



# Development Fund

## Green Power For Mobile: Charging Choices

Off-grid charging solutions for mobile phones



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## 1 Introduction

There are more than 4 billion mobile connections worldwide. Over the coming years, many more millions of people at the “base of the economic pyramid” are expected to acquire mobile phones, greatly benefiting their lives, business activities and access to information. However, most of these new subscribers will not have direct access to electricity. This makes it more challenging and expensive for them to charge their mobile phone, not to mention to power the myriad of other daily functions for which electricity is important such as lighting, cooking and refrigeration.

The GSMA Development Fund believes that the issue of electrification is extremely relevant to mobile operators. The innovative nature of base of the pyramid markets has spawned creative solutions to the charging problem - primarily via entrepreneurs who provide electricity on a per-charge basis, powered either by their own access to the grid or through the use of portable car batteries. But now is the time for the mobile industry - including operators, handset vendors, and renewable energy providers - to better understand and address the challenge of electrification. Excitingly, it seems likely that renewable energy devices, such as photovoltaic chargers, will provide a practical and environmentally friendly fix. These solutions will therefore be beneficial to low income consumers, the planet and the bottom line.

As part of its Green Power for Mobile programme, the Development Fund has conducted research into off-grid charging solutions for mobile phones. This study was conducted over a three month period (June-August, 2009) and included extensive research to identify emerging vendors, their products, and other players in the field. The process also included dozens of interviews and surveys of mobile operators and vendors covering 50 countries across Africa, Asia and Latin America.

The research has found that there is significant interest in off-grid charging solutions from mobile operators - over half those interviewed have already introduced, or are considering introducing off-grid charging solutions in the near term. At the same time, there is only limited understanding about the full scope of options and the associated social and business benefits. The industry is eager for support to help accelerate this new area of activity.

This publication is intended to provide initial market information and a framework for decision-making about off-grid charging solutions. More practically, it lays out a series of key questions that the GSMA refers to as “Charging Choices” - to help companies think through the possibilities for off-grid charging. The paper is not a fully exhaustive review of all the existing players or initiatives in the market, and the Development Fund is not endorsing the products or companies reviewed herein. This publication is, however, a start of what the GSMA believes will be an important and exciting area of industry growth in the coming years.

### The Universal Charger

The GSMA is leading an initiative known as the ‘Universal Charging Solution (UCS)’ - a uniform charging method for all phones (the micro USB) which will be standardised in 2012. The energy-efficient chargers will result in an estimated 50% reduction in standby energy consumption, the potential elimination of up to 51,000 tonnes of duplicate chargers and the enhancement of the customer experience by simplifying the charging of mobile phones.

For more information: [www.gsmworld.com/ucs](http://www.gsmworld.com/ucs).

## 2 The Off-Grid Mobile Customer Today

How do mobile phone owners charge their phones if they don't have household access to electricity? Across the developing world, charging mobile phones on a pay-per-charge basis is prolific. For the average consumer, it is typical to take their phone to a local shop and leave it (or just the battery) to charge whenever power is low.

A GSMA field study in Kibera, Kenya (Nairobi's largest slum) indicated that the price of a mobile charge was KES 20 (approximately US\$0.25) and required an average of two hours to complete. The frequency of charges per customer ranged between one per day on the high end and once per week on the low end. Presuming an average of three charges per consumer per week (twelve charges per month) it appears that the typical mobile consumer in Kibera spends US\$3.00 on charging per month. This is a notable sum, given that the same customers spend between KES 4-16 (US\$0.18-US\$0.21) per minute for voice calls (depending on the tariff and time of day) and a monthly total of KES 400-500 (US\$6.00) per month on airtime. The implication is that one third of total spend by off-grid mobile subscribers goes on power, rather than airtime.

