Metamorphosis

With the Indian government looking at fortifying the T&D space and plugging the holes, the segment may be finally receiving its long overdue attention.

While India is making steady headway on the transmission front and the sector has witnessed commendable growth over the last few years with substantial capacity additions, the distribution or last mile connectivity is still a concern in India.

At the inter-state level, though the networks are becoming quite mature, there is significant backlog or inadequate capacity within the state, to meet the increasing demand and load patterns. In addition, T&D losses have been plaguing the sector since a long time.

These losses inherent to T&D systems, include those incurred while transmitting power from sources of supply to points of distribution and ultimately to final consumers; commercial losses also being accounted for in this.

STATUS

In India, T&D losses account for as high as 23 per cent of the total electricity generated as compared to countries like Singapore, Malaysia and other developed countries wherein the losses are as low as ranging from 5-8 per cent. These losses can be reduced by strengthening and upgrading the T&D infrastructure combined with proper tracking and auditing which would ensure reduced loss levels.

However, **Vimal Kejriwal, MD & CEO, KEC International Ltd** is optimistic about the growth, "The good part is that, a lot of progress is unfolding as dedicated efforts are being undertaken by the Indian government for improving the transmission network in India. PGCIL which mainly owns and operates inter-state lines has already made huge investments for the development of inter-state networks and is managing these lines efficiently."

On the other hand, the development of intra-state lines is under progress with huge capex planned by many of the SEBs. The sector is also witnessing enhanced private participation. Further, in order to strengthen and upgrade the transmission network numerous schemes like IPDS for rural and semi-urban areas and DDUGJY for feeder

"Total investment signifies an opportunity of ₹97,200 crore"

Rattan Lal Labroo, Joint President - Power Group, Angelique International Limited.

What impact will GoI's 'Power for All' initiative having on the segment?

India, like any other developing country, cannot overlook the pivotal role of the power sector in fuelling its overall development. Every sector in an economy requires constant and reliable supply of electricity in order to function and grow. With enough availability of coal, power generation may not be a concern today. Thus, the issue is that all of the power generated does not reach consumers due to the 25 per cent leakage in Aggregate Technical and Commercial (AT&C) losses. GoI is focused on plugging this leakage, which can be done by privatising T&D to bring in efficiency. More T&D assets are expected to be privatised and financiers could invest in creating T&D platforms, expecting viable opportunities to deploy capital.

How do you see the segment panning out in FY17-18?

Despite enough generation, India faces irregular power availability across states. It all then boils down to distribution. Thus, while some states in the northern and western parts of the country have surplus power, some states in the south face shortages. To counter this, the NDA government, which has made boosting power generation a key policy priority, is making all-out efforts to overhaul the chain of distribution, and is looking to supply adequate power at affordable prices, with the aim of doubling electricity generation to two trillion units by 2019. The Centre has set a target of bringing 24x7 'power for all' by FY19. If the government's plan is to be achieved, T&D investments have to come through. Total T&D investment envisioned in the 12th Five Year Plan is Rs 4,860 billion, which signifies an opportunity of Rs 972 billion for FY17.

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

separation for agricultural populace have been devised.

A series of conducive policies and measures are rolled out, as well as efforts are on towards achieving the mission of 'One Nation, One Grid, One Price'.

"Significant improvements are also transpiring on the project execution front, resulting in lowering of the execution time lines for T&D projects from the traditional 36 months to 12-18 months, which is a remarkable achievement," adds Kejriwal.

FINANCIALLY VIABILITY

The viability of T&D in India is driven by a conglomerate of factors. However one major aspect has been the drive to sustain the annual GDP growth rate. To sustain the envisaged annual GDP growth rate of around 8-9 per cent over the next 20 years, it has been estimated that India will be required to increase its electricity generation capacity from the present ~180 GW to over 800 GW by 2032.

To this, **Rattan Lal Labroo, Jt President - Power Group, Angelique International Ltd** says, "This would require a matching upgradation and enhancement of the electricity T&D segment, supported by a strong manufacturing base of major equipment players, who have catalysed the situation to a healthy financial prospective which can offer good returns."

In India, T&D losses account for as high as 23 per cent of the total electricity generated

On the ground level some factors still prevail, like the pace of execution of some T&D projects which has been impacted due to various factors such as ROW issues, end users (like power plants) not being ready, etc., which lead to

"The segment will showcase significant growth in 2-3 years"

Vimal Kejriwal, MD & CEO, KEC International Ltd.

Kindly share your order book and plans for FY 2017-18.

Our current order book is in excess of ₹12,000 crore. Our Q3 PAT at ₹63 crore was up by 139 per cent and Q3 EBITDA margin increased to 9.26 per cent from 8 per cent, highest in the last 21 quarters. We continue to consistently outperform on the profitability front despite the challenging economic scenario in some of our markets over the last few months, on the back of our diversification and de-risking strategy. Our strong order book position and robust L1 pipeline gives us good visibility, going ahead.

