



Mobile for Development Utilities

Phase 3 Innovation Fund
Grantees: 2017-2018



The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, Mobile World Congress Americas and the Mobile 360 Series of conferences.

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The Scaling Off-Grid Energy Grand Challenge for Development (SOGE) is a global partnership founded by the U.S. Agency for International Development, Power Africa, the U.K. Department for International Development, the African Development Bank, and independent charity, the Shell Foundation. SOGE works to accelerate growth in the off-grid energy market to provide 20 million households in sub-Saharan Africa with access to modern, clean, and affordable energy.

Mobile for Development Utilities

The Mobile for Development Utilities programme improves access to basic energy, water and sanitation services in underserved communities using mobile technology and infrastructure. Our work encompasses any energy, water and sanitation service provided to a community, which includes a mobile component, whether it is voice, SMS, USSD, Machine-to-Machine, NFC, a mobile operator's agent network or tower infrastructure. We aim to seize the opportunity, leveraging mobile technology and infrastructure to enhance access to affordable and reliable energy, clean and safe water and sanitation services in underserved communities. The GSMA Mobile for Development Utilities programme receives support from the UK Government and Scaling Off-Grid Energy.

For more information, please contact us:

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Introduction

In 2017, there are 1.1 billion people without basic energy access, 848 million without access to improved water services and 2.5 billion with no access to sanitation.

The challenges to providing universal access to utility services include last mile distribution, operation, maintenance, and payment collection. Furthermore, as urban growth stretches the limits of existing and antiquated infrastructure, millions more people across emerging markets are living with an increasingly intermittent and unpredictable supply of basic utility services.

While energy, water and sanitation access experiences slow growth rates, the growth of GSM mobile networks in emerging markets has stunned observers. The scale and the reach of the mobile industry's infrastructure, distribution channels, mobile payments and technologies therefore offer new pathways to achieve improved access to utility services for underserved communities.

The GSMA's Mobile for Development Utilities programme (formerly MECS) was launched in 2013, with the support of the UK Government, and newly Scaling Off-Grid Energy, to explore the role that mobile technology and infrastructure can play in improving access to basic energy, water and sanitation services in underserved communities from urban to rural settings.

There are a number of ways in which mobile operators can leverage their assets to create new business models in the utilities space, using mobile technology to support the solutions of innovative service providers. The M4D Utilities programme categorises into the following six mobile channels:

Mobile Channels

How is mobile advancing SDG 6 and SDG 7?



What is the Mobile for Development (M4D) Utilities Innovation Fund?

The M4D Utilities Innovation Fund, supported by the UK Government and the Scaling Off-Grid Energy, aims to identify and support innovative mobile-enabled solutions that will improve the lives of many by providing access to affordable utility services.

The Innovation Fund was launched in June 2013. Between Phase 1 (2013-2015) and Phase 2 (2015-2017) of the Fund, grants were competitively awarded to 34 organisations across four continents, amounting to 6 million GBP. To date, M4D Utilities estimates these trials have impacted over 4.5 million beneficiaries in underserved populations around the world. These grants have contributed to an additional \$275 million raised by grantees from the private sector, showcasing the proof of concept for mobile-enabled utility services.

The specific objective of the Innovation Fund is to extract insights from the trial and scaling of these innovative models to inform three key questions for growing the sector:

- How can mobile support utility services?
- For a mobile-enabled solution to be adopted at scale, what building blocks are needed?
- What are the social and commercial impacts of delivering community services to underserved mobile subscribers?

Our findings have revealed that this is an exciting time as now, more than ever, the proof of concept for using mobile to provide life-enhancing services to the underserved is being realised. The findings from our first 34 grants can be found on our [Innovation Fund](#) page.

Geographical spread of M4D Utilities grantees and their MNO partners



Phase 3 of the Innovation Fund

In February and July 2017, we re-opened calls for applications to the Mobile for Development Utilities Innovation Fund.

This phase was our most competitive to date, with 488 applicants across the two rounds, a 124 per cent increase in applications since our last round of funding in 2015. Our fund was more than 25 times oversubscribed with applicants requesting a total of £77 million. This booklet showcases the 19 organisations selected for our Innovation Fund.

We awarded two distinct types of grants:

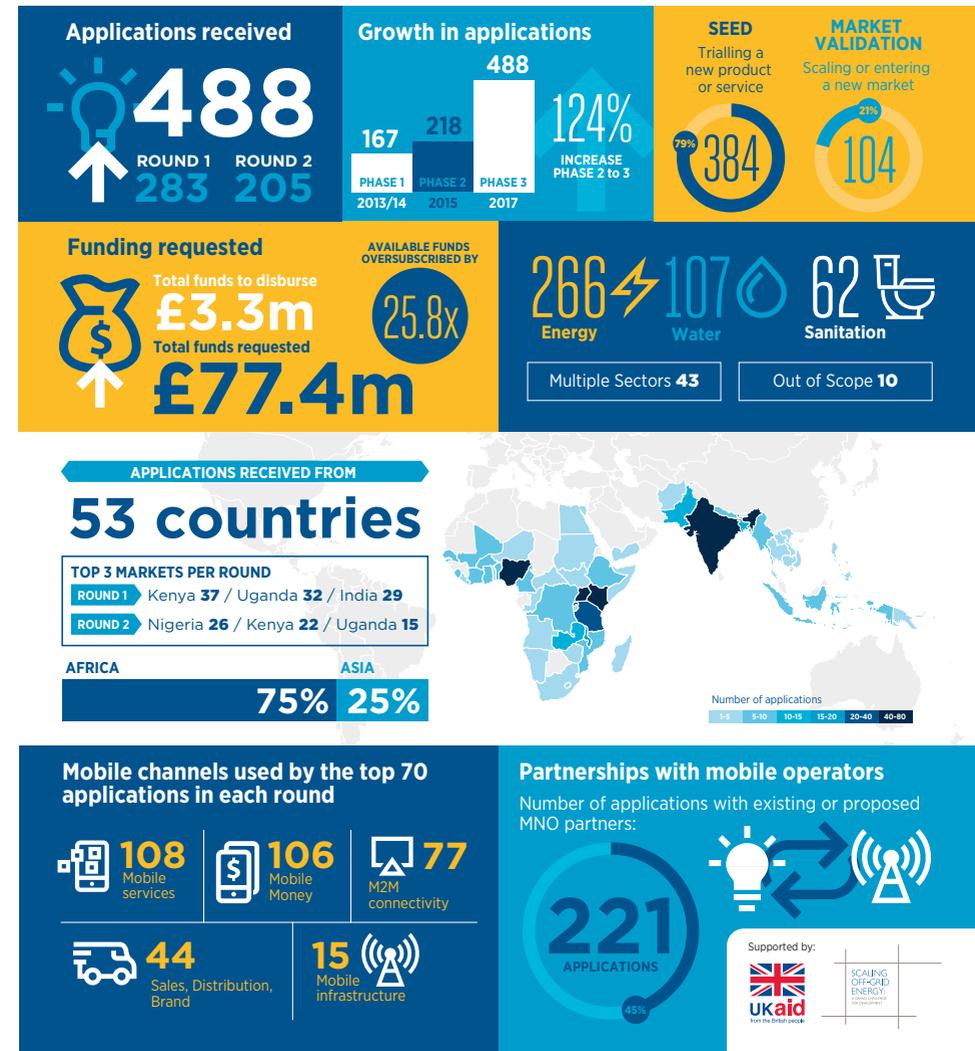
Seed Grants - The specific objective of the Seed Grant is to support the trial of products/services that use mobile to enable sustainable access to energy, water or sanitation.

Market Validation Grants - The specific objective of the Market Validation Grant is to support partnerships with mobile network operators OR utility service providers to support scaling or replication of an existing service that increases or improves access

to sustainable energy, water and sanitation services to underserved customers. The service will already have demonstrated early success and have active users in at least one market.

Our new portfolio reflects some exciting new trends in mobile-enabled utility services. For the first time we've awarded several grants to mobile operators leading on energy and WASH services. In the energy sector, we are supporting the bundling of additional appliances with PAYG solar systems, helping customers gain access to smartphones and cookstoves. Water and sanitation applications were particularly competitive in this selection round. The selected grantees in these sectors will deliver innovative models that leverage mobile money, digital platforms to improve the efficiency of service delivery, bill-payment and maintenance.

Findings from our third phase of applications





Energy



Name of the organisation

Vitalite



Name of project

Developing Smartphone and Cook stove add-ons for PAYG solar home systems in Zambia.



