International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878 (Online), Volume-2 Issue-1, March 2013

Ultra Mega Power Projects: Additional Re-Structural Capacity to Existing Indian Grid System

Vikas Pandey, Prabhakar Tiwari, N. K. Sharma, A. N. Tiwari, M. K. Singh

Abstract: ***The demand for power in India is ever increasing, as industrial sector is one of the largest consumers of electrical energy in India. More and more efforts are made by the Government every year to overcome this problem. Ultra Mega Power projects (UMPP) are a series of ambitious power projects planned by the Government of India. With India being a country of chronic power deficit, the Government of India has planned to provide 'power for all' by the end of the eleventh plan. This would entail a creation of an additional capacity of at least 100,000 MW. The Ultra Mega Power projects, each with a capacity of 4000 megawatts or above, are being developed with an aim to bridge this gap. The UMPPs are seen as an expansion of the MPP (Mega Power Projects) projects that the Government of India undertook in the nineties but met with limited success. The Ministry of Power in association with Central Electricity Authority and Power Finance Corporation Ltd. has launched an initiative for development of coal-based UMPP's in India. These projects will be awarded to developers on the basis of competitive bidding.***

Index Terms: Competitive Market, Open Access, Re-regulation, Ultra Mega Power Plants.

I. INTRODUCTION

Conceptualizing the Ultra Mega Power Project, the key challenges of the power sector in India have often been identified as: meeting generation requirements, reduction of transmission and distribution losses, bankability of payments, and the affordability of electricity. With India's GDP continuing to grow at 8%, the appetite for power has rapidly overtaken supply and this shortage has been described as one of the key constraints to further growth. State utilities, despite restructuring undertaken in various Indian states, have not been able to develop enough generational capacity to meet the demand for electricity in the country. To overcome this, India's Eleventh Five Year Plan (2007-2012) proposed an ambitious and urgent power capacity addition target of 100,000 MW during the plan period. Further, the Ministry of Power recognized the need to "move away from cost plus approach for tariff determination to further encourage private sector investment."Section-63 of the Electricity Act, 2003 provides that the Regulatory Commissions shall adopt the tariff if it is determined through transparent process of bidding in accordance with the guidelines issued by the Central Government. This aims at moving away from cost-plus support for tariff determination and it is expected to further encourage private sector investment. Guidelines for competitive bidding for determination of tariff for procurement of power by distribution licensees were issued on 19th January, 2005. The policy stipulates that all future requirement of power needs to be procured competitively by distribution licensees except in cases of expansion of existing projects and where regulators will need to resort to tariff determination based on norms. Recognizing the fact that economies of scale leading to cheaper power can be secured through development of large size power projects, Ministry of Power, CEA, and Power Finance Corporation are working together for development of twelve ultra mega power projects under tariff based competitive bidding route. These projects will be awarded to developers on Build, Own, and Operate (BOO) basis. The Ultra Mega Power Projects each with a capacity of 4000 MW each involving an investment of Rs. 16,000 crores, would also have scope for further expansion. The size of these projects being large, they will meet the power needs of a number of states through transmission of power on regional and national basis.

Revised Manuscript Received on 30 March 2013.
* Correspondence Author
Vikas Pandey, Electrical Department, Raj Kumar Goel Institute of Technology, Ghaziabad, India.
Dr.Prabhakar Tiwari, Electrical Department, GCET, Greater Noida, India.
Dr.N.K.Shrama,M.K.Singh, Electrical Department, KIET, Ghaziabad, India.
Dr.A.N Tiwari, Electrical Department, MMMEC, Gorakhpur, India.

II. ROLE OF MINISTRY OF POWER

Ministry of Power is playing an important role as a facilitator to coordinate with concerned Ministries/ agencies and State Govts. for ensuring:

- Coal block allotment/ coal linkage
- Environment/ forest clearances
- Required support from State Government & its agencies.
- Financial closure by Financial Institutions
- To facilitate PPA and proper payment security mechanism with State Govt. /State Utilities.
- Monitoring the progress of Shell Companies w.r.t. predetermined timelines.

In order to enhance investors' confidence, reduce risk perception and gets good response to competitive bidding, 9 Shell Companies have been set up as wholly owned subsidiaries of Power Finance Corporation Ltd. (a Govt. of India Undertaking) to facilitate tie-up of inputs, linkages and clearances for these projects. These companies will undertake preliminary studies and obtain necessary clearances and tie-ups including water, land and power selling arrangements etc. prior to award of these projects to successful bidders by way of selection of developers through a tariff based ICB.

