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CHAMBERS GLOBAL PRACTICE GUIDES

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# Alternative Energy & Power 2023

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**Pakistan: Law and Practice**

Nadir Altaf, Bilal Kazim Butt and Muhammad Fahim Khan  
RIAA Barker Gillette



# PAKISTAN



## Law and Practice

### Contributed by:

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## 1. Structure and Ownership of the Power Industry

### 1.1 Law Governing the Structure and Ownership of the Power Industry Electricity Sector Regulatory Regime

The principal law regulating the power industry of Pakistan is the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997, as amended from time to time (the “NEPRA Act”). The National Electric Power Regulatory Authority (NEPRA) was established pursuant to the NEPRA Act as an independent regulator of the power sector. On 2 May 2018, the Regulation of Generation, Transmission and Distribution of Electric Power Act (Amendment) Act 2018 (the “2018 Amendment Act”) was enacted. The 2018 Amendment Act significantly amended the NEPRA Act and reformed the electricity market by introducing provisions to foster greater competition.

NEPRA’s main functions include the issuance of licences for undertaking specified regulated activities (ie, generation, transmission, distribution and/or supply business, and construction and operation of related facilities) and the determination of tariffs for the sale of electric power.

Licensees include:

- companies that transmit electric power, including the national grid company (National Transmission and Despatch Company Limited (NTDC)) and the provincial grid companies (PGCs);
- companies that distribute electric power to end consumers;
- the company responsible for administering system operation and dispatch (National Power Control Centre (NPCC), which is currently a part of the NTDC);
- the company responsible for the organisation and administration of trade in electricity and payment settlements among generators, and consumers (currently, Central Power Purchasing Agency (Guarantee) Limited (CPPAG));
- electric power suppliers that act as supply-aggregators for electric power generated by generation companies;
- electric power traders that act as demand-aggregators for consumers and other licensees; and
- companies that generate electric power for sale to other licensees and consumers (“generation companies”).

Through the 2018 Amendment Act, Section 14(B) was incorporated in the NEPRA Act to inter alia regulate the business of generation in Pakistan under a licensing regime, subject to subsection (5) of Section 14(B) thereof. Under this subsection, the federal government – in consultation with NEPRA – was entitled to plan the gradual phase-out of licences for different types of power generation companies. This plan for phasing out licences had to be completed within five years from the enactment of the 2018 Amendment Act (ie, by 30 April 2023). Now that the planned period for the gradual cessation of licences has ended, any power generation company can set up and operate a generation facility without needing a licence. Nonetheless, any company that wants to set up a generation facility must still comply with technical standards that relate to connecting their facility to the power grid and must obtain NEPRA’s concurrence in a manner to be specified in the regulations. As yet, however, NEPRA has not provided any clarity regarding the terms and conditions that an applicant must meet. Notwithstanding the foregoing, NEPRA is of the view that the entities that were issued generation licences prior to 30

April 2023 shall continue to be regulated under the previous regime.

## *NEPRA Laws*

Pursuant to the NEPRA Act, NEPRA has enacted and approved the following key rules, regulations and binding documents (the “NEPRA Laws”):

- NEPRA Licensing (Generation) Rules 2000 (the “Generation Licensing Rules”);
- NEPRA Licensing (Distribution) Rules 1999 (the “Distribution Licensing Rules”);
- NEPRA Performance Standards (Generation) Rules 2009 (the “Generation Performance Standards Rules”);
- NEPRA Performance Standards (Transmission) Rules 2005 (the “Transmission Performance Standards Rules”);
- NEPRA Performance Standards (Distribution) Rules 2005 (the “Distribution Performance Standards Rules”);
- NEPRA Uniform System of Accounts Rules 2009 (the “USoA Rules”);
- NEPRA Fine Rules (the “Fine Rules”);
- NEPRA Fines Regulations 2021 (the “Fine Regulations”);
- NEPRA Tariff Standards and Procedure Rules 1998 (the “Tariff Rules”);
- NEPRA Licensing Application, Modification, Extension and Cancellation Procedure Regulations 2021 (the “AMEC Regulations”)
- NEPRA Upfront Tariff Approval and Procedure Regulations 2011 (the “Upfront Regulations”);
- NEPRA Electric Power Procurement Regulations 2022 (the “Procurement Regulations”);
- NEPRA Electric Power Supplier Regulations 2022 (the “Supply Regulations”);
- NEPRA Electric Power Trader Regulations 2022 (the “Trader Regulations”);
- NEPRA (Microgrid) Regulations 2022 (the “Microgrid Regulations”);
- NEPRA Alternative and Renewable Energy Distributed Generation and Net Metering Regulations 2015 (the “Net Metering Regulations”);
- NEPRA Procedure for filing Appeals Regulations 2012 (the “Appeal Procedure Regulations”);
- NEPRA Review Procedure Regulations 2009 (the “Review Procedure Regulations”);
- NEPRA Open Access Interconnection and Wheeling of Electric Power Regulations, 2022 (the “Open Access Regulations”);
- NEPRA (System Operator) Regulations 2022 (the “SO Regulations”);
- NEPRA Registration Regulations 2022 (the “Registration Regulations”);
- NEPRA (Fees) Regulations, 2021 (the “Fee Regulations”);
- NEPRA Resolution of Dispute between Independent Power Producers and other Licensee Regulations 2003 (the “Dispute Resolution Regulations”);
- NEPRA Sale of Electric Power by Renewable Energy Companies Guidelines 2015 (the “RE Sale Guidelines”);
- NEPRA Guidelines for Determination of Consumer End Tariff 2015 (the “Consumer End Tariff Guidelines”);
- NEPRA Guidelines for the Selection of Engineering, Procurement and Construction Contractor by Independent Power Producers (the “EPC Selection Guidelines”);
- NEPRA Guidelines for the Selection of Operation and Maintenance Contractors by Generation Companies 2021 (the “Selection of O&M Guidelines”);
- NEPRA Benchmarks for Tariff Determination Guidelines 2018 (the “Tariff Benchmark Guidelines”);
- Guidelines for Procurement of Coal on Spot Basis (the “Coal Procurement Guidelines”);

- Guidelines to Lay Down the Methodology and Process for Determination of Revenue Requirement and Use of System Charges (UoSC) for Transmission Licensee (the “UoSC Transmission Guidelines”);
- the Commercial Code;
- the Market Commercial Code;
- the NEPRA Power Safety Code;
- the Grid Code; and
- the Distribution Code.

