

The Green Tangle

On account of complexities in managing energy resources to run networks, telecom operators are looking for green solutions to bring down opex



Commercial power and fossil fuel consumption is turning out to be a crucial element in deciding the opex of telecom operators in the country. The situation is alarming since many operators spend over a third of their opex on power and fossil fuels like diesel. Since management of energy resources is too complex, stakes involved are high.

The expansion of operators into new circles and rural areas and the entry of new players will add fuel consumption. Strengthening their foothold in rural area without adequate power backup spells danger for the telcos. The challenge for operators lies in finding power to BTS sites, especially in rural parts of the country where grid power is available only for a few hours during the day, while in some parts there is no grid

connectivity at all. This emerges at a time when the ARPU's are falling.

Issuance of additional and new 2.5G licenses as well as 3G licenses combined with announcement of 3G spectrum auction has put telecom operators on toes to build new infrastructure in new circles.

The ever-growing telecom market in India is also under pressure to reduce carbon emissions.

As per the report of Sir Nicholas Stern, former World Bank economist, India could face 9-14% loss in GDP by 2100 if global warming remains unchecked.

The present state of the Indian telecom market—a mix of new and existing operators—has got operators asking themselves whether to invest in setting up new infrastructure to increase their reach and returns or

build a green infrastructure, which initially will cost a lot.

In a fix

Telecom operators are facing a challenging situation today. To run their telecom networks in India, operators have to spend billions on power and fuel. That pressure is mounting as price of power and diesel is unpredictable.

Operators are worried from this increasing cost of their expenditures on fuel because of cut throat competition among them to provide low priced service to users.

"The overall opex for 2008-09 is approximately Rs 3,600 crore. Out of this the expenses for power (commercial supply) is Rs 618 crore and for diesel it is Rs 741 crore," says Harish Jain, general manager, Infrastructure Planning & Operations, Reliance Communications.

Carbon emission targets set by the Kyoto Protocol is compelling countries to cut down on carbon emission. Though in India there is no strict legislation for companies to turn Green, many telecom operators are voluntarily adopting Green practices.

"Most corporates are now getting more aware and conscious about the benefits of Green. It will not be right to single-out the government. It has to be a joint initiative. Though things do work well when there is a law. Guidelines are always a good driving force. CNG for transport has changed the scenario completely. Similarly, any regulation leading the telcos towards Green will surely make a difference," says Rakesh Jain, CEO, Aircel.

The benefits of growing Green also



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—Manoj Upadhyay, managing director, Acreo Tele Power

energy management on their BTS sites. Energy management is the biggest component of an operator's operating expenditure. According to an ABI research report, network infrastructure accounts for 80% of this apex. Therefore, operators are focusing on reducing every unit of power consumed per BTS site.

"In all the recent announcements of our wins, you can clearly see the trend in our customers putting a lot of emphasis on the environmental aspects of our products, in addition to their technical capabilities and potential to save apex," says Kashwan.

Idea Cellular, Ericsson and the GSM4's Development Fund teamed up to develop bio-fuels as a power source for wireless networks in rural India. In a pilot project, bio-fuels were used to power mobile base stations located in Latur, Maharashtra, where main electricity is highly unreliable. In the first phase, four BTSs in the Maharashtra circle were powered by bio-fuels. After completion of this phase, Idea started powering approximately 300 base stations in Andhra Pradesh with waste cooking oil. These base stations were made to run on 80:20 blend of diesel fuel and non-edible oil. "The green project success in AP can be attributed to a favorable ecosystem in the region where an

entrepreneur was engaged for sourcing, blending and distribution of the fuel," says Rajat Maharaj, Chief Corporate Affairs Officer, IDEA Cellular.

Reliance is looking for an opportunity to deploy wind and solar energy solutions to run their sites. It targets to run approximately 10,000 sites using renewable energy sources. As an alternative to diesel, Tata Telecommunications is experimenting with Liquefied Petroleum Gas (LPG).

With operators focusing to reduce power consumption in their active infrastructures, a key initiative in this regard is IP transformation of the present networks across the globe. "With an IP-based network, an operator can reduce its overall power consumption and hence contribute to a green globe as well as reduce their total cost of ownership," says an Alcatel-Lucent spokesperson.

Green Move

Since almost all passive infrastructures of operators are outsourced, the responsibility lies on infrastructure solution providers to reduce energy consumption by the infrastructure they provide to operators. Therefore, Green solutions have become a business necessity and have entered the list of corporate social responsibility. Various infrastructure companies have also joined the Green bandwagon.

