Showcasing OPEX efficiency achieved thru' green technology

airtel

airtel bangladesh limited

Content

- Solar system
- Li-ion battery
- DG-Battery hybrid solution
- Airco saver
- Free Cooling Unit (FCU)
- DG free on-grid sites (Conceptual plan)
- Infrastructure sharing
- Network modernization

Solar System: Schematic Diagram

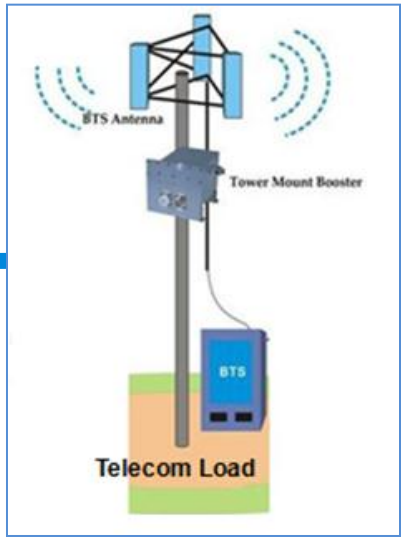
Diesel Generator



Secondary Source



DC power system



Telecom Load



(Battery)



Renewable Energy Source Solar (Primary Source)

Solar System: CBA

Energy cost (BDT) per month	
DG only site	Solar-DG hybrid site
110,000	75,000





Saving 111 Ton CO_2 emission / year

- 7 sites running in Solar-DG Hybrid
- 30 planned in AOP 2013-14

- Saving 12 hr DG run time
- 1 liter diesel produce 2.66 KG CO2
- Ref: www.nef.org.uk

airtel

Li-ion Battery: Fast Charging Battery



BTS Site: SL6117, Load 1.2 KW
Location: Sylhet , Bangladesh
BTS Type: Indoor
Date of Operation : 26-09-2012

Battery Capacity	Available Charging Current	DG Running Time/Day	Battery Backup Time/Day	ROI
160 Ah	80 A	6.5 Hours	17.5 Hours	16 months



- 200 sites planned in AOP 2013-14
- Expected saving of carbon emission 287 Ton CO_2/month
- 50% less footprint compared to tradition battery system

airtel

DG-Battery Hybrid Solution :

10 KVA DG+800AH Battery



Funda:
A combination of 800AH VRLA battery and DG with a smart controller to reduce DG run time

airtel

DG & Battery Hybrid Solution: MY2004





DG & Battery Hybrid Solution : CBA

Site info:

- **Off grid site**
- **Green field (comparatively larger foot print : 1200 mm x 1500 mm + DG)**
- **Load : 1.5 KW**

System info:

Rated Capacity	Available Charging Current	DG Running Time/Cycle	Battery Backup Time/Cycle	DG Running Time/Day	Battery Backup Time/Day
800 Ah	80 A	4 Hour	10 Hours	7 Hours	17 Hours

- ROI : 20 months
- Deployed at 40 sites
- Planned for 250 sites in AOP 2013-14
- Saving 57 Ton CO_2/month

airtel

Airco Saver:





Aircon Capacity	Avg KWh consumption (before) per day	Avg KWh consumption (after) per day	Energy Savings (per aircon consumption)
1 TR	26	21	19%

- Trial done in 10 sites
- Planned deployment 400 sites in AOP 2013-14
- ROI: 11months
- Saves 22.7 KG CO_2 emission /site/month

FCU (Free Cooling Unit):



Site info:

- **On Grid , Indoor, Single site**
- **One AC unit withdrawn**

System info:

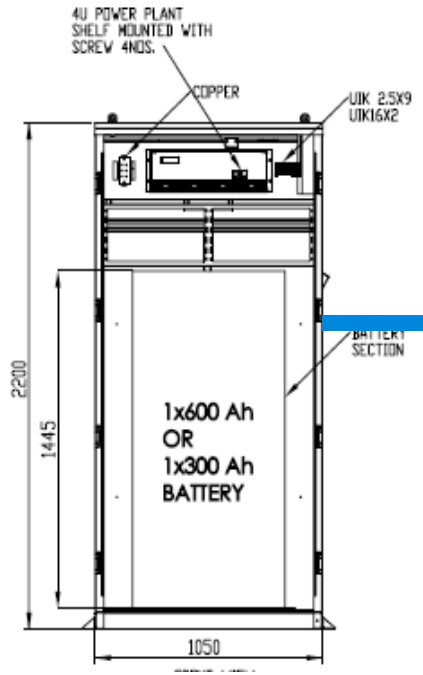
Avg KWh consumption (before) per day	Avg KWh consumption (after) per day	Savings of Energy per site
55	40	28%



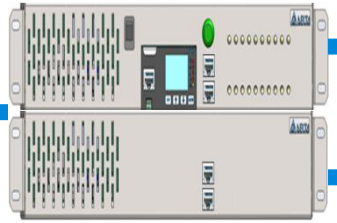
- Deployed in 430 sites
- ROI: 16 months
- Saves 37 ton CO_2 emission/month

airtel

DG free on-grid sites (Yet to start trial) :



Existing Power System



Smart
Controller



Li-Ion Battery - 160AH



VRLA+ Batteries 300AH

- Sites with low commercial power availability (6 hrs/day), 1.2 KW load
- Li-ion Battery to be charged in an hour & will provide primary back up
- VRLA battery will used as secondary power source
- One Smart controller shall control battery on-load

Infrastructure sharing : win-win proposition

- 28% site (70% GF) infrastructure shared with other operators
- 150 more sites planned in 2013-14 AOP

- One 60M tower (12 Ton) fabrication lets 120Kg CO_2 emission
- One 20M tower (3 Ton) fabrication lets 30Kg CO_2 emission
- Saved 120 Ton CO_2 emission from sharing sites already
- Will save 13.7 Ton CO_2 emission in AOP 2013-14

Ref:
18 KG steel fabrication requires 1 KWH power
1KWH power emits 0.1852 KG CO2 (Natural Gas fired)
www.nef.org.uk

Network Modernization

- Swapped 1850 sites by new generation RBS
- 30% energy consumption saved

- Saving 111 Ton CO_2 emission / month
- Saving BDT 5.4M/month

Ref:
0.45 KW power saving per site
1KWH power emits 0.1852 KG CO2 (Natural Gas fired)
www.nef.org.uk

Thank you

