Summary 1
Introduction 1
Market 2
Inputs & Technology 3
Policy 3
Appendices & Tables 4

SUMMARY

Development of a National Grid is the priority in transmission. Transmission was opened to private sector investment in late 1990s. Policy initiatives have been announced which should see the development on new entities like Central and State Transmission Utilities (CTU/STUs) however; any significant private sector activity has yet to be seen.

Power Grid Corporation, a public sector unit, continues to be the main player here. It has also been designated as the CTU.

INTRODUCTION

Transmission and distribution are the chains through which electricity reaches the final consumer. We have made separate profiles on them as the policies governing investment in transmission and distribution are somewhat different. The financial dynamics of the two are also quite different. Transmission is much more profitable as the transaction is between bulk consumers, which makes collection of dues easier. Loss in transit is also much lesser as transmission occurs at higher voltages compared to distribution.

Transmission lines are therefore related to bulk transmission of power. This could be from a generating station to a distributor or from one distributor to another. The latter would typically occur when the sender is surplus in power.

MARKET

Size

Size in turnover terms is difficult to estimate has some transmission facilities are with State Electricity Boards, which have all three facilities – distribution, generation and transmission.

Power Grid Corporation is a pure transmission utility. The company registered a turnover of Rs 1419 crores for FY1998-99, with a profit after tax of Rs 355 crores, a net profit margin of 25%. This is the highest profitability in the electricity sector – across generation, transmission and distribution.

Structure

According to recent reforms, transmission is to operate under the concept of Central and State transmission utilities (CTU and STUs). While PowerGrid has been notified as the CTU, the SEBs or their successor transmission companies will be the STUs. The participation of the private sector in the area of transmission is proposed to be limited to construction and maintenance of transmission lines for operation under the supervision of CTU/STU. SEB privatisations could see emergence of some state level transmission utilities.

INPUTS AND TECHNOLOGY

The direction in recent years has been to upgrade transmission lines to higher voltages which reduces losses. HVDC (High voltage direct current) transmission lines are the top of the ladder technology for bulk transmission.
The facilities added during 1998-99 show the types of transmission in vogue

Line Type	Planned Additions (1998-99) (Units – cable kilometers)
HVDC	1135
800 kV	405
400 kV	3004
220 kV	3210
400 kV substations (Nos)	2205
220 kV substations (Nos)	4890

FACTS (Flexible AC Transmission Systems) is an advancement in technology soon to make its presence in India. A Committee of Experts was set up by the Ministry of Power under the Chairmanship of Chairman, CEA (Central Electricity Authority). The Committee arrived at a consensus on the project for implementation of FACTS. BHEL was asked to prepare a feasibility report for installation on a 400 kV Kanpur-Ballabgarh line of PowerGrid.

Inputs required for transmission networks are typically cables, transmission towers, capacitors and measuring and control equipment. Leading suppliers of such equipment are Siemens, Larsen & Taubro, Bharat Heavy Electricals, ABB, GEC Alsthom and Crompton Greaves. All have manufacturing capacities in India.

POLICY

Regulatory Bodies

A Power Trading Corporation (PTC) is to be set up to facilitate inter-state power trading. CERC (Central Electricity Regulatory Commission) and state level SERCs are bodies currently being set up with a role to set tariffs and play the role of independent watch-dogs. These bodies are also likely to have a say in transmission issues, though inter-play with a PTC, as and when it starts functioning, remains unclear.

Private Sector Participation

The sector was reserved for public sector till a new policy allowed private sector investment 1998. However, The participation of the private sector in the area of transmission is proposed to be limited to construction and maintenance of transmission lines for operation under the supervision of CTU/STU.
Policy for private participation is reproduced in **Appendix 1: Guideline for private sector participation in the Power Sector.**

The private participation could be under two formats as per the policy – either a 100% private company, or a JV with CTU/STU, where the CTU/STU shall hold atleast 26%. Competitive bidding is mandatory for any project.

APPENDICES AND TABLES

Appendix 1: Guideline for private sector participation in the Power Sector

Forward

Many agencies are responsible for development of the power transmission system in the country. Guidelines need to be laid down for private participation in this sector so that prospective investors can visualise with reasonable clarity the procedures to be followed in the different routes of private participation. Absolute rigidity may not be possible in a federal set up with States having concurrent powers in this sector.

Therefore, Ministry of Power is publishing these guidelines to facilitate a basic uniform approach for the Central and State sector.

A. General

1.0 In each State for Intra-State Transmission System, there shall be only one transmission agency, that is, the State Transmission Utility (STU) and one transmission agency, that is, the Central Transmission Utility (CTU) for Inter-State Transmission System. The Central Transmission Utility (CTU) would be POWERGRID.

2.0 Every State Government may notify the State Transmission Utility (STU) for the State in the Official Gazette in compliance of the provision of Section 27B(1) of the Indian Electricity Act, 1910, as amended by the Electricity Laws (Amendment) Act, 1998 (ACT NO.22 of 1998).

