

Towards Universal Energy Access by 2020 in Rwanda: The Role of Government, Multilateral and Private Sector Stakeholder Engagement to Achieve Scale

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Webinar Panelists

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Robert Nyamvumba	MININFRA, Republic of Rwanda
Claire Nelson	Rwanda Power Africa
Bibek Kandel	Scaling up Off Grid Energy in Rwanda (SOGER)
Godfrey Odhiambo	Off-Grid Electric
Amaury Fastenakels	BBOXX

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Stephanie Hello, everyone. I'm Stephanie Hernandez with the Clean Energy Solutions Center and welcome to today's webinar which is hosted by the Solutions Center in partnership with the United Nation Foundation's Energy Access Practitioner Network. Today's webinar is focused on universal energy access by 2020 in Rwanda, the role of government, multilateral and private sector stakeholder engagement to achieve scale. Before we begin I'll go over some of the webinar's features.

For audio, you have the option to either listen through your computer or over the telephone. If you choose to listen through the computer please select the mic and speakers option in the audio pane. Doing so will eliminate the possibility of feedback and echo. If you choose to dial in by phone please select the telephone option and a box on the right side will display the telephone number and audio PIN you should use to dial in. If anyone is having any difficulties with the webinar you can contact the number on the screen right there. It's Go to Webinar's helpdesk and it's 888-259-3826. If you would like to ask a question during the webinar—and we encourage that you do—please use the questions pane where you can type that in. If you're having difficulty viewing the materials through the webinar portal you will find PDF copies of the presentation at cleanenergysolutions.org/training.

Also, an audio recording and the presentations will be posted to the Solutions Center training page within a few days of the broadcast and they will be

added to the [Solutions Center's YouTube channel](#) where you can find other informative webinars as well as video interview with thought leaders on clean energy policy topics. Finally, one important note of mention before we begin our presentation is that the Clean Energy Solutions Center does not endorse or recommend specific products or services. Information provided in this webinar is featured in the Solutions Center's resource library as one of many best practices, resources reviewed and selected by technical experts.

Today's webinar is centered around the presentations from our guest panelists. We have Robert Nyamvumba, Claire Nelson, Bibek Kandel, Godfrey Odhiambo, Amaury Fastenakels. They have all joined us to discuss the different roles and coordination among government, multilateral and private sector stakeholders and helping the government's vision of scaling energy access in the countries focusing on specific role of distributed energy solutions. Before we jump into the presentations, I'll provide a brief overview of the Clean Energy Solutions Center and Yasemin Erboy Ruff from the United Nations Foundation will provide an overview of the Energy Access Practitioner Network. Then following the panelist presentations we'll have a question, answer session where the panelists will address questions submitted by the audience. And at the end of the webinar you will be automatically prompted to fill out a brief survey so thank you in advance for taking a moment to respond.

The Solutions Center was launched in 2011 under the Clean Energy Ministerial. The Clean Energy Ministerial is a high level global forum to promote policies and programs that advance clean energy technology, to share lessons learned and best practices and to encourage the transition to a global clean energy economy. 24 countries and the European commission are members, covering 90 percent of clean energy investments and 70 percent of global greenhouse gas emissions. This webinar is provided by the Clean Energy Solutions Center which focuses on helping government policy makers design and adopt policies and programs that support the development of clean energy technologies. This is accomplished through support in crafting and implementing policies related to energy access, no cost expert policy assistance and peer to peer learning and training tools such as this webinar. The Clean Energy Solutions Center is cosponsored by the governments of Australia, Sweden, the United States with in kind support from the governments of Mexico and Canada.

The Solutions Center provides several clean energy policy programs and services including a team of over 60 global experts that can provide remote in person technical assistance to governments and government supported institutions, no cost virtual webinar trainings on a variety of clean energy topics, partnership building with development agencies and regional and global organizations to deliver support, an online library containing over 5,500 clean energy policy related publications, tools, videos and other resources. Our primary audience is made up of energy policy makers and analysts from governments and technical organizations in all countries. But we also strive to engage with the private sector, NGOs and civil society. The Solutions Center is an international initiative that works with more than 35

international partners across its suite of different programs. Several of the partners are listed above and include research organizations like IRENA and the IEA, programs like SE4ALL and regionally focused entities such as the ECOWAS center for renewable energy and energy efficiency.

A marquee feature that the Solutions Center provides is the no cost expert policy assistance known as Ask an Expert. The Ask an Expert service matches policymakers with one of more than 60 global experts selected as authoritative leaders on specific clean energy finance and policy topics. For example, in the area of enterprise development we are very _ to have Ellen Morris, president and founder of sustainable energy solutions serving as one of our experts. If you have a need for policy assistance and enterprise development or any other clean energy sector, we encourage you to use this valuable service. Again, the assistance is provided free of charge. And if you have any questions for our experts please submit it through our simple online form at cleanenergysolutions.org/expert. We also invite you to spread the word about this service to those in your networks and organizations.

Now before we begin, I'd like to provide brief introductions for today's webinar. It is co-moderated by Yasemin Erboy Ruff who is a senior officer at UN Foundation's Energy and Climate team. Our first panelist today will be Robert Nyamvumba who is the energy division manager at the Ministry of Infrastructure in Republic of Rwanda. Following Robert, we will hear from Claire Nelson who is the Rwanda Power Africa lead at USAID. Next, we will hear from Bibek Kandel who is a Scaling Up Off Grid Energy program manager for Energy for Impact in Rwanda. After Bibek, we will hear from Godfrey Odhiambo who is the managing director in Rwanda at Off Grid Electrics. And our final panelist today is Amaury Fastenakels, head of strategy at BBOX. Before we get into the presentations, we turn things over to Yasemin at the UNF and she will kick us off. Yasemin, over to you.

Yasemin Thank you very much, Stephanie. Good morning and good evening everybody. And thank you so much for joining us. Can you hear me ok and see the slides?

Stephanie Yes. Looks great.