The Shell Companies shall also facilitate the process of obtaining environmental clearance.

- Sasan Power Limited (Sasan, Madhya Pradesh)
- Coastal Gujarat Power Limited (Mundra, Gujarat)
- Coastal Karnataka Power Limited (Tadri, Karnataka)
- Coastal Andhra Power Limited (Krishnapatnam, A.P.)
- Coastal Tamil Nadu Power Limited (Cheyyur, T.N.)
- Coastal Maharashtra Power Limited (Girye, Maharashtra)
- Orissa Integrated Power Limited (Sundergarh district, Orissa)
- Jharkhand Integrated Power Limited (Tilaiya, Jharkhand)
- Akaltara Power Limited (Aklatara, Chhattisgarh)

III. ROLE OF SHELL COMPANIES

a. Appointment of Consultant to undertake preparation of bankable Project Report.
b. Initiate land acquisition proceedings.
c. Allocation of fuel linkages/ fuel blocks for pit-head projects.
d. Allocation of water by State Government.
e. Appointment of Consultant for International Competitive Bidding (ICB) document preparation and evaluation.
f. Obtain various approvals and statutory clearances.
g. Tie-ups for off-take/sale of power.
h. Initiate action for development of the power evacuation system and grid tolerance considering the addition of capacity by these projects.
i. Green field rating of project.

IV. CONCEPT OF SPECIAL PURPOSE VEHICLES (SPVS)

As mentioned above, competitive bidding guidelines have been issued under the Electricity Act for procurement of power by distribution licencees. These guidelines permit the procurement of electricity by more than one distribution licencee (also known as a procurer) through a combined bid process, and in such a case the procurers shall have the option to conduct the bid process through an authorised representative. The concept of "Authorised Representative" forms part of the standard bidding documents (issued under the competitive bidding guidelines) and the authorised representative is defined as the corporate body authorised by the procurers to carry out the bid process for the selection of the successful bidder on their behalf. Accordingly, PFC has set up separate Special Purpose Vehicles (SPVs) for each of the 9 UMPPs identified so far to act as authorized representatives of the procurers (distribution companies of the power procuring States). These SPVs are 100% owned subsidiaries of the PFC. The names of the SPVs are: -

(i) Sasan Power Limited for the project at Sasan, Madhya Pradesh.
(ii) Coastal Gujarat Power Limited for the project at Mundra (Gujarat).
(iii) Coastal Karnataka Power Limited for the project at Tadri, Karnataka.
(iv) Coastal Andhra Power Limited for the project at Krishnapatnam, Andhra Pradesh.
(v) Coastal Tamil Nadu Power Limited for the project at Cheyyur in Tamil Nadu.
(vi) Coastal Maharashtra Mega Power Limited for the project at Girye, Maharashtra.
(vii) Orissa Integrated Power Limited for the project in Sundergarh, District in Orissa.
(viii) Jharkhand Integrated Power Limited for the project near Tilaiya dam, in Jharkhand.
(ix) Akaltara Power Limited for the project at Akaltara in Chhattisgarh.

The Boards of the SPVs are chaired by a Director of the PFC; their other members are officials of the PFC, and representatives of the distribution companies of the major power procuring States who are inducted on the Boards at the appropriate stage. On completion of the entire process for selection of the project developer, the SPVs are to be transferred to the selected bidders i.e. to the selected project developers.

V. ROLE OF SPVS

The SPVs are responsible for carrying out various activities on behalf of the procurers. Completion of these activities prior to award of the project is considered necessary to enhance the investor's confidence, reduce risk perception and get a good response to the competitive bidding process. Some of the main activities undertaken by the SPVs are:

(i) Government of India has an ambitious mission of 'POWER FOR ALL BY 2012' Appointment of Consultants to undertake preparation of Project Report, preparation of Rapid Environment Impact Assessment Report etc.
(ii) Appointment of Consultants for International Competitive Bidding (ICB), document preparation & evaluation.
(iii) To finalise RfQ/ RfP documents in consultation with States / bidders.
(iv) To carry out RfQ/RfP process and award of project.
(v) Acquisition of land for the project.
(vi) Obtaining Coal blocks for pit-head projects.
(vii) Getting clearance regarding allocation of water by the State Govt. for pithead locations.
(viii) Approval for use of sea water from Maritime Board/ other Govt. Agencies for coastal locations.
(ix) Obtain clearance from the State Pollution Control Board, initiate forest clearance etc. as are required for the project and for the coal mines, followed by environment and forest clearances from the Central Government.
(x) Obtaining geological reports/ other related data from CMPDI for the coal blocks.
(xi) Tie up the off-take/ sale of power.

