taipa

Tower and Infrastructure Providers Association

Business Innovation Green Telecom



GSMA 2012

Leela Palace, New Delhi

11th Sept '12

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Evolving Energy Management @ Telecom

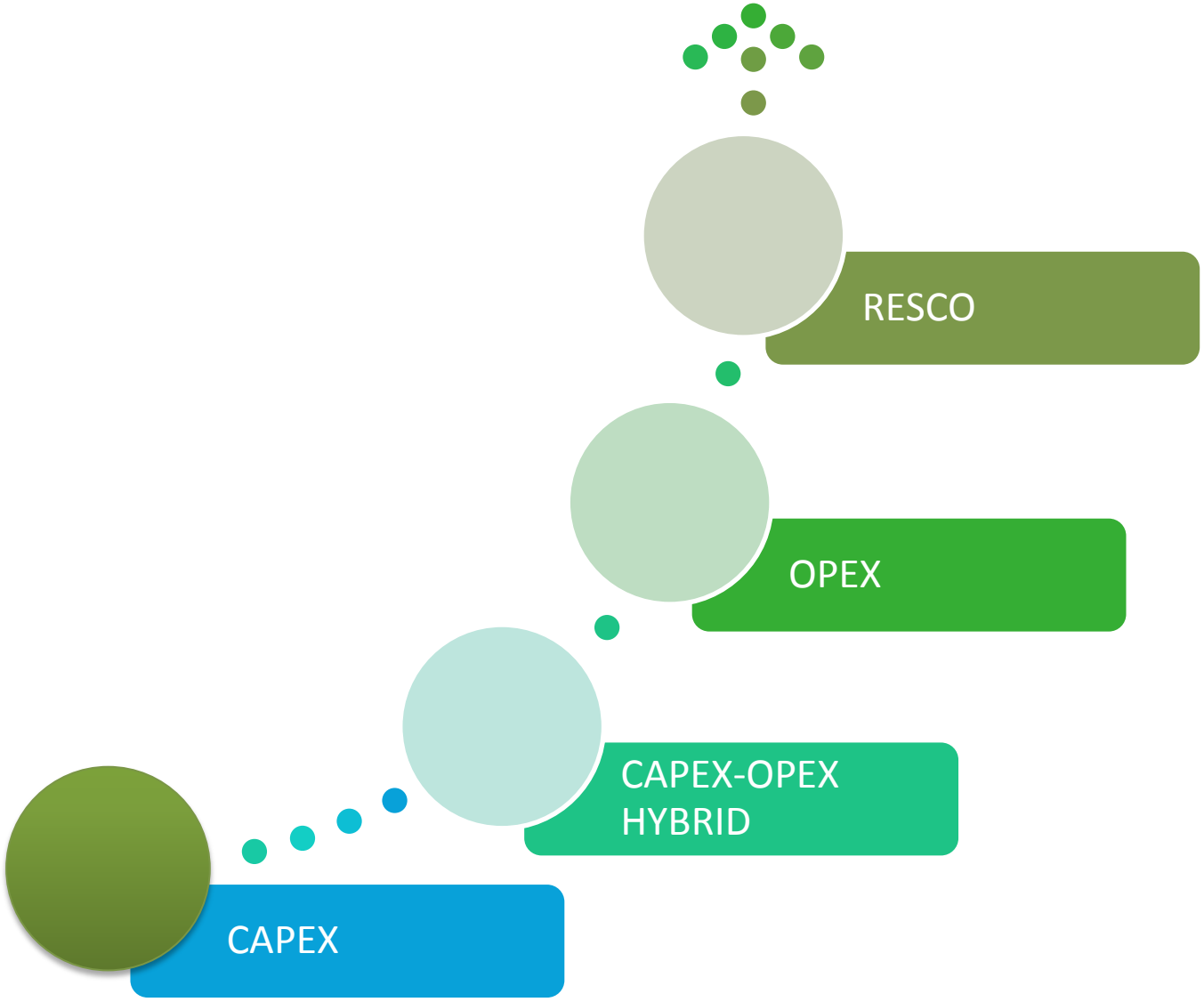


- BTS power consumption
  - Reduced from 2.5 to 1 KW
- BTS temperature resistance
  - Improved
- Required temperature
  - Increased from 27 to 31 C
- EER / COP of Air Con
  - Improved
- Energy Demand
  - Reduced by more than 25%, by Tower (Passive Infrastructure) sharing

