proximity of load centers, the relative interconnection costs, and the need to balance the development footprint across the country.

Bagasse as fuel is limited to the location of sugar mills and any tender for the same will be tied to those interconnection points, in order to avoid any new construction of transmission lines. Waste to Energy can be done almost anywhere in the country close to cities generating municipal waste or large agricultural swathes with agri-waste, and they will follow the same process as Wind and Solar bids, but with lesser frequency, given the smaller potential of such plants. This allocation of technologies and geographical spread will be done at AEDB level, and approved by AEDB board, which includes Energy Secretaries of all provinces.

The distribution of the projects amongst the Provinces and the allocation amongst various technologies shall be decided by AEDB, upon recommendations of the Technical Steering Committee as provided in Section 2.3..

### **3.5 Variability of Renewable Energy**

Variable Renewable Energy (VRE) projects present some technical challenges to weaker grids like Pakistan. In such grids, having large blocks of VRE at one location make the grid vulnerable to instability through sudden changes in frequency and/or voltage. In order to deal with these challenges, two main approaches shall be taken in parallel.

First, all future ARET projects connecting to the grid shall be required to have certain basic equipment to support grid stability (voltage, frequency, etc.), should there be sudden variation in its production based on unpredicted resource variation in real time. For projects that are obtained through tenders, this will be specified in the bidding documents, while other projects will need to cover this in its proposal or feasibility study, as applicable. On project level, single technology based solutions may be hybridized or latest technologies may be introduced in order to support grid stability.

The second and perhaps even more important approach is to give NTDC the task to be an integral part of the procurement process such that it can plan the grid strengthening that it needs to do to handle such variability in real time. Further, a study being done by international consultants is focusing on the improvements needed by NTDC to handle more and more VRE as well as implementation of other pre-requisite systems relevant to ARE grid integration. A 25-Year integrated generation plan has also been developed by NTDC. Any additions underway, or planned, to induct VRE projects in the grid will be routinely updated in this long-term plan, which will assist NTDC in its own planning for transmission upgrades

For renewable technologies where large variability in real time is not expected these issues will not be as pronounced. This includes biomass plants or storage technologies as examples, which are reasonably predictable in their behavior. Henceforth, the variability risk and/or availability of all the ARE resources including wind, solar, geothermal, and biomass shall be borne by the ARE Project itself.

### **3.6 Processing of Unsolicited Projects**

Any sponsor wishing to undertake a project on an unsolicited basis would be required to submit a preliminary proposal to AEDB, or the relevant provincial energy department, which must be in compliance with applicable policy guidelines and include the following. However, such unsolicited proposal shall only be entertained for new technologies that are not already deployed in the country. For purposes of determining the same, once [2] projects of a new technology are in construction or operations, further unsolicited projects shall be entertained through bidding

only:

- i. Statement of qualification of project sponsors, listing relevant experience, personnel available and financial capacity including banking references
- ii. Project name and ARET classification (i.e., technology)
- iii. Project location in compliance with grid connectivity criteria, with distance to proposed interconnection, not exceeding the criteria being used for solicited projects
- iv. Proposed net installed capacity (MW) and expected generation over the lifecycle
- v. Approximate cost estimates with the resulting tariff thereof
- vi. Basic outline of plant and structures
- vii. Summary implementation plan, milestones for project development, construction, commissioning and operations
- viii. Any other information or data deemed relevant by the sponsors.