Project location

Zambia



Partners

Fosera, EcoZoom, Airtel Zambia, MTN Zambia



Type of grant

Seed



Description

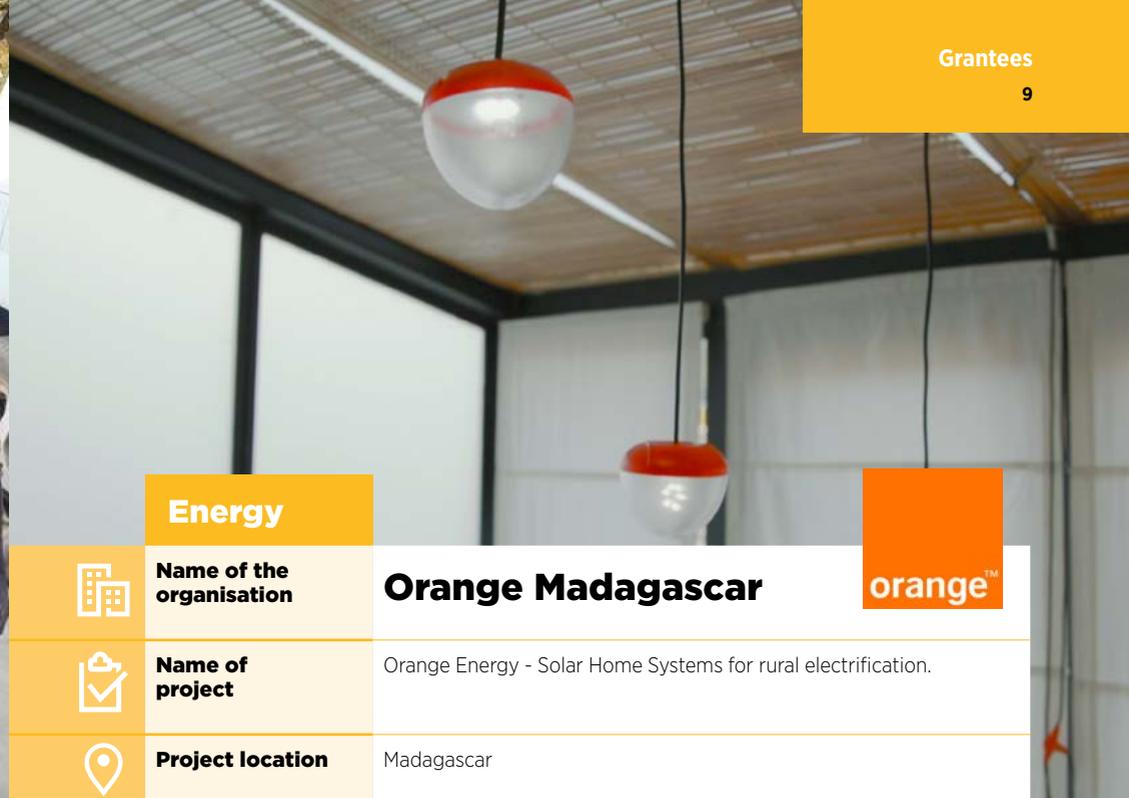
Vitalite will offer smartphones and cookstoves for Vitalite solar home system customers in Zambia. The smartphones will be sold on a pay-as-you-go basis, improving affordability of smartphone devices, while the improved cookstoves will provide clean and affordable energy.



Testimonial

“VITALITE, in partnership with GSMA Mobile for Development Utilities Innovation Fund, will be pioneering Zambia’s first PAY AS YOU GO smartphone as an add-on product to our PAYGO solar offering. This is an important step in advancing connectivity to the internet in rural Zambia, and positive step in developing my country.”

William Makubalo, Project Lead



Energy



Name of the organisation

Orange Madagascar

orange™



Name of project

Orange Energy - Solar Home Systems for rural electrification.



Project location

Madagascar



Partners

d.light



Type of grant

Seed



Description

In this project, Orange Money Madagascar will launch a Solar Home System service on a pay-as-you-go basis - using mobile money and leveraging the Orange brand - in partnership with d.light, a supplier of solar home system products. The energy offering will result in improved access to electricity for underserved households around Antananarivo, the northern and western areas of Madagascar.



Testimonial

“Madagascar is one of the countries facing the biggest challenges in terms of access to electricity. It is estimated that 16% of the population lives in areas where they can access electricity where this figure stands at 61% in Senegal and 86% in South Africa. Orange believes that it is possible to come up with innovative solutions to empower each family in Madagascar, by leveraging Orange’s expertise in this field and Orange Madagascar’s key assets. Orange will use its wide agent network to reach millions of Malagasy and equip them with solutions such as solar home systems or mini-grid solutions. Beyond distribution it is key to imagine new ways to pay and finance these solutions. This is where our leading mobile financial service Orange Money, and its partners, will help reduce the upfront acquisition cost for as many customers as possible”.

Michel Degland, CEO, Orange Madagascar



Energy

	Name of the organisation	Orange Burkina Faso 
	Name of project	Orange software-as-a-service smart metering solution in Burkina Faso.
	Project location	Burkina Faso
	Partners	SINCO
	Type of grant	Seed
	Description	Orange is piloting pre-paid smart metering on mini-grids in partnership with SINCO, a cooperative that manages electricity distribution through rural grids. This smart metering, software-as-a-service solution will enable SINCO's customers to manage their energy expenditure. This prevents households from being regularly disconnected after single-installment, post-paid bills exceed their ability to pay. The smart-meter solution will leverage mobile money, machine-to-machine connectivity, SMS and other mobile technologies.
	Testimonial	<p><i>"Mobile along with energy supply can significantly change lives of people in our country and we're strongly committed to make this happen for as much as possible. With this grant from the GSMA Mobile for Development Utilities Innovation Fund, Orange Burkina Faso will be able to deploy a smart metering solution in rural area where only 3% have access to electricity, with sometime flexible and low cost billing & collection solution is a barrier for energy service provider. The power of smart-metering along with our strong mobile money ecosystem, accessible everywhere in the country, is a unique winning combination that will certainly erase energy supply entry barrier in remote areas."</i></p> <p>Ben Cheick HAIDARA – CEO Orange Burkina Faso</p>