- Rectifier efficiency
  - Improved from 90 to 95%
- Power conversion losses
  - Reduced, like DC DG sets etc.
- Losses incurred for isolation and stabilization
  - Saving of 2% at 50 to 75% load and 3 to 5 % at load lesser than that by introduction of SVR size optimization

- Co-operation with professional service companies / Subject Matter Experts
- Development of Innovative models

Evolving Business Models for Green Energy



Green Initiatives



Solar



Solar
Wind



ID
OD



Fuel



FCU

All possible options under trial

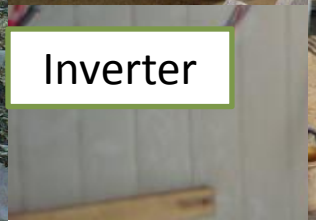


DCDG



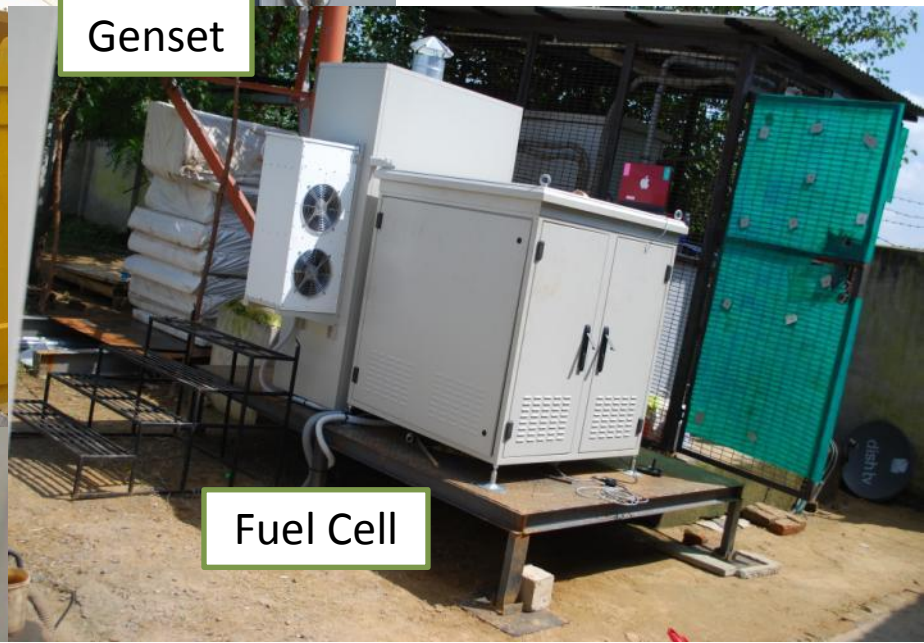
LPG
Genset





Inverter

CNG
Genset



Fuel Cell

Green Innovative Models

500 Planned

15000 +

Green Sites

- Diesel Free site
- Reduced carbon footprint
- Reduced sound pollution

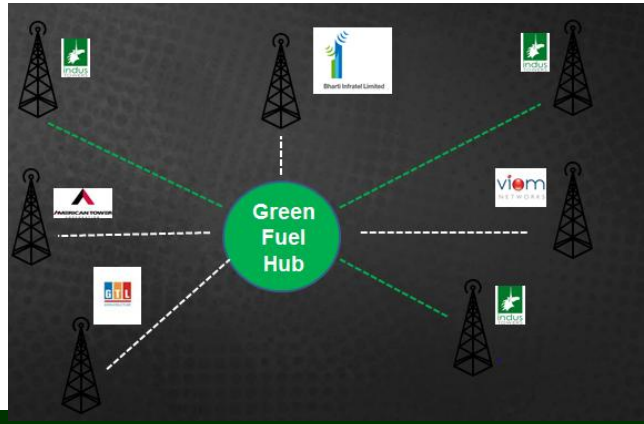
4000

RET sites

- RET – DG – Grid Hybrid
- Long term Contract-10 years
- Monthly Fee
- Increased uptime