What are the projects you are involved in?

We are involved in a significant number of good and large value projects in India and internationally. We have footprint in 61+ countries and are executing projects in 33+ countries. Major orders secured by us this year include; ₹364 crore order from KPTLC, EPC orders of ₹629 crore for 765 kV and 400 kV transmission lines from various customers in India, ₹429 crore turnkey 275 kV transmission line order in Malaysia, ₹248 crore 500 kV transmission line order in Egypt, ₹770 crore turnkey 220 kV transmission line order in Afghanistan, etc. We are also growing rapidly in the GIS and AIS. We have built/are building around 70 sub-stations in both the AIS and GIS space and have deepened footprint in the international sub-station market including MENA, SAARC, Africa and EAP as well as strengthened our presence in the domestic market. Some noteworthy projects, endorsing our credentials in India include completion of the 400 kV transmission line for Indo-Bangladesh cross border interconnection five months ahead of its scheduled completion time, in record seven months, despite numerous challenges including logistics and severe monsoons.

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

delay in project completion schedules. This creates an additional burden on the contractors by way of time and cost overruns and mobilisation issues. There needs to be a mechanism in place to resolve these ground level issues.

Kejriwal on his part feels, "GoI is conscious of the facts and there have been changes in the approval processes for environmental clearances, whereby the first stage approvals have been eased. It is also imperative that we work with the government to bring in a mechanism to fast track approvals and easing other issues that cause delays in projects."

Compensation levels have been enhanced for land cost which has provided some relief on the land acquisition issue. However, we also need to work towards improving the credit standing of the end buyers such as SEBs, where more thrust is required.

Kejriwal suggests warding projects by way of plug-and-play mode where all the approvals are secured before the project is awarded, adopting alternate and improved technologies like gas insulated lines, etc.

The major cause for concern, which needs to be solved on priority, is delays. Wherein adequate mechanism is required to compensate owners and contractors for these delays. If all these arbitrary issues are resolved, projects will become financially viable.

INVESTMENTS

Power Minister Piyush Goyal stated that PowerGrid (PGCIL) has sought a loan assistance of $1,000 million from ADB comprising of sovereign guaranteed loan of $500 million and non-sovereign loan of $500 million; for funding various transmission projects in the next three to four years.

Meanwhile, the CEA has estimated that an expenditure of ₹260,000 crore would be carried out during 2017-22 for addition to transmission system capacity.

Inter-regional capacity addition during the 13th plan (2017-22) is estimated at 45,700 MW, from the present 63,650 MW by the plan end, said CEA. The estimate is that India would need 100,000 ckm of transmission lines and 200,000 MVA transformer capacity of sub-stations at 220 kV and above voltage was expected to be added in the 13th Plan.

PGCIL sought loan from ADB for the following projects:

(i) HVDC Bipole link between western region (Raigarh, Chhattisgarh) and southern region (Pugalur, Tamil Nadu) - north Trichur (Kerala) - Scheme 1: Raigarh-Pugalur 6,000 MW HVDC system.

(ii) HVDC Bipole link between western region (Raigarh, Chhattisgarh) and southern region (Pugalur, Tamil Nadu) - north Trichur (Kerala)- Scheme 3: Pugalur- Trichur 2,000 MW VSC based HVDC system.

(iii) Real time measurement/monitoring scheme.

(iv) Inter-state transmission system (ISTS) associated with Green Energy Corridor (GEC) as under:

a) Ajmer (new) – Bikaner (new) 765 kV D/c,
b) Bikaner (new) – Moga (PG) 765 kV D/c,
c) LILO of one circuit of 400 kV Bhadla- Bikaner (RVPN) line at Bikaner (new),
d) Establishment of 2x1,500 MVA, 765/400 kV S/s at Bikaner (new).

It has suggested that investment be invited through competitive bids. "It is expected that a total of 107,454 ckm of transmission lines and 287,836 MVA of sub-station transformation capacity additions are likely to be achieved during the 12th plan," it has said. Various high capacity transmission corridors are in various stages of implementation and most are likely to be commissioned by 2021.

With the new government revising the targets five times, a secondary plan for solar parks was also drafted along with revised transmission plan. According to industry estimates, the cost of connecting 27 solar parks is close to ₹55,000 crore. Last year, seven more parks were added, taking the cumulative capacity to 19,900 MW, according to MNRE.

Goyal informed parliament that under the framework of cooperation between the Government of India and Government of Germany, KfW, Germany is providing soft loan to the tune of Euro 1 billion for the project.

