

THE POWER PARADOX

Even as the country is suffering from low per capita power consumption, facing idle capacities of 25,000 MW is the paradox that is puzzling experts.

The power sector of the country seems to be full of contradictions – there are about 300 million people who do not have access to power; about a third of the population is not lucky enough to escape scheduled and unscheduled power outages, but about 25,000 MW of installed capacity is unable to find buyers, the reason is that most of the power distribution companies (Discoms) are unable to buy enough power to cater their

customers' needs and even if they are ready to do so, there are not enough transmission lines to transfer excess power from pockets of plenty to the needy geographies. This reflects of lack of holistic planning across the power sector, which if done properly can open up a slew of opportunities for various suppliers, manufacturers and technical consultants.

As per the estimates made in the Integrated Energy Policy Report of Planning Commission of

India, 2006, if the country is to progress on the path of this sustained GDP growth rate (of 9%) during the next 25 years, it would imply quadrupling of its energy needs over 2003-04 levels with a six-fold increase in the requirement of electricity and a quadrupling in the requirement of crude oil. The supply challenge was of such magnitude that there are reasonable apprehensions that severe shortages may occur.

About 10 years down the line

uninterrupted power supply," he told the Lok Sabha. Incidentally on April 29, 2015, he had found there was so much surplus power at 3.30 pm that the national grid monitoring station indicated power was available at "zero rupee per unit". During a day in the previous week, there were no takers for 100 million units of electricity, equivalent to 1,500 MW of coal-fired and 2,500 MW gas-based capacity, from state-run generation utility, NTPC, that accounts for nearly a fifth of the installed capacity in the country.

With all these developments, the responsibility of bridging the gap between the demand and supply, and creating demand for the existing idle generation capacity has fallen on the government.

SURPLUS

Power Secretary PK Pujari recently said that the country has about 25,000 MW of idle and underutilised electricity generation capacity. Private companies have set up power plants over the last few years in anticipation of high prices. The same is the case with coal supplies. Even as the coal supply situation improved over the last one year, but the demand is not picking up as reflected in the lower plant load factor (PLF), a measure of utilisation of power plants, of generation companies at 64.95 per

cent in February, 2016.

Added to that, the heavily debt laden Discoms are not prepared to float tenders for Long-term Power Purchase Agreements (LTPPAs). Any requirement of additional power is being met through short term market/ national power exchange.

When the new Government assumed office in May 2014, as many as two-thirds of coal-based power plants (66 out of 100 coal plants tracked by Central Electricity Authority) were having critical coal stocks, meaning less than 7 days of coal stock. Recovering from such a dire situation, today not a single power plant in the country is facing coal shortage. Today all the coal plants are in a position to operate at 100 per cent capacity, but that is not to be due to lack buyers in the market.

While the demand for electricity has remained constant, the government's aggressive power capacity push and Coal India Limited's adequate coal supply to thermal plants has resulted in surplus power generation. This has resulted in trading of power cheaper, resulting in Discoms buying power from the spot market than from generators with which they have long-term contracts. The benefit is set to pass on to the power consumers.

Independent Power Producers

India's energy sector seems to have turned around from an era of scarcity and now faces the problem of plenty, with over 25,000 MW of capacity lying idle or underutilised.

For the first time, Power minister Piyush Goyal had announced in parliament on April 30, 2015 that most parts of the country had surplus power. "The sad part is that states are not acquiring or buying power to be able to give their residents

Table-1: Analysis of 25 Projects with "Provisional Mega" Status

Gross Capacity of Certificate Holders	32,330 MW	
Net LTPPA required @65% of overall installed capacity (mandated capacity)	22,464 MW	
Case-1 Bids concluded since award of "Provisional" Mega Power Status Certificate	16,430 MW	73.13% of mandated capacity*
Long Term PPA secured by Certificate Holder IPPs	5,983 MW	26.87% of mandated capacity*

Note 1: Only 3 nos./ 25 nos. Certificate Holders have fully achieved, 8 nos./ 25 nos. have partially achieved and 14 nos./ 25 nos. have not at all achieved their respective mandated capacity (LTPPA tie up of @65% of installed capacity)

Source: IPPAI



“POWER TARIFF POLICY TO CHANGE THINGS FOR THE BETTER”

Anil Sardana | Managing Director and Chief Executive Officer, Tata Power

What is the kind of estimated loss per annum in terms of energy at prevalent prices and estimated capital/interest loss for the companies that have set up these capacities?