VI. ROLE OF STATES

States hosting the UMPPs and the other power procuring States are playing a pro-active role. In particular, some of the activities in which the concerned States play a decisive role include implementation of the Rehabilitation & Resettlement Plan, provide authorization to the PFC/SPV to carry out the bidding process on behalf of the distribution utilities,

Published By:
Blue Eyes Intelligence Engineering
and Sciences Publication (BEIESP)

participate through its representatives in various committees set up for undertaking the competitive bidding process, facilitate signing of the Power Purchase Agreement, ensure proper payment security mechanism with the distribution utilities etc.

VII. SALIENT FEATURES OF THE PLANT AND CHOICE OF TECHNOLOGY

(i) The Ultra Mega Power Projects would use Super Critical Technology with a view to achieve higher levels of fuel efficiency, which results in saving of fuel and lower green-house gas emissions.
(ii) Flexibility in unit size subject to adoption of specified minimum Supercritical parameters.
(iii) Integrated power project with dedicated captive coal blocks for pithead projects.
(iv) Coastal projects to use imported coal.

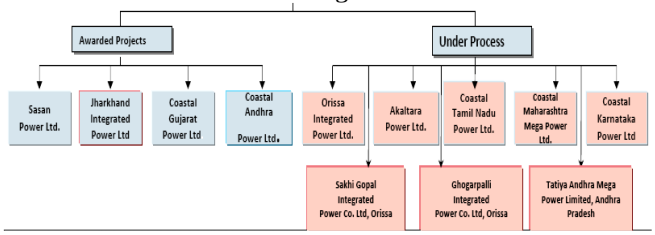
VIII. THE BIDDING PROCESS

For these projects, as per the provisions of the competitive bidding guidelines, a two stage selection process has been adopted. The first stage of bidding involves Request for Qualification (RfQ) containing qualifying criteria for selection of bidders. The RfQ documents submitted by the bidders are evaluated to identify those bidders who will be eligible to participate in the second stage of the process. The second stage of the bidding process invites Request for Proposals (RfP) from the bidders so qualified. After evaluation of the RfP documents, the successful bidder is identified on the basis of the lowest levellised tariff.

IX. LOCATION OF PROJECT

Twelve such projects had been identified to be taken up, 4 at pithead and 5 at coastal locations. The nine sites for the UMPPs identified by the Central Electricity Authority (CEA) in consultation with the States are as follows:

(i) Five coastal sites at:- Mundra in Gujarat, Krishnapatnam in Andhra Pradesh, Tadri in Karnataka, Girye in Maharashtra, and Cheyyur in Tamil Nadu.
(ii) Four pithead sites at :- Sasan in Madhya Pradesh, Tilaiya in Jharkhand, Sundergarh District in Orissa and Akaltara in Chhattisgarh.



In addition Tamil Nadu has identified additional site at Marakanam. Further, more Karnataka has also suggested an additional site at Ghataprabha in Belgaum District.The Central Electricity Authority is examining the preliminary feasibility of these sites for development of UMPPs.

The bidding process in respect of Sasan, Mundra, Tilaiya and Krishnapatnam UMPPs has been completed. Tata Power has been awarded the Mundra(Gujarat) project at Rs 2.26 per KWh, Reliance Power Ltd has been awarded Sasan(M.P.) , Krishnapatnam(A.P) and Tilaiya(Jharkhand) UMPPs at Rs 1.196 per KWh , Rs 2.33 per KWh and 1.77 per KWh, respectively.