A total sanction of $1,300 million (about ₹8,850 crore) has been received from the World Bank, KFW, ADB and NDB which will enable SBI, PNB, Canara Bank and IREDA to fund such projects at an interest rate of less than 10 per cent.

PRIVATE PLAY

There is growing interest by private players too, although PGCIL continues to be the largest player. The Tariff Based Competitive Bidding (TBCB) route has provided a much needed structural impetus to private players.

Adds Kejriwal, "We are witnessing some aggressive bidding in TBCB projects and this is causing some concerns to the banks in terms of returns on those projects, with the project profitability always under pressure, due to the intense competition."

These networks are also being used by state discoms, which is a cause for concern with regard to the credit ratings of the end customer. However, there is clearly a lot of interest, which is validated by way of recent investments being made by some of the large private equity players in some of these companies.

To this Labroo adds another dimension, as he feels that increasingly more EPC contractors are considering PPP projects safe because it is an annuity type product, which has assured income streams. "Operating assets are more lucrative because the construction risks are removed. Long-term investors such as pension funds prefer these kinds of annuity assets, he feels.

TECHNO FORWARD

With regard to technology, India is already migrating to higher transmission voltages of up to 1,200 kV, working on new technologies for bulk power transmission, has a fully synchronised national grid, is developing high capacity power transmission corridors (HCPTCs) and inter-regional links for the grid, etc.

Specific to construction methodologies, modern and highly mechanised construction techniques are gaining traction, like the telescopic boom crane and gin poles methodologies that are being adopted.

In addition, modern day digital disruptions are also shaping the way projects are being executed; for example, KEC recently used drones for stringing of power conductors for a few projects, which resulted in a faster and safer execution of these project.

Inter-regional capacity addition during the 13th plan (2017-22) is estimated at 45,700 MW.

Tecnology wise India is migrating to higher transmission voltages, working on bulk transmission and has a fully synchronised national grid.

Additionally, smart grid is like a revolution for the electrical sector. States **Amitkumar Panchal, Solution Architect – Smart Grid, Landis + Gyr,** "smart grids can push a consumer to be more energy efficient, and help him know how he can do more by using less of the planet´s resources."

As part of a smarter grid, the grids will be self-healing grids, which will enable more reliable power distribution. Utilities will be able to detect outages before the user notices an outage and will be able heal the same faster. This will benefit the common population of India, as with more reliable distribution, the common public will get better power.

Some older equipment that cannot be retrofitted to be compatible with smart grid technologies will have to be replaced. This may present a problem for utilities and regulators since keeping equipment beyond its depreciated life minimises the capital cost to consumers.

Inversely, the early retirement of equipment may be an issue. Cost of implementing smart grids runs in crore of rupees. It is very difficult to analyse the performance and benefits of smart grids without actually implementing them.

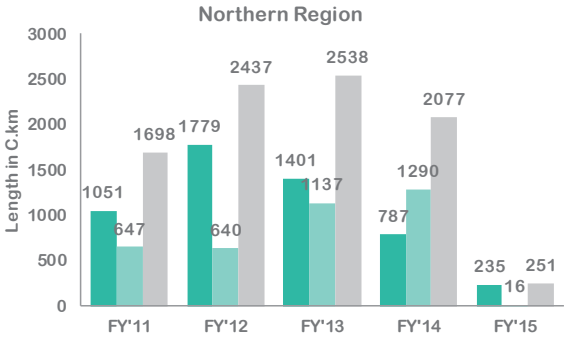
Overall, the major elements of any such projects should include developing a smart grid vision, conducting appropriate awareness to educate and develop a consensus, identifying viable funding options and implementing appropriate policy and regulatory actions to set common standards and encourage innovation. These steps are in development and the figures will be out once studies are completed.

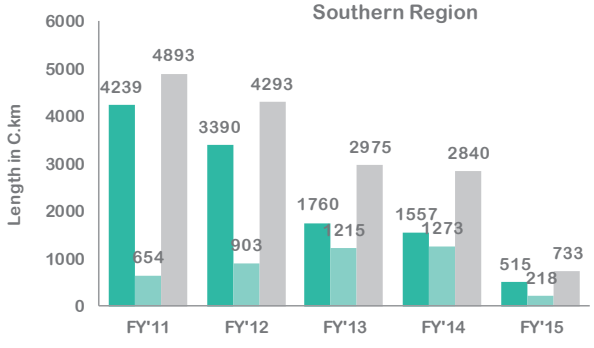
IMPACT OF RENEWABLES

To address the fluctuations in the renewable power supply, GoI in 2013 announced a National Green Corridor Programme (NGCP) worth ₹43,000 crore to enable the flow of renewable energy into the national grid network.

