

## Overview of the framework

To meet the infrastructure deficit, the Twelfth Five Year Plan envisages a renewed thrust on investment in infrastructure, with greater participation from the private sector. Of the projected investment in infrastructure, about 29 per cent is envisaged in the power sector, of which about 47 per cent is expected from the private sector. Bulk of the private investment in power sector will be in the generation segment.

**Private investment to play a key role**

Power projects have been witnessing a significant interest from both domestic as well as foreign investors following the policy initiatives taken by the Government of India. However, the actual inflow of investment has been slower than expected, and future prospects would depend significantly on adoption of a comprehensive policy and regulatory framework necessary for addressing the complexities of Public Private Partnerships (PPP), especially for balancing the interests of Utilities and investors. To this end, a precise policy and regulatory framework is being spelt out in this Model Power Purchase Agreement (MPPA).

**A comprehensive framework is a pre-requisite for PPP in electricity generation**

The framework contained in the MPPA addresses the issues which are important for investors as well as for limited recourse financing of debt. These issues include mitigation and unbundling of risks; allocation of risks and rewards; symmetry of obligations between the principal parties; precision and predictability of costs and obligations; reduction of transaction costs; force majeure; and termination. It also addresses other important concerns such as consumer protection, independent monitoring and dispute resolution.

The MPPA provides the basis for optimal utilisation of resources on the one hand and adoption of international best practices on the other. The objective is to secure value for public money while providing reliable and cost-effective electricity to the consumers.

### Elements of financial viability

The three critical elements that determine the financial viability of generation projects are the concession period, fuel costs and capital costs. The concession period for a generation project should be fixed keeping in view the expected life of the generating plant. It could be fixed for a period of about 30 years, including the construction period, with a provision for extension of 15 years at the option of either the Concessionaire or the Utility. Yet another extension of upto 15 years can be undertaken if both the parties so agree. Such a timeframe should enable a robust project structure. So far as the Fuel Charge is concerned, the MPPA makes it a pass through, subject to appropriate safeguards, which would address a major risk faced by power producers due to uncertainty relating to fuel prices over the medium and long term. Since two of the three parameters stated above would be virtually pre-determined, capital cost is the variable that will determine the financial viability of a Power Station. Adoption of cost-effective specifications would, therefore, be essential for reducing capital costs that would ensure a competitive Fixed Charge.

**Need to reduce capital costs**

## **Fixed Charge**

The Utility shall pay to the Concessionaire a Fixed Charge, determined through competitive bidding, for availability of the Power Station. The Fixed Charge determined for each accounting year shall be revised annually to reflect 30 per cent of the variation in a composite index comprising WPI and CPI (IW). Since repayment of debt would be substantially neutral to inflation, the said indexation of 30 per cent is considered adequate. A higher level of indexation is not favoured, as that would impose an unjustified burden on the consumers. Such higher indexation would also add to uncertainties in the projections relating to returns on investment. Further, an annual reduction of 2 per cent in Fixed Charge is being stipulated so that the benefit of a depreciated asset is passed on to the consumers.

**Fixed Charge to be competitive**

## **Fuel Charge**

Fuel Charge is the amount payable by the Utility to the Concessionaire for the fuel utilised in generation of electricity. Since the risk of variation in fuel price cannot normally be managed by the Concessionaire, it must be passed on to the Utility, which, in turn, will have to reflect it in the distribution tariff. Since pass through of Fuel Charge affords full protection to the Concessionaire against potential losses on account of a rise in fuel prices, it follows that the benefit of reduced or concessional fuel prices cannot be retained by the Concessionaire. As a result, Fuel Charge cannot be a profit centre for the Concessionaire and the principles for determination of Fuel Charge must ensure that costs are recovered on the basis of actuals, assuming that the Concessionaire would function with the efficiency expected of a prudent and diligent operator.

**Fuel Charge to be a pass through**

The framework contained in the MPPA provides alternative formulations for determination of fuel costs depending on the source and pricing of fuel supplies. While coal supplies from Coal India will carry a regulated price, other supplies would have to be procured either from captive mines or from the open market. Each category of supply is, therefore, covered through respective formulations.

In case where fuel is to be procured from captive mines to be allocated by or on behalf of the Utility as a part of the Power Station, the cost of fuel may be fixed upfront with reference to the price charged by Coal India. Assuming a comparatively higher level of efficiency, the fuel cost payable to the Concessionaire may be fixed between say, 75 and 100 per cent of the Coal India price prevailing at the time of bidding, with appropriate indexation over the concession period.

