

Energy Efficiency for Energy Access: The Role of Social Innovation in Driving Change

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Webinar Panelists

Reid Detchon	United Nations Foundation
Pascale Giet	Rexel
Thomas Thivillon	Entrepreneurs du Monde
Richard Caperton	Opower

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Eric Lockhart I'm Eric Lockhart with the National Renewable Energy Laboratory. And, welcome today's webinar, which is hosted by the Clean Energy Solutions Center in partnership with the United Nations Foundation Energy Access Practitioner Network, which is supported by the Rexel Foundation. This webinar is focused on the role of social innovation and achieving energy access through energy efficiency.

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. The 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.

Before we begin, I'll quick go over some of the webinar features. For audio, you have two options. You may either listen through your computer or over your telephone. If you choose to listen through your 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. A box on the right side will display the telephone number and audio pin you should use to dial in.

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Also, an audio recording of the presentations will be posted to the Solutions Center training page within a few weeks and will be added to the [Solutions Center YouTube channel](#) where you'll find other informative webinars as well as video interviews with thought leaders on clean energy policy topics.

Today's webinar again is centered around the presentations from our guest panelists: Reid Detchon, Pascale Giet, Thomas Thivillon, and Richard Caperton. These panelists have been kind enough to join us to discuss the role that social innovation can play in driving energy efficiency gains that support expanded energy access. Before our speakers presentations I'll provide a short, informative overview of the Clean Energy Solutions Center initiative. Then following the presentations we'll have a question and answer session where the panelists will address questions submitted by the audience followed by closing remarks and a brief survey.

This slide provides a bit of background in terms of how the Solutions Center came to be. The Solutions Center is one of 13 initiative of the Clean Energy Ministerial that was launched in April of 2011 and is primarily led by Australia, the United States, and other CEM partners. Outcomes of this unique initiative include support of developing countries and emerging economies through enhancement of resources on policies relating to energy access, no-cost expert policy assistance, and peer-to-peer-learning and training tools, such as the webinar you are attending today.

The Solutions Center has four primary goals. It serves as a clearinghouse of clean energy policy resources. It also serves to share policy best practices, data, and analysis tools—specifically clean energy policies and programs. The Solutions Center delivers dynamic services that enable expert assistance, learning, and peer-to-peer sharing of experiences. And lastly, the Center fosters dialogue on emerging policy issues and innovation around the globe.

Our primary audience is energy policymakers and analysts from governments and technical organizations in all countries. But we also strive to engage the private sector, NGOs, and civil society. A marquee feature that the Solutions Center provides is a no-cost expert policy assistance known as Ask-an-Expert. The Ask-an-Expert program has established a broad team of over 30 experts from around the globe who are available to provide remote policy advice and analysis to all countries at no cost.

For example in the area of demand and policy evaluation for energy efficiency programming, we were very pleased to have Bruno Lapillone from Enerdata serving as one of our experts. If you have a need for policy assistance and energy efficiency or any other clean energy sector we encourage you to use this valuable service. Again the assistance is provided free of charge. If you have a question 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 I'd like to provide a brief introduction for today's panelists. First up today is Reid Detchon. Reid has led the UN Foundation's Energy and Climate program since 2005. He is also executive director of the Energy Future Coalition, a non-partisan domestic policy initiative. He is responsible for the Foundation's engagement with the UN on energy and climate issues.

Following Reid is Pascale Giet, senior vice president of communications and sustainable development with the Rexel Group, and the vice chairman of the Rexel Foundation. She joined Rexel in 2010 and is a member of the Executive Committee. She created the Rexel Foundation in 2013.

Following Pascale, we will hear from Thomas Thivillon who leads the Access to Energy Unit of Entrepreneurs du Monde, which is a microfinance-focused NGO.

And our final speaker today is Richard Caperton who is the director of National Policy and Partnerships at Opower and leads engagement with all branches of the US federal government and guides the company's global regulator strategy on demand response and electricity market design.

And with those introductions, I'd like to welcome Reid to the webinar.

Reid Detchon

Good morning Eric. Good afternoon to the people on the call and particularly to our friends from Rexel who are sponsors of this webinar. Thanks to Pascale and Thomas and to Richard as well. I'm just going to provide a brief introduction to put this into context with the Energy Access Practitioner Network and the Sustainable Energy for All initiative.

A group of NGOs, entrepreneurs, larger companies, and other representatives from civil society who are engaged in providing last mile solutions for energy supply to people who live off the grid. Without going into great detail we know that the problem is large. But I think that we are seeing progress being made throughout the world, particularly in Africa and South Asia. And we are proud to be part of that solution set.

We think that in fact there are not only many techniques for increasing energy access such as the renewable solutions that we are all familiar with. But in fact that energy efficiency plays a key role in delivering energy access simply by reducing the amount of power needed to provide a given service. To take an obvious example if it were not for LED bulbs we would be very constrained in providing lighting with the available power sources in storage.