Proposals for unsolicited projects will be examined by a subcommittee of the AEDB in the first instance, and if the sponsors are found appropriately qualified and the proposed project appears to be feasible, AEDB shall consult with CPPA-G for determining the need for new capacity and with the NTDC for evacuation of the power. If these conditions are met, AEDB shall issue a LOI to the sponsor upon submission of bank guarantee of [\$/MW] securing the obligation to conduct the feasibility study. After issuance of LOI, the Project sponsor shall be required to conduct a feasibility study within a period stipulated in the LOI by a reputable consultant and get that approved by a Panel of Experts appointed by AEDB. If the feasibility study is not approved, the LOI shall be cancelled and the bank guarantee returned. If the feasibility study is approved, the Project shall be asked to submit its proposed tariff to NEPRA, following the EPC (Engineering, Procurement and Construction) procurement guidelines of NEPRA, together with a Generation License application. Upon issuance of the tariff, and its acceptance by the sponsors, AEDB shall issue a Letter of Support, if so determined by the AEDB. The process thereafter shall be same as that for projects awarded through bids. The guarantees required at the LOI and the LOS stage shall be the same as that in the case of a projects procured through bidding.

In the case of G2G projects, the same process shall be followed as that of Unsolicited Projects, except the award process, and any other variations expressly approved by the Cabinet, if deemed appropriate.

If an unsolicited proposal is submitted for existing technologies, the AEDB may evaluate it, and if deemed appropriate, add the same in the next bidding round.

### **3.7 Tariff Determination**

For mature technologies, the GoP shall procure the power from ARE IPP projects through International Competitive Bidding except in the case of G2G arrangements whereby the GOP may utilize Cost Plus methodology or any other methodology allowed under law. Final approval of the tariff will be given by NEPRA. Mature technologies shall include all technologies that have at least two or more projects in construction or operations in Pakistan, at any given point in time. General rules for such bidding shall be announced by competent authority within [2] months from the date of this Policy. Specific rules for each bid shall be a part of the bid round itself.

In order to promote new ARE technologies, NEPRA may allow (a) upfront tariffs, or (b) cost plus tariffs, if it deems appropriate; however, NEPRA shall not announce any upfront for mature technologies without prior approval of the GoP. Any upfront tariff shall be time bound and shall not stay in field for more than a year.

The tariff will be denominated in Pakistan Rupees. However, if any bidder wishes to seek indexation to a foreign currency (USD, GBP, JPY, CY, or Euro), the same shall be allowed but the evaluation shall impose a factor on such price, adjusting for a notional devaluation of PKR against such currency, which devaluation factor shall be specified in the bidding documents. For projects that are given cost plus tariffs by NEPRA, shall also be evaluated using a notional devaluation factor when coming up with comparisons with average basket prices of generation.

The IPP shall submit this tariff to NEPRA (or the Provincial Regulator, if applicable) for approval of the tariff and for obtaining the license from NEPRA. In case of International Competitive Bidding, each AEDB shall submit the winning bid(s) including the evaluated tariff and other applicable documents to the NEPRA in accordance with the applicable laws, rules and regulations.

Typically for Cost Plus tariffs, and for the most part the upfront tariffs, have the following applicable indexations:

During life of the project operations, quarterly adjustments/indexations for local inflation, foreign inflation, exchange rate variations (if applicable) and interest rate variations will be made on 1st July, 1st October, 1st January and 1st April each year based on latest available date with respect to CPI notified by the Federal Bureau of Statistics (FBS), US CPI issued by US Bureau of Labor Statistics and revised TT&OD selling rate of foreign currencies (US Dollar, British Pound Sterling, Euro and Japanese Yen,) issued by the National Bank of Pakistan. The method of indexation will be as follows:

Tariff Components	Tariff Indexation & Adjustment
Variable O&M (Foreign)	\$ to Pak Rupees & US CPI
Variable O&M (Local)	Pakistan CPI
Fixed O&M (Foreign)	\$ to Pak Rupees & US CPI
Fixed O&M (Local)	Pakistan CPI
Cost of Working Capital	Adjustments for relevant KIBOR Variations
Return on Equity	\$ to Pak Rupees if equity is invested in foreign currency
Principal Repayment (Foreign Currency Loan)	\$/Euro/Yen/Pound/RMB/ to Pak Rupees (based on borrowing by the project company)
Interest/Mark-Up payment (Foreign Currency Loan)	Adjustments for relevant LIBOR or other applicable interest rate benchmark and variations in exchange rate for Foreign Currency (US\$/Euro/Yen/Pound)
Interest/Mark-Up payment (Local Currency Loan)	Adjustments for relevant KIBOR Variations

For projects that are procured through bidding, AEDB/NEPRA may make some changes in the structure of the tariff to be bid, which shall be specified in the bidding documents. For example,

there may not be separate category of return on equity since that would be a number that the bidders may not wish to disclose. Similarly, all indexations available in Cost Plus, may not be offered in bidding process.