While exact numbers and figures will be hard to come by, for long Indian power producers have suffered great losses due to idle capacity. The recently enacted Power Tariff Policy has, however, brought relief to the industry. The new Power Tariff Policy allows, Indian power producers to sell spare capacity via electricity exchanges as part of reforms that seek to improve affordability, reduce litigation and revive investments. The Policy is expected to reduce the burden of fixed charges, which

retailers have to pay to generators as a component of the tariff even for the power they haven't purchased because of their long-term purchase commitments. Now, profits earned from the sale of spare generation capacity will be equally divided among generators and buyers.

Due to prevalence of higher generation capacity power is trading at very low prices on the power exchanges. To what extent it is affecting viability of new projects - coal- or gas-based or any other ones?

Generation capacity in the country has been steadily increasing, driven by fresh investments by private players,

attracted by a combination of factors such as growing demand for power, alongside economic growth and creation of a vibrant power market that provides price signals for trading of merchant power. Trading is not negatively impacted due to increased generation. In fact, the outlook for power trading is bright in the long term. However, the power sector value chain is currently facing challenges due to multiple issues like poor financial health of discoms, lower trading margins, transmission constraints, lack of regulatory clarity for trading of imported power, lack of growth of open access.

(For full interview, log on to www.powertoday.in)

Association of India's (IPPAI) analysis shows that only 16,430 MW of Long-term Power Purchase Agreement (LTPPA) competitive bidding tenders have been floated by power utilities since September 2011. Out of this, Certificate Holders have received 5,413 MW capacity under LTPPA.

As shown in the table, only three of the 25 certificate holders have fully achieved, eight have partially achieved and 14 have not at all achieved their respective mandated capacity (LTPPA tie-up of @65% of installed capacity) by now, according to IPPAI.

In the above circumstances, it defies logic that new LTPPAs would be floated by power utilities. The lack of new LTPPAs prohibits Certificate Holders (power project

developers under Mega Power Policy) from tying up their mandated capacity under LTPPAs. In fact, most of the project developers are keen to sign LTPPAs and IPPAI requests the Union Ministry of Power to actively encourage states to enter into LTPPAs.

About a year back Power Minister Piyush Goyal said that over 70,000 MW worth of power plants, which were deeply underutilised or shut down, were being looked at to achieve optimum generation. By then over 14,000 MW of gas-based plants were closed down due to unavailability of gas and another 30,000 to 40,000 MW of capacity that was getting ready was struck at various stages of implementation. Three large

hydro projects, namely, Subansiri in Arunachal Pradesh, Teesta in Sikkim and Maheshwar in Madhya Pradesh, stalled for many years, and a large number of incomplete mini-hydro projects were also on the radar of the government for revival.

Gujarat had 19,000 million units of surplus power in 2014. Grappling with excess capacity, the Tripura Government has recently given the nod to sell another 100 MW of power to Bangladesh from the thermal power plant at Manarchak in Sonamura.

Generation capacity or distribution companies' ability to pay may not matter much this summer as there is surplus generation capacity available at low prices. This summer season



“STRANDED ASSETS COULD BE VALUED AT ₹150,000 CR”

Corporate PR-India Power Corporation Limited

What is the kind of estimated loss per annum in terms of energy at prevailing prices and estimated capital/interest loss for the companies that have set up these capacities?

Stranded assets could be valued at Rs 150,000 crore (at an average of Rs 7.5 crore per MW), which is staggering, to say the least. Going by the perceived idle capacity of 20,000 MW, the cumulative losses incurred by the power companies every year come to around Rs 12,000 crore on fixed cost alone.

In terms of cost of borrowing, the power companies which have invested big in setting up generation capacity are really bleeding, coughing up a minimum interest rate of 11.5%, going up to 14.0%, probably the steepest in the world, even as the RBI's key interest rate remains pegged at a mirage-like 7.25%.

Due to prevalence of higher generation capacity, power is trading at very low prices on the power exchanges. To what extent is it affecting viability of new projects – coal or gas-based or any other ones?

Unless power companies can realise the minimum cost of power generation, no one will embark on a new venture. Banks and lending institutions will also not come forward to lend money, because of the supply overhang that precipitates risks. Yes, power is trading at rock-bottom rates at power exchanges as the government allows power generators to sell spare capacity on the exchanges as part of ongoing reforms.

How are power and related sectors getting affected due to the inability of the discoms to buy more power and provide

round-the-clock power supply? How do you see the contrast between surplus power capacity and scheduled power outages?