3.0 The Central and the State Transmission Utilities shall be / shall continue to be under the Government ownership and / or be Government Companies in terms of Section 617 of the Companies Act, 1956.

4.0 The Central / State Transmission Utilities will identify approved transmission system or segments thereof for implementation by the private sector on such basis as feasible to facilitate infusion of resources from private sector. Priority may be given to those critical links / systems which when established would enable better utilisation of existing assets. Segmenting of a transmission line will not be permitted, and only the distance from switchyard to switchyard will be considered.

5.0 Two routes could be adopted for Private Sector Participation in implementation of transmission projects. One route shall be through Independent Private Transmission Company (IPTC) wherein 100% project equity shall be owned by the private entity and the other through Joint Venture Company, wherein the CTU/STU shall own at least 26% of project equity and the balance shall be contributed by its Joint Venture Partner (JVP). Therefore, the guidelines mentioned under various paragraphs would be applicable as relevant to the respective routes. It would be prudent to try and restrict the Government Company's / State utility's equity participation to 26% in the Joint Venture Company. This could help in mobilising more funds for development of projects in the Joint sector while maintaining adequate control in the joint venture.

6.0 The CTU/STU may invite global participation on open tender basis. In case of selection of IPTC, Request for Qualification (RFQ) and Request for Proposals (RFP) stages shall be followed. In case of Joint Venture, Request for Selection (RFS) in a single step shall be followed. The RFQ and RFS should be priced documents. The RFP and RFS should adequately and comprehensively, define the scope of services to be rendered and the obligations of the bidder and allocation of risks and obligations. These terms and conditions shall be detailed in draft Implementation Agreement, Transmission Service Agreement and License document forming part of Bid documents. In case of JV route, a draft Shareholder Agreement shall also be a part of the Bid documents.

B. Statutory approvals, right-of-way, land acquisition

1.0 CTU/STU shall continue to be responsible for preparation of the feasibility report, which should be based on a preliminary survey. The estimated indicative annual transmission service charge should also be worked out by the CTU/STU and indicated in the feasibility report.

2.0 CTU/STU will have to obtain all the statutory clearances / permits to expedite the process of establishing new transmission system. The mechanism of obtaining these clearances / permits should be such that these can be made use by IPTC / JVC.

3.0 CTU / STU would be responsible for securing access rights for the construction of the transmission line. During the operation phase, the IPTC/JVC will be responsible for securing and maintaining the access. Similarly, for Substations, the CTU/STU would be responsible to acquire land.

4.0 The crop and other compensation to be paid for ensuring access to sites at the time of every access will be the responsibility of the IPTC/JVC, once CTU/STU has secured the rights of access.

C. Bid document

The bid document must contain the following information:

1.0 The exact scope of system and its interface with CTU/STU(s)/Licensee(s) system.

2.0 It must bring out clearly that IPTC/JVC would be responsible to Finance, Construct, Operate and Maintain the system and the entire capacity would be used by CTU/STU for which Transmission Service Charges (TSC) would be paid. The duration of the agreement may be clearly indicated stating that after the completion of the period, IPTC/JVC may have to transfer the system to CTU/STU at a nominal price, which should also be indicated.

D. Implementation agreement and transmission service agreement

Implementation Agreement refers to the terms and conditions during the construction phase and Transmission Service Agreement relates to the terms and conditions of the operation phase. These agreements must have the following provisions:

(a) The scope of the transmission system to be provided by IPTC/JVC may be clearly defined indicating the system terminal points.

(b) Obligations and rights of either party may be clearly defined indicating the IPTC's/JVC's obligation to Finance, Construct, Operate and Maintain the transmission system.

(c) IPTC/JVC will sell the entire capacity to CTU/STU.

(d) It may be clearly specified that IPTC/JVC would carry out the operation of the grid strictly under supervision and control of CTU/STU.
(e) The terms of TSA could be 20-30 years co-terminous with License.
(f) Procedure for co-ordination of commissioning activities, planned/scheduled outages as well as forced outage (Repair work) shall be clearly spelt out.
(g) Under IPTC route, the final selection of IPTC would be made on the basis of NPV of the Annual TSC quoted by the Bidders.
(h) Under JV route, the selection of JV Partner would be on the basis of his experience / capabilities / capacities with respect to Financial, technical, commercial, organisational and managerial aspects. The TSC shall be on cost plus basis based on the Tariff formulation to be decided by CERC/SERC.
(i) The Annual TSC shall be linked to a normative availability figure with a provision of penalty / incentive for lower/higher actual availability.
(j) The Transmission Service Charges (TSC) may be collected by CTU/STU and paid to IPTC/JVC, which shall be spelt out clearly, depending upon the project structure, in the bidding documents.

E. Interaction with CERC/SERC:
(a) Since CERC/SERC are required to ensure transparency, economy and competitiveness, it would be prudent that the techno-commercial process for selection of IPTC/JV partner is carried out in consultation with CERC/SERC.
(b) The tariff payable to CTU/STU by the beneficiary(s) of projects established with private sector participation would account for the value addition of CTU/STU.