However, as far as currency indexations are concerned, the benchmark currency rate used as a reference will be the interbank rate for US Dollars (US\$) prevailing 30 days prior to the date of submission of bids. If a winning bidder has used a different currency, then while the evaluation will be done in USD, the final EPA shall include applicable currency indexation, using cross currency rates of the same reference date (ie 30 days before bid submission) to set the base rate for indexation to another currency.

Indexation of various components of tariff and adjustment for foreign exchange rates, if applicable,('true up') will be automatic, based on predetermined formulae and reference parameters. ARE IPPs will not have to approach NEPRA frequently for tariff indexation

### **3.8 Contractual Structure**

#### **Security Package**

CPPA-G/DISCO shall enter into a standard energy purchase agreement (EPA) with an ARE-IPP that has been confirmed power purchase and interconnection. The GOP shall also enter into an implementation agreement (IA), which will guarantee the payment obligation of the public sector power purchaser on account of power sales over the term of the EPA. It is to be noted that such policy incentives/obligations of IA with GoP will be exclusively for provision of electricity to public utilities and not for captive or B2B arrangement. The EPA will be based on the purchase of all power generated and delivered at a per-kwh rate determined by NEPRA. [Unlike the past regime, where very long-term EPAs have been signed, the bidding documents shall have a “take-or-pay” structure during the projected debt period, beyond which the remaining term of the contract shall be based on “take-and-pay” structure to promote competitive forces.]

The security package shall include (a) the LOS until its validity, and (b) the site lease deed in case the land is owned by a governmental authority and is to be leased to the winning bidder(s).

GOP will:

- a. guarantee the contractual obligations of the government and its entities and where federal government entities are a party to any agreement included in the security package documents. AEDB shall facilitate process of obtaining the guarantee of the Federal Government and where the provincial entities are party to any agreement included in the security package documents, AEDB shall facilitate process obtaining the guarantee of the Federal or the Provincial Governments as provided in the security package. If the entity whose obligations are being guaranteed, the new buyer shall be obligated to assume all such payment obligations and at such time, the payment guarantee of the GoP shall fall away at such privatization.
- b. provide protection against specified political and change in law force majeure risks.
- c. implement taxes and duties regime and protect against any subsequent changes made by GOP.

- d. ensure convertibility of Pakistan Rupees into US Dollars at the then-prevailing exchange rate and the remit-ability of foreign exchange to cover necessary payments related to the projects, including debt servicing and payment of dividends. Tariff components, however, will be adjusted and indexed in accordance with this ARE 2019 policy, against exchange rate, inflation and interest rate variation etc.
- e. prepare social and corporate action plan with the sponsors to ensure that the local inhabitants in the project area benefit from the ARE project and its development and operation is not disrupted.

## **Capital Structure**

The sponsors shall be free to choose their own capitalization structure subject to the laws of Pakistan and, to the extent they intend to take any local lending, subject to Prudential Regulations of the State Bank of Pakistan, governing the local banks. These require the sponsors to put in at least 20% equity in the Project. For “Cost Plus” or Upfront Tariffs, NEPRA generally imposes a maximum level of 30% of equity for purposes of determining Return on Equity. For projects that get tariff through ICB, the rules defined therein shall govern the maximum allowed equity for purposes of repatriation of dividends and original investment.