### Safaricom, Kenya

*"In Kenya charging your phone at any given charging booth typically costs KES 20 Shillings. That is as much as you pay for the cheapest available scratch card. This leads to consumers having to choose between buying airtime or charging their phone."*

**Patrick Nyaboga Ng'ate**

**Value Added Services Product Manager, Safaricom**



Sign and entry to the Eco-Gen Power charging shop (Kibera, Kenya)



Car batteries being charged for household use, or for entrepreneurs who will provide distributing mobile charges to others (Kibera, Kenya)

<sup>(1)</sup> Our representative spoke with ten mobile charging agents in Nairobi's largest slum Kibera

### 3 The Business Case for Off-Grid Charging Solutions

#### Key facts

Nearly 500 million people worldwide have a mobile phone connection but no access to the electricity grid<sup>(1)</sup>

Operator tests show that off-grid charging solutions can increase ARPU by 10-14%<sup>(2)</sup>

This represents a US\$2.3 billion<sup>(1)</sup> market opportunity for mobile operators

Source: <sup>(1)</sup> GSMA Analysis, Wireless Intelligence  
<sup>(2)</sup> Digicel

There are 1.6 billion people in the world without access to grid electricity. The GSMA and Wireless Intelligence research estimates suggest that 30% of those people have a mobile phone connection. This means nearly 500 million people currently have access to a mobile phone but do not have their own means of charging it.

Without reliable charging solutions, mobile phones end up running out of power. And when mobile phones are switched off, it results in missed calls and reduced airtime revenues for mobile operators.

The GSMA Development Fund believes that there is a commercial reason for mobile operators to deploy off-grid charging solutions. Recent field trials in Haiti and Madagascar suggest that when off-grid subscribers acquire mobile charging solutions, usage and therefore ARPU increases by at least 10%.

Three early examples of markets where off-grid charging solutions are making an impact follow:

#### Example 1: Digicel

**"Solar chargers can increase ARPU by 10-14%"**

In early 2008, Digicel determined that solar solutions would benefit customers and business growth in the off-grid territories where they operate. As a first phase effort, Digicel acquired nearly 350,000 chargers for distribution throughout Papua New Guinea, Vanuatu, Haiti, Suriname and several other markets. Digicel then tracked the mobile phone usage of subscribers before and after acquiring a solar charger:

*"All of Digicel's operating territories lend themselves to solar technology given their location in relation to the equator. We have seen ARPU lift in the 10 to 14% range by assessing airtime usage before and after customers were presented with a solar charger."*

**Tom Bryant, VP Global Distribution, Digicel**

In July 2009 Digicel took another step by being one of the first operators to introduce an ultra low cost solar phone at scale: the ZTE Coral-200. This was facilitated by employing solar step-up converter technology developed by Amsterdam based Intivation. Their cooperative work with ZTE's terminals engineering team brought this product to market in less than ten months.

*"Sample focus groups using the handset in both Haiti and Papua New Guinea are very favourably pleased and we're seeing the predicted double digit ARPU lift as evidenced by our review and sampling of the hand held chargers last year."*

**Tom Bryant, VP Global Distribution, Digicel**

## Example 2: Toughstuff Madagascar

**"Solar charger increases phone usage by 0.5-1.5 minutes per day"**

According to ToughStuff - a UK based company that produces solar products for low income families in developing countries - the provision of solar mobile chargers can increase mobile phone usage by 0.5 to 1.5 minutes per day. ToughStuff's analysis comes from face to face consumer research in Madagascar in early 2009. In developing markets where mobile phones are often used for only a few minutes per day, this represents a significant increase.

## Example 3: Safaricom Kenya

**"Lack of power means missed ARPU"**

In August 2009, Safaricom launched a solar phone - a similar ZTE handset to the one launched by Digicel. The company had been looking for alternative charging solutions for a long time, trying to match quality and price.

*"One of the biggest stumbling blocks for us is that phone owners who cannot charge their phone leave it switched off most of the time. This is missed ARPU for us."*

**Patrick Nyaboga Ng'ate**

**Value Added Services Product Manager, Safaricom**

Since only 23% of Kenyans have access to the electricity grid, but mobile penetration has moved beyond 40% of the population, Safaricom has a lot of off-grid subscribers. They hope to bridge the gap by offering consumers the opportunity to buy low cost solar handsets<sup>(1)</sup>. The solar handset is retailed at Shs2,999 (US\$40) - by comparison, the cheapest normal handset costs around Shs1,800 (US\$25). Safaricom has also deployed public phone charging facilities at several rural base stations.