Yes, discoms are in a bind thanks to the pathetic financial status of the SEBs, and are more often than not unable to service their debts. Unless discoms regain their financial health, the future of power-generating companies doesn't look bright. On the one hand, they are resorting to scheduled outages, and on the other, they have no money to buy more power. So, it's a bruising stalemate. The high national average aggregate technical and commercial (AT&C) losses at 27 per cent is another crippling blow. Under the circumstances, banks and lenders have become wary of extending loans to the power sector.

(For full interview, log on to www.powertoday.in)

the situation worsened due to severe heat-wave conditions. Water shortage has already led to closure of some power plants in Karnataka, Madhya Pradesh, Bihar and West Bengal, including NTPC's Farakka unit. Over four-fifths of large hydro reservoirs hold lower water levels than previous year. Power generation from hydel plants was about 15 per cent lower in 2015-16 than the previous year.

However, the public sector behemoth NTPC, with a capacity of 46,000 MW, is not suffering from any idle capacity. "Our company does not have any idle generation capacity as all fuel and PPAs are tied up. NTPC starts work at a

project only after land, water, fuel, PPA and financial tie-ups are in place," said NTPC in response to Power Today queries.

REASONS

However, there is nothing to cheer about in the turn around that the power sector has achieved. The practical experience of Indians is that they have to cope with scheduled and unscheduled power cuts in cities, while the situation in most rural areas is even worse. India lags far behind other countries in per capita consumption of power. Among the BRICs nations India figures at the bottom in this parameter. In 2012, the figure for Brazil was at 2,509

units, for China at 3,457 units, for Russia at 6,602 units, while that of India it was at 1,010 units. Even as the country is suffering from low per capita power consumption, facing idle capacities is the paradox that is puzzling several experts. Subdued industrial activity is also adding to the woes of the power generators.

The total installed capacity is 298 GW (approx.) as on March 31, 2016, while the peak demand is 144 GW, according to the latest data from Central Electricity Authority (CEA).

Independent Power Producers Association of India (IPPAI) squarely puts the blame on power distribution companies (Discoms)



“NTPC STARTS PROJECT WORK ONLY AFTER ALL TIE-UPS ARE IN PLACE”

NTPC Limited

According to reports about 20,000 MW of built power generation capacity is lying idle due to various reasons. What is the real quantum and what are the reasons for such a huge idle capacity?

May refer CEA site for the above info. The idle capacity is mainly in gas power stations due to lack of fuel or no takers for high cost power because of expensive imported gas fuel or no PPAs. India does not have much gas resource.

What is your generating capacity, and give a break-up of various sources? Is your company is facing idle generation capacity, what are the reasons?

NTPC's generating capacity is over 46000 MW. Our company does not have any idle generation capacity as all fuel and PPAs are tied up. NTPC starts work at a

project only after land, water, fuel, PPA and financial tie-ups are in place.

What is the kind of estimated loss per annum in terms of energy at prevalent prices and estimated capital/interest loss for the companies that have set up these capacities?

Bank NPAs are due to the above exposure to the power sector.

Due to prevalence of higher generation capacity power is trading at very low prices on the power exchanges. To what extent it is affecting viability of new projects - coal- or gas-based or any other ones?

That is a temporary phenomenon. The consumption of power in the country is only about 1000 units per capita at present, which is very low compared to china's 3500 and the

US' at 16000 units. With the growth of the economy the consumption pattern is bound to go up sharp soon and at that time the power plants cannot be built overnight. It is always better to be in readiness as the gestation period for a power plant is over 4-5 years.

How power sector and related sectors are getting affected due to inability of Discoms to buy more power? What is the real peak requirement of power if 24x7 power supply has to be ensured? How do you see the contrast between surplus power capacity and power scheduled power outages?

With the introduction of new schemes by Ministry of Power like UDAY and Deen Dayal Upadhyaya Gram Jyoti Yojna the financial health of Discoms is likely to improve in coming months.

for the surplus generation capacities, when it said, "Power generation units in India are running below capacity as Discoms shy away from buying more power."

The intention behind the series of reforms in the power sector since 1991, from opening up generation and distribution to the private sector to breaking up state-run monopolies and freeing up power prices (albeit under regulatory oversight) to allowing both producers and consumers 'open access' to a modern power market were noble: to allow market

efficiencies to operate, thereby offering consumers better quality of service at better prices. "The reality is quite the opposite. It looks like we are back to the 1990s for the power sector with plant load factors (PLFs) in the low sixties (down to a new low of 59 per cent in June, 2015)," said Gaurav Sharma, Senior Analyst of IPPAI.

