

## Power Sector Dynamics in NPA Easing

Strong and efficient power generation, transmission and distribution capacity is instrumental in the eliminating 40% economic chaos of a country. In the Indian context, however, the same has been center of all controversies. Incongruent decisions in the policy definitions in mining sector and the inefficient pricing policy coupled with power theft and power loss have strongly affected the power sector. Thus, for every 100 MW of electricity generated in India, as high as 45 MW is lost because of inefficient transmission and distribution (T&D). On one hand all central power generation companies like NTPC are highly profitable as bulk power prices are fixed by the regulator providing guaranteed return and on the other hand, most state run power distribution companies are loss making machines as raising consumer tariffs is politically sensitive.

India's power sector has been largely dependent on coal fired thermal plants. India has a total of 301.56 billion tons of coal reserves as estimated by GSI as on 1.4.2014 however, power plants generally use steam coal which is a grade between anthracite and bituminous having high sulphur content which forms a small margin of these reserves and as the coal needs to be treated before supplying to the power plants. Technologies other than usage of coal resources (the least expensive one) have been developed to run thermal plants producing power however they are still insufficient. In India CIL (Coal India Limited) can only produce nearly 430 Million Tons of coal on yearly basis and the production growth is only 3-4%. So for rest of the coal, power plants have to depend on costly imported coal.

Power is a utility which is generated mainly by thermal and hydroelectric plants in India and cannot be regulated for its generation to meet peak demand and energy efficiency. Hence conditions arise when there can be excess generation of power or deficient generation of power. As the demand for electricity does not follow disciplined criteria, generation needs to be as per peak needs all the time. There arise issues such as voltage and frequency inefficiency due to such a feature. Irregular supply voltage is the bane of India and looks like even in the 21st century, things don't improve much thanks to an antiquated transmission and distribution system, the supply frequency in India is 50 Hz and very often along with erratic voltage, you get erratic frequency as well and this can seriously affect a/c motors (fans, blender and anything with a motor in it).

These conditions make this sector highly vulnerable especially because there is no adequate set up of technology such as Magnetic Storage Systems as spinning reserve to meet the storage requirement which is further marred by the issues such as environmental clearance. Hydroelectric stations are by and large placed in forest areas and require a huge volume of area at the cost of natural flora and fauna restricting the set up of the much required large storage capacities. Many of the power generation capacities are not equipped with power storage technologies. Transmission and distribution losses are mainly due to these issues. Industrialized countries like Sweden have a T&D loss of less than 7 percent. A country like China, which is three times larger than India has a loss of 13 percent. In other words, of the total 180,000 megawatts of electricity generated in India, 81,000 megawatts (45 percent) is lost, wasted. That is equivalent to shutting off power plants in the States of Maharashtra, Gujarat, Tamilnadu, Andhra Pradesh, and Karnataka. There is a serious need to decentralize our energy production and increase energy efficiency of electrical appliances is another way to save electricity and peak demand and energy efficiency promotions through awareness in accordance with national and socioeconomic and environmental priorities.

Years of populist tariff schemes, mounting AT&C losses and operational inefficiencies have adversely affected the financial health of State Discoms which are currently plagued with humongous out-standing debts.

For long, SEBs have been tasked with the role of procurement of power from power generators, and its distribution to consumers. Being under the control of state governments, they have served as tools of populism year after year. While free power to farmers has been the one example often in the limelight, the beneficiaries of subsidized power are a far larger group distributed across interest groups. Power theft is another major factor adding to the huge losses incurred by SEBs. These issues have not only been responsible for the bad financial health of the discoms but also affect the sincere customers who are subjected to power shortages due to such thefts. The

discoms are resorting to load-shedding and is therefore the only practical way for discoms to stay operationally afloat. This has led to the privatization of discoms and there are entrants such as BSES Ltd, Torrent and Tatas in this area.

Populist strategies and theft of power have left balance sheets severely dented by debt as SEBs have borrowed heavily to compensate for the lack of revenues from consumers. The total debt burden of SEBs has continued to increase at a rapid pace over the years, with several studies pointing out that the debt burden could even pose a systemic threat to the banking sector. For long, SEBs have been tasked with the role of procurement of power from power generators, and its distribution to consumers. Being under the control of state governments, they have served as tools of populism year after year. While free power to farmers has been the one example often in the limelight, the beneficiaries of subsidized power are a far larger group distributed across interest groups. Power theft is another major factor adding to the huge losses incurred by SEBs. The thermal power sector is operating at a decadic low of 59 per cent plant load factor because discoms do not have the money to pay for buying more power.

Privatization in the discom sector has seen some bright horizons as Govt. took the decision of Privatisation in 1999 in Orissa. After Orissa, Government offered Delhi to NDPL & BSES in 2002, Bhiwandi to Torrent Power in 2007, Agra, Kanpur to Torrent Power in 2012, Nagpur to Spanco, Aurangabad to GTL, Jalgaon to Crompton Greaves, M.P., Gwalior, Ujjain and Sagar, Muzaffarpur to SMART Wireless Ltd In 2011, Jharkhand to CESC, TATA Power In 2012. Because of these private players the AT&D losses has come down remarkably. When NDPL (TATA Power Distribution Company Limited) took over the distribution of a part of Delhi, the loss figure was 53%, now it has come down to nearly 13%. For BSES BRPL reduced from 51.54% to 17.31%, BYPL reduced from 63.1% to 17.83%. From the aforesaid figure anybody can assume the impingement of privatisation in distribution sector. Along with it the scheme like RAPDRP, Smart Grid, and AMR are now being implemented slowly which will help to quash the loss further. Introduction of PPP (Public Private Partnership) which is a JV with Private Company for the transmission line have been introduced, TATA Transmission is one of them have shown some good results in debt reduction. This has made faster resolving of issues like Land acquisition, forest clearance to draw attention of private player's interest in this sector.

Last but not the least is our Distribution Sector. Up to FY 2008-09 out of total 72 govt. & private discom 24 discom had loss of more than 30% and 9 had 20-30% loss.

Though there have been suggestions to build sustainable resources like renewable power the main issue lies between the difference in type of power generation and its adaptability to the same. Renewable origin power generators produce DC type electric power which is much desirable at the consumer level but when produced at mass scale and linked with the main grid the same needs to be first converted into AC type because transmission agents are suited for AC type of power supply. Individual solar implements are thus promoted for better price efficiency.

Steps such as network strengthening and rejuvenation, 'smart metering', depoliticising state regulators and associated tariff determination, all subsidies to be to the account of the state government, and not on the books of the discoms etc will help the revival of this important sector.

The development of power sector also ensures the development of the industrial sector which is today the main cause of concern for the same. Industrial sector development has on its agenda the main issue of subsidized and uninterrupted power supply. Though certain industrial sectors have the subsidized power facilities, it has been observed that the power requirement is not met making it vulnerable to buying electricity at a far larger cost i.e through diesel and gas generators. Assurance of provision of uninterrupted electricity at a fair price will bring about a large addition to their revenue earnings. Strict measures in prohibiting electricity theft also will assure this sector an uninterrupted supply. Unavailability of interrupted power has left many areas especially the rural ones devoid of development and progress. Finally, a uniform and uninterrupted power reach to the farthest corners of the country should be the objective of the responsible authorities.

The unholy trinity of the conniving State Electricity Board (SEB) employee, the unethical and self-enriching domestic and industrial consumer and the politician patronizing theft, corruption, sloth and freebies has brought the power sector to its knees. The system needs to be cleaned instead of revisiting.