IFC International Finance Corporation World Bank Group

GSMA

Green Power for Mobile

In partnership with Netherlands



Green Power for Mobile Program Outlook

IFC

Country-Specific
Working Group Meeting
Lagos, Nigeria
January 2013

IFC in the World Bank Group

World Bank

IFC

MIGA

	IBRD International Bank for Reconstruction and Development	IDA International Development Association	IFC International Finance Corporation	MIGA Multilateral Investment and Guarantee Agency
	Est. 1945	Est. 1960	Est. 1956	Est. 1998
Role	To promote institutional, legal and regulatory reform	To promote institutional, legal and regulatory reform	To promote private sector development	To reduce political investment risk
Clients	Governments of member countries with per capita income between $1,025 and $6,055	Governments of poorest countries with per capita income of less than $1,025	Private companies in member countries	Foreign investors in member countries
Products	• Technical Assistance • Loans • Policy Advice	• Technical Assistance • Interest Free Loans • Policy Advice	• Investment Services • Advisory Services	• Political Risk Insurance

IFC invests Equity, Senior Debt, Everything in Between



- Corporate
- JV (early equity investments, Infraventures)
- Typically up to 20% shareholding
- Long-term investor, typically 6-8 year holding period

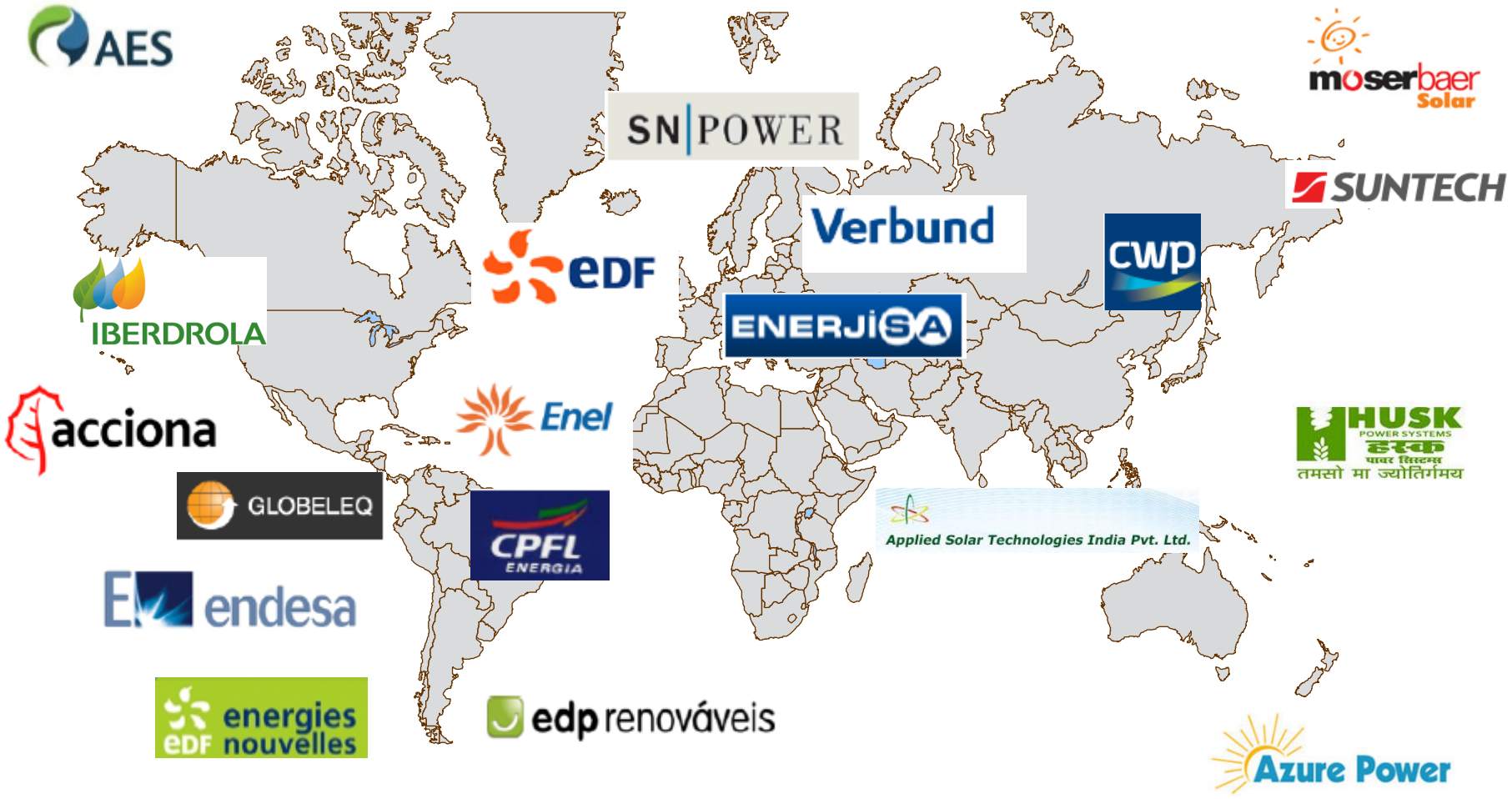
- Any number of structures/flavors of subordination
- Subordinated loans, income participating loans, convertible loans

