IFC International Finance Corporation World Bank Group

GSMA

Green Power for Mobile

In partnership with Netherlands



Green Power for Mobile Program Outlook

IFC

GPM Working Group Meeting
Phnom Penh, Cambodia
July 2012

IFC in the World Bank Group

	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	• Equity/Loans • Risk Management • Advisory Services	• Political Risk Insurance

IFC Investment in Telecom, Media & Tech



GPM Opportunities & Barriers

Opportunities

640,000 total off-grid sites

118,000 with 3 yr payback

Immediate opportunity

- GSMA estimate, mostly in developing countries
- No estimate on "bad-grid" sites, could be very significant

Barriers

[Information asymmetry]

- Unproven reliability vs 99.95%+ up time demand
- Low efficiency of clean energy
- Negative images created by bad products

[High costs of first movers]

- High CAPEX vs diesel generator (DG)

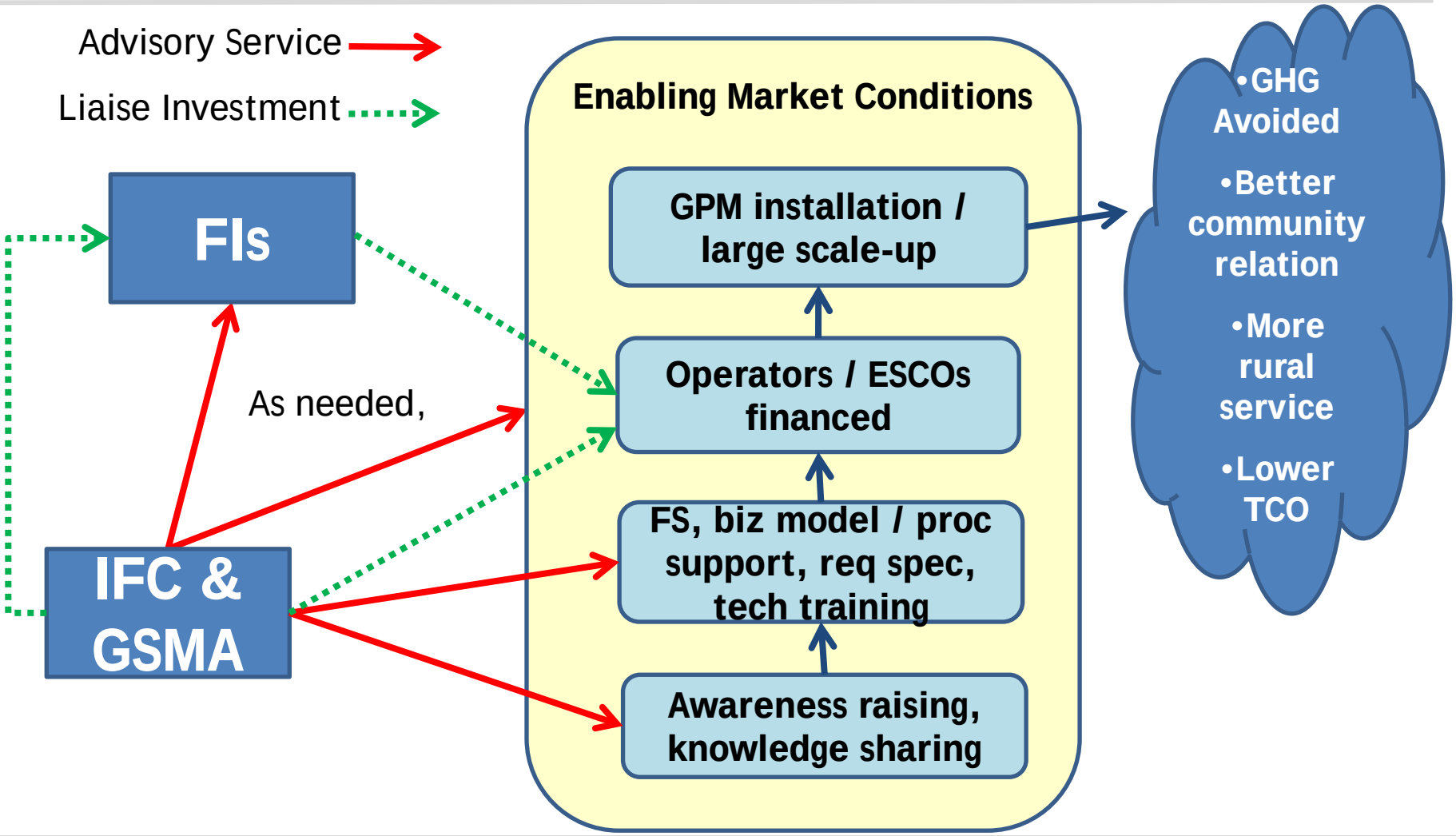
[Lack of business models]

