Operator’s strategy: How to bring green success

A.Narayana

04 June 2013



Contents

Green telecom - Vodafone approach

Regulatory requirement

Industry outlook

Energy situation

Renewable Technology Options

Vodafone India strategies , actions

Summary of progress

Challenges and way forward

Green Telecom – Vodafone approach

- Vodafone is committed to reduce its CO2 emissions and combating global warming across the countries where we operate.
- Established program for reducing CO2 emissions.
- Minimizing consumption of energy through use of energy efficient technology, using renewable energy sources.
- Optimal usage of infrastructure, environmental friendly technology selection and safety.

Green Telecom – Regulatory requirement

- The base year to establish carbon footprints : 2011

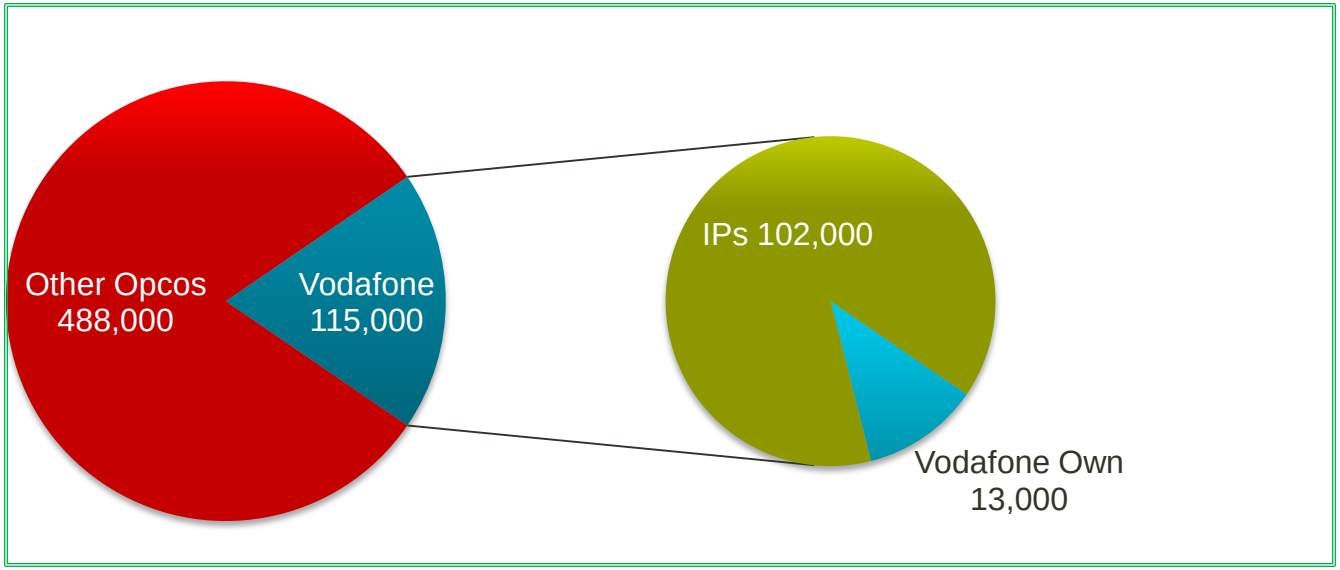
	2012-13	2014-15	2015-16	2016-17	2017-18	2018-19 ..
Carbon emission reduction target	5%	8%		12%		17%
Renewable energy technology - RET			Rural 50% & urban 20% sites (dec,2015)			Rural 75 % & Urban 33% sites (by 2020)
Telecom equipment – ECR			Green Passport →			

- Active equipment vendors to comply – Under discussion with TEC.
- Twice a year reporting to TRAI as per template by OPCo

RET Target for Vodafone	Number of sites
Cumulative Targets By 2015 - 50% rural + 20% urban	44,300
Cumulative Targets By 2020 - 75% rural+33% urban	67,800

90% depends on tower companies

Industry outlook



No. of Base stations -mar'13 (approx)

- Total towers : ~ 400,000
- By 2015 : ≈ 2 Lakh towers to be powered up by RET
- By 2020 : ≈ 3 Lakh towers to be powered up by RET
- Industry estimated investment : 33,000 crores (approx)

High investment, commercial Sustainability ??