Yasemin Perfect. Thank you everybody for joining us for this excellent webinar. I'm really looking forward to both the presentations and the discussion that will take place with great in country representation. I will be discussing the government's plans for rural electrification in Rwanda and the role of different stakeholders towards achieving that goal. Before we get started, I just want to provide a very brief introduction to us at the United Nations Foundation and the Energy Access Practitioner Network. Many of our network members and partners have heard many of us here at the UN Foundation go through this. So I'm not going to take too much time.

But for anybody who might be joining us for the first time, obviously we have an energy access program here at the United Nations Foundation. Part of that is our Energy Access Practitioner Network which is an initiative of the UN Foundation that supports the development of a thriving global distributed

energy sector as a very important contribution towards sustainable energy for all and SDG7. We do this by connecting our over 2,500 members to industry insights as well as resources and by helping creating powerful partnerships. As the largest network of its kind, the practitioner network provides an unparalleled platform for understanding and addressing the challenges and opportunities faced in a distributed energy sector at large. And our webinars which we try to do monthly with our colleagues at the Clean Energy Solutions Center is one of the ways in which we try to provide peer to peer learning and training to our members and partners worldwide.

This particular webinar is part of our country focused webinar series and we'll be looking at Rwanda in particular. We have over 130 practitioner network members operating in Rwanda and three of them will be presenting today so we're very much looking forward to that. And please everybody keep in mind, panelists and as well as audience alike that we will be live tweeting the webinar at Energy Access PN so please join the conversation using the hashtag PN Webinar. Just a quick look into Rwanda before we get started, Rwanda is included in the Sustainable Energy 4 All partnerships, large gap countries which are 20 countries with the lowest electrification rates. And here you can see how Rwanda compares to some of the other large gap countries. These numbers may be a little bit different than what the ministry has currently. They're based on 2012 data I believe but it gives a good understanding of the issue we'll be discussing today.

However, with the recent RISE report, regulatory indicators for sustainable energy, Rwanda actually has pretty good scores both in terms of the officially approved electrification plan as well as the frameworks for good electrification, mini grids and stand-alone systems, all of which we'll be discussing today. With that, here is how you can join us or reach us if you need to and with that I'm going to turn it over to Robert from the Ministry of Infrastructure.

Stephanie Great. Thank you so much Yasemin. Robert, the floor is yours. Robert, it looks like your microphone is still on mute. If you click the green button with a white microphone, that's very—oh it looks like the audio. We'll just give Robert another second to reconnect to the audio. One moment please. Hi Robert. Looks like you're back online. Can you hear us all right?

Robert Hello. Can you hear me?

Stephanie Yes, we can. Can you hear us?

Robert Can you hear me?

Stephanie Yes, Robert. We can hear you just fine. Can you hear us?

Robert Well, thank you. Should I go on?

Stephanie Robert, we can hear you just fine. If you're able to hear us, pull up your Power Point presentation and we can begin the slide show.

Robert I can hear you.

Stephanie Wonderful. Can you—we're going to initiate the screen share application again. Can you please select the pop up on your screen that says to show your screen?

Robert Yes, please.

Stephanie All right. Perfect. All right. Begin whenever you're ready, Robert. That looks great.

Robert Well, can you hear me now?

Stephanie Yes, yes. We can hear you. All right. We're going to try to come back to Robert in a little bit. Next, we'll go to Claire Nelson at USAID.

Claire Hi everybody. Can you see my slides?

Robert I can see the presentation on the screen.

Stephanie Yes. Claire, that looks great. Robert, we're going to work on the technical issues. We can't see your presentation right now so we're going to go ahead and let Claire get started and we'll come back to you in just a moment.

Robert All right. Should I go on?

Stephanie No. We're going to do Claire's presentation right now and then we'll come back to yours. All right. Go ahead Claire.

Claire Ok. Thank you. Thank you, Stephanie, and Yasemin for the welcome and good afternoon everybody. It's great to be participating in this webinar.

Robert Hello. Sorry. Go on? Are you ready?

Stephanie No, Robert. We're going to let Claire go ahead. Are you able to hear us? All right. Claire, let's try again.

Claire Ok. Yeah. Just thanking you guys for inviting me on the webinar on this topic. It's great to be here and to be joined by our Power Africa partners Off-Grid Electric and BBOXX as well and as well as Robert from the ministry. I hope he's able to get his slides working. As you both mentioned, I'm leading Power Africa's program here in Rwanda for USAID. The program Power Africa itself started in 2013 and it kicked off in Rwanda in 2015 and myself, I've been here for about six months, leading the program. So yeah. I'm just going to take the next few minutes to walk everybody through Power Africa as a whole and what we're doing here in Rwanda to help Rwanda achieve its universal energy access goals by 2020.

So as many of you may know Power Africa was started in 2013 with the goal of doubling access to electricity in Rwanda. Since the initiative was launched we have been measuring our progress against two major targets. The first is to

increase the supply of electricity across the continent by 30,000 megawatts and also to increase access to electricity by 60 million new connections, households and businesses in just over 15 years. Power Africa uses quite an innovative partnership model for the US government. Everything we do really is based on partnerships. Firstly, it's a collaboration of 12 different government agencies, US government agencies I should say. The program sits within USAID but we work closely with 11 different agencies including USTDA and OPEC and the state department. And they provide resources and expertise in all areas across the energy sector.

We also work closely with many other development partners and multilateral financial institutions such as the African development bank and the UN and the sustainable energy for all initiative. And in every country that we are based in, we focus on creating strong partnerships with the local government, with all the private companies in the power sector, other development partners, civil society and investors of course to work with them directly to unlock opportunities for growth in the energy sector and to meet the government, the government and our targets. Nothing really can be achieved by acting alone on this so this is why we focus on the partnership model and using and tapping into the vast pool of expertise that we have within the US government and within our partners around the world to provide our support.

Power Africa focuses on large scale energy projects but we also focus quite closely on off grid solutions. June 2014, we launched [Break in Audio] initiatives which is increasing access to electricity. Part of that is through off grid decentralized energy solutions as well as expansion of the grid. So far, our work has helped bring—sorry—10.6 million homes and businesses electricity since 2014 and we have already made partnerships with 60 companies and investors who have pledged over a billion dollars in investments. So basically, I show this in our programs focused really on working with our partner governments and companies to help increase access to electricity.

