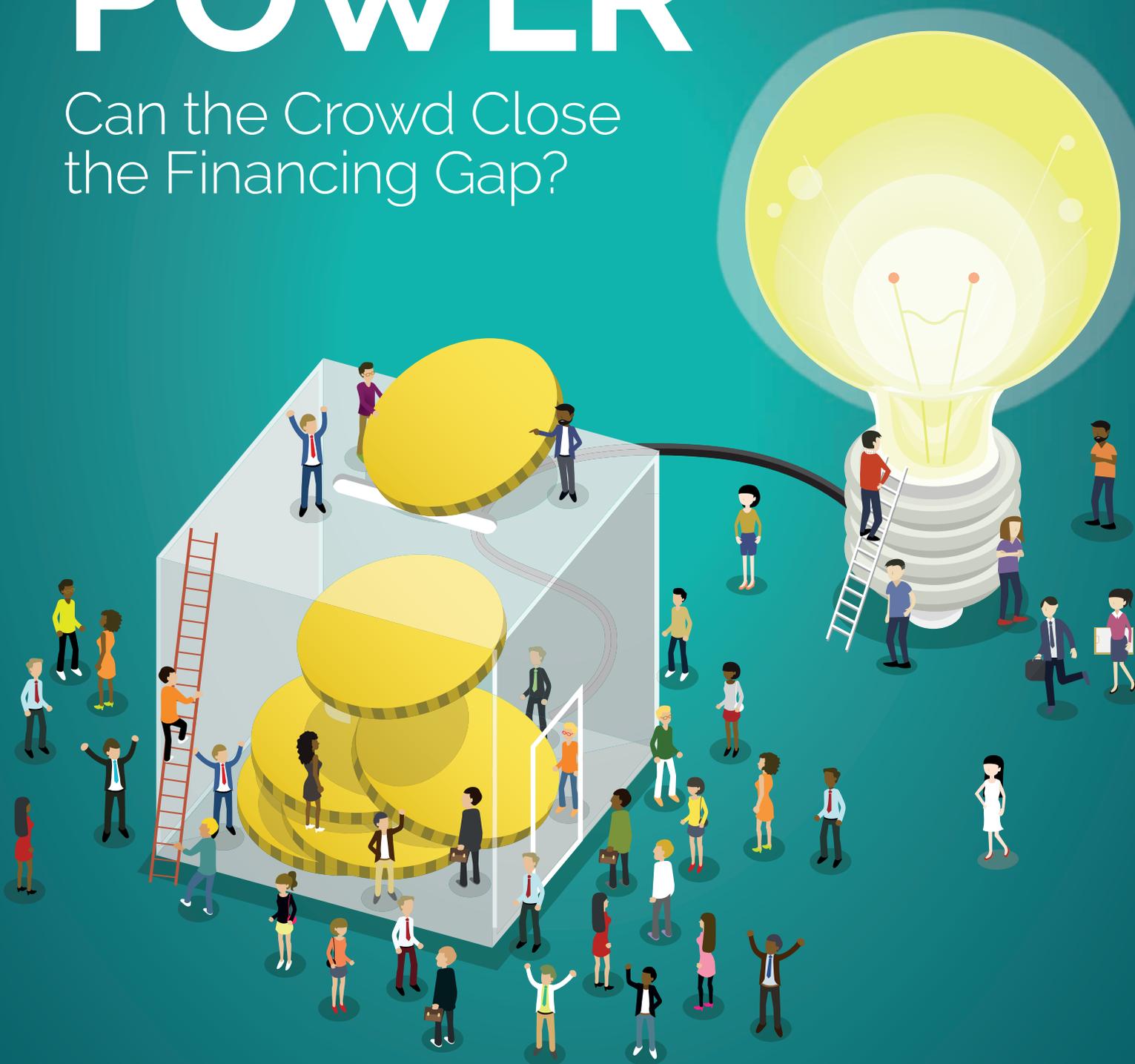


CROWD POWER

Can the Crowd Close
the Financing Gap?



Davinia Cogan and Simon Collings

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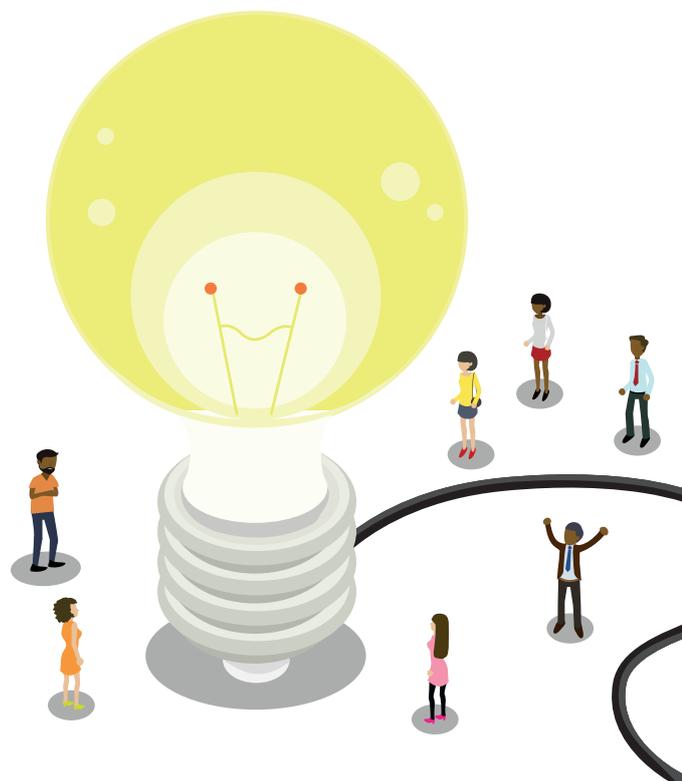


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1.0 EXECUTIVE SUMMARY

Crowdfunding for energy access related projects and off-grid energy businesses grew from \$3.4 million in 2015 to \$8.7 million in 2016. Debt and equity campaigns accounted for more than 90% of the market; and raised 53% and 39% respectively. While crowdfunding for energy access is a small component of overall fundraising for off-grid energy companies operating in Sub-Saharan Africa and Asia, we have found that various forms of crowdfunding have a role to play at this juncture. We believe the growth of energy access related crowdfunding over 2016, particularly debt crowdfunding, signals the increasing role of crowdfunding for companies trying to close the financing gap. This report highlights fundraising trends across donation, reward, debt, and equity crowdfunding; and shows how non-profits and social enterprises are utilising crowdfunding to close the financing gap experienced by many early stage companies, and non-profits. Energy access related donation, debt, and equity crowdfunding grew steadily in 2016; while reward crowdfunding activity declined. The Crowd Power programme, which this report shares learnings from, contributed a total of \$250,000 across 16 energy access related campaigns in 2016, which in turn raised \$1.5 million for projects expected to provide 62,500 people with energy access.

Donation campaigns continue to be an important part of the overall crowdfunding market for and in Africa, making up 17% of crowdfunding on the continent. Yet energy access related campaigns appear to be underrepresented. Donation crowdfunding accounts for only 3.5% of all energy access related crowdfunding, and is dominated by micro-donations. Donation crowdfunding for start-ups raising seed capital is starting to emerge, and may be an area of growth. In 2016, the amount raised on reward platforms was down 40% on the previous year. Reward campaigns tend to be infrequent, with a variation in the amount raised, and success depends greatly on the network of the business or non-profit raising funds. While larger, high profile campaigns get much of the attention, it is likely the smaller campaigns (<\$50,000), by start-ups raising seed capital from their networks, that will continue to grow steadily over the coming years.

Debt crowdfunding appears to demonstrate the most promising and sustained growth of all energy access related crowdfunding activity. Although debt crowdfunding was previously dominated by zero-interest (to lender) microloans, interest-bearing working capital loans grew significantly in 2016. They now account for almost half of all energy access related debt crowdfunding, while they accounted for less than 10% of debt crowdfunding in 2015. Energy access related equity crowdfunding grew exponentially over the year, following three large transactions, averaging \$1.1 million. This growth is encouraging, and demonstrates the potential of equity crowdfunding, however much work needs to be done across the ecosystem – from building a strong investment pipeline to working with regulators to bolster investor confidence and platform growth – to ensure sustained growth and capital access for earlier stage companies working in off-grid energy access.

2.0 INTRODUCTION

The title '2.0 INTRODUCTION' is rendered in a large, teal, sans-serif font. The '2.0' is enclosed in a teal circle. Small, stylized human figures are placed on top of the letters: one on the 'I', one on the 'R', one on the 'O', and one on the 'N'. A ladder is positioned against the 'O', and a figure is climbing it. Another figure stands on the 'N'. The entire title is set against a light grey shadow on a white background.

Crowd Power: Can the Crowd Close the Financing Gap? is the second report in a series of research on crowdfunding for energy access in Sub-Saharan Africa and Asia. It examines the role of crowdfunding in closing the financing gap experienced by businesses and non-profits providing products and services to off-grid communities.

The report begins with an update on market data and key trends across the energy access related crowdfunding space. The bulk of the report examines how donation, reward, debt, and equity campaigns are used by social enterprises and non-profits. We analyse key trends across the four different campaign types, consider the impact of various campaigns, and explore the role of crowdfunding in the context of organisational and sector-wide financing needs. We have also identified opportunities for scaling up support to the energy access crowdfunding space.

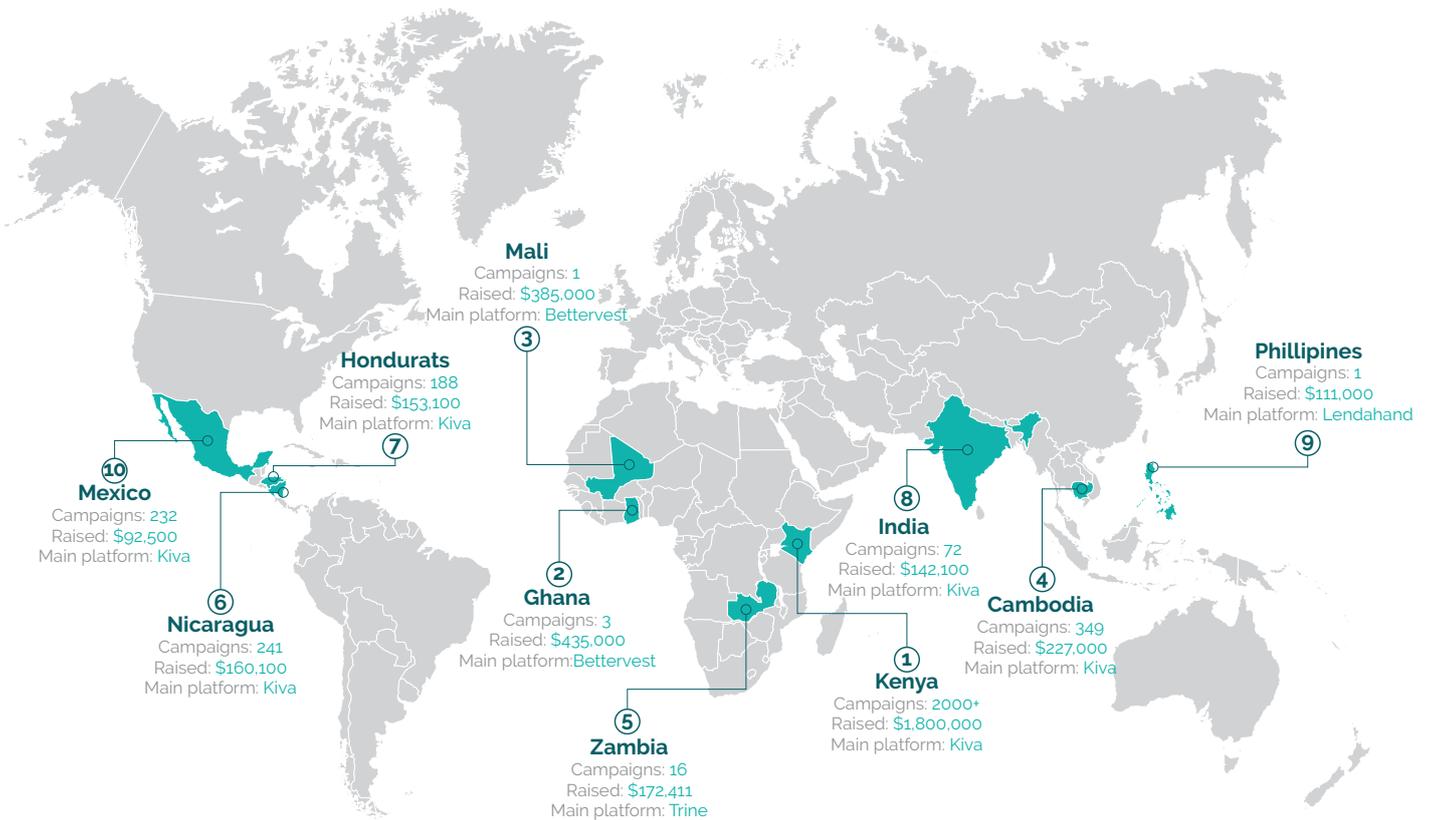
The subsequent section provides an overview of Crowd Power activities and achievements. The report concludes with an analysis of risks to campaign-backers, campaign-makers, and the donor community. The purpose of this report is to provide guidance to funders looking at how best to engage with crowdfunding, and to share the lessons we have learned so far. It is also to help social enterprises and non-profits looking to raise funds from the crowd, and to inform platforms looking to enter new markets.

It is worth noting that data on energy access crowdfunding, and crowdfunding in general, is limited and that there is not one comprehensive data source. We have used available industry data from the Cambridge Centre for Alternative Finance, Crowdsurfer, and data collected by Energy 4 Impact, which includes data from our platform partners – Kiva, Bettervest, Indiegogo, Lendahand, GlobalGiving, Trine, Crowdcube, Pozible, and M-Changa. Other data referred to was obtained from various social enterprises and non-profits launching campaigns, and through our work supporting off-grid energy businesses on the ground in Kenya, Tanzania, Rwanda, Uganda, and Senegal. It is important to note that while the data captured here does include relevant projects in Asia, our understanding of energy crowdfunding in Asia is not as comprehensive as our understanding of the African market.

3.0 MARKET UPDATE 2016 SNAPSHOT

All data in this section is Energy 4 Impact and Crowdsurfer aggregate data, 2016, see Notes on Data Sources.

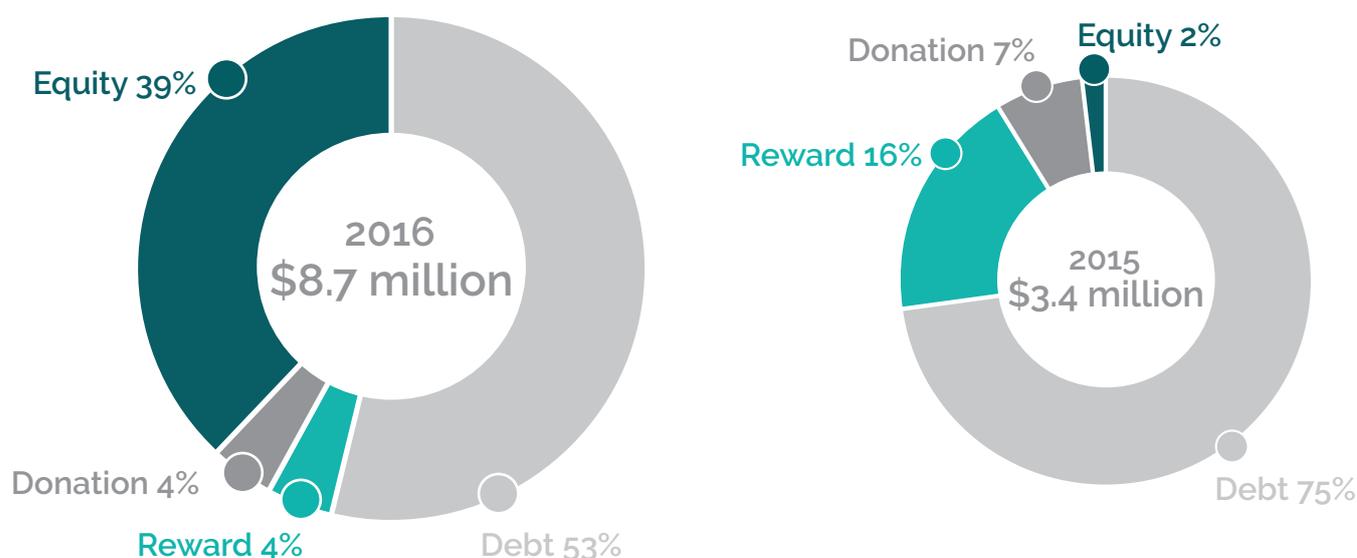
Top 10 Countries for Energy Access Crowdfunding 2016



In 2016, energy access focused projects and businesses raised \$8.7 million, growing 156% since the previous year. The biggest shift was in equity crowdfunding, which grew from around \$75,000 in 2015 to over \$3.4 million in 2016 – the total of all off-grid energy campaigns in 2015. Debt, which was the dominant mode of crowdfunding in 2015, continued

to lead and accounted for 53% of all crowd-sourced funds for off-grid energy related campaigns. Donation campaigns accounted for only 3.5% of all funds raised, but grew 45% over the year. Reward campaigns also accounted for 3.5% of the market, but the total amount of funds raised were down 40% on the previous year.

Crowdfunding for Energy Access by Type 2015 – 2016



Globally, the dominant platform in energy access crowdfunding remains Kiva – they raised over \$2.5 million in loans for off-grid energy products in 2016 and launched over 4,000 campaigns. The platform itself reached an important milestone in mid-2017,

raising over \$1 billion in loans on the platform since its launch in 2005. The dominant country for off-grid energy crowdfunding globally remains Kenya; debt campaigns alone raised over \$1.8 million.²

Top 10 Countries for Energy Access Crowdfunding 2016

Country	Number of Campaigns	Amount Raised (\$)	#1 Platform
Kenya	2,000+	1,800,000	Kiva
Ghana	3	435,000	Bettervest
Mali	1	385,000	Bettervest
Cambodia	349	227,000	Kiva
Zambia	16	172,411	Trine
Nicaragua	241	160,100	Kiva
Honduras	188	153,100	Kiva
India	72	142,100	Kiva
Phillipines	1	111,000	Lendahand
Mexico	232	92,500	Kiva

*Campaigns that raised funds for businesses and projects in multiple countries not included.

In 2016, UK based equity platform, Crowdcube, raised over \$2 million two start-ups – BuffaloGrid and Renovagen. A third campaign, by WakaWaka on Oneplanetcrowd, raised close to \$1.2 million in late 2016. The growth of energy access related equity

crowdfunding is encouraging, yet we note the high quarterly variation in equity campaigns over the past 3 years, which can distort data. There was an average of 5 months between energy access related equity campaigns in 2016.

Top 10 Platforms for Energy Access 2016

Platform	Number of Campaigns	Amount Raised (\$)	Platform HQ	Funding Type
Kiva	4,000	2,500,000	USA	Debt (microloans)
Bettervest	5	1,100,000	Germany	Debt (SME loans)
Lendahand	16	650,000	The Netherlands	Debt (SME loans)
Trine	8	490,000	Sweden	Debt (SME loans)
Kickstarter	2	85,600	USA	Reward
Indiegogo	12	84,200	USA	Reward
Catapooolt	2	61,500	USA	Reward
The Footprints Network	7	37,200	Australia	Donation
Benfeitoria	2	36,900	Brazil	Reward
kitabisa	2	32,000	Indonesia	Donation

Top 3 Platforms for Energy Access

Platform	Number of Campaigns	Amount Raised (\$)	Platform HQ	Funding Type
Kiva	4,000	2,500,000	USA	Debt (microloans)
Zidisha	54	11,700	USA	Debt (microloans)
Lendahand	16	650,000	The Netherlands	Debt (SME loans)

Debt crowdfunding, which includes microloans and working capital loans to SMEs, almost doubled over the year and raised \$4.6 million. Microloans make up 55% of all debt crowdfunding, mostly on Kiva, and working capital loans make up the remaining 45%. Bettervest was the leading platform for crowd-sourced working capital loans, raising close to \$1.1

million in 2016. Lendahand raised \$550,000 for energy businesses in Kenya, Tanzania, and the Philippines; this made them the third largest debt platform in this space, behind Kiva and Bettervest. Newcomer, Trine raised close to \$450,000 in financing for solar energy companies in Africa over the year.

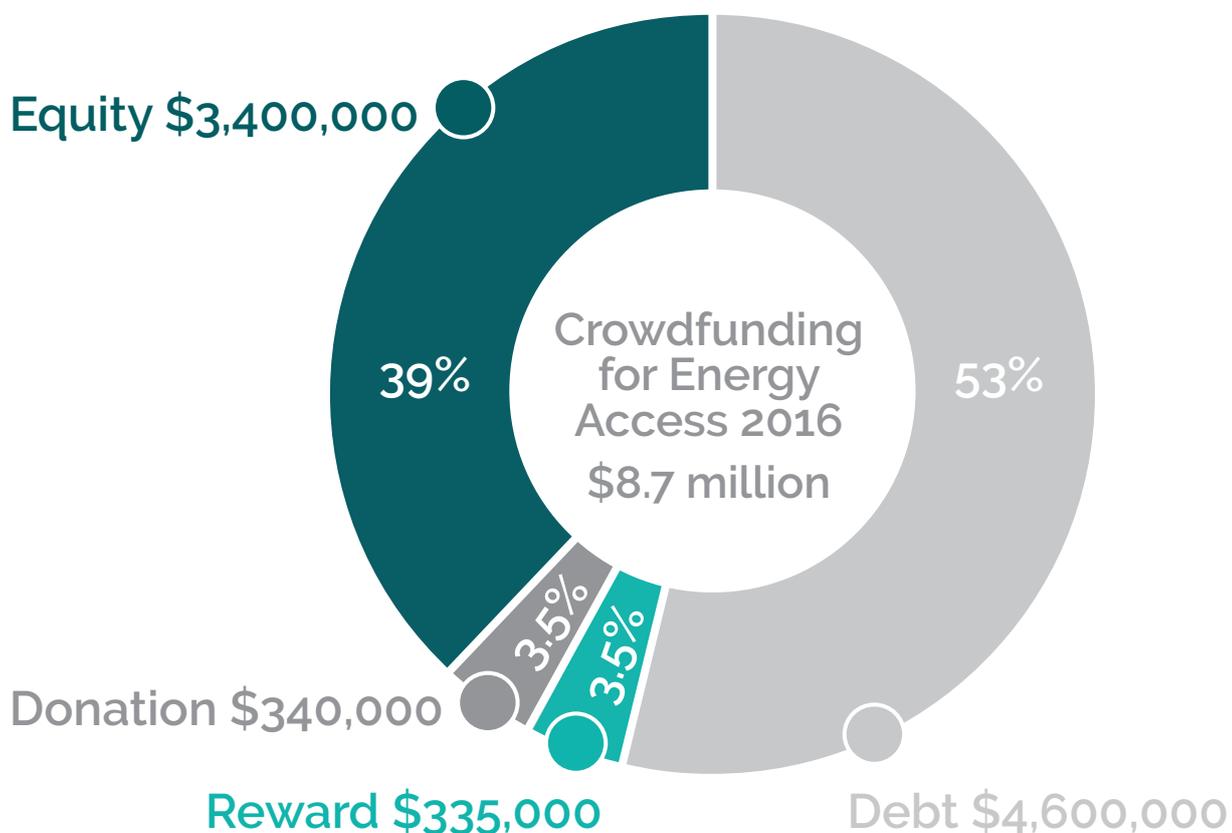
Top 10 Campaigns for Energy Access 2016

Company	Amount Raised (\$)	Platform	Campaign type	Country
Renovagen	1,350,000	Crowdcube	Equity	Various
WakaWaka	1,266,166	Oneplanetcrowd	Equity	Various
Buffalo Grid	719,550	Crowdcube	Equity	India, Uganda
Mobile Solarkraftwerke Afrika GmbH & Co. KG	384,615	Bettervest	Debt	Mali
SunTransfer GmbH	263,958	Bettervest	Debt	Kenya
UMAWA Deutschland UG (haftungsbeschränkt)	203,519	Bettervest	Debt	Ghana
UMAWA Deutschland UG (haftungsbeschränkt)	120,047	Bettervest	Debt	Ghana
UMAWA Deutschland UG (haftungsbeschränkt)	111,056	Bettervest	Debt	Ghana
Vitalite	111,000	Trine	Debt	Zambia
WEnergy Global	111,000	Lendahand	Debt	Philippines
SimGas	111,000	Lendahand	Debt	Tanzania



4.0 THE ROLE OF CROWDFUNDING

For the purpose of analysis we have divided crowdfunding activity into four mutually exclusive categories – donation, reward, debt, and equity. Each of these categories have their own characteristics and understanding how these different fundraising types are evolving is vital to assessing where opportunities lie, and where interventions can have the most impact. In this section we present insights from our direct engagement with a number of platforms and campaigns, as well as from broader research on crowdfunding for energy access. Activity is growing and we see opportunities ahead, particularly for debt and equity. Based on our observations we offer a series of recommendations to funders, platform operators, and campaign makers.



4.1 DONATION CROWDFUNDING FOR ENERGY ACCESS

Globally, donation crowdfunding, of all types, raised over \$300 million in 2016. Over the same period, donation campaigns in the UK and the Americas accounted for 0.4% and 1% of crowdfunding activity, respectively³. In Europe and Asia (ex. China), 2.5% and 2.2% of crowdfunding was for donation campaigns⁴. In the Middle East, 4.6% of crowdfunding is donation⁵. In Africa, donation campaigns account for a much larger market segment; they amount to 17.1% of all crowdfunding activity⁶. After debt crowdfunding, donation campaigns are the second most dominant in Africa. This is likely due to a lack of regulatory guidance for more sophisticated alternative finance types as well as a smaller campaign pipeline, vis-à-vis the Middle East for example, where equity crowdfunding dominates⁷.

Energy-access related donation campaigns are less than 4% of all donation campaigns and raised \$340,000 in 2016 – up 45% from the previous year⁸. Given the overall importance of donations in crowdfunding for, and in, Africa, energy access is significantly underrepresented. Nonetheless, several social enterprises and numerous non-profits working to improve energy access utilise donation crowdfunding for a variety of purposes. Donation platforms like GlobalGiving support grassroots non-profits in developing countries to raise donations, predominantly from Western backers, and total funds raised grew 300% in 2016⁹. These non-profits use crowdfunding as a regular income stream to supplement other grant funding.

Most donation platforms raise funds across a broad range of themes, and there is opportunity for integration of more energy related fundraising across education, health, women and girls, and disaster action campaigns. Social enterprises, on the other hand, tend to launch donation campaigns as a one-off fundraiser to gather contributions from family and friends. These campaigns are generally for a specific purpose such as developing a product prototype. Some of these enterprises, if successful, go on to raise commercial capital – potentially via debt or equity crowdfunding – once they have a viable product and business model.

About Donation Crowdfunding

Distinct from philanthropically motivated microloans, donation campaigns have an average campaign size of around \$3,000¹⁰, whereas Kiva has an average loan size of less than \$500¹¹. Interestingly, the funding rate of donation campaigns is lower than any other campaign type. Of all donation campaigns launched, only 32% of campaigns received funding¹². By contrast 67% of reward campaigns, 89% of debt, and 100% of equity campaigns were at least partially funded over the same period¹³. These include campaigns that reached their campaign target as well as those that had partially funded campaigns.

GlobalGiving is the dominant platform for energy access related donation campaigns. Their 'campaigns' differ from other platforms in that one campaign raises funds for multiple projects. Each Crowd Power supported 'campaign' on GlobalGiving, raised funds for an average of 13 individual projects and had an average campaign size of \$66,500¹⁴. Many of the grassroots organisations raising funds rely on crowdfunded donations for a significant percentage of their operating budget – sometimes up to half of their total income is sourced this way¹⁵. The evolution of online fundraising is an important opportunity for these organisations as working at the grassroots level makes it difficult to access funds locally. They often work in resource poor, distant locations rather than cities where funding may be easier to obtain. Raising funds online also reflects a broader trend in the non-profit sector as charities move away from traditional fundraising and leverage the opportunities brought about by widespread internet access.

Like all types of crowdfunding, donation crowdfunding varies from platform to platform. M-Changa, a donation platform based in Kenya, formalised the local cultural practice of 'harambee' – where the community gets together to fundraise. They have leveraged Kenya's advanced mobile money infrastructure in doing so, and host campaigns by individuals and institutions, as well as a few by local start-ups. Early stage social enterprises can use the platform to raise funds from family and friends, and their extended network. Donation crowdfunding of this type is an important option for start-ups as raising early-stage finance from traditional financiers is a challenge; particularly in the early days, while still refining the business model and for those in pre-revenue mode.

Crowdfunding Supplements Grassroots Fundraising

Data from GlobalGiving suggests grassroots organisations tend to reach a range of beneficiaries, from a few hundred to several thousand, with each campaign. The relationship between the amount raised and beneficiaries reached does not appear to be linear with a range of \$30 – \$333 raised for each household reached¹⁶. This may partly be due to the high variation in unit costs of items provided to communities, which range from solar lanterns to custom-made efficient cookstoves. Our analysis of the number of units provided to the community, relative to campaign targets, suggests a significant portion of fundraising goes to project implementation costs, including operating costs and administration.

In some cases the retail cost of the products (e.g. solar lanterns) provided to beneficiaries is only one-quarter of the campaign target, suggesting partners utilise the platform to supplement their operating costs. While this may alarm some, GlobalGiving encourages their partners to apply 'full cost recovery principles'. This would appear sensible, as what is the point of purchasing inventory where there are not sufficient resources to get them to the end-user? We should also consider that the adoption of new technologies requires behavioral change and the non-profit sector plays an important role in market education and sensitization – which costs money. For these organisations, product giveaways, or subsidization, is a small part of their overall activities, which are often focused on broader social objectives targeting women or education, for example. We would therefore expect campaign targets to include other running costs such as staff salaries, maintenance, transport, and indirect costs. GlobalGiving conducts an expenditure analysis on partners every two years – part of their standard due diligence – to identify irregularities in spending, and other issues.

Impact of Donation Crowdfunding in Marginalised Communities

Importantly, many grassroots organisations raising funds via crowdfunding operate in countries or regions where there are not well-developed solar markets; unlike India or Kenya, which are the two largest markets for off-grid solar globally¹⁷. While product giveaways are generally perceived by the industry as a threat to the development of the off-grid energy market, these grassroots organisations tend to operate in remote areas of countries with

undeveloped off-grid energy markets e.g. Eritrea. We anticipate there is little impact on the market – as it barely exists – and campaigns provide a significant benefit to the 900 or so people that benefit from the average campaign¹⁸. We must also consider that donors play a role in developing energy markets, and have been linked to the growth of the solar PV market in Kenya¹⁹. Additionally, 8% of respondents in a recent study by SolarAid, Acumen Fund, and ETH Zurich, said they first heard about solar through a non-profit organisation²⁰.

At a macro-level it is difficult to measure the impact of these campaigns on communities. This is complicated by low spending transparency on many donation campaign pages, and that spending is not exclusively on products for the community – with an average of half of fundraising spent on organisational operating expenses. While debt and equity campaigns often show more granular expenditure, and include budgets and other financials, donation campaigns do not tend to stipulate exactly how funds will be spent. This may be because there is less pressure from the crowd given they are donating to a charity, and they may just assume the organisation will do the right thing. Whereas, an equity investor may have higher expectations of transparency as they are expecting their money back, and with a return on their investment! Additionally, backer contributions on donation platforms are considerably lower than those on equity platforms. Some donation platforms also allow partners to reprioritise the use of proceeds if a more urgent need comes up, giving organisations more flexibility to respond to community needs.

Due to the size and nature of many non-profits utilising donation platforms, sophisticated internal impact metrics are not available. Our analysis of six GlobalGiving partners showed they planned to reach a total of 2,700 households with total campaign proceeds of \$140,000. The cost of providing a solar lantern to a household ranged from \$35 to \$64 per unit, inclusive of operational and administrative expenditure. The higher cost per beneficiary for these organisations, compared to many energy-access businesses, is likely due to the small-scale of these partners, and their work in remote communities, which can create cost inefficiencies. A recent campaign by Community Building Group on GlobalGiving installed a solar system at a school in Kamsi, Burkina Faso – a town with a population of only 2,000 people.



"Before this project, we had to release the pupils earlier than class end time because it was impossible to see. Now we stay in class according to the normal class schedule as students and I can all read thanks to the solar light. This is great for us!"

Mrs. Zongo, fifth grade teacher, Kamsi, Burkina Faso
Community Building Group Ltd raised over \$35,000 on donation platform GlobalGiving

Kenyan Start-Ups Raise Donations

Eight energy access campaigns were hosted on the M-Changa in 2015 and 2016, and five of these were supported through Crowd Power. The average campaign target was \$24,500 for these campaigns, compared to an average campaign size of less than \$1,000²¹ across the platform. Many campaigns we supported allowed start-ups to raise funds to launch pilots and grow their businesses, however a small number of campaigns highlighted the need for consideration around the deployment of match funding. The higher level of match funding, at 50% of the campaign target, i.e. dollar-for-dollar, seemed to incentivise some campaign-makers to inject company funds into the campaign, often through family and friends, to leverage the maximum amount of match funding available. There was also suggestion of a social enterprise offering some donors their money back at the completion of the campaign, along with interest.

These are important considerations for development agencies and philanthropists supporting campaigns. Match funding levels should be appropriate to the campaign type and the amount being raised. In our experience, match funding is most effective on donation platforms at around 25% of the total amount raised. It should also be capped at a certain threshold (e.g. the campaign target). In some cases, additional due diligence including the review of invoices and certified company accounts may be appropriate.

Donation campaigns for individuals and institutions (e.g. schools, hospitals) are the natural domain of M-Changa, and campaigns by businesses are rare. M-Changa co-founder Kyai Mullei believes "institutions and businesses are more likely to attract donations where the donor is financially incentivized through interest or discounts on future services, which contrasts with the incentives used to attract donations on Western philanthropic platforms – like gifts [rewards] and tax breaks". Kyai suggests "the development sector can assist in changing the attitudes of potential donors toward supporting businesses by participating in the education of potential donors about the greater good aspects of energy campaigns, and how everyone is affected".

Start-Ups Launch Technical and Market Pilots

Interestingly, our analysis of selected campaigns on the M-Changa platform showed a similar expenditure pattern to those on the GlobalGiving platform. On average, half the campaign target was spent on inventory²². Between 20% and 70% of proceeds were spent on the product, with the remaining funds spent on product development, research and development, manufacturing, and other running costs including staff, training, and marketing. This makes sense given there are few other fundraising opportunities available to early stage social enterprises in emerging markets, especially local entrepreneurs. Crowd sourced funds supplement all operating expenditure and costs associated with bringing the final product to market, including market testing and training distributors, as well as the costs associated with importing and/or manufacturing the product itself. Technical pilots, prototyping, and market testing were the main uses of funds from the campaigns we analysed.

Almost all the social enterprises raising funds on M-Changa had operated for less than two years. Our analysis of Crowd Power-supported campaigns shows these social enterprises had raised an average of \$40,000 from various sources prior to launching their campaigns²³. Additional funds were in the form of owners' equity. The use of proceeds is also similar to smaller campaigns by energy start-ups we identified on reward platforms, where start-ups with international networks raise funds from family and friends. However, these reward platforms are rarely an option for local businesses, as platforms don't facilitate mobile money transactions. This capital is an essential resource for start-ups and to get a product ready for market launch. Of course, some of these enterprises will fail and may have little direct impact on communities, however some may reach scale and have a significant impact – at this point it is too early to tell.



KEY POINTS – DONATION CROWDFUNDING

- ▶ Globally, donation campaigns account for a small share of the overall crowdfunding market; they account for an average 1.5% of total market share across the UK, Europe, the Americas, and Asia (ex. China).
- ▶ In Africa, donation campaigns make up a sizable chunk of the market, accounting for 17.1% of funds raised via crowdfunding. Energy access, as a theme, is significantly underrepresented in donation-based crowdfunding for Africa, potentially because delivery is largely through for-profit enterprises. There is potential to increase support of energy access focused projects by combining energy with other themes including education, health, and gender equality.
- ▶ Energy access focused campaigns raised close to \$340,000 on donation platforms in 2016 – growing 45% since the previous year. The average campaign size was \$3,000.
- ▶ GlobalGiving is the dominant donation platform for energy access campaigns. Grassroots organisations use the platform to raise funding for specific initiatives and general operating expenditure. Crowdfunding can assist these organisations to reach marginalized communities, which are unlikely to be reached through the private sector.
- ▶ Match funding tends to increase the amount raised by partners as it can motivate grassroots organisations to have stronger campaign outreach, while enticing philanthropically motivated donors. The level of match funding tends to be optimal at 25% of the campaign target, while reducing the incentive for organisations to 'self-fund' their campaigns through personal and proxy donations.
- ▶ M-Changa has hosted 8 campaigns by Kenyan social enterprises, since 2015, with an average campaign size of \$24,500. These campaigns raised funds from their own networks, to launch product pilots, complete R&D, and launch prototypes. In markets where raising early-stage capital is problematic, crowdfunding is one of the few opportunities start-ups have to get their businesses off the ground.
- ▶ Match funding assists organisations to reach their targets by mobilising family, friends, and networks. It can also add legitimacy to the cause. The level of match funding needs to be watched, as well as the pattern of donations to check for 'self-funding'. We also suggest obtaining the organisation's financials before and after the campaign and/or obtaining proof of purchase.

4.2 REWARD CROWDFUNDING FOR ENERGY ACCESS

Reward campaigns are often cited to illustrate the incredible potential of crowdfunding and the ability to raise millions of dollars for projects. The reality is that campaign failure rates are high and few companies raise big money. For example, only 1% of campaigns launched on Kickstarter raise over \$100,000²⁴. In the energy access sector reward crowdfunding is suitable for a few niche applications. There are few businesses or projects that have the right formula to make it work. We have identified two campaign trends that dominate off-grid energy crowdfunding. Much like high-grossing campaigns in the more mainstream technology, design, and gaming sectors, successful energy access related reward campaigns offer funders a novel product – the technology they are developing with the crowd's money.

WakaWaka and GravityLight have raised over \$750,000 and \$800,000 respectively on Kickstarter and Indiegogo through multiple campaigns between 2011 and 2015. Crowdfunding allowed backers to get their hands on the technology being developed with campaign proceeds. WakaWaka offered campaign backers their pocket sized solar LED light and phone charger, and GravityLight gave backers their kinetic powered light. The success of these campaigns depended largely on the crowd's perceived value of the reward. Generally, crowdfunding can be useful for technology developers to test market adoption rates, as the success of the campaign can be a good proxy for market testing.

However, the customers of WakaWaka and GravityLight typically live in off-grid communities in low-income countries, and are unlikely to back or even see their campaign pages. This is an important

point, as successfully funded campaigns do not necessarily translate into strong sales in their intended distribution markets. Successful campaigns are about having a reward with a high novelty factor for Western backers, which limits the use of crowdfunding for many off-grid energy companies. For this reason, raising a large amount of funds (over \$50,000) via reward crowdfunding is rarely suitable. There is also a high cost involved with launching a campaign as producing a compelling video, promoting a campaign, and fulfilling the reward component takes time and significant resources.

Other successful campaigns are typically by early-stage start-ups formalising contributions from family and friends. They raise \$10,000 to \$50,000, and like the local start-ups that raise funds on M-Changa, they raise funds for prototyping, market testing, and R&D. A reward is still offered, but it is typically a token of support such as a t-shirt or a bag of coffee. The successful campaigns tend to be by start-ups located in North America, Europe, or Australia and have well-developed networks. They are usually post-ideation and ready to launch a technical pilot or begin market testing. They are too early-stage to raise commercial capital, but may have raised grant capital previously. While we know little at this stage about the motivations of the crowd (this will be the focus of a future report), based on data gathered during the Crowd Power programme we anticipate these backers are driven by their personal connection to the founders and altruistic reasons. Whereas for the larger campaigns we mentioned previously, the crowd appears to be motivated by the value of the reward offered, as well as the social impact aspect.

Reward Campaign Trends – The 2 Campaign Types

	Campaign Size	Backers	The Crowd's Motivation
Type 1: Large Campaigns	\$100,000+	Network, regular crowdfunders, family and friends	Perceived value of rewards offered, novel concept
Type 2: Smaller Campaigns	\$10,000 – \$50,000	Family and friends, network	To support a friend or initiative, philanthropic motivations

WakaWaka's Success

WakaWaka designs and manufactures a portable solar LED charger and light, smaller than an iPhone. They operate a three-pronged business model; they sell products on a Buy One Give One basis, subsidise the purchase price for their units in off-grid communities, and give-away products during disaster relief through the WakaWaka Foundation. They have raised over \$750,000 through three Kickstarter campaigns and managed to do so with 'close to zero marketing dollars'²⁵. Generally, crowdfunding recommendations focus on the campaign-makers network and suggest that at least half of the campaign target should come from their network, family, and friends. WakaWaka's experience contradicts this advice. Camille Van Gestel, co-founder and co-CEO, estimates less than 5% of what they raised came from their network²⁶.

So what was the key to their success and how did they leverage their network and the platform, Kickstarter, to raise this much funding? Six weeks prior to launching the campaign they began reaching out to bloggers and journalists, and other influential people on Twitter and Facebook. WakaWaka had four staff working around the clock on the campaign. Two weeks prior to their launch they had already formulated tweets, Facebook posts, and campaign updates for the duration of the campaign, as well as new rewards and 'stretch goals' to attract new funders and increase contributions. They also discovered that adjusting their rewards during the campaign increased their ranking and visibility on the platform. Their staff monitored the campaign overnight to ensure 24/7 coverage of backer-questions, across multiple time zones. WakaWaka's co-founders utilised their networks in the Netherlands to get media coverage, and raised the most funding the same day they were featured in Mashable – the world's leading media outlet for digital related news²⁷.

Camille's advice to entrepreneurs planning a reward campaign is: 'Prepare. Prepare. Prepare.'²⁸ He believes that starting outreach activities at the time of the campaign launch is too late. He advises reaching out to networks weeks prior to the launch, and to make the communication personal. This should continue once the campaign launches with rapid, personal responses to enquiries via the campaign discussion board, social media, online media coverage, and email. WakaWaka targeted key audiences including environmentalists, NGOs, and the 'prepper

communities' – those preparing for national disasters – as part of their campaign planning²⁹. For their subsequent campaigns, they reached out to backers from their first campaign. Ultimately they were able to secure coverage and backers because of their unique and novel product, and their social impact focused business model.

Who is reward crowdfunding for?

With low success rates on many crowdfunding platforms and a low number of success stories in the energy access space, it can be difficult to understand the relevance of reward crowdfunding to the sector. There appear to be two broad campaign categories within energy access crowdfunding; large campaigns mobilising backers through novel product offerings, and smaller campaigns by early stage start-ups raising money from family, friends, and their network.

The first category refers to those rare, high profile campaigns by companies like WakaWaka and GravityLight. Their campaigns gathered momentum because they offered novel products and had well-formulated campaigns with quality campaign materials. They also utilised online outlets and social media to promote their campaigns. Their outreach strategy, networks, and marketing were vital to their success. They also invested a lot of time and resources into preparation and compiled a detailed outreach plan prior to launching the campaign.

As WakaWaka found, personal networks are not just helpful for fundraising, they can be the key to gaining media coverage and leveraging wider support. In fact many of the campaign backers were not known to the campaign maker and heard about the campaign via social media and other online sources. WakaWaka capitalized on the momentum by providing quick and personal responses, converting enquiries into financial backing. While these campaign types can raise a lot of funding, it is rare that start-ups have the appropriate mix of a novel product, strong planning, appropriate knowledge, superb execution, adequate resources, and a strong network to create a successful campaign. Though, it is important to consider that one successful campaign can provide a launching pad for future fundraising. WakaWaka has used crowdfunding as its primary source of funds and has launched ten campaigns so far³⁰.

The second campaign category we identified during our examination of successful campaigns was those

campaigns by early stage start-ups that are raising seed capital from family and friends, and their network. They often raise \$10,000 to \$30,000 but can raise upwards of \$50,000, particularly if they have match funding secured or a number of large contributors (like foundations or high-net-worth individuals). These start-ups use crowdfunding to formalise fundraising from family and friends – typically as a one-off fundraiser very early on in their operations. Contributors are usually motivated by

their connection to the campaign maker, and a social cause, rather than the reward itself. Few of these start-ups use reward crowdfunding again as it can be difficult to request more funds from their network, unless there is a specific goal in mind. These start-ups may go on to win further grant funding or raise commercial capital. Crowdfunding usually provides a leg-up for these organisations and an opportunity to demonstrate a track record to other potential funders.

3 Campaigns Analysed: Who is the Crowd?

	Campaign 1	Campaign 2	Campaign 3
Target	\$25,000	\$45,000	\$100,000
Raised	\$27,738	\$46,000	\$101,378
Platform	Indiegogo	Pozible	Indiegogo
Average contribution*	\$182	\$279	\$2,069
Number of funders	147	85	46
Breakdown by category			
Crowd Power contribution	9%	49%	20%
Family and friends	65%	20%	19%
General network	2%	29%	0%
Founders	2%	0%	61%
Unknown	34%	2%	>0%

*excluding Crowd Power contribution

Who is the crowd?

Match funding can be a particularly effective tool for these campaigns as it builds integrity and validates the start-ups work. Crucially, match funding builds momentum during the campaign by increasing the contribution size of backers. This increases progress towards the campaign target and can boost the campaign's ranking on the platform's trending pages. An analysis of three reward campaigns supported by the Crowd Power programme found only one campaign had support from unknown backers, and the others were funded exclusively by friends and family, their extended network, and Crowd Power. For the campaign with outsider backing, unknown backers accounted for 34% of funds raised. Outside backing

appears to be uncommon for these campaigns however, and in this case unknown backers are likely to be via the campaign makers expansive networks through their attendance at a high profile business school, and nomination for the Hult Prize, backed by Bill Clinton and the Clinton Global Initiative.

While this small sample makes it difficult to draw concrete conclusions and inform future campaign-makers, and supporters of the sector, observing this data in the context of wider industry trends and recommendations is helpful. Based on this evidence we propose the following recommendations to future campaign-makers.



TOP 5 TIPS FOR START-UPS RAISING ON REWARD PLATFORMS

- 1. Making the decision to launch a reward campaign should not be taken lightly.** Put resources in place well before the campaign goes live – and PLAN your marketing and outreach. The campaign can create 1 – 4 full-time roles over the course of the campaign and in the weeks prior to campaign launch. Consider bringing on short-term staff and paying them a percentage of campaign proceeds to motivate them³¹.
- 2. Calculate the costs of fulfilling the reward promise.** In some cases delivering on this promise can be very costly, particularly when combined with campaign implementation costs. Even GravityLight found that “financial returns are not substantial given the cost of the rewards”³².
- 3. Only 2% of successful campaigns raised \$100,000 or more,** according to Kickstarter, and 73% of successful campaigns raised \$10,000 or less. If you plan to go big, ensure you have an appropriate product that appeals to your backers. As one publication put it, “[m]any crowdfunding backers are early adopters going shopping.”³³
- 4. Secure match funding to motivate the crowd and incentivize backers.** Approach high net worth individuals, foundations, philanthropists, potential investors, and other organisations to increase visibility and credibility. Match funding can also increase campaign visibility through its impact on trending pages.
- 5. Set an appropriate target.** This will give you the best chance of demonstrating early success to potential funders. Build personal relationships with your potential funders and make sure there is a large volume of donations in the first few days to build momentum.

Crowdfunding's Non-financial Benefits

While reward campaigns are not suitable for all organisations, or at all points across the business lifecycle, the non-financial benefits, such as increased brand awareness, partnership building, and improved social media outreach can be achieved – even if the campaign doesn't meet its fundraising goal³⁴. An analysis of reward campaigns by the Office of Advocacy U.S. Small Business Administration found that crowdfunding has several non-financial benefits including increasing the likelihood of partnerships, gaining publicity, building a customer base, and attracting employees. These benefits increase as more funding is raised, up to a certain point³⁵.

Their analysis also shows crowdfunding impacts future financing. Businesses that raised more funds during their campaign went on to raise larger amounts of external financing subsequent to the campaign. However, once the \$75,000 campaign threshold was passed the proportional increase in subsequent funding began to decline³⁶. In other words, the

marginal efficiency – or the relationship between the amount raised during the campaign, and the amount raised in subsequent financing rounds – diminishes. While this study looked at the reward crowdfunding space as a whole, using data from Kickstarter, we see similar trends in energy access campaigns we have observed and supported.

Okra Solar, a tech start-up with operations in Cambodia, allows families with solar home systems to sell excess energy to their neighbours. They recently raised over \$45,000 on Pozible, an Australian reward platform. They successfully reached their target in 20 days and benefited from dollar-for-dollar match funding from the Crowd Power programme. Not only did this early stage start-up raise their target, they were also able to secure two engineering staff after hearing about the company through the campaign. Co-founder Afnan Hannan believes the campaign was an all-round success, “not only financially, but in terms of the right people being aware of what we're doing”.



"Since the campaign, we've managed to build our team and develop the prototype, which is in the final stage of manufacturing and will be delivered to Cambodia in 2 weeks! We really couldn't have done it without the Crowd Power and UK Aid support."

Afnan Hannan, Co-Founder Okra Solar

Okra Solar raised over \$45,000 on reward platform Pozible

The Impact of Reward Campaigns on Energy Access

Across all reward campaigns, a significant proportion of expenditure is on technical pilots, prototyping, and manufacturing. It can take several years for an early-stage company to bring a product to market; therefore measuring the impact of a campaign can be difficult. For example, GravityLight ran their first campaign over four years ago on Indiegogo but only began commercial sales of their product this year. While they have manufactured various prototypes and distributed the GravityLight to campaign backers, they launched their first sales campaign in late 2016 in Kenya. They completed a fifty-stop roadshow across the country without inventory due to manufacturing issues. At this point it is difficult to determine the impact of the campaign, but we will revisit this in our final report. For other start-ups like Okra Solar and Musana Carts, where their backers are effectively donating seed capital, it is far too early to see their impact.

WakaWaka has run over ten crowdfunding campaigns, across donation, reward, debt, and equity platforms over the past few years. Many of these have focused on product development and manufacturing, however some have been for specific initiatives. In late 2012 WakaWaka launched a buy one-give one campaign on Kickstarter and ultimately shipped 12,000 lights to Haiti, where they also set up an assembly line to employ local women³⁷. A year later they ran a similar campaign, this time through the WakaWaka Foundation website rather than a crowdfunding platform, and provided over 7,000 lights to survivors of Typhoon Haiyan in the Philippines³⁸.

WakaWaka states they have sold close to 300,000 units, which have impacted over 1.2 million people and saved over \$13 million in energy expenditure³⁹. These are encouraging numbers for backers of their campaigns, particularly as the majority of WakaWaka's capital has been raised from the crowd. While their success would be difficult to replicate for companies without a similar business model and product, they have demonstrated that crowdfunding can be utilised to fund a business through its lifecycle. They have also tailored campaigns to achieve specific goals and effectively target their audience, while gaining invaluable media attention to achieve specific goals and to effectively target.

We must also consider that reward crowdfunding is rarely suitable for local entrepreneurs or projects, or those without an international network of funders. We covered the challenges for local businesses in our previous paper [Crowd Power: Mapping the Market](#) on the back of *infoDev's* report on their work with Kenya Climate Innovation Centre entrepreneurs launching campaigns on Indiegogo⁴⁰. Reward platforms do not offer suitable payment facilities for local backers (e.g. mobile money), which can restrict access and usability. Ultimately the campaigns through Kenya Climate Innovation Centre were unsuccessful as a result of unrealistic target setting, poor outreach strategies, and inadequate payment infrastructure to support mobile money contributions. As *infoDev* stated in their report 'While crowdfunding does present an opportunity to overcome traditional barriers to capital, it is merely a new, technology-enabled way to do a very old and difficult thing: raising money from a network.'⁴¹ Campaign-makers need a strong network they can mobilise during the campaign, to support the campaign financially and through outreach.



KEY POINTS – REWARD CROWDFUNDING

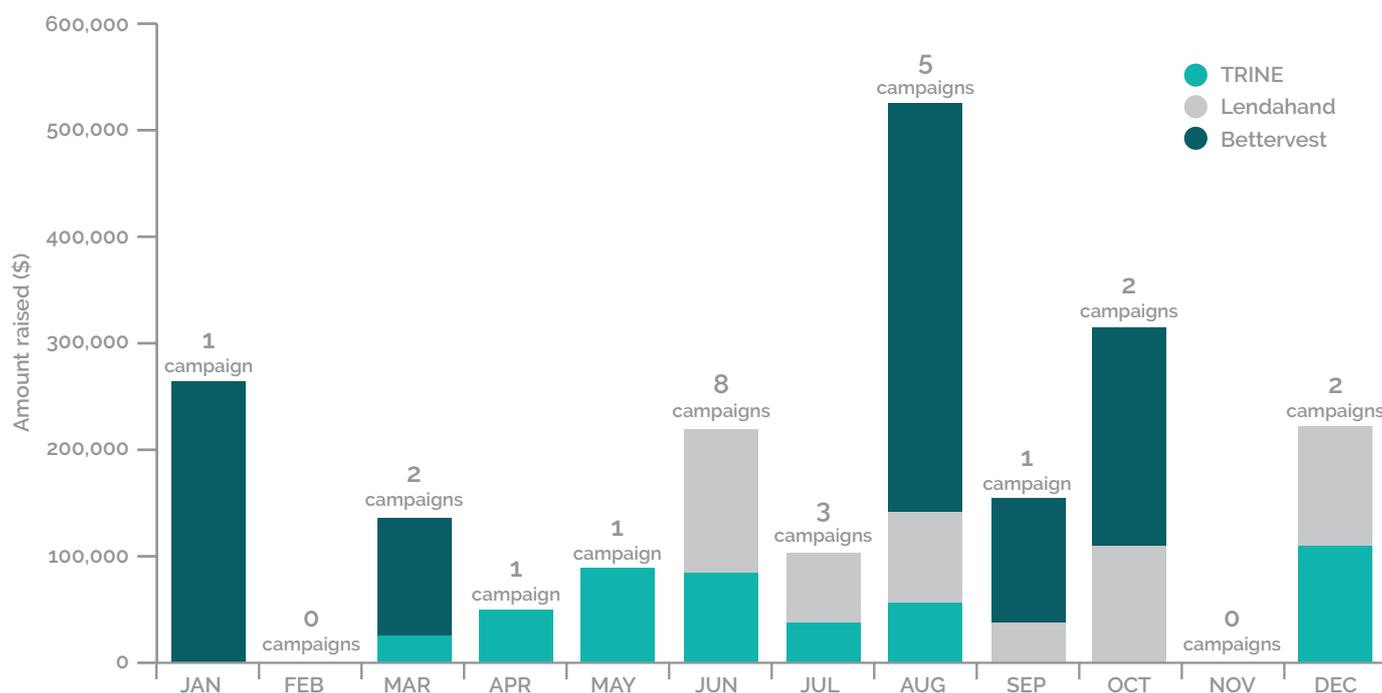
- ▶ There are two broad types of reward campaigns among energy access ventures. The first type is suitable for companies offering an innovative product that backers are interested in purchasing. These are rare but can raise \$100,000 to \$400,000. The second campaign type is usually by start-ups raising seed capital from family and friends. These often raise \$10,000 to \$50,000.
- ▶ The larger campaign type is suitable for very few, niche applications, which makes it difficult for philanthropists and DFIs to engage with these campaigns. There have been only two companies over the past 5 years that have managed to raise substantial this way.
- ▶ The smaller campaign type is more common and these are often successful. Reward crowdfunding can be a great option for raising small amounts of seed capital to pilot a business concept and product. The campaign-makers network is key; therefore it is rarely suitable for local businesses.
- ▶ Match funding can have a strong impact on campaign performance as campaign targets can be reached faster, building momentum. Dollar-for-dollar matching can be very effective, particularly over specific periods of time or up to a particular interval.
- ▶ DFIs and philanthropists could strengthen opportunities for early-stage ventures by providing match funding for a limited period of time or up to a certain threshold to build campaign momentum. As we suggest in the previous section, *4.1 Donation Crowdfunding for energy access*, certified company accounts and/or proof of purchase may be helpful to reduce risk of misspent funds and/or 'self-funding' campaigns.

4.3 DEBT CROWDFUNDING FOR ENERGY ACCESS

Debt has dominated the energy access crowdfunding space over the past two years. Debt crowdfunding raised \$4.6 million in 2016 and accounted for 53% of all crowdsourced funds for off-grid energy projects and businesses.⁴² Debt crowdfunding also leads in terms of the number of unique campaigns – there were over 4,000 debt campaigns in 2016, accounting for over 90% of all energy access campaigns.⁴³ Kenya, Ghana, and Mali are the leading countries for energy access crowdfunding, measured by amount raised; Kenya, Cambodia, and Nicaragua lead in terms of the number of campaigns per country.⁴⁴ The sector is dominated by microloans, and most of these are on Kiva. Microloans include loans to consumers, co-operatives, and entrepreneurs, and accounted for 55% of debt crowdfunding in 2016, raising over \$2.5 million.

In 2016 we saw the rise of working capital loans made directly to social enterprises. Unlike microloans, these are larger loans to businesses distributing and/or manufacturing clean energy products. The average SME loan on debt platforms was \$80,000 and ranged in size from \$10,000 to \$385,000.⁴⁵ Bettervest, Lendahand, and Trine were the leading platforms for working capital loans, and raised over \$2 million for clean energy businesses. Kiva also launched a pilot lending directly to social enterprises, rather than going through a partner organization such as an MFI, and offers loans of up to \$50,000 to qualifying start-ups. This is an interesting leap given the average loan size is less than \$500 on their platform and may signal an area of growth.⁴⁶ Kiva's first energy loan under the pilot was launched at the end of 2016, raising \$50,000 to finance PAYG solar units for Zimbabwe-based Zonful Energy; the campaign received match funding from Crowd Power.

Debt Crowdfunding SME Loans 2016



Total raised across 2016 (= \$2.1 million) and total campaigns (26)

Microloans Driven by Philanthropic Agenda

Traditional debt crowdfunding is associated with commercial rates of return. Most of the dominant debt crowdfunding models globally – peer to peer business lending and real estate crowdfunding – depend on financial returns to garner a lender base. Debt crowdfunding in Sub-Saharan Africa, and parts

of Asia, is vastly different, and is driven by zero-interest micro lending and triple-bottom line investing⁴⁷. While limited data is available on the crowd, largely due to tight data protection rules across platforms, it is broadly understood that those lending to off-grid energy campaigns are driven by more altruistic motives than those investing in more conventional

debt crowdfunding. Microlending in this context may be viewed as an extension of charitable giving, but ensures capital preservation. Kiva and Milaap, India's largest platform for social causes, have repayment rates of 97%⁴⁸ and 99%⁴⁹ respectively. Microlending platform Zidisha, the first direct, global person-to-person lending platform has a repayment rate of 88%⁵⁰.

The no interest model has a number of advantages for platforms, reducing securities law considerations in some jurisdictions and allowing for greater social impact. Kiva co-founder and President, Premal Shah, believes Kiva's non-profit and zero-interest model also means, 'Kiva is able to partner with groups based on social motive, rather than profit motive.'⁵¹ Kiva started by partnering with microfinance institutions, and now works with social enterprises and non-profits to facilitate loans. Their direct to social enterprise (DSE) pilot allows vetted social enterprises to raise up to \$50,000 on Kiva, without going through partner organisations. Recently departed CEO, Martin Tschopp, who joined Kiva after 12 years with eBay believes their crowdfunding model 'fills a critical funding gap faced by entrepreneurs whose businesses are too young, too small or too innovative to receive traditional small business loans.'⁵² Kiva has now lent over \$1 billion to 2.5 million borrowers since 2005.⁵³

Prior to 2016, lending to energy access related small businesses was almost exclusively the domain of Kiva and SunFunder. SunFunder officially wrapped up their crowdfunding operations in 2016 to focus on raising funds from accredited investors. The platform had raised \$437,500 via crowdfunding across 21 loans since its inception in 2012⁵⁴. Kiva has raised several loans for distributors of solar and other energy products over the years, which range from \$2,000 to \$50,000 in size, but with mixed success. Many loans were facilitated by non-financial institution partners, such as social enterprises, without the capacity to act as loan administrators. The failure of a number of these partnerships, resulting from high repayment rates and other loan administration issues, has caused Kiva to rethink their approach to these experimental partnerships.

Triple Bottom Line Crowdfunding

Lenders on the top three platforms for SME lending – Bettervest, Lendahand, and Trine – appear to be sophisticated, early adopters with a strong interest in social impact investing and/or renewable energy. Bettervest, based in Germany, first experimented with

energy access related lending in 2015 and funded two campaigns. In 2016, Trine and Lendahand also began lending to off-grid energy businesses. In Q3 2016, they had launched their first energy campaign, and it was fully funded in 48 hours. They launched a total of 15 campaigns by the end of 2016, in Kenya and the Philippines. Lendahand also trialed direct lending, which allows businesses to raise funds from the crowd directly rather than working through partner organisations such as MFIs. Lendahand's CEO, Peter Heijen, believes investors are drawn to these energy projects because of their direct impact on people's lives. 'Not only do these investments help increase access to renewable energy, reduce kerosene costs, and reduce kerosene-related health hazards, investors simultaneously contribute to a sustainable environment and they get a financial return of 3 – 6% on an annual basis, paid out every 6 months.'

So far this appears to be a scalable model, when done with appropriate due diligence and care. Since SunFunder launched their first crowdfunded solar loan in 2012 – a \$4,000 loan to an entrepreneur in the Philippines to purchase solar lights and phone chargers – through to the end of 2016, they had raised \$20 million across 91 loans, and had a default rate of less than 1%⁵⁵. This includes both crowdfunded loans and Solar Note issues to accredited investors (not on the crowdfunding platform). SunFunder stated crowdfunding allowed them to prove the feasibility of their business model and the underlying investments. SunFunder has now closed their crowdfunding operations and raises funds exclusively from accredited investors.

Due to regulatory restrictions they were previously unable to offer interest to crowdfunding investors, but can do now they work with institutional investors. There have since been changes to US crowdfunding legislation (Title III of the JOBS Act) to allow retail investor participation in debt crowdfunding, however reporting requirements are prohibitive for many small businesses so we are yet to see any major changes for the sector thus far. SunFunder's track record of strong loan performance, and the growth of the underlying small businesses, helped to close their \$50 million investment fund backed by OPIC, Rockefeller Foundation, and MCE Social Capital in late 2016.⁵⁶

Although SunFunder has abandoned their crowdfunding operations, the founders of Trine still see plenty of room for growth in debt crowdfunding

for energy access related businesses, and believe that both lender (demand-side) and borrower (supply-side) activity is strong. In their first year they lent over \$450,000 to six solar businesses, and one project, in Sub-Saharan Africa.⁵⁷ For the model to succeed, Trine believes they need to scale up lending and offer multiple loans to performing borrowers. The average loan size was \$64,000 in 2016, and in late 2016, Trine launched two larger loans averaging \$175,000 over the holiday period. These loans were slower to fund and took two months to reach their targets – relative to a 28-day average for their first eight loans. Andreas Lehner believes this is due to 'the constant balancing of campaigns with the size of Trine's investment community' as their crowd investor base grows. And while SunFunder has made the transition away from the crowd, 'Trine believes strongly in the potential of crowdfunding as the market is projected to surpass the size of VC [venture capital] funding globally'⁵⁸. And unlike SunFunder, based in the US, Trine is well positioned to take advantage of Europe's more enabling regulatory environment, which allows retail investors to earn interest on their investment – which can be as small as \$30 on many platforms.

With the growth of working capital loans there is increased awareness, and demand for guarantee type products and default protection for lenders. A number of initiatives are being explored by platforms and DFIs, and include the provision of a guarantee of 50% (and up to 75%) of the remaining loan balance. A number of bilateral and multilateral donors are exploring options to support the growth of crowdfunding – an encouraging sign, and one that adds credibility to this space. One of the top platforms for energy access related business loans has proposed a broader insurance mechanism, to protect loans across several platform partners. While there are a number of complexities to implementing loan protection across multiple platforms, such as differences in due

Debt crowdfunding raised \$4.6 million for energy access focused businesses and projects in 2016, a significant ramping up of activity since the previous year (81% growth).

diligence processes, a broader insurance product would likely reduce risk exposure and allow for diversification. The cost of the guarantee will most likely to be absorbed by the lender.

Why Get a Loan from the Crowd?

Debt crowdfunding raised \$4.6 million for energy access focused businesses and projects in 2016, a significant ramping up of activity since the previous year (81% growth).⁵⁹ While we are yet to see aggregate data on off-grid energy fundraising for the year, we do know that off-grid solar companies raised \$122 million of debt between 2008 and 2015⁶⁰. It's easy to see therefore, that crowdfunding is a small part of the overall financing picture. Nonetheless, we believe debt crowdfunding has a role to play at this particular juncture – particularly for social enterprises unlikely to raise debt capital from impact investors just yet, and for more mature businesses that struggle to access working capital from local banks. We must also keep in mind that this is a nascent space, and energy access debt crowdfunding is growing steadily, and significantly.

Generally, investment in the off-grid sector has grown substantially over the past two years, however there is often a mismatch between the desires of investors and the capital needs of potential investees. Russell Sturm, Head of Climate Change Advisory at the International Finance Corporation (IFC) says 'there is money out there from investors, especially for the frontrunners who have shown they can deliver returns, but what's been lagging is working capital'⁶¹. While investor appetite for a share in promising 'frontrunners' is strong, accessing debt capital is more difficult.

Bettervest, Lendahand, and Trine allow businesses to raise larger working capital loans from the crowd and had an average campaign size of \$80,000 in 2016; Kiva allows social enterprises to raise up to \$50,000. Importantly, these platforms allow businesses to consolidate small end-user loans into one larger loan, reducing the administrative burden of crowdfunding, as well as providing liquidity. Platforms like Kiva traditionally require partners to post loans for each customer, which has a higher administrative burden than bundling loans into one larger loan that can capture hundreds of individual loans. This is an important step as access to consumer lease financing is the number one barrier to growth cited by solar businesses.⁶² Since late 2016, there have been a number of campaigns of this type including by

Zonful Energy on Kiva (\$50,000), which raised finance for solar home systems, and SimGas on Lendahand (\$108,000), which will provide loans to farmers to install biogas systems.

This trend reflects the needs of small PAYG solar companies and the lack of capital available for consumer lease financing. In late 2015, the sector's first securitisation deal was completed and raised \$500,000. BBOXX issued local currency denominated notes to Oikocredit, secured by the unpaid portion of 2,500 BBOXX solar systems in Kenya.⁶³ The first issue had an average maturity of 2.5 years and an interest rate of 21%.⁶⁴ While an exciting step for the industry (with another \$1.5 million bond issue scheduled for 2017), the cost of starting a securitisation programme is only an option for mature companies planning multiple issues. For less mature social enterprises that have refined their business model and are looking to pilot or expand end-user financing, debt crowdfunding is the obvious choice due to the challenges of accessing finance prior to reaching scale.

For social enterprises like Nuru Energy that focus on energy access for the 'poorest of the poor,'⁶⁵ crowdfunding allows them to raise zero-interest, risk-bearing capital, where few other opportunities exist. Their Kiva partnership means they can test approaches to distributor financing and build a track record, which could help them raise capital in the future. Nuru Energy has raised over \$80,000 across 590 loans, with an average loan size of around \$140. The partnership doesn't appear to be without hiccups however, and we observed that no loans were made on the platform between August 2013 and May 2016. The loans also changed significantly over this period; the earlier loans were around \$100 with one repayment at the end of a 14-month term, while the later loans were closer to \$300, had irregular repayments, and durations over three years. The partnership likely allowed Nuru to adjust their loan terms based on their initial experience. Nuru Energy currently has a delinquency rate of 0%, but we must also consider that only 16% of total borrowings (\$12,850) had been repaid at the time of writing this report. It may be too early to tell if this is an effective way of raising finance. Some other social enterprises have wrapped up their partnership due to the difficulties of administering end-user and distributor loan schemes. We provide more detail on this in our first paper, [Crowd Power: Mapping the Market](#).

Potential of Debt Crowdfunding to Reach Scale

Debt crowdfunding appears to be the most scalable of all crowdfunding types for the off-grid energy space. There are two areas of growth within debt crowdfunding; the first is the modestly growing microloan space, and the second is rapidly growing directly to energy businesses – which experienced rapid growth over the year. Kiva, Zidisha, and Milaap are the largest microlending crowdfunding platforms globally and have an average repayment rate of 95%⁶⁶. Both Kiva and Milaap rely chiefly on partners to source loans and carry out borrower due diligence. Zidisha on the other hand, provides loans directly to borrowers through the platform and utilises a graduated loan scheme to reduce risk exposure; entrepreneurs start off with a small loan, and if repaid with sound repayment history, subsequent loans increase in value. Lenders are drawn to these loans as they have a tangible impact, being mostly consumer finance loans for individuals to purchase a solar home system or energy efficient cookstove – or a working capital loan to a distributor for a specific product and number of units. We expect energy access microlending to increase modestly over the short to medium term, particularly peer-to-peer lending and microloans via MFIs, however as we've already seen, the administrative burden of posting microloans means it is unlikely to be a scalable solution for many social enterprises.

Working capital loans to social enterprises grew 10-fold in 2016, raising over \$2 million. Bettervest raised close to \$1.1 million, Lendahand raised \$550,000, and Trine raised over \$450,000 in working capital. SME-lending as a percentage of debt crowdfunding activity grew from less than 10% to 45% of all debt crowdfunding. All three platforms offer investors competitive rates of return, and Bettervest and Trine in particular have strong impact metrics. Both platforms clearly stipulate the number of people impacted by the campaign and tons of CO₂ reduced. Additionally, many Trine loans are disbursed directly to the product supplier reducing the risk exposure.

Debt crowdfunding appears to be the most scalable of all crowdfunding types for the off-grid energy space.

Interestingly, we are yet to see peer-to-peer business lending emerge in Africa – despite the fact that debt and equity crowdfunding accounts for the largest proportion of funds raised globally, and that Kenya in particular is a 'hot bed of innovative alternative financial services'.⁶⁷ Crowdfunding within Africa is limited, and currently Western backers drive the flow of funds into Africa-focused campaigns. We may therefore start to see increased activity in this area, particularly if regulatory bodies begin to adjust their frameworks.

The role of match funding and first-loss protection

Match funding on debt platforms is a little more complex than for donation and reward platforms, for donors wanting to support campaigns. Funds contributed to donation and reward campaigns are not re-paid, however for debt campaigns match funding contributed by a donor will be returned, provided there is no issue with repayments. The donor must then decide what to do with these proceeds. Prior to Crowd Power, there were few examples of match funding on debt platforms, and match funding was mostly encouraged on donation platforms.

Kiva has the most developed match funding activity of any platform. In 2014, the platform raised \$2.9 million in one day – 'Million Dollar Match Day' – with match contributions from Google and Grameen-Jameel Microfinance⁶⁸ among others. Omidyar Network, Pearson, and PepsiCo Foundation have also contributed to various match funding initiatives over the years. The impact of match funding on individual campaigns' time to fund is not available, however the total amount raised over specific periods where matching is available shows a sharp increase in lending over this period. For example, Million Dollar Match Day raised over 8 times the amount raised on a typical day.⁶⁹

As we mentioned earlier, 2016 was a transformative year for energy access related debt crowdfunding. Lendahand began lending to energy businesses in emerging markets, the Trine platform was launched and funded seven loans in its first year, and Kiva began lending directly to social enterprises. Bettervest also grew their energy access activities and raised over \$1 million, giving them the largest market share. Crowd Power is working with all four platforms to support energy access related campaigns with match funding, gift vouchers, and first-loss guarantees on approved loans. The results have been strong in terms of attracting funding from the crowd, however we would caution that interventions in this space should be proportionate to the size of the market, which was around \$4.6 million for debt crowdfunding in 2016.

So far we have concluded that match funding is effective for microloans, such as those on Kiva, and there is a lower risk of self-funding, even with dollar-for-dollar matching (compared to donation and reward campaigns) as these loans are smaller and are made via vetted partner organizations. Often, they also charge interest, which discourages this kind of behaviour.

Nevertheless, Kiva has a high funding rate generally and while supported loans may fund more quickly with match funding, most loans that appear on the platform will be fully funded within the 30-day funding window. The perceived 'additionality' of match funding may therefore be limited, unless targeting a specific loan type such as experimental loans (e.g. Direct to Social Enterprise loans) to those in countries/regions that have difficulty attracting funding. However, we should also consider that higher funding rates can increase the volume of new loans on the platform, increasing overall funding raised. Energy access related loans on Bettervest, Trine, and Lendahand also appear to be in high demand, with both matched and unmatched loans funding quickly. For this reason, match funding at around 25% of the campaign target should be sufficient.



GIFT VOUCHERS

Gift vouchers are offered to existing and potential lenders to attract investment. These are issued as coupon codes on 'influencer' blogs and/or podcasts, as well as through specific landing pages promoted on the platform's website. We have experimented with various types of vouchers, including bonuses for attracting a friend to the platform, and vouchers for certain levels of investment. We have also provided 'no string attached' vouchers, which allow new investors to contribute only the \$25 issued.

Our experimentation with gift vouchers supporting specific campaigns is still early, however some patterns are emerging. The usage rate of gift vouchers can be quite low, we therefore advise targeting numerous, but specific, audiences. This may include friends of existing lenders, as well as online groups, bloggers, and podcast hosts geared toward off-grid energy, renewable energy, or social finance. One platform experimented with a dedicated landing page for voucher users, and had a high conversion rate. Others have applied different coupon codes to various podcasts and blogs and found that vouchers can generate over 35 times the amount of the voucher in investment.

First-loss guarantees also appear to have a significant impact on lender behavior, with several Trine lenders commenting that this was a factor in deciding how much to invest. Crowd Power provided first-loss protection, protecting 10% to 50% of the crowd's investment, on a declining balance basis⁷⁰, across various loans. For DFIs and philanthropists this can be a cost-effective way of making an impact in the debt crowdfunding space and can diversify risk by supporting a number of campaigns. We found protection remains effective even at 10% and 25% of the campaign target. The benefit of protection is that it also gives funders and platforms flexibility to allocate funds to other projects where funds are not utilised, and to support philanthropic activities (many platforms have a non-profit arm that supports community projects, for example).



DFID AND VIRGIN UNITE TO HELP CROWDSOURCE END-USER FINANCING THROUGH NEW PEER-TO-PEER SOLAR LENDING PLATFORM

In order to expand the role of crowdfunding in financing energy access, DFID and Virgin Unite are supporting a new initiative, Energise Africa, that is establishing a lending crowdfunding platform to raise debt from the UK crowd to finance companies selling solar home systems in Africa. This initiative is being delivered by a joint venture created by two existing crowd funders - Ethex, a UK based non-profit social impact savings and investment platform, and Lendahand, the Dutch social venture already supported through Crowd Power. A beta version of the platform will go live in 2017. The platform will launch to the public in late 2017.

Lendahand Ethex Ltd will work with established solar home system businesses to help them raise debt from the UK crowd. Investors earn interest but also invest at risk. The borrowers are able to secure financing at competitive rates and Lendahand Ethex Ltd will provide some buffering of foreign exchange risks. The platform conducts its own due diligence on borrowers, supported by INRISC credit assessments.

The loans will be used by these companies to finance the provision of credit to end users, and will be repaid over a time period that mirrors payments by these end users. Linking investors to specific customers would be very complex and expensive, and violate customer privacy, so the platform instead uses case studies and other data to enable the crowd to track the benefits their investments are delivering.

Lendahand Ethex Ltd aims to raise \$20 million over the next three years which if achieved would greatly increase the contribution of crowd funding to the energy access sector. The aim is to create a venture, which becomes self-sustaining without the need for ongoing donor support.



HOW CAN DFIs HELP DEBT PLATFORMS CLOSE THE FINANCING GAP?

'The energy access market is entering a stage in which DFIs can start to help attract private capital into the market as the industry matures. In order to have the highest impact, they can help to reduce the cost of working capital. In our experience there are two ways to do this:

1. Allocating funds to hedge forex risks for entrepreneurs as this is often stated as one of the biggest risks for lenders, but is currently too expensive to implement without the support of development finance institutions.
2. Provide debt guarantees, including first-loss positions and match funding, to reduce financing costs and leverage private capital into the market. We have seen that such instruments increase the funding time and the number of investors per campaigns, as well as the likelihood of funding.

Andreas Lehner, Co-founder Trine



KEY POINTS – DEBT CROWDFUNDING

- ▶ Debt crowdfunding for off-grid energy business and projects is dynamic and evolving; Bettervest, Kiva, Trine, and Lendahand dominate the space. All platforms now offer loans directly to social enterprises, rather than exclusively through local partners like MFIs.
- ▶ Philanthropists and DFIs could make cost-effective impact in the sector, particularly through first-loss guarantees. Guarantees can be split across a group of loans to reduce risk and increase value-for-money from a donor perspective.
- ▶ Crowdfunding regulation in Europe allows platforms to offer interest to lenders, and this enabling environment is a key component of Trine's growth.
- ▶ Match funding is most effective when utilised at a specific milestone or up to a particular interval in the campaign. Matching above 25% of the target tends to become less effective due to the higher amount spent on matching. Microloans are commonly matched dollar-for-dollar (50% of target) and this is a good way to build campaign momentum for a specific initiative (e.g. Earth Day) or trial new loan types (e.g. Direct to Social Enterprise). This can be a less cost-effective approach though.

4.4 EQUITY CROWDFUNDING FOR ENERGY ACCESS

In 2016, there were three equity crowdfunding campaigns by companies working in the off-grid energy space. These campaigns raised over \$3.3 million – almost as much as the amount raised across all debt, equity, reward, and donation campaigns the previous year⁷¹. In our last report, we signaled equity crowdfunding as an area of growth following successful campaigns by UK companies Buffalo Grid and Renovagen on Crowdcube. However, due to the high variation in the amount of funds raised each quarter in 2015 and 2016, and no growth over the first two quarters of 2017, we believe equity crowdfunding is unlikely to reach significant scale and stable growth in the short term. We will likely continue to see ebbs and flows in the number of transactions. We should also keep in mind that large transaction sizes, relative to the size of off-grid energy related crowdfunding, can at times distort perceptions of the scale of equity crowdfunding. It is important to consider the frequency of these transactions, as well as the volume.

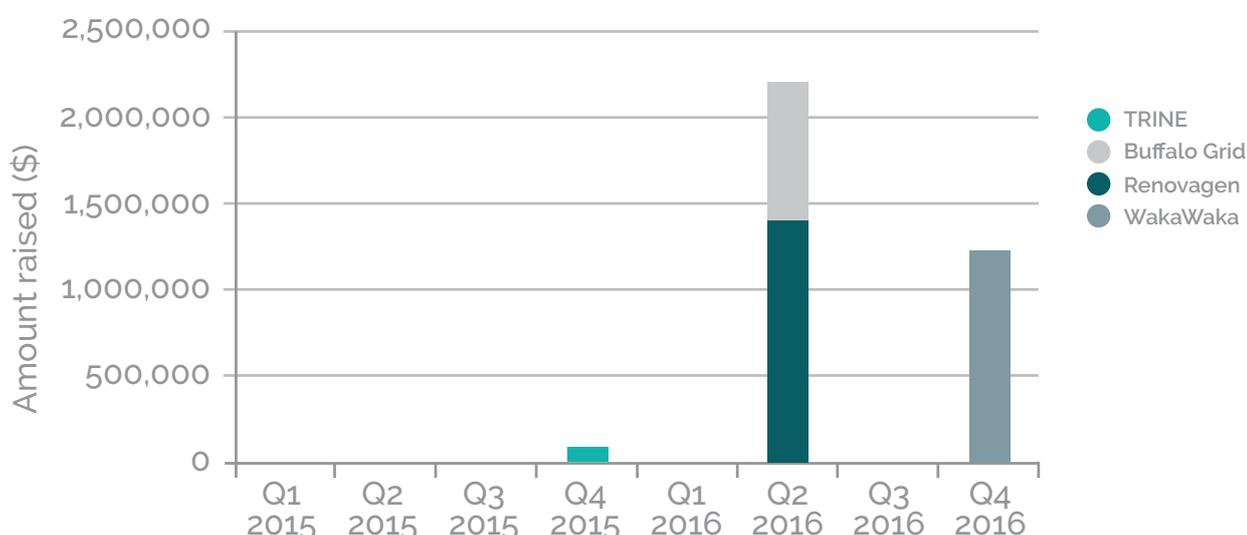
Off-grid Equity Crowdfunding Grows Exponentially

In 2016, three large off-grid energy equity campaigns raised as much as the entire off-grid crowdfunding space in 2015; Renovagen, Buffalo Grid, and WakaWaka raised over \$3.3 million in 2016. In 2015, there was only one campaign – by Trine – which raised \$75,000. On the face of it, this is sensational

growth and an incredible development for equity crowdfunding. It comes on the back of strong industry-wide growth in equity crowdfunding as a changing regulatory environment paves the way for more platforms, and campaigns, to enter the market. In 2016, much awaited rulings on non-accredited investor participation in equity crowdfunding (JOBS Act Title III, IV) were rolled out in the US. There were also changes to regulation in Europe, allowing start-ups and SMEs to raise up to €1 million (\$1.1 million) without issuing a prospectus⁷². Globally, more flexible regulations – from the UK to New Zealand, and Israel to Singapore⁷³ – have bolstered the industry.

So why do we suggest being cautious in the context of this dynamism and growth? We must consider that the equity crowdfunding deal flow for off-grid energy is very thin. In 2016, there were 6 months (from May to December) in which there were no off-grid energy equity campaigns. Campaign size is also highly variable, ranging from around \$75,000 to over \$1.4 million over the past two years. There are too few deals for us to make any predictions on the future of equity crowdfunding over the short-term, other than that it is likely to continue to be characterised by infrequent deals of varying size. We therefore anticipate that there will be high year-on-year (and particularly month-on-month) variability in the growth of equity crowdfunding.

Energy Access Related Equity Campaigns 2015 – 2016



Due to volatility of GBP/USD and EUR/USD in 2016, we have used the exchange rate at day of close of campaign

There is potential for DFIs and philanthropists to engage in the sector by strengthening the quality and number of pipeline deals. This could involve virtual incubation programmes, engaging in match funding or gift voucher issuance, and engaging with regulators to create a more supportive ecosystem. They could also play a role in the development of dedicated platforms for social enterprises and/or local businesses.

Is Equity Crowdfunding a Last Resort?

Perhaps one of the reasons for a variable pipeline of deals is that equity crowdfunding can be a last resort for off-grid energy companies, unable to raise funds from institutional investors and other impact funds. But some companies, like WakaWaka, chose equity crowdfunding over traditional investors as crowdfunding investors do not dilute control to the same extent⁷⁴. Crowdfunding can also be used to supplement an investment round. This is not necessarily because these companies are not viable investments; it is likely a reflection of the mismatch of start-up capital needs and the amount, and type, of investment capital available to companies. Raising finance can be tough for companies without a refined product and a strong record of sales growth and/or high customer repayment rates.

The low number of deals, and infrequency, may also reflect a lack of market awareness as few companies or existing project developers consider crowdfunding as a viable option. There is an opportunity for an increased role of donors to educate the market, and assist entrepreneurs to get ready for equity investment. Additionally, there may be an opportunity for intervention by working with existing project developers (e.g. mini-grid developers) to supplement existing financing with crowdfunded equity (and debt). Crowdfunding has the added benefit of building awareness and can be a good tool for promotion and marketing. We have seen campaigns for specific infrastructure projects on debt platforms like Lendahand and Bettervest, however equity platforms have not yet been utilised for this purpose.

While there are too few equity campaigns to showcase or forecast trends, there appear to be some common themes among the campaigns we have observed as well as campaigns we know of that were in development but ultimately didn't launch.



TOP 4 EQUITY CAMPAIGN TRENDS

1. All the campaigns that were successful are by companies based in the UK and Europe and were backed by investors on platforms in the UK, the Netherlands and Sweden.
2. Two of the four campaigns in 2015 – 2016 had run successful equity campaigns previously, and for one of these (WakaWaka) this was their 10th crowdfunding campaign⁷⁵.
3. Across the four campaigns there were three different financing structures; equity shares, convertible notes and an equity investment into a project entity (Special Purpose Vehicle) that lends to a project developer.
4. Of the two campaigns offering company shares to investors the average equity on offer was 28.96%⁷⁶.

Of the three campaigns that funded in 2016, Crowd Power supported one campaign, by Buffalo Grid, with a £20,000 (\$27,000) lump-sum contribution at the 50% raised milestone (see graph below). It is difficult to draw conclusions on the impact of this contribution. While we saw a corresponding increase in investment after our contribution, this is not unusual once campaigns raise 50% of their target. The campaign

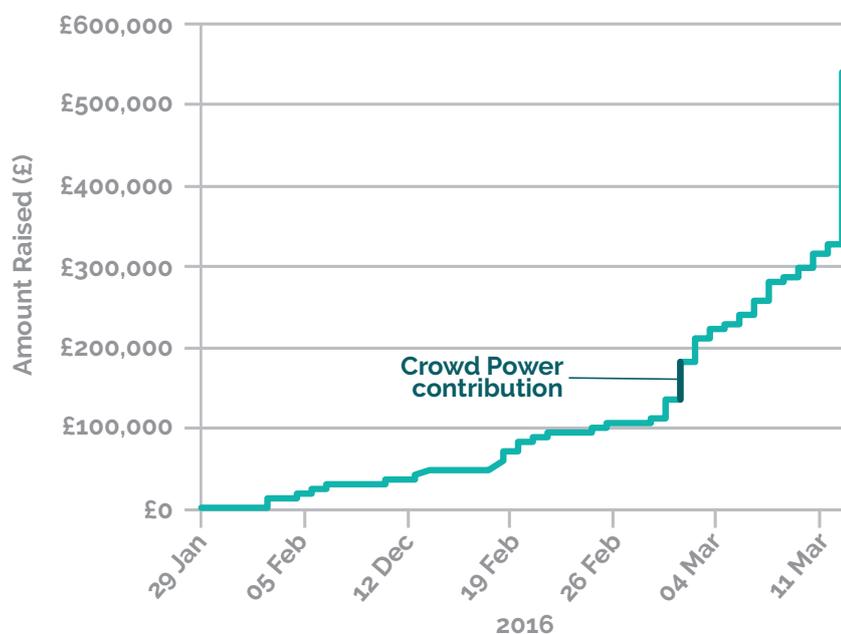
ended up raising double the initial target, raising close to \$700,000 (£496,000). Interestingly, a month prior to Buffalo Grid's launch, Renovagen, which produces portable off-grid solutions, raised \$1.35 million. Their campaign did not receive backing from Crowd Power, yet raised close to double its target also. This signals strong investor demand for these types of raises.

We have also been privy to a number of campaigns, which did not ultimately launch. From this experience, and in our dealings with equity platform partners, we have noted the high dropout rate of equity campaigns in the pipeline. We have seen a number of campaigns dropped at the last minute due to an investor re-entering negotiations or a new investor stepping in, which tend to be high net-worth angel investors rather than impact funds or family offices – which often have much longer due diligence processes.

High drop out rates are common across equity crowdfunding platforms. This could be due to the complexities and uncertainties of equity crowdfunding. Some argue that having many

investors, particularly at an early-stage, can dilute management control and make a start-up unattractive to future investors. There are ways around these complexities for start-ups wanting to raise funds, by limiting voting rights to investors or establishing a SPV. This effectively limits the role of the crowd in the company – although this measure has drawn criticism for the lack of protection offered to the crowd. There is also the risk of public failure, which could be embarrassing at best and detrimental at worst. Even if the campaign is a success, companies must keep in mind that their failures will likely be public and it will be more difficult to contain investor criticism – we must remember that investing in start-ups is a high-risk activity after all.

Buffalo Grid Campaign Performance 2016





"The key goal was to develop the BuffaloGrid Hub for mass production. The design is now finished and the first batch of mass-produced hubs is reaching us mid-2017."

Daniel Fogg, Co-founder Buffalo Grid

Buffalo Grid raised close to \$670,000 in on equity platform Crowdcube



CAMPAIGN RECAP: WHERE ARE THEY NOW? BUFFALOGRID

The Campaign

Platform Crowdfunder

Target £265,000

Amount Raised £496,000

Was this Buffalo Grid's first campaign? Yes

The Company

Profile

BuffaloGrid sells mobile power through the BuffaloGrid Hub – a battery system allowing customers to charge a phone and connect to the internet. Their customers use this power to stay connected. Customers pay for these services using Premium SMS, M-Pesa (mobile money) or cash. They provide Hubs to local agents free-of-charge, and agents sell mobile power through the Hub to their community. The revenue generated from these sales is shared with the agent, and the cost of the Hub is covered after 6 to 9 months of operation. Each Hub can run for over three years.

Founded 2011

Countries of Operation India, Uganda

Capital raised since founded

Grant capital £506,000

Debt & Equity £926,000

Revenue

Pre-revenue

Q&A

How did Buffalo Grid utilise the funds raised during the campaign?

The key goal was to develop the BuffaloGrid Hub for mass production. The design is now finished and the first batch of mass-produced hubs is reaching us in Q2 2017.

Why did you decide to go to the crowd to raise equity?

We believe in the power of the crowd, we didn't just secure the funding we needed we won a network of investors with a large range of skills that have helped us along the way.

What did you do in preparation of and during the campaign to generate interest?

We held events, one to one meetings with investors and secured some press coverage.

Were you surprised by the success of the campaign?

Yes.

How do you think this campaign has impacted the business?

The campaign has given us the funds needed to scale. Without this money we could not have taken the hubs into production and without hubs in production, we cannot make large-scale deployments. It is essential for our growth.



KEY POINTS - EQUITY CROWDFUNDING

- ▶ Equity crowdfunding was the highest growth area of energy access crowdfunding in 2016, measured by funds raised (48 times the previous year). There were only three campaigns in total.
- ▶ Campaigns are infrequent and irregular, which may be due to a lack of market awareness and promotion of crowdfunding for energy access. This also makes it difficult to identify particular trends such as the amount raised, the platforms chosen and campaign frequency.
- ▶ Funders and DFIs could play a role educating social enterprises and project developers and how they may incorporate crowdfunded equity (and debt) into their financing structures.
- ▶ Successful raises tend to be by companies with a novel technology and a well-developed network. Much like the larger raises on reward platforms, equity raises are suitable for companies with a specific profile – novel product, strong investment materials and pitch, and well developed network. There is a role for funders and DFIs to play in incubating these companies.

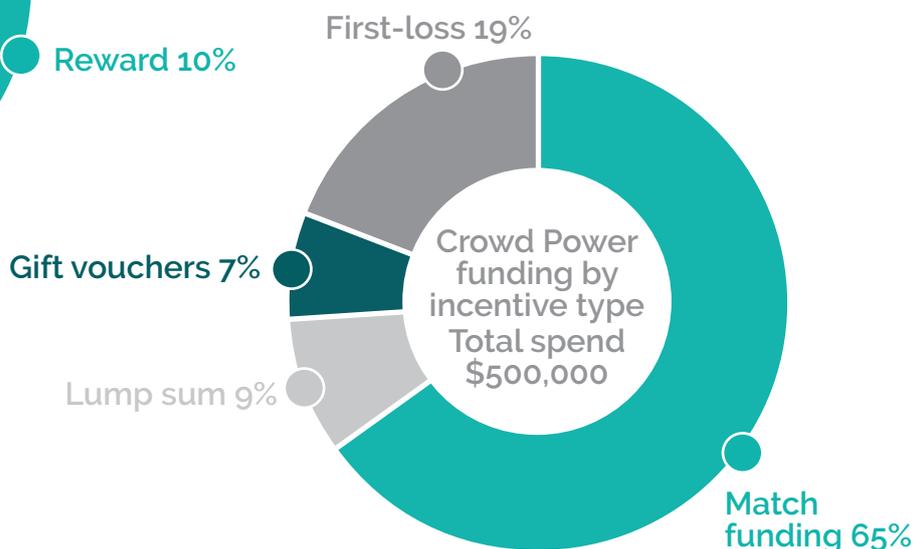
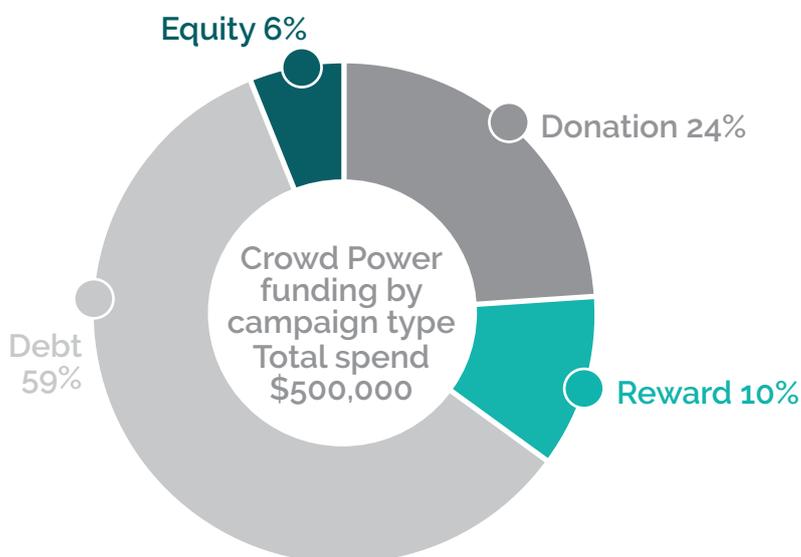
5.0 CROWD POWER PROGRESS

What is Crowd Power?

Crowd Power is a programme run by Energy 4 Impact and was set-up with the intention to fund and research energy access related crowdfunding. We have a research and innovation budget of \$1 million to support various debt, equity, donation, and reward campaigns through various incentives – match funding, lump-sum contributions, gift vouchers, and first-loss protection (guarantees). We are also researching market trends and the growth of crowdfunding within the off-grid energy space. This is the second paper in a series of five papers that will be published over the course of the programme, ending March 2018.

What has happened so far?

At the time of publication we had launched over 30 campaigns, deploying over \$500,000 into debt, equity, donation, and reward campaigns targeting energy access. We are working with eight platform partners – Kiva, Trine, Lendahand, Bettervest, M-Changa, GlobalGiving, Pozible, Oneplanetcrowd, and Crowdcube. The campaigns we have supported raised over \$2.5 million. Over half the funding was deployed as match funding and 20% of funding was allocated as first-loss protection to protect lenders from default. First-loss funding that is not drawn down will be recycled through new energy access loans or fund community energy access initiatives managed by our platform partners (and associated foundations).





We did a lot of work before launching the campaign to tailor our story, produce a good video and to engage our network to be sure they will give. We spent time marketing the campaign and sending the right message to our network.

Natalie Bitature, Co-founder Musana Carts

Musana Carts raised over \$27,000 on reward platform Indiegogo



CROWD POWER CAMPAIGN SNAPSHOT MUSANA CARTS

"The Solar Street Vending Revolution"

Musana Carts designs solar powered street vending carts for entrepreneurs with roadside stalls in Kampala, Uganda. Three friends, who met while attending Hult International Business School, founded the start-up.

Platform Indiegogo⁷⁵

Launch May 3, 2016

Close May 27, 2016

Target \$25,000

Raised \$27,288

Number of funders 152

Average contribution \$180

Crowd Power Contribution \$2,500

The Company

Founded 2016

Countries of operation Uganda

Capital raised since founded

Grant capital \$35,000

Debt & Equity \$35,000

Revenue

2016 \$1,000

FOUNDER Q&A

What was the status of Musana Carts operations prior to the campaign?

Prior the crowdfunding campaign launch, Musana Carts was at the very early prototyping stage, we (the two co-founders) conducted field research for two months to understand the market and develop the product. Now, we have 10 carts in Kampala and we are working on the third iteration of the cart design and functionality. We aim to have a Minimum Viable Product by the end of the year, after scaling our pilot to 50 carts. We now have one full-time employee in Kampala, and two volunteers.

What were your options for raising capital and why did you decide to go to the crowd?

Our options are investors, grants and crowdfunding. We have chosen grants and crowdfunding for now. Firstly, crowdfunding when Musana Carts was early stage and high risk as we could ask our network, and then grant money because we need further funding for the design aspect and to refine our business model.

Who contributed to your campaign and why?

Mainly friends, family, faculty members, Ugandan businessmen and UK Aid. The main benefit of the UK Aid funding is the follow-up, which keeps us accountable for what we are doing.

What did you do to prepare for the campaign?

We did a lot of work before launching the campaign to tailor our story, produce a good video and to engage our network to be sure they will give. We spent time marketing the campaign and sending the right message to our network.

How did you spend the funds raised during the campaign?

We spent \$15,000 on research and development and the remaining funds were spent on the production of the 10 prototypes (\$1,000 each).



CROWD POWER CAMPAIGN SNAPSHOT TOUBA SOLAR RAMA

“Solar home systems for families around Kedougou”

Touba Solar Rama designs solar solutions and services for low-income off-grid rural African communities. They have launched a Pay-As-You-Go (PAYG) solar project, which integrates solar energy and mobile payment services for remote areas. They offer customers solar systems on a low cost 24-month payment plan, with an initial deposit followed by monthly repayments, via mobile money. Their PAYG solutions aim to empower female rural entrepreneurs by giving them access to clean and affordable energy by giving them access to energy for their daily activities but also to become distributors of PAYG solar systems within their communities through energy centers.

Platform Trine

Launch June 25, 2016

Close July 13, 2016

Target \$35,000

Number of funders 48

Average investment \$740

Crowd Power Contribution

50% first-loss protection, declining balance (up to €16,000)

The Company

Founded 2007

Country of Operation Senegal

Capital raised since founded

€32,000 raised on Trine.

Revenue

2015 \$43,000

2016 \$48,000

Q&A

Tell us about Touba Solar Rama’s operations prior to the campaign.

Before the campaign, the company was facing irregular incomes. We could have one big project, but after the project is delivered, we could stay another month without having a new project. Since raising funds on Trine we have launched the PAYG solar project, and our cash flows are constantly growing month over month.

What were your options for raising capital and why did you decide to go to use Trine?

We wanted to try different funding avenues with less intricacies and bureaucracy. We were never satisfied with local commercial banks as they always asked for thousands of warranties, before being funded. Contrarily, the experience with Trine was so positive; within a short time (less than 3 months), Trine could raise €32,000. Their trip to our PAYG customers in rural areas was a decisive moment and we decided to go for the campaign and change the lives of thousands of underprivileged people.

How did you spend the funds raised during the campaign?

From our initial 10 PAYG solar home systems funded by Touba Solar Rama, with funding from Trine we could extend our service to 10 other villages with about 200 PAYG systems.

How do you plan to raise growth capital over the next few years?

We still need funding to scale up. We are still happy with Trine and hope to partner again for another loan. Personally, I think our consistent cash flow will probably convince bankers to have a different view of our company in the future.

6.0 RISK ANALYSIS

All crowdfunding backers are exposed to risk. The type of funding raised, the specific platform model, and platform due diligence practices, all have an influence on the risks, and level of risk, associated with the campaigns. Overall fraud risk, i.e. posting a fake campaign, appears to be very low and has been estimated at less than half a percent⁷⁸. But there are some unique risks for campaigns that receive match funding; those that have funds from 'the crowd' matched at various levels by a partner organization or individual. Under Crowd Power, we have tested matching the crowd's contributions at 100% and 50% of their contribution. By working with platform partners, we have tested a number of different incentive-types, other than match funding, to encourage investment and contributions including first-loss protection on loans, gift vouchers for redemption on specific campaigns, as well as lump-sum contributions to campaigns.

The main risk for match funders, particularly for contributors to donation and reward campaigns, is that the campaign-maker 'self-funds' the campaign to take advantage of the match funding. This can be particularly problematic where match levels are high, at say 100% of backer contributions, and we found lowering match funding to 50% of backer contributions lowered this risk considerably. Self-funding is when the organization running the campaign uses its own capital to leverage the grant offered by the match funder, through personal contributions or via proxy. Founders may 'donate' cash from the business's balance sheet to activate matched funds; others may use friends or employees as proxies by transferring personal or company funds to their accounts. Platforms that allow early withdrawals, while match funding is still active, may pose an additional risk. We have found, however, that platforms are highly co-operative and flexible in implementing changes following these learnings.

Our main recommendations to funders and platforms looking to mitigate these risks are:

- To request invoices, and corresponding bank statements, from organisations over the campaign period to identify possible proxy contributions, and to ensure funds are utilised in accordance with the campaign description.
- To cap match funding at 50% of backer contributions (25% of the campaign target) for non-microloan/micro-donation campaigns to reduce risk of 'self-funding'.
- To cap lump-sum and match funding contributions at a specific monetary value that is consistent with the average size of campaigns (or relevant campaigns) on the platform.

The risk of self-funding is much lower on debt and equity platforms as there is less incentive given borrowers and investees enter into legally binding agreements and may be paying interest. Likewise, grassroots organisations raising funds from Europe and North America-based platforms often don't have the resources to inject their own funds into a campaign. Platforms such as GlobalGiving and Kiva conduct annual or biennial due diligence on partners, which usually reveals irregular spending. Other platforms, like M-Changa, conduct routine due diligence on contributions above a certain threshold prior to releasing funds.

Pros & Cons of 4 incentive types

PROS	CONS
Match funding	
<ul style="list-style-type: none">• Builds momentum during donation and reward campaigns• Incentivises campaign-makers to strengthen outreach strategy	<ul style="list-style-type: none">• More complicated to implement on debt and equity platforms as treatment of funds repaid (and return/interest) must be established• Increased likelihood of 'self-funding' where match levels are high
Lump sum	
<ul style="list-style-type: none">• Builds excitement by providing a fresh injection of capital• Simple to implement for platform and donor	<ul style="list-style-type: none">• May not ramp up activity like match funding as a one-off payment• Funding is typically not repaid
Gift vouchers	
<ul style="list-style-type: none">• Utilisation often tied to co-investment or co-donation, increasing flow of funds• Reported multiplier (gift voucher vs total amount contributed) appears to be higher than all other incentive types	<ul style="list-style-type: none">• More complicated for platforms to implement• Difficult for donors to track redemptions• Utilisation rates were low on donation platforms during a Crowd Power experiment
First-loss guarantee (debt only)	
<ul style="list-style-type: none">• Lenders have reported that the guarantee has a strong impact on the decision and the amount to invest• Can be efficient tool for donors as there is not a strong likelihood of it being called on• Unutilised funds can be reallocated to other campaigns	<ul style="list-style-type: none">• In an early stage of development so we are yet to see learnings• Can be complicated for a platform to administer• Can be time consuming to set-up and can lead to longer approval times from donors/regulators• Can increase the cost of the loan or reduce return for investors if fee is charged



TYPES OF RISK

There are several risks to be aware of as a campaign-maker, campaign-backer, or donor looking to support off-grid energy access crowdfunding. These vary by platform and capital type and include fraud, default risk, misuse of funds, self-funding risk, and non-delivery of reward. One must also consider the nature of start-ups and the underlying failure risk.

Failure & default risk is relevant mainly to equity & debt campaigns. Failure risk applies to equity campaigns and is the risk of a company failing. Investing in start-ups is risky and well documented; investing in start-ups in emerging economies is likely to carry extra risk. A high default risk refers to the risk of the borrower defaulting on the loan and not meeting their repayment obligations. For microloan platforms, which dominate debt off-grid energy crowdfunding, the risk is low with repayment rates for most platforms between 95% and 99%⁷⁹. Repayment rates on working capital loans show sound repayment rates so far, yet it's important to consider many of these loans were made within the last year. One of the earliest borrowers on Trine defaulted after going into liquidation, and due diligence was subsequently adjusted by the platform. We anticipate the next two years will be a period of learning for platforms as they branch out beyond business as usual. We would expect specialist platforms i.e. those focused specifically on energy or health for example, to adapt most quickly as they understand their market more intimately than broader platforms.

Misuse of funds refers to the risk that proceeds from the campaign will not be used for the intended purpose, and are spent on unrelated activities. This risk is mitigated in different ways and is related to the type of capital raised and platform risk management practices. Platforms such as GlobalGiving and Kiva audit their partners on a periodic basis to check for irregularities in spending or loans. Many platforms are very low touch however, including Indiegogo and Kickstarter, allowing almost anyone to launch a campaign. Their assumption is that the crowd is discerning, and each platform has developed

technology aiming to detect illegitimate campaigns. This assumption may also be strengthened by the funding patterns evident in campaigns we've analysed that show family and friends make up the majority of contributions from the crowd – they have therefore done their own due diligence, outside the platform. There appear to be few cases of misuse of funds across the energy access space, at least at a scale that is obvious, however it is important to note the lack of transparency on campaign spending. While most campaigns post regular progress updates, some campaign-makers appear to get away with not posting much at all. Whereas, campaigns on debt platforms provide lenders with much more transparency.

Self-funding risk is particularly relevant to donation campaigns that employ match funding – funding offered by a charity or philanthropist to stimulate fundraising. Contributions are usually matched at 100% or 50% of the crowd's contribution. Match funding is mostly used for donation, reward, and debt campaigns. In some cases the level of match funding can distort the incentives of a campaign-maker and as we highlighted in *4.1 Donation Crowdfunding* internal funding may be used to access match funding. A campaign-maker could also strike a deal with friends or employees to 'donate' to the campaign, and return their funding with interest at completion of the campaign – once they have secured the match funding. Match funding should be appropriate for the platform. Matching at 25% of the campaign target is likely to be appropriate in most contexts. Additionally, requesting invoices and proof of payment to ensure campaign-makers are accountable for the proceeds is important.

Non-delivery risk is relevant to reward campaigns. The risk can impact campaign backers as well as the campaign-maker, where there are delays in product manufacturing. The main risk is that the campaign-maker will be unable to fulfill the promise to the crowd of providing the reward – typically the first iteration of the product. This can be because the business has folded, but may also be due delays in production – which is not uncommon as

new products come to market and product testing is continuing. The cost to campaign-makers of managing the crowds' expectations can take its toll on 'customer' satisfaction.

Reputational risk is often associated with a 'failed' campaign, however this may not always be bad news because of the non-financial benefits to crowdfunding. Nevertheless, many start-ups find the possibility of such a public failure daunting and may utilise crowdfunding as a last resort. This risk is likely to have some positive implications however, and forces campaign-makers to be thoughtful and realistic in putting together their campaign message and target. There is also the reputational risk of 'successful campaigns' being long-run failures if the business goes into liquidation or folds for whatever reason.

Financial-loss is the risk to campaign-makers of investing funds preparing for a campaign that is unsuccessful. Campaigns can be expensive to prepare for with the cost of preparing audiovisual material, pitch-decks, and financials, as well as hiring staff to assist during the campaign. Campaign-makers must also consider the cost of time and resources being directed away from core business activities. From our discussions with various campaign-makers there appears to be a strong relationship between campaign preparedness and the success of the campaign, which lowers financial-loss risk substantially.

7.0 CONCLUSION



Crowdfunding for energy access businesses and projects is still at an early stage, and is often poorly understood. Investors often dismiss it as irrelevant relative to the size of the overall market, and entrepreneurs may show undue excitement about the prospects of raising funds from the crowd. While crowdfunding accounts for a small percentage of all financing raised for off-grid energy it has a particularly important role in a number of areas.

Donation campaigns allow community organisations to raise donations and reach poorer communities, and indigenous platforms like M-Changa allow local entrepreneurs to start businesses by aggregating funds from family and friends, and other partners. These campaigns are particularly important for supporting grassroots work, and marginalized populations, which are unlikely to be natural customers for for-profit businesses. Reward platforms are important for energy access start-ups that have an international team and network; they can utilise reward platforms to raise seed funding from family and friends, and extended networks.

Debt crowdfunding dominates the market and is where we see the most potential for growth, scale, and impact. There is potential for DFIs and philanthropists to make an impact through the provision of match funding, gift vouchers, and first-loss guarantees via relevant platforms. There is also an expressed need for hedging instruments to cover foreign exchange risk. It's important to bear in mind that the pipeline of potential borrowers is still relatively small, and that interventions should be in line with the size of the debt crowdfunding market – about \$4.6 million in 2016.

Equity crowdfunding had impressive growth in 2016, however we must consider that there were only three campaigns over this period, which may distort growth data. Nonetheless, support from DFIs could assist to build awareness among entrepreneurs, incubate potential investees, and create better legal frameworks to bolster platform growth. Up to this point, energy access related equity crowdfunding has been on UK and European platforms, however we anticipate changing regulations in emerging markets will mean, over the next few years, more equity crowdfunding will involve the participation of local businesses and investors.

Notes on Data Sources

The data in this report is referenced with footnotes throughout. Data indicated as 'Crowdsurfer and Energy 4 Impact aggregate data, 2016' was analysed and collected by Energy 4 Impact, and uses data sourced through Crowdsurfer, Crowd Power platform partners, and our own market knowledge. Aggregate data for the energy access market segment is difficult to obtain, and we have done our best to source and collate available data. We have also partnered with the Cambridge Centre for Alternative Finance (CCAF) to gain access to industry wide data. We will be working with them to obtain further geographic and industry specific data for future reports in this series. We have endeavoured to capture all relevant campaigns through these methods. Finally, it is worth noting, as an organisation we have stronger market knowledge and presence in Africa than we do in Asia, and while we believe we have captured all relevant activity pertaining to energy access crowdfunding in Asia, our understanding of activity there is somewhat limited.

This paper stipulates figures in USD, unless stated otherwise. Where figures have been converted to USD, we have utilised the 2016 average exchange rate, sourced from Oanda.

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