



LUCKNOW MANAGEMENT ASSOCIATION

LMA Convention Journal

Driving U.P.'s Growth through Power Sector

Sub Themes

- REVITALIZING THERMAL GENERATION
- DEVELOPING SUPPORTING TRANSMISSION SYSTEM FOR INCREASED
- HASTENING DISTRIBUTION REFORMS-KEY TO TURNAROUND OF POWER
- IMPROVING ENERGY EFFICIENCY AND DEMAND SIDE MANAGEMENT

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Driving UP's Growth through Power Sector
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PROLOGUE AND INTRODUCTION TO THEME AND SUBTHEMES

Power Sector is arguably the most crucial sector for growth. Despite numerous policy interventions over the last 20 years or more, this sector still faces myriad of issues and challenges that existed even when Government first decided to reform this sector in nineties. State power utilities continue to be financially mismanaged. They are strapped for cash, have line losses at unacceptable levels, face rampant power theft and suffer from technological obsolescence. Politics takes precedence over professionalism in decision making and corruption has increased. HR policies do not promote merit and employee demoralization is widespread. Villages and remote areas suffer from irregular or even no power supply. Availability of adequate quality power to people at affordable cost thus continues to be a dream. Country faced a peak deficit of 12,000 MW during the last fiscal (2012 -13). As per a report of CEA, although the peak deficit during 2013 -14 is expected to reduce to 3261MW, the country is expected to face energy shortage of 6.7% due to transmission constraints. In Uttar Pradesh, there had been no substantial augmentation in the state power generation capacity till the 1990s and the demand -supply gap has widened up to around 3,000 MW. Clearly, the sector needs reforms more than ever before if India's growth story is to continue.

Sector continues to suffer slippages in project implementation attributed to various physical and financial factors such as delays in land acquisition and creation of infrastructure facilities, delays in placement of orders, delay and non sequential supply of material, shortage of skilled manpower, contractual disputes, inadequate deployment of construction machinery, shortage of fuel, and difficulties in financial closure. As per Planning Commission reports, the actual generation capacity at the end of 11th Plan is expected to be about 55,000 MW as against the capacity target of 78,700 MW.

Power breakdowns affect the economy of the country/state as much as the quality of life. Research shows that the financial impacts of even a small power cut can be catastrophic. Studies in the US show that a 30 minute power cut results in an average loss of US\$15,709 for medium and large industrial units and nearly US\$94,000 for an eight-hour interruption. Even short blackouts – which can occur several times a year – add up to an annual estimated economic loss of between US\$104 and US\$164 billion. In India, Power supply gap of 8-9 % has potential to lower the GDP by 0.6-0.7 %. In 2012-13, power shortages in India accounted for a GDP loss of US\$ 68 billion impacting all sectors – agriculture, manufacturing, services etc. A developing economy can ill afford to such a large drop in GDP growth. China overcame energy shortage to achieve a massive double digit growth.

Overtime, laws regulating power sector have undergone significant changes beginning with Indian Electricity Acts of 1887, 1903 and 1910 which provided for investment of private capital and minimal regulation. Electricity Supply Act 1948 brought in state ownership and regulation. Low growth of the sector over 40 long years under state control and resulting shortages to meet the rising demand forced policy makers to amend the Act in 1991 permitting private capital once again and subsequently, through ERC Act 1998 and State Reform Acts brought in independent regulation and unbundling power utilities including privatization of unbundled entities. Electricity Act 2003 further provided for power trading, open access and tariff reforms. Host of policy guidelines were issued for hydro power projects, rural electrification, generation and transmission tariff determination, transparent power market operations and efficient transmission pricing etc., all steps towards much needed reform in the sector.

LMA has been organizing its annual theme based conventions addressing some vital public policy. It has also been publishing a Journal on the theme of the Convention. Convention 2014 and this Journal is addressing power sector, a key area for growth of not only Uttar Pradesh but India as a whole. The Theme has been divided into following four subthemes.

Subtheme 1: Revitalizing Thermal Generation

Notwithstanding real concerns and increasingly loud noises on global warming and climate change, thermal power continues to be the mainstay of power sector in the country with 65% share in the total installed capacity with 55% coal based and 10% gas based power stations. This is likely to remain so for years to come and environmental concerns have to be effectively managed by promoting generation by non conventional energy sources, DSM and such measures. Multiple issues have plagued thermal generation due to which many power projects in the country have either been shelved or stalled. Major concern is coal supply and lost generation due to inadequate availability from Coal India and lack of progress in captive coal mining. There is, therefore, rising dependence on coal imports with accompanying price escalation and increasing risks of competitively bid IPP projects. During the last two years, the PLF of coal and gas based generating stations in operation has been coming down largely on account of fuel supply constraints. Another challenge pertains to availability of quality EPC players along with availability of spares and other services and increasing dependence on Chinese equipment and manpower as also concerns about their quality.