Energy situation

- India faces an overall energy deficit of ≈ 8.5% and a peak deficit of 9.8%. Narrowing supply and demand gap represents the biggest challenge.
- Southern region also getting affected by grid instability.
- 65% (approx) towers are located in rural area where grid availability is between 8 -12 hours.
- Many standby generators installed at urban sites are also running for several hours every day
- 6.5 % of towers (for Vodafone) still do not have grid connectivity
- Pilferage , law & order challenges, terrain ..

Lack of stable grid power - continued dependency on DG backup

Renewable Technology options -

Technology	Application	Challenges	status
Solar	Outdoor sites up to 1.8 KW load	shadow free space , south orientation Roof-top feasibility limited. Higher capex, Bulk generation Vs cell site on Solar – maintenance in wide spread geography	Under deployment in select outdoor sites
Wind	Outdoor sites up to 1.8KW load in combination with Solar	Seasonal, location specific – viable in parts of coastal areas	Under evaluation
Fuel Cell	Outdoor sites	Fuel logistics, higher Capex, limited suppliers	Under evaluation
Biomass	Sites with high DGRH	Continuous availability of raw material, transmission of power from generating plants to towers, price demand elasticity, limited vendors	Limited deployment

✓ Energy purchase through RESCO model once concept is established. --- work in progress for Industry

Vodafone India journey towards Green telecom started much earlier

- Infrastructure sharing -- Tower company formation - Indus Towers : 2008
- Reduce power consumption -- 2009
- Deploy solutions to reduce DG run hours – reduce carbon emission --- 2010 onwards
- Awareness among team members , Green culture building -- ongoing

Four step approach – Going Green

Infrastructure Sharing

Continued focus to increase sharing for **optimum Power & Space**

Reduce power requirement

Explore opportunity to **reduce power demand** , deploy more efficient equipment, indoor to outdoor site conversions

Energy Efficiency solution

Deployment of Hybrid battery , DCDG , Free cooling , IPMS , DC air conditioner , Li Ion battery (trial) -- enabling energy consumption reduction / **reducing DG running**

Alternate energy solutions

Deploy solar at GBT sites



Reduce power demands

1. BTS equipment
    - Deploy equipment with latest , efficient technology – lowering power needs
    - Active engagement with equipment vendors
    - BTS for Indian conditions (under trial / testing)

2. Indoor to Outdoor site conversion -
    - Eliminate air conditioner ,
    - For possible Solar deployment candidate !!

3. Core equipment
    - replacing with latest Soft switches saving Power & Space
    - Consolidation of switching centers

4. Virtualizing the data center servers

Sample Photos of Indoor to Outdoor conversion





- BTS is reoriented - partially inside shelter & rest will be extended into outdoor enclosure.
- Air inlet installed on shelter door and fan on outdoor enclosure to provide natural cooling.
- Air conditioners are completely switched off.

Actively engage, share best practices with Tower companies

Alternate energy solutions - Solar

- Solar – deployment of solar solution at off and poor grid sites
- Exploring ideas to increase feasibility
- Fuel cell – under discussion, evaluation







Total Solar installed capacity 1.3Mwp ….

What we have done so far - Summary

- First telecom operator in India to publish a sustainability report since 2010.
- Received ‘Green Telecom Company of the Year 2012’ award.
- 75% of sites with multiple tenancy : 7% VF own managed sites no diesel filled.
- Deployment of various energy efficiency solution at 30% of own sites.
- Achieved reduction of 10.5% diesel , resulting in overall CO2 reduction of 3.6% in FY 11-12 compare to FY10 -11. -- VF own sites.
- Continuous sharing of new initiatives and best practices with tower cos
- Waste management , recycling and disposal polices in place .

Vodafone India proactively had taken definitive steps towards a greener environment

Challenges , Way forward

Challenges	Way forward
Higher Capex	Policy / support for telecom to address viability gap
RET targets - multi layered ; Feasibility limitations rural urban.	Need to review targets ; DG backup needed for running Operations till RETs are mature RESCO model – viable proposition TAIPA, Tower Co to play a big role
Policy support	RET power Generation , feeding at one place : with drawl at any location. Open access / energy trading : 1MW limitation to be reduced
Law and Order	Support to employees , infrastructure; Avoiding pilferage --
Lack of grid power , stable supply	Increase power generation, stable supply

Journey continues towards Green…

Thank you