And we really focus on two main things. One is creating a positive enabling environment for the growth of the sector. So that means working with government closely to figure out how to integrate off grid solutions into their energy policy and regulatory framework. And the second major focus is local financial institutions, for capital that off grid companies need to grow their businesses and also to provide technical assistance to these local financial institutions to make sure they become comfortable with lending to these companies and helping them access the [Break in Audio]. So thinking about Rwanda more specifically as I mentioned Power Africa has been here since 2015. We've been growing the program since then and everything we do here really is designed to help the government meet their 2018 and 2020 access targets. It's very [Break in Audio]. And we—sorry.

Stephanie

It sounds like we have some other people on the line. If you are on the line and not presenting right now, can you please mute your microphone or your telephone? It's causing a little bit of feedback. Thank you.

Claire

That sounds better. So yeah. As I was saying in Rwanda we have designed our program to all around helping the government meet its energy access targets. So by mid-2018 the government target is 70 percent electricity access and by 2020 universal access. Those years are coming quickly so we're doing everything we can so that we can make sure that the environment is there to help achieve those targets, mainly through the private sector and their growth. So we've been focused on increasing access to finance and we've been working with the local banks and providing technical assistance and helping them get more comfortable putting in the necessary capital into the sector. And we also work quite closely with the ministry of infrastructure, with the utility and the regulators to help design policies and regulations to promote off grid electrification.

And last year we were quite closely involved in crafting the rural electrification strategy which is sort of the key stone document for this sector and is sort of leading the market's growth. And we're also involved in guiding sort of the design and implementation plans underneath that strategy to make sure that they're designed well and can support rapid growth of the sector. And we also have a dedicated off grid transaction advisor who works directly with the companies and including the ones that are on this webinar to provide guidance on accessing finance and navigating the policy environment. And we also help them with any kind of technical questions and connecting them with investors and grant making organizations around the world so that they're able to grow their businesses sustainably.

So that's a very broad summary of what we're doing here in Rwanda. We're hoping to grow the program and to continue to help our partners achieve Rwanda's very ambitious targets. If they meet them that will be one of the fastest electrification efforts in the world and we're very happy to be here and to be helping to create the environment that's needed for all of the key stakeholders to come together to achieve these targets. So thanks again for having me on and happy to answer questions at the end. Back to you guys.

Stephanie

Great. Thank you so much Claire. That was wonderful. We are going to go back to Robert really quickly and try to get the connection working there. So Robert, you should see the pop up on your screen right now. If you can select to share your screen and unmute your microphone, we will see if we can get this to work. Robert, it looks like your microphone is muted. If you go to the upper left-hand corner and click the green button with the white microphone on it, you should be able to unmute.

Robert

Can you hear me now?

Stephanie

Yes. Yes, we can. That sounds great. Can you—are you able to –

Robert

Now you can see my presentation?

Stephanie

We can't right now but we are going to send the screen share function. Just select the option to show your screen. On the computer, you should see it pop up. We can run your slides for you if that's easier. Why don't we do that? So Robert I'll pull up your slides right now.

Robert

All right. So start I'd like to thank you. I'm really honored to speak at this practitioner network webinar focuses on getting energy access in Rwanda. I appreciate what Claire has presented but I will take you through the initiatives of the government of Rwanda after the approval strategy back 2016 in April. And the usages that the government has—on the _____ and also Rwanda Sustainable Energy 4 All action agenda, the demand of the usages, the country is striving to achieve this improvement achieving best access to modern energy services by 2020.

Taking you through the presentation, skipping, just giving you the highlights on the sector for those of you who do not have or understand the country's context. We've been able to increase the electricity access connections from 6 percent in 2008 to current 35 percent with May current statistics. The goal is to change the strategy, was to see how we could now have a policy or strategy on how to extend the central grid and achieve universal access but also relying on off grid technologies. Through that the government of Rwanda in partnership with private sector has taken a different stance on certain issues to match the country, the government explorations. As you have noticed on my presentation currently there is a _____ for major reforms in the energy sector. That enabled a conducive environment for businesses to the private sector. And as such we've been able to access more than 20 companies in the off-grid markets, deploying technologies in rural areas. And at least we believe that we're going to march the _____ to achieve universal access by 2020.

The next slide is just to as I mentioned the access to electricity has almost two-fold. But the target is to connect to 92 percent of sector offices connected to electricity and expected to achieve 100 percent of mainly health centers, schools because in the country we have one _____ program that is supported by the government and the _____ the local government.. But to that I just wanted to give you a context on that on grid and off grid areas of the map in partnership with private sector. Here we have been planning through the central grid, planning that, mapping the off-grid areas in the country. And what we would private sector now we know where the central grid. We expend. We know where microgrids would be permitted and also allow sort of service providers also to connect houses with on the systems.

I won't go much into details of the where on the grid, the ability. But if you see that under Vision 2020 we ensure energy Rwanda. We have full access to modern energy. And that would have been quite a bit of improvement in energy efficiency under the share of renewable energy in the global energy mix. I do have separate presentation. I think I'll leave it to participants to maybe to come back to me with any questions. But I'd like to share with you that the government of Rwanda would _____ provide the rural electricity access, providing access and _____ to improve standard of living. And as such the target by June 2018 it's actually 70 percent, 100 percent by 2020. The targets to be met of course we have a combination of service and off grid products on the construction level. That is a requirement. Instead of additional connection to the grid that may not be suitable for all households.

So manage to work on a bigger plan that is more cost effective when it comes to increasing access to electricity, the use of off grid solutions that have _____ technologies are basic as a lantern, which we believe that instead of having the lantern, then you could have a system that could charge a phone and a radio and also upgradable depending on the household beneficiary need. Also, to consider using a TV. And so, developing this strategy, the main objective was to ensure that Rwandans have access to electricity so the more specific needs by developing programs that will facilitate both the end users and access other technologies and improves private sector _____ in the provision of these solutions.

