



15th Mar, 2011

The Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto Road)
Next to Zakir Hussain College
New Delhi – 110 002

Kind Attention: Principal Advisor (TD)

Re: Comments sought by TRAI on “ Consultation Paper on Green Telecommunications”

Dear Sir,

We appreciate the Authority's initiative to heighten the focus of the Indian Telecom Industry on issues related to climate change and thereby make its contribution to the global movement in that direction. Idea Cellular has already taken some key initiatives to reduce the carbon emissions from its network through various initiatives like use of bio-fuels, solar-DG Hybrid power, energy efficient equipment, etc. However, we feel that there is a strong need for the Government to incentivize the movement towards “Green Telecom” considering the high upfront costs involved.

Reference the above-mentioned subject, we would like to submit as follows:

Carbon Footprint

3.1 How should the carbon footprint of Indian telecom industry be estimated?

Carbon Footprint of the Indian Telecom Industry can be estimated by converting the total energy consumption by the Industry (or each Operator) to Kilograms of CO2 emission using the methodology suggested by COAI in its response.

3.2 What is your estimate of the carbon foot print of the fixed, mobile and broadband networks?

The footprint will depend upon the technology / vintage of the instruments, their energy efficiency and fuel mix utilized to power the network. We believe that a detailed exercise needs to be undertaken to reach any reasonable estimates for the same.

3.3 In case of mobile what would be the individual footprints of the radio access network and the core network? How are these likely to change with 3G and 4G technologies?

In a typical Telecom Network approximately 75% of Network Energy consumption goes towards Radio Access Network and 25% towards CORE Network. It is estimated that a 3G BTS will consume 10% extra power compared with a fully loaded 2G BTS. Similar impact is estimated in the case of CORE Network as well. However since 3G rollouts involve



Idea Cellular Ltd -Regulatory & Corporate Affairs Office
1005-6, Kailash Building, 26, K.G. Marg,
New Delhi-110 001
Registered Office : Suman Tower, Plot No. 18,
Sector-11, Gandhinagar - 382 011

Telephone +91 11 2373 0133
+91 99114 40133
Fax +91 11 2373 0135

Website www.ideacellular.com

introduction of newer equipments that tend to be more energy-efficient it is possible that the carbon emissions may actually come down post introduction of 3G.

Carbon Credit Policy

3.4 How should the carbon credit policy for Indian telecom sector be evolved? What should be the timeframe for implementing such a policy?

We feel that in order to develop a carbon credit policy for Indian Telecom, the Government should immediately set up an expert panel with representation from all major players / telecom experts. This panel should define benchmarks for all major equipments and the fuel mix. Ideally such an exercise could be done, once we have the broad foot-print details of the industry.

With respect to the time frame for implementing such a policy, we feel that moving forward these benchmarks can be implemented immediately for all prospective BTS installations as per dates discussed with the Industry while the existing towers can be brought under the scope of the policy over a 3-5 year period.

3.5 What should be the framework for the carbon credit policy?

Following are our suggestions with respect to the framework required for the Policy:

- a. Lay down standards for calculating Carbon Foot Print of Telecom Network & start publishing a Carbon Foot print Dash board among operators. For doing the same, the TRAI should ideally first study similar practices being followed internationally. A case in point could be the European Union's - "Emissions Trading System" that involves awarding carbon credits to companies performing better than the prescribed benchmarks, while the players falling short of the benchmarks need to purchase the carbon credits to make up for their performance deficit.
- b. Encourage voluntary initiatives in the Industry for Green Policy compliance and emission reduction. Give a time period of about 3 - 5 years for existing BTS's to reach the targeted emission levels laid down in the Telecom Industry Carbon credit policy
- c. Exempt Taxes, duties, etc for importing Green Energy/Renewable energy Technology and raw materials from anywhere in the world. Further provide incentives for setting up Renewable energy sources.
- d. Provide Regulatory support for Power Generation and Distribution from Green/Renewable sources so that Telecom companies or its Partners can generate it anywhere in the Country and offset it against their use anywhere else in the Country.
- e. Regulation should facilitate collaboration between companies for Renewable energy power generation, distribution and consumption, for example
 - a. Allow Power wheeling across India so that Wind energy generated in Tamil Nadu by Company 'X' can be credited against electricity consumption of Telecom Operator 'Y' in Delhi or Solar Energy generated in Rajasthan by Company 'A' can be credited against consumption of Telecom Operator 'B' in Kerala.
 - b. Allow Renewable energy Generation credit to be off set against thousands of distributed consuming points. In other words, 1Mwh generated in Rajasthan could be credited against the consumption of, say 1000 BTS Sites, in Kerala
- f. Give monetary incentives for compliance against targets on time, ahead of time, etc
- g. Institute National awards for recognizing outstanding efforts in the area of Green Telephony once the policy is launched.