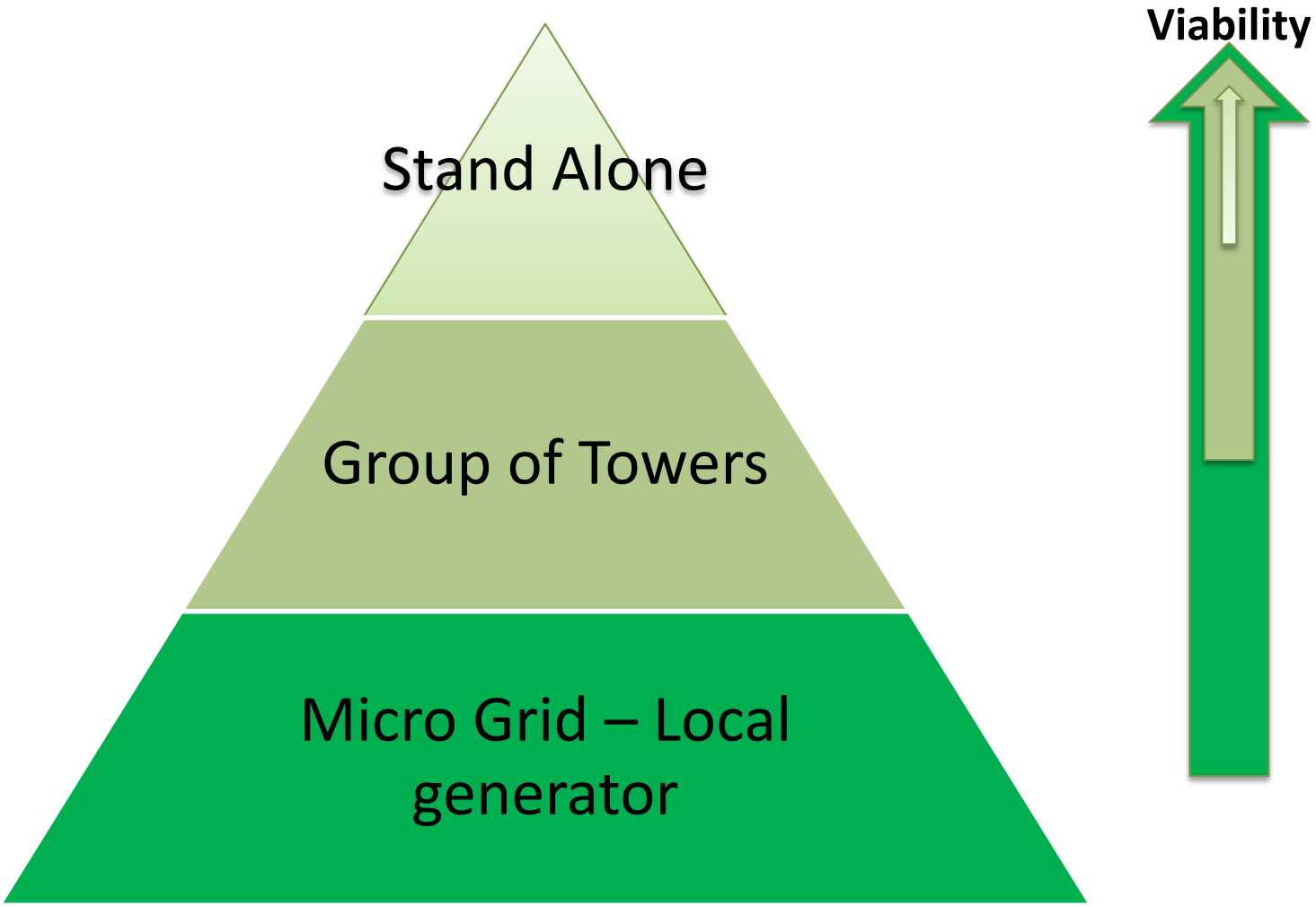
RESCO

- RESCO – Renewable Energy Services Company
- IP Industry Collaborative Approach
- Backup power @ Rs/KWH
- RFP Technical released and bids evaluated
- RFP Commercial released to technical shortlisted bidders