## A US\$2.3 Billion Market Opportunity

These examples suggest an exciting commercial opportunity exists for mobile operators. Even when applying conservative estimates about the increase of ARPU resulting from charging solutions (10%), and the average airtime spend of the off-grid customer (US\$4 per month), for 500 million off-grid consumers the expected increase in direct revenues to operators would total US\$2.3 billion per year.<sup>(2)</sup>



Toughstuff's solar panel



The 'Simu Ya Solar': solar phone launched by Safaricom

<sup>(1)</sup> For more information see Safaricom: ZTE Solar Phone (Kenya) on page 8

<sup>(2)</sup> GSMA research / Wireless Intelligence

## 4 "Charging Choices"

When deciding on which off-grid charging solution to implement, there are four important choices to consider:

### (1) Who will use it?

*Is the solution designed for use by an individual, or by a larger number of people?*

Off-grid charging solutions generally fall into two broad categories – individual solutions and community solutions.

**Individual solutions** are the property of the consumer, and include stand-alone chargers that can be plugged into different phones (or other devices), or solutions that are integrated into the handset. The latter can, for example, come in the form of a solar panel on the back of a phone, a wind-up mechanism integrated into the phone, or a handset that runs on over-the-counter batteries.

**Community solutions** provide charging possibilities for multiple users. This can be in the form of a charging dock attached to a base station (cell phone tower), or a solar charged charging station located in a village centre. Community solutions tend to be operated by mobile operators or third parties with pre-existing distribution networks in rural communities, such as non-governmental organisations. Community solutions allow for a larger number of people to be reached, while reducing the cost of the solution per user.

### (2) Who will own it?

*Will the solution be owned by a consumer, an entrepreneur, a community, a technology company, a mobile network operator or an NGO?*

Consumers value direct ownership of solutions, however individual ownership means the investment requirement falls fully onto the consumer, which even at a cost of US\$10 or US\$20 may be a major barrier to adoption in low income areas. Alternatively, a charger may be owned by an entrepreneur who runs a small charging business, the proceeds of which pays back their initial investment. For community solutions, the upfront investment is easier to manage since costs are spread across a larger company or group of people, but joint ownership does mean that ongoing access and upkeep responsibilities for the solution are more complicated.

### (3) What will it charge?

*Will the solution charge only one phone, a few phones, or can it also charge other devices such as lights and radios?*

Since phone charging is only one of the reasons off-grid people need electricity, the possibility of charging other devices with a solution can contribute to its popularity with consumers. This is the case with both auxiliary chargers and community solutions that provide standard sockets. When the charger is integrated into the phone, its use is limited to the phone itself. The advantage is however that the charger is always present, which makes it easier to keep the phone charged and reduces the risk of loss or damage.

### (4) Who will finance it?

*Will the consumer pay for the solution, or the entire community? Will the operator subsidise it, or will it be necessary to provide microfinance?*

The price consumers ultimately pay for a charging solution is a very important factor in the uptake of the solution. People living in off-grid areas are typically low income and their spending capabilities only allow for small, frequent payments. But to make a large investment – even US\$10 or US\$20 worth – is a trickier proposition. To pay a small amount for charging a phone once a week is more feasible than making a significant one-off investment.

The growth of mobile uptake among low income consumers has been accelerated by the provision of ever smaller airtime top-up values. Mobile operators have reduced the minimum purchasable amount to as little as US\$0.03, which can be bought from airtime agents via text messaging (SMS). According to the The Next 4 Billion report, authored by the World Resources Institute and the World Bank, this payment innovation has allowed for the rapid growth of mobile communication services to millions of low income people. The future growth of charging solutions may depend on the ability of the mobile industry to enable similarly small, incremental payments for power.

## Summary

Each of the charging choices influences what type of solution is most appropriate. The table below summarises some of the options:

Solutions	Questions			
	Who will use it?	Who will own it?	What will it charge?	Who will finance it?
<b>Solar Powered Handset</b>	Individual	Consumer	One phone only	Consumer / Operator
<b>Auxillary Solar Panel Charger</b>	Individual or shared access	Consumer / Entrepreneur	Multiple handsets / other devices	Consumer / Operator
<b>Wind-Up Charger</b>	Individual or shared access	Consumer / Entrepreneur	Multiple handsets / other devices	Consumer / Operator
<b>Base Station (BTS) Charging Dock</b>	Shared access	Operator	Phones and possibly other devices	Operator
<b>Village Charging Station</b>	Shared access	Operator / Entrepreneur / NGO / Other	Phones and possibly other devices	Operator / Community / NGO / Other



## Examples

The examples of solutions listed below are not exhaustive and the GSMA has not tested all of the products mentioned. Performance times and wholesale figures may therefore vary slightly depending on the type of device and intensity of sunlight.