Where captive mines have been allocated independently, a similar formulation, as indicated in the foregoing paragraph, may be adopted with an added option of allowing the bidders to quote an even lower fuel cost which may be further limited to the costs determined by the Appropriate Commission.

When imported fuel is to be used, reliance should be placed on pre-selected coal indices used widely in international supplies of coal, but always subject to the actual

cost incurred by the Concessionaire. However, if bids are invited from producers having captive mines abroad, a ceiling equivalent to upto 90 per cent of the price of Fuel computed with reference to a pre-specified coal index could be prescribed with appropriate indexation over the concession period. In all cases of imported fuel, the foreign exchange risk would have to be borne by the Utility as the Concessionaire would have no means to hedge such risk on a long-term basis.

Owing to some uncertainty in the prospects, extent and nature of coal supply by Coal India Limited, the provisions relating to coal to be procured through linkage from Coal India have been kept in square brackets as they may need further deliberations.

### **Station Heat Rate**

Conversion of fuel into electricity shall be computed on the basis of the Station Heat Rate (SHR) which must conform to pre-determined specifications. As the fuel charge would be a pass through, adhering to the prescribed SHR would be necessary in order to safeguard the interests of the Utility. The MPPA also provides for incentives in the form of an enhanced Fixed Charge if the Concessionaire is able to improve on the pre-specified Station Heat Rate. Incentivising an improved SHR would be a signal for achieving greater efficiency in the interest of saving fuel.

**Incentive for improved Station Heat Rate**

### **Fuel Supply Agreement**

As a condition precedent, the Concessionaire shall execute a Fuel Supply Agreement (FSA) containing the key elements specified in the MPPA, thereby aligning the principal provisions of these two contracts. The FSA shall provide the requisite assurance to the Utility for supply of fuel sufficient to generate a pre-determined quantum of electricity.

**FSA to be a condition precedent**

### **Additional Fuel Supply**

In the event of inadequate fuel supply under a Fuel Supply Agreement (FSA), the Concessionaire shall make best efforts to identify additional sources of fuel supply to meet such fuel shortage. The Concessionaire shall notify the Utility of the landed cost of such additional fuel and shall demonstrate that it will be procured at the best prices available. If the proposed landed cost is acceptable to the Utility and the Appropriate Commission, the Concessionaire shall procure such additional fuel for the agreed price and quantity.

### **Minimum Fuel Stock**

The Concessionaire shall maintain a minimum stock of fuel, which is sufficient for production of electricity and supply thereof to the Utility for a continuous period of 10 days. In the event of fuel shortage, an amount equal to 70 per cent of the Fixed Charge shall be payable in respect of the non-availability arising out of such fuel

shortage. In other words, the Concessionaire's risk of fuel supply will be mitigated to the extent of 70 per cent.

### **Concessional Fuel**

Fuel which is procured by the Concessionaire through any form of concessional, preferential or captive allocation or sale by a Governmental Instrumentality shall be deemed as Concessional Fuel and earmarked for the benefit of the Utility. This will not include any fuel which is procured on the basis of market determined prices. If any Concessional Fuel, which is surplus to the requirement of the Utility, is utilised for production of electricity for sale to other buyers, the Concessionaire shall, in lieu of the use of such Concessional Fuel, pay to the Utility for each unit of electricity sold, a revenue share equal to the higher of: (a) Fixed Charge, and (b) 30 per cent of the gross sale revenue accrued from such buyers.

**Pre-emptive rights on Concessional Fuel**

### **Availability and Despatch of Power Station**

The Concessionaire shall operate the Power Station such that it is available for generation to the extent of at least 90 per cent of the Installed Capacity which shall be deemed to be the Normative Availability for each accounting year. Any shortfall in the Normative Availability will attract penalties. The Concessionaire shall declare the availability of the Power Station at frequent intervals and the Utility shall be free to direct the Concessionaire to produce and despatch electricity in accordance with the despatch instructions given by it from time to time. Payment of Fixed Charge shall be computed on the basis of availability of the Power Station while the Fuel Charge shall be payable only for the electricity actually produced and despatched.