The foregoing list is not exhaustive and is in no particular order.

### *Council of Common Interests*

The Council of Commons Interests (CCI) is the highest policy-making body of the federation. The CCI was established under Article 153 of the Constitution of Pakistan and consists of:

- the Prime Minister, who acts as the chairman of the CCI;
- the chief ministers of each province; and
- three members from the federal government (to be nominated by the Prime Minister).

The functions of CCI include formulating and regulating policies in relation to electricity matters and exercising supervision and control over related institutions.

### *Facilitative regime*

In order to facilitate power projects being developed pursuant to government power policy, the federal government has established the following statutory bodies:

- the Private Power and Infrastructure Board (PPIB) – for facilitating non-renewable power projects and hydropower projects with capacity greater than 50 MW; and

- the Alternative Energy Development Board (AEDB) – for facilitating renewable energy projects.

At the provincial level, similar bodies/departments for the development of power projects pursuant to provincial government power policies have been set up in the following provinces:

- Punjab – Punjab Power Development Board;
- Sindh – Government of Sindh Energy Department and the Sindh Renewable Energy Company (Private) Limited;
- Khyber Pakhtunkhwa – Pakhtunkhwa Energy Development Organisation; and
- Balochistan – Government of Balochistan Energy Department.

In the case of the state of Azad Jammu and Kashmir (AJK), the AJK Power Development Organisation (AJK-PDO) has been established to facilitate power projects in the AJK.

### *Ownership of Licensees*

#### *Generation companies*

There are both state-owned and privately owned generation companies operating in Pakistan. Owing to recent government policies, the number of grid-based independent power producers (IPPs) has grown greatly during the past two decades.

In the local market, the term “IPP” refers almost exclusively to privately owned power projects developed pursuant to a government-issued power policy that sell their power exclusively to the government’s purchasing entity (ie, CPPAG).

#### *Transmission companies*

The primary transmission licensee is the state-owned NTDC, which owns and manages the national grid. The provinces of Pakistan have



recently begun to set up their own transmission companies (see **1.2 Principal State-Owned or Investor-Owned Entities** (Transmission Entities)).

There are also a few privately owned transmission companies holding special purpose licences – for example, Fatima Transmission Company Limited and Pak Matiari Lahore Transmission Company (Private) Limited.

### *Distribution and supply companies*

Distribution companies are predominantly owned by the government. Exceptions include K-Electric Limited (a century-old public utility company that was privatised in 2005) and a few companies that were set up as private distribution businesses.

## **1.2 Principal State-Owned or Investor-Owned Entities**

### **Generation Entities**

#### *State-owned*

The Water and Power Development Authority (WAPDA), a statutory body, owns and operates a number of electric power projects for the government – the majority of which are hydropower-based. WAPDA also continues to develop further hydropower projects, including the Dasu hydropower project and the Keyal Khwar hydropower project.

Previously, WAPDA was the sole electric power utility of Pakistan. In the 1990s and 2000s, WAPDA was restructured to spin off:

- its thermal power projects into four generation companies (including the Central Power Generation Company Limited (CPGCL) and the Northern Power Generation Company Limited (NPGCL));
- its transmission business to the NTDC; and

- its distribution business into nine distribution companies (DISCOs).

Recently, the government has set up four large re-gasified liquefied natural gas (RLNG)-based power generation projects through three government-owned companies – namely, the National Power Parks Management Company (Private) Limited (which set up the Balloki and Haveli Bahadur Shah projects), Quaid-e-Azam Thermal Power (Private) Limited, and Punjab Thermal Power (Private) Limited. Additionally, a number of nuclear power plants are owned and operated by the Pakistan Atomic Energy Commission.

Government-owned generation companies are often referred to as “GENCOs” in Pakistan.

#### *Private*

The private sector has established a number of fossil-fuel power projects (residual furnace oil (RFO), high speed diesel (HSD), pipeline quality gas, reservoir-based gas, RLNG, imported coal, indigenous coal and cogeneration) and renewable energy projects (wind, solar and biomass/bagasse) pursuant to various government power policies. Some of the largest foreign investors in the private power sector include China Three Gorges, Power China, Hydrochina, China Gezhouba, Engie (French), K-Water (Korean), whereas the largest local investors include Engro, Hubco and Yunus Brothers.

K-Electric Limited also owns and maintains a portfolio of power projects, including the Bin Qasim Power Complex, the Korangi Power Station, the Site Gas Power Station and the Korangi Town Power Station.

Additionally, a number of captive private power projects have also been set up by the owners of

factories and other commercial establishments to meet their electric power requirements.

## Transmission Entities

### *State-owned*

The national grid of Pakistan is owned and managed by the NTDC, a state-owned company. The NTDC enjoys the exclusive right to provide transmission services within most of Pakistan.

The NPCC, the system operator responsible for the control of supply of electric power generated by all power producers connected to the national grid, is a part of the NTDC.

The provincial grid companies (PGCs) are owned by the respective provincial governments and include:

- Sindh Transmission and Dispatch Company (Private) Limited; and
- Khyber Pakhtunkhwa Transmission and Grid System Company (Private) Limited.

### *Private*

Some privately owned transmission companies are:

- K-Electric Limited – although primarily a distribution company, it also has the right to provide transmission services within its service territory, which is excluded from the NTDC’s service territory (see **5.5 Monopoly Rights to Provide Transmission Services**);
- Pak Matiari Lahore Transmission Company (Private) Limited; and
- Fatima Transmission Company Limited.

These companies have special purpose transmission licences that were issued pursuant to Section 19 of the NEPRA Act. These licences only permit the licensee to engage in the con-

struction, ownership, maintenance and operation of specified transmission facilities.

## Distribution Entities

### *State-owned*

The majority of DISCOs in Pakistan are state-owned entities with the right to carry out distribution activities in their respective service territories. As these state-owned DISCOs were formed after the restructuring of WAPDA, they are referred to as “ex-WAPDA DISCOs”. They include the following companies:

- Faisalabad Electric Supply Company;
- Gujranwala Electric Power Company;
- Hyderabad Electric Supply Company;
- Islamabad Electric Supply Company;
- Lahore Electric Supply Company;
- Multan Electric Power Company;
- Peshawar Electric Supply Company;
- Quetta Electric Supply Company;
- Sukkur Electric Power Company; and
- Tribal Areas Electricity Supply Company.

