IFC International Finance Corporation World Bank Group

GSMA Green Power for Mobile

In partnership with the Netherlands

airtel

MNO CASE STUDY – DEPLOYMENT OF SOLAR HYBRIDS

Green Power for Mobile Networks

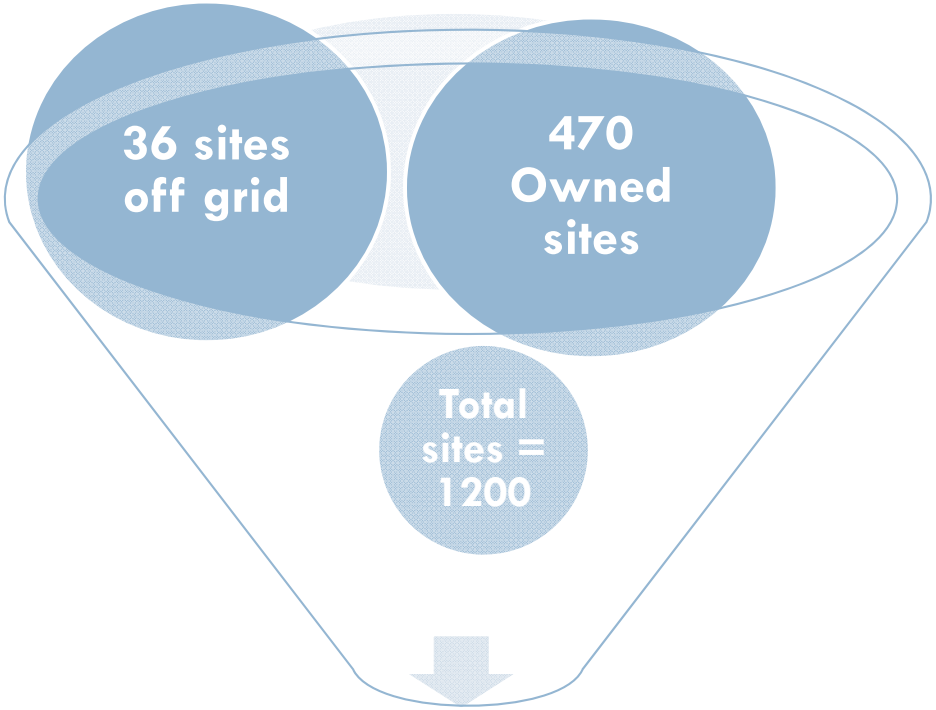
- Introduction
- Pre-Initiative Scenario
- Solution Description
- Outcomes
- Lessons learned
- Next Steps

Introduction

Airtel, is a telecommunications services company which operates in 20 countries across South Asia, Africa and the Channel Islands with over 261 million subscribers.



Introduction



Airtel Ghana Network

Energy OPEX reduction

- **Solar Hybrid** — • Leverage Renewable Energy
- **Low power AC/free cooling units**
- **Indoor to Outdoor site conversion**
- **DG – battery Hybrid deployment**
- **Grid Connections**