Subtheme 2: Developing Supporting Transmission System for Increased Generation

With more than 2,32,000 MW of installed capacity, India's peak load supply is only 1,41,000 MW and still worse, some of power surplus regions do not have adequate power evacuation infrastructure which could alleviate the recurring supply shortages in other parts of the country. In Uttar Pradesh, there is shortfall of about 5000 MW in transmission capacity and additional lines along with 765 KV/ 400 KV/220 KV/ 132 KV sub-stations in appropriate numbers are needed. With another 80,000 MW proposed to be added during 12th plan, taking the available power to the end consumer could be a challenge. Also, the present system is unable to meet the long term and short term demands of open access permitted in the Electricity Act 2003. The total estimated fund requirement for development of transmission system is around Rs 1,80,000 crore, a substantial proportion of which is expected to come through private investment.. India is one of the few countries where Transmission Sector has been opened up for private participation & has garnered significant interest from private players. Some of the major issues in new capacity addition are Right -Of-Way (ROW) issues, slow process of finalization of contracts including absence of incentives to developers for early completion of projects, not using latest technologies in survey, tower design and selection of conductor, absence of mechanized construction methods and lack of focus on upgrading existing lines. Smart Grids are also needed to make the transmission infrastructure more efficient and resilient.

Subtheme 3: Hastening Distribution Reforms Key to Turnaround of Power Sector

Viability of the power sector is largely hinged on the Distribution sector. Deepak Parikh has famously said, "*India's power sector is a leaking bucket; the holes deliberately crafted and the leaks carefully collected as economic rents by various stakeholders that control the system. The logical thing to do would be to fix the bucket rather than to persistently emphasize shortages of power...*" Ministry of Power Report of Working Group on the 12th Plan states that AT&C losses at national level have been reduced from 38.86% in 2001-02 to 27.15% during 2009-10. Nevertheless, India's transmission and distribution losses continue to be among the highest in the world, much higher compared to 8% in China and 7% in OECD countries. Theft of electricity, common in India, sometime attributed to lack of political will, amounts to 1.5% of India's GDP. Thirteenth Finance Commission, in its projections, has pointed out that net losses of state transmission and distribution utilities are expected to rise from Rs. 68,643 crore in FY 2011 to Rs. 1,16,089 crore in 2014-15 if immediate steps are not taken to reform the utilities. Accessibility of Power in Rural Areas, AT&C loss Reduction, financial viability of discoms, Smart Grid, Demand Side Management (DSM), Private Sector Participation/Private Public Participation (PPP), etc. are some of the key areas of distribution reform. Electricity Act, 2003, provides for setting up of two power exchanges, making procurement of power by the distribution licensee through a competitive bid process mandatory, and introduction of *Multi Year Tariff* (MYT) framework. To take the distribution reforms forward, discoms would need to move on to *Time of the Day* tariff, proper load monitoring and control mechanisms

(e.g. SCADA) and invest in technologies like Smart Grid and Automatic Meter Reading. To provide choice of Distribution Company and benefit of competition to the consumer, work is already underway on a radical plan and the supporting legislation to separate the *carriage and content* operations though, under the circumstances its implementation looks farfetched.

Subtheme 4: Improving Energy Efficiency and Demand Side Management

India is presently one of the least energy efficient countries in the world. For power sector turnaround, significant improvements in energy efficiency and demand side management are essential in addition to efforts to augment supply. Energy Efficiency is also considered a low cost resource for achieving carbon emission reductions. The National Action Plan on Climate Change (2008) aims to reduce carbon intensity by 20-25 percent by 2020 (compared with 2005 levels). With the current trend of rising energy prices, energy efficiency is becoming vital for financial survival of most organizations. Considering the vast potential of energy savings in the country, Energy Conservation Act, 2001 (amended in 2010) was enacted. Bureau of Energy Efficiency (BEE) GOI and State Designated agencies (SDA) were created to implement the provisions of the Act. As a result of various interventions by BEE, around 11,000 MW of avoided power capacities could be achieved. Potential savings during 12th Plan are estimated as 44.85 BU (at consumer side) which is equivalent to 60.17 BU at the bus bar side. SDAs have a key role to implement several schemes developed by BEE and for this; their institutional capacity needs to be significantly developed. Energy consumption in industrial sector including MSMEs accounts for 40%-50% of total commercial energy consumed. There is a huge potential for energy savings in Uttar Pradesh in different sectors viz. agriculture, buildings, hospitals, municipal services etc. for which energy audits have already been carried out. The need is to actualize this potential by making appropriate investments and to take more installations in the ambit of energy audit. Similarly there is a huge potential for energy savings in thermal power stations. Schemes like *Perform Achieve & Trade* for thermal stations and other designated high energy consuming industries not only incentivize energy efficiency but also penalize non performers. Performance contracting with Energy Service Companies could be very useful to achieve energy efficiency where budget and availability of trained manpower are the constraints. While panels of eminent domain experts and policy makers are deliberating on the above subthemes in the day long Convention on 5 December, papers in these areas received in response to a widely notified call for papers are being published in this journal, which will be released in the inaugural session of the convention. LMA will be publishing edited transcripts of proceedings of deliberations in the convention in due course. It is hoped that the papers published in the journal together with the proceedings of the convention will provide direction towards solutions to some of the vexed issues to power sector which is the key driver of growth of Uttar Pradesh. LMA places on record its sincere thanks and appreciation to the authors for their contributions and to Professor Himanshu Rai Chief Editor and the editorial team for their efforts. LMA also expresses its thanks and gratitude to NABARD for their generous financial support for publishing this journal.

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A.K. MATHUR
Secretary LMA &
Director Convention
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