X. STATUS OF PROJECTS

A. *UMPP at Mundra in Gujarat*

Mundra in Gujarat is one of the coastal sites. Based on the competitive bidding procedure, M/s. Tata Power Company Ltd. was identified as the project developer as it had quoted the lowest levellised tariff of Rs. 2.26 per kilo watt hour. The cost of the project is estimated at INR 17000 Crores (USD 4.2 billion) with the first of the five units to be commissioned in September 2011. The entire plant is expected to be commissioned by end of 2012. The project consists of 5 units, each of 800 MW which will generate saleable power of 3800 MW to be supplied to five states namely Gujarat, Maharashtra, Rajasthan, Haryana and Punjab. The super-critical technology and the choice of unit sizes will help the project achieve higher efficiency thus saving fuel and reducing greenhouse gas emissions vis-à-vis conventional technology prevailing in the country. The Union Government is considering setting up of an ultra mega power plant (UMPP) at either of the four sites suggested by the Gujarat Government, namely, Porbandar, Kutch, Junagarh and Navsari. In accordance with the decesion taken in the meetings held under the aegis of secretary with the principal secretaries (energy/power) of the beneficiary states, the contracted capacity of mundra umpp would be shared by the procurer in following proportions:

SL	Procuring/authorized entity	Allocated Constructed Capacity (percentage)	Allocated Constructed Capacity (MW)
1	Gujarat Urja Vikas Nigam Ltd.	47.50	1805.00
2	Haryana Power Generation Corporation Lt.	10.00	380.00
3	Maharashtra State Electricity Distribution Co. Ltd.	20.00	760.00
4	Punjab State Electricity Board	12.50	475.00
5	Rajasthan Power Procurement Centre- authorized entity on behalf of		
5a	Jaipur Vidyut Vitran Nigam Ltd.	3.60	136.80
5b	Ajmer Vidyut Vitran Nigam Ltd.	3.60	136.80
5c	Jodhpur Vidyut Vitran Nigam Ltd.	2.80	106.40
Total		100.00	3800.00

Brief status of Progress of activities for Mundra UMPP- As on 31.01.10

1.0 General:

Name of Developer – Coastal Gujarat power Ltd (CGPL) of Tata Power Ltd.
Date of LOI 28.12.2006
Date of Transfer of SPV to developer 22.04.2007
Date of signing of PPA (Effective date) 23.04.2007

2.0 Commissioning Schedule:

Unit No.	Months from the date of PPA signing 22/04/2007	Schedule COD as worked out from date of signing of PPA	Revised schedule of COD as per revised PPA signed by CGPL and procurers on 31/07/2008

Published By:
Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP)

1	64	Aug. 2012	Sept. 2011
2	70	Feb. 2013	March 2012
3	76	Aug. 2013	July 2012
4	82	Feb. 2014	Nov. 2012
5	88	Aug. 2014	March 2013

3.0 Land Acquisition status: (area in acres)

Sl. No	Type of Land	Total area	Area acquired
1	Government Land	1240.42	1240.42
2	MSEZ land	541.14	541.14
3	Private Land	447.24	444.77
4	Forest Land	321.2	321.2
5	Approach cum public Road	12.35	12.35
6	Others	662.21	-
	Total	**3224.6**	**2559.88**

B. UMPP at Sasan in Madhya Pradesh

The Anil Dhirubhai Ambani-led Reliance Power is hopeful of achieving the financial closure for the 4,000-Mw Sasan Ultra Mega Power Project (UMPP) in Madhya Pradesh. The project requires Rs 19,000 crore. The financing is to be done on the basis of debt to equity ratio of 75:25. Reliance Power has already received loan sanction letters for Rs 12,000 crore and plans to commission the project ahead of schedule. The first two units of the project will be commissioned in December 2011.The project is being funded by 10-12 institutions led by State Bank of India. Other financers are Power Finance Corporation, Rural Electrification Corporation and Exim Bank. The land for the main plant area has been acquired. The total land requirement stands at about 3,500 acres. Sasan UMPP, a 3,960 MW supercritical coal fired power project is expected to be the largest pithead coal fired power project at a single location in India The government has bagged three UMPPs to Reliance — at Sasan in Madhya Pradesh, Krishnapatnam in Andhra Pradesh, Tilaiya in Jharkhand. The company has bagged the Sasan project by quoting a tariff of Rs 1.19 per unit. Contracted Capacity allocated to each of the Procurers shall be as under:

SL	Procuring/authorized entity	Allocated Constructed Capacity (percentage)
1	North Delhi Power Ltd.	3.2625%
2	BSES Yamuna Power Ltd.	3.0375%
3	BSES Rajdhani Power Ltd.	4.9500%
4	Haryana Power Generation Corporation Ltd.	11.2500%
5	**MP Power Trading Company Limited**	37.5000%
6	**Punjab State Electricity Board**	15.0000%
	Rajasthan Power Procurement Centre	
7	Jaipur Vidyut Vitran Nigam Ltd.	3.6000%
8	Ajmer Vidyut Vitran Nigam Ltd.	3.6000%
9	Jodhpur Vidyut Vitran Nigam Ltd.	2.8000%
	UP Power Corporation Ltd.	
10	Paschimanchal Vidhyut Vitran Nigam Ltd.	7.5000%
11	Poorvanchal Vidhyut Vitran Nigam Ltd.	1.2500%
12	Madhyanchal Vidhyut Vitran Nigam Ltd.	1.2500%
13	Dakshinanchal Vidhyut Vitran Nigam Ltd.	2.5000%
14	**Uttarakhand Power Corporation Ltd.**	2.5000%
	Total	**100.000%**

Brief status of Progress of activities for Sasan UMPP-As on 31.01.10

1.0 General:

Name of Developer – M/s Sasan Power Limited (Reliance Power Ltd.)

Date of LOI 01.08.2007

Date of Transfer of SPV to developer 07.08.2007

Date of signing of PPA (Effective date) 07.08.2007

2.0 Commissioning Schedule:

Unit No.	Months from the date of PPA signing 07/08/2007	Schedule COD as worked out from date of signing of PPA	Revised schedule of COD as per revised PPA signed by SPL and procurers on 15/10/2008
1	69	06/05/2013	Dec. 2011
2	76	06/12/2013	Mar. 2012
3	83	06/07/2014	Jun. 2012
4	90	06/02/2015	Sept. 2012
5	97	06/09/2015	Dec. 2012
6	104	06/04/2016	Mar. 2013

3.0 Land Acquisition status: (area in acres)

Sl. No	Type of Land	Total area	Area acquired
1	Main Plant	2034.46	1462.21
2	Ash pond	811.10	367.52
3	Colony	448.38	399.07
4	Misc.	52.364	---
5	Coal Transportation	144.15	
	Total	3486.9	2228.8(63.92%)

C. UMPP at Krishnapatnam in Andhra Pradesh

The company has also bagged the Kriahnapatnam project by quoting a tariff of Rs 2.33 per unit. Kriahnapatnam UMPP, a 4000 MW supercritical imported coal fired power project located in eastern coast of India. The allocation of power from Krishnapatnam UMPP is as under:

Sl No.	Procuring State	Allocated Capacity (MW)
1	Andhara Pradesh	1600
2	Karnataka	800
3	Tamilnadu	800
4	Maharashtra	800
	Total	4000

The procurer-wise allocations of power from Krishnapatnam UMPP and the name of authorized entity are as under:

SL	Procuring/authorized entity	Allocated Constructed Capacity (percentage)
1	**Andhra Pradesh**	
1a	Andhra Pradesh Central Power Distribution Corporation Ltd.	17.3750
1b	Andhra Pradesh Southern Power Distribution Corporation Ltd.	9.2000

Published By:
Blue Eyes Intelligence Engineering
and Sciences Publication (BEIESP)

1c	Andhra Pradesh Eastern Power Distribution Corporation Ltd.	6.6750
1d	Andhra Pradesh Northern Power Distribution Corporation Ltd.	6.7500
2	**State Power Procurement Coordination Centre, Government of Karnataka on behalf of**	
2a	Hubli Electricity Supply Company Ltd.	2.0000
2b	Bangalore Electricity Supply Company Ltd.	10.0000
2c	Chamundeswari Electricity Supply Co. Ltd.	3.0000
2d	Gulbarga Electricity Supply Company Ltd.	2.0000
2e	Mangalore Electricity Supply Company Ltd.	3.0000
3	**Maharashtra State Electricity Distribution Company Ltd.**	20.0000
4	**Tamilnadu Electricity Board**	20.0000
	Total	100.0000

Brief status of Progress of activities for Krishnapatnam UMPP-As on 31.01.10

1.0 General:

Name of Developer – Coastal Andhra Power Ltd. (CAPL)
Reliance Power Ltd.
Date of LOI 30.11.2007
Date of Transfer of SPV to developer 29.01.2008
Date of signing of PPA (Effective date) 23.03.2007

2.0 Commissioning Schedule:

Unit No.	Months from the effective date i.e. Transfer of SPV 29.1.08	Schedule COD as worked out from date of Transfer of SPV	Scheduled COD as informed during presentation in MOP on 15.10.09*
1	68	Sept. 2013	First Unit Sept. 2013 Last Unit June 2015
2	75	April. 2014	
3	81	Oct. 2014	
4	87	April. 2015	
5	93	Oct. 2015	

*During the Seventh JMC meeting held on 18.11.09 the developer informed that the order for supply of main plant equipment have been placed for 4x1000 MW units in the month of Oct,2009 with COD of 1st Unit in Sept,2013 and Last i.e 4th Unit in June,2015.