Case Study Site Overview

- 2G 900
- 2G 1800
- 3G

DC Load = 2.6kW

AC DG = 20KVA

- 3 Phase
- Deep Sea Controller

- Outdoor Site
- No Grid

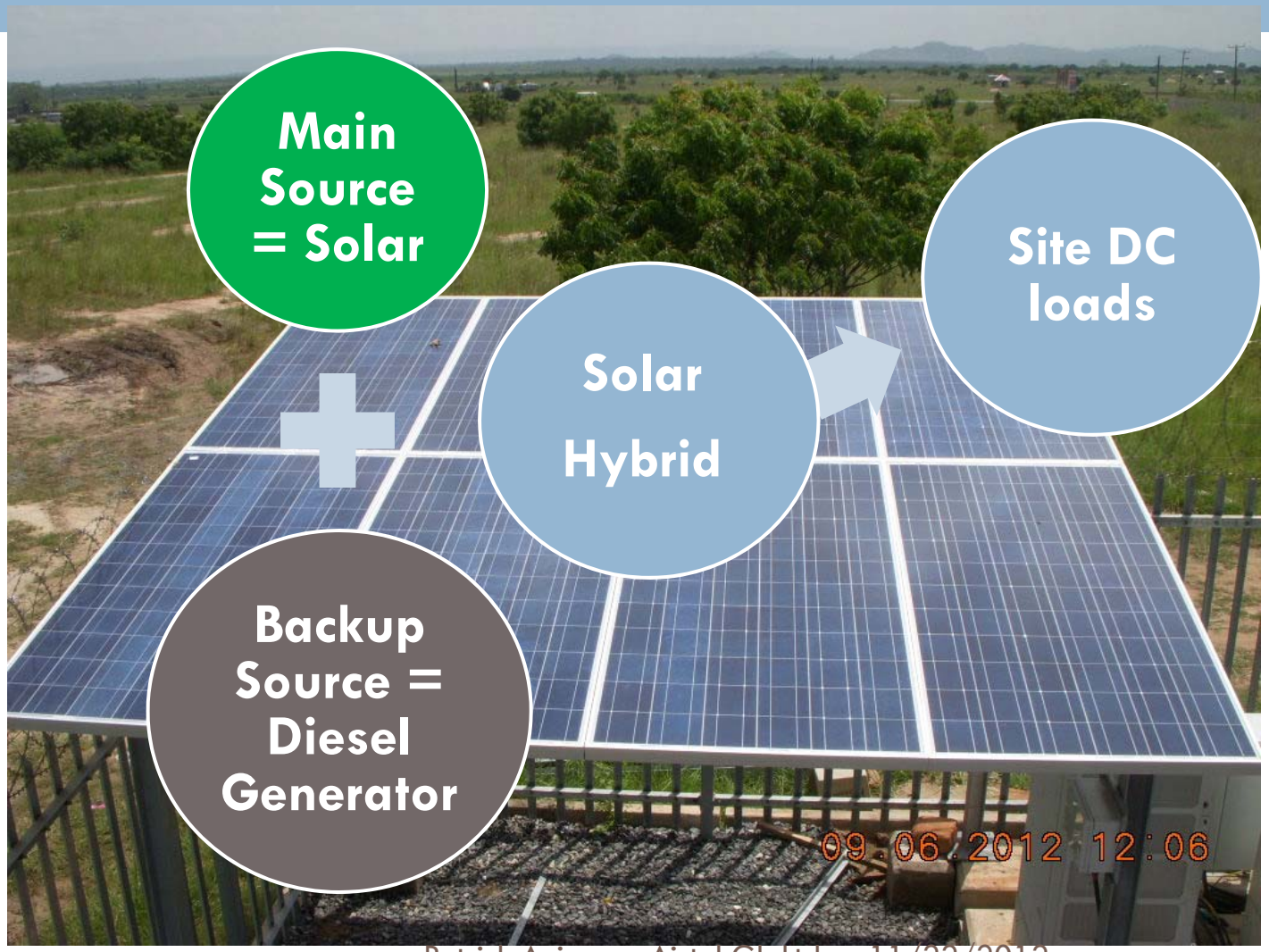
Site ID – GH0104

Pre-Initiative Scenario



- Diesel Generators running 24 hours a day
- Fuel consumption per month = 1900 liters
- Average Energy Cost per month = $ 1860
- Fuel theft losses = 20%
- Generator maintenance charge = $150 per 500 runhours

Solution description



Solution description – Specifications

- 4.3kW solar array
- 760 Ah capacity battery bank
- Dual Solar Charge controller
- System controller
- DC conversion (-48\+24V) + DC Distribution
- 10.5kW rectifier system
- Cabinet cooling
- Remote monitoring and control

Solution description - Implementation

- Transport/Site Delivery = 2days
- Installation = 3 days
- NOC Integration = 1 day

Average of 6 days to implement each site*



* excludes production ,shipping and clearing time.