So you agree with me that with government conducive environments but as a country amongst countries in sub-Saharan Africa that are supporting private businesses. With that partnership, we're going to have access to different mechanism to do the work and protecting the consumer through set of standards on _____ among the government _____. So with the target of achieving universal access, we also have targets to have an integrated planning as much we bring to the population the basic necessities of having access to electricity and also consider access to clean and sustainable cooking technologies where they have to use biogas or LPG on modern cooking stoves.

I think some of that policy if you look at a on our website or on the Rwandan website you'll see the Rwanda has access the _____ for all action and the objective of our nation, the primary objective is to achieve the goals and strategies, that goal I mentioned just a few minutes ago is to assure by 2018 most of the population will be having access to electricity. And from solar systems through as I said mini grids and good connection will be available. So the government want the households to access the most appropriate form of electricity based on income levels. But also, to encourage full partnership with private sector and government as to ensure that advanced technologies in stand-alone home systems will contribute a major significant role to achieve the access levels that the country has set.

So I'd like again to commend these initiatives of the United Nations Foundation Energy Access Practitioner Network and the Clean Energy Solutions Center that we are provided excellent platform to highlight data of access to date that we have in Rwanda and develop opportunities despite all of the challenges that we still have low levels of access but ambitions to scale up. Distributive energy solution is one that is achievable. Maybe I'll leave the participants to ask me any question and I'm happy to provide any clarification. Thank you so much for that.

Stephanie

Excellent. Robert, thank you so much for that presentation. I'm glad we were able to see that. Just a reminder to everyone, the presentation will be posted online as well. Next, we will hand things over to Bibek Kandel. Are you able to share your screen?

Bibek

Hi Stephanie. I can hear you.

Stephanie Wonderful. Thank you. We can hear you too. Are you able to share your presentation?

Bibek Yes. Can you see it now?

Stephanie Yes. We can see that. That looks great. Thank you.

Bibek So I can begin?

Stephanie Yes. Feel free to begin at any time.

Bibek Thank you very much once again. Hello everybody and good afternoon from _____. My name is Bibek Kandel I work for Energy for Impact and currently managing it's SIDA-funded program which is called Scaling Up Off Grid Electricity in Rwanda also known as SOGER. Once again, thanks to UN Foundation Energy Access Practitioners Network for holding this webinar and for giving me the opportunity to speak here today. Let me begin with a brief introduction for Energy 4 Impact. It's a UK based nonprofit organization and it's working in the region, the sub-Saharan Africa region for over a decade, helping private sector businesses in terms of helping them expanding services in the region. Our work emphasizes enterprise support and the investment advisory for off grid energy businesses and projects. Basically, we offer a range of supports like businesses technical, financial advice to energy SMEs and micro enterprises which has so far resulted into over almost 15 million people receiving access to energy to a range of technology and the programs that may be supporting over these years.

Yeah. So as I mentioned, our simple strategy includes in terms of helping—well just a second. My slides actually I'm lost in my own slides. Yeah. Well, it's been helping companies like overcoming gaps in like the market gaps, everything, many other market challenges in terms of having the project—like in terms of conceiving projects and throughout the different stages of the off-grid energy programs and projects. Now talking about energy for this program like before I talk about SOGER program let me outline the context in which this program is conceived and talk a bit about how it contributes to the government of Rwanda's long-term energy vision which shows the programs, targets and numbers.

As has been discussed by—presented by Robert, the government of Rwanda has plans to boost investments in energy infrastructures and the strategizing various energy access programs which is also mentioned in its really excellent strategy it unveils last year. So even have the electrification targets, government even desires almost threefold in current electrification rate by 2017 and almost fourfold by 2020. So these programs have enormous opportunity for either private sector or government and civil societies to collaborate and play a vital role in achieving these targets. While other funds of off grid energy solutions like stand-alone solar systems and help move people away from fuel based systems to cleaner energy. However, the systems will not be able to power business activities and kind of create the productive commercial activities which kind of this mini grid system can power.

So as you see the government of Rwanda has an explicit expectation that it has placed on private sectors especially in terms of coming up with mini grid solutions and it says in its strategy that mini grids will be developed by private sector with government playing a key role in identifying sites and establishing framework which this cannot be _____ financing the investment. So mini grids as I mentioned is relatively new initiative in the region and is yet to see a very widespread adaptation and innovation which we have observed in like all the stand-alone systems, smaller off grid systems. So this requires a new set of new technical skills and business models, new set of entrepreneurs, a new form of partnership and collaboration to overcome the existing market challenges.

So this is when the SOGER program is designed to support overcoming the existing market gaps by helping developers with the need, technical and financial in terms of identifying the viable business model for the mini grid operations. The SOGER program started in July 2016, last year so it began in 2016 and we spent over six months in terms of like to design the kind of activities and support like providing to, to be able to provide the developers. And this included conduct studies and surveys. So we reached out to a number of developers to understand and let them and like launched consultation of other stakeholders in the country in terms of designing our support activities.

So the program objectives—let me just read out these program objectives is that as I mentioned is to support the growth of sustained markets for off grid energy in Rwanda by helping the private sector to delivery energy access, to contribute to other social and economic development though we also have similar goals that we want to meet while helping developers installing and operating these systems. And in the meantime, like besides that we also—the program also has goal to attract private sector capital and increase financial institutions' appetite to engage in this relatively new sector. Because the financial institutions do not have much of a history of credit lending in this particular mini grid space.

So while doing this program tends to—has some technology targets and other household targets like at the end of the program over 15,000 households will have, will be connected to these mini grid systems and this will result to 10,400 tons of CO2 being avoided like emissions being avoided. And we also have job creation targets which the program will result into creating over 7,000 number of jobs. But at the same time, the program has, is designed in a way to address the gender balance in terms of the addressing concerns and increasing women to take the lead role. Actually, this is very interesting that we already have five women developers in our pipeline who is going to be developing these mini grids. The program –

Stephanie

Bibek, I'm so sorry to interrupt you. This is Stephanie. If you could find a stopping point soon we have two more presentations to go through and we're running a little short on time.

Bibek

You want me to roll quickly?