**Fixed Charge to be paid for Availability of Power Station**

Normally, the Power Station shall be deemed as available to the full extent. In the event of any defect or deficiency, the Concessionaire must declare the actual availability so that its Fixed Charge is computed accordingly. The MPPA stipulates stiff penalties in case of mis-declaration by the Concessionaire.

**Penalties for mis-declaration**

### **Dedicated Capacity**

Eighty per cent of the Installed Capacity of the Power Station (85 per cent in case of UMPPs or where fuel is procured from captive mines) shall at all times be dedicated for production and supply of electricity to the Utility and shall be utilized only in accordance with the instructions of the Utility. In the event such capacity is not utilised on account of shortage of fuel, the Concessionaire will be free to procure fuel from the market and sell the electricity to third parties in order to recover its Fixed Charge. In the event any Dedicated Capacity remains idle, the Utility shall pay to the Concessionaire 70 per cent of the Fixed Charge as explained above. This entire arrangement would help mitigate the risk of the Concessionaire on account of the current fuel shortage as well as a possible backing down of the Power Station due to high costs of additional fuel supply. Since idle capacity would hurt the Concessionaire as well as the Utility, it is expected that both parties will have sufficient incentive to ensure optimum utilization of the Dedicated Capacity.

**Dedicated Capacity for the Utility**

## **Open Capacity**

Twenty per cent of the Installed Capacity (15 per cent in case of UMPPs or where fuel is procured from captive mines) shall be available to the Concessionaire for production of electricity and supply thereof to any buyer on the terms determined mutually between the Concessionaire and such buyer. Such buyers may include bulk consumers within the supply area of the Utility. This would not only facilitate the development of a power market, but also enable the Concessionaire to produce electricity for sale to bulk consumers at unregulated prices. Such an arrangement will help improve the financial viability of the Power Station, enhance power production and promote competition in generation and supply of electricity.

**Open Capacity  
for market sales**

## **Additional Capacity**

The Concessionaire may, with prior consent of the Utility and in accordance with applicable laws, create additional capacity in accordance with the provisions of the agreement. Eighty per cent of the additional capacity shall be deemed to be Dedicated Capacity and the balance shall be Open Capacity. The Concessionaire may also set up additional capacity based on fuel supplies to be procured at market rates and sell its production to other buyers at mutually determined tariffs, provided it pays the specified revenue share to the Utility.

**Additional capacity  
for improving  
viability**

## **Technical parameters**

Unlike the normal practice of focusing on construction specifications, the technical parameters proposed in the MPPA are based mainly on output specifications, as these have a direct bearing on the level of power generation. Only the core requirements of design, construction, operation and maintenance of the generation system have been specified, leaving enough room for the Concessionaire to innovate and add value. In sum, the framework focuses on the 'what' rather than the 'how' in relation to the production and supply of power by the Concessionaire. This would also provide the requisite flexibility to the Concessionaire to innovate and optimise on designs in a way normally denied under conventional input-based procurement specifications.

**Technical  
parameters for level  
of service**

## **Performance standards**

The efficiency of the Concessionaire would normally be reflected in the quality and reliability of power supply. The MPPA, therefore, identifies the key performance indicators relating to operation of the generation system and stipulates penalties for failure to achieve the requisite levels of performance. In particular, the Concessionaire shall be required to ensure the availability of Installed Capacity at pre-determined normative levels, which will make sufficient allowance for scheduled maintenance.

**Performance  
standards to be  
enforced**

For monitoring the key performance indicators, monthly status reports and periodic inspections of the Independent Engineer have been prescribed. The Concessionaire is also required to maintain the requisite ISO certification for the Power Station.

### **Selection of Concessionaire**

Selection of the Concessionaire will be based on a two-stage process of competitive bidding. All project parameters such as the concession period, technical parameters and performance standards are to be clearly stated upfront. Based on these terms, the short-listed bidders will be required to specify their financial offer in terms of a unit Fixed Charge, without any qualifications. In some cases, the financial offer may also have to include the Fuel Charge. The bidder who seeks the lowest unit charge should win the contract. The financial offer for the unit charge shall be made only for the initial year and the actual tariff payable to the Concessionaire will be revised annually based on pre-determined indexation.

**Competitive bidding on Fixed Charge will be the norm**

### **Risk allocation**

As an underlying principle, risks have been allocated to the parties that are best suited to manage them. Project risks have, therefore, been assigned to the private sector to the extent it is capable of managing them. These risks have also been mitigated to the extent possible. The transfer of these risks and responsibilities to the private sector would increase the scope of innovation leading to efficiencies in costs and services.

