GOING GREEN: METHODS AND INITIATIVES BY TELECOM COMPANIES

IN THE INDIAN TELECOMMUNICATION SECTOR

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ABSTRACT

India is one of the biggest and fastest growing telecom markets in the world and this is evident from the fact that more than 200 million rural subscribers are set to come into the picture by the end of 2016. Faced with growing evidence that their lifestyle choices are tightly intertwined with environmental consequences, many consumers are "going green"— and they are willing to pay to do so. The trend toward green is starting to influence all industries, but strategies and services are still nascent and efforts are afoot, all over the world, to find measures to deal with this issue. Telecom players that can position themselves to take advantage of this demand—through their choice of components, adjustments in the carbon footprint of their operations, or establishment of a full green proposition including devices and the 4Ps—will be able to create compelling differentiators that drive consumer purchasing. This paper is an attempt to study the methods and initiatives taken by the telecom companies for going green and joining the league of environment friendly organisations.

KEYWORDS: Going Green Concept, Environmental Issues, Initiatives, Green Telecommunication

INTRODUCTION

Climate change is one of the most compelling global challenges of our time. There has been a considerable increase in the average temperature of the earth in the past century. This rise in temperature is attributed to the effects of global warming brought about by the accumulation of greenhouse gases (GHG) in the atmosphere. The reason for increased GHG, mainly Carbon Dioxide (CO_2), is because of the increased energy consumption which results in emission of pollutants and the sad part is that energy consumption from telecom networks is an increasing contributor to global greenhouse gas (GHG) emissions. As an ever increasing number of people around the world become connected by fixed and mobile telecommunications networks, the challenges related to providing electricity to these expanding networks are becoming greater as well.

While telecom is relatively energy-lean, the telecom networks are still driven largely by fossil fuel energy and the energy costs represent a significant item. With the devasting increase in energy consumption and rising cost of fossil fuel, it is important that the focus shifts to energy efficient technologies and alternate sources of energy. This makes the network operators to Go Green!!!!

Many of the major operators have already identified the procedures of carbon trading and the benefits it entails. Increasing public demand for corporate social responsibility and a genuine desire to effect positive change in the environment are leading telecommunications service providers and their suppliers to reduce their carbon footprint. Going Green has also become a business necessity for telecom operators with energy costs becoming as large as 25% of total

network operations costs. A typical communications company spends nearly 1% of its revenues on energy which for large operators may amount to hundreds of crores of rupees.

Whether out of compulsion of reducing cost or fulfilling corporate social responsibility (CSR) and projecting a humane face to the society, telecom service providers and manufacturers, all over the world, have taken steps towards greening of telecom. Efficient power management, infrastructure sharing, use of eco-friendly renewable energy sources and cutting down carbon emission over the complete duration of the product lifecycle have been under intense consideration by telecom industry all over the world.

Objectives of the Study

- To study the concept of green telecomm, its need and importance.

- To study the various initiatives taken by telecomm companies in India to go green.

Going Green in the Telecommunication Sector

The need for growing Green in the telecommunication sector was felt because of the need to reduce the cost of operations of the telecom network by reducing energy cost, for expansions to rural areas where power availability is poor; to use various renewable energy technology becoming available at low costs; because of the influence of socio-political trends towards environmental responsibility against global warming and creating sustainability in businesses . The players in the telecom industry can do so by:

- **Green Telecomm:** Networks: this would mean to minimize the consumption of energy through use of energy efficient technology and using renewable sources of energy like solar, hydro. Wind, biomass fuel etc.

- **Green Manufacturing**: using eco-friendly inputs, energy efficient manufacturing equipment, electronic and mechanical waste recycling techniques and reducing the use of hazardous substances like chromium, mercury.

- **Green Office Building**: optimization of energy power consumption and thermal emissions reduction .and minimization of greenhouse gas emission. Also minimizing paper usage by opting for other electronic modes of communication wherever feasible.

- **Green Waste Disposal**: disposal of mobile phones, network equipment in an environmental friendly way so that the toxic material is not channelized into the atmosphere or ground water.

Initiatives Taken by Indian Telecom Industry

Many initiatives have been taken by players in this sector which includes, "Green power" programmes, exploring the use of a wide range of technologies, such as bio-diesel, fuel cells,pico-hydro, wind and photo voltaic panels:

- **Aircel:** It has adopted green initiatives designed and implemented by Wipro Eco Energy, the clean energy division of Wipro. Aircel was awarded with NDTV Toyota Greenies Eco Award 2010 under the category Best Green Company at an award ceremony in New Delhi graced by the President of India, Pratibha Patil.

- **Vodafone** has adopted energy efficient cooling, alternating diesel battery hybrid mode, reducing the diesel consumption. It has started a campaign, 'Resolve' with the endeavor to create a sustainable models for recycling waste and conserving resources in offices.