The debt funding may be done in any form and may be local or foreign. Any foreign debt has to be approved by the SBP prior to effectiveness to ensure currency availability for debt servicing. Lately, the SBP has required such Projects to obtain at least 50% of the capital requirement through foreign sources, whether debt or equity. However, these regulations may change and must be checked with SBP at the time of the financing.

## **Lock In Period**

The sponsors for projects selling to CPPA-G/DISCOs shall also have a “Lock-In” Period of 5 years from commercial operations of the Project, whereby they cannot sell their ownership to below 51% without written permission of AEDB.

The sponsor identified as the "main sponsor" in the application for pre-qualification, having a lead role and possessing sufficient financial and technical strength, will be required to hold at least 26% of the equity of the project company during the "lock-in period" which will be from the date of award of project until the fifth anniversary of the successful commissioning of the plant.

The main sponsor together with other pre-qualified sponsors must collectively hold 51% of the equity of the project company for the lock-in period. GoP may allow changes in the shareholding structure of the project company within lock-in period in terms of mechanism prescribed in the

guidelines. Any such request for change of shareholders shall be subject to the new sponsor(s) (a) is/are acceptable from National Security interest point of view, (b) is/are financially as strong as the outgoing sponsor(s), and (c) do(es) not result in any increased obligation of foreign currency outflow.

### **3.9 Financial Incentives**

#### **Tax Exemptions**

Project implemented under this Policy, whether selling to a Public utility, on a distributed/off-grid mode or on a B2B basis shall be exempt from Corporate Income Tax under clause 132 of part-1 of the second schedule to the income tax ordinance, 2001. Dividend withholding tax shall be as applicable at the time the bid is submitted.

Projects are currently subject to no Customs Duty on import of equipment / machinery not manufactured locally to be installed in Renewable Energy Projects. However, in order to avail the same, the Project Company shall provide an undertaking to AEDB that it shall only bring in, without customs duty, items that are to be installed in its plant, and shall not sell any such items in local market or use for any other purposes than specified. If the customs duty is different at the time of a future bidding round, the same shall be specified in the bidding documents, and the rate applicable shall be the rate on the bidding date.

There shall be GST on services by the Provinces that varies across the country. Currently applicable taxes may be checked with the relevant provincial agency at the time of the implementation of the Project.

- Exemption of sales tax on plant, machinery and equipment (pls check)
- Repatriation of equity along with dividends is freely allowed, subject to the prescribed rules and regulations, including lock in period for repatriation of capital.
- Parties may raise local and foreign finance in accordance with regulations applicable to industry in general. SBP approval is required for approval of foreign finance.
- Non- Muslims and Non-residents shall be exempted from payment of Zakat on dividends paid by the company.

- Maximum indigenization shall be promoted.

### **Exchange Protection**

All foreign capital that is invested in an ARE Project selling to a Public Utility where NEPRA has determined its tariff, whether in the form of debt or equity, as stipulated in the bid or specified in any cost plus or upfront tariff, shall be eligible for indexation if the same has been allowed by NEPRA as per the final approved tariff.

### **Debt Financing**

Sponsors are free to choose the debt structures they may wish to deploy, subject to SBP prudential regulations that apply to local banks in terms of their lending practice.

The local commercial banking market is well experienced in financing of power projects and also has liquidity of projects of small to medium size. For larger projects, consortia of local banks are needed on account of individual lending limits of the banks which are a function of the size of each bank. For larger projects, it is often necessary to have a combination of local and foreign debt financing packages. While traded bond market is not very liquid, this is also legally available as a mode of debt financing. In addition to local banks, most major export credit agencies in the world, as well as major multilateral agencies and bilateral agencies have previously lent to such projects in Pakistan.