Two green corridor transmission networks are proposed

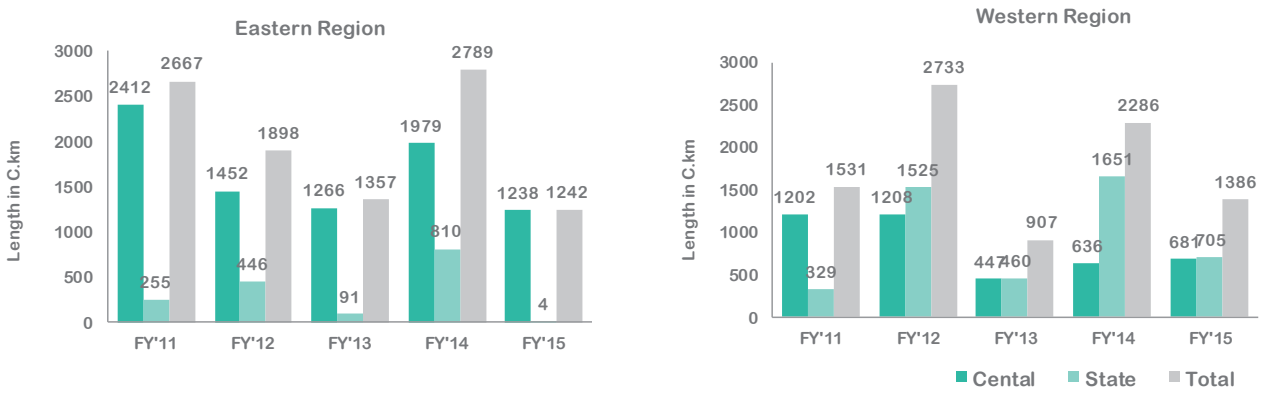
Region Wise Split of Year Wise Capacity Addition of Transmission Lines at 400 kV Voltage in c.km





Source: Ministry of Power, PGCIL

Region Wise Split of Year Wise Capacity Addition of Transmission Lines at 400 kV Voltage in c.km



Source: Ministry of Power, PGCIL

Green Corridor Transmission Network Plan

(i) HVDC Bipole link between Western Region (Raigarh, Chhattisgarh) and Southern Region (Pugalur, Tamil Nadu) - North Trichur (Kerala)- Scheme 1: Raigarh-Pugalur 6000 MW HVDC System.

(ii) HVDC Bipole link between Western Region (Raigarh, Chhattisgarh) and Southern Region (Pugalur, Tamil Nadu) - North Trichur (Kerala)- Scheme 3: Pugalur- Trichur 2000 MW VSC based HVDC System.

under the project - Firstly, construction of the inter-state transmission network for connecting renewable energy-rich states under Green Corridor-I will be completed. Besides, Green Corridor-II for solar parks is also started which is connecting solar parks in different states including Andhra Pradesh, Madhya Pradesh, Karnataka, Rajasthan and Gujarat.

MNRE sanctioned 34 solar parks of capacity 20,000 MW in 21 states are under various stages of execution. The intra-state grid upgradation would be taken up by PGCIL, while the inter-state network would be developed by the state utilities.

SECTOR OUTLOOK

India, like any other developing country, cannot overlook the pivotal role of the power sector in fuelling its overall development. Every sector in an economy requires constant and reliable supply of electricity in order to function and grow.

With enough availability of coal, power generation may not be a concern today. Thus, the issue is that all of the power generated does not reach consumers due to the 25 per cent leakage in Aggregate Technical and Commercial (AT&C) losses.

Adds Kejriwal, 'Power for all' and complete village electrification by May 2018 would necessitate augmenting T&D infrastructure. With dedicated efforts aimed towards creating proper systems and structures, the T&D architecture seems to be evolving and marching in the right direction."

GoI is also focused on plugging this leakage, which can be done by privatising T&D to bring in efficiency. More T&D assets are expected to be privatised and financiers could invest in creating T&D platforms, expecting viable opportunities to deploy capital.

Observes Labroo, "The Centre has set a target of bringing 24x7 'power for all' by fiscal 2019. If the government's power for all by FY19 is to be achieved, T&D investments have to come through. Total T&D investment envisioned in the 12th Five Year Plan is ₹4,860 billion, which signifies an opportunity of ₹972 billion for FY17."

Huge investments have been planned and massive network interconnectivity is envisaged with focus on affordability and reliability including substantial expenditures being incurred by states for expanding the intra-state transmission infrastructure in addition to PGCIL having enhanced its Annual Capital Outlay to ₹25,000 crore. These developments combined with reforms like UDAY, which is expected to improve the liquidity position of the discoms, augur well for the sector.

On the backdrop of these, the outlook is quite optimistic and the segment is well poised to showcase significant growth levels, two-three years down the line.

– JOCELYN FERNANDES