Energy

	Name of the organisation	Afghan Wireless Communication Company 
	Name of project	Lease-to-own solar home systems: Mobile money enabled energy access in Afghanistan.
	Project location	Afghanistan
	Partners	d.Light
	Type of grant	Seed
	Description	AWCC has partnered with d.Light to launch mobile-money enabled lease-to-own solar home systems to provide new energy services to residents of Afghanistan that currently do not have access to any reliable energy. The project deploys a business model designed to drive mobile money adoption and expand energy access in Afghanistan.
	Testimonial	<p><i>"Afghan Wireless, is honoured to work with GSMA Mobile for Development Utilities and its funders to launch My Power—a mobile-money enabled pay-as-you-go system to provide Afghan families with safe, affordable, and renewable lighting. In 2002, we launched Afghan Wireless with a powerful mission: to connect Afghans with one another and the world. Today, the My Power initiative enables us, together, to continue that mission of connecting Afghanistan to the world by providing affordable energy access to all Afghans."</i></p> <p>Dr. Ehsanollah Bayat - Founder and Chairman, Afghan Wireless Communications Company</p>



Energy

Name of the organisation

SimGas

Name of project

SimGas Remote Monitoring & Control system: Smart metering of biogas digesters.

Project location

Kenya

Partners

None

Type of grant

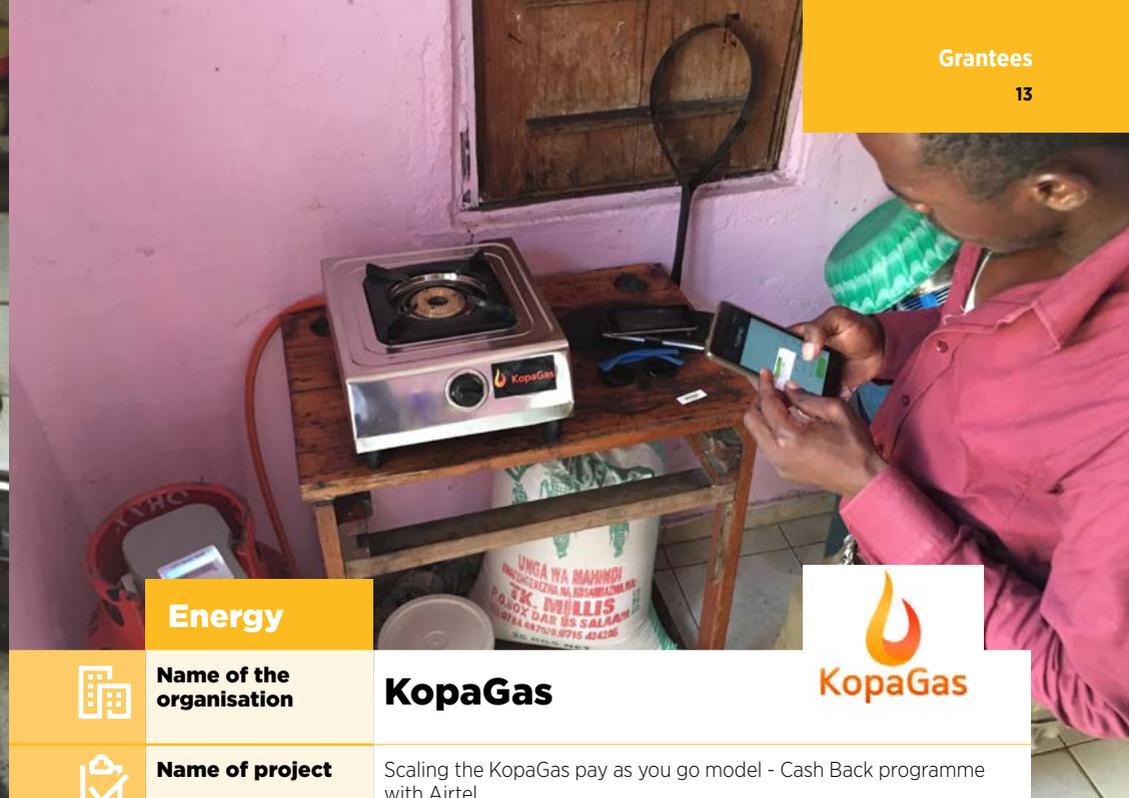
Seed

Description

SimGas will install a Remote Monitoring & Control system - smart meters to monitor and control the real-time performance of biogas digesters for smallholder farmers. The aim of the project is to prove that the Remote Monitoring & Control system will increase and improve biogas access, and enable scale up of the business model.

Testimonial

"Biogas is a life changer for millions of rural households. Remote sensing technology is the solution to many of the current hurdles that holds back large scale adoption of biogas digesters. SimGas is the first company to develop and test remote sensors on a commercial scale that provide our customer care centre with live data on the performance of the digesters. With this data we can significantly improve our customer service, preventive maintenance, payment offering, products and carbon monitoring. With the support of the GSMA Utilities Grant, this is now becoming a reality!"
Sanne Castro, Founder and CEO



Energy



Name of the organisation

KopaGas



Name of project

Scaling the KopaGas pay as you go model - Cash Back programme with Airtel.