### **3.10 Carbon Credits**

Pakistan is signatory to Kyoto Protocol and Paris Agreement that allows accessing global carbon crediting markets, environment and climate funds and other global financing options for projects under mitigation, adaptation and a combination thereof. These financing options can be accessed by the public and private sector entities. GOP encourages the ARE project developers to apply for procuring carbon credits through various carbon crediting mechanisms including Carbon Crediting Mechanism (CDM) under compliance market, financing options under voluntary

markets and mitigation & adaptation actions under Nationally Approve Mitigation Actions (NAMAs). the GOP mandates AEDB to facilitate, coordinate and assist the ARE project developers and the Designated National Authority (DNA) / National Designated Authority (NDA) of Pakistan under United Nations Framework Convention under Climate Change (UNFCCC) in reconciling the most effective approach in procuring carbon credits. AEDB may also facilitate the ARE project developers in trading the carbon credits in international carbon market and help DNA/NDA in creating national carbon credits trading scheme. The revenues generated through the sale of carbon credits will be exempted from income tax or duty.

The AEDB will assist in the development of local capacities and creating awareness regarding various carbon crediting mechanisms available under UNFCCC.

Considering that efforts are on way to put in place new international climate treaties, GOP is committed to revising incentives for procuring benefits consistent therewith. AEDB is empowered to effect requisite facilitation in the event of any new international regime or protocol applicable to Pakistan.

## **4. Projects with Private Use (Captive) or Sale to Third Parties**

### **4.1 Project Registration**

Projects that are for self-use, or B2B sales, will have a simplified regulatory process (described below) or in certain cases no regulatory approval at all. However, if a project wishes to avail any policy benefits under this Policy, that are not otherwise already available under law (e.g. no custom duty on import of solar panels), then it will be asked to register itself with AEDB. This registration shall not be in the nature of approval, but rather the basis on which it may ask AEDB for support to avail policy benefits if needed. This registration will require a simple filing of a proforma describing the proposed project and submitting it to AEDB.

Approvals that may be required are described below.

### **4.2 Types of Projects**

The types of projects that will fall under this category shall include all types of projects for power generations that are otherwise described in Section 1, to the extent of their self-use or sale in B2B mode.

### **4.3 Regulatory Approvals**

Power Generation is a regulated activity and requires obtaining a license from NEPRA. Sale of electricity is a regulated distribution activity also requiring a license and in some case tariff approvals. In order to promote this sector and open it up to investors and consumers of all sizes, renewable energy projects that all in the self-use and B2B category shall have simplified licensing and approval process as described below.

#### **Generation License**

A project generating electricity for its own use, or a third party installing at the users site with a BOT/BOOT model, shall not be required to get a license as long as (a) it is **not** connecting to the

grid/DISCO and (b) the electricity is being generated at the same location that is consuming it, and (c) there is no sale/transfer of electricity beyond the physical premises of the place where generation is occurring.

If a project is selling electricity directly to their customers under Business-to-Business (B2B) arrangement without involving grid network of any federal and provincial entity, it shall not require any approval from AEDB. Further, NEPRA shall exempt such a project from the requirement of Generation License if the size is **below [5 MW]**. If the size of the Project is less than 5 MW, No Objection Certificate shall not be required either from the DISCO in whose area such a sale is occurring.

In case of captive use is for an integrated industry of any type, the GoP will offer the following special incentives for establishing the industry provided that the commercial production from the Industry starts within a specified period from the date of commercial operation of the power plant:

- i. 5% duty on import of machinery required for the industry
- ii. Lease of public land for the life of the industrial plant, if available, and following the prescribed rules

If a Project is (a) producing electricity at one location but selling it to multiple non-domestic customers, or if (b) selling to domestic customers regardless of how many locations it is producing the electricity at, then such a Project shall be required to obtain a Generation License. In this case, the sale shall be more in the nature of a Distribution company operating a mini/micro grid. In this case, a No Objection Certificate shall be required from the DISCO in whose territory the sale is occurring, but the DISCO shall be bound to issue such NOC within 30 days of application by the Project if its grid is not being used by the proposed project. If such a project requires building private transmission/distribution line, the same shall be approved by NEPRA, and after completion of such line, the relevant DISCO shall be obligated to take over the Operations & Maintenance of the same upon payment of costs for the same by the sponsor, which consent shall be obtained from the DISCO prior to final approval.