3.6 What should be the metric to ensure success of the carbon credit policy in reducing the carbon footprint of the telecom industry?

We believe that the only relevant metrics should be the Green House Gas (GHG) Emissions and the power efficiency of the networks.

Availability of Power

3.7 What proportion of tower infrastructure is in rural areas? Please comment on the grid/electricity board power availability to these towers.

Statistics for Idea Cellular are as follows:

- a. 53% Idea Sites (Approximately 38000 Sites) are in Rural areas.
- b. 10% of the Sites do not have Grid power & 50% of the Sites have <12hrs grid power

However, it may be relevant to note that the power situation is erratic not only in rural areas but even in some urban areas.

3.8 To what extent can active sharing reduce the carbon footprint and operational expenses?

Reduction in Carbon Footprint in the case of Active sharing is dependent on the kind of Active sharing being done. Some possible scenarios are listed below,

- a. *Spectrum Sharing*: Same Hardware radiating for different operators; this is one of the best case scenarios in a multi operator environment like India. Incremental carbon emissions due to high capacity hardware are almost negligible compared to the scenario in which independent hardwares operate for different operators. Further, this active sharing model not only introduces savings in direct emissions, significant emission reductions can also be achieved indirectly due to lesser requirement for hardware manufacturing, logistics, e-wastage, etc. In this model there is a high potential for savings in operational expenses also owing to lesser use of resources for operations & maintenance, lower energy cost, etc. Presently this model is not permitted in India. Other aspects of spectrum sharing shall need a separate discussion in any case.
- b. *Sharing of antenna, feeder cable*: This type of sharing does not have any direct impact on emissions but there is an indirect impact of saving emissions through reduced logistics, E-waste, etc. There is no significant savings in operational expense.
- c. *Sharing of BSCs/CORE Network*: In this sharing model, there are savings in energy consumption, direct and indirect reduction in emission, OPEX savings, etc. No data is currently available to quantify the reduction in emissions due to active sharing in CORE Network.
- d. *Intra-Circle Roaming*: In this model the Emission reduction possibility is almost 100% compared to having independent operations. The potential cost saving is also significant.

To conclude, we feel that active sharing will definitely reduce the carbon footprint / operational expenses although the impact would vary with the kind of sharing undertaken. However, the regulatory aspects involved shall need a separate discussion.

Domestic Efforts for Reduction of Carbon Footprint

3.9 What proportion of non-grid power supply to towers in rural areas can be anticipated to be through renewable sources of energy in India in the next 5 years?

We feel that If sufficient support is provided through various Tax/duty incentives and Regulatory interventions, in 5 years time 90% of the off-Grid Towers could potentially be powered through renewable sources. However, the renewable energy source chosen for support would need to have high reliability and servicing levels.

3.10 How much saving accrues per tower if supply is through a renewable source instead of diesel for towers that do not get grid power for 12 hours or more?

The savings per Tower, if supply is through a renewable source instead of diesel would vary depending on the kind of solution deployed and is likely to be in the range of 20% to 35%.

However, while the operational cost is lower, the savings accrued on account of renewable energy should be mapped against the CAPEX requirement on equipment and technology.

3.11 How can migration to renewable sources be expedited?

Migration to renewable sources can be expedited by bringing in market measures. The sooner the renewable energy sources become cheaper to the DG option, the sooner will they get adopted. To incentivize the same, the following measures are suggested:

- Offering of carbon credits to operators using eco-friendly fuels to power their exchanges and mobile base stations.
- Waiving of all Taxes and Duties on import of Technology from anywhere in the World
- Allowing generation of Renewable Energy anywhere in the country and permitting it to be offset against the distributed consumption of Telecom Sites spread across various geographies of the Country.
- Provisioning of low cost Capital for deployment of Renewable Energy Technology
- Extension of depreciation benefit for all kinds of investments in Renewable Energy Generation
- Fastracking of projects involving implementation of renewable energy sources through single-window clearances.

3.12 If you are a service provider what steps has your company taken towards use of renewable sources of energy? Have the gains from this move been quantified?

IDEA Cellular has actively engaged in green initiatives over the last few years as mentioned below:

- Use of Bio-diesel: IDEA Cellular has successfully conducted trials to run Diesel Generators using bio-fuel generated from waste cooking oil. The benefits have however not been quantified.
- Use of Solar-DG Hybrid Power: Awarded contract for 200 Sites. On successful completion of the project we expect a cost saving of approximately 25% in energy cost for these sites.

