



GTL Limited



FUELLING DREAMS:
Sharat Chandra

PURE CELLSATIONS!

GTL offers a host of solutions to keep the environment clean.

By Bindi Mehta

We all like our mobile networks to be up and running all the time. But do we ever realize what it takes for telecom operators to make this happen? Network availability is determined by the uptime of devices installed in telecom towers. Whenever there is a power failure, the next source of fuel is predominantly diesel. Research shows that diesel generators (DGs) are operational for an average of eight to 10 hours per day in rural areas and three to five hours in urban areas, putting a stress on the environment by way of carbon emissions and noise pollution.

WHAT IS GTL DOING?

As a telecom services engineering company, GTL is rolling out green energy management solutions that are targeted at reducing the energy requirements of shelters at telecom towers by up to 20 percent. A shelter is a metallic box that is set up by tenants (mobile operators) at telecom towers. This box is sealed hermetically and houses all the devices needed to run a cellular network. "We are a little more fortunate than mobile operators and telecom equipment vendors. These parties lack

the ability to take action at will. As a services partner, we have committed ourselves to engaging in offering a green solution that can benefit everyone—from the company that owns the telecom tower to the mobile operator and the end consumer," says Sharat Chandra, President and COO, Strategy and New Technologies, GTL.

Any market is a result of the combined forces of demand and supply and their interaction. "Telecom players also have two handles to

IN THE GASHOUSE

1. One liter diesel emits 2.6 kg of CO₂
2. 20-30 liters of diesel (on an average) are consumed per tower per day
3. CO₂ emission from towers in India: 5.3 million tons/year
4. Expected CO₂ emission from towers in India after 3G and BWA rollouts: 7 million tons/year



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[Air Care]

control energy management—the demand factor and the supply factor. On the demand side, we have to reduce the need for perishable fuels like diesel; on the supply side we have to offer alternative energy sources like solar power,” says Chandra.

GREEN ENERGY SOLUTIONS THAT GTL OFFERS:

- ▶ **Intelligent power grids and base stations:** An intelligent power grid links the generation, transmission and distribution parts of the grid by two-way communication devices. This leads to measurement and intelligent distribution of power to various load-consuming devices. A base station is the main device for running a cellular network. What does an intelligent base station do? It helps reduce power consumption through tactics like going to sleep between 1 am and 4 am when few calls are made. The intelligent power grid and base station combine to reduce the energy footprint of equipment at the site.
- ▶ **Voltage correction:** All the devices in a telecom shelter generally run on direct current (DC) voltage. An air-conditioner is the only exception to this rule as it runs on alternating current (AC) voltage. Conversion of electricity from DC to AC results in loss of time, resources and power. As part of the energy management initiative, those air-conditioners that run on DC voltage are being brought in. Currently, the focus to get in these DC air-conditioners is stronger for load demanding projects.
- ▶ **Energy audit through remote monitoring:** IT-enabled remote monitoring of tower sites from a central location allows continuous measurement of energy consumption, early detection of pilferage (rampant in restive rural belts), quick resolution of system errors and device malfunctioning and regular energy audits. GTL operates a Network Operations Center in Pune to monitor its tower sites across the country.
- ▶ **Convection cooling:** There are certain regions in India that enjoy pleasant atmosphere during the day and if tower sites are located at such places, the cool outside air can be sucked in and passed through the heat-generating devices inside. This convection cooling technique saves about six hours of DG run per shelter.
- ▶ **Deep discharge batteries:** During the life of a normal back-up battery, the ratio of time spent charging versus time spent releasing that charge is 3:1. A tubular plate battery reverses this ratio to 1:3 so that the battery spends 3x time releasing the charge and only 1x time gathering it. In the intelligent power systems that GTL is designing, the sequencing of components is such that DG comes on as the last resort. Having deep discharge batteries for back-up reduces DG operating hours and helps the demand side of the equation.
- ▶ **Renewable energy sources:** This is directly related to the supply factor. Till now, the sources of energy available for running telecom shelters were mainly perishable ones. The Indian government, after the Copenhagen Summit, has declared USO (Universal Service Obligation) funds for pilots focused on use of renewable energy at remote sites. Under

HOW GREEN IS GREEN

Annual expected carbon emission reduction per site



the National Solar Mission, the government has allowed the disbursement of soft loans with up to five percent annual interest rate. This has fuelled the momentum in the renewable energy space. When solar energy is captured using PV cells, it can be directly fed and parked into battery as it is in the form of DC voltage. This saves conversion and transmission resources and allows maximum leverage of solar energy.

THE ECONOMICS OF GREEN

GTL has committed to an investment of Rs.2,500 crore toward the deployment of these green energy solutions. The company plans to service the portfolio of 17,500 towers that GTL Infra acquired from Aircel earlier this year and also GTL Infra's asset base of about 15,000 towers with these green solutions. "Every telecom tower has more than one tenant. The revenue opportunity on the current tenancy is approximately Rs.500 crore for the Aircel towers and can go up to Rs.1,000 crore in the next 3 years," says Chandra. "We have also devised a unique Capex gradient model for operators who don't want to make intensive capital investments to start with. This model helps them to reduce their Opex by bringing in efficiency in energy while we invest in the devices. We want to give our tenants both cost and sustainability benefits of green. This in turn will translate into long-term tenancy contracts for us. It's a multi-fulfilling proposition for all parties involved," concludes Chandra. ■