**Risk allocation and mitigation are critical**

The commercial and technical risks relating to construction, operation and maintenance are being allocated to the Concessionaire, as it would be best suited to manage them. On the other hand, all direct and indirect political risks are being assigned to the Utility.

**Commercial risks to be borne by Concessionaire**

### **Financial Close**

Unlike other agreements for private infrastructure projects which neither define a time-frame for achieving financial close, nor specify the penal consequences for failure to do so, the MPPA stipulates a time limit of 180 days for achieving financial close (extendable for upto 185 days on payment of a penalty), failing which the bid security shall be forfeited. By prevalent standards, this is a tight schedule, which is achievable only if all the parameters are well defined and the requisite preparatory work has been undertaken.

**Financial close to be time bound**

The MPPA represents the comprehensive framework necessary for enabling financial close within the stipulated period. Adherence to such time schedules will usher in a significant reduction in costs besides ensuring timely provision of the needed infrastructure. This approach would also address the typical problem of infrastructure projects not achieving financial close for long periods.

**Fulfilment of conditions precedent**

## **Construction of the Power Station**

Handing over possession of 80 percent of the land required for construction of power station and obtaining of environmental clearances are being proposed as conditions precedent to be satisfied by the Utility before financial close. Execution of a Fuel Supply Agreement and procurement of applicable permits have been proposed as conditions precedent to be satisfied by the Concessionaire. The Utility would provide reasonable support and assistance to the Concessionaire in procuring the FSA and applicable permits. Damages have been prescribed for delay in fulfilling the conditions precedent by the Utility as well as the Concessionaire.

**Scope of the Project  
to be precise**

The MPPA also defines the scope of the project with a fair degree of precision in order to enable the Concessionaire to determine its costs and obligations. Additional works may be specified by the Utility but only within a pre-determined limit, provided the entire cost thereof is borne by the Utility. Project Milestones have also been incorporated in the MPPA.

Before commencing the commercial operation of the generation system, the Concessionaire will be required to subject it to specified tests for ensuring compliance with the specifications relating to safety and quality of supply. The option of phased completion has also been provided.

**Tests prior to  
commissioning**

## **Operation and maintenance**

Operation and maintenance of the Power Station is proposed to be governed by strict standards with a view to ensuring a high level of reliability and availability. Any violations of these standards would attract stiff penalties. In sum, operational performance would be the most important test of service delivery.

**Service quality and  
safety must be ensured**

The MPPA provides for an elaborate and dynamic mechanism to evaluate and upgrade the safety requirements on a continuing basis in conformity with Good Industry Practice. It includes safety certification by the designated Electrical Inspector prior to COD and provides for reviews at regular intervals by qualified experts.

## **Right of substitution**

The project assets may not constitute adequate security for lenders. It is the project revenue streams that constitute the mainstay of their security. Lenders would, therefore, require assignment and substitution rights so that the concession can be transferred to another company in the event of failure of the Concessionaire to operate the project successfully. The MPPA accordingly provides for such substitution rights.

**Lenders will have the  
right of substitution**

## **Consortium of Utilities**

In case the Power Station is procured by more than one Utility, the individual Utilities, acting as a consortium, will execute the Utilities Consortium Agreement, through which they would sub-divide and allocate the installed capacity among themselves and also agree to bear individual, joint and several rights, obligations and liabilities.

Each individual Utility shall have the right to offer, transfer or assign, in whole or in part, its allocated capacity to any participating Utility or other distribution licensee. In the event an individual Utility commits a default specified in the PPA, it shall either substitute itself by a participating Utility or other distribution licensee, or make the specified termination payment to the Concessionaire.

## **Force majeure**

The MPPA contains the requisite provisions for dealing with force majeure events. In particular, it affords protection to the Concessionaire against political actions that may have a material adverse effect on the project.

## **Termination**

In the event of termination, the MPPA provides for a compulsory buy-out by the Utility, as neither the Concessionaire nor the lenders can use the Power Station on their own for recovering their investments. This arrangement also provides the requisite protection of public resources like fuel, land and water which would revert to the Utility in the event of termination.