### *Private*

The following is a non-exhaustive list of privately owned distribution companies:

- K-Electric Limited, formerly a state-owned DISCO that was privatised in 2005, which is responsible for distribution activities in the city of Karachi and its surrounding areas;
- Lasbela Industrial Estates Development Authority (LIEDA), which obtained a distribution licence for the distribution of electric power to the industrial estates within LIEDA’s ambit;
- DHA Electric Supply Company, which was formed in order to distribute electric power to housing developed by the Defence Housing Authority; and

- Bahria Town (Private) Limited, which was formed in order to distribute electric power to housing developed by Bahria.

### 1.3 Foreign Investment Review Process

There are no notable restrictions on the injection of foreign investment into the power sector. On the contrary, the government encourages foreign investment by extending various protections and fiscal and financial incentives to investors. Some of these protections are provided in the law, whereas many are promised contractually via concession agreements signed between the investor(s) and the government. In the local power sector, these agreements are referred to as “implementation agreements”.

These protections and incentives include:

- exemptions from tax and applicable duties and concessionary rates;
- repatriability of investment and proceeds;
- non-discriminatory treatment;
- change-in-law protection;
- change-in-tax protection;
- lapse-of-consent protection;
- force majeure protection;
- dispute resolution before international arbitration institutions;
- government support during the consent process, including assistance in acquiring land for project site development purposes;
- direct agreements with lenders;
- compensation upon termination; and
- sovereign guarantee for the state-owned power purchaser’s payment obligations and compliance with obligations under the concession documents, etc.

If any investment (whether foreign or local) is to be made in a project being developed pursuant to a government policy – and thus is eligible

for receipt of the above-mentioned sovereign guarantee – then the relevant facilitative agency of the government will review the financial and technical strength of the investor before approving their investment in the project.

Typically, the permitted debt-to-equity ratio is from 80:20 to 70:30. Any equity in excess of the permitted ratio will be treated as debt by NEPRA when determining the tariff.

Further, when determining the tariff, NEPRA will take into account:

- return on equity during construction;
- interest during construction; and
- return on equity.

Repatriation of foreign investment is subject to the exemption/approval of the State Bank of Pakistan (SBP), which grants the approval in accordance with the prevailing foreign exchange policy.

### 1.4 Law Governing the Sale of Power Industry Assets

NEPRA imposes restrictions and conditions on various transactions by licensees, including amalgamations and mergers by licensees and the sale of power industry assets by licensees.

The Generation Licensing Rules impose a number of restrictions and conditions on the generation and distribution licences issued by NEPRA, including restrictions in respect of:

- the transfer of the licensee’s shares and other voting securities;
- the disposal of the licensed business;
- the issuance of guarantees/surety bonds; and
- the acquisition of shares in any entity, subject to exceptions.

Transactions that involve the foregoing require the prior approval of NEPRA, which will take into account the promotion of competition in the electric power industry as a whole and any change in the control or management of the licensee likely to result from the approval (if granted).

Additionally, pre-merger approval is also required from the Competition Commission of Pakistan (CCP), subject to the transaction meeting the thresholds imposed by the applicable provisions of competition law.

Further, the implementation agreement entered into between IPPs and the government provides for a contractual “lock-in” period, during which the shares of the project company cannot be transferred without the approval of the government.

There are a number of precedents in which the relevant government agency has approved the transfer of project company ownership/control, including:

- Rousch (Pakistan) Power;
- Laraib Energy;
- Star Hydro Power (Patrind);
- Karot Power Company; and
- Kohala Hydro Company.

## 1.5 Central Planning Authorities

In addition to being the national grid company, the NTDC is also responsible for the development of power generation and transmission in Pakistan. In this role, the NTDC has prepared the Indicative Generation Capacity Expansion Plan 2021–30 (IGCEP), which sets out the generation expansion plan for the decade. Based upon the IGCEP, the NTDC is then expected to formulate its Transmission System Expansion Plan.

As previously mentioned, the NPCC is responsible for the control and dispatch of electric power to meet the demand of the national grid (see **1.2 Principal State-Owned or Investor-Owned Entities**).

In addition to the foregoing, the investment and expansion plans of distribution licensees and transmission licensees – and their performance and safety in light thereof – are reviewed and approved by NEPRA annually, along with the revenue requirements.

Aside from the NPCC, the following stakeholders also play a role in planning:

- the CCI and the Cabinet Committee on Energy;
- policy-making institutions including the federal and provincial cabinets;
- NEPRA;
- the Ministry of Planning; and
- the Ministry of Energy (power and petroleum divisions).

The foregoing list is not exhaustive.

## 1.6 Recent Changes in Law or Regulation

In 2018, the NEPRA Act was amended to – inter alia – pave the way for a deregulated, competitive market, referred to as the Competitive Trading Bilateral Contract Market (CTBCM) model.

In addition to the generation, transmission and distribution licences already provided by the original law, the 2018 Amendment Act introduced new licences for:

- market operators – responsible for the operation of the competitive market to be established under the CTBCM model;

- system operators – responsible for the dispatch of the electric power generators connected to the national grid system;
- PGCs – responsible for the provision of transmission services within each province;
- electric power traders – act as demand-aggregators in the CTBCM model by contracting with multiple distribution licensees and consumers to procure power on their collective behalf; and
- electric power suppliers – act as supply-aggregators in the CTBCM model by contracting with multiple generation licensees and other suppliers to sell power on their collective behalf to consumers.

The 2018 Amendment Act to the NEPRA Act also:

- established the NEPRA appellate tribunal, which functions independently from NEPRA, in order to hear appeals against NEPRA's decisions;
- removed the exclusivity rights of DISCOs in relation to their respective service territories;
- introduced the national electricity policy for the development of power markets (the “NE Policy”) to be prepared by the federal government and approved by the CCI; and
- introduced the national electricity plan (the “NE Plan”) to be prepared by the federal government with assistance from NEPRA and in consultation with the provincial governments.

The foregoing list is not exhaustive.