Stephanie

Yes, please. If you could wrap it up pretty soon that would be wonderful. We're just trying to get to the question and answer session.

Bibek

Yeah, cool, cool. The program has two components basically renewable energy small projects; it's like where we support with the on grid and off grid energy everything as long as it meets the minimum off grid household connection requirements. _____. Pipelines that we have the development from 50 megawatt to 3 megawatt the present pipelines that we have the development to run 50 megawatt from our mini grid to almost _____ which we'd also feed to the grid. And we're support around 30 pico-hydros besides _____ 50 kilowatts.

Just to give you a quick overview of the kind of projects that we have, during the conception phase which we recently concluded that involved authorities and all the applications and interest we received from the private developers. During this period, we conducted multiple rounds of discussion with various stakeholders included _____ agencies, the financial institutions and other partners and stakeholders who acted in this space like EnDev, _____ multinational. So basically, the discussion in the market we found that the finance plays a very critical role in the project life cycle especially for the pico-hydro projects. And seeing that the financing is one of the biggest gaps all projects face. So when we started the program we increased this financing gap as well as all the technical gaps by providing grants to pico-hydro projects and also to various projects for conducting other like for conducting studies and other use cases.

So in terms of the cumulative generation to RESV component, program targets, program has the target of generating more than one megawatt by the end of the program. But all the program support activities will eventually contribute to this innovation of 3.5 megawatt. And in terms of household connections if you combine both the _____ and the pico-hydros you will have over 15,500 housing connections. Apart from the financing requirements we have development of support that we provide for the program. That includes demand, design, analysis, site selections and other studies that needs to be conducted. That also—also in terms of the structure and business models, the structure of finances, helping developers getting government approval, securing permits, connecting them to the financing institutions and other investors. So there are a number of these kind of—these as I highlighted in these slides. So these are the kinds of supports that we're providing with time as the opportunity comes up to discuss them later as well. So yeah. So this is all the SOGER program is about. So thank you once again. Thank you very much.

Stephanie

Thank you so much, Bibek. We'll now hand things over to Godfrey. And Godfrey, it looks like your microphone is still on mute. Wonderful.

Godfrey

Hi. How are you?

Stephanie

Wonderful. That looks great.

Godfrey

In the interest of time I'm just going to do this very fast. First of all, thank you all for giving me an opportunity to participate in this webinar. As you told earlier my name is Godfrey Odhiambo. I'm managing off grid electric here in Rwanda. Our mandate is very simple. What we try to do every day is basically to empower families, businesses and leaders of tomorrow by providing them clean, reliable, affordable energy solutions. By way of introduction off grid electric is a company that was founded a little under five years ago in Tanzania. Since then it has grown to be one of the leading solar home systems companies in Tanzania. We have a footprint both in Tanzania, in Rwanda, just recently set up shop in _____. And in terms of the overall support from the group, we have an office in the Netherlands and in San Francisco.

We are a vertically integrated solar home systems company which means that we basically are, have oversight over the entire supply chain on our systems developing and designing all the way to last minute distribution. What we see as a vertical position is that we are very big on putting our customers first. So professional in-home installation is something that we do. We have a five-year warranty backing all our products. We have a call center that runs 24/7, in home service support. Our customers being our heroes meaning that we come up with flexible payments solution. So payment terms are very flexible insuring that our customers are always kept top of mind regardless of their personal economic circumstances or when they have a funds we help walk them through how they can take advantage of opportunities to own our systems pretty fast.

There are I'm sure you're all going to be aware of the fact that there are some friction areas to adoption of solar especially in Africa. And that comes from basically how do we hardware, finances, distribution in public. And we have our own solution to address some of these challenges and barriers to solar adoption. So in terms of for example just insuring that people have reliable service we address that by having a call center and we have people that work in different shifts just to ensure that at any given time our customer can be reached. We have a specialized service fleet just to make sure that our customers are serviced in house any time there's an issue. To address the issue of last mile distribution we are a big believer in leveraging of existing infrastructure. And this we do using the existing businesses, transportation businesses that we have in the market, thereby giving our partners more opportunities to earn extra income. And we also make sure that we reach our customers at their point of _____.

Making solar accessible to all is obviously one of the biggest challenges. And how we do that is we have a professional sales force who we train in the sales process that we have really invested so heavily. And we can see the evidence of the fruits of this particular approach that we use. Financing again is an issue. Remember we said that most of our customers are people living in rural areas so we basically insure that our private innovations talk to their specific needs, graduated offerings are also part of the menu for our customers. From where we're sitting, we believe that there is an extremely huge opportunity

for us to operate as well as our partners in this space looking at about 0.62 million addressable market.

Just the other day we—sometimes towards the end of last year we signed a pact with EDCL effectively financing our committee to work hand in hand with the government of Rwanda to help achieve this rural electrification targets. And this is a partnership that I have found to be very symbiotic as well as impactful. The addressable market for us is—it basically shows signs of scalability. And we are very bullish that just in the short time that we have operated here in Rwanda which is just about one and a half years that the circle of installations that we have done and the sales that we have done, going forward we believe that the trend is—the trajectory is going to basically make for a viable business. And that's basically it from my end.

Stephanie

Excellent. Thank you so much Godfrey for the presentation. That was wonderful. Next, we will go to our final speaker Amaury.

Amaury

Yeah. I'm here. Tell me when you start seeing my screen.

Stephanie

We can see the screen. Just go to full screen from there and we should be all set. That looks great. Perfect.

Amaury

All right. Perfect. Well, good afternoon everyone. Thanks so much for having me. It's great honor and it's wonderful to have the government and the private sector at the same time in this webinar. My name is Amaury Fastenakels. I'm the head of strategy at BBOXX. A little bit about BBOXX. BBOXX is a solar company based in the UK. So far, we've electrified about 100,000 households and 30,000 households in Rwanda alone. One of our missions is to extend the grid and go into places where the grids can't go. There are just some places where it doesn't make sense and this is where we see our role.