### Safaricom BTS Charging Station (Kenya)

Safaricom offers free mobile phone charging to consumers by adding charging docks to their base stations in off-grid areas. The charging dock is attached to an extension cable, and people can plug in their own phone chargers. A security guard on site controls the usage of the dock, to prevent excessive power demand on the base station equipment.



Safaricom charging station

#### 1. Who will use it?

A BTS charging station can be used by the entire village, or anyone within walking distance of the base station. Safaricom's solution allows for ten phones to be charged simultaneously and the dock works 24 hours per day.

#### 2. Who will own it?

The charging dock is attached to the base station and therefore is the property of Safaricom. It is also managed by the operator through a security guard on site.

#### 3. What will it charge?

The dock is made up of normal electricity sockets, which means any device could be plugged in. However, to keep the power demand low, an operator may choose to only allow mobile phones to be charged.

#### 4. Who will finance it?

Charging is offered free of charge to the consumer which means that all costs will be incurred by the operator. Safaricom however, says that the docks use excess energy that is already generated on site; hence the extra electricity does not cost anything. The only costs to Safaricom are the installation of a charging dock and the ongoing security costs for the site.

### Ericsson Village Solar Charging Station (Africa)

Ericsson has installed village charging stations - each powered by a solar panel - in twelve Millennium Villages across Africa. The charging docks are fitted with multiple electric sockets, where the villagers can plug in their own chargers to charge their phones. They employ a village entrepreneur to manage and maintain the station, who in return receives a small fee for every charge.

#### 1. Who will use it?

As the charging station is in the middle of the village, it is accessible to all villagers, and anyone within walking distance of the village.

#### 2. Who will own it?

The village charging station is owned by the community in this case.

#### 3. What will it charge?

As the station has ordinary sockets, it is possible to plug in any hand held electronic device. It can charge multiple mobile phones at one time.

#### 4. Who will finance it?

In this case Ericsson has financed the entire solar charging station and donates it to the village, however ongoing maintenance and operation is provided by the local entrepreneur who manages the station and earns income from charging customers.

### Safaricom: ZTE Solar Phone (Kenya)

Safaricom has launched a solar-powered mobile phone. Branded as "Simu ya Solar" and manufactured under a partnership with ZTE, the handset is made from recycled materials and has an in-built solar panel. Simu ya Solar, which also comes with a conventional charger, retails at Safaricom shops countrywide at a price of Shs2,999 (US\$40).

#### 1. Who will use it?

The phone will be used by one consumer only.

#### 2. Who will own it?

The phone will be the property of the consumer.

#### 3. What will it charge?

The solar panel can charge only the phone, as it is an integral part of the handset. It cannot be used to charge other devices.

#### 4. Who will finance it?

In the Safaricom example, the extra cost of the solar panel is paid for by the consumer. The solar phone costs approximately KES 1200 (US\$15) more than a standard low cost phone, but a consumer will save on charging costs thereafter. The operator does not subsidise the handset.



Safaricom solar phone

### Digicel: ZTE Solar Phone

Digicel launched the ZTE Coral-200 solar phone in July 2009. It is now in limited distribution in Haiti and will soon be distributed in Papua New Guinea.

#### 1. Who will use it?

As in the Safaricom example, the phone will be used by one person only.

#### 2. Who will own it?

The phone will be the property of the consumer.

#### 3. What will it charge?

It will charge only one phone.

#### 4. Who will finance it?

Digicel has taken a different route from Safaricom in that they will subsidise the cost of the solar handset for their subscribers. Digicel expects that the increase in ARPU that will result from the distribution of solar phones will justify their upfront investment.



Digicel solar phone

## Digicel: RMK Solar Charger

Digicel has provided solar chargers produced by US-based company RMK to their customers free of charge, or at a significant discount. They were introduced in various South Pacific markets, such as Papua New Guinea, in early 2008. The cost to the operator was just below US\$10 per device.

### 1. Who will use it?

A solar charger can be used to charge various phones and therefore can easily be shared by friends and family members. It is also used by entrepreneurs, who sell charging to others for a small fee.