### Protection of Existing Exclusivity Rights

Historically, the NEPRA Act has granted exclusivity to DISCOs in their respective service territories. Section 22(1) of the NEPRA Act granted case-by-case second-tier supply authorisations to generation companies and DISCOs that want

to directly supply consumers within the service territories of other DISCOs.

However, Section 22(1) was subject to a sunset clause that limited its effectiveness for a period of 15 years from the commencement of the NEPRA Act (ie, until the year 2012). In addition to removing the exclusivity right of DISCOs in relation to their respective service territories, the 2018 Amendment Act removed Section 22(1)'s sunset clause so that NEPRA could continue to issue second-tier supply authorisations.

Notably, as well as granting second-tier supply authorisations to generation companies prior to 2012, NEPRA also continued to grant them from 2012 (ie, when Section 22(1) was no longer effective) up to 2018 (ie, the revival of Section 22(1)) and beyond. It is worth mentioning, however, that NEPRA phased out the second-tier supply authorisations following the introduction of the supply licence via the 2018 Amendment Act. The NEPRA Licensing (Electric Power Supplier) Regulations 2022 require that a year after notification of the same (which was 28 March 2022), all generation companies with a second-tier supply authorisation must apply for a supply licence to sell power to consumers. Therefore, the sale of power to consumers by generation companies that was once came under the second-tier authorisation of the generation licence is now regulated under the supply licence regime.

The Islamabad High Court, through its decision on writ petitions filed by certain DISCOs against NEPRA, decided that:

- the exclusivity rights that have already been granted to DISCOs could not be withdrawn with retrospective effect;

- DISCOs with existing exclusivity rights would continue to enjoy them until their licences expired; and
- NEPRA was wrong to grant second-tier supply authorisations during the period from 2012 to 2018 (ie, during the ineffectiveness of Section 22(1)).

As a consequence of the High Court's decision:

- the number of new B2B electric power sale arrangements have reduced substantially, on account of a lack of clarity regarding the legality of such transactions; and
- the growth of wheeling activity that resulted from the issuance of second-tier supply authorisations has ground to a halt but is expected to resume following the recent passage of the Open Access Regulations, which repeal the previous NEPRA Wheeling of Electric Power Regulations 2016.

## 1.7 Announcements Regarding New Policies

### New National Electricity Policy 2021

Pursuant to Section 14(A) of the NEPRA Act, the federal government is required to prescribe an NE Policy, with the approval of the CCI, that encompasses:

- development of systems based on optimal utilisation of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy;
- development of an efficient and liquid power market design;
- integration of national and provincial transmission systems;
- special provisions for ensuring the development of a sustainable renewable energy market with a dedicated and gradually increasing share in the electricity power sector; and

- any other matter pertaining to the development, reform, improvement and sustainability of the power sector.

In 2021, the federal government introduced the National Electricity Policy 2021 (the "2021 NE Policy"). Prior to the 2021 NE Policy, the federal government had formulated the Power Generation Policy 2015 (the "2015 Policy"), which set out specific incentives and protections for investors developing power projects with government support. The 2021 NE Policy, which is broader in scope but less specific about the incentives and protections offered, did not replace the 2015 Policy – rather, the 2021 NE Policy supplements the older policy.

The 2021 NE Policy signals the federal government's growing focus on the following matters, among others, in respect of the electricity sector:

- enhanced competition;
- greater sustainability and environmental responsibility; and
- privatisation of state-owned enterprises (especially the DISCOs).

The 2021 NE Policy also provides that future procurement of electricity by the NTDC will be in accordance with the IGCEP and its interconnectivity with the grid will be based on the Transmission System Enhancement Plan (TSEP). The IGCEP is a system prepared by the NTDC under which it acquires power from different generation plants based on an optimised tariff as calculated by the system. The TSEP is to be developed in order to connect new generation plants to the grid as required by the IGCEP.

## New Alternative and Renewable Energy Policy 2019

The Alternative and Renewable Energy Policy 2019 (the “2019 ARE Policy”) places a greater emphasis than the previous renewable energy policy (namely, the Policy for Development of Renewable Energy for Power Generation 2006) on:

- competitiveness, which is ensured through bidding; and
- new technologies, which are encouraged through a framework for unsolicited proposals that removes the requirement for competitive bidding (this framework is available for the first two power projects using each new technology).

The 2019 ARE Policy extends to projects that are based on:

- biomass (including bagasse, agricultural waste and other waste);
- solar (photovoltaic or thermal, or any technology that uses heat and/or light from the sun to generate 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;
- hybrids of any of the above-mentioned technologies.

The foregoing is not an exhaustive list.

## Transmission Line Policy 2015

Recognising the need to augment the national transmission network, the federal government published the Transmission Line Policy 2015

(the “Transmission Policy”). So far, the Matiari-Lahore transmission line is the only project has been developed under the Transmission Policy (see 5.2 Obtaining Approvals for the Construction and Operation of Transmission Lines and Associated Facilities for further details).

## Projects Under Older Policies

Projects developed under older policies (eg, the 2015 Policy and the Policy for Power Generation Projects Year 2002) continue to enjoy the concessions and protections granted to them under such policies.

## 1.8 Unique Aspects of the Power Industry

### High-Risk High-Reward Market

Pakistan is a challenging country to invest in – for reasons ranging from security risks and circular debt to bureaucratic red tape. As such, the government offers some of the highest return-on-equity rates in the global market – up to 14–17% – to attract investment in the local power sector. The extraordinary return offered by the government has attracted a significant amount of local and foreign investment within the power sector and continues to do so.

### Circular Debt

As per the NEPRA State of Industry Report 2022, the circular debt in the power sector stood at PKR2,252 million in June 2022 and has continued to increase significantly since then. According to NEPRA, the main causes of the increase include:

- inefficiencies in the generation;
- transmission and distribution of power;
- non-payment of subsidies in a timely manner;
- transmission and line losses; and
- low recovery of amounts owed for sale of electricity.

## Economic Meltdown

Dwindling foreign reserves, global inflationary pressures, a weakening rupee, political instability, and globally high fuel prices of imported fuel such as oil, RLNG and coal have led to a very precarious economic situation for Pakistan.

## Lack of Planning/Co-ordination

There is a chronic lack of planning and co-ordination within the government when it comes to the power sector.