- Senior Debt (corporate finance, project finance)
- Fixed/floating rates, USD, EUR and local currencies available
- Long maturities: 8-20 years, appropriate grace periods
- Range of security packages suited to project/country
- Mobilization of funds from other lenders and investors

IFC Investment in Telecom, Media & Tech (examples)



IFC Investment in Renewable Energy (examples)

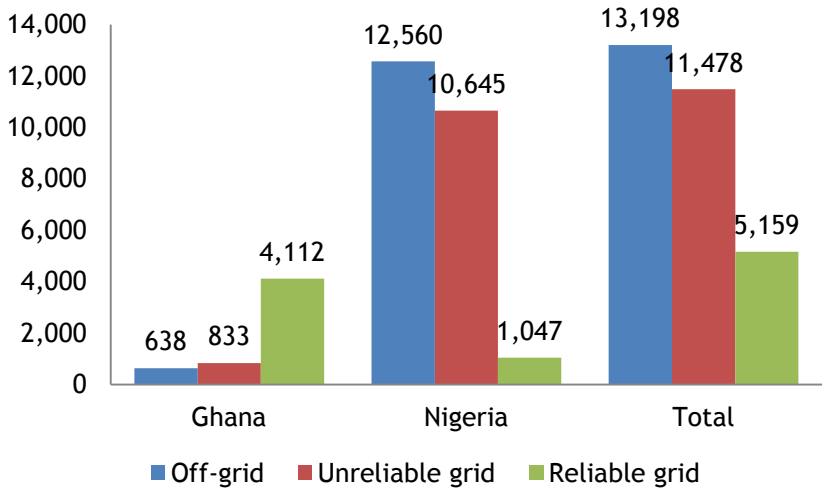


Two Questions

- Why are there not a lot more off-grid sites in Nigeria?
- Why are there so few GPM sites in Nigeria?



Why are there not more off-grid sites in Nigeria?



Sites per power source

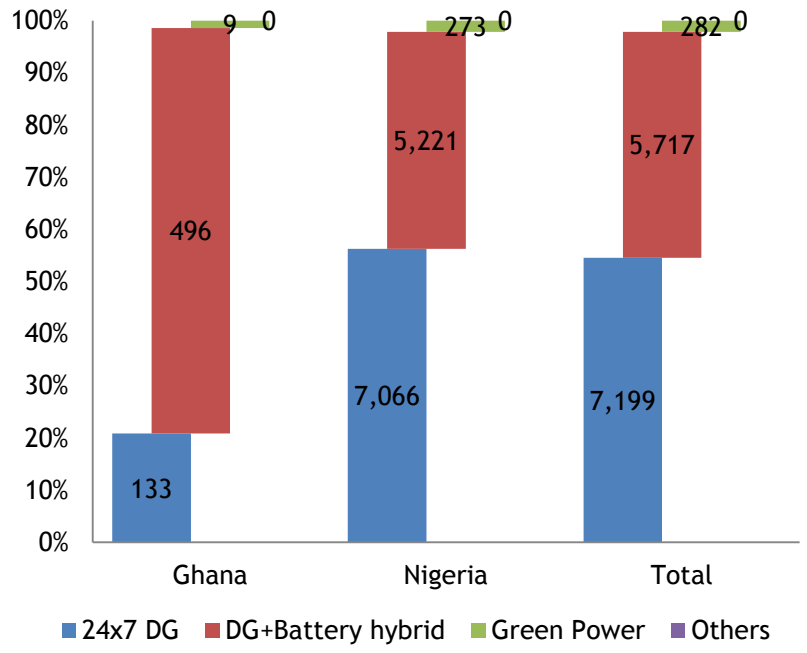
(Data from GPM West Africa Market Report (draft), Dec 2012)