Project location

Tanzania



Partners

Airtel, Vodacom & Tigo



Type of grant

Market Validation



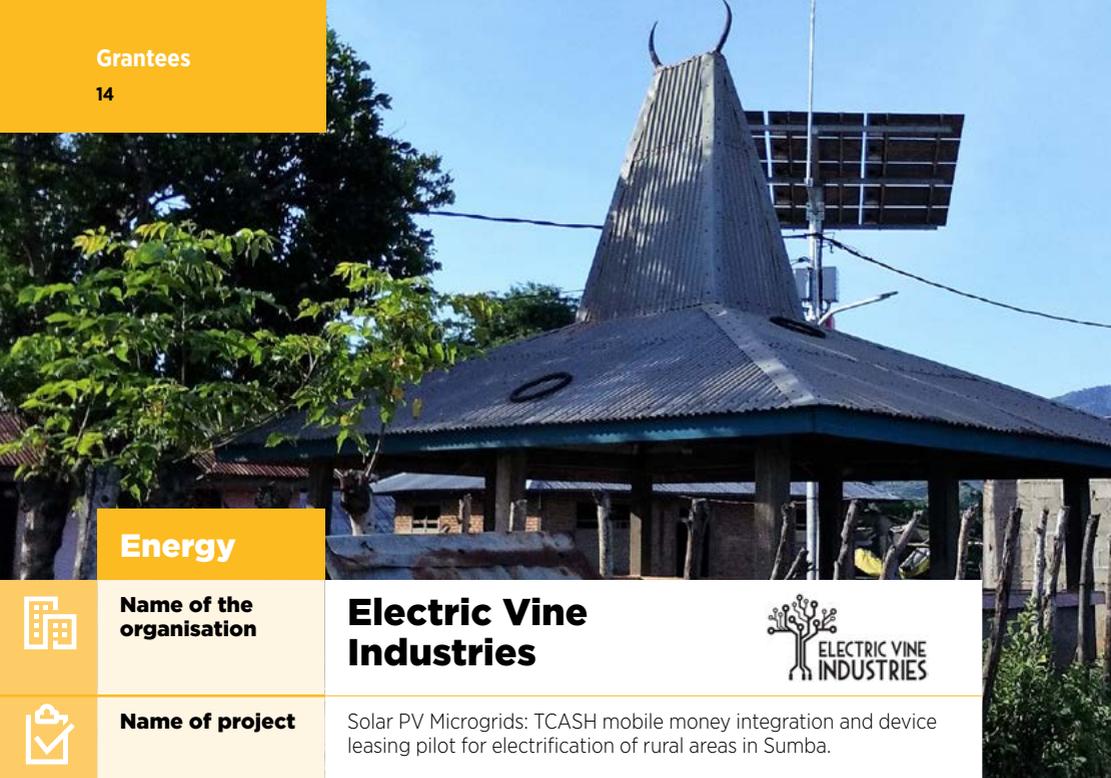
Description

Through this grant, KopaGas will validate fundamental market and operational assumptions to strengthen the 'Pay-as-you-Go' business model for scale with an objective to provide safe and affordable clean cooking fuels to low income customers. The project will integrate a large network of B2B distribution partners into the 'Pay as you Go' operations to increase efficiencies and sales. KopaGas is also partnering with Airtel to roll-out a Cash-Back Program that seeks to create a positive customer behaviour and increase stickiness to both Airtel and KopaGas services.



Testimonial

"This grant will help KopaGas to scale its products and operations in Tanzania and deepen our relations with the leading Mobile Network Operators. KopaGas has created a complete new segment for the Clean Cooking by digitizing the LPG value chain— our current work and sustained growth in Tanzania put us on track to change the lives of 1 million people by 2020 with cleaner and more affordable fuels."
Sebastian Rodriguez, CEO



Energy

	Name of the organisation	Electric Vine Industries 
	Name of project	Solar PV Microgrids: TCASH mobile money integration and device leasing pilot for electrification of rural areas in Sumba.
	Project location	Indonesia
	Partners	Telkomsel
	Type of grant	Seed
	Description	Electric Vine Industries (EVI) is partnering with Telkomsel to integrate TCASH, a mobile money service, into EVI's power metering payment platform facilitated by TCASH payment collection agents in rural communities. EVI will also launch a device leasing program to increase user ability to manage and purchase electricity on demand through the EVI Wallet. The pilot will provide a sustainable energy access with the opportunity for income generation to many un-electrified Indonesians.
	Testimonial	<i>"Electric Vine Industries (EVI) is a private micro-utility which provides off-grid solar PV Microgrids in East Indonesia, using Smart Metering technology. On the island of Sumba we provide 24/7 access to electricity for over 900 Households, using our software platform which allows us to remotely collect payments, monitor and control the systems' operational performance. The GSMA grant will provide EVI the ability to introduce mobile money in rural Indonesia to support the three-way synergy between electrification, mobile money, and productive use of devices."</i> Bryse Gaboury, CEO Electric Vine Industries