Provincial governments exercise their legal power to issue letters of intent for projects without consulting the federal government, which leads to unplanned generation capacity additions. The issuance of the IGCEP has been delayed and, in lieu of a systematic onboarding of generation plants based on optimised tariffs, the NTDC has been inducting new projects into the pipeline on an overburdened national transmission system.

## Dependence on Imported Fuels

Pakistan has failed to fully utilise its indigenous energy resources – specifically, its hydro resources, renewable sources such as wind, solar and bagasse, and local coal. Instead, the country has relied on imported fuels (HSD, RFO, imported coal and RLNG) to meet its energy requirements, which have been expensive and a drain on the national foreign exchange reserves.

## Moratorium on Coal

As a result of climate change concerns, international financial institutions are now reconsidering their support for coal power. In some cases, these institutions have even withdrawn their financing commitments for in-development coal power projects.

## Unwillingness of Distribution Companies to Enable Wheeling

Current examples of electricity wheeling are few and far in between in Pakistan. Where wheeling is being done, the arrangement is at a nascent stage and localised.

DISCOs are unwilling to enable wheeling on their networks as a result of the following factors, among others.

- Cross-subsidisation – DISCOs use high-revenue consumers to subsidise sale to low-revenue consumers and therefore losing the former consumers to wheeling would reduce the pool of high-revenue consumers, thereby hampering the financial ability of the DISCOs' to cross-subsidise.
- Stranded cost – DISCOs argue that they spend regularly to maintain and expand their existing distribution networks and that abruptly losing high-revenue consumers to wheeling would mean that the DISCOs are unable to recover such costs, leaving such costs “stranded”.

The consumers lost to wheeling are often reliable, high-revenue customers that form the backbone of Pakistan's industries (eg, factories, commercial and industrial establishments). This means the DISCOs' concerns are juxtaposed against the developmental considerations of those industries that contribute significantly towards the economic growth of the country.

## Ageing Transmission and Distribution Networks

Unfortunately, owing to neglect and lack of investment, the transmission and distribution networks of Pakistan have aged poorly. This has exacerbated technical and non-technical losses, which go on to feed the problem of circular debt.



This means these networks are ripe targets for foreign investment, subject to a suitable government policy being issued to incentivise such investment.

## Bureaucratic Hurdles

Owing to institutional inertia and other factors, Pakistan suffers from chronic delay in government decision-making. This, along with excessive red tape and an antiquated judicial system that leads to inordinate delays in regulatory adjudication and dispute resolution, frustrates projects at all stages of development and operation.

## 2. Market Structure, Supply and Pricing

### 2.1 The Wholesale Electricity Market

The wholesale electricity market is entirely regulated at present. NEPRA determines the tariffs for all sales of electricity, including sales made by generation companies to distribution companies.

NEPRA has begun the process of deregulating the market in order to increase competition. In preparation for this deregulation, an elaborate mechanism of gradual transition to a competitive market – known as the CTBCM – has been developed. To enable the development of the CTBCM, the NEPRA Act was substantially amended in 2018, introducing the new licences discussed in 1.6. **Recent Changes in Law or Regulation.**

### 2.2 Electricity Imports and Exports

NEPRA has developed a legal framework to enable the import of electric power from outside of Pakistan, including from the state of Azad Jammu and Kashmir.

The NEPRA (Import of Electric Power) Regulations 2017 enable licensees to negotiate and contract with power projects based outside NEPRA's jurisdiction for the import of electric power. The NEPRA (Import of Electric Power) Regulations 2017 have recently been replaced with the NEPRA (Electric Power Procurement) Regulations 2022.

Currently, imports under these regulations are being made from the state of Azad Jammu and Kashmir and from Iran. The pricing of these imports is negotiated between the generator/exporter and the power purchaser (usually CPPAG or, for older projects, the NTDC) and subsequently approved by NEPRA.

Pakistan presently does not export electric power.

### 2.3 Supply Mix of Electricity

As per NEPRA's State of Industry Report 2022, the total installed generation capacity of Pakistan was 43,775 MW. This national supply mix consisted of:

- 26,683 MW thermal (61%);
- 10,635 MW hydroelectric (24%);
- 2,837 MW renewables (6%); and
- 3,620 MW nuclear (8%).

### 2.4 Law Governing Market Concentration Limits

NEPRA has a broad mandate to ensure competition in the national market.

Additionally, the CCP has the mandate to ensure competition in all markets in Pakistan. In the case of mergers, transactions require pre-merger clearance by the CCP if they exceed the following thresholds:

- the value of gross assets of the undertaking (excluding value of goodwill) is PKR300 million or more, or the combined value of the undertaking and the undertaking(s) – the shares of which are proposed to be acquired – or of the undertakings being merged is PKR1 billion or more; or
- annual turnover of the undertaking in the preceding year is PKR500 million or more, or the combined turnover of the undertaking and the undertaking(s) – the shares of which are proposed to be acquired – or of the undertakings being merged is PKR1 billion or more; and
- the transaction relates to acquisition of shares or assets of the value of PKR 100 million or more; or
- in the case of acquisition of shares by an undertaking, if an acquirer acquires voting shares that – together with voting shares (if any) held by the acquirer – entitle the acquirer to more than 10% voting shares.

In practice, there is no state entity that proactively regulates market concentrations limits in the energy sector.

## 2.5 Surveillance to Detect Anti-competitive Behaviour

Pakistan does not currently have a competitive energy market.

## 3. Climate Change Laws and Alternative Energy

### 3.1 Climate Change Law and Policy Federal and Provincial Environmental Protection Agencies

The regulation of environmental matters, including the environmental impact of power projects, is the mandate of the federal Environmental Protection Agency (EPA) and the provincial EPAs.

Following the 18th Amendment to the Constitution of Pakistan in 1973, every province established a provincial EPA through a provincial legislative instrument. The federal EPA's jurisdiction is limited to the area of Islamabad Capital Territory. A project will be subject to the rules and regulations of the provincial EPA when operating therein.

In order to obtain the approval of an EPA, a project may be required to carry out an Environmental Impact Assessment or an Initial Environment Examination, depending on the requirements of the respective EPA.