	Total Pop (mil)	M-penetration	M-subs (mil)	Exist BTS	Pop / BTS
Nigeria	162.5	65.8%	106.9	24,252	4,409
Ghana	25	99.7%	24.9	5,583	4,464

	Total Pop (mil)	Electrification rate	Off-grid Pop (mil)	Off-grid BTS (Est1)	Off-grid BTS (Est2)
Nigeria	162.5	55.2%	72.8	16,512	24,267
Ghana	25	77.2%	5.7	1,277	1,900

(Population data from World Bank 2011, Electrification rate from IEA 2010)

Why are there only a few GPM sites in Nigeria?



Sites by Power Solution Deployed (off-grid)

Reasons:

?

Operator Achievement

Stage	Operators (#GPM sites) : Total 96 operators (30,310 sites)	
Global mainstream	(Industry-wide stage)	
Transformation: 1,000+ or majority of off-grid sites (5 operators)	China Mobile (8,970), China Unicom (5,500), China Telecom (5,400), Cellcard (Cambodia) (1,403), India Bharti Infratel (1,359), (FT Group 2,000 but no break down per operator)	
Scaled-demonstration: 10-1,000 sites (57 operators)	India Indus Towers (658)	Cambodia Beeline (121)
	Saudi Arabia STC (Saudi Telecom) (500)	Philippines Smart (PLDT) (114)
	Indonesia 3 (Hutchison) (472)	South Africa Vodacom (111)
	India Vodafone (Vodafone Essar) (390)	Indonesia Indosat (117)
	Indonesia Telkomsel (239)	Idea Cellular (103)
	Australia Telstra (200)	Safaricom (102)
	Egypt Etisalat (190)	Ecuador Movistar (100)
	Egypt Vodafone (166)	Egypt Mobinil (ECMS) (100)
	Nigeria Etisalat (EMTS) (150)	Guinea Orange (Sonatel) (100)
	Nepal NCell (142)	Airtel Nigeria (15)
	Niger Airtel (123)	+ 36 other operators (10-99)
Piloting: 1-9 sites (35 operators)	35 operators	
Pre-market (or no data)	407 operators	

Data from GPM Deployment Tracker at http://www.gsma.com/mobilefordevelopment/programmes/green-power-for-mobile/tracker as of Dec 31, 2012. DG-battery hybrid (12,124 sites), counted separately.

Resources for Players at Different Stages

Stage	Barriers	Resources
Scaled-demonstration: 10-1,000 sites	Vendors with limited capacity Financial barriers Organizational impact Procurement model	Market analyses ESCO business development / capacity building Procurement model RFP & tender support
Piloting: 1-9 sites	Financial barriers Scaling barriers Lack of in-house expertise	Best practice procurement guide GPM technical training Feasibility case reports
Pre-market	Awareness of opportunities and business case	



Common Resources
GPM working group meetings Bi-annual reports Technology trend analysis Vendor list GPM deployment tracker database

All above reports are available at:
http://www.gsma.com/developmentfund/programmes/green-power-for-mobile/resources/

Thank you!!!