Multi directional approach towards greener telecom

Economy of Scale



Way Forward: Blue Ocean Strategy

Technology

INR A/kilo watt hour

Tower Companies provides scale of economy

Technology → Tower Co

INR A-B/kilo watt hour

Government Support (INR C/kilo watt hour) to Technology providers

Government → Technology → Tower Co

INR A-B-C /kilo watt hour
(Subsidized Cost)

Way Forward: Blue Ocean Strategy

Birth of RESCO (Renewable Energy Services Company) feeding to multiple TowerCos



INR A-B-C -D/kwh

Mature & self sustainable model



INR X/kwh (Grid Parity)

RESCO Concept

- RESCO – Renewable Energy Services Company
- Long term PPA model
- Seeks execution by renewable energy experts
- Supports community power
- Aligns with UN’s mandate for “Sustainable Energy for all”
- Follows global concerns on “Going Green”
- Reduced Carbon Footprint
- Industry effort - All the IP’s will come together and offer their towers
- Enables economy of scale
- Billing on Rs/KWH delivered
- Power on Demand

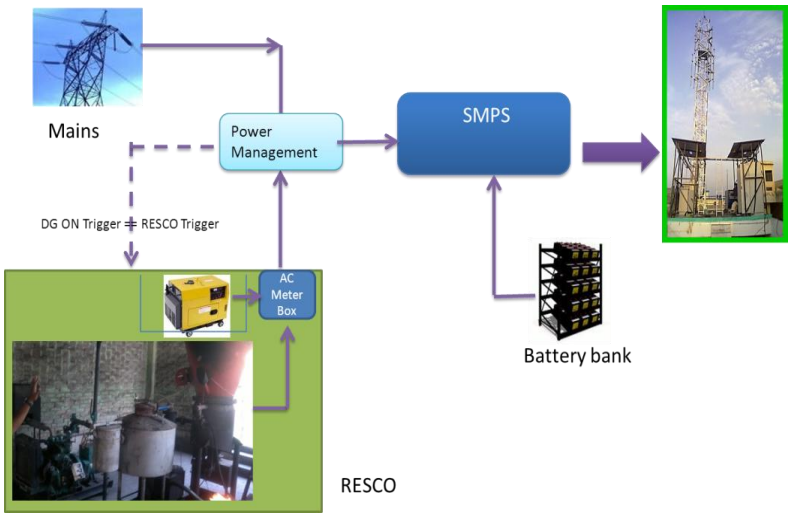
RESCO Inclusive Growth



Illustrations

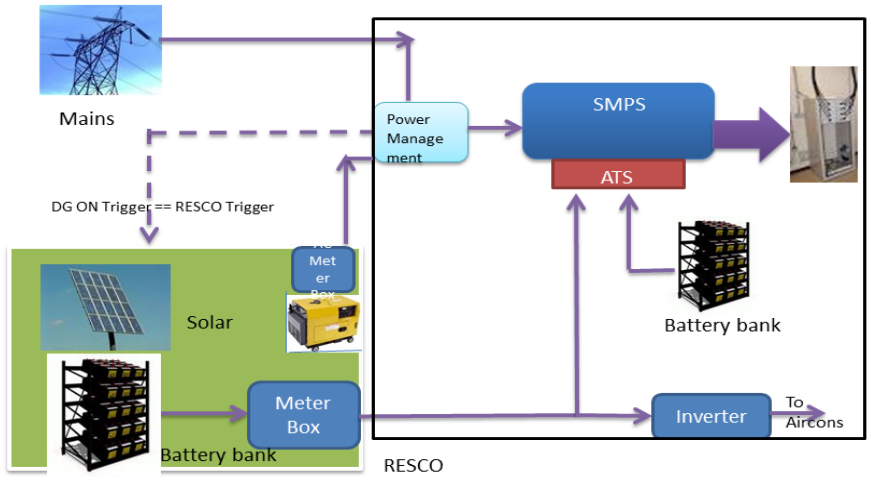
Scenario 1: Power through Biomass / RET AC source