Outcome –

Before Solar Hybrid Project

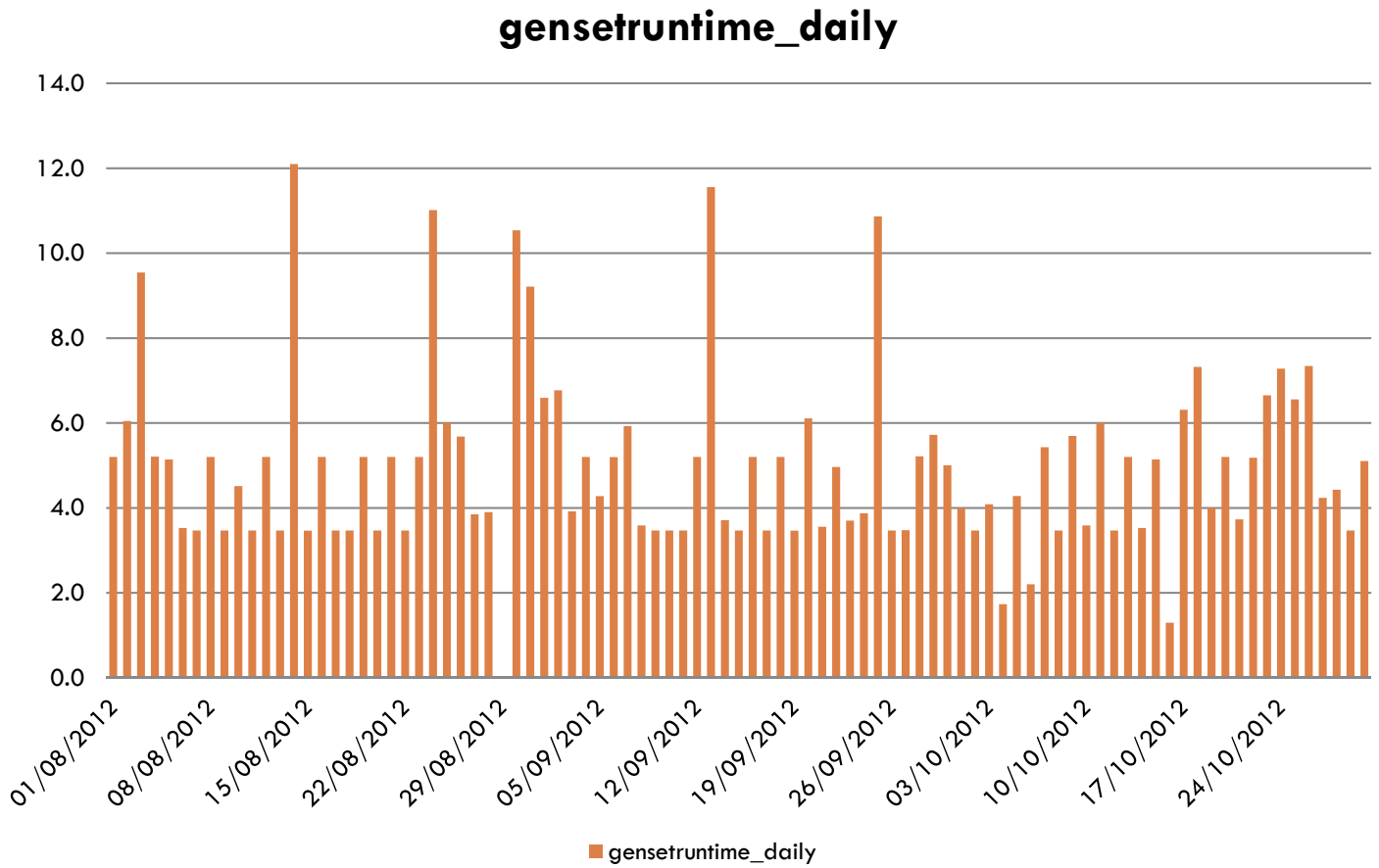
- Average DG runtime per day 24 hours
- Average fuel consumed = 1900 liters/mo
- Energy Cost = $1860/mo
- DG MS = $216/mo

