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The optic fibre cable (OFC) market in India is on an upward growth trajectory owing to increasing broadband deployments in the backhaul and last mile access networks, and government initiatives such as BharatNet and Network for Spectrum projects. The major users of OFC are telecom service providers, infrastructure providers, internet service providers, multiple-system operators, cable TV operators, defence agencies, and PSUs in sectors such as power, railways, and oil and gas. All of these have specific connectivity requirements. As per industry estimates, OFC is set to become a \$420 million industry in India by 2020.

Demand drivers

In India, the demand for OFC is being driven by the burgeoning data traffic, which can be attributed to a considerable decline in data tariffs; increased penetration of affordable smartphones, tablets and other internet-enabled devices; and the availability of regional content in vernacular languages. In addition, consumers are increasingly shifting towards video-driven applications such as video-on-demand and high definition television, which is also fuelling data demand.

With the growing pressure on wireless networks, it has become imperative to undertake greater investments in fibre infrastructure. Fibre offers several benefits over other mediums such as virtually unlimited capacity, low cost of ownership over the project's entire life cycle and the ability to support multiple technologies. Further, investments in OFC networks are being driven by the proliferation of next-generation broadband technologies such as long term evolution, fixed last-mile connectivity based on fibre (FTTx) and cable TV digitisation.

Emerging trends

Telecom operators have started exploring the OFC network sharing model in order to optimally utilise the existing data networks and facilitate the expansion of data-intensive 3G and 4G

networks. Further, deploying a mix of optical fibre with wireless technologies to provide seamless high speed and high capacity broadband solutions in both dense urban and rural areas has emerged as a key trend in this space. For instance, operators have started using wireless fibre extension technologies based on millimetre wave in the E-band to carry traffic from the optical node and deliver it to a village cluster, where the last-mile access can be provided with the help of Wi-Fi.

Challenges and key recommendations

A major challenge with regard to OFC deployment is that service providers often face long delays in obtaining right-of-way (RoW) approval from multiple agencies. Moreover, the processes involved are complex and the RoW charges high and arbitrary. Besides, unorganised growth in densely populated areas poses a challenge for fibre roll-out.

Therefore, there is a need for policy and regulatory clarity on these issues. Fibre networks should be awarded critical infrastructure status. Single-window and time-bound clearance by all RoW authorities at the central, state and local levels is imperative for increasing fibre deployments. Major infrastructure projects must include a clause in their architectural design requirements for the provision of a utility duct for laying of OFC.

Further, the areas allocated by RoW agencies/authorities for the laying of underground cables should be far away from the road considering the expansion plans for the next 10 years to save on operators' expenses and prevent service disruption during expansion. Strong administrative and legal provisions should be in place for compensation in case of cable cuts/damage by government authorities/ agencies or private third-party agencies executing digging work. There is also a need to fix minimal RoW rates and standardise issuance procedures for all agencies. The only admissible charges should be towards reinstatement or charges directly linked to restoring the surroundings to their original state. The RoW permission should be granted on priority and any denial to grant RoW in exceptional circumstances should be recorded in writing with reasons.

The RoW rules notified by the government in November 2016 seek to address some of these concerns. These rules lay down a framework for the grant of RoW permissions, their applicability to telecom and internet licensees, the disposal of applications within a defined time period, levy of administrative charges for processing applications, levy of reinstatement charges based on similar works carried out by the appropriate authority, and deemed approval if

application is not accepted/rejected within the given time frame. These rules will help expedite the grant of RoW for laying of cables and installation of towers, etc. and facilitate coordination between service providers and state governments/local bodies.

Several state governments have started aligning their policies with the new RoW rules. However, the implementation of these rules is a key issue, with considerable differences in execution across states and local bodies within the states.

Based on a presentation by Debashish Bhattacharya, Co-Chairman, Satcom Committee, Broadband India Forum

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