Distribution companies, saddled with accumulated losses of about Rs 3.8 lakh crore as on March 31, 2015, are not buying electricity generated by new plants. Early signs of an impending demand-supply mismatch are already

visible, according to experts. In the past two years, the country added about 40,000 MW of generation capacity, while the demand increased by about 10,000 MW only. The CEA data shows that power plants were operating at an average 63 per cent of their capacity, down from 78 per cent three years ago.

The idling gas-fired plants may have much to do with this, since generation capacity has been going up steadily during this period. Since utilities booked the capacity of these plants on domestic gas-based tariff, they are unwilling to consider running them with



imported fuel as the cost would double. "The idle capacity is mainly in gas power stations, due to lack of fuel or no takers for high cost power because of expensive imported gas or not having PPAs. India does not have much gas resource," said NTPC, responding to Power Today's queries. Coal-fired plants too were facing somewhat similar situation. Many of them had to import to make up for shortfall in domestic supplies. This raises fuel and transport costs. But the coal supplies improved drastically over the last one year.

"Choked and inadequate transmission networks are the primary reason behind generation capacity lying idle in India. In addition to inadequate transmission capacity, strict regulatory restrictions on the utilisation of existing networks, keep a large amount of transmission capacity idle as a safeguard against grid collapse," said Anil Sardana, Managing Director and Chief Executive Officer, Tata Power. Restrictions on capacity utilisation of transmission corridors often prevent generation companies from supplying power even after signing long-term power supply agreements.

There are heavily deficit states such as Tamil Nadu and Kerala that pay ₹8.5 per unit to buy power from the exchange. If there was better national grid connectivity with the south, they would have lapped up the surplus capacity, allowing generation companies to increase their capacity utilisation.

"Moreover, power generation companies in India are running below capacity as debt-ridden power distribution companies are shying away from buying more power. Distribution continues to be the weakest link in the Indian power sector, with the customer not being at the centre stage of the delivery process and fiscal viability.

Aggregate Technical and Commercial (AT&C) losses in India continue to be one of the highest across the globe," Sardana added.

Power Grid Corporation of India Ltd (PGCIL), the nodal public sector company for grid development in the country, has networked four out of five regions in the country, except the Southern region. I S Jha, Chairman and Managing Director, PGCIL said, "Robust network of transmission system in the country has facilitated in harnessing the opportunities due to various types of diversity with respect to electricity production and consumption."

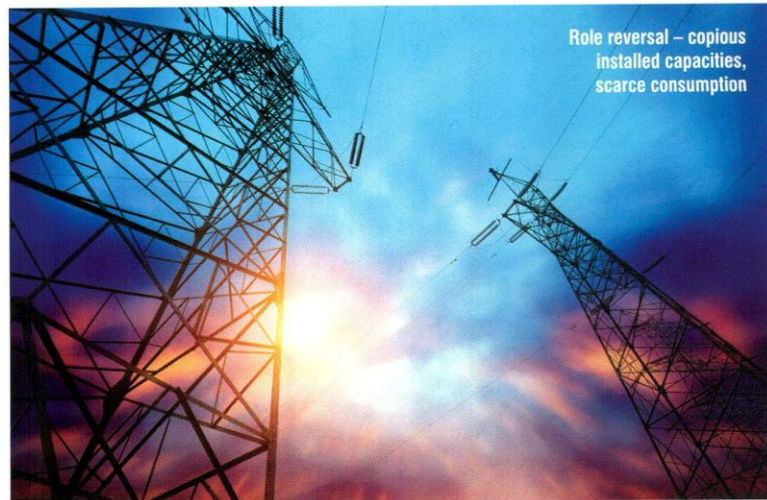
Even with adequate availability

prevailing situation," said India Power Corporation Limited (IPC) responding to Power Today queries.

AFFORDABILITY

The 300 million people who do not have access to electricity also may not have the means to buy power from new plants that are set up with costly and advanced technologies. Besides, higher transmission costs are involved in transmission of power to remote rural areas taking the cost of power to ₹10 in several cases.

At present, a large chunk of this population is using subsidised kerosene. If power is made available at affordable prices, they will stop using kerosene for



Role reversal – copious installed capacities, scarce consumption

of power, Discoms may not be keen on supplying electricity at the current tariffs. They do not have the financial capability to supply power to match the demand as mostly they avoid supplying power to areas where it is a loss-making proposition. Usually utilities with weak bill collection system prefer to shed load than buy. With government initiatives, major raw material (coal) situation is easing. "However, lack of power-purchase agreements (PPA) is still a major deterrent and over 12,000 MW of new capacity doesn't have any PPA, a sad commentary on the

lighting lamps and use electricity instead. As part of social obligation they are being provided access to electricity at lower prices.