- RESCO to install & maintain its set up
- DG power to be metered through the same meter installed
- RESCO metered power to be routed through the PMS
- DG ON trigger = RESCO trigger



Scenario 2: Power through solar / RET DC source

- RESCO to install & maintain its set up
- DG power to be metered through AC Energy meter, routed via PMS
- RESCO metered power to be routed through ATS
- IP's battery bank insulated from RESCO supply through ATS (Automatic Transfer Switch)
- Inverter to power Aircon
- DG ON trigger = RESCO trigger
- Separate meter for AC power delivered from DG



Deliverables

1. Emergency back-up power (measured in KWH).

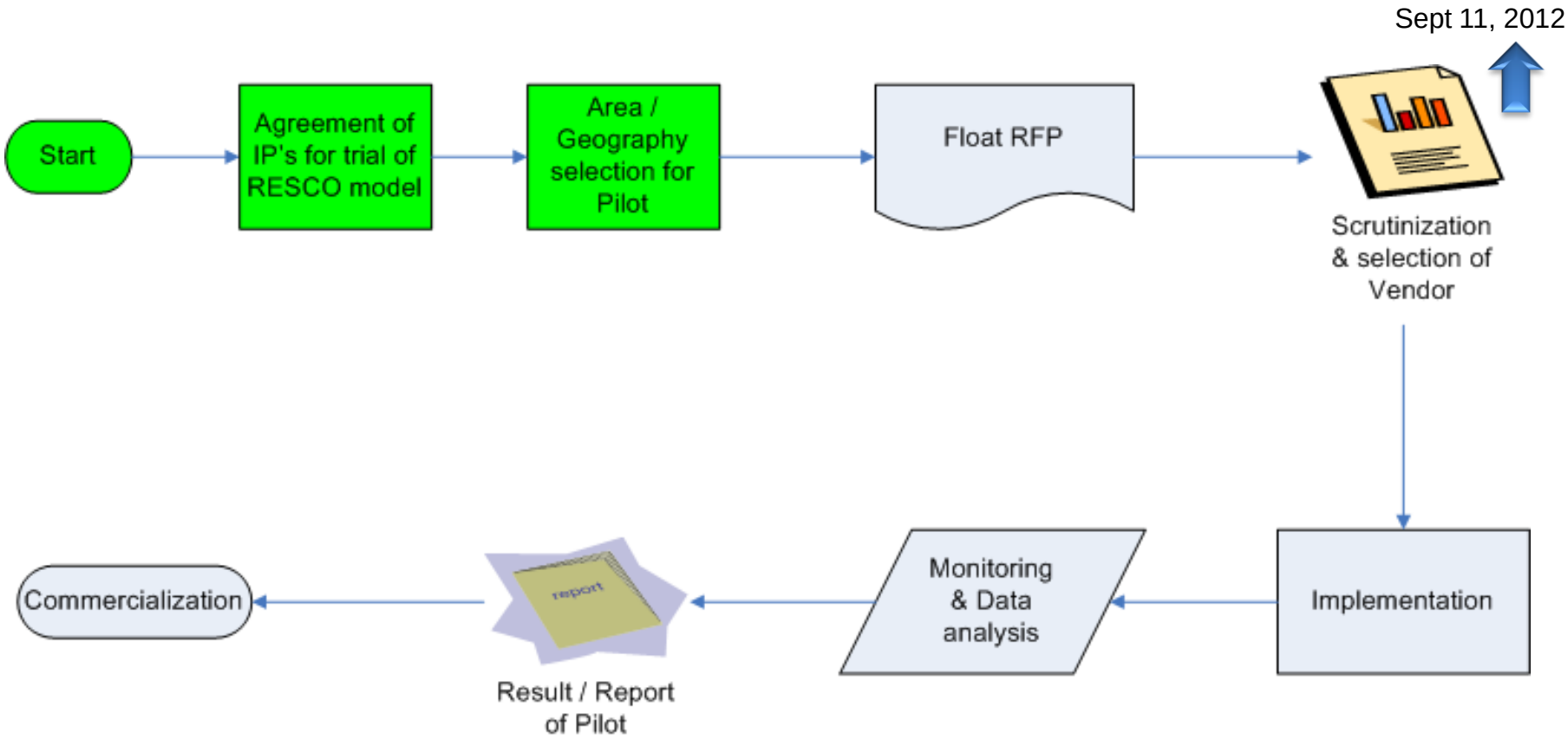
2. Back-up power to be from RET. DG can be used in case of emergency only, maximum up to 10% of total RET power.