3.0 Land Acquisition status: (area in acres)

Sl. No	Type of Land	Total area	Area acquired
1	Main Plant & Colony	1915.90	1905.27
2	Ash pond	533.56	484.03
3	Misc.	176.22	14.64
	Total	2625.68	2403.94

D. UMPP at Tilaiya in Jharkhand

The company has also bagged the Tilaiya project by quoting a tariff of Rs 1.77 per unit. Tilaiya UMPP, another 4,000 MW project in Jharkhand is very similar to Sasan ie it is a pithead mine based project. The 4000 MW Tilaiya Power project will entail an investment of over Rs 20,000 Crore and employ environmental super critical technology. JIPL has entered into Power Purchase Agreement (PPA) with 18 procurers from ten states in Eastern, Western and Northern Regions. The project will supply power to the state of Jharkhand (1000 MW), Uttar Pradesh (650 MW), Bihar (500 MW), Punjab (450 MW), Gujarat (300 MW), Maharashtra (300 MW), Rajasthan (250 MW), Madhya Pradesh (200 MW), Haryana (200 MW) and Delhi (150 MW).

Brief status of Progress of activities for Tilaiya UMPP-As on 31.01.10 1.0 General:

Name of Developer – Reliance Power Ltd.
Date of LOI 12.02.2009
Date of Transfer of SPV to developer 07.08 .2009
Date of signing of PPA (Effective date) 07.08 .2009

2.0 Commissioning Schedule:

Unit No.	Months from the effective date i.e. Transfer of SPV(07.08.09)	Schedule COD as worked out from effective date
1	69	May 2015
2	74	Oct. 2015
3	79	March 2016
4	84	August 2016
5	89	Jan 2017
6	93	June 2017

3.0 Land Acquisition status: (area in acres)

Sl. No	Type of Land	Total area	Area acquired	Remarks
1	Main Plant & Colony	1406	186	Private land-187 acres -payment made to villagers. Land to be handed over. Forest land-1219 acres –First Stage Forest clearance awaited.
2	Ash pond	978	68	Private land-290 acres-payment made for 68 acres, remaining expected in 3-4 months. Govt. land-688 acres – survey under progress.
3	Ash corridor	3.3	---	Private land-1.5 acres ,Section -4 to be issued for 1.4 acres Govt. land -1.8 acre-survey under progress.
4	Water corridor	27	---	Private land-2.6 acres-Section-4 notification to be issued.
	Total	2415	---	---

E. UMPP in Sundergarh district in Orissa

The proposed 4000 Mw Ultra Mega Power Plant (UMPP) being set up by the Centre in Sunderagarh district in Orissa is likely to be commissioned by 2013. Orissa will get about 1300Mw (32.5 percent of the total generation) power from this project. About Rs 16,000 crore is proposed to be invested in this UMPP which includes installation of the generating station and infrastructure to evacuate power from the project.

Published By:
Blue Eyes Intelligence Engineering
and Sciences Publication (BEIESP)

A Special Purpose Vehicle (SPV) named as Orissa Integrated Power Limited has already been formed and coal blocks have been allotted in Meenakshi, Meenakshi-B and Dipside Meenakshi with a reserve of 880 million tonnes. The project requires about 4000 acres of land and the process of land acquisition has started. The 13 Independent Power Producers (IPPs) have signed MoUs with the Orissa for their respective projects, are expected to generate about 17,195 Mw power in next 5 years.

