5. 2000 Solar Powered Shared Sites from Bharti Infratel

By Areef Kassam

In an era of diminishing returns on capital invested, operators across the world are reviewing their costs. For a mobile operator, infrastructure Capital Expenditure (CAPEX) and network Operating Expenditure (OPEX) represent significant portions of spending, and with the lower Average Revenue per User (ARPU) being available in more remote and rural areas, operators have been looking for ways to minimise these costs.

To reduce infrastructure CAPEX operators have been sharing sites with other operators to reduce if not eliminate the CAPEX spending on infrastructure.

Energy expenditure represents a significant portion of network OPEX costs (approximately 40%) and with the emergence of renewable energy solutions for powering base station sites, operators have been able to cut their network OPEX spending by implementing these solutions.

These two cost savings methods have independently been effective in reducing the CAPEX and OPEX expenditure respectively, but in the past have not been able to be used together to maximise cost reductions. This is because at shared sites the cumulative power requirement of multiple operators reduces the financial viability of renewable energy solutions. In the past it may not have been possible, but Bharti Infratel has found a way to take advantage of both savings techniques simultaneously.

Through an interview conducted with the Bharti Infratel team, they explained how they were able to make this achievement.

With a site that can be used for a single operator or by multiple operators, the power load of the site is variable and as such Bharti Infratel needed to devise a system that was highly scalable, adaptable, and standardised to be able to work in a site sharing environment and on a large scale rollout. Given the regional climate conditions in India, Bharti Infratel found that the best base equipment is a solar/diesel hybrid. Solar panels are modular in nature which allow for an increased scalability that is not available with wind power or other renewable energy sources.

Bharti Infratel uses a modular approach whereby they add additional solar panels as new operator tenants are added to the site. The modular approach can cover a range from one outdoor Base Transceiver Station (BTS) (0.85kW) up to 3 outdoor BTS (3.3kW).

The same modularity that exists with the solar panels does not exist with the battery bank. More careful analysis needs to be done in order to determine the changes to the battery bank when the site load increases. If an initial system is installed and then





there is an increase in the power requirement, meaning the battery bank must be upgraded, a parallel battery bank is added if the initial system was installed less than 6 months before. If the existing system is more than 6 months old then a complete health check of the existing battery bank is carried out and an assessment made as to whether complete replacement of the battery bank is required, or not.

In its endeavour towards energy efficiency and cost reduction, Bharti Infratel has set an initial target of deploying 2000 renewable energy sites. This helps in reducing diesel usage drastically, lowers the cost of operation in addition to reducing environmental impact. The payback period, calculated for the 2000 planned sites, varies between 2 and 3 years depending on the configuration.

In the first phase, 500 sites were completed by March 2010 and balance of 1500 sites will be installed during next financial year 2010 to 2011. This initiative, which is the first of its scale for an Indian Passive Telecom Infrastructure provider (tower sharing), would result in estimated savings of US$16.67 million per year. The project would also result in an estimated reduction of 58,170 tonnes of CO_2 emissions per year, thus helping in the mitigation of global warming potential.

Bharti Infratel is leading the way for operators and tower sharing companies into an era of greener, cheaper and more efficient methods of powering sites while maximising the benefits of site sharing and passive infrastructure outsourcing.

Quote from CEO

"Bharti Infratel, as one of the biggest Passive Telecom Infrastructure providers in the world, has a strategic imperative to not only deliver energy efficiency to all its customers, but also from an environment standpoint, to continuously innovate and pioneer clean technology adoptions that lead to more efficient utilisation of the world's resources. Our P7 programme is aimed at these path breaking objectives. We have been at the forefront in using solar power generation and equipment such as direct current-diesel generators and fuel cells to make a significant contribution in creating a greener and environment friendlier world. We intend to lead the global telecom industry in this area in the coming years." Mr Prem Pradeep, CEO, Bharti Infratel Ltd.

Bharti Infratel Company Information

Bharti Infratel Limited is a leading 'Passive Telecom Infrastructure' provider in India. It owns and operates more than 25,000 towers for mobile communications and related telecom infrastructure. The company was founded in 2006 and is based in New Delhi, India. Bharti Infratel Limited is a subsidiary of Bharti Airtel Ltd.