3. Un-interrupted supply of back-up power with an uptime of 99.95% or higher

4. RESCO to ensure power availability at site within 10 minutes after trigger from IP.

5. Quality of power required:
    - DC Power, 47 to 56 Volts, Ripple (+/-3%)
    - AC Power, 230 Volts +/- 10%, 50 Hz +/- 5%

RESCO Engagement Process



RESCO update

1. RFP Technical release on 29th June, 2012

2. Proposals evaluated and categorized (A,B,C) as below:

   - Cat A: Tech Bid as per TAIPA RFP
   - Cat B: Tech Bids with slight changes, wrt TAIPA RFP
   - Cat C: Tech Bids are not as per TAIPA RFP

3. RESCOs got engaged for clarifications

4. Total Bids shortlisted – App. 25 Nos.

5. RFP Commercial released to shortlisted bidders on 27th Aug. 2012

RESCO RFP – Next Steps

- Last date for bid submission (Commercial) – 17th Sept, 2012
- Notification to shortlisted RESCOs – 30 days after last date of bid submission
- Discussion / Negotiation with RESCOs – Within two weeks after notification
- Site cluster identification jointly with Towerco & RESCO – Within three weeks after negotiation
- Handing over to Towerco for LOI / PO – Within two weeks after site identification

Query compilation

- Extension of last date for submission of bids – Extended
- Firm Prices / Annual discount – Annual discount applicable for sites installed after such negotiations. The tariff for installed sites remains firm.
- Alternate to / Exception from FDR – Not accepted
- Site details – Will be shared after shortlisting of RESCOs
- Tenancy increase or decreases impacting the total configured power delivery capacity of RESCO - RESCO should mention the flexibility in their solution and the options available to cater to site upgradation / downsizing
- What is MGO? - MGO is Minimum Guaranteed Offtake. This is the minimum amount of power that would be paid for by towerco, irrespective of the power being consumed or not, provided the power was available for off-take by RESCO.
- Tower company to provide CPH assurance for DG & periodic replacement of DGs as required avoiding low efficiency due to wear and tear - Ownership of existing DG on site is to towerco. O&M and new DG in RESCO scope. As DG power will also be billed in terms of Rs. / KWH, concern of CPH does not arise.