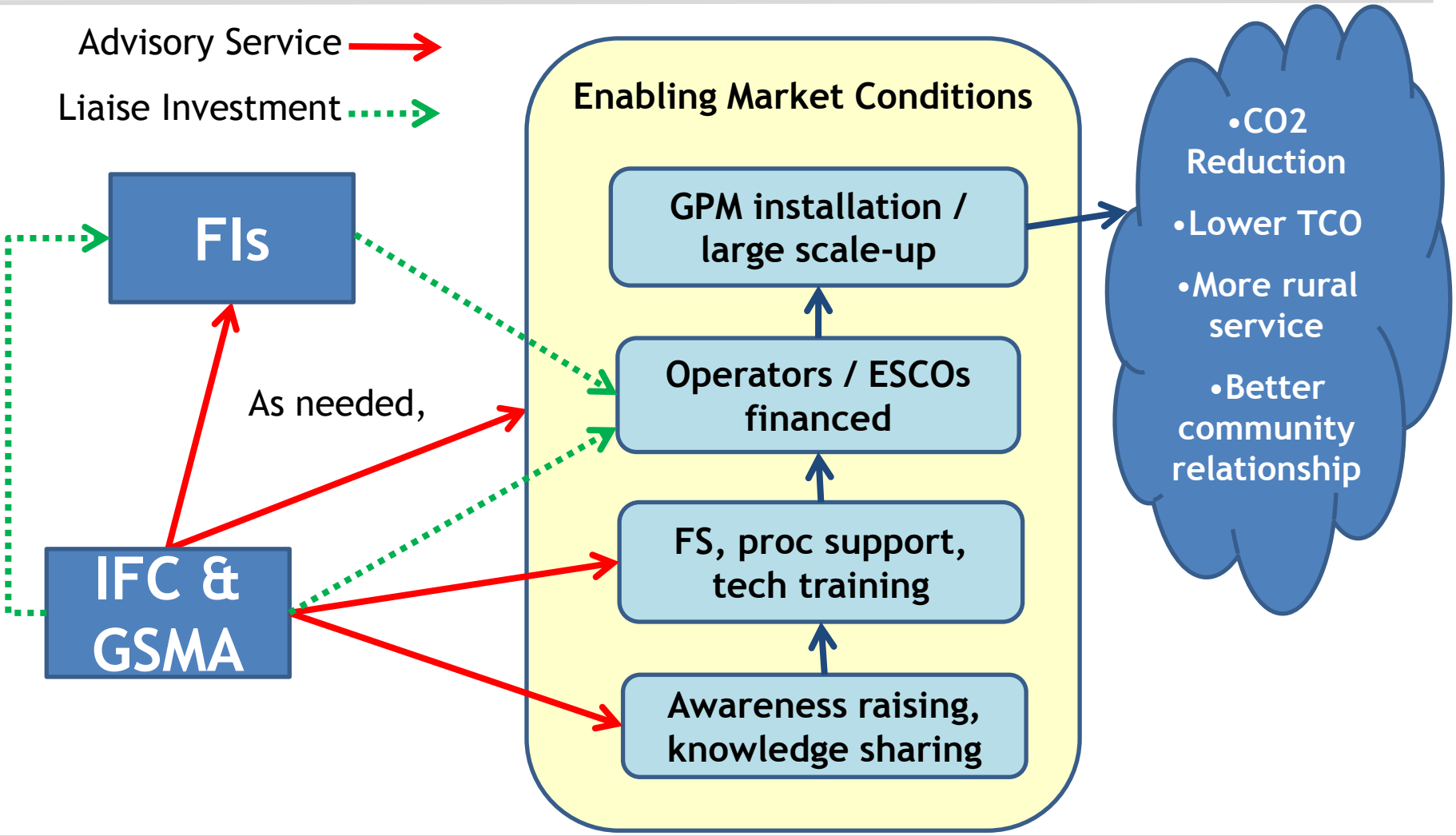
Annexes







IFC Advisory Service in GPM



Results to Date (2009 ~ Dec 2012)

What project directly delivered:

(1) 25 feasibility studies
(2) 13 working group meetings
(3) 19 feasibility case reports + several other reports
(4) 2 GPM database
(5) 7 bi-annual reports (incl Jan '13 issue)
(6) 284 people (45 operators + 30 others) trained with GPM technical training program

Which directly / indirectly led to:

30,310 GPM sites* by 96 operators in 64 countries (2012 Q4)
(Cf.) 9,093 sites by 32 operators in 30 countries (2009 Q1)

*translates to 1,220,281 metric tons / year (40.26 per site) of GHG reduction
(=230,629 cars taken off the road!)