### 2. Who will own it?

The device will be owned by one customer, an entrepreneur or a household.

### 3. What will it charge?

As the charger is separate from the phone, and is provided with multiple leads, it can charge many different phone models. Furthermore, it can charge any other device that fits the leads provided, such as an LED light.

### 4. Who will finance it?

In this example, Digicel has subsidised the cost of the charger, providing it free of charge to the consumer or at a reduced price. This was done on the premise that the use of the charger increases the consumer's ARPU, thereby repaying their investment.



Digicel: RMK solar charger

## Solio: Mono Solar Charger

The Solio mono charger is a solar charger produced by Better Energy Systems, a solar solutions company based in California. It is a universal charger, charging nearly all types of handsets as well as LED lights. Better Energy Systems claim one hour of sunshine produces fifteen minutes of talk time. Depending on the volume ordered, the mono charger costs between US\$16 and US\$20 per unit.

### 1. Who will use it?

The solar charger can be owned by an individual, shared amongst family and friends, or be used by an entrepreneur to sell charges.

### 2. Who will own it?

The device will be owned by one customer or entrepreneur.

### 3. What will it charge?

The Solio mono charger can charge almost any handset and several other devices, such as LED lights, GPS devices, digital cameras etc.

### 4. Who will finance it?

The Solio charger will be launched in partnership with Digicel in Q4 2009. Digicel plans to subsidise the cost of the charger and offer it to their consumers at a discounted price.



Solio: Mono solar charger

## 5 Operator Interviews: Key Findings

Mobile operators were interviewed on their current practices and preferences in the field of off-grid charging solutions. Eighty per cent of the respondents were either the decision maker on off-grid charging solutions within their company or were in a position to influence the decision maker.

The most important findings from the operator interviews are summarised here:

- 60% of mobile operators surveyed already have off-grid charging initiatives or are investigating off-grid charging solutions.

*The market is gathering momentum.*

- 78% of mobile operators surveyed prefer a combination of individual and community solutions.

*Both individual and community solutions are important to trial.*

- Only 30% of mobile operators surveyed had knowledge of current market prices for individual solutions. There is a perception that the cost of deploying off-grid charging solutions is high.

*More research and trials are necessary to provide clarification on the economics of off-grid charging.*

- Price, plus the ability to charge non-mobile devices (e.g. lights) were rated as the two most important features for individual charging solutions.

*The importance of the ability to charge other devices indicates a preference for stand-alone charging solutions over integrated versions, such as a solar phone. Current prices however suggest the opposite, as the cost of an integrated solar phone is lower than that for an auxiliary charger.*

**Charging time:** the time it takes to charge a phone battery

**Output:** the output of the device in Volts, whether it is steady or fluctuates

**Battery:** whether the device has a battery of its own or charges directly to the phone

**Other devices:** the ability to charge multiple devices with one charger

**Resilience:** sturdiness of the device, heat and water resistant

**Price:** the price of the device

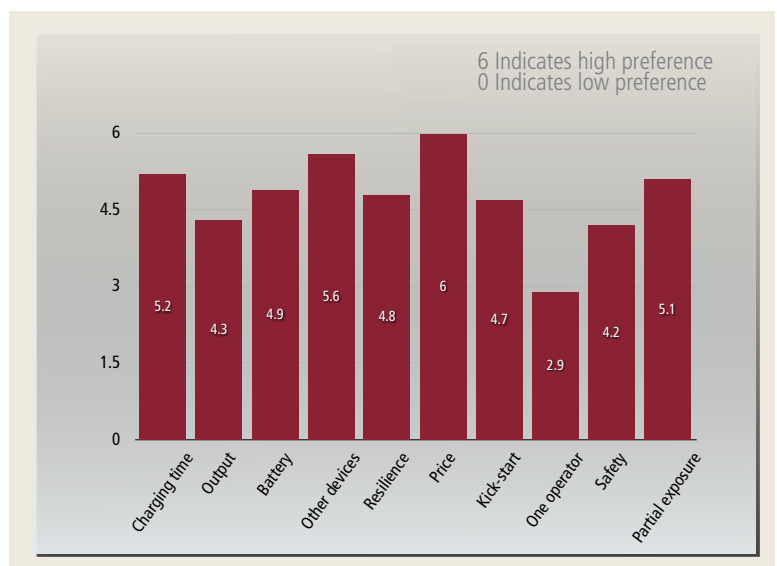
**Kick-start:** the ability of the device to kick-start a phone's battery when completely empty