So the Energy Access Practitioner Network works collaboratively with its members to promote technologies to create a network of success stories and shared best practices and to encourage standards for quality to protect the market and to encourage adoption. Our goal as part of Sustainable Energy for All is to achieve universal energy access by 2030. And in that pursuit we now have more than 2,400 members who are operating around the world and who

rely on the Practitioner Network for information sharing, for connecting to finance, and for making partners with each other and with potential investors.

We are really focused on sustainability of course. Access to modern energy services can have a broad meaning. We certainly emphasized clean energy solutions and in the past year the participants in the Practitioner Network were able to provide services to more than 30 million people. So we look forward to anybody on the call who is not part of the Energy Access Practitioner Network to become part of it.

We think that there are benefits to members in terms of information and particularly about finance and the kind of best practice sharing that we'll be engaging in on the call today. So with that I'm ready to turn it over to my friend and colleague Pascale from the Rexel Foundation.

Eric Lockhart

Great, thank you for that introduction. That was great.

Pascale Giet

Thank you Reid for your introduction and presentation. Good morning everyone or good afternoon. My name is Pascale and I am Rexel Group senior VP for communications, sustainability, and social impact, and vice chairman of the Rexel Foundation. So I'm happy to take the opportunity to share Rexel's thoughts on social innovation because it's critical to address energy access and energy efficiency in emerging countries.

I've built a broad experience in this area both in business and through the Rexel Foundation. Also Rexel Foundation's presence is not limited to Asia. We have decided to focus our presentation on this area. As a reminder for those who do not know Rexel we are a leading global distributor of products and services for the energy world.

I will now start presenting the Rexel Foundation and some of its projects. I will then highlight the role of social innovation in energy efficiency and energy access. And at the end of the presentation we will focus on three concrete examples of how Rexel and the Rexel Foundation address access to energy, thanks to social innovation in Asia.

So let me start by presenting our Foundation. Most of you will certainly be aware of the facts and figures that _____ the Rexel Foundation creation. And you mentioned it Reid, more than one billion people around the world still don't have access to electricity and how one billion people has to use hazardous materials for heating and cooking in emerging countries. This is why the Rexel Foundation for a Better Energy Future are working on positive responses to these challenges.

Our mission is to improve access to affordable, efficient, and sustainable energy for all. So we deliver our mission through three types of programs. We support NGOs engaging communities and driving autonomy and communities energy conception, thus improving their quality of life. We work with social entrepreneurs, supporting them in the creation and implementation of innovative business models.

And finally we've found results and studies to help raise awareness on energy efficiency and climate change at the large scale. And so the Rexel Foundation has a program dedicated to social innovation projects, as we believe that social innovation provides the key to energy access and contributes to energy efficiency. Since it was launched the Rexel Foundation has reported close to 60 initiatives with a positive impact on over 100,000 people around the world.

The footprint of the Foundation's projects is in line with the Rexel Group's own presence across the world. It's critical for us to ensure the involvement of our employees locally and also to enable a greater local impact. Our Foundation's focus for the coming years will be on the regions of North America, Europe, and Asia.

Our approach is by natural collaborative in order to leverage all available skills and competencies and scale of projects. Indeed one of our key principles when we work on a project is to gather problems and build a collaborative approach with the key actors of the energy sector. Today we work with more than 55 partners including companies and foundations, social entrepreneurs, academic institutions, and non-profit organizations.

Through these partnerships we drive economic only and politically viable solutions, which are new models for the picture with a strong social impact. We work on projects that are repeatable at the global scale. The type of support provided by the Foundation really depends on the energy maturity of the country where projects are located. The energy maturity is based on characteristics of the energy value chain in rich countries such as access to electricity rights, appliance _____ rights, and population characteristics.

If we look at the top of this slide we can see that in developed countries our actions are targeted at promoting renewable energy, encouraging energy efficiency in buildings, and fighting fuel poverty. At the bottom of the slide you can see the target of our action in emerging countries. In other words our actions aim to provide humanitarian aid to support training of electricians and to provide efficiency and renewable energy services in non-electrified zones.

I will now give you concrete examples on the last three items centered on emerging countries. This first example is an emergency response project we have launched in 2015. In the wake of the devastating earthquake that struck Nepal in April of last year we've joined forces with Electriciens sans Frontières and other partners to provide support with lighting solutions in villages of the Laprak _____ at the end of 2015 and enabled around 12,000 persons to regain access to energy. And the project is still running.

The _____ of project I would like to share with you is our support in emerging countries to structure the training of students in electricity and energy efficiency. We launched our first training project in 2012 in China in partnership with Schneider Electric and its Foundation. Under several similar projects _____ provide a modernized training program in developing and emerging countries. We are currently working on such programs in Thailand

and Vietnam in order to drive professionalization of future electrical installers and ensure the knowledge of energy efficiency.