RESCO Power Phases

Phase I

- Provide power to primary customers i.e. **telecom tower companies**

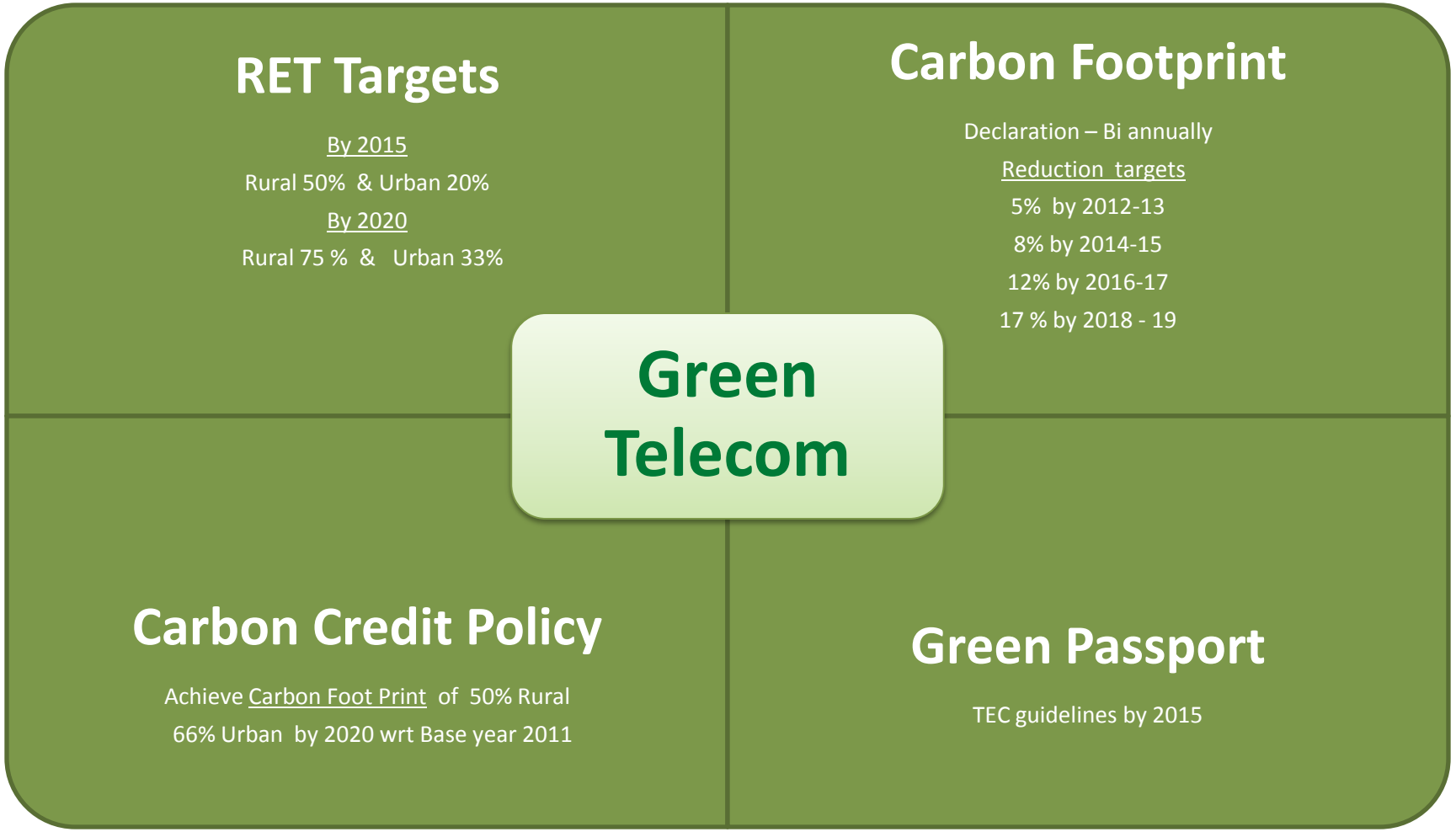
Phase II

- Provide surplus power to local **community** helping in advancement of surrounding areas

Phase III

- Feed the **excess power to GRID**

Green Telecom Directive : At a Glance



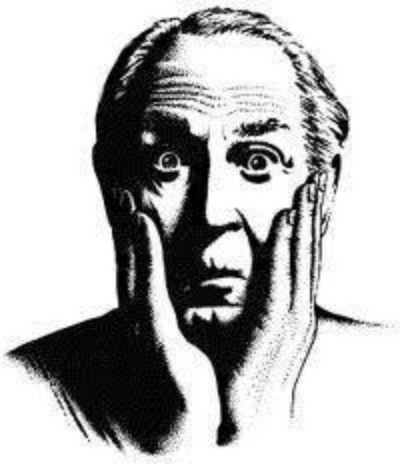
Green Telecom Directive : Financial impact

Annual

Telecom Capex Vs Additional RET Capex (Aprox.)



$3 bn



$1.5 bn

Up to 2020



$24 bn

$ 12 bn

* Same expenditure for next 8 years

Green Telecom Directive : Clarification requested from DoT

Hybrid Power Definition

- RET + Grid with no mention of battery
- Requested DoT to add battery as no technology is sufficient to support 24x7

Formula Correction

- Complex & erratic formula for Carbon foot print calculation
- Requested Dot for correction with TERI recommendation

Targets

- RET & Emission reduction targets are unachievable, technically and financially, both
- Requested DoT with TERI recommendation for Pragmatic targets

Let’s move together



Join hands to save mother earth