**Pre-determined  
termination  
payments should  
provide  
predictability**

Termination payments have been quantified precisely as compared to the complex formulations in most concession agreements relating to infrastructure projects. Political force majeure and defaults by the Utility would qualify for adequate compensatory payments to the Concessionaire and will thus guard against any discriminatory or arbitrary action by the Utility. Such termination payment shall not be less than an amount equal to the product of forty and the Fixed Charge due and payable for and in respect of the last month of the Concession Period. Further, the project debt would be fully protected by the Utility in the event of termination, except for three situations, namely, (a) when termination occurs as a result of default by the Concessionaire, 90 per cent of the debt will be protected, (b) in the event of non-political force majeure such as Act of God (normally covered by insurance), 90 per cent of the debt not covered by insurance will be protected, and (c) when termination occurs on account of Concessionaire Default during construction period, the Concessionaire shall bear the initial expenditure equal to 40 per cent of the Total Project Cost, and for the expenditure in excess of such 40 per cent, an amount equal to 90 per cent of the debt attributable to such excess expenditure will be protected.



Upon expiry of the specified concession period, the Concessionaire would be entitled to a termination payment which will be a pre-determined multiple of monthly Fixed Charge. However, either Party would have the right to seek an extension of 15 years in the concession period and in such an event, no termination payment shall be due and payable after expiry of the extended period.

**Monitoring and supervision**

Day-to-day interaction between the Utility and the Concessionaire has been kept to the bare minimum by following a ‘hands-off’ approach, and the Utility shall be entitled to intervene only in the event of a material default. Checks and balances have, however, been provided for ensuring full accountability of the Concessionaire.

**Monitoring through an Independent Engineer**

Monitoring and supervision of construction, operation and maintenance is proposed to be undertaken through an Independent Engineer (a qualified firm) that will be selected by the Utility through a transparent process. Its independence would provide added comfort to all stakeholders, besides improving the efficiency of project implementation.

The MPPA provides for a transparent procedure to ensure selection of well-reputed statutory auditors, as they would play a critical role in ensuring financial discipline. As a safeguard, the MPPA also provides for appointment of additional or concurrent auditors.

**Selection of auditors**

To provide enhanced security to the lenders and greater stability to the project operations, all financial inflows and outflows of the project are proposed to be routed through an escrow account.

**Revenue shortfall loan**

By way of comfort to the lenders, loan assistance from the Utility has been stipulated for supporting debt service obligations in the event of a revenue shortfall resulting from political force majeure or default by the Utility.

**Specifications & Standards**

The accountability for providing a safe and reliable Power Station ultimately rests with the Government and the MPPA therefore refers to Specification and Standards that the Concessionaire must conform to. These specifications rely mainly on the extant rules and regulations applicable to power stations. These rules, by reference, form an integral part of the Power Purchase Agreement for a specific project and shall be binding on the Concessionaire. The MPPA stipulates that only the basic requirements of design and construction shall be laid down in the PPA with reference to the Grid Code and applicable laws, and greater emphasis shall be placed on specifying the output specifications that have a direct bearing on the reliability and quality of power supply.

**Output specifications to be emphasised**

## **Land acquisition**

Land would have to be acquired by the Utility as the Concessionaire may face serious difficulties in acquiring land on its own. The Utility will have the option of indicating the lump-sum cost that it would recover from the Concessionaire on this account. This amount may even be a token sum as the ownership of land will rest with the Utility and the Concessionaire will only be a licensee. In case the Utility proposes to set up a Power Station in another State, it may require the Concessionaire to procure land on its own.

The Concessionaire may, upon expiry of the Concession Period by efflux of time, require the Utility to transfer the possession and title of the Site and Project Assets, excluding any captive coal mines or right to the Concessional Fuel, for a specified period.

To provide greater comfort and security to the lenders, the Utility and the Concessionaire may jointly execute a mortgage deed in favour of the Senior Lenders for and in respect of the Site and Project Assets excluding any captive coal mines or right to the Concessional Fuel.

## **Miscellaneous**

The MPPA addresses other important issues such as dispute resolution, suspension of rights, change in law, insurance, defects liability, indemnity, redressal of public grievances and disclosure of project documents. It incorporates the best practices that would enable a fair and transparent framework for private participation.

**An effective  
dispute resolution  
mechanism is  
critical**

## **Conclusion**

Together with the Schedules, the proposed contractual framework addresses the issues that are likely to arise in financing of generation projects on DBFOT basis. The proposed policy and regulatory framework contained in the MPPA is critical for attracting private participation with the concomitant efficiencies and lower costs, necessary for accelerating growth and making electricity affordable.