One of the fundamental values of the grid that we are building is that we're not just selling solar home systems, disconnected from the provider of the HET. We want to build a real grid that will be able to give the on-grid experience to off grid households. In Rwanda but also all over Africa. To do this we have to of course have a fairly affordable service to start with and so we start with \$5.00 per month and go all the way up to \$20.00 per month. This is only possible if we sell of course electricity as a service. So we do long term service agreements with our customers that allow it to be affordable, that allow our customers to upgrade, to have lifetime services and to have ongoing long-term relationships with us.

To really give value to our customers we collect about 70 million data points every single day. There is no grid in the world that is capable of doing this. And with this we can actually give a proactive service to each of our customers but also cater for their needs a little bit better. All this data is not going to be very useful to the households if we don't have the retail presence on the ground that can actually go and repair installed systems and take care of our customers. In Rwanda, more specifically we have 26 shops all over the

country, all in rural areas to be able to serve our customers. And this is a chief enabler to serve the country of great population.

Right now, where we are is we have digitized all of the value chains with our customers. We have our—on our customer management software we've built we have all of our transactions that are downstream of our money through the call center. And all of our clients automatically switched off. All of this enabled us to now electrifying up to 6,000 households a month. That's actually more than what the government can do connecting to the grid. So I think this is a very important point that the private sector can really be a help for the government of Rwanda and any other government in electrifying their population. That's it for me. Thanks a lot for having me.

Stephanie

Excellent. Thank you very much. Now we will hand things over to Yasemin for the first moderated Q&A.

Yasemin

Thank you very much everybody. That was excellent and I will echo Amaury's point that it's been really excellent having representation from the ministry as well as stakeholders such as Power Africa and Energy 4 Impact as well private sector on this conversation. I'm really looking forward to the Q&A we're about to have. I know we're a little bit short on time so I'm going to try to move this along as fast as we can so we have some time for attendee questions as well. I will ask some questions that came to mind as sort of the conversation went on with the different presentations. And I want to start with a question for Robert as well as Amaury and Godfrey.

In terms of your respective perspectives on scaling access effectively in Rwanda. Obviously, we heard that there is a really strong and ambitious target for electrification in the country. So what are the incentives? How is the enabling environment components looking? How does a BBOXX _____ fit in with the ministry of infrastructure's master plan for rural electrification? Any three of you feel free to unmute your line and answer.

Amaury

Sure. I can start if anyone is going to start right now. So first of all, I think that there is a great space where the government and the private companies can work and part of it is to work on policies for tax and import duties that make sense. We also give like they do through the current programs to raise awareness about solar is something that we definitely benefit from a lot as solar is something that is now at every level of administration in Rwanda. I think those are the two main points where the government helps private companies such as BBOXX in working in Rwanda.

Yasemin

Ok. Thank you. Godfrey, did you want to chime in on the side of private sector as well or Robert perhaps if you're able to hear us?

Godfrey

I think I'm mostly just going to echo what my colleague at BBOXX just said. I think we enjoy a favorable relationship with the government of Rwanda, a relationship that we feel is, has become transparent and very cordial. And so, every time we run into issues we always sit around the table and just try and hammer through what the solutions would be. We are at this point extremely

confident in the fact that the government of Rwanda has committed to letting us play in this space as well as helping achieve its targets.

Yasemin

Great. Robert, are you able to hear us?

Robert

Can you hear me?

Yasemin

Yes, we can hear you.

Robert

Oh, thank you so much. Thank you so much. Just to again appreciate my colleagues who are responding that we're finding that the government of Rwanda is really supportive as you have noticed in a day to day aspect and the project investments. The government of Rwanda, the Rwanda government both as an institution mandated to help the country's government's super _____. We work closely with the Rwanda government board to act just as one center for investment. So it's not only our job to service private companies in the country but even other companies to exist in Rwanda. But to come back to what is being done by companies now in the market in Rwanda back in the region, I think the technologies, the off-grid technologies is a better way to go when it comes to selling solutions in the African region, sub-Saharan region including Rwanda.

So by that it's not about talking policies but it is also to use the marking opportunity of having a solution that we can also invest into deploying these off-grid technologies and to use the good cooperation and the safe environment by Rwanda and the other countries to increase the access levels in east Africa and Africa in general. In Rwanda, that is being done obviously. Our plan, the government of Rwanda's vision is to achieve universal access. But that structure that's why we believe it is key to have a strong partnership with all the _____ and by doing that I think it is very good that for the only last two to three years we didn't have any, even one percent of the access, of the technologies. But today we are talking about seven percent through off grid technologies. It is moving so far.

And also, when it comes to affordability, the beneficiaries, the owners themselves, I think they understand the benefit. So there is a demand. There is a need by the population and also there is really good environment for private companies to do business. And big support from the government through the excellent leadership. So I think what I'm talking about is also spoken by my colleagues, presenters. Godfrey, BBOX who are here in the country, my colleague. I see to me even if you have good policies, you have good strategies but what is important is the private sector participation. And those are the biggest opportunity given the business environment in the country. I think this is what I wanted to echo and contribute. Thank you.

Yasemin

That's great. Thank you so much, Robert. One of the follow up on that since we started talking about collaboration. I wanted to ask you specifically, since the ministry of infrastructure is doing all of this work on rural electrification, I wanted to ask how this work in particular affects things like public facilities. You mentioned that much of a pretty significant portion of the health clinics in Rwanda have already been electrified. About half of schools have been. So

when you work on nexus issues such as health, education, humanitarian relief perhaps since Rwanda is a significant refugee host country, which ministries are you involved with if any? Who takes charge depending on what kind of public facilities we're talking about? Can you speak a little bit more in terms of the public facility larger infrastructure side of things?

Robert

Thank you so much for your good question. Well, the infrastructure has a major four sectors, energy, work on sanitation, organization and transport. As I mentioned as a ministry that has four main key sectors of that contributes to economic development of the country. We have worked with the minister of finance that is in charge of planning and economic planning. And through that we have integrated plans that work across the quarters. And through private investment, one of the _____ is the _____ one percent of the investment. What we do is automation. Through _____ and at the ministry level it is easier to coordinate all the initiatives that I have mentioned in the presentation that we do not only plan for basic infrastructure but we also connect with ministries that are in charge of ITT to have penetration of mobile, TV, access to mobile phones.