Load shedding for 4-6 hours at a stretch in rural areas are differentiating their lifestyle issues with that of urban folk. Outages of above two hours can affect the usage of white goods like refrigerator. In fact, power supply scenario is dictating the events of the day in urban and rural areas.

To bridge the gap between urban and rural areas in power accessibility, the government has launched several schemes offering

STATE OF AFFAIRS OF IPPS IN INDIA

During the last five years, India has added power generation capacity at a tremendous rate of 62% while, the power demand has grown at a slower pace. In addition to conventional sources, renewables including solar have added 5 GW of capacity in last 5 years. This has resulted in build-up of unutilized power generation capacity. On the demand side, distribution companies (Discoms) are facing financial stress due to accumulated losses to the tune of ₹3.8 Lakh crore (as on March, 2015) and increasing at 12% p.a. as reported by Ministry of Power (MoP). Such financial stress, does not allow Discoms to make fresh purchases and prevents them from floating tenders for Long Term Power Purchase Agreements (LTPPAs) with power producers. The above developments have resulted into steady decline of average power prices at national power exchanges from ₹7.00 (in FY 2008-09) to ₹2.00 (in FY 2015-16).

The total installed capacity is 288 GW (approx.) as on February, 2016 while, the peak demand is 153 GW. Power generation units in India are running below capacity as Discoms shy away from buying more power. The intention behind the series of reforms in the power sector post 1991, from opening up generation and distribution to the private sector to breaking up state-run monopolies and freeing up power prices (albeit under regulatory oversight) to allowing both producers and consumers 'open access' to a modern power market was noble: allow market efficiencies to operate, thereby offering consumers better quality of service at better prices. The

reality is quite the opposite. It looks like we are back to the 1990s for the power sector with plant load factors (PLFs) in the low sixties (down to a new low of 59 per cent in June).

According to Central Electricity Authority (CEA) data, India's thermal power plant load factor (PLF), slipped to 59.43% in June last year, its lowest in over a decade and has been consistently hovering below 70% till February 2016.

For all the above reasons, no power utility including heavily debt laden Discoms are prepared to float tenders for LTPPAs. Any requirement of additional power is being met through short term market/ national power exchange.

In the above circumstances, it defies logic that new LTPPAs would be floated by power utilities. The lack of new LTPPAs prohibits Certificate Holders (power project developers under Mega Power Policy) from tying up their mandated capacity under LTPPAs. In fact, most of the project developers are keen to sign LTPPAs and IPPAI requests the Ministry of Power, Government of India to actively encourage states to enter into LTPPAs.

IPPAI analysis shows that only 16,430 MW of LTPPA competitive bidding tenders have been floated by power utilities since September 2011. Out of this, Certificate Holders have received 5,413 MW capacity under LTPPA.

Power utilities are not able to do effective long term load planning as financial instability is a huge impediment for states to opt for long term power procurement planning under extreme deficit situation coupled with financial losses. Instead, the utilities have resorted to power procurement

through medium term planning.

Recent trends indicate that short term (including day ahead) prices have remained lower in comparison to the prices under LTPPAs. With the onset of ambitious renewable energy (RE) programme in the country, utilities will now have to tie-up significant portion of the RE capacity in order to fulfil their obligations. This leaves very little scope for developers to sign new LTPPAs (based on thermal power) with utilities.

The coupling of above two factors has resulted into power utilities increasing their power purchase from short term exchange market/ merchant market rather than the LTPPAs route. This conclusion is corroborated by the fact that there have hardly been any Long Term bids floated by Discoms all over the country.

IPPAI has requested Ministry of Power (MoP) to waive the requirement of tying up of mandated capacity by Certificate Holders under Revised Mega Power Policy (RMPP), 2009 by altering it to consider sale of power under competitive route through Long Term/Medium Term Contract/ Short Term Contract/Power Exchange as sufficient compliance of Clauses (iv), (x) and (xi) of RMPP, 2009. This modification will not in any way dilute the policy objective of keeping tariffs low as there is no premium in the merchant power market and the same result is achieved equally well under any of the above commercial mechanisms.