Resources 1

Feasibility Case Reports

Region	Available case reports (publish year)	
Asia	Azercel Azerbaijan (2011)	Ncell Nepal (2011)
	Banglalink Bangladesh (Mar 2012)	Tcell Tajikistan (2011)
	Digicel Vanuatu (Nov 2009 bi-annual report)	Teliasonera Group (2011)
	Hello Cambodia (2011)	Geocell Georgia, Ucell Uzbekistan (2012)
Africa	Econet Burundi (Jun 2010)	Telecel CAR (Mar 2011)
	Econet Lesotho (Sep 2010)	Telecel Zimbabwe (Apr 2011)
	Econet Zimbabwe (Nov 2010)	Telecom Network Malawi (Jan 2012)
	Leo Burundi (Nov 2011)	Zantel Tanzania (Mar 2010)
	MTN Uganda (Mar 2010)	
LAC	Digicel Haiti (Mar 2010)	
	Movistar (Telefonica) Group (Argentina, Chile, Colombia, Mexico, Nicaragua, Venezuela) (2011)	
MENA	Mobinil (Dec 2010)	

GPM Technical Training

- HOMER Software Training Guide for Renewable Energy Base Station Design
- Green Power for Mobile Interactive Replication Guide
- Procurement Model Analysis: CAPEX vs OPEX

All above reports are available at:
http://www.gsma.com/developmentfund/programmes/green-power-for-mobile/resources/

GPM Deployment Tracker Database
http://apps.wirelessintelligence.com/green-power/tracker/

Resources 2

Technology trend analysis
- Green Power for Mobile: Top Ten Findings report
- Flow Battery Technology for Telecom Industry (Dec 2011 bi-annual report)
- Fuel Cell Deep Dive Study (Dec 2011 bi-annual report)
- DC Generator / Battery Hybrid (July 2011 bi-annual report)
- Bharti Infratel White Paper (Dec 2011) – This covers solar DG hybrid, Fuel cells, IPMs, Fuel catalysts, variable speed DC DGs, DCFCU and GenX

Market Analysis
- Energy for the Telecom Towers - India Market Sizing and Forecasting
- Powering Telecoms: East Africa Market Analysis

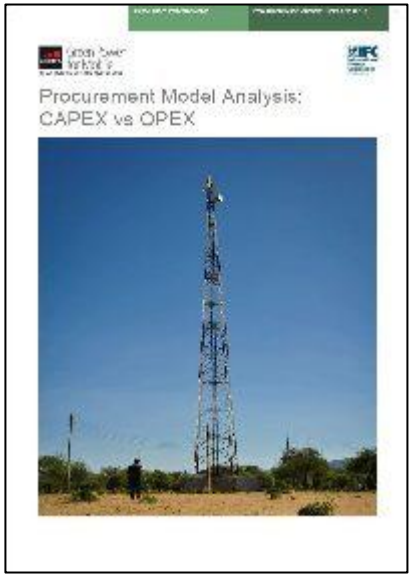
GPM Vendor Database

The following reports are available on the GPM Resources page
- GPM Vendor Directory (Jan 2012)
- Telecoms Renewable Energy Vendors / ESCOs Landscape in India

Best Practice Procurement Guide
- Best Practice Procurement Guide for Green Energy in India

