

CROWD POWER

Mapping the Market
for Energy Access

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GVEP
International

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EXECUTIVE SUMMARY

Crowdfunding for energy access refers to the donation, reward, debt and equity campaigns launched each year by social enterprises, charities and other organisations raising capital for off-grid energy projects. This market is currently very small, with \$3.4 million raised for projects in Africa and Asia in 2015. Debt campaigns currently dominate the market, accounting for 75% of funds raised and 95% of campaigns¹. Much of this is for micro-loans. Recent shifts in solar crowdfunding and the emergence of in-house financing across energy access business models will continue to alter the crowdfunding landscape significantly. Over the short term, equity and debt crowdfunding could grow substantially as more early-stage business ventures, unable to raise capital from traditional financiers, seek funds from the crowd. Regulatory changes could also assist this growth. The off-grid energy sector is capital-intensive, with the leading market players offering pay-as-you-go (PAYG) financing, with high working capital requirements. Longer term, as these companies reach scale, the role of the crowd is likely to reduce as other investors in the sector will be better placed to provide the required financing.

GVEP International

GVEP International is a non-profit organization, headquartered in London, and works to increase access to sustainable, renewable energy sources in off-grid communities. To achieve this goal, we support the development and growth of small and medium-sized enterprises in developing countries which deliver energy products and services to the poor.

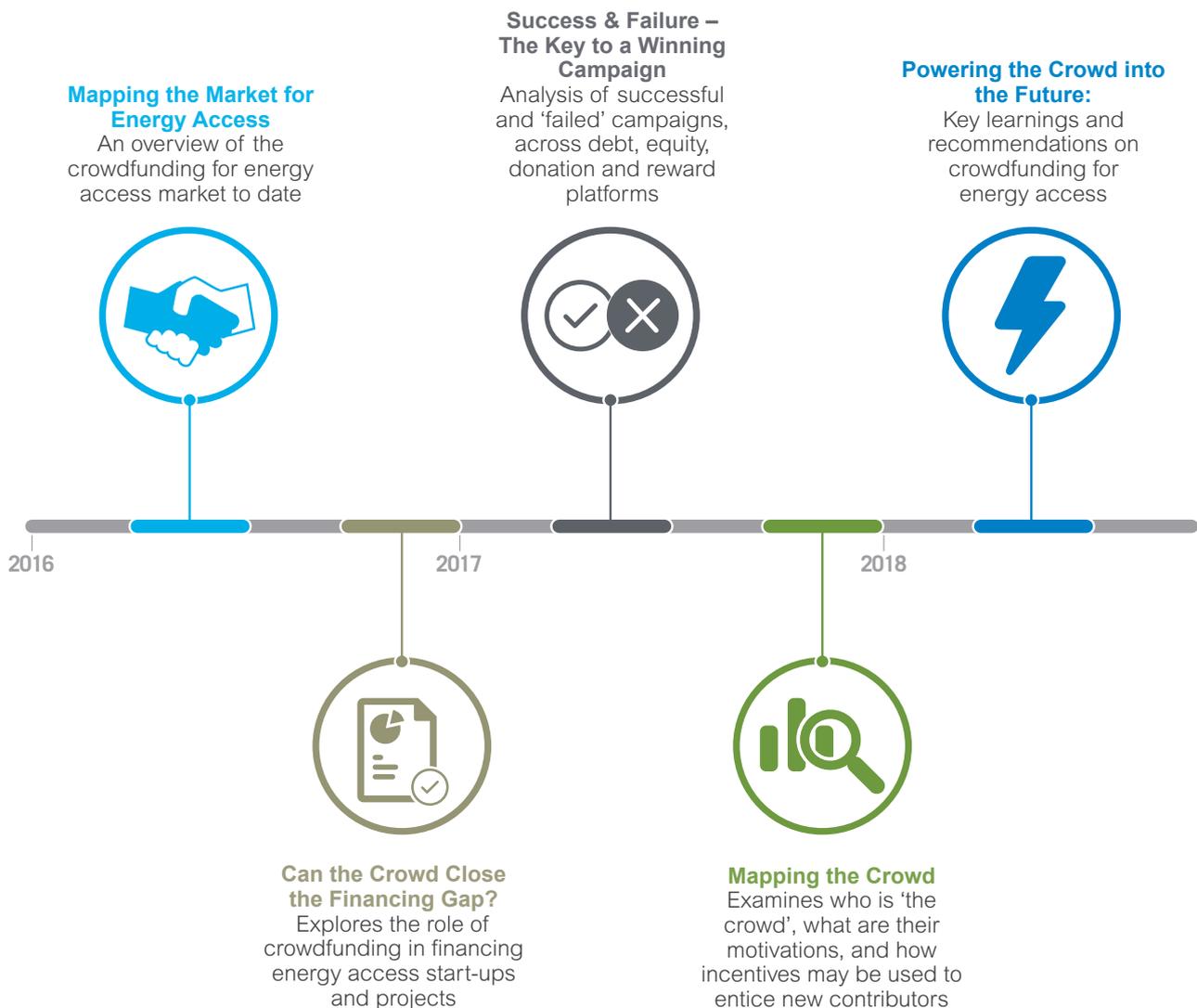
Energy Access refers to the 1.2 billion people globally living without electricity, and the 2.7 billion people still cooking with firewood. The International Energy Agency estimates over 50% of energy access will be met by off-grid energy solutions – like solar home systems and minigrids.

1 INTRODUCTION

This report is the first in a series on crowdfunding for energy access in Sub-Saharan Africa and Asia. Published by GVEP International, with funding from UK Aid, the five reports will focus on different aspects relating to the financing of energy access initiatives and businesses, via donation, reward, debt and equity crowdfunding platforms. The series is part of a wider programme – called Crowd Power – established by GVEP International in 2015. Crowd Power ends in March 2018.

The programme provides funding to selected crowdfunding platforms to support off-grid energy access campaigns in Sub-Saharan Africa and Asia. Approximately \$850,000 has been allocated to support eligible campaigns through match funding, as well as debt protection and gift cards. Platform partners include **Indiegogo, Crowdcube, Global Giving, Trine** and **M-Changa**. Crowd Power will also examine the world of energy access crowdfunding from a research perspective, and this report is intended to provide an overview of the market as it stands today.

Crowdfunding for energy access is a nascent sector, and there is limited aggregate data available. Please refer to the Note on Data Sources on page 17 of this paper for further information.



2 ENERGY ACCESS CROWDFUNDING

Growing from a little known concept at the beginning of this century to an industry worth over \$140 billion globally in 2015², crowdfunding is now ubiquitous. From tech start-ups raising millions of dollars, to individuals raising microdonations to cover healthcare costs, crowdfunding now covers the gamut of financing for individuals, charities, businesses and other organisations. As the scope and guise of crowdfunding expands, it is no surprise then to see campaigns targeting energy access for the 1.2 billion people globally without energy, and 2.7 billion still cooking with firewood – 95% of which live in Africa and developing Asia³. Crowdfunding for energy access is a niche market segment, with \$3.4 million raised for individuals, charities, NGOs and social enterprises in Africa and Asia in 2015. This is for all types of energy. By comparison, the off-grid solar sector alone raised in total \$276 million in investments across both regions in 2015⁴.

What is Crowdfunding?

Crowdfunding is the process of raising small amounts of money from a number of individuals to fund a specific initiative, project or business, and is almost exclusively online. It is a way of formalising contributions and investments from family and friends, while catalyzing funding from the crowd – be it people completely unknown, members of an extended network, philanthropic contributions or institutional funds. Broadly, crowdfunding platforms can be broken down into four categories: debt, equity, donation, and reward.



Debt platforms, facilitate loans typically to individuals, groups and businesses, and may be made directly (peer-to-peer) or via an intermediary such as a bank or microfinance institution.



Equity platforms have grown robustly in recent times as regulations in various countries have caught on to the prospect of using crowdfunding to raise commercial capital. These platforms raise early-stage, high risk capital for businesses.



Donation platforms raise funds from contributors who do not expect a monetary or non-monetary award in return. Their motivation is philanthropic, and could include contributions to local community projects or global causes.



Reward platforms offer the crowd non-monetary rewards in exchange for their contribution. Rewards are often used by businesses aiming to bring an innovative product to market.



Hybrid platforms, which offer various campaign types, must also be considered. The most common combinations are debt-equity and donation-reward platforms.

(a) Scale and nature of energy access crowdfunding

While crowdfunding in developing markets is gaining momentum, with over \$430 million raised in 2015⁵, energy access campaigns in the developing world raised just \$3.4 million⁶ across debt, equity, donation and reward platforms over the same period. In 2015, there were approximately 2,000 energy access campaigns funded, with an average campaign size of \$1,725⁷.

Debt campaigns account for 75% of the total raised for energy access from the crowd – \$2,538,782. Microfinance loans dominate this segment, and **Kiva** accounts for the majority of these.

Reward campaigns accounted for 16% of funds raised, with an average campaign size of \$7,500. **Indiegogo** was the leading platform, raising over \$500,000 across 60 campaigns. The most successful reward campaigns (in terms of % of target reached) tended to offer campaign backers product trials, while the least successful offered perks such as a postcard. Campaign objectives varied widely, from distributing solar lanterns to cacao farmers in Ghana to **GravityLight's** commitment to establish a production line in Kenya for their version 2.0. While 73 reward campaigns were funded, many of these were only partially funded and did not meet their targets. These campaigns were, nevertheless, able to keep the funds raised as they opted for a flexible campaign. For further information on flexible and fixed campaigns refer to Platforms for Energy Access on page 9.

Donation campaigns represented 7% of the market in 2015 with 18 campaigns in total – 13 for solar products. Global Giving was the dominant platform, raising \$170,000 across 4 campaigns. The most successful donation campaign in 2015 was for a mobile solar laptop library, visiting schools in Ghana. The campaign raised \$137,135 – over three times its target.

The successful, quick to fund, equity raise by **Trine**⁸ in Q4 2015 shows there is a market for energy access equity campaigns. This was the only equity raise for

energy access we could identify in 2015. The previous year, there were three equity campaigns, raising over \$300,000 in total – the largest campaign being **Shamba Technologies** on Crowdcube, a company which designs and manufactures affordable, modular solar systems, intended for Sub-Saharan Africa. Crowdfunded investment capital is most helpful for seed and early-stage capital, where few financing alternatives exist. Donation or reward capital is most effective for companies in pre-pilot mode, or for community initiatives.

(b) Equity on the rise

During the first quarter of 2016 we saw the close of the most successful crowdfunded equity raise the energy access market had seen at that point in time. The campaign by **Buffalo Grid**, a company providing off-grid mobile charging stations to entrepreneurs in India and Uganda, raised over \$750,000 – double its target. See the graph on page 13 for further details on the campaign. This was bettered a few weeks later by **Renovagen** raising close to \$1,500,000 on Crowdcube for a portable solar power plant designed for use in emergencies. The Trine platform also launched in early 2016, following a successful proof of concept, and their first two campaigns in East Africa funded in only a few days.



Source: Buffalo Grid

Off-grid Crowdfunding in Africa and Asia 2015

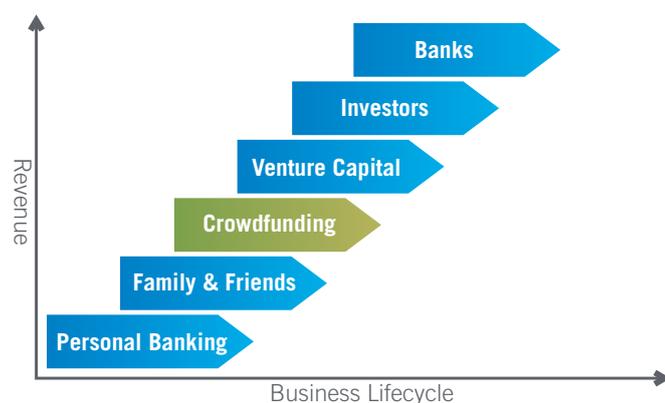
	Donation	Reward	Debt	Equity
Amount Raised (US\$)	234,470	551,149	2,538,782	81,119
Campaigns	56	109	2,114	1
Number of Funded Campaigns	18	73	1,882	1
Number of Platforms	9	10	7	1
Average Raised	13,026	7,550	1,349	81,119

These are notable developments for this nascent sector, and may indicate the potential of crowdfunding to meet the needs of early-stage and local energy access businesses to raise commercial capital. The broadening of this space can be better understood in the context of two key shifts in the crowdfunding sector over the past few years. The first is changes (and proposed changes) to securities law in the US, Europe, New Zealand and Australia, which will continue to encourage the growth of equity crowdfunding globally. The second being the growth of solar crowdfunding in developed markets, particularly the US.

(c) Limits to the role of the crowd

There are some indications emerging that crowdfunding has its time and place in the business lifecycle. Once commercial and institutional capital is available at a lower financial and administrative cost than crowdsourced capital, raising investment from other sources may be more efficient and/or cost effective. The US company **Mosaic** launched in 2010 as the first platform to crowdsource investment for solar in the US. The company later shifted from commercial to residential loans, expanding beyond crowdfunding to raise capital from institutional investors. The pioneer of solar crowdfunding debt in developing countries, **SunFunder**, appears to be on a similar track since launching as a crowdfunding platform a few years ago. In 2015, SunFunder raised only three loans from the crowd, with the remaining debt funded through their solar notes offer for accredited investors. As the company has grown the proportion of the capital raised from the crowd has declined. It is important to consider however, that crowdfunding has multifaceted purposes, with financing being one of them; marketing, market engagement, product testing and validation are also important elements to consider.

Financing sources over time



Trine, like SunFunder, is an exclusively solar crowdfunding platform set up to provide working capital loans to energy businesses in the developing world. Their immediate success, with the launch of three, quick-to-fund campaigns is an indication of the crowd's appetite for triple-bottom line investments of this nature. Trine has ensured their early success by doing the groundwork: establishing a strong investor base and encouraging pre-commitments before campaigns go live, and also bringing on match funding partners for two out of three of their campaigns. The next challenge will be ensuring borrower payback, and investment returns. With loan terms of 12 and 18 months, it won't be long until repayment rates are revealed. If Trine does grow will it follow the trajectory of Mosaic and SunFunder?

(d) PAYG a likely game changer

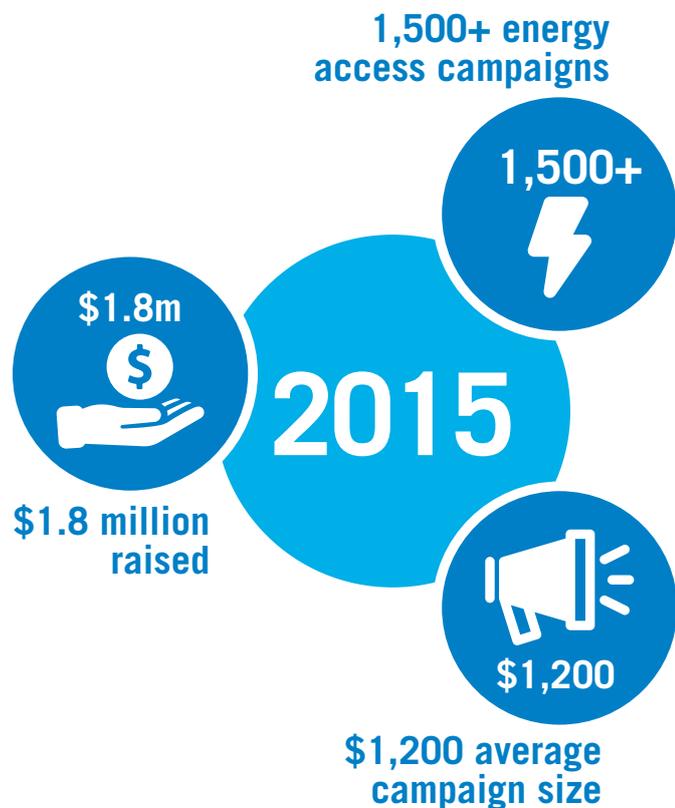
The financing of solar assets via PAYG models – either to pay off the asset or as a fee for service – is a key driver of growth for scalable off-grid energy providers. These include **M-KOPA** and **Off Grid Electric** in East Africa, which have both had oversubscribed funding rounds. The growth of PAYG models means raising large-scale working capital from investors, to finance up-front costs, is imperative.

Demand from PAYG companies for working capital is likely to result in increased offerings of asset-backed securities and bonds. While these may be appealing to the crowd, over the long run companies are likely to find cheaper or more convenient sources of capital.

As companies bring consumer finance in-house, there will likely be a reduced need for micro working capital loans to local distribution agents. Microlending platforms saw a number of changes in 2015, highlighting the difficulties of operating in developing markets. Kiva announced the closure of their peer-to-peer pilot programme in Kenya, **Kiva Zip**, citing a declining repayment rate and administrative burden to its partners. Kiva Zip will continue to operate in the USA. **MYC4**, one of the leading platforms in 2015 for energy loans, stopped all lending activities after the alleged misappropriation of over \$1 million by two field partners in Kenya⁹. This highlights the challenges of platform models that are reliant on local field partners to administer loans, and to be accountable for funds contributed by the crowd.

The changing dynamic of crowdfunding for energy access in early 2016 could signal the growth of debt and equity within this niche market segment, as early-stage companies capitalise on opportunities to raise investment capital from the crowd. The Crowd Power programme hopes to encourage financing of this type, by offering companies a chance to match investment from the crowd on platform partner campaigns. However, with few secondary markets for crowd-funded investments, and still only a handful of successful exits across the entire crowdfunding industry, the development of the sector is difficult to predict.

3 SPOTLIGHT ON SUB-SAHARAN AFRICA



Over 600 million people living in Africa do not have access to energy. While Northern Africa is almost entirely electrified, 30.5% of Sub-Saharan Africa's population is without access to electricity¹⁰. With government energy policy focused on urban populations, off-grid communities are a ripe opportunity for energy access businesses. Success stories such as M-KOPA, a PAYG solar distributor in Kenya with more than 250,000 customers and targeting a \$1 billion valuation¹¹, demonstrate the enormous potential of this market.

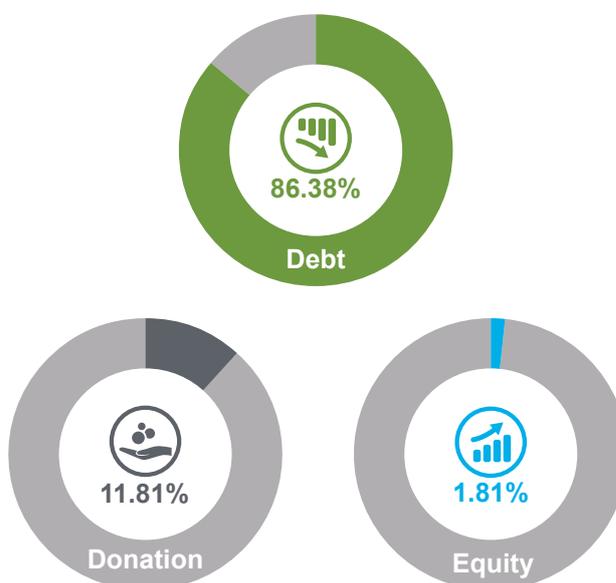
Within the energy access sector, product and payment technology innovation is supporting scalable business solutions to off-grid energy access. Seed capital, early-stage financing and working capital are imperative, but also where there is the biggest financing gap. For these companies operating in an ecosystem which lacks strong investor networks, and where it is difficult to raise capital from traditional financiers, alternatives must be found. Thus far there are few instances where crowdfunding has been leveraged to fill this gap; Buffalo Grid, GravityLight, and **WakaWaka Power** are rare success stories. But this is likely to change.



Source: WakaWaka Power

(a) Micro-loans dominate

Energy access crowdfunding in Sub-Saharan Africa is, mainly used for microloans, supporting micro-entrepreneurs to purchase stock, and for home energy purchases. This is consistent with the global picture where, as we have seen, micro-loans dominate energy access crowdfunding. Debt platforms accounted for 86% of the \$1.8 million raised across 1,500 campaigns in the region last year. Kiva dominates the market, and has raised \$1.5 million with over 1,300 energy loans over the same period. Kiva works by providing loans to groups and individuals via banks, micro-finance institutions, social enterprises, non-profits and other charitable organisations.



Kenya alone accounts for half of all energy access campaigns on Kiva. This can largely be explained by the high number of partners (33, out of 110 in Africa) and large lending volumes by a number of those partners. **One Acre Fund**, which provides solar lamps to their farmer clients, has raised \$5.5 million since partnering in 2011. Kiva has had mixed success through their non-traditional partnerships in Kenya. In 2015 it was announced that **Barefoot Power** had agreed to terminate their relationship following high default rates on loans facilitated by them. Additionally, many non-financial institution partners have found the administration of Kiva loans burdensome, and the Kiva Zip pilot in Kenya is now winding down due to similar reasons¹².

Despite the mixed results, the crowd is playing a role increasing financial access to social enterprises and other organisations involved in last mile distribution, which would otherwise find it difficult to raise funds as they are small scale or operate as a not-for-profit. While there may not be exponential growth potential, as markets mature – as they are doing in Kenya – we may see an increase in loans from other markets, barely represented today. For example, in 2015 there were 1,247 Kiva loans in Kenya, and just three in Ghana, where there is strong potential for growth with the right partnerships in place. The lessons of the last few years suggest partners need the institutional set-up to properly manage credit.

Kiva's Energy Access History

Kiva launched in 2005, based on a model of lending to banks and microfinance institutions (MFIs) in developing countries. These financial partners facilitate loans to the individuals that appear on Kiva, and loans are 'sold' to the crowd via the platform – at zero percent interest.

In 2011, Kiva began encouraging their financial partners to add green loans to their portfolios. They also launched Kiva Zip, a direct peer-to-peer lending platform piloted in Nairobi, Kenya. Kiva Zip works by providing loans via mobile money to individuals vetted by Kiva partners – such as GVEP International – and allows lenders to fund working capital loans for cookstove artisans and solar distributors.

Kiva's launch of the Experimental Partnerships Program in 2012 brought a large number of energy access partners onboard. Kiva's first non-financial partner, One Acre Fund, continues solar lending to farmers today. One Acre Fund works with smallholder farmers in Sub-Saharan Africa to provide agriculture inputs, and offer solar lights as part of the bundle of goods financed by a micro-loan. The same year, Barefoot Power broke Kiva's largest loan record, raising almost \$49,500 as a working capital loan for a distributor in Tanzania. Today partners include **PowerGen Renewable Energy**, which has raised project finance to establish PAYG solar minigrids in East Africa, **BURN Manufacturing**, a company manufacturing energy-efficient cookstoves in Kenya, and **Impact Carbon**, a non-profit selling clean cookstoves and water filtration systems in Uganda. BURN Manufacturing and Impact Carbon facilitate

working capital loans of \$1,000 – \$5,000 for local stove distributors. Impact Carbon has raised close to \$1 million, since joining Kiva two and a half years ago.

In 2013, Kiva resolved to accelerate 'catalytic' loans: to lend beyond the traditional realms of consumer finance and working capital, to focus on loans that would have more impact – by supporting the environment, education, health, women or marginalized groups. They continued to expand partnerships beyond traditional financial partners, which can be slow to finance energy assets as they fall outside their usual business, and several of these have been energy focused social enterprises or organisations supporting energy access.

However, the difficulties faced by these non-financial partners in carrying out credit functions, has now become apparent. Kiva ended their arrangement with Barefoot Power this year, citing the challenges faced by businesses launching a credit programme in addition to their core function. Kiva stated, "the solar sector is also rapidly changing, and popular products can easily be displaced by a new model on the market, contributing to many of Barefoot Power's borrowers struggling to repay their loans".

The Kiva experience demonstrates crowdfunding is a particular challenge for organisations that are not set-up to perform credit functions, and while many platforms are set-up to rely on local partners to originate loans, the lack of oversight and control over these partners can increase risk for lenders.

(b) Product testing and early stage equity

For start-ups refining their product design, distribution, and market, donation and reward platforms are an important mechanism, and may allow the start-ups that survive to 'graduate' to debt and equity funding – either from the crowd or other investors, once they have a proven track record. GravityLight is a classic example of this, having raised \$780,000 across two reward Indiegogo campaigns (in 2013 and 2015) to bring their novel light, which uses kinetic energy to illuminate households, to market.

Their first campaign brought GravityLight's product from an idea to prototype, with field-testing conducted in off-grid households in Sub-Saharan Africa as well as by the crowd who received a unit in return for their contribution. The second campaign, supported with match funding through **Ben & Jerry's** Join Our Core programme, took the lessons learned from their consumer trials to improve upon the product, and to establish their production line in Kenya. GravityLight has not yet had a commercial release, and the company has yet to show it can build a market.

Social impact crowdfunding is evolving through universal platforms, as well as niche platforms, like **Oneplanetcrowd**, a Dutch social impact crowdfunding platform where “entrepreneurs can raise funding through presales of products, donation, loans and convertible loans with which an investor can acquire a share in an interesting startup” says Managing Director, Maarten de Jong.

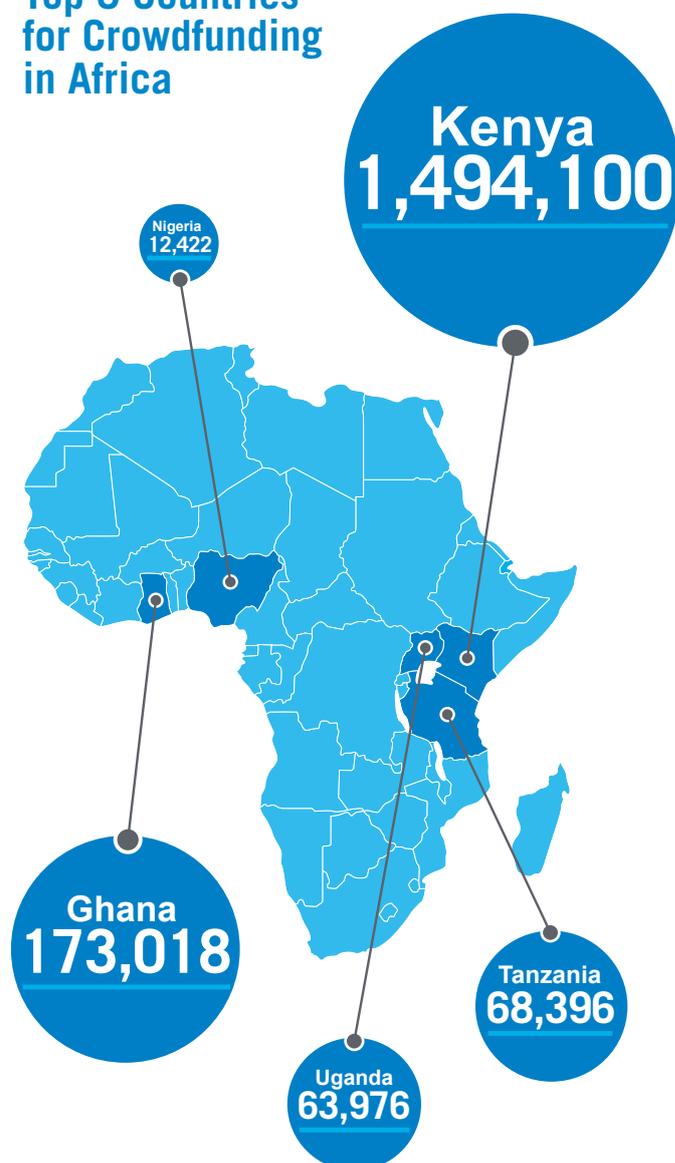
One of their biggest success stories, WakaWaka Power, has raised close to \$1.5 million crowdfunding on various platforms. Interestingly, WakaWaka's first campaign on Oneplanetcrowd launched concurrent to a campaign on **Kickstarter**, raising almost \$500,000. Both campaigns were reward-based, offering various WakaWaka products, including the portable solar unit, to backers. Utilising a local, Netherlands based crowdfunding platform allowed WakaWaka Power to tap into their close network, while the Kickstarter campaign gave them global reach. Separately, the company raised over \$500,000 debt last year on **Geldvoorelkaar**, another Dutch platform.

These investments may signify a shift in the use of crowdfunding by energy access businesses, and are encouraging for the energy access market. However, a successful crowdfunding campaign does not necessarily equate to a successful business and only time will tell if the crowd is backing winners. Unlike many reward-campaigns in the tech or consumer goods segments, which may be used to assess market appetite, success in raising funds for operations in developed markets from funders in developed countries, is not necessarily an indication that customers will buy the product. Furthermore, a lack of

secondary markets for crowdfunded investment, and few exits to date – industry wide – make it difficult to predict the risk of crowdfunding investment.

The recent Off-Grid Solar Market Trends Report 2016 states crowdfunding is 'unlikely to provide enough depth' to address the financing needs of the energy access sector, and the crowd is motivated by 'the idea of donating for a good cause with a possible profit'¹³. This is a valid assertion given the limited deals to date and the scale of the needs of the market. However it ignores the opportunity for early-stage companies, unable to raise seed and venture capital from business angels, venture capitalists, government and institutional funders to tap into the crowd for product development and early stage equity. Certainly the recent campaign by Buffalo Grid, with a commitment from one investor of up to \$285,000 demonstrates there is more to energy access crowdfunding than a feel good factor.

Top 5 Countries for Crowdfunding in Africa



4 PLATFORMS FOR ENERGY ACCESS

Some predict there will likely be 2,000-plus crowdfunding platforms globally by the end of 2016¹⁴. Specialist platforms are emerging across the sector, targeting niche market segments, including solar in developing countries. In addition, universal platforms are broadening their scope to include social impact and community campaigns. The landscape can be difficult to navigate for campaign-makers and crowdfunders alike.

Platforms can be distinguished by the funding type (debt, equity, donation, reward), the campaign type (creative, technology, solar, community), and by target geographies, but there are further nuances to watch out for. For example, if a fundraising target is not reached on Indiegogo, the campaign-maker receives the funds raised but is hit with an additional fee. If the target is not reached on Kickstarter, the campaign owner walks away with nothing.

Platform Types

	Description	Method of investment	Example of Platforms
 Debt	The lender receives 0 – over 20% p.a. interest on their capital, and is exposed to credit risk of borrower	Through intermediary, direct loan, or via special purpose vehicle	Kiva, MYC4
 Equity	The capital provider receives shares in return for their capital, and is exposed to upside and downside risk	Direct investment, or via special purpose vehicle	Crowdcube, Seedrs
 Donation	The funder provides a donation to a charity, social enterprise or initiative	Donation	Global Giving, MChanga
 Reward	The funder receives a gift or incentive in exchange for their contribution	Money provided in return for a gift or incentive	Indiegogo, Kickstarter

Although many platforms are specifically donation, reward, debt, or equity, hybrid platforms also exist. These hybrid platforms may offer a combination of these, and some may offer all four types, with various financial instruments.

All-or-nothing or Threshold Pledge Model

Platforms take different approaches to reaching the campaign target. Many platforms allow the campaign-maker to access the amount pledged, even if it fails to meet the target – these are termed flexible campaigns. There is typically a higher fee if the amount pledged is less than the campaign target, as a penalty. Platforms such as Indiegogo offer flexible, as well as fixed campaigns where funds are only released when the campaign target is reached.

Other platforms take an all-or-nothing approach to fundraising – if you fail to meet the target, you do not receive any funds. Equity platforms, such as Crowdcube and **Seedrs** take this approach as funding is tied to specific business milestones, which are often interdependent. Kickstarter, one of the world's largest reward platforms – having raised over \$2 billion – offers only 'fixed' campaigns. But at this point over 85% of funds pledged have been collected.

Top Platforms for Energy Access in 2015

	Amount Raised (US\$)	Number of Campaigns	Average Campaign Size (US\$)	HQ	Campaign Type
Kiva	1,800,000	1681	1,071	USA	Debt
Global Giving	550,000	4	65,000	UK	Donation
Geldvoorelkaar	500,000	1	500,000	Netherlands	Debt
Indiegogo	180,000	54	3,333	USA	Rewards
SunFunder	113,500	3	37,833	USA	Debt
FundedByMe	81,119	1	81,119	Sweden	Equity
Catapult	36,000	2	18,000	USA	Donation
MYC4	32,000	13	2,462	Denmark	Debt
Energy in Common	31,000	170	182	USA	Debt
1% Club	18,000	4	4,500	Netherlands	Donation
Pozible	8,800	5	1,760	Australia	Rewards
Lendwithcare	8,100	9	900	UK	Debt
Kriticalmass	3,500	1	3,500	UK	Debt

Platforms to watch in 2016

- Trine** launched in early 2016, and provides loans to solar companies in developing countries. These are typically working capital loans of \$50,000 – 100,000.
- Crowdcube** is the UK's largest equity crowdfunding platform, has partnered with GVEP International under the Crowd Power initiative and closed the highly successful Buffalo Grid campaign in March 2016. The campaign raised 201% of its \$265,000 target.

It's important to remember that not all campaigns are successful, and there's currently limited data available on campaigns that receive no funding, or do not reach their goal, particularly for those campaigns, which are fixed funding. Later in this report series, we will cover more on this topic in *Success & Failure – The Key to a Winning Campaign*.

Cool Effect

In March 2016, San Francisco based Cool Effect launched their beta platform. The platform allows the crowd to reduce their carbon footprint by funding quality carbon reduction programmes, mostly in developing countries. Live campaigns at launch include an energy efficient cookstoves project in Uganda, and a biogas project in India. The crowd can fund projects on a tonne-by-tonne basis, as either a one-off contribution or as a subscription. Over 90% of funding goes directly to the projects, with the remaining covering operational and transaction costs.

Platform Spotlight

Trine is a Swedish start-up founded by four young entrepreneurs through Gothenburg incubator Chalmers Ventures. In late 2015, Trine launched a proof of concept campaign on **FundedByMe**, with match funding from Finnish energy giant **Fortum**. The campaign was an instant success, raising the \$85,000 target in days. A few months later Trine went live with their own platform, and has subsequently launched two equally successful campaigns – one in Uganda, and another in Kenya.

The platform provides loans to entrepreneurs operating solar companies in developing countries, typically in the form of working capital or project finance. Expected returns vary from 2.66% p.a to 6.75% p.a, indicating a strong social impact motivation, with a low return, relative to risk, when compared to government bond yields in the region. For investors willing to take the risk however, there is a strong upside – particularly while base rates in the UK and USA are held at 0.50%.

Lessons Learned: Choosing the Right Platform

In 2015, the **Kenya Climate Innovation Centre (KCIC)**, in conjunction with **infoDev** and **Crowdfunding Capital Advisors** assisted incubatees to launch several crowdfunding campaigns on Indiegogo. Following a workshop for KCIC incubatees, ten entrepreneurs were selected to launch campaigns. These incubatees were provided resources, including a videographer to record and produce their campaign video, and training on how to implement their campaign.

Four campaigns were launched, but failed to get anywhere near the target set over the course of the campaign; two raised 0%, one raised 1%, another raised 6%. These failures were due to a number of factors, all of which hinged on the inappropriate targets set and the choice of a platform that was not appropriate to the fundraising networks of these small Kenyan businesses. Launching a campaign on a popular platform does not make the campaign an automatic success; the target set, the platform type and payment mechanism, the funding network, the campaign video and marketing must all be established and refined prior to going live.

infoDev launched a report¹⁵ at the end of 2015, detailing lessons learned from the experience.

1. Crowdfunding is more difficult than most entrepreneurs anticipate and is not for everyone.
2. Business needs should dictate platform choice.
3. Payment systems impact platform choice.
4. Quality and quantity of contributor networks are key.
5. Entrepreneurs should tap into complementary resources and organizations to increase their likelihood of success.
6. Crowdfunding can have non-monetary benefits.

These are all important points. For future campaign-makers, particularly those in developing markets with a local funding network, great consideration should be given to the payment mechanism utilised. Indigenous platforms such as MChanga in Kenya, which collect contributions via mobile money, are an important step forward in regions where potential contributors may not have bank accounts and credit cards. Additionally, match funding can be an important tool to leverage funding from the crowd, adding an element of endorsement as well as momentum, to the campaign.

5 CROWD POWER CAMPAIGN UPDATE

Crowd Power was launched in 2015 to stimulate growth across the crowdfunding for energy access spectrum. The first Crowd Power campaign was launched in November on Indiegogo, reaching its target of \$100,000. In early 2016, campaigns on Trine, Crowdcube, Global Giving and MChanga were also launched. Below we highlight key trends evident from the three campaigns, which have closed to date. At the time of publishing this report, Crowd Power had contributed \$60,000 to supported campaigns, which have raised over \$900,000 in total.

The initiative is designed not only to spur growth across the sector, but importantly to research its development and potential. Crowd Power aims to accumulate in-depth knowledge of the crowdfunding for energy access segment as it develops, to inform new and emerging platforms, the crowd, potential campaign-makers, as well as policy makers, philanthropists, investors and other funders. Here are the highlights from our first three campaigns.

CAMPAIGN 1

Launch 12-11-15 | Close 2-1-16



“Let’s Give Solar Tech to Kids in Africa”

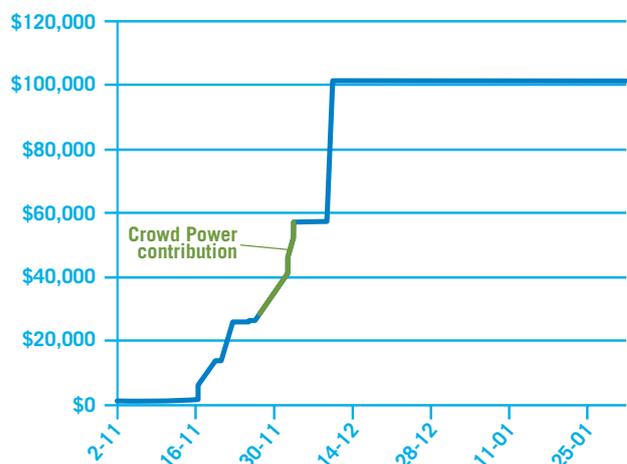
How were funds used?

To build solar nano-grids for off-grid communities in Africa, starting with a project in Kenya

INTASAVE is a global non-for-profit and environmental enterprise that implements energy solutions, climate and development projects in Africa, the Caribbean and Asia-Pacific. Their campaign launched on Indiegogo at the beginning of November, with a slow start to fundraising efforts. Just days before the scheduled end of the campaign, with only 25% of the target met, Crowd Power supported the campaign with \$10,000 as a lump sum payment and \$10,000 in match funding. After the payment was made and the UK Aid logo displayed, the campaign’s momentum picked up considerably and an extension was given to allow INTASAVE to capitalise on this. 10 days later the campaign had reached its target of \$100,000. We believe the Crowd Power contribution assisted the campaign-makers to leverage their existing network, and fund the campaign. Interestingly, once the target was reached on December 10, the campaign stayed live through to January 31, but only raised \$50 over the next 7 weeks.

Target	\$100,000
Raised	\$101,378
Number of funders	52
Average donation	\$1,950
CP Contribution	\$20,000

Raised



CAMPAIGN 2

Launch 23-2-16 | Close 28-2-16



“Solar home systems for families in Kenya”

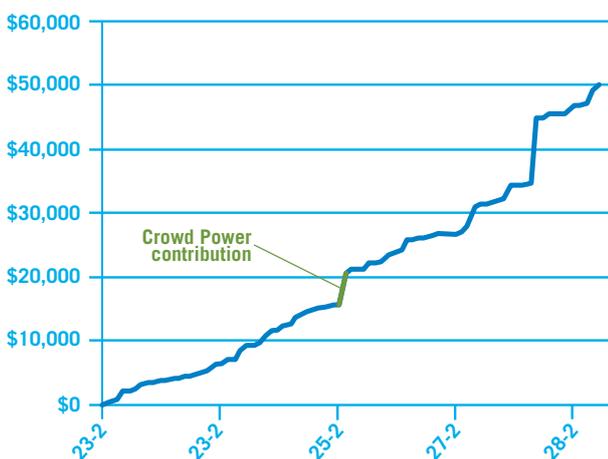
How were funds used?

A working capital loan was provided to the company to distribute 2,000 solar home systems in Kenya

The Mibawa Suppliers campaign was the second campaign launched on the Trine platform, since going live in January 2016. The excitement around the launch of the platform, and the solid investor base that has been built by the platform saw the campaign fund in only 4 days. Crowd Power contributed \$5,000 about half way through the campaign. UK Aid branding was displayed on the campaign page from the beginning of the campaign; therefore we didn't anticipate a significant pick-up in funding at the time of the actual contribution. In this case, it is likely that Trine's efforts to promote the platform and campaigns, and galvanise an investor network with offers of pre-commitments, made for a quick to fund campaign.

Target	\$50,000
Raised	\$50,000
Number of funders	81
Average investment	\$617
CP Contribution	\$5,000

Raised



CAMPAIGN 3

Launch 29-1-16 | Close 13-3-16



“BuffaloGrid raising £265,000 investment on Crowdcube”

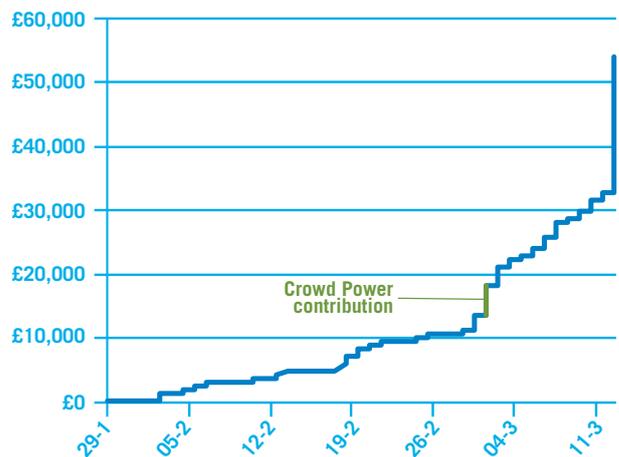
How were funds used?

Equity investment to finalise product design, begin manufacturing, establish field trials in Asia and Africa, and expand operations in India.

Buffalo Grid launched their campaign at the end of January 2016, and had a slow start to their raise. Two weeks, and almost half way through their initial campaign, only £40,000 had been raised – 15% of their target. Just as the campaign was scheduled to end, Buffalo Grid hit the 50% raised milestone and received a £20,000 contribution to the campaign via Crowd Power. Crowdcube agreed to allow Buffalo Grid to extend the campaign to see if they could hit their target with this newfound momentum; a combination of the Crowd Power contribution, mention of UK Aid's commitment to the campaign, and Buffalo Grid having reached the 50% raised milestone. One week later, Buffalo Grid hit their target of £265,000 and went into over-funding mode. Over the next 5 days Buffalo Grid raised another £268,000 – receiving £533,000 in investment, double what they had set out to raise.

Target	£265,000
Raised	£532,990
Number of funders	407
Average investment	£1,310
CP Contribution	£20,000

Raised



6 INTERVIEW: STEAMACO



SteamaCo recently won the prestigious Ashden Award International Gold Award, and Award for Business Innovation in London, for their technology, which allows minigrid users to prepay for their usage via mobile money. By the end of 2015, SteamaCo had 35 microgrids across Kenya, Tanzania, Benin, Rwanda and Nepal. This pioneer had humble beginnings, as an NGO called Access: Energy, training local artisans to make wind turbines from scrap metal on the shores of Lake Victoria. It was at this point CEO Harrison Leaf and CTO Sam DUBY, founders of SteamaCo, embarked on a crowdfunding campaign to raise \$10,000 to pilot manufacturing wind turbines from scrap metal.

Sam DUBY shares SteamaCo's story here.

Q How did SteamaCo come to be the company it is today?

We started with a very small grant from the Segal Family Foundation, teaching people how to manufacture wind turbines from scrap material, old car parts mostly. This work formed our first Indiegogo campaign, except we later realized that there were only so many people with the requisite skills to make these relatively complex devices, so our impact would be limited.

We then started making our own higher performance wind turbines, but people simply did not have the funds to pay for a lifetime supply of energy up front, in one go. We looked at various financing mechanisms including hire purchase and renting, but to do this, we needed a way to keep track of our asset, make sure no one had stolen it, and to turn the turbine off if a payment was not made.

So we developed a GSM enabled device that would sit on the turbine, keeping track of power production and warn us if anything was wrong. This device was called the bitHarvester. From here it was a very simple realisation that people did not want to buy technology, they really just wanted power – so we stopped selling machines and started selling kWh of energy.

We now build village scale power stations powered by the wind and the sun. Each line is metered and linked to the mobile money network using our modified bitHarvester, so if people want power they simply send money from their mobile phones, and their line is switched on – they're micro pre-payments for micro quantities of clean, high quality electricity. When their credit runs out, their line is switched off. It's an energy vending machine!

We're now moving away from building our own projects, and provide the tools to others to build financeable, efficient, commercially viable microgrids.

Q Why did you choose to raise funds through a crowdfunding campaign?

We liked the novelty, humanity and slight quirkiness to the work we were doing and we believed others would too. Crowdfunding seemed a perfect fit. Once we believed that there was some mileage to the idea, we discussed various options for how to pursue it. Crowdfunding was the obvious best fit. It seemed less



like the 'us' and 'them' approach inherent to asking those with money to share a little to help a quaint little idea along, and more of a 'we' approach. Something we could all achieve together if we put our hearts, mind and any spare money behind it. This was much more in keeping with our philosophy.

Q What were your alternatives to raising funds via crowdfunding?

Approaching the Segal Family Foundation again. Ploughing through old networks. Looking for suitable grants...

Q Tell us about your campaign. Did you raise your target?

Our first campaign was successful and we hit our target, with minutes to spare! Family and friends definitely got the ball rolling, but tracking contributions over time, the flow was exponential – the further and faster it became, the less we knew who the contributors were. Being selected, and promoted, by Indiegogo as one of their chosen campaigns made a big difference and once this happened we were picked up and promoted on several blogs and other channels.

Q Why did you decide to go with Indiegogo?

Kickstarter was the better-known platform at the time, but because we did not have an American tax number, we were precluded from using the platform. I think this requirement has since changed.

Q How did you set a target and decide on use of funds?

Much the same way that you would draw up a business plan, or any other kind of long-term budget. For us, it was a case of 'raise the money or go home' so we had to be realistic and it was more a question of how much time it would buy us. The campaign allowed us to pilot turbine manufacturing, and lead us to the realisation that the product wasn't right for the market, but also the complexities involved with local manufacturing were quite apparent. These lessons allowed us to refine our product and model, and really propelled us onto our current trajectory of growth.

Q How have you gone about raising other funds for the business?

In the beginning we were mostly reliant on aid money and research grants. We also received an early stage investment from Vulcan Capital, set up by Microsoft founder and philanthropist Paul Allen. We are now working with a consortium of investors to close our Series A, and will announce details of the round soon.

Q Do you think SteamaCo would embark on another crowdfunding campaign? How would your investors feel about it?

Yes, but not for this business. I think we are at a different stage these days.

7 CONCLUSION

Crowdfunding for energy access is still a small and nascent market segment, with \$3.4 million raised for projects in Africa and Asia in 2015 across all energy technologies. This represents about 1% of the total of all finance raised in the off-grid lighting market last year. There is still very little data available on the market, and the data that is available has its limitations. Strong trends are evident however, with microlending and particularly the Kiva platform, dominating the space. Debt accounts for 75% of funds raised across all energy access campaigns worldwide. Reward campaigns may continue to have a few quick-win success stories each year, however it is unlikely to be a method that suits many raises. Donation campaigns are likely to continue raising small amounts of funding for pilot projects, or community projects, but are unlikely to increase their share of the market significantly. Campaigns to raise equity for energy access ventures have been few in number, but recent events may herald an increase in activity in this area.

As energy access business models transition to in-house financing utilising PAYG technology, removing the need for microfinance institutions and banks to provide consumer financing, we may see a shift in the crowdfunding market to reflect these changing needs.

Growth in commercial, asset-backed loans and bonds may shift the current dominance of microloans, although microloans in absolute terms is likely to remain stable. Substantial working capital requirements for companies offering PAYG could be fulfilled by crowdsourcing equity and debt in the short run, however as these businesses grow to scale, it is unlikely the crowd will be the most attractive option to raise funds. Changing regulations, and a growing pipeline of early-stage businesses encouraged by the PAYG revolution, could prompt growth in equity crowdfunding.

Over the long run it is difficult to predict the growth in equity and debt given returns for investors are unclear. There have been few exits across the crowdfunding industry (and few in the energy access sector, in general) and there is a lack of secondary market for crowdfunded investments. This is, however, a dynamic and innovative space to watch – and it could surprise us.

Note on Data Sources

The data in this report is referenced throughout. Data indicated as 'Crowd Surfer and GVEP International' was analysed and collected by GVEP International, in association with Crowd Surfer, a crowdfunding data analytics start-up based in Cambridge, UK. Aggregate data for the energy access market segment is difficult to obtain, and we have done our best to source the most accurate data available. We utilised the Crowd Surfer aggregation tool to identify campaigns originating in Africa and Asia. Crowd Surfer is the most comprehensive aggregation tool on the market, however it is important to note the tool was in Beta when the data was obtained. Due to a change to their data arrangement, Crowd Surfer did not have the same permissions for data from Indiegogo during Q4, 2015, meaning there is no guarantee that all relevant campaigns were captured over these three months. We have endeavoured to capture all relevant campaigns through other methods, however.

In addition, the geographic tag picks up the country entered by the campaign-maker when the campaign was established. For campaigns executed in Africa and Asia, and tagged as originating in Europe or the US, for example, it was more difficult to identify campaigns. Manual searches were conducted on campaigns originating in Europe, the US, and Australia, and we employed prior knowledge of relevant campaigns. Therefore, it is important to note there may be some campaigns originating outside of Africa and Asia, which have not been counted. We anticipate these will be a few, smaller projects, and would not have a material impact on our findings.

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