Pakistan has also passed the Pakistan Climate Change Act 2017. The purpose of this act is to ensure that Pakistan meets its obligations under the international agreements and conventions regarding climate change to which Pakistan is a signatory. It further mandates that Pakistan must adopt measures to combat climate change through the establishment of the Pakistan Climate Change Authority. The functions of the Pakistan Climate Change Authority include:

- formulating and implementing climate change adaptation and mitigation policies in Pakistan to meet its international obligations under conventions and agreements relating to climate change, including Sustainable Development Goals;
- creating projects to reduce de-forestation and emissions;
- formulating policies for the protection and conservation of renewable and non-renewable resources, habitats and other species; and
- monitoring the implementation of plans and communications submitted to United Nations Framework Convention on Climate Change

(UNFCCC) and international agreements specified in the Schedule to the Act.

This list is non-exhaustive.

### Carbon Credits

Pakistan is registered as a host country with the UNFCCC. A number of renewable energy projects have generated and sold carbon credits.

### 3.2 The Early Retirement of Carbon-Based Generation

There is no policy in Pakistan for early retirement of carbon-based generation.

Pakistan only recently established a number of local coal power projects so as to reduce its reliance on imported fuel by exploiting the country's Thar coal reserves.

That said, the useful life of all projects is reviewed at the time of issuance of licences and the term of each licence is designed to be commensurate with the useful life of the relevant project.

### Growth of Renewable Energy Sources

In order to reduce reliance on carbon-based generation, the federal government has aimed to increase power generation from renewable sources to more than 50% of the total power generation energy mix, as per the Pakistan Energy Outlook Report 2021–30 released by the Ministry of Planning, Development and Special Initiatives. The provincial governments are also drafting policies that encourage off-grid solutions such as rooftop solar units.

### 3.3 Programmes for the Development of Alternative Energy Sources

#### Alternative Energy Development Board and Renewable Policies

The Federal Government has set up the Alternative Energy Development Board (AEDB) to facilitate the development of alternative energy power projects, including solar, wind, small hydro and biomass projects.

Policies facilitating the development of renewable energy projects include:

- The Alternative and Renewable Energy Policy, 2019;
- the Framework for Power Co-Generation 2013 (Bagasse/Biomass).

Selection of project developers by the AEDB has not been done on competitive basis so far, but there are plans to undertake competitive bidding for future projects.

#### Off-Grid

The Provincial governments, in particular the Government of Sindh, are beginning to explore the viability of off-grid energy solutions that do not require expansion of existing networks to supply electric power to remote areas. These include mini grids powered by solar energy that supply electric power to villages independently of the national grid.

#### Net-Metering

NEPRA promulgated the NEPRA (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations 2015 to establish a framework for the regulation of Distributed Generation by using alternative and renewable energy and net metering by Distributed Generators (ie, a domestic, commercial or industrial consumer who owns and/or operates the rele-

vant renewable energy small-scale facility and is licensed by the Authority under the Regulations).

### Mechanisms for Providing Incentives

The mechanisms for providing incentives to project companies include:

- execution of implementation agreements that provide contractual commitments and protections to the project companies;
- upfront tariffs that promise fixed, lucrative returns and reward efficiencies; and
- legislative changes to the fiscal and financial regimes in order to:
  - (a) vary the tax and duty rates; and
  - (b) provide exemptions from taxes and applicable duties.

The foregoing list is not exhaustive.

## 4. Generation Facilities

### 4.1 The Construction and Operation of Generation Facilities

The construction and operation of generation facilities is regulated pursuant to:

- the NEPRA Act;
- Generation Licensing Rules;
- Generation Performance Standards Rules;
- Tariff Rules;
- EPC Selection Guidelines;
- Selection of O&M Guidelines;
- Pakistan Engineering Council (PEC) Byelaws;
- the Electricity Act 1910; and
- the relevant provincial environmental acts.

### NEPRA Laws

Pursuant to the NEPRA Act and the Generation Licensing Rules, no person can construct or operate a power project unless they have a

licence to do so from NEPRA. Once they hold a licence, they must construct the power project as per the approved parameters.

The 2018 Amendment Act, however, has stated that the requirement for a generation licence shall cease as of five years from the promulgation of the amendment act. A generation company must only obtain NEPRA's "concurrence" and ensure that they comply with the technical standards related to grid connectivity (see **1.1 Law Governing the Structure and Ownership of the Power Industry**).

### Pakistan Engineering Council

The Pakistan Engineering Council (PEC) is responsible for regulating engineers, constructors and operators working in Pakistan. Such persons must be issued the requisite licences from the PEC before they can undertake construction and operation works.

### 4.2 Obtaining Approvals for the Construction and Operation of Generation Facilities

The following key consents, inter alia, are required for the construction and operation of generation facilities:

- letter of intent – issued after successful application to the relevant facilitative body (approval only required if the project is being developed pursuant to a government policy) (see **1.1 Law Governing the Structure and Ownership of the Power Industry** for a list of the federal and provincial facilitative bodies);
- generation licence – issued after successful application to NEPRA under the NEPRA Act and the Generation Licensing Rules (see **1.1 Law Governing the Structure and Ownership of the Power Industry**);

- generation tariff – issued after successful application to NEPRA under the NEPRA Act, the Tariff Rules and other relevant Regulations;
- letter of support – issued after successful completion of milestones under the letter of intent (approval only required if the project is being developed pursuant to a government policy);
- IGCEP and grid interconnection study approval – issued by the NTDC after review of study;
- environmental approvals – issued after successful application to the relevant environmental protection agency, following an Environmental Impact Assessment; and
- project agreements, including:
  - (a) power purchase agreement – entered into with the power purchaser;
  - (b) implementation agreement – entered into with the relevant government, usually the federal government (approval is only required if the project is being developed pursuant to a government policy);
  - (c) lease agreement – entered into with the lessor, if the land is not acquired by the developer as a freehold;
  - (d) water use agreement – entered into with the water supplier; and
  - (e) fuel supply agreement – entered into with the fuel supplier, if applicable.