- Complex installation compared to DGs
- Competing investment priorities
- Outsourcing trends of MNOs
- Lack of expertise / human resources to manage clean energy solutions
- Community conflicts

[Lack of financing]

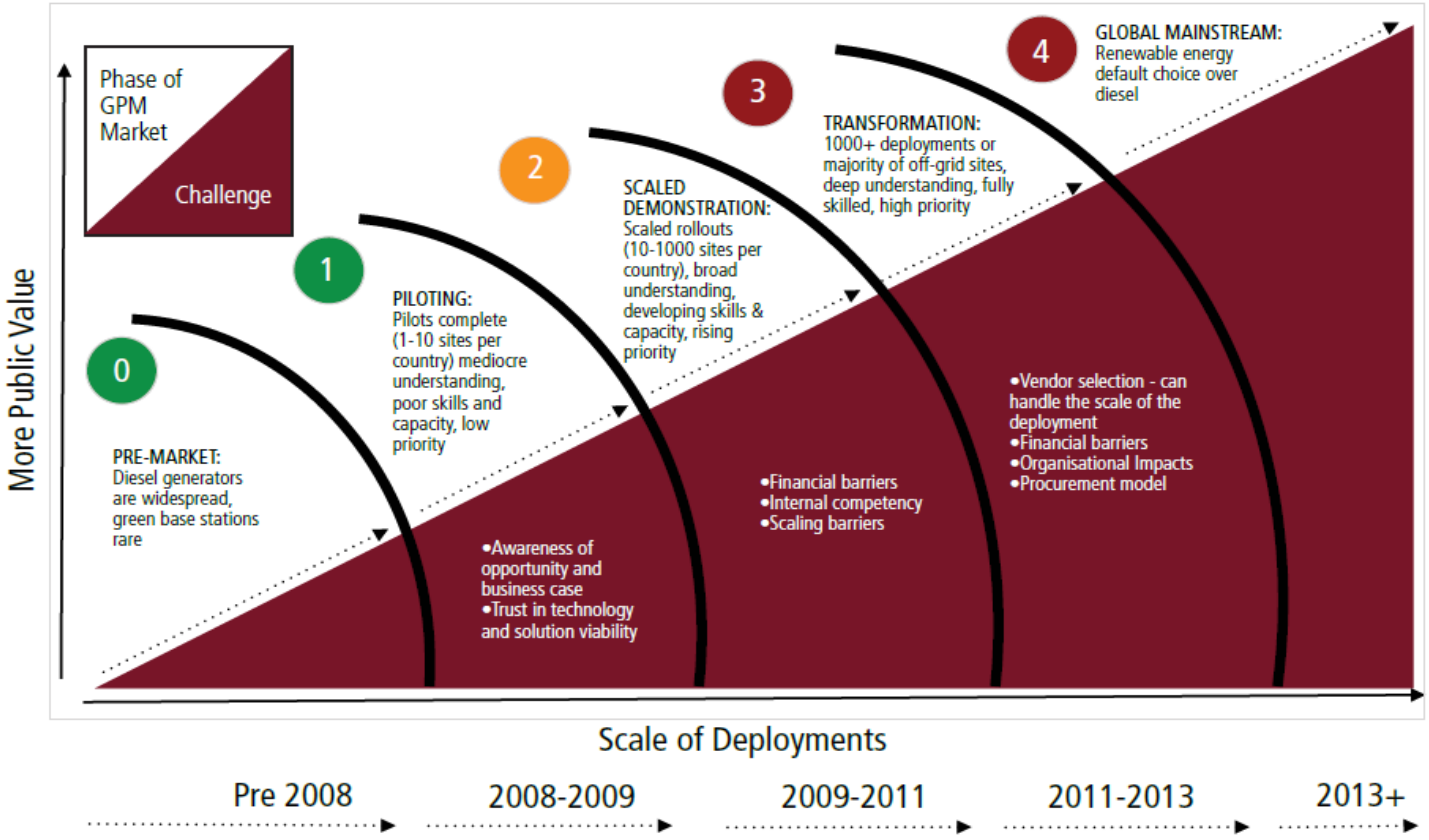
- Lack of qualified ESCOs

IFC Advisory Service in GPM



Industry Vision

– We started with this. Still good?



Results to Date (since 2009)

What project directly delivered:

(1) 23 feasibility studies
(2) 10 working group meetings
(3) 17 feasibility case reports + several other reports
(4) 2 GPM database
(5) 5 bi-annual reports, each distributed to 1,500 industry readers
(6) 3 training materials
(7) 179 people (23 operators + 2 org) trained with GPM technical training program

Major findings: (a) GPM can be feasible under certain conditions; (b) ESCO / OPEX model is deemed to be the way to go. Some markets, ESCO model too early to apply, where CAPEX solution is still needed.

Which directly / indirectly led to:

12,587* GPM sites by 66 operators in 52 countries (2012 Q1)**
(Cf.) 9,093 sites by 32 operators in 30 countries (2009 Q1)***

*translates to 510,529 metric tons / year (40.26 per site) of GHG reduction
(=90,813 cars taken off the road!)