And in the really key places when BBOX, for instance those companies that are using technologies, people have access to finance through mobile banking and so forth. So in terms of coordination I think at the ministry level it is easier. The government is really had the good institutions. And not only that but the government incentives to have Rwanda government act as one stop center for any investment whether big or small. So it becomes easier for _____ purposes and also to support any initiative or any business viable proposal that is built by any private company. And through that of course we've been encouraged by the innovation that is being taken forth by most companies bringing these kind of new technologies.

And when it comes to collaborating with the government, the government mandate obviously is also to bring closed companies to the population and by that through the initiatives that are being led at _____ level it has been served even faster. For instance, just a quick or tremendous increase of off grid technologies to achieve higher targets on off grid technologies. So that's how the policy or the strategy is structured to insure that by 2020 is it possible to achieve universal access once we have good cooperation and communication channels that we will start using platforms that we can get the feedback from the beneficiaries and also the private sector that we do not necessarily have to knock on every door in any public institution that will come even be aggressive to understand the challenges, understand the challenges of the beneficiaries and also sit together, brainstorm and see the innovative ways on how we can foster the communication of both grid connections and also off grid technologies deployed by several companies.

Yasemin

Thank you very much, Robert. I want to bring you Claire and Bibek as well since Power Africa and Energy for Impact serve somewhat similar roles in terms of sector wide coordination in the country. So I wanted to ask you both how you see those coordinating efforts. Where do you see the sector moving forward? Does the private sector have a common voice or interest in the

country? Who are you supporting in terms of different actors? If you could speak a little bit more as to coordinating role that you both serve, that would be a great compliment I think.

Claire

Sure. Thanks, Yasemin. I can go first. I think I can really only speak to Rwanda but I think the coordination across the key stakeholders is really exemplary. The ministry of infrastructure coordinates an energy sector working group and it has technical working groups that cover things like generation, access and transmission separately and those groups meet regularly and are open to all key stakeholders as well. USAID is obviously works closely with our other development partners here including the EU, Belgium and the DTC, the world bank, the African development bank, players like those and we meet up regularly and coordinate our various support efforts in technical assistance to make sure that they're complimentary and don't overlap.

And then we have close coordination with our private sector partners as well. As I mentioned Power Africa emphasizes close partnerships with companies on a one to one basis. And we have relationships with most of the main private off grid players in the country and meet with them regularly to understand their challenges and to help us tailor our advocacy approach and our technical assistance and also to assist them and put them in touch with key investors and other stakeholders that might be able to offer them either financing or expertise in order to help them grow their businesses.

And Rwanda also has an energy kind of association group called the energy private developers. And they sort of can be in the private sector and act on their behalf as an interface with the government. So I would say that I've been very impressed so far with the coordination. And I think that's critical in order to move the sector forward towards meeting the targets in a very short timeframe. So yeah. Only good progress to come out of this I think.

Yasemin

Thank you Claire. Bibek, did you want to chime in?

Bibek

Yeah. Like Claire mentioned this mini grid is relatively new initiative in the country, this even the _____ more increased collaboration. And there have been increasing initiatives recently happening in the country, like there's EnDev who is also supporting the private sector developers. The USAID is also supporting them like it's also it's coming up with the guaranteed funds, helping, attracting FIs to expose more credit in this mini grid sector. And we're also working with local financial institutions and other multinational FIs to see that where we all can actually like come together and collaborate in terms of like helping these private sector developers both in terms of the kind of technical assistance that they require and also as I mentioned earlier financing that piece quite prominent in this sector. And that's where we especially require a lot of investors and FIs coming and playing a very vital role in the mini grid space. And that's where we've been discussing with all stakeholders that are active in the country.

Yasemin

Thank you Bibek. I'd like to quickly go back to private sector perspective on Rwanda. If Godfrey and Amaury could chime in in terms of what you see

from BBOX of an OG perspective in terms of the difference between working in Rwanda versus some of your other countries of operation. What are some of the key challenges you see whether its logistics, standards, tariffs, financial access or opportunities because as we've heard so far obviously the government is very much involved and very helpful in Rwanda. So if you could sort of do a quick comparison as to what do you see in terms of differences or similarities in terms of your work across different countries that would be great.

Amaury

Sure. Thanks. Work across a few countries in Africa and I think some of the aspects that you really find in Rwanda is a good place to work in general and especially for the off-grid industry. It's threefold. On one side, there is a good tax framework to allow us to impose duties and NVAT. And also to the clarity about what is going to be the framework when you impose different containers of solar products. Second, I think there is the obvious about Rwanda which is a country where doing business is extremely easy compare to other countries. You don't have the same challenges in terms of compared to other countries, in terms of working with the government. The government is very proactive and very aligned with investment minded strategy. And last of all, I think that in Rwanda, logistics is a lot easier than in neighboring countries. For example, some of the countries in lesser roads. Also, there is a good mobile penetration and I think the same for grid electric. Our business is just not feasible if we would have not access to digital money and financing in general.

Yasemin

Ok. Thank you. Godfrey, did you want to add anything to that?

Godfrey

Yeah. I think the same. Maybe the only other thing I could add is the fact that in Rwanda I think it is easy to find a very good working relationships with the local community. When it comes to last mile distribution we rely heavily on leveraging existing businesses and demanding which we lock down contracts with the _____ in Rwanda is very straightforward. And I think that is a huge plus. I would also say obviously, the government support as well as just logistics, the accessibility to the last mile is better than most of the countries around the region. Of course, people struggle with this because walking up and down the mountains and hills is not easy. But outside of that we have to continue doing business here.

Yasemin

Great to hear. I'm cognizant of the time. I just want to finish by opening up a two-part question to everybody so you can feel free to answer either one part or both parts or neither depending on your area of expertise. But I wanted to make sure in case the audience questions don't touch on these two that we touch on both the quality assurance and standards, battling copycat products, insuring product quality across the board and country as well as the gender aspect. Bibek's presentation obviously touched on that a little bit. But if anybody else wants to chime in in terms of how your work may have a gender focus, whether you have targets or you're involving women in terms of both the business side of things as well as the end use customer awareness, that would be great. So anybody feel free to chime in on either side.