(For full article, log on to www.powertoday.in)



Views from Gaurav Sharma,
Sr. Analyst, Independent Power
Producers Association of India
(IPPAI)



cheaper power for various weaker sections of population. In such a scenario, utilities must be provided with the state support for the losses or incremental cost they incur in implementation of such schemes.

LOSSES

India Power Corporation estimates that the stranded assets of power generators can be valued at ₹7.5 crore per MW. On that basis, the value of stranded assets of 25,000 MW can be estimated at ₹187500 crore. And the stranded capacity comes mostly from the private players, who have set up capacities in anticipation of economic growth that is expected to

Power (MoP) to waive the requirement of tying up of mandated capacity by Certificate Holders under Revised Mega Power Policy (RMPP), 2009 by altering it to consider sale of power under competitive route through Long Term/Medium Term Contract/ Short Term Contract/Power Exchange as sufficient compliance of Clauses (iv), (x) and (xi) of RMPP, 2009. They argue that this modification will not in any way dilute the policy objective of keeping tariffs low as there is no premium in the merchant power market and the same result is achieved equally well under any of the above commercial mechanisms.

Privatisation of distribution activity has paid rich dividends in the past. Revival of that system with the consent of the public sector utilities and bureaucracy could pay in future too as their collection systems are much robust than that of PSU utilities.

Transmission seems to be a greatest laggard. Though national grid is being expanded to cover various regions, it same is not true at the state and inter-state levels, which is a must to check unused power and transmitting the same to the needy areas.

It is unfortunate that the country-wide mapping is not being done for electricity supply situation or rather power cuts/ outages so that one can understand the exact power supply scenario at the peak level. Peak demand table prepared by CEA, that can be found in the last few pages of the magazine, does not seem to reflect the realities of the situation.

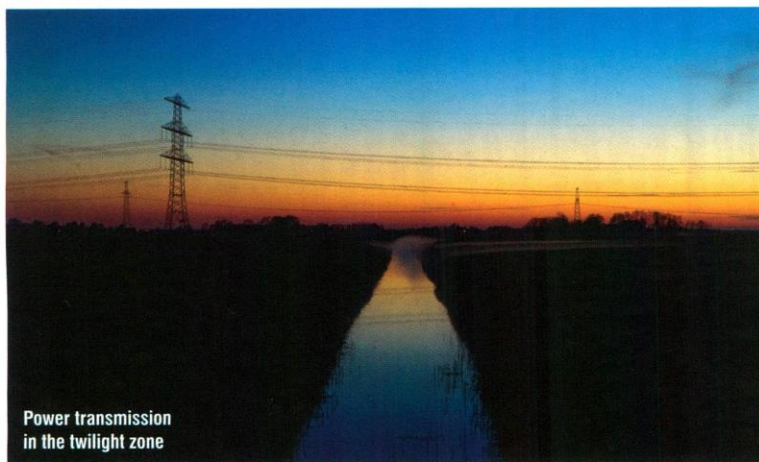
There is a pick up in the industrial activity visible at the end of the tunnel. Once the economy picks up pace, as the government is expecting above 8 per cent growth to come back soon, the generators may see increased power demand coming their way in a year or two.

The government said that it intends to expand power generation capacity about three-fold to 800 giga watts (GW equals 100 mega watts) by 2030. The intention is good, but balancing various sub-sectors in the sector would hold the key for its success.

Another biggest hope is that the government's recent initiatives like UDAY and Deen Dayal Upadhyaya Gram Jyoti Yojna, would improve the financial health of Discoms in the coming years. But millions of people are still living in darkness. As such, ensuring universal accessibility to power is still a far cry in the country.

— BS Srinivasalu Reddy

PT



Power transmission in the twilight zone

boost demand for power leading to higher pricing in its wake. The idle capacity will suffer an interest loss on these borrowings, which could be at least be equal to 50 per cent of the project cost, if not more.

Banks are facing huge non-performing assets (NPAs) due to their exposure to these idle generating capacities. As such banks are feeling shy of lending to power projects. Such a pass of events would affect fresh investments coming into power sector in future.

As a measure to shore up the fortunes of power generators, IPPAI has requested Ministry of

CONCLUSION

The paradox in the power sector is – having surplus capacity is a fiction and the energy poverty is a reality by whatever measure. The effort should be to ensure optimum utilisation of capacities and catering to the power needs of one and all on a 24x7 basis.

Distribution continues to be the weakest link in the Indian power Sector, saddled with huge losses and inability to buy sufficient power to meet the power demand. Reimbursement of subsidies provided through PSU utilities should be reimbursed by the state government to enable them to plan by their finances from time to time.