Great job!!! However, ...

**Includes 517 sites by 22 operators in 16 developed countries

***Includes 217 sites by 5 operators in 5 developed countries

Operator Achievement

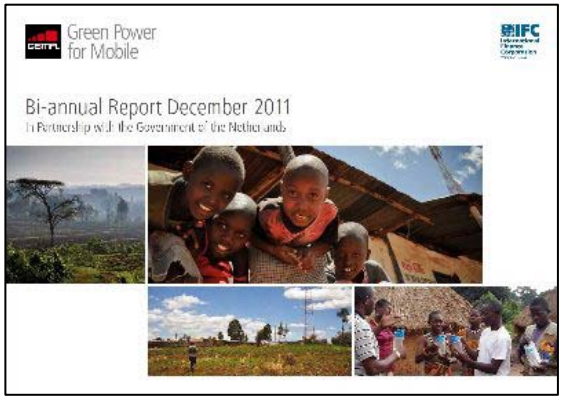
Stage	Operators (#GPM sites) : Total 66 operators (12,587 sites)	
Global mainstream	(Industry-wide stage)	
Transformation: 1,000+ or majority of off-grid sites	China Mobile (7,795)	
Scaled-demonstration: 10-1,000 sites	Cambodia Cellcard (CamGSM) (862) India Bharti Infratel (500) Saudi Arabia STC (Saudi Telecom) (500) Indonesia 3 (Hutchison) (472) India Vodafone (Vodafone Essar) (390) Australia Telstra (200) Egypt Vodafone (166) Nigeria Etisalat (EMTS) (150)	Philippines Smart (PLDT) (114) South Africa Vodacom (111) Niger Airtel (105) Egypt Mobinil (ECMS) (100) Ecuador Movistar (Telefonica) (100) Guinea Orange (Sonatel) (100) + 25 other operators (99-10)
Piloting: 1-9 sites	26 operators	
Pre-market	438 operators	

Data from GPM Deployment Tracker at http://apps.wirelessintelligence.com/green-power/tracker/ as of March 15, 2012

- Probably more installation out there. Please provide data!
- DG-battery hybrid (3,329 sites), counted separately. What's going on?

