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भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
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To,

Principal Advisor (NSL),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg, (Old Minto Road)
New delhi-110002

No.-Regln/1-34/2010/Vol-III (Pt.) Dated: 15th February, 2017

[Kind Attention: Sh. U.K. Srivastava]

Sir,

Subject: BSNL comments on consultation paper on "Approach towards Sustainable Telecommunications".

Kindly refer to your consultation paper on "Approach towards Sustainable Telecommunications" dated 16th Jan, 2017.

In this regard, kindly find below the point wise BSNL comments on the said consultation paper:-

Methodology for calculation of Carbon footprint

1. **What accuracy level may be set for collecting the data and also what should be basis for arriving at its threshold level?**
   BSNL REPLY:
   The existing method for collecting the data of consumption of diesel and purchase of electricity for operation of telecom equipments monthly is with sufficiently high accuracy and the same should be adopted for calculating carbon footprint.

2. **Is there a need for auditing the carbon footprint of a telecom network by a third party auditor? If yes what is the mechanism proposed?**
   BSNL REPLY:
   There is no need for auditing by a third party as the existing methodology of self declaration of carbon footprints is adequate as most of the Telecom firms themselves would like to adopt the policy of becoming "carbon neutral".

3. **Do you agree with the given approach for calculating the carbon footprint?**
   BSNL REPLY:
   We agree with the approach for arriving at the total carbon footprint as a summation of carbon footprints generated by grid power consumption and diesel consumption in DG Sets.

New Formula for calculation of Carbon footprint of Telecom network:

4. **Whether the existing formulae for calculation of carbon footprints from Grid (given in paras 1.16, 1.17 and 1.18) of chapter I need to be modified?**
   BSNL REPLY:
   1.16: Existing approach of TRAI for considering carbon footprint which are under direct control of telecom service provider i.e. emissions from combustion of fossil fuel and usage of electricity should be continued.
   1.17&
   1.18 Existing formula for calculating carbon footprint should be discontinued as it is based on averages and is approximate.

5. **Which emission factors as mentioned in Table 1.2 of Chapter I need to be used for the calculation (Average/OM/BM/CM)? Is there any other factor (s) needs to be considered in the calculation?**
   BSNL REPLY:
   OM (simple operating margin) may be used as emission factor of electricity grids (in tonnes of CO_2 / MWh).

6. **Is the formula mentioned in para 1.22 of chapter I suitable for calculation of carbon footprints with Grid supply?**
   BSNL REPLY:
   The formula $C_{gridpower}$ = (EF*A) tonnes of CO_2 per year where EF is emission factor (in tonnes of CO_2 e/ MWh) and 'A' is consumption of power from the grid by telecom operator in MWh per year is suitable. It is recommended that Carbon footprint need not be calculated telecom network element wise as it is impossible to measure and collect the data of grid power consumption for each telecom network element separately.

7. **Which of the formula (i) or (ii) as given in para 1.23 of chapter I is to be used for the calculation of carbon footprints from the Diesel Generator along with the views on possible values of ø and η.**
   BSNL REPLY:
   Formula (i) expressed as C_{DGSET} = 0.002629 * N tones of CO_2e per year (where 'N' is the total Diesel consumption of the diesel generator in litre in a year) in which the total diesel consumed in a year is used directly for calculation of the emissions from DG Sets should be used.

8. **For calculation of average carbon footprint, which of the options mentioned in para 1.25 of chapter I is to be used?**

   BSNL REPLY:

   Option III is recommended to be used since data traffic is the primary output parameter for a telecom operator with the given input of carbon emission.

Energy Efficiency in Telecom Networks

9. **What are the options available for renewable energy solutions which may be harnessed to their maximum potential to power the telecom sector?**

   BSNL REPLY:

   Quality air conditioning system having in built features of dust control, humidity control, air circulation, temperature control and quality power i.e. voltage within the range as prescribed in Indian Electricity Rules, balanced phase voltage are the primary requirements of all the telecom equipments for their efficient, reliable and optimum performance for which they are designed in order to achieve the objective of quality service.

   Variable speed DC DG is not recommended since there is no DC motor loads as air conditioning load is with AC drives and for telecom equipment loads constant DC voltage is required. It requires multiple conversions DC to AC and again from AC to DC. The aim of all the telecom operators is to minimize the use of DG Sets.

   Since most of the telecom operators would like to go for renewable energy solutions, the use of Gen X which converts DC power to AC power without integration, synchronization and priority selection of various sources of power will not be able to give total power solution.

   Use of fuel cells as a source of energy in stationary applications like Telecom installations is not recommended as large amount of CO2 is produced in its process cycle and it is an oxygen depleting system.

   Solution:

   Hybrid systems with Solar/Wind as primary source of power, Grid power as secondary source of power supply, DG set as emergency source of power supply along with energy storage in battery for powering the Telecom equipments and storage of energy in the form of chilled water for air-conditioning system will be the most reliable and economical renewable energy system.

   Present Status:

   SPV system for 1950 BTS sites (100 MNRE + 19 USOF + 1831 LWE) have been installed till date.

   60 kWp Grid Connected Roof top power plant has been commissioned in MP Circle in the month of January 2017.

   Approval has been conveyed to NE II Circle for installation of 10 kWp SPV Power system for 50 TE Bldgs. / BTS sites in the state of Manipur through MANIREDA (State Nodal Agency).

Renewable Energy targets for Telecom networks

10. **If electricity generated by RET project (funded/maintained by TSP) is also used for community, should it be subtracted from overall carbon emission of a TSP? Please comment with justification.**
    BSNL REPLY:
    YES.

11. **If the RET project is funded/maintained by other agency, should that emission be counted?**
    BSNL REPLY:
    YES.

12. **Approach suggested by the DOT.**
    BSNL REPLY:
    Since there is power purchase parity of RET and utility tariff with CFA provided by MNRE, it is recommended to provide RET solutions for all the feasible sites as per the solution given in point no. 9.

13. **For effective implementation of RET/Energy efficient solutions in telecom sector. How can the industry be supported? Should incentives be provided to licensees (TSPs) ? If yes, what should be the milestone?**
    BSNL REPLY:
    The present Central Financial Assistance (CFA) given by MNRE for providing SPV/Wind systems may be continued and support / incentives may be given by DOT as proposed by TRAI

14. **What methodology can be proposed for setting new renewable energy targets in the telecom sector? What should be the timeframe for achieving these targets?**
    BSNL REPLY:
    Comments given at point no. 12.

Yours sincerely

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