After Solar Hybrid Implementation

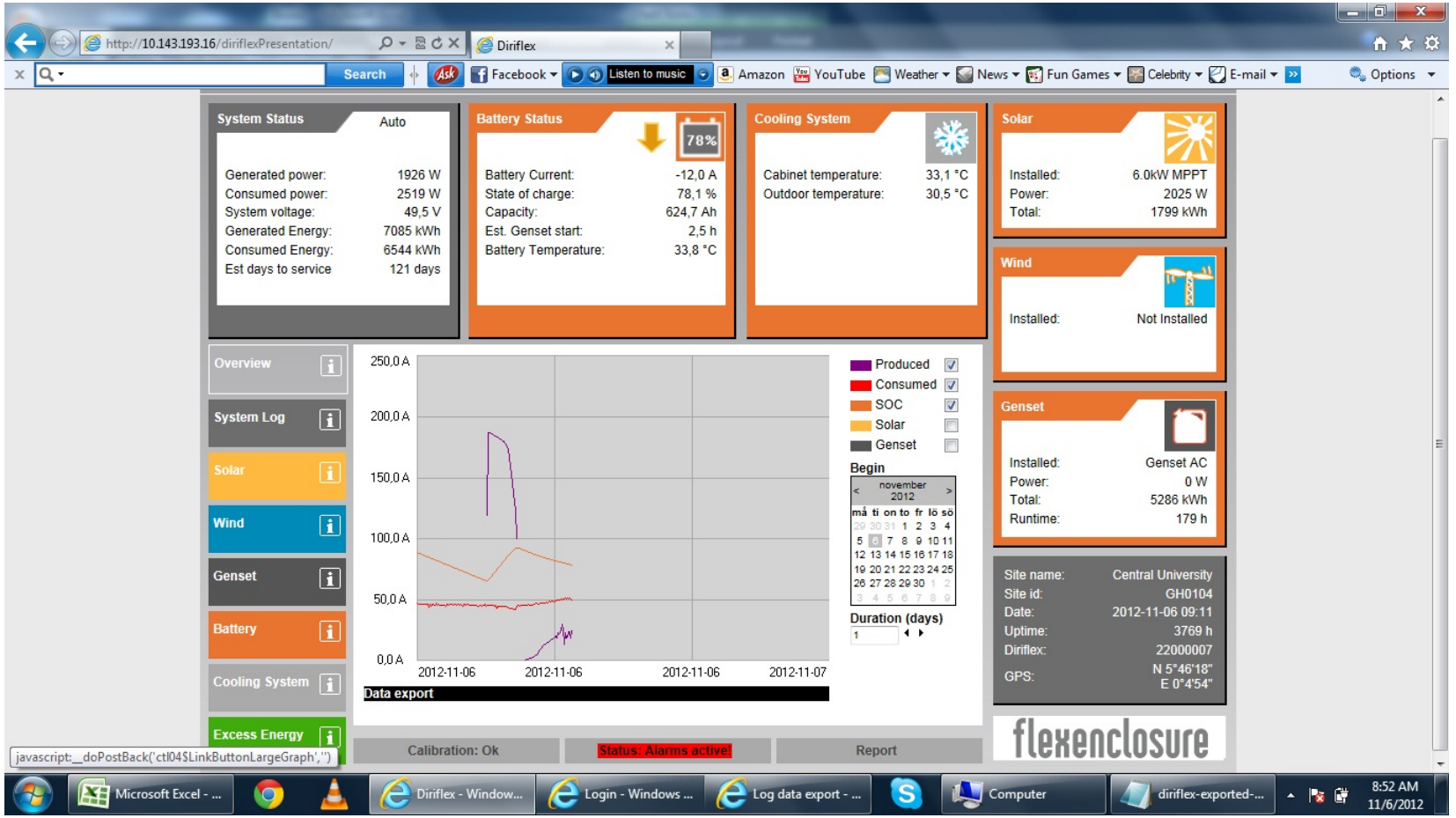
- Average DG runtime per day 4.8 hours
- Average fuel consumed = 500 liters/mo
- Energy Cost = $490/mo
- DG MS = $43/mo

- 1.5k USD savings per month per site
- 74% savings on Energy and DG maintenance cost

Outcome –


gensetruntime_daily
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
01/08/2012
08/08/2012
15/08/2012
22/08/2012
29/08/2012
05/09/2012
12/09/2012
19/09/2012
26/09/2012
03/10/2012
10/10/2012
17/10/2012
24/10/2012
gensetruntime_daily

Remote Monitoring



Solar Hybrid project - photos



Site before
Solar Project

Site after solar hybrid implementation



E-site off-grid solar solution



Battery Bank



E-site system

Lessons

- **Remote monitoring is key for performance optimization**
- **Site Security must be the best in order to protect investment**
- **Diesel Generator reliability is key**
- **Commitment of project partner and maintenance team is crucial**

Thanks