Projects that intend to sell on a B2B basis, but intend to use wheeling facilities of the grid, shall be required to get a Generation License but shall not be subject to tariff approval from NEPRA. Any wheeling done by them shall be governed by the wheeling policy..

All such projects will be required to ensure compliance to international standards for quality and safety and meet all applicable laws of Pakistan except that any project less than 5 MW shall be exempt from conducting an Environmental Impact Assessment report.

## **Tariff Approval**

If a Project is selling electricity on a B2B basis, to a third party or an affiliate company, it shall not be required to get a Tariff Determination from NEPRA.

If a Project is intending to sell electricity to domestic consumers, like in a Private Housing society, then it shall be required to get a Tariff Determination regardless of the size of the Project subject to the following exception. If the supplier is prepared to accept the same tariff that is applicable for the DISCO that has the license in this area (including all applicable subsidies), then upon written confirmation of the adoption of the same, NEPRA shall process the Tariff Application and announce the same tariff, as if the customers were being supplied from the relevant DISCO. If such exception is not applicable, then NEPRA shall determine the tariff as per its own Rules

Any schemes for Off-Grid solutions, which are financially supported by local, provincial or federal government, in the form of Viability Gap Funding, ongoing subsidies, or payment guarantees, shall be treated as IPP projects procured by the government. Any such off-grid schemes that do not have such financial support, shall be treated as private projects requiring both Generation License and Tariff Determination.

## **Wheeling**

A project may use transmission and/or distribution grid network of public utilities to transport power from their project site to the point of interconnection of the power purchaser, subject to availability of such capacity. Such services shall be acquired upon payment of corresponding transmission and inter-connection 'wheeling charges' as determined by NEPRA for the respective utility, from time to time. Wheeling Regulations that are separately notified by NEPRA, as may be amended from time to time, are applicable in this case. The decision of whether a DISCO can provide wheeling, or demonstration of physical capacity constraints, shall

be made within 30 days of the application by the project. For the purposes of connection, distribution codes and connection codes approved by NEPRA shall govern.

### **Net Metering & Grid Spill Over**

An ARET project that is primarily for Self-use but wishes to sell any excess electricity on a non-firm basis to the DISCO it connects to, shall have the right to do so, which is netted against the energy delivered by the grid, as long as the maximum sale at any time is less than 1 MW. Under this mechanism utility consumers are encouraged to generate their own electricity from renewable resources in pursuant to the regulations issued by NEPRA from time-to-time.

Such project that intends to sell any excess supply more than 1 MW, set up for self (captive) or dedicated use, may supply surplus electricity to the DISCO (grid spillover), after getting a Generation License from NEPRA and getting “Cost Plus” tariff approval, subject to the DISCO agreeing to purchase the same.

## **4.4 Incentives**

### **Tax Exemptions**

Any production and use of electricity for self-consumption shall be treated as part of the normal business process for the purposes of income tax, but the sale of electricity from such projects to another entity, shall be exempted from income tax. Projects that have self consumption as well as sale to third parties, shall have apportionment as per existing tax rules for purposes of determining income tax exemption.

Any equipment imported for such projects will enjoy same custom duty exemptions as enjoyed by projects intending to sell to the grid.

### **Fiscal Incentives**

All the same incentives that are applicable to grid based projects shall remain available for projects that do not sell to grid unless specified otherwise herein

## 5. Institutional Framework

### 5.1 Legal & Regulatory Framework

The Ministry of Energy (Power Division) acts as the executive arm of the GoP in execution of Federal Government policies in the power sector. It also coordinates with relevant provincial governments and their agencies in achieving national policy objectives.