Energy

	Name of the organisation	Electricité de Madagascar 
	Name of project	Mobile enabled solar powered mini-grid for deep remote villages.
	Project location	Madagascar
	Partners	Telma, Sagemcom
	Type of grant	Market Validation
	Description	In collaboration with Telma and ADER (the Rural Electrification Agency of Madagascar), Electricité de Madagascar (EDM) will construct mini-grids in three rural off-grid villages in the north of Madagascar. The mini-grids will be supported by mobile to enable smart-metering and mobile payments. Telma will serve as an anchor clients for this rural electrification model.
	Testimonial	<i>"We are proud to be a grantee of the GSMA Mobile for Development Utilities Innovation Fund. Such a partnership is a strong signal that we are aiming in the right direction. EDM, with its partners Sagemcom and Telma, always has the ambition to be a leader in its field. This help will allow us to replicate and validate our mini-grid model we already implemented with success in two villages. This is the second step, and a major one, in our project to give access to reliable and clean energy to rural population in Madagascar, and I am convinced it will lead to scaling on a national level."</i> Hassanein Hirdjee, CEO



Energy



Name of the organisation

Jazz

Name of project

Mobile enabled electricity theft prevention and system loss reduction solution development for mainstream grid distributor.



Project location

Pakistan



Partners

CISNR, Karachi Electric



Type of grant

Seed



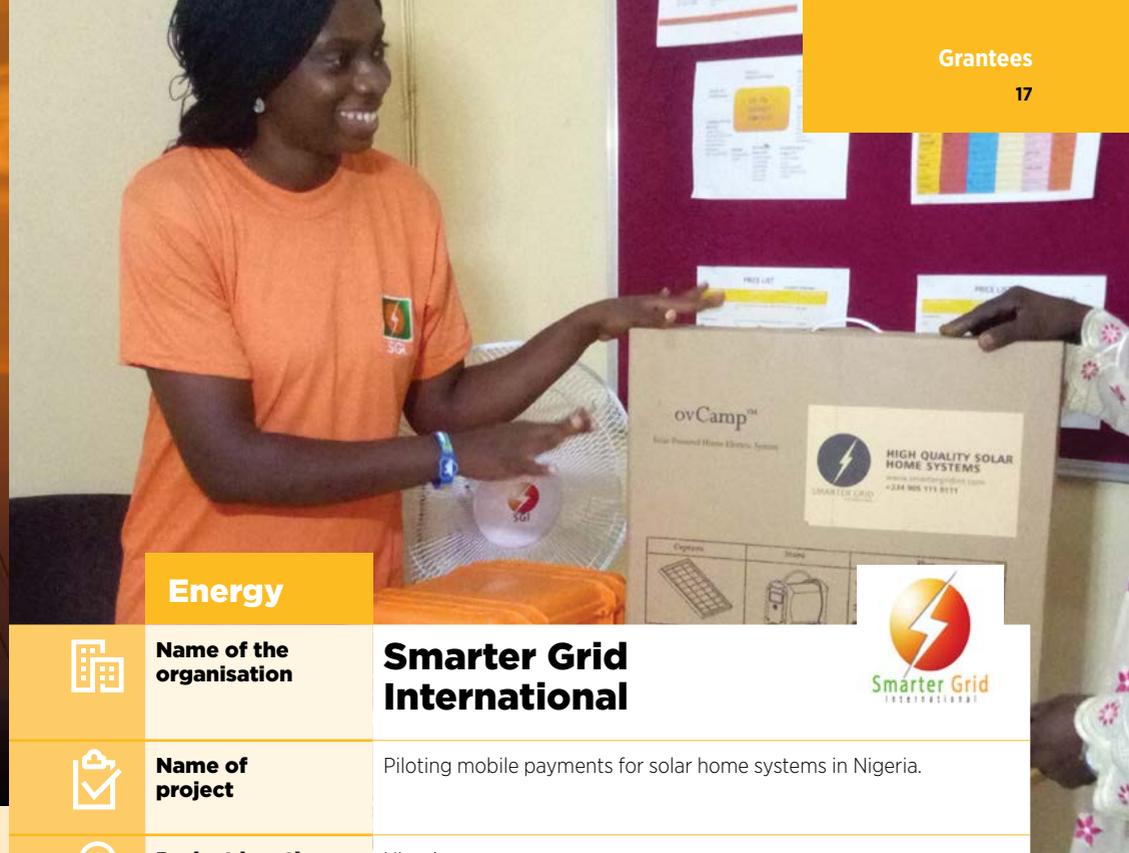
Description

Jazz, along with its technology partner CISNR and grid distributor K-Electric, will design, develop and implement an electricity theft prevention and line loss reduction solution. This initiative will address two of the major issues prevalent in Pakistan: power theft and non-transparency of billing. Jazz and K-electric will target underserved neighbourhoods which suffer the most from theft and increased billing.



Testimonial

"As one of Pakistan's leading telecommunications providers, our ambition is to empower our customers digitally by introducing innovative solutions addressing the challenges faced by our customers. Keeping that objective in view, our grant with GSMA will tackle the challenges faced by our local power distribution sector - such as line losses, inefficient power load distribution at transformer level, and electricity theft. This demonstrates our pledge to make Pakistan digital and ensure that mobile technology growth has a profound effect upon changing the lives of people in Pakistan."
Aamir Ibrahim, CEO



Energy



Name of the organisation

Smarter Grid International

Name of project

Piloting mobile payments for solar home systems in Nigeria.