- In 6 circles Vodafone has partnered with NGOs, to recycle waste thereby creating livelihood opportunities for youth.

- **Solar Powered Sites** – Vodafone has piloted this concept at 4 sites in 2010, and they seek to replicate this, where there's an absence of grid power. Vodafone foresee a decrease in diesel dependency to the tune of 2.8 MN kg CO_2 per annum.

- **Hybrid Solutions** – Vodafone has deployed hybrid solutions (diesel generator and battery working in alternate mode) at 2200 sites to effectively reduce diesel consumption by 26,28,548 liters or 7 MN kg CO_2 in 2011.

- **Airtel** has been rolling out its "Green shelters" concept leading to major savings in energy consumption by its network in India.

- **Idea Cellular** has deployed solar and bio-fuels on trial basis for their base stations.

- **Uninor** was awarded the prestigious Green Globe Foundation Award 2011 for Best Contribution by a Corporate/Business Enterprise.

- Equipment vendors, tower companies and network service providers are investing heavily in bringing out in bringing out "green products". Adoption of "Green Products" and "Green Process" :

  - **Ericsson** has developed the Ericsson tower tube, which uses natural convection cooling, to reduce feeder loss, resulting in a reduction of up to 40 percent in power consumption.

  - **Huwaei's** has developed single RAN solution based on software-defined radio (SDR) system to truly integrate multiple networks.

- Using energy-efficient equipment for network systems powered by green energy.

- Using solar energy for the power supply.

- Using energy saving and environmentally friendly materials.

- Green supply chain packaging and logistics innovations.

- **BSNL** has taken up pilot projects for 10kw solar plants at 14 sites and wind power project at 6 USO funded sites in Rajasthan, Gujarat, Tamil Nadu, Maharashtra.

- **Bharti Infratel:** Green Towers P7 initiative is a comprehensive energy efficiency and alternate energy programmed covering seven high impact initiatives, which are aimed at reducing diesel usage and therefore the carbon footprint. This initiative includes:

  - Alternate energy sources like solar etc. – these are clean energy solutions and have today proven their case as a strong alternate to conventional sources of energy. Having already deployed these at around 1050 sites (inclusive of 500 nos. of Indus Towers), which has saved 6.9 MN liters of diesel and around Rest. 280 MN.

- Energy efficiency measures like Integrated Power Management System (IPMS) and variable speed DC generators (DCDG) – this has reduced diesel consumption by 1.2 MN liters and already saved Rest. 47 MN across almost 900 sites where this has been implemented.

- Demand side management like Free Cooling Units (FCU) instead of air conditioners etc. substantially reducing the electrical load requirement. This has already been implemented across 3400+ sites, saving consumption of 4.1 MN liters of diesel.

Initiatives by Global Player's

Some of the initiatives taken by telecom players globally include:

- **China Mobile** has one of the world's largest deployments of green technologies to power its base stations. China Mobile had 2,135 base station powered by alternative energy in 2008. Of these 1,615 were powered by alternative solar energy, 515 by solar and wind energy and 5 by other alternative sources. According to a study low-carbon telecommunications solutions saved China 48.5 million metric tons of direct carbon dioxide emissions in 2008 and 58.2 million metric tons in 2009 and projected to deliver as much as 615 tons in carbon savings by the year 2020.

- **T-Mobile**: Active sharing agreements have been entered into by T-Mobile and 3 Group in UK, Telstra and 3 Group, as well as Vodafone and Optus, in Australia, Tele 2 and Telia in Sweden.

- **Swisscom** has successfully implemented its "Mistral Mobile" cooling system at 30 of its BTS, leading to a reduction of up to 80% in the energy needed for cooling mobile network equipment.

- **Nokia** has launched a recycling initiative in many countries (includingIndia) by placing kiosks at public places. The Kiosks are used to collect old phones to be recycled and used. Nokia plants a tree for every phone dropped and provides the customer with a unique URL and instructions with which to view their tree through Google Earth.

- **Alcatel-Lucent's Bell Labs** and partners such as China Mobile, Telefonica and AT&T, have formed a new consortium called Green Touch that vows to develop networking equipment that can cut energy consumption by a factor of 1,000, reducing emissions in the process.

- **Ericsson** has installed more than 200 photovoltaic 'Sunsites' (solar powered base stations) in Morocco, Mexico and Ethiopia, among many other countries.

- **Sprint** has indicated that 75% of the energy used at Sprint's 200-acre headquarters facility in Overland Park, Kan., is generated by wind that makes Sprint the 15th-largest purchaser of renewable energy in the U.S.