**One operator:** that the device can charge only one operator's phone

**Safety:** whether the device and use of device make it prone to theft

**Partial exposure** (solar panel): whether it charges at partial exposure to sunlight

Operator Feature Preferences for Individual Off-grid Charging Solutions





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## 6 Lessons from the Off-Grid Lighting Sector

There are strong parallels between off-grid mobile phone charging and off-grid lighting. Providing either service at scale requires tackling similar questions about the value and effectiveness of small-scale power products, adapting pricing models for low income consumers, and determining whether individual or community oriented solutions are more practical.

Since 2007, the World Bank and IFC have been running an innovative programme called Lighting Africa to catalyse access to modern lighting solutions across the continent. Based on their experience thus far, Patrick Avato (Projects Officer, Sustainable Energy, International Finance Corporation (IFC)), has identified the following key learnings for those pursuing off-grid charging solutions:

### KEY LEARNING 1 – Looking beyond lighting needs.

Lighting Africa's market studies show that, in the scale of African consumers' needs, access to light and access to energy are two of the basic needs that significantly contribute to improving living conditions. African consumers acknowledge the benefits of using superior off-grid lighting products: children can study longer, at more convenient times (educational benefits); retail outlets can stay open longer at night, thereby increasing their turnovers and productive yields. However, consumers also attach a special value to recreational needs such as listening to radio and watching television. In that sense, African consumers look beyond the utilitarian importance of light towards the appealing value of entertainment needs. In order to be entertained, they are prepared and willing to pay an additional premium. Off-grid lighting products and the mobile phone, i.e. a product that has both a utilitarian value (keeping in touch with the community) and an entertainment value (listening to music and to the radio), share a common dependence to energy access points.

### KEY LEARNING 2 – Modular approach in delivering services.

The similarities between mobile phones and off-grid lighting products have been well highlighted. One particular similarity to emphasise is the modular approach towards addressing the needs of consumers who have pricing challenges. The modular approach is the approach that consists in developing a basic product (entry level) to which modules are added with time by the owner. The consumer buys a rechargeable ambient light and then adds a solar panel to charge their mobile phone. Later on, when they can afford it, a bigger solar panel is purchased to watch television.

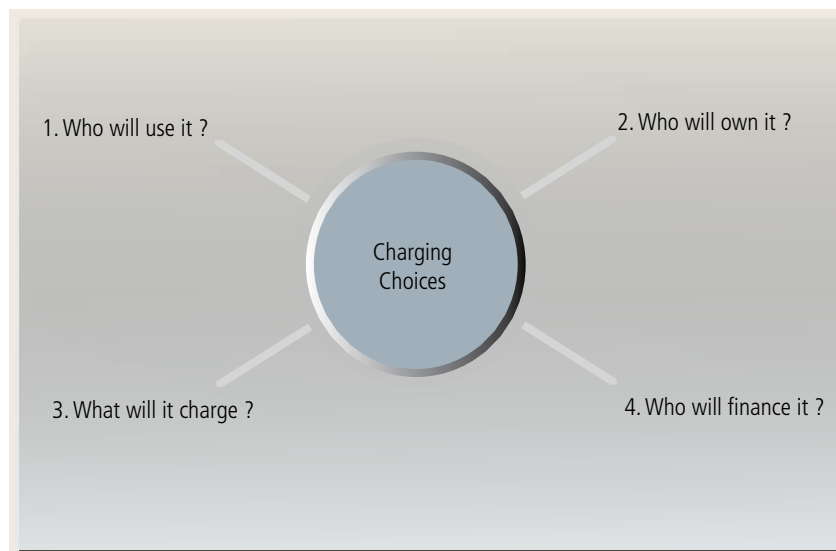
### KEY LEARNING 3 – Technology, a convenience at consumers' service.