Project location

Nigeria



Partners

Airtel



Type of grant

Seed



Description

Smarter Grid International is a solar distributor in Nigeria focused on addressing Nigeria's huge energy access gap. Though their grant they will work with Airtel Nigeria to launch mobile payments for pay-as-you-go solar systems. They will also expand their sales to reach additional states and regions in Nigeria.



Testimonial

"Nigeria has one of the fastest growing economies in Africa, and there remains significant potential for the proliferation of mobile money platforms and PAYG technology against the backdrop of a rapidly growing population which is hungry for connectivity. With GSMA support, our pilot with Airtel will be one of the pioneer projects that will prove the concept of mobile money use in Nigeria, and lay the ground for many more vendors to offer and transact services via mobile money and for mobile money usage to become ubiquitous in the country."
Mrs Heather Onoh, CEO



Energy

	Name of the organisation	SolarWorks!
	Name of project	Implementing machine learning to improve solar home systems downtime.
	Project location	Mozambique
	Partners	Vodacom Mozambique, University of Delft
	Type of grant	Seed
	Description	SolarWorks! will improve access to energy services to residents in Mozambique by testing Machine Learning optimisation on their solar home systems. The tool combines weather forecasting data and user data to make Solar Home Systems self-learning and minimize system downtime. Through the grant, solar home system downtime will be minimized resulting in improved customer satisfaction and lower energy cost resulting in improved repayment rates.
	Testimonial	<i>"At SolarWorks! we aim to constantly improve the access to energy for our clients. Because of the grant from GSMA we are able to professionally implement machine learning in combination with weather forecast data to minimize the down time of our systems and deliver even better quality energy services against the lowest cost possible for our clients. Mobile data and M2M communication is at the center of this development and makes this all possible."</i> Arnoud de Vroomen, CEO



Water



	Name of the organisation	City Taps
	Name of project	Phase 2 of the SEEN-CityTaps CTSuite Mobile Money Water Prepayment Service.
	Project location	Niger
	Partners	Orange Niger, SEEN, CIPMEN
	Type of grant	Market Validation
	Description	Citytaps will develop CTSuite service, a water utility subscriber management and pay as you go (PAYGO) smart meter solution. This technology will provide new and improved prepaid on-premises water services to the homes of urban residents of Niamey, that currently do not have access to clean, safe, reliable, and affordable water.
	Testimonial	<i>"GSMA's grant will help CityTaps expand its service and impact 19,875 more people without running water at home"</i> Grégoire Landel CEO and Founder CityTaps



Water	
 Name of the organisation	Drinkwell 
 Name of project	Providing safe drinking water to low income households across Dhaka via mobile-enabled water ATMs.
 Project location	Bangladesh
 Partners	Dhaka WASA, Robi Axiata
 Type of grant	Market Validation
 Description	Drinkwell will use their GSMA grant to scale the use of their Water ATM-enabled system to provide improved water services to residents of Dhaka, Bangladesh who currently lack access to affordable, safe drinking water.
 Testimonial	<i>"Drinkwell is thrilled to scale our innovative water atm-enabled filtration system across Dhaka in partnership with Robi and Dhaka WASA, a leading water utility that is on track to become the first megacity in Asia/Africa to provide 100% legal access to safe water for all citizens. We are excited to grow this partnership that will help Bangladesh achieve UN Sustainable Development Goal 6 around the provision of safe water and sanitation for all by 2030."</i> Minhaj Chowdhury, Founder and CEO

Water**Name of the organisation****Uduma S.A.S.****Name of project**

PAYG e-water pumps: Mobile based cashless payment facility.

**Project location**

Mali

**Partners**

None

**Type of grant**

Seed

**Description**

Uduma S.A.S carries out operation and maintenance services on water hand-pumps and small piped water services in Mali. Through the grant they will use mobile-enabled devices to retrieve operational information from data loggers on water points and use mobile money and NFC cards for customers to make payments. Uduma SAS aims to demonstrate that mobile solutions for revenue collection and data transmission can help make the delivery of basic services commercially viable, even in areas not yet covered by the GSM network.

**Testimonial**

"What if we could significantly increase the efficiency of delivering essential services in rural Sub-Sahara Africa? Accepting this as a challenge, Uduma SAS and its technology partner ventured into developing an innovative new business model which combines mobile technologies such as NFC, data connectivity and mobile money in order to provide clean drinking water to millions of people living in remote areas. We believe cashless revenue collection and remote monitoring of water delivery can greatly improve our level of service to customers to ensure reliability. Through its financial support and technical accompaniment, GSMA is a crucial partner in implementing the new model on a large scale."

Thierry Barbotte.
Managing Director Odial Solutions / Director UDUMA S.A.S.