Consents required as part of the implementation agreement include:

- commitment from the SBP to make available foreign currency for the project's requirements;
- SBP approval of the foreign currency loans;
- SBP approval for remitting and retaining the company's revenue in foreign currency;

- consents required from NEPRA under the NEPRA Act;
- confirmation from the Ministry of Finance or the federal tax authority (Federal Board of Revenue (FBR)) that, during the term, the company will not be subject to taxation in Pakistan on its profits and gains derived from electric power generation;
- statutory notifications and permits from the Ministry of Commerce or the FBR for importation of plant, machinery and supplies;
- statutory notification for reduction in stamp duty and registration fees; and
- special sanction by the provincial government under Section 34 of the Electricity Act 1910 permitting the company to connect the complex to the earth, etc.

### 4.3 Terms and Conditions Imposed in Approvals for the Construction and Operation of Generation Facilities

The terms and conditions under which a generation facility can be set up are provided in the generation licence of each generation licensee (see **1.1 Law Governing the Structure and Ownership of the Power Industry**). The typical terms and conditions include:

- the term of the licence;
- requirement to pay the licence fee;
- the approved specifications of the generation facility, including capacity, location and technology;
- the approved offtake arrangement;
- the approved offtakers/consumers;
- requirement to only charge the tariff determined by NEPRA;
- obligation to work towards implementation and operation of a "Competitive Trading Arrangement" (which may be read now as a reference to the CTBCM model);

- requirement to comply with the “applicable documents”, which include the NEPRA laws, Grid Code and the Distribution Code;
- requirement to comply with the Generation Performance Standards Rules;
- prohibition on abandonment of the generation business/facilities;
- requirement to maintain records;
- requirement to comply with the applicable environmental standards;
- obligation to provide information to NEPRA; and
- obligation to design, manufacture and test the facility according to the latest International Electrotechnical Commission, the Institute of Electrical and Electronics Engineers or any equivalent standards.

#### 4.4 Eminent Domain, Condemnation or Expropriation Rights

Power project developers themselves are not granted the right of eminent domain. However, the government is empowered under the Land Acquisition Act 1894 (the “Acquisition Act”) to assist developers in acquiring land for public purposes, which includes electric power generation for sale to the government (ie, CPPAG). Through the Acquisition Act, a project will ask the government to acquire the land from private citizens. The government will do so and require that the project company deposit compensation with the government, which is then disbursed to the landowners.

If the project company wishes to acquire land from the government, it may do so under the Colonization and Disposal of Government Lands Act 1912 through the issuance of Statement of Conditions that specifies the purpose and terms applicable to such state lands.

In other cases, especially where the land is already owned – or has been acquired – by the government or a third party, the project company may enter into a lease for the project land.

#### 4.5 Decommissioning a Generation Facility

The term of each generation licence is designed to be commensurate with the useful life of the project. Nevertheless, some projects opt for early decommissioning or changing their fuel and/or upgrading their units in order to extend the useful life of the project.

Under the Generation Licensing Rules, decommissioning of a plant without obtaining NEPRA approval will result in a breach of the term of the licence. This may lead to NEPRA penalising the licensee by revoking/suspending the licence, appointing an administrator for the generation business, or imposing a fine.

There have been instances where NEPRA has allowed decommissioning on application of an IPP. NEPRA usually requires that the IPP apply for cancellation of its licence (if the license is still valid). Where only certain units are to be decommissioned then the licence may need to be modified. NEPRA then allows decommissioning if there is no contractual obligation under the implementation agreement for transfer of the facility to the federal government.

At the end of the term of the concession agreements for most hydropower projects, the relevant government has the option of having the project transferred to it for a nominal sum. To date, none of the power projects whose concession agreement terms have expired have been transferred to government.

## 5. Transmission Lines and Associated Facilities

### 5.1 Regulation of the Construction and Operation of Transmission Lines and Associated Facilities

The construction and operation of transmission facilities is regulated pursuant to:

- the NEPRA Act;
- Tariff Rules;
- Transmission Performance Standards Rules;
- Grid Code;
- PEC by-laws; and
- the Electricity Act 1910.

#### NEPRA Laws

Pursuant to the NEPRA Act, no person can construct or operate transmission facilities unless they have a licence to do so from NEPRA. Once they hold a licence, they must construct the transmission facilities according to the approved parameters.

#### Grid Code

The Grid Code is a regulatory code formulated by the NTDC (as the national grid company) and approved by NEPRA. All distribution and transmission companies (including the NTDC) are required to comply with the Grid Code in the development and operation of their facilities.

### 5.2 Obtaining Approvals for the Construction and Operation of Transmission Lines and Associated Facilities

The following are the key consents required for the construction and operation of transmission facilities:

- letter of intent – issued after successful application to the relevant facilitative body

- (approval only required if the project is being developed pursuant to a government policy) (see **1.1 Law Governing the Structure and Ownership of the Power Industry** for a list of the federal and provincial facilitative bodies);
- transmission licence – issued after successful application to NEPRA under the NEPRA Act;
- transmission tariff – issued after successful application to NEPRA under the NEPRA Act and the Tariff Rules;
- letter of support – issued after successful completion of milestones under the letter of intent (approval only required if the project is being developed pursuant to a government policy);
- project agreements, including:
  - (a) transmission service agreement (TSA) – entered into with the NTDC or generation company, depending on the nature of the project; and
  - (b) land rights – land rights may be acquired by the government under the Acquisition Act or in the form of leases/rights of way;
- grid interconnection study approval – issued by the NTDC after review of study;
- environmental approvals – issued after successful application to the relevant environmental protection agency, following an Environmental Impact Assessment; and
- other project-specific approvals.

The policy currently in vogue for the development and operation of transmission facilities is the Transmission Line Policy 2015. As noted in **1.7 Announcements Regarding New Policies**, only one transmission facility has been developed under this policy so far – namely, the Matiari-Lahore 600kV high-voltage direct current transmission line developed by the Pak Matiari Lahore Transmission Line Company (Private) Limited. The line is intended to transmit the electric power generated by the local coal-

based power projects being developed in Thar and Sindh, which are located in the south of Pakistan, towards the central and northern parts of the country.

### 5.3 Terms and Conditions Imposed in Approvals for the Construction and Operation of a Transmission Line and Associated Facilities

The majority of the terms and conditions for the operation of transmission facilities are set out in the respective licence of each transmission licensee. The typical terms and conditions include:

- term and renewal of the licence;
- requirement to pay the licence fee;
- exclusivity (if granted);
- requirement to only charge the tariff determined by NEPRA; and
- obligation to work towards implementation and operation of the CTBCM.