Robert

Well, I think the finance—Can you hear me?

Yasemin

Yes, we can hear you. Go ahead.

Robert

This is Robert coming back. Well, in terms of nexus targets in our Rwanda Sustainable Energy 4 All as a culture I think we are number one when it comes to gender sensitive, having the highest targets of balancing women and the men to provide solutions in different ways to build the country. But the reason for that I think in the strategy because I've mentioned the ministry infrastructure considers the basic infrastructure for the population, it means access to clean water, transport, health services, access to electricity and here we also talk about access to clean cooking technologies. And the quality of cooking options this is where we also we provide also training and skills mainly for mobile cooking stoves or factories that are producing parts that use in modern cooking stoves. And there was some data water management when it comes to providing clean water.

We do this working with private sector to have a within to act in value chain for marketing the modern cooking stoves. Also, they are now in the entrepreneurs' model of the company. I think the when it comes to access clean technologies, cooking technologies this is where mainly we have been having a national awareness campaign not only just to say we can deploy all the technologies but also to have a campaign on the use of clean cooking technologies. Where possible in modern model villages. At the ministry, we are working on the rural electrification strategy but at the same time we are working implementing the model villages as part of implementing the rural settlement policy to push or shift people living in scattered settlements into model or model villages or group settlements.

And by doing that I think this is where the gender perspective comes on now having working on the _____ to see the time that is spent on biomass, to see the different data on with access, work with access for _____ that now we can have a better integrated plan on how we implement all these government initiatives. And by doing that then of course we also look at the incentives that the government considers to support the private sector and through that collaboration, through the working groups, technical working groups we believe that the health conditions for the population will improve as much as we also have access to electricity. The children could now have better ways of doing their school homework and also on the indoor air quality from cooking in really remote areas. Households could be actually full and above air quality standards by 2020. I think this is information that I wanted to share with you, despite I think a good talk from that you've been able to give us and together with the micro grids I really appreciate. Thank you.

Yasemin

Thank you very much, Robert. Anybody else want to chime in quickly?

Claire

Yeah. Just to say that one of our partner US Africa Development Foundation has launched a grant program this year specifically targeting women in energy in three countries in sub Saharan Africa including Rwanda. And that program is sort of in the assessment phase of applications. But it was initiated for the obvious reason that yeah, the gender issue is still a large one here and across the continent and the world I think in the energy sector there is poor representation of women. So that's something that we're cognizant of and

trying to work on. But I think there's a—there's so many more opportunities to make this, to bring this issue to the floor and for us to prioritize it here in Rwanda and elsewhere.

Yasemin

Thank you so much. Anyone else?

Stephanie

Ok. Well, I think that's about all of the time we have for the moderated Q&A right now. We'd like to get to some of the audience questions before we have to sign off in a few minutes here. We have a lot of questions that have come in which we will not get to all of them. But don't worry. If you submitted a question, we will be forwarding them to the panelists after the webinar concludes so please be on the lookout for that. Our first question is for Claire. We have a few people asking what is the procedure for green energy technology providers to participate in the Be on the Grid program and even more so, what ways would you recommend engaging USAID and Rwanda in general?

Claire

Well, the first port of call would be me so you can contact me as the lead for Power Africa in Rwanda and I can put you through to the right people in USAID in Rwanda as well. But Power Africa has a partnership team as well focused specifically on providing support to private companies. So if you get in touch with me, I can then introduce you to my colleagues who will focus on setting up a conversation with you and talking about your interests and your needs. And then we can discuss how to become a member. We have over 140 members in Power Africa and it's something we pride ourselves on and we would like to expand that to as many companies as possible as well. So I think you probably shared my contact details on the webinar site. So just send me an email and I'll be happy to talk.

Stephanie

Thank you. This next question is for Godfrey and perhaps Amaury you can chime in too. It's got a couple parts but what would you say is the average power consumption of the first-time electricity user in Rwanda and how would this predictably miniscule power consumption be a barrier for micro grid type installations and are there ways around that?

Amaury

I'll chime in for the discussion a little bit actually. It is truly a good question I think. And so, the average power consumption of a typical household with energy for the first time, they'll be on average quite small but quite a bit higher than what normal _____ can afford. So it will be kilowatt hours and it's easier to talk about the applications that most of these households will need. So a lot of the households that develop systems will take three, four lights as a minimum. Then on _____ you'll have around 20 percent of our customers who will actually get a TV.

One of the things that is really important when thinking about energy access is that a lot of those customers that will receive through the program in Rwanda some sort of lanterns will still use energy purposes. They will not be able to have three, four lights and they will never be able to upgrade to bigger appliances like a TV. A lot of those customers besides those three, four lights quickly need appliances for revenue generating or just to connect them to the world. It's something that is really important because after the three, four

lights then they go quickly to add on other appliances either generate revenue or give them access.

Stephanie

Great. Well, thank you very much. I'm afraid those are the only questions we'll have time to get to today. But as I mentioned we will be sending your questions to the panelists once we conclude the webinar. On behalf of the Clean Energy Solutions Center, I'd like to extend a thank you to all of our expert panelists. Those were wonderful presentations. And also thank you to our attendees for participating in today's webinar. We really appreciate your time and hope that there were some valuable insights for everyone. We also invite you to inform your colleagues and those in your networks about the Solutions Center's resources and services including no cost policy support through our ask an expert service.

I invite you to check the Solutions Center website if you'd like to view the slides or listen to a recording of today's presentations as well as any previously held webinars. Additionally, you'll find information on upcoming webinars and other training events. We are also not posting the webinar recordings to the [Clean Energy Solutions Center's YouTube channel](#). Please allow about one week for that to be posted. And finally, I would kindly ask you to take a moment to complete a short survey that will appear when we conclude the webinar. And everyone please enjoy the rest of your day and we hope to see you again at future Clean Energy Solutions Center events. This concludes our webinar.