Water

	Name of the organisation	Safe Water Network 
	Name of project	Optimising the Small Water Enterprise Model through mobile money and M2M technologies.
	Project location	Ghana
	Partners	MTN Ghana
	Type of grant	Market Validation
	Description	Safe Water Network aims to launch mobile money services and machine-to-machine connectivity for water ATMs and prepaid household meters in partnership with MTN Ghana. Through this use of mobile technology, they will be able to scale and improve access to water services for residents of Ghana
	Testimonial	<i>"In partnership with GSMA, we're using mobile innovations to reduce costs and simplify collections for our consumers. This is essential for enabling the scale-up of safe water for more than a billion people in need globally."</i> Kurt Soderlund, CEO



Sanitation

	Name of the organisation	Kampala Capital City Authority 
	Name of project	Using Technology to improve sanitation service delivery in Kampala City.
	Project location	Uganda
	Partners	National Water and Sewerage Corporation, GIZ
	Type of grant	Market Validation
	Description	The purpose of this grant is to improve access to safe and reliable fecal sludge collection and transportation services for the residents in the informal settlements of Kampala city, Uganda. The grant will upgrade the pilot GIS tracking system enabled by a mobile application and call center, build capacity and promote pit emptying business in partnership with National Water and Sewerage Corporation, GIZ and the private emptiers associations that will use information and mobile technology (including mobile money) to empty pit latrines.
	Testimonial	<i>"KCCA is pleased to be selected among the winners of the GSMA Mobile for Development Utilities Grant. This grant will be used to enhance public participation in ensuring quality service delivery in sanitation and waste management."</i> Jennifer Semakula Musisi, Ph.D, Executive Director, Kampala Capital City Authority.

Sanitation

Name of the organisation

Practical Action Bangladesh



Name of project

1Service: Mobile enabled platform to deliver water and sanitation municipal services.

Project location

Bangladesh

Partners

Robi Axiata

Type of grant

Seed

Description

The purpose of the grant is to launch a mobile based utility services platform, in partnership with Robi Axiata Ltd and municipalities, that will use mobile technology to provide improved water and sanitation related utility services to the residents of the municipalities. This platform will give customers convenience to request municipal services using their mobile phones and pay using their Robi cash mobile wallet.

Testimonial

“Practical Action has years of exclusive experience for implementing city-wide Faecal Sludge Management (FSM) services. We have introduced e-FSM services through which, anyone can request for pit emptying services using a web application and a dedicated call centre. Building on this, we are launching 1Service application in affiliation with Robi Axiata Ltd., one of the largest telecom operators of the country. 1Service digitally offers an integrated municipal utility services including, but are not limited to, water supply, sanitation, waste management and FSM in 3 cities, ensuring customer satisfaction. 1Service allows the low-income population, including slum dwellers, to avail the services at an affordable cost. We see the enormous potentials of this initiative to reach the citizens of all the municipalities and city corporations to access improved utility services. We believe that our unique effort will bring a visible contribution to the Government’s vision on digital Bangladesh. GSMA deserves appreciation for supporting this noble venture.”

Hasin Jahan, Country Director Practical Action Bangladesh

Sanitation

Name of the organisation

Svadha

Name of project

Svadha Powered by SaniMark.

Project location

India

Partners

None

Type of grant

Seed

Description

Svadha is a social business building better rural sanitation markets through aggregation and innovation of quality sanitation products and services which are delivered through an army of entrepreneurs and facilitated by ICT. With GSMA, Svadha is developing and launching SaniMark, a platform to integrate and enhance the sanitation ecosystem through ecommerce and customized, data-driven business support for entrepreneurs.

Testimonial

“After years of working closely with sanitation entrepreneurs, Svadha is excited to finally help entrepreneurs address their core business management needs. This new opportunity for deeper engagement and support will help entrepreneurs grow their businesses and reach more sanitation consumers with quality sanitation products. We envision providing access to a variety of sanitation-related products through SaniMark and invite other companies to join us in reaching this vast market.”

Jessica Brooks Head of Innovation & Strategic Partnerships



Sanitation

Name of the organisation

CBSA-Container Based Sanitation Alliance



Name of project

Mobile application and web tool for Container Based Sanitation providers.

Project location

Madagascar, Haiti, Kenya & Peru

Partners

Xrunner, SOIL, Sanivation, Loowatt

Type of grant

Seed

Description

Building off the experience of its members, the Container Based Sanitation Alliance (CBSA) will develop a mobile application and web based platform to support the efficient delivery of household sanitation services across multiple countries. The project will benchmark existing efforts and work to build a common platform that can serve the growing CBS sector while adapting to the specific needs of varying service models and contexts. The platform will address both customer relationship management, billing and mobile payments, and track the safe disposal of waste from household to treatment

Testimonial

“The member organizations of Container-Based Sanitation Alliance (CBSA) are all primarily focused on expanding access to dignified, safe and affordable sanitation for families and communities in dense urban areas. In order to operate efficiently and deliver quality sanitation services in the most complex and difficult urban environments around the world, CBSA members need to be able to monitor service quality, process payments, navigate logistics and stay engaged with customers. What makes this especially challenging is that it needs to be done while moving around highly informal and rapidly changing settlements and communities. The use of mobile technology is essential for CBSA members to reach scale and deliver dignified, safe and affordable sanitation for the over one billion individuals living in urban areas globally.”

Kory Russel, Chair of the Container-Based Sanitation Alliance



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