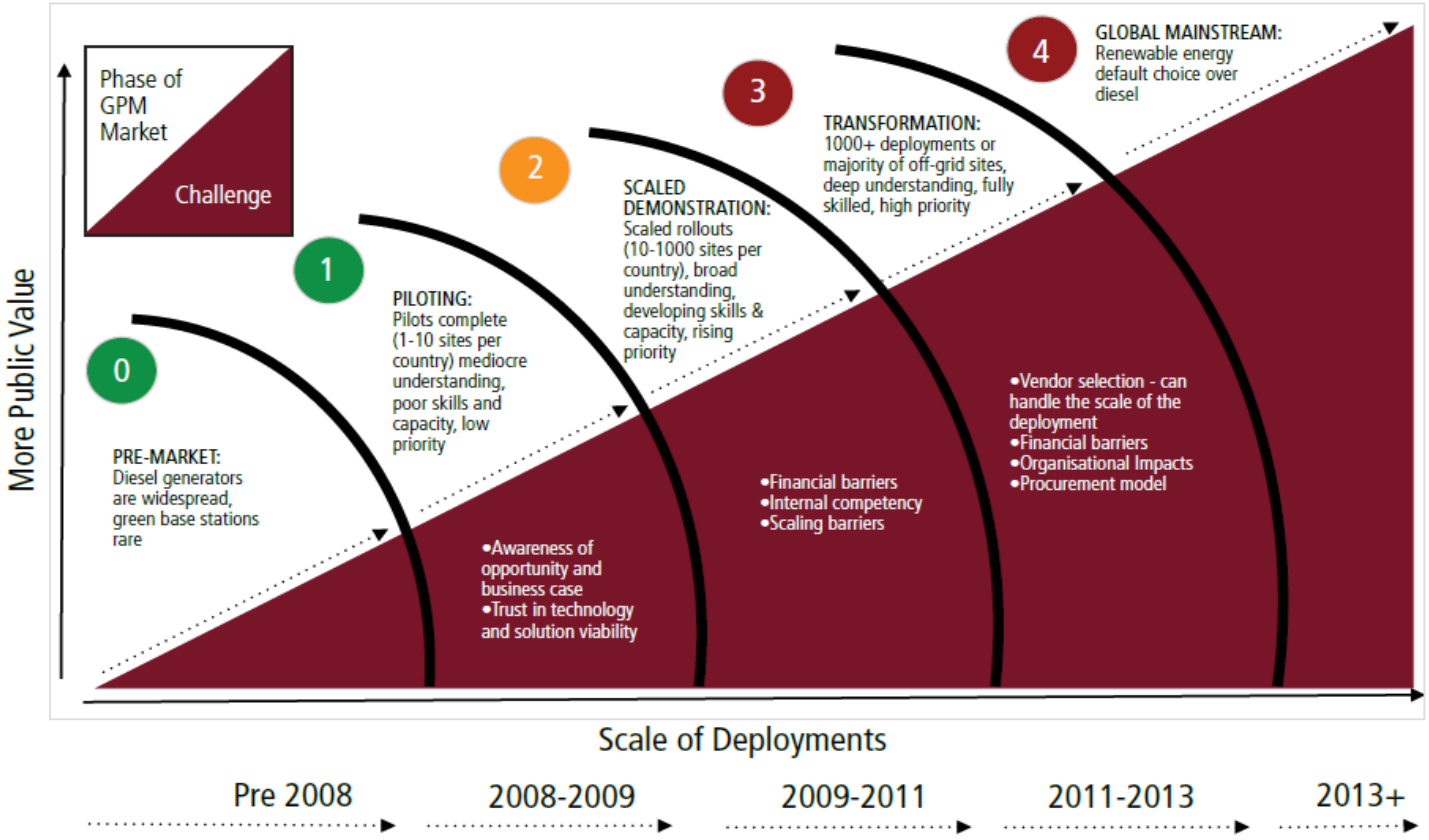
Procurement model (business model)
- Procurement Model Analysis - CAPEX vs OPEX (March 2012)
- Move to Outsourcing Model (Jul 2011 Bi-annual Report)

Bi-annual Reports



All above reports are available at:
http://www.gsma.com/developmentfund/programmes/green-power-for-mobile/resources/

GPM Road Map


Phase of GPM Market
Challenge
More Public Value
0
PRE-MARKET:
Diesel generators are widespread, green base stations rare
1
PILOTING:
Pilots complete (1-10 sites per country) mediocre understanding, poor skills and capacity, low priority
•Awareness of opportunity and business case
•Trust in technology and solution viability
2
SCALED DEMONSTRATION:
Scaled rollouts (10-1000 sites per country), broad understanding, developing skills & capacity, rising priority
•Financial barriers
•Internal competency
•Scaling barriers
3
TRANSFORMATION:
1000+ deployments or majority of off-grid sites, deep understanding, fully skilled, high priority
•Vendor selection - can handle the scale of the deployment
•Financial barriers
•Organisational Impacts
•Procurement model
4
GLOBAL MAINSTREAM:
Renewable energy default choice over diesel
Scale of Deployments
Pre 2008
2008-2009
2009-2011
2011-2013
2013+

C.f., China Mobile GPM Data

Using Alternative Energy

Indicators	2009	2010	2011
Alternative Energy Base Stations-Total	6,372	7,795	8,970
Solar Energy	5,581	6,279	7,057
Wind Energy	72	308	435
Solar and Wind	689	1,069	1,316
Fuel Cells	30	139	162

(China Mobile Sustainability Report 2011)