Through the above experiments, IDEA Cellular has made an attempt to bring down the lifetime cost of clean energy options closer to the diesel option. However, in our experience, the cost of clean energy options shows lot of sensitivity to changes in location.

Methods for Reducing Carbon Footprint

3.13 What should be the metric for certifying a product green?

We feel that a product should be marked green only if its emissions of GHG are within specified limits or if it has extremely high (>95%) energy efficiency. However, to allow the Indian telecom industry to be closely aligned with international practices, it is strongly recommended that the same be looked into closely by the TRAI in discussion with all stakeholders

3.14 Who should be the metric for certifying a network or service as green?

We feel that there should be a body like the BEE (Bureau of Energy Efficiency) certifying individual components. Whole networks could be certified green if its overall GHG emission is lower than a defined benchmark. However, any such Industry body should only be constituted after complete discussions with all stakeholders.

Adoption of Energy Efficient Technologies

3.15 As a manufacturer/service provider have you started producing/using energy efficient telecom equipment? How is energy efficiency achieved? Please explain.

As a service provider we constantly evaluate the lifetime cost of all equipment and hence try adopting energy efficient equipments in all new installations. In the past we have:

- Moved to Out Door BTSs that do not require Air Conditioning.
- Our BTSs presently in use are capable of latest energy-saving features such as Power Save Mode, Automatic power Off, etc. BTS transmitters can also be selectively switched off during times of no traffic.

3.16 How does the cost of energy efficient and the normal equipment compare?

Normally the energy efficient equipments are dearer by about 20-25% in terms of their upfront costs.

Use of Renewable Energy Technologies

3.17 What are the most promising renewable energy sources for powering telecom network in India? How can their production and use be encouraged?

We believe that reliability of servicing and cost are the two most important criteria affecting adoption of any technology in the field of renewable energy. In this regard, we are enthusiastic about

- Solar Hybrid Solution
- Fuel Cell using Hydrogen Or CNG
- Wind Turbine

However, it is our belief that fuel cells are the most promising technology and given the right regulatory impetus through subsidies and local manufacturing can prove to be an effective source of renewable energy.

3.18 What is the potential of infrastructure sharing in reduction of energy consumption?

We strongly believe that Infrastructure sharing has got a major role to play in optimizing energy consumption and should be encouraged and incentivized through various enabling measures.

Waste Management

3.19 What is the current procedure for storing, disposing and recycling telecom waste by the service providers and manufacturers?

The current procedures are as follows:

- Storing: The equipments are usually stored in Warehouses
- Disposing: Once the equipment lives through its productive life, it is scrapped by us as per norms.
- Recycling: Idea Cellular is not involved in any recycling as on date. However, it should be recognized that there is no organized Telecom hardware recycling process that currently exists in India.

3.20 How can waste management be more Green?

We believe that regulatory guidelines should be developed to provide guidance on how each category of telecom waste is to be handled. Further, financial incentives should be instituted to drive high adoption of waste recycling and waste management practices.

Better Network Planning

3.21 What steps can be taken by the service providers in planning green networks?

Even while there is a higher than normal upfront cost involved in adoption of energy-saving equipments, the following actions could result in green networks:

- Selection of only most energy efficient Telecom hardware for deployment
- Incorporation of all features which help the hardware to operate on an optimum consumption level.
- Installation of energy efficient electrical infrastructure at the Site with optimum DG capacity and accurate AC Rating (*where ever applicable*)
- Induction of coverage enhancing Antennas which can give coverage to a bigger area compared to conventional antenna (*In applicable locations*)

In other words, planning for green networks shall essentially involve a shift in the way the operators plan their networks – i.e., looking at the total energy consumed as a key decision making metric along with the cost of operating the network.

However, as already submitted, incentives in the form of tax benefits should be considered for operators wanting to adopt energy-saving equipments as they involve higher upfront costs compared with the normal equipments.

Standardization of Equipment

3.22 What standards do you propose to be followed in Indian telecom network for reducing the carbon footprint?

GSMA has been trying to develop a standardized, global methodology for measuring energy consumption and carbon emissions in view of the absence of a universally acceptable rating standard for the telecom sector. Hence it may be worthwhile to look into the standards being developed at their end.

Additionally, other available international standardizations such as EARTH, GeSI, NIST, ETSI, etc could also be studied and discussed in greater detail to assess their applicability to Indian Telecom and finalizing the steps for reduction of carbon footprint.