The ever-growing telecom market in India is also under pressure to reduce carbon emissions. As per the report of Sir Nicholas Stern, former World Bank economist, India could face 9-13% loss in GDP by 2100 if global warming is unchecked



"If operators don't cut apex which is mainly due to energy cost, at BTS sites then it is not possible to sustain long term profit"

—Rajesh Malhotra, managing director, Luminous Telelabs

Talking about the Green initiatives adopted by GTL Infrastructure, Pradeep Ranjalkar, CEO, GTL says, "We are investing our resources in innovative practices and solutions to minimize the consumption of energy. Various technical solutions that are being tested for energy management on the demand side include identification of energy efficient air conditioning systems with high EER (Energy Efficiency Ratio); free cooling/emergency free cooling concept of air conditioning systems to utilize cool ambient temperatures for reducing compressor running; wide input voltage range (50%PS better efficiency even at lower input voltages); fuel optimizer method of operating DG, interlocked with battery back up, and usage of energy star rated products. GTL Infrastructure has also created a dedicated National Network Operations for online monitoring of site parameters, which will bring in operational efficiencies."

Telco Telecom as a part of its internal Go Green initiatives, Telco is also planning to have solar installations in a large percentage of its PoPs.

Explaining its Green initiatives, Pradeep Gosai, CEO, Quipco Telecom says, "Quipco is an environmentally friendly company. On the telecom

Challenging Profitability

- Operators are pushing for green solutions
- OEs look for alternate energy resources
- Costs for renewable energy sources are high
- Around one-third of opex is spent on power and fuel
- Operators are looking for reduction in power and fuel expenditure cost
- Start funding for deployment of green power solutions
- Seeking power for new sites in remote areas is a challenge

infrastructure part, we have taken a number of initiatives. All our diesel generators comply with central pollution control board norms. We are using high capacity battery bank up in order to reduce diesel generators running and hence control limit the emissions."

Quippo has also installed solar power system at two sites in Karnataka that are under trial with an aim to reduce the diesel generators running at the sites. Also, Telpic has installed fuel catalyst in 1,800 diesel generators that result in reduction of pollutants.

Government Initiatives

The central government and state governments of Maharashtra, Tamil Nadu, Madhya Pradesh, Karnataka and Gujarat have defined policies for wind generation—the most favored Green energy at present—on a commercial basis. The Ministry of New and Renewable Energy has recently announced a policy for 100% grid connected power plants. The Electricity Regulatory Commissions of various states have renewable purchase obligations by which a particular utility should have a stipulated generation from Green sources. A high level committee has also been set up by the Government of India for proposing the National Renewable Energy Law.

However, regulatory and operating issues like open access, distribution

loss reduction, and industry-specific tariff restructuring still need to be worked-out.

"At a time when the country is reeling with power shortages, policies should be defined to facilitate us to set up Green generating plants for self use thereby reducing our dependency on grid power. This would go a long way to reduce the energy shortage and improve quality and cost of services. The tariff being paid is at commercial rates. In some states where our connected load is more than 20 MW we need to go the time-of-day tariff," says Vashista.

Challenges

According to industry sources, it is good to talk about Green, but there is a difference in the approach of operators. "There are some people who point there logs and boards Green but that doesn't mean that you are Green. The Green theme comes out with the internal philosophy of the company in terms of the business it does, its employees' behavior and behavior of the organization overall. That finally boils down to the technology," says Delpi Sharma, managing director, Delta India.

The first major challenge of adopting Green solutions is its cost. Therefore, operators are in a tangle to put money on Green sites or in expanding infrastructure that gives better RoI initially.

"If Green increases the benefits then it is easily accepted but if it is going to cost more on the opex than people will hesitate. Therefore, it is the duty of vendors to innovate on technologies and provide solutions to operators at reduced prices than the existing opex. One needs to focus on three main concepts: first is to reduce power consumption; second is to reduce diesel generators running time; and last is complete replacement of diesel generators. We are working on all these three concepts," says Manoj Upadhyay, managing director, Arma Tele Power.

The challenges in adoption of green solution is its cost at first.

Green Solutions

- Installation of energy saving devices like fuel optimizers, intelligent phase selector, free cooling equipment at BTS sites
- Installation of solar system for 6kW inverter sites and for micro BTS
- Use of CNG engines at places where piped CNG is available
- Evaluation of alternate energy resources like fuel cell-based or technical and economic feasibility

Therefore operators find them in tangle whether to put money on green site or in expanding infrastructure that gives better returns on investment initially.

"When the trend of network expansion will turn little flat then the opex will be critical issue for operators. If they don't cut opex which is majority due to energy cost at BTS site then it is not possible to sustain long term profit. This phase will come in Indian telecom market in next couple of years when operators will have to focus on cutting opex by adopting green solutions," says Rajesh Malhotra, managing director, Luminous TeleIndia.

"Renewable energy solutions can bring stability to expenses in remote areas and so returns on initial investments in solar or wind comes down, the business case become more attractive. We see initial investments paying off within 24 months in some cases. After the site is up and running, the operational costs are practically zero," says Kishore.

The reduction in the cost of crude oil prices globally is also posing a challenge in adoption of Green power solutions. Though in the case of extreme rural and remote hilly areas where transportation of diesel becomes really tough and expensive, operators prefer to install renewable sources of energy available in a hybrid solution format. It is time for operators to go for green solutions.

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