This is more of an observation than a lesson. Today, convenience is embedded into the consumer's psyche. When shopping, consumers of off-grid lighting products tend to prefer user-friendly, easily accessible and affordable products. This has encouraged manufacturers and assemblers of these products to develop alternative solutions which are similar to mainstream power-grid products: bulbs that light up at the click of a switch; ambient lights that light the room from top down. The lesson here is that the hassle of complicated technologies should be hidden from consumers. Apple Inc. is one example of a company that has built its reputation on convenience (Mac, iPhone and iPod). Technology should be at the service of consumers, not the other way round.

## 7 Conclusion

In a world in which 500 million people have mobile phones but lack access to the electricity grid, it is ever-more important to develop off-grid charging solutions. Early studies and pilot projects suggest that charging solutions lead to increased airtime usage and revenue for mobile operators, as well as providing tangible social and environmental benefits.

This report has established that several possibilities exist for charging mobile phones in off-grid areas. Charging solutions will vary depending upon particular market scenarios, and so the GSMA Development Fund recommends that players in the sector consider the following “Charging Choices” when determining what type of solutions to trial:



This publication has provided an initial guide to mobile operators and suppliers in a landscape where off-grid charging solutions have not yet been widely adopted. The GSMA Development Fund expects that many more trials will take place in the coming years and looks forward to helping accelerate wide scale deployment of mobile phone charging solutions for the off-grid population. For further information please visit [www.gsmworld.com/developmentfund](http://www.gsmworld.com/developmentfund), or email us at [chargingchoices@gsm.org](mailto:chargingchoices@gsm.org).

## List of Companies that Contributed to this Publication

### Organisations

The Ashden Awards for sustainable energy  
[www.ashdenawards.org](http://www.ashdenawards.org)

Barefoot Power  
[www.barefootpower.com](http://www.barefootpower.com)

Better Energy Systems  
[www.betterenergy.co.uk](http://www.betterenergy.co.uk)

Brodtech B.V.  
<http://www.lightingafrica.org/node/4721>

Commiva Technology Corporation  
[www.commtiva.com](http://www.commtiva.com)

Energy For Opportunity  
[www.energyforopportunity.org](http://www.energyforopportunity.org)

The Energy & Resources Institute (TERI)  
<http://www.teriin.org/>

ideaForge Technology Pvt. Ltd.  
[www.ideaforge.co.in](http://www.ideaforge.co.in)

Intivation BV  
[www.intivation.nl](http://www.intivation.nl)

Noble Energy Solar Technologies Ltd  
[www.solarnest.net](http://www.solarnest.net)

Pan's Innovative Science and Technology LLC.  
(PiSAT)  
[www.pisatsolar.com](http://www.pisatsolar.com)

Suntrica Ltd.  
[www.suntrica.com](http://www.suntrica.com)

ToughStuff  
[www.toughstuffonline.org](http://www.toughstuffonline.org)

Yingli Green Energy Holding Company Limited  
[www.yinglisolar.com](http://www.yinglisolar.com)

RMK Worldwide Inc.  
<http://www.rmkworldwide.com>

### Mobile Operators

Airtel  
[www.airtel.in](http://www.airtel.in)

China Mobile  
[www.chinamobile.com](http://www.chinamobile.com)

Digicel  
[www.digicelgroup.com](http://www.digicelgroup.com)

Digitel  
[www.digitel.ph](http://www.digitel.ph)

Econet Zimbabwe  
[www.econet.co.zw](http://www.econet.co.zw)

Globetel  
[www.globetel.fi](http://www.globetel.fi)

Mobinil  
[www.mobinil.com](http://www.mobinil.com)

MTN Uganda  
[www.mtn.co.ug](http://www.mtn.co.ug)

Orascom  
[www.otelecom.com](http://www.otelecom.com)

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## Development Fund

**Working with mobile operators to accelerate mobile solutions for people living on under US\$2 per day.**

The GSMA Development Fund exists to accelerate economic, social and environmental development through the use of mobile technology. We believe that providing tangible, accessible mobile services to people in developing countries is invaluable to society and can help improve people's lives.

The Development Fund leverages the industry expertise of the GSMA and its members, as well as the development expertise of international agencies and non-profit organisations to accelerate mobile services in three areas: Connectivity, Energy and mServices.

Together with our partners we incubate and replicate new mobile services in communities where they can make a positive difference.

Follow the Development Fund blog to keep up to date on news, pilots and industry trends across the globe:  
[www.gsmworld.com/devfundblog](http://www.gsmworld.com/devfundblog).





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