METHODS TO BE ADOPTED FOR GOING GREEN-BY TELECOM COMPANIES

Adoption of Energy Efficient Equipment and Innovative Technologies

Energy costs account for more than half of mobile operators' operating expenses and about 65% of this is for the tower site equipment. Therefore, radio network solutions that improve energy-efficiency are not only good for the environment; they also make commercial sense for operators and support sustainable, profitable business. In general larger

equipment have greater energy requirement. Today, such energy – in the region of 10 kilowatt – is being provided by diesel generators, which leave a large carbon footprint. It may be possible to design distributed systems that are spatially separated and together serve a large area and yet requires lesser energy than, say 1 kilowatt at each location.

- **Use of Renewable Sources of Energy**

Renewable energy is energy generated from natural resources such as water, sunlight, wind, rain, tides, fuel cells and biomass sources as energy crops. Renewable energy sources are energy sources that are continually and naturally replenished in a short period of time. In contrast, fuels such as coal, oil, and natural gas are non-renewable. Renewable Energy Technologies (RETs) are those that utilize energy sources in ways that do not deplete the Earth's natural resources and are as environmentally benign as possible. These sources are sustainable in that they can be managed to ensure that they can be used indefinitely without degrading the environment.

- **Waste Management**

Rapid industrial development has led to the generation of huge quantities of hazardous wastes, which have further aggravated the environmental problems in the country by depleting and polluting natural resources. Therefore, rational and sustainable utilization of natural resources and its protection from toxic releases is vital for sustainable socio-economic development. Hazardous waste management is a new concept for most of the Asian countries. The lack of technical and financial resources and the regulatory control for the management of hazardous wastes in the past had led to the unscientific disposal of hazardous wastes which posed serious risks to human, animal and plant life.

- **Better Network Planning**

Network planners can help reduce the carbon footprint in a number of ways. New network design methodologies, radio techniques and site technologies have been developed to reduce energy consumption across the board: from radio equipment, through climate and power systems to radio access networks with a focus on improving both new network roll-out, as well as the operation of existing networks. Energy consumption can be reduced if network solutions and services can be designed to use fewer sites and to reduce energy consumption.

- **Manufacturing Process**

The pressure on businesses to develop strategies which embrace environmetal sustainability has increased dramatically in recent years. Given both governmental and consumer pressure, many companies have become more proactive in their attempts to deliver products and services which do not adversely impact the environment. The mobile industry is seeking to develop its own environmentally sustainable businesses. With regard to mobile handsets, vendors and operators must analyse emissions across the life cycle of the handset from raw material extraction to end-of-life and then put in place policies to reduce direct and indirect emission.

Telecom equipment manufacturers need to carry out research and development of environment friendly equipment which minimize emission from conceptualization to product delivery. The design should promote environmental conservation, quality enhancement and efficient use of resources. The equipment should be designed to lower operational costs by effectively reducing the cost of leasing, electricity, air-conditioning, and manpower. The manufacturer should use renewable materials to manufacture products and recycled materials for packaging as far as possible.

- **Monitoring and Reporting**

It is important to devise mechanisms for telecom industry to have a good monitoring system for the carbon emission and ensuring carbon footprint reduction. Carbon footprint of all the activities needs to be measured and documented. Compliance to international standards and domestic regulations must be continuously verified. It may also be useful to mandate suitable reporting requirement to ensure that standards and regulations are being complied to.

- **Government Support – Subsidies, Taxes and Levies**:

Adoption of green telecom has its own costs and offsets. R&D of energy efficient equipment or those that work on alternate sources of energy requires funds. There is a general feeling that the alternate sources of energy are more expensive as compared to the grid electricity or even that obtained through Diesel Gen sets. When incentive schemes are considered necessary, there could be a number of ways in which they could be worked out:

- Incentives can be given for equipment working on the principle of energy conservation. The equipment that outperforms the threshold set may be given incentive.

- Equipment that uses renewable energy sources may be given subsidy

- Equipment that is spectrum efficient and is able to provide more data rate with minimum bandwidth and equipment which is able to provide radiations of more signal strength with less power consumption can be given incentive

- The operators who utilize non-hazardous materials in telecom as per Kyoto Protocol be given incentives

- There could be incentive plans for operators who implement equipment recycling program

- There could be non-financial incentives to operators/tower companies in the form of technical assistance provided by experts of bodies like GSMA, specifically for feasibility studies.

CONCLUSIONS

Telecom operators and infrastructure providers are already aware of the kind of benefits and advantage the energy efficiency and renewable energy provides and thus a major thrust in switching over to solar power is seen gradually. Energy efficiency, green innovative technologies and integration of renewable energy sources are the only options for the telecom industry to be a part of the low carbon growth for the country. By adopting the suggested measures telecom sector can become green in all fields. Now the Government as well as Telecommunication and Regulatory Authority in India is closely regulating the telecomm sector to make it totally green - all together the the industry players, global players and even the government is working towards the aim to become green telecomm.

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