### 5.4 Eminent Domain, Condemnation and Expropriation Rights

Rights over the land required for the construction and operation of transmission facilities are acquired in the following ways:

- acquisition by the government under the Acquisition Act;
- acquisition pursuant to the WAPDA Act;
- acquisition as a freehold by the transmission company;
- acquisition as a leasehold by the transmission company; and
- acquisition of rights of way (through contractual licence) by the transmission company.

### 5.5 Monopoly Rights to Provide Transmission Services

The NTDC enjoys the exclusive right to provide transmission services within its service territory.

Although K-Electric Limited also enjoys the exclusive right to provide transmission services within its service territory, this right is linked to its exclusivity under its distribution licence (see **6.5 Monopoly Rights for Electricity Distribution Entities** for more information).

However, in order to foster greater competition, the 2018 Amendment Act has however ended the mandatory requirement for issuance of exclusive licences. Accordingly, once licences granted prior to the amendment have expired, it is expected that future licences will no longer grant exclusivity to transmission licensees.

### 5.6 Transmission Charges and Terms of Service

The tariff for transmission services is determined by NEPRA pursuant to the NEPRA Act and the Tariff Rules.

NEPRA determines the tariff for transmission services is determined by taking into account the following:

- revenue requirements;
- investment and expansion requirements; and
- operation and maintenance requirements.

### 5.7 Open-Access and Non-discriminatory Transmission

Pursuant to the terms of the transmission licences (see Articles 10, 12 and 13 of the NTDC's licence and Articles 11, 13 and 14 of K-Electric Limited's licence), licensees are required provide transmission services on open-access and non-discriminatory basis.



As the licensing authority, NEPRA is responsible for policing the licensees' compliance with these obligations.

## 6. Distribution

### 6.1 Law Governing the Construction and Operation of Electricity Distribution Facilities

The construction and operation of distribution facilities is regulated pursuant to:

- the NEPRA Act;
- Distribution Licensing Rules;
- Distribution Performance Standards Rules;
- Tariff Rules;
- National Electric Power Regulatory Authority Licensing (Distribution) Regulations 2022;
- National Electric Power Regulatory Authority Consumer Eligibility Criteria (Distribution Licensees) Regulations 2022;
- PEC by-laws; and
- the Electricity Act 1910.

#### NEPRA Laws

No person can construct or operate a distribution project unless they have a licence to do so from NEPRA. Licence holders must construct the distribution facilities as per the approved parameters.

### 6.2 Obtaining Approvals for the Construction and Operation of Electricity Distribution Facilities

#### Key Approvals for Construction and Operation of Distribution Facilities

The following are the key consents required for the construction and operation of distribution facilities:

- distribution licence – issued after successful application to NEPRA under the NEPRA Act and the Distribution Licensing Rules;
- distribution tariff – issued after successful application to NEPRA under the NEPRA Act and the Tariff Rules;
- project agreements, including:
  - (a) power purchase agreement(s) – entered into with electric power suppliers (generation companies and other suppliers); and
  - (b) land rights – land rights may be acquired by the government under the Acquisition Act or in the form of leases/rights of way;
- grid interconnection study approval – issued by the NTDC after review of study (only applicable if the licensee's network is connected to the national grid);
- environmental approvals – issued after successful application to the relevant environmental protection agency, following an Environmental Impact Assessment; and
- other project-specific approvals.

### 6.3 Terms and Conditions Imposed in Approvals for the Construction and Operation of Electricity Distribution Facilities

The terms and conditions for construction and operation of distribution facilities are set out in the distribution licence issued by NEPRA (or are implied therein by the Distribution Licensing Rules).

These terms and conditions include:

- term and renewal of the licence;
- requirement to pay the licence fee;
- exclusivity (if granted);
- requirement to only charge the tariff determined by NEPRA;
- obligation to work towards implementation and operation of the CTBCM;

- obligation to offer terms;
- obligation to offer non-discriminatory open-access transmission interconnection service to any party;
- requirement to comply with the “applicable documents”, which include the NEPRA laws, Grid Code and the Distribution Code;
- requirement to maintain accounts;
- requirement to maintain records;
- prohibition on investment and acquisitions except in accordance with NEPRA-approved investment plans;
- prohibition on abandonment of the distribution business;
- requirement to comply with the applicable performance and environmental standards;
- obligation to provide information to NEPRA; and
- revocation and suspension.

## 6.4 Eminent Domain, Condemnation or Expropriation Rights for the Construction and Operation of Electricity Distribution Facilities

Rights over the land required for construction and operation of distribution facilities are acquired in the same way as the equivalent process described in 5.4 Eminent Domain, Condemnation and Expropriation Rights for transmission companies.

## 6.5 Monopoly Rights for Electricity Distribution Entities

Historically, by virtue of the NEPRA Act and their licences, distribution companies have enjoyed the exclusive right to provide distribution services within their specified service territories.

Since the 2018 Amendment Act to the NEPRA Act, however, the provision for exclusivity has been removed. Although licensees that have already been granted exclusivity will continue

to enjoy it until the expiry of those licences, they will not be granted exclusivity thereafter.

## 6.6 Electricity Distribution System Charges and Terms of Service

The principal laws governing the provision of distribution service, regulation of distribution charges and terms of service include:

- the NEPRA Act;
- Distribution Licensing Rules; and
- Tariff Rules.

The following is a non-exhaustive list of details that NEPRA takes into consideration when determining a distribution tariff:

- cost of power procurement;
- revenue requirements;
- investment and expansion requirements;
- operation and maintenance requirements;
- consumer requirements;
- subsidies; and
- line losses.

Pursuant to Section 31(2) of the NEPRA Act, the regulatory principles that NEPRA must take into account when determining a distribution tariff include:

- the protection of consumers against monopolistic and oligopolistic prices;
- the research, development and capital investment programme costs of licensees;
- the encouragement of efficiency in licensees, operations and quality of service;
- the encouragement of economic efficiency in the electric power industry;
- the economic and social policy objectives of the federal government; and
- the elimination of exploitation and minimisation of economic distortions.

There are different tariffs for different types of consumers. The broad categories are:

- residential consumers;
- commercial consumers;
- industrial consumers; and
- bulk power consumers.

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