3.23 Who should handle the testing and certification of green equipment and networks?

Since testing and certification of green equipment and networks is a specialized activity, BEE or any specialized agency constituted on similar lines should be made responsible for the same. However, any such Industry body should only be constituted after extensive discussions with all stakeholders.

3.24 How can manufacturers help in reducing GHG across the complete product life-cycle?

We feel that manufacturers could be involved through voluntary agreements that promote carbon footprint reduction during manufacturing along with proper waste recycling.

3.25 What should be the rating standards for measuring the energy efficiency in telecom sector?

As already mentioned, currently there are no universally accepted rating standards to measure energy efficiency in the telecom sector and there is therefore the need for a detailed analysis to arrive at a standard that could be applied to Indian Telecom. However, till such time as a proper mechanism is in place, the following Rating standards may be looked at:

- Kwh per TRX per Hour
- Kwh per Subscriber per Hour
- Kwh per Minute per Hour
- Kwh per Erlang per Hour
- Percentage of DG Power in the total power consumption of the Network
- Percentage of Power from Renewable Sources in the total power consumption of the Network
- Amount of power generated from Renewable/Green sources by the Operator as a percentage of total power consumption of the Network.

This list is indicative only.

3.26 Please give suggestions on feasibility of having energy audit in the telecom sector on the lines of energy audit of buildings?

We are of the view that once the rating standards have been framed and finalized, telecom companies may follow a self-certification program and build up internal auditing systems for the same.

3.27 What should the monitoring mechanism for implementation of green telecom?

It is our belief that the monitoring mechanism could be on lines of Bureau of Energy Efficiency's (BEE) – "Perform, Achieve and Trade Mechanism" that is followed by it for all energy-intensive industries in india.

3.28 Who should be the monitoring agency?

We feel that the Monitoring Agency could be either BEE or any specialized agency constituted on similar lines. However, any such Industry body should only be constituted after discussions with all stakeholders.

3.29 What type of reports can be mandated and what should be the frequency of such report?

We recommend the following category of reports:

- Carbon footprint report (Annual)
- Energy Efficiency report (Quarterly)
- Average Emission per User (Quarterly)

However, the methodology and format of reporting shall need detailed discussions with all stakeholders.

3.30 What financial & non financial incentives can be useful in supporting the manufacturers and service providers in reducing the carbon footprint?

We strongly advocate the use of following financial and non-financial incentives to facilitate the process of reduction in Carbon footprint:

Financial Incentives:

- Awarding of carbon credits / Incentives to companies performing better than pre-specified emission / energy efficiency benchmarks, while the players falling short be required to purchase the same to make up for their deficit
- Charging of Zero Tax and Duties for importing Green Technology and transporting it across India without any entry tax, Octroi, local taxes, etc.
- Depreciation benefits already given to Solar be extended to all kinds of Renewable Energy deployment anywhere in India.
- Availability of low cost Capital for deployment of Renewable Energy Technology.
- Subsidies to the extent of 75% of the capital cost be given for all renewable energy deployments in the first three years, anticipating that the costs will come down beyond a critical mass of deployment.
- Viability Gap Funding be also looked at for service providers who deploy renewable energy sources in their mobile networks.

Non Financial Incentives:

- Declaration of Renewable Energy Generation as Basic Infrastructure so that fast track clearances from Local Authorities could be obtained for speedy implementation.

3.31 What R&D efforts are currently underway for energy efficient and renewable energy telecom equipment?

&

3.32 How can domestic R &D and IPR generation be promoted?

We believe that the Government must set up a telecom research fund to boost research and development in the area of designing energy efficient and renewable energy telecom equipment. Grants could be given to reputed Universities and Institutes such as CDoT, IIT'S, BEL, TCOE to encourage R & D leading to creation of Intellectual property rights.

CSR and Community Service

3.33 Would it be a good idea for TRAI to evolve a best practices document through a process of consultation with the stakeholders?

○ We believe that it will be a good initiative to evolve a best practices document through a process of consultation with stakeholders. This is because certain options like Bio-mass, etc require a minimum scale and participation of local community. In short, they require more skills to operate. A best practice document will certainly help in quick adoption of such options by other interested parties. It is also recommended that TRAI come out with a "Green Telecom Network Planning Manual" to facilitate planning for Green networks.

We earnestly believe that the Authority will give due-consideration to our afore-mentioned comments before formalizing any guidelines on the issue.

Yours faithfully,
For IDEA Cellular Limited.



For **Rajat Mukarji**
Chief Corporate Affairs Officer

○