Resources for Moving Up

Stage	Barriers	Resources
Scaled-demonstration: 10-1,000 sites	Vendors with limited capacity Financial barriers Organizational impact Procurement model	GPM requirement specification task work Market analyses ESCO business development / capacity building Procurement model RFP & tender support
Piloting: 1-9 sites	Financial barriers Internal competency Scaling barriers	Best practice procurement guide GPM technical training
Pre-market	Awareness of opportunities and business case Trust in technology and solution viability	Feasibility case reports Feasibility study GPM technical training

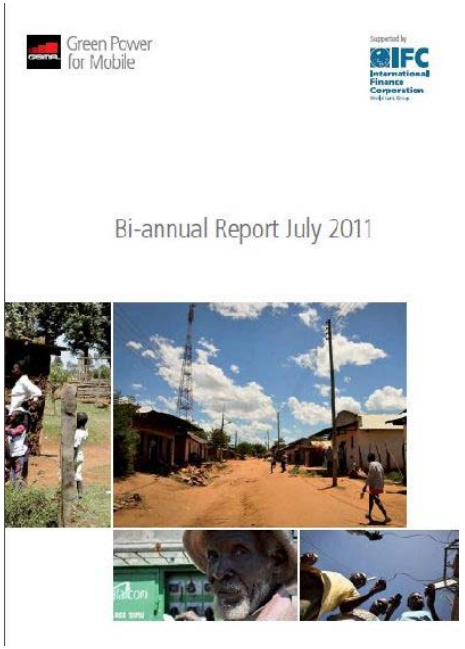


Common Resources
GPM working group meetings Bi-annual reports Technology trend analysis Vendor list GPM deployment tracker database

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

Services for Moving Up – Feedback please!

- **Feasibility Studies**
- **GPM technical trainings**
- **GPM requirement specification with volume estimate**
- **ESCO business development / capacity building**
- **GPM supply-chain development / capacity building**
- **RFP & tender support**
- **GPM Working Group Meetings**



Regional-level
For operators from Africa – Nigeria (tbc) (Nov 2012), Nairobi (tbc) (April 2013), Dakar (tbc) (Nov 2013)
For operators from Asia – Phnom Penh, Cambodia (July 2012), Hong Kong (tbc) (July 2013)

Country-level - all to be confirmed
Bangladesh (2012 Q3), Indonesia (2012 Q4), Nigeria (2012 Q4), Bangladesh (2013 Q1), Afghanistan & Pakistan in Dubai (2013 Q2), Ghana (2013 Q4)

If you are an operator outside of these two regions, yet would like to attend, please feel free to attend the one which is most convenient. We have resource constraint in conducting more meetings in other regions.

Annexes







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)	
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

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/

Feasibility Studies

#	Operator	FS Year
1	Digi Malaysia	2009
2	Digicel Haiti	2009
3	Econet Burundi	2010
4	Econet Lesotho	2009
5	Econet Zimbabwe	2010
6	Hello Cambodia	2010
7	Leo Burundi (Telecel)	2011
8	Mobinil Egypt	2010
9	MTN Uganda	2009
10	Banglalink (Orascom Bangladesh)	2010
11	Telecel Central Africa Republic	2010
12	Movistar Argentina (Telefonica)	2010
13	Movistar Chile	2010
14	Movistar Colombia	2010
14	Movistar Mexico	2010
16	Movistar Nicaragua	2010
17	Movistar Venezuela	2010
18	Azercel - Azerbaijan (Teliasonera)	2011
19	Ncell – Nepal (Teliasonera)	2011
20	Tcell – Tajikistan (Teliasonera)	2011
21	Telecom Network Malawi	2012
22	Zain Tanzania (current Airtel)	2009
23	Zantel Tanzania	2009