The National Electric Power Regulatory Authority (**NEPRA**) set up under the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (known as the “**NEPRA Act**”) is the apex regulatory body, which is mandated to act as an independent regulator for the provision of electric power services in Pakistan. The Karachi Electric (**K-Electric**), Bahria Town (**BTPL**) and the ten public sector distribution companies (**DISCOs**) provide electricity distribution services to multiple customers under license from NEPRA. The National Transmission and Dispatch Company Limited (**NTDCL**) is a sole public sector transmission system operator in Federal, licensed by NEPRA, transmits power purchased through the Central Power Procurement Agency (Guarantee) Limited (**CPPA-G**) / or any other legislative regime specified by GOP time to time, from GoP owned thermal generation companies (**GENCOs**), Water and Power Development Authority (**WAPDA-Hydel Wing**) and independent power producers (**IPPs**). NTDCL is also the System Operator for the secure, safe and reliable operation, control and dispatch of generation facilities as well as the Transmission Network Operator for the operation and maintenance, planning, design and expansion of the national transmission network.

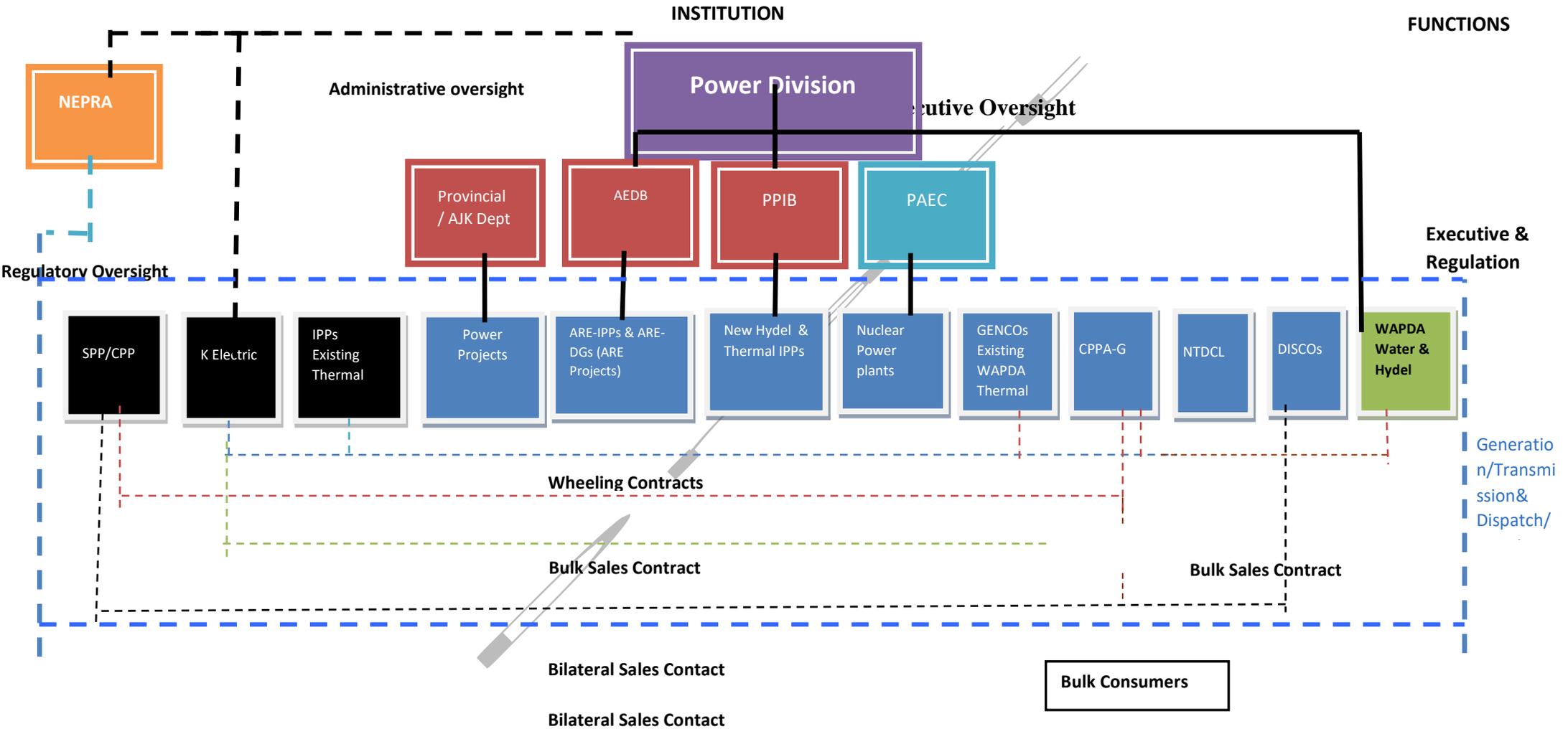
Within the context of ARE Policy 2019, Alternative / Renewable Energy based Independent Power Producers (**ARE-IPPs**) are ARE based power generation companies established for dedicated sale of power under guaranteed agreements with NTDC/CPPA-G/DISCOs. Likewise, the ARE Distributed Generators (**ARE DGs**) produce power for self-use and for sale to bulk consumers/utility under bilateral contract.