F. UMPP at Cheyyur in Tamil Nadu

Keeping the locational advantage in view, Central Electricity Authority had identified Cheyyur as a potential site for development of Ultra Mega Power Project. However, State Government was initially insisted to select the site at Nagapattinam for setting up of UMPP. Now, during a function held at Vallur on 5th September, 2007, Minister of Electricity Tamil Nadu conveyed the decision to the Union Power Minister regarding approval of Cheyyur site for development of an UMPP there. On the same occasion, the Union Power Minister had agreed to the request of the Minister of Electricity, Tamil Nadu for the setting up of a second UMPP at Marakanam. Ministry of Power has written to Government of Tamil Nadu to forward the formal communication along with necessary clearances with regard to Cheyyur site so that necessary steps could be taken for initiating the bidding process. The request for qualification for the Cheyyur UMPP are planned in July. For the second UMPP at Marakanam Central Electricity Authority has been asked to initiate the preliminary study to establish the feasibility. The Government of Tamil Nadu is committed to reform its Power Sector with a vision to achieve commercial viability and provide reliable and quality power at competitive prices to all consumers in the state. Government of Tamil Nadu have accorded in –principle approval for the re-organisation of TNEB by way of establishment of a holding company, by the name Tamil Nadu Electricity Board Ltd and two subsidiary companies, namely Tamil Nadu Transmission Corporation Ltd (TANTRANSCO) and Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) with the stipulation that the aforementioned companies shall be fully owned by Government. The Govt. has also constituted a Steering Committee to finalise the transfer scheme for the re-organisation of Board under section 131 of the Electricity Act 2003. The Ministry of Power's (MOP's) Restructured Accelerated Power Development and Reforms Programme (R-APDRP) is being implemented in Tamil Nadu Electricity Board. The focus of this programme is on establishment of baseline data and fixation of accountability, besides reduction of Aggregate Technical & Commercial (AT & C) losses and adoption of information technology.

G. UMPP in Maharashtra

Due to local agitation, requisite clearances for the land are not available Maharashtra. Therefore, the bidding process has not been initiated. Ministry of Power has taken up the matter with the State Government for suggesting an alternate/additional site. Final position from the State Government is awaited. The bidding process will be initiated after availability of a suitable site is confirmed by the State Government. The Maharashtra government has proposed another site for the proposed ultra mega power project in Malwan taluka in Sindhudurg district of the state. CEA official informed that the Maharashtra government had not provided details about the feasibility for the development of a port at the new site. Interestingly, the power ministry has advised the CEA to visit the site only after the three sites identified earlier, namely Girye, Dighi and Kasarde, are declared closed. The CEA has also informed the power ministry that as per the directives of the ministry of environment in the Maharashtra government, no chemical or hazardous industry is permitted in Sindhudurg district as it has been declared as tourist district. The state government is yet to clarify whether a thermal power plant can be set up in Sindhudurg.

H. UMPP in Karnataka

The Central Electricity Authority has rejected the Karnataka government's proposal to set up an UMPP at Ghataprabha near Belgaum and, instead, suggested a site either at Tadri near Karwar or near the Almatti dam. A team of CEA and PFC officials who visited Ghataprabha last month, to identify a suitable site for the UMPP, rejected it as the movement of coal from port to site would be a problem as it was 150 km away from the coastline. Availability of water and agitation by the locals were seen as other impediments. The CEA has asked the state government to reconsider the feasibility of setting up the UMPP at coastal Tadri or near the Almatti dam, if water can be allocated from its reservoir. Union minister of Karnataka for power Jairam Ramesh said the Centre has given its nod to the proposed 4,000MW UMMP at Kudagi near Bijapur, on the condition that it gives back about 1,000MW to the central grid. Karnataka, which is supposed to get about 1,558MW from the central grid, is getting only 1,000MW. But he made it clear that there is no power supply politics in the state as alleged by the government. The 4,000MW Kudagi UMPP along with another proposed 2,000MW power plant in collaboration with NTPC, will hopefully fulfill the power needs in coming years.

I. UMPP in Chhattisgarh

The Union government has finally approved the 4,000 Mw Ultra Mega Power Project (UMPP) for Chhattisgarh that had drilled into deep controversy propelling the Centre to reject the proposal earlier. The state government selected a site in Sarguja district. But the demand of the state government to get 50 per cent of power at invariable cost from the project hit the blockade. In August last year, the ministry of power reportedly rejected the site in Sarguja district proposed by the Chhattisgarh government for the project. A huge forest land coming under the project site was cited as one of the reasons for rejecting the proposal of the state government. Chhattisgarh Chief Minister Dr Raman Singh met the Union Power Minister, Sushilkumar Shinde in New Delhi and discussed about the project. "After initial discussion, Shinde immediately gave his consent to go ahead with the project and asked the officials to start the work". The Rs 20,000 crore UMPP is likely to come up near Lara village of Raigarh district. The project would be executed by the National Thermal Power Corporation (NTPC).