The last type of action I would like to share with you is our support in efficient energy projects with two examples in Asia. First we are supporting modeling at China's social enterprise since 2014. The project consisted of the installation of a solar energy power plant in an elementary school in the province of Hebei in China. Since [audio cuts out] almost 300 children now benefit from uninterrupted access to electricity generated by an on-site solar PV station, which provide electricity for the school's IT, classrooms, thus improving education.

Since 2015 we are supporting also the GoSol initiative in _____ communities and local entrepreneurs. GoSol develops free construction guides enabling farmers and craftsmen to build solar concentrators made and developed of _____ models available locally so that they can access green, free, and self-produced energy. Each time we provide efficient energy in emerging countries we ensure that our partners are responsible for long-term maintenance of the installation.

The first project I mentioned—modeling—continues to update us with economic, social, and environmental impacts of the project and _____ to keep the solar energy power planned at its maximum efficiency. So now we are going to start the second part of our presentation. I will drive you through a brief summary explaining what social innovation is for us and the critical role of social innovation in the energy sector.

Social innovation from my point of view can be defined in various ways. But all definitions agree on the fact that social innovation is a new approach, which brings solutions to society issues: environmental issues such as air pollution, climate change, and social issues such as access to energy. At the Rexel Foundation we believe that social innovation is a solution that allows to deal with the social issue previously unaddressed or to address it in a better way.

Better means "effective, efficient, sustainable, or just than current solutions," as the Stanford Center for Social Innovation puts it. Most of these new solutions are designed by combining action and expertise from NGOs, the public sector, as well as private actors.

So why do we need social innovation? First long-term growth is hampered by structural elements such as the limited availability of natural resources, _____, and employment, poverty, et cetera. So one of the current solutions offered are not at scale with the problems. Current rate of energy efficiency improvements versus climate change imperatives _____. Also _____ budget evolution versus the growth of certain forms of diseases.

And _____ there is an ever-growing trend in today's society for better human relationships and fulfilling each person's well-being. Social innovation is by definition precisely the way to address these three challenges and generate

social value by designing innovative business models combining expertise of all stakeholders of a given issue.

So the reason why social innovation is most welcome in the energy sector given the size of the challenges ahead. Often some emerging countries are not part of the population. Still they didn't have access to electricity. For example, 50 persons in _____. Second investment volumes required to improve access to energy or modernize existing networks is tremendous. For example in Southeast Asia the investment needed amounts to \$1 trillion in new power plants and transmission, distribution infrastructure over the next 20 years.

Third, climate change constraints are strong regarding the energy sector. Indeed to have a likely chance of staying in a two-degree scenario temperature unit global emissions should be around 44 gigatons of CO2 equivalent in 2050 while business as usual projections of global emissions are around 56 gigatons of CO2 equivalent of _____. With this context in mind there's a strong need for innovative solutions that cannot be addressed by public or private actors alone. Social innovation players with their ability to connect all players have _____ to enough innovation in the energy sector.

Now I will give you three concrete examples of initiatives of special innovations supported by the Rexel Foundation in Asia. LP4Y is the first project I'm going to talk about. And it's to help young people getting out of poverty by training and coaching them on how to run a business. They are taught different topics such as maintenance of material, client service, reporting, cash management. These professional skills will help them to be _____ integrated.

In June 2012 LP4Y created the 3S center, which is a rental service of affordable solar lanterns dedicated to the inhabitants of the slums of Manila in the Philippines. The innovative aspects lie in the fact that it's providing green energy and empowering local women. It's indeed managed exclusively by young mothers and women. These women are living in extreme poverty and in less than [inaudible comment] per day.

Moreover the lanterns are rented to local communities allowing them to access to clean and affordable electricity, replacing the use of kerosene and candles that are unsafe and costly solutions. For example 15 young adults will integrate this activity during 6 months. Thanks to the center more than 1,000 families from Tondo will have access to light allowing local economic development.

The Sawang innovative project is Sunsawang. Sunsawang provides clean power source by installing solar home systems and distributing solar lanterns to upgrade communities. The project of its full communities located in Northern Thailand where the villages have lower income and need subsidies for local—for solar equipment. It started off as an association called the VGEG and it turned into a social enterprise and started charging for their service in order to improve sustainability.

It's socially innovative because there is a differentiated pricing model based on needs and ability to pay. Also Sunsawang creates jobs for local communities by recruiting and training local technicians for the installation and maintenance service. Thanks to Sunsawang the results are 200 solar lanterns and 100 Solar Home Systems that will be installed providing access to clean and affordable energy to more than 2,000 beneficiaries by solving the challenges in grid power access local communities do not need to use candles or kerosene lamps that are once again unreliable, expensive, and dangerous.

Thanks to Sunsawang they have access to clean and affordable energy allowing more social and economic development of the community. By example 61 persons—beneficiaries—declare that their children are more motivated to study. Sunsawang generates a _____ reduction of lighