



# The role of innovation competitions for off-grid energy in Africa

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## Key points

- 1.3 billion people worldwide have no access to electricity.
- Innovation competitions are a useful tool for supporting early stage markets.
- There is a pressing need for coordination between competitions and with other funding sources.
- Early-stage training in general business skills would support entrepreneurs.
- Follow up networks for winners should be encouraged and supported.

*The Smart Villages initiative is an international programme of activities evaluating technical, entrepreneurial and policy solutions for providing sustainable energy for development in off-grid rural communities. Through our research, targeted outreach and first regional workshop based in Arusha, Tanzania in June 2014, it has become clear that a difficult entrepreneurial ecosystem is a significant barrier to the growth of off-grid energy provision in East Africa. With continuing technological advancements, there are a number of 'here today' solutions that would benefit off-grid communities, but issues around access to finance, support for small enterprises in products and sustainable business models have slowed their adoption.*

*Innovation competitions for new technologies and business models are one tool used by policy makers in a range of contexts and countries to help businesses in new fields overcome practical barriers blocking progress between successful pilots and commercialisation. This brief note discusses competitions relevant to African off-grid energy and how they could be designed and positioned to have greater impact in the future.*

## The current off-grid energy competition landscape

Competitions have been used by governments, industry and charitable organisations to inspire innovators for hundreds of years, but they have increased in popularity over the past two decades as our increasingly connected world has widened the field of potential problem-solvers for a particular challenge.

In contrast to ‘recognition prizes,’ which reward accomplishments that have already been achieved, ‘inducement’ or ‘incentive’ competitions set a new challenge to be solved and can generate greater investment from participants than the total prize capital offered. For example, the Ansari X prize challenged innovators to create a reusable manned spacecraft that could fly into space twice within two weeks.

The ultimate winner was awarded US\$10 million in 2004, but the competition generated over US\$100 million in R&D spent by 26 teams around the world, and demonstrated to consumers and investors that a new market in commercial space flight was possible.

There are currently a range of competitions related to the African energy space that are designed to accomplish one or more of these objectives. They include competitions run by the African Development Bank, national development agencies of the US, UK, Germany

and Sweden, foundations, and private sector companies, collectively awarding over \$1 billion in prizes. Innovators concerned with village-level energy are aware of these competitions but have pointed out a number of reasons why they might not always have the intended effects.

The main issue entrepreneurs have identified is a lack of coordination between competitions and funding bodies in general. In our preliminary research, we have identified over 30 competitions relevant to the African off-grid energy space, but many entrepreneurs have noted these competitions tend to function in isolation rather than in a coordinated manner to support businesses from idea through applied research and demonstration schemes to commercial viability.

### Competitions and prizes can...

- Identify excellence and support an individual entrepreneur or business.
- Attract new players to a particular market or to kick-start new collaborations.
- Raise awareness about an issue or impact how the public views a problem.
- Focus a problem-solving community on a specific problem or gap; and
- Build the skills of new innovators and support their entry into the market.

There is a feeling of ‘pilot fatigue’ amongst innovators and potential investors who see competitions and relatively small grants as adding to the pool of potential solutions, but failing to address the significant gap in accessing adequate investment and working capital to scale energy access businesses that have already completed successful pilots.

*“There is a feeling of ‘pilot fatigue’ amongst innovators and potential investors*

Isolated competitions can support some specific businesses at critical stages of their development, but greater coordination is needed to bring competitions into a broader context of sustained support to small and medium size businesses until they can be commercially viable on their own.

Policy makers can help by coordinating public and private funding mechanisms to ensure promising individuals and innovations are not simply helped at the early stage and abandoned before they can grow into either self-sustaining businesses capable of organic growth or businesses capable of attracting external commercial investment.

The second issue entrepreneurs and funders have identified with the current

competition landscape is a lack of attention to the market forces necessary to create the enabling environment for an energy business. Competitions tend to focus on innovative technologies, and not on issues around distribution, consumer trust and business models which often have more of an effect on the success or failure of a product than the actual product itself.

Creating a market with distribution channels, customer service capabilities and tailored payment systems is complex and involves a range of players, including national and regional policy makers. Competitions can inspire individuals around a specific challenge, but governments have an important role to play in supporting the growth of markets where innovations can take hold and flourish.

African governments and international development agencies have committed substantial resources to improving energy access for off-grid villages. Much greater resources will be needed from these sources and also from the private sector to achieve goals of universal electrification. Competitions and prizes are one way of inspiring this involvement, but they should be complemented by additional efforts from policy makers to create better coordination and enabling environments to support entrepreneurs before, during and after competitions.

## Directions for the future – the role of policy makers

### Organisation and addressing gaps

One area where policy makers can have a clear impact is in improving coordination between innovation competitions to provide greater support to energy entrepreneurs across their pathway of development. Competitions, like conferences, are a channel of organising knowledge and activity, so there is certainly space in the market for similar competitions. Entrepreneurs, however, have noted that independently run competitions often feel isolated and do not integrate well with other funding initiatives to support a growing business through its developmental stages. Policy makers should encourage coordination of competitions to ensure there is more comprehensive support for entrepreneurs from early stage basic research, to applied research, and then to commercialisation for the most promising businesses.

Another area where policy makers can help, either directly or through partnerships, is in playing a supporting role in creating a central source of existing competitions to make them more understandable to a range of entrepreneurs at different stages of their companies' development (basic research, applied research or commercialisation).

In certain circumstances, there

may also be value in amalgamating or supplementing competitions so that bigger prizes can be awarded, more appropriate for the stage of the business lifecycle the competition intends to support. For example, if there are a number of competitions offering awards in the \$100-200k range for pilots and applied research but few offering \$500k and above for activities bridging the gap to commercialisation, there could be an opportunity for competition funders to collaborate on bigger calls to address this gap.

### Greater support for building business skills

In addition to identifying and addressing gaps in competition funding, governments and policy makers could positively impact both existing competitions and the broader innovation landscape by offering greater support to early stage innovators, especially through supporting institutions and organisations providing training in core business skills. NGOs, academics, entrepreneurs seeking to grow their businesses and investors analysing off-grid energy have also noted a lack of core business skills as one of the most pressing gaps in the market. Facilitating greater early-stage training in general business skills, including sales and marketing, management and basic finance, would support entrepreneurs

directly entering existing competitions and would also help strengthen the commercial ecosystem necessary to sustain off-grid energy businesses. Early-stage business incubators and accelerators operating in East Africa have found it challenging to access sustainable sources of funding, and greater government support has been cited as a potential area where government and policy makers could have a positive impact.

### Post-competition support

A third area is the need to support competition winners after the end of a competition. Competition winners have already set themselves apart from their peers and have gained experience relevant to their professional development as entrepreneurs, but many feel abandoned when a competition ends, noting they are left 'on their own' to continue to build both their businesses and their experience. Peer networks and direction towards appropriate additional funding opportunities can help competition winners continue their work and help communities in East Africa make progress towards universal electrification.

Assistance in understanding the confusing array of potential funding schemes and which areas of funding would be the best fit for a particular entrepreneur's next steps would

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support competition winners in bridging the gap between early stage finance and the greater amounts of working capital needed to grow promising small scale businesses. Government support to bridging the gap between early stage innovation and commercially-ready businesses has been cited by entrepreneurs as contributing to a positive enabling environment in Europe and such an approach could be beneficial in helping African companies bridge the gap between idea/research and commercialisation.

Technical and financial support at this critical stage can help de-risk the investment decision for potential private-sector investors and help address the working-capital gap most successful early stage businesses currently face.

### Conclusion

In conclusion, innovation competitions are a useful tool for overcoming market failures, for inspiring future business-minded technologists and for benefitting rural off-grid communities. There are many competitions in the African decentralised energy space and there is a pressing need for coordination between competitions and with other funding sources, follow up networks for winners, and critical thinking around how this one tool could be used by governments to complement other approaches to establish energy access for off-grid communities.

## Selected African Energy and Entrepreneurial Competitions

Africa Clean Energy Summit Green Awards	Awarded at Clean Energy Summit by CEO of UN's Sustainable Energy for All Programme.
Africa Climate Change Fund (ACCF)	Grants US\$250,000 or more for climate finance readiness activities in African countries, including projects that promote low carbon development in the power sector. Supported by African Development Bank.
Africa Enterprise Challenge Fund	\$205m private sector fund where participants apply to the investment committee to win grants and interest-free financing (Eliguard Dawson).
African Innovation Prize	UK based charity that provides training and seed capital to African students in sub-Saharan Africa to inspire entrepreneurs and help them develop ideas into investment-ready propositions. Business plan competition awards £200 for selected ideas and £2000 for expansion into full plans.
Anzisha Prize	Recognition award for young African entrepreneurs who have developed innovative solutions for challenges facing their communities.
Ashden Awards	Multiple annual sustainable energy prizes, running since 2001, awarding up to £40k, media exposure, support to help expand business and access to new networks and investors.
Best Climate Practices Contest – Energy Poverty Alleviation	In the effort to harness the collective brilliance and promote a wide range of valuable proposals, every year the Best Climate Practices observatory invites the users to submit innovative best practices to tackle climate change or to face a related challenge.
Beyond the Grid	\$1bn private-sector funding for off-grid energy solutions in Sub-Saharan Africa and advice on policy and regulatory frameworks necessary to overcome recurring constraints in the small scale energy space to create an enabling environment.
Cleantech Competition and Accelerator Programme	Global programme backed by UNIDO connecting clean tech entrepreneurs across Africa and Asia.
Equator Prize	Awards village level sustainable development entrepreneurs \$5-15k plus chance to visit UN General Assembly.
Future Technologies for Water Competition	Aims to identify breakthrough technologies for safe water with a sustainable business plan with wide-scale applicability. \$15,000 first place award, \$5,000 second place award. The competition is managed by the Water Institute at the UNC Chapel Hill and sponsored by Takata Corporation.
GE Ashoka Women Powering Work Competition	\$25k in unrestricted funding for female driven projects in North Africa.

GE, USAID, USAID Off-grid challenge	18 grants of up to \$100k specifically for off-grid energy solutions and support (won by GVEP Nigeria).
Green Talents – International Forum for High Potentials in Sustainable Development	Held since 2009 by German Federal Ministry of Education and Research (BMBF) to promote the international exchange of ideas regarding green solutions.
Hult Prize for Social Entrepreneurship	Annual prize that awards \$1m to social entrepreneurs in partnership with the Clinton Global Initiative.
IndiAfrica Business Venture Competition	Award for social entrepreneurs including cash prize, equity investment, mentorship, invitation to Davos and access to resources.
Innovation Prize for Africa	Competition lead by the African Innovation Foundation to encourage new products increased efficiency or decreased cost in several areas including energy, awards from \$25-150k.
Innovation Prizes for Environment and Development (IP4ED)	Tender announced 2013, not yet launched.
Lighting Rural Tanzania Competition	Competitors can win grants up to TZS 232,170,000 for rural off-grid energy.
MIT Sloan Enterprise Africa Business Plan Competition	Unclear outcomes, could be connected to \$100k MIT Entrepreneurship competition.
Mobile Enabled Community Services Competition	Part of the GSMA's Mobile for Development Programme, awarding up to \$2.4m in seed capital and market validation grants for off-grid energy.
National Environment Trust Fund Green Innovation Awards	Supported by Swedish government, offers \$250k-1m funding plus mentorship and training.
Nesta/UNDP off-grid energy challenge	Competition for renewable off-grid energy solutions in Bosnia that could be applied to other global contexts. \$20,000 awarded in Nov 2013 .
SEED Awards	Range of awards for sustainable development entrepreneurs in Africa.
Statoil Powering Africa Energy Realities Competition	Competition with three challenges including innovations for access to world's most energy poor off-grid villages. Winners received features in the Economist and an invitation to Statoil's energy conference.
Sustainable Energy Fund for Africa and ARICEF-3 Competition	Competition for green energy entrepreneurs and companies, though African Development Bank.
Terrawatt Prize	2 prizes of \$125k for off-grid energy solutions. Sponsored by National Geographic.
The Africa Prize for Engineering Innovation	Competition lead by Royal Academy of Engineering to stimulate, celebrate and reward innovation and entrepreneurship for local challenges in sub-Saharan Africa. Six months of training and mentoring followed by £25k prize. Supported by The Shell Centenary Scholarship Fund, Consolidated Contractors Company, ConocoPhillips and the Mo Ibrahim Foundation.

**The Great Energy Challenge** Awards grants to early stage energy entrepreneurs for solutions that address climate change, resource constraints or environmental limitations. The GEC “convenes and engages influential citizens and key energy stakeholders in solutions-based thinking and dialogue about our shared energy future.” Co-sponsored by Shell and National Geographic.

**Virgin Media Business Awards** Buffalo Grid solar battery units for off-grid communities named one of 2014 winners.

**West African Clean Energy Financing Business Plan Competition** Competition to identify and nurture entrepreneurs and small companies through mentoring and \$1-50m initial capital. Supported by AfDB, USAID, SEFA.

Stated objective: By offering prizes, the programme aims to incentivise R&D in the development and deployment of solutions for poor consumers, particularly focusing on low carbon energy; water and sanitation; and climate change adaptation.

Download in full: [e4sv.org/publication/the-role-of-innovation-competitions-for-off-grid-energy-in-africa](http://e4sv.org/publication/the-role-of-innovation-competitions-for-off-grid-energy-in-africa)

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## Notes

The concept of the ‘smart village’ is that modern energy access acts as a catalyst for development – education, health, food and water security, productive enterprise, environmental protection and participatory democracy – which in turn supports further improvements in energy access. The Smart Villages Initiative is evaluating how to provide sustainable energy to off-grid villages so as to catalyse their development and enable them to become smart villages (see [www.e4sv.org](http://www.e4sv.org) for more details). Through a series of international workshops (two in each of Africa, Asia and Latin America) and follow-up activities it aims to provide policy makers, donors and other stakeholders new insights into the challenges of supplying off-grid village energy for development, and how they may be overcome.

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