Published By:
Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP)

XI. DEMAND PROJECTION AND GENERATION PLANNING (12TH POWER PLAN)

According to 17th Electric Power Survey (2007) the energy requirement in the country is projected to grow at CAGR of 7.5% during 12th plan period reaching from 9,68,658 Giga Watt hour (Gwh) in FY 2012 to 13,92,065 Gwh by FY2017, while peak load requirement is projected to grow from 1,57,324 MW in FY2012 to 2,23,660 MW in FY 2017 at a CAGR of 7.4%. Ministry of Power and Central Electricity Authority (CEA) have projected a total investment requirement of Rs. 11,35,142 crore for the power sector during the 12th Plan period, which also includes investment for generation capacity addition of about 1,00,000 MW. (Existing capacity is 1,64,508 MW).

According to Crisil report (June 2010), about 82,000 MW of generation capacity at an investment of Rs. 5,10,000 crore is likely to be added in the next five years i.e. during FY2011 to FY2015. The Central(with NTPC having the major share), State and Private sectors are estimated to add about 21,500 MW, 15,000 MW and 45,500 MW respectively during the next five years. Further, about 12,900 MW of captive generation capacity at an investment of Rs. 75,000 crore is expected to be implemented by several players. The investments in transmission and distribution segment are projected at Rs. 3,44,000 crore during the above period. According to Crisil report (June 2010), out of the 82,000 MW capacity(scheduled for commissioning over the next five years), more than 90% of the projects have received environmental /forest clearances, acquired land, achieved financial closures and placed equipment orders. About 80% of the above projects have either signed PPAs or earmarked a portion of their total power for merchant sales.

XII. CONCLUSION

After the unsuccessful attempt to augment generation capacity through Mega Power Projects of nearly 1000 MW capacity in the late nineties, the reincarnation of MPP in the form of Ultra Mega Power Projects of 4000 MW capacity was often viewed by industry watchers with some degree of scepticism. However, the ministry of power believed that economies of scale combined with the efficient super-critical technology could bring down the tariffs of such projects. The linking of a coal mine for captive purposes would allay the risks of fuel supply and reduce costs further. This could provide the much-needed relief to SEBs/Discoms from rising generation costs, both in the public and private sectors. In addition, the UMPPs would help the government to reduce the gap in targeted and actual additions to generation capacity. The efforts made by the MoP and the support provided by the Power Finance Corporation to fill up the shortfall in capacity by developing new UMPPs of significant sizes are commendable. The price bids received in the first round for Sasan (Madhya Pradesh) and Mundra (Gujarat) UMPPs brought forth astoundingly low costs of generation leading to a justifiable sense of near euphoria within both the package and the competitive process. Apart from revealing the possible costs for power generation, this exercise puts forward other learnings for the energy sector in India, which are elaborated below. In the development of MPPs, it was feared that Indian developers might take a back seat due to various risks as perceived by the developers. However, the successful tariff-based competitive bidding of Sasan and Mundra should remove any doubts over Indian industry's ability to compete effectively when required. If we go by the number of bidders for both these projects, it not only indicates a growing appetite on the part of private developers for entering into the business without any fear and concern but also builds up the pressure on other competing developers, which is an essential sign of true competition. The price bids for both Sasan and Mundra have come as a surprise to industry experts including the public sector generator NTPC. This clearly shows that private developers are not averse to risks in the changed scenario, and are willing to develop big projects at much more competitive prices than their public sector counterparts.

REFERENCES

1. Ultra Mega Power Projects, Government of India, Ministry of Power, CEA, New Delhi.
2. Mohit Saraf, "2nd Annual India UK Business Leaders Forum 2006", Ultra Mega Power Projects, luthra & luthra Law Offices, New Delhi.
3. "9th Assocham Energy Summit", Theme: Energy Sector - Challenges Ahead.
4. Navin Wadhwani, "Investment Opportunity and Challenges",Ultra Mega Power Projects, May 2006.
5. Shyam Wadhera, "Development of Ultra Mega Power Projects", Power Finance Corporation Ltd.11th May 2006.
6. Ultra Mega Thermal Power Projects, Through Competitive Bidding, January 2006, CEA, New Delhi.
7. Power Sector: Emerging Development and Critical Issuses, Government of India, Ministry of Power CEA, New Delhi.
8. J.Anitha Roseline,Dr. B.L.Mathur, "Tamil Nadu Power Sector Reform and Restructuring -A Case Study" IEEE 2011.PP. 1205-1210

Published By:
Blue Eyes Intelligence Engineering
and Sciences Publication (BEIESP)