Private Power and Infrastructure Board (**PPIB**), is established as a “one window” facilitator for conventional private power sector generation projects, including hydel projects. AEDB works very closely with PPIB to ensure consistency of policy outlook and implementation; however, each organization has distinct role and responsibilities.

The Provincial Governments of Balochistan, Khyber-Pakhtunkhwa, Punjab and Sindh support the development and implementation of ARE projects within their territories. Similarly, the Gilgit-Baltistan (**GB**) region and the State of Azad Jammu and Kashmir (**AJK**) support development of ARE projects through local departments. Additionally, the Board of AEDB also ensures provincial representation for smooth ARE project implementation.

An organogram of the Pakistan power sector highlighting the inter-relation of various agencies is given in **Exhibit 1**.

**Exhibit 1: Pakistan's Power Sector Organizations**



## 5.2 One Window Institutional Support

AEDB provides one window facility to the investors and sponsors in setting up ARE -IPP projects in Pakistan under this Policy. It provides support to investors and sponsors in dealing with various federal & provincial government entities. It carries out the following functions:

- (i) prepare and draft standardized pre-qualification & bidding documents;
- (ii) prepare and draft standardized security package documents;
- (iii) pre-qualify the sponsors, evaluate bids and award projects;
- (iv) assist and facilitate sponsors and project companies in seeking necessary consents from various public sector entities;
- (v) issue LOI, LOS and execute security package documents where required;
- (vi) arrange guarantees for securing the contractual obligations of GoP or Federal / Provincial entities as specified in the security package documents;
- (vii) facilitate the private sponsors in settlement of environmental, security and land acquisition issues during implementation of projects;
- (viii) coordinate with the sponsors and the GoP's and other public sector departments, ministries and their entities for the timely implementation of the power projects

Alternate Energy Development Board has representation of all the provinces. This is necessary for the Policy making role of the AEDB since the projects to be undertaken, together with their locations and technologies are to be decided with consensus. Once the Policy is approved by the BOD, the implementation of the same can be done by the management level.

### **5.3 Fees and Charges**

AEDB may prescribe fee/charge structure, and revise them from time to time, for processing and providing facilitation under the ARE 2019 Policy. The schedule of charges, from time to time, shall be part of the guidelines available with AEDB.

#### **Guidelines**

In order to ensure the highest quality and long term sustainability in the development and operation of ARE power projects and transmission and distribution lines, Policy Guidelines under the ARE Policy shall be prepared and approved by the Board of AEDB. The Guidelines shall be notified through the Rules under the AEDB Act xxx.

#### **Repeal & Saving**

The RE Policy 2006 is hereby repealed. Notwithstanding the repeal, all actions taken, acts done, approvals given, orders made and proceedings initiated under the repealed policy shall be deemed to have been validly done, given, made & initiated Power projects, if any processed under the repealed policy shall continue to be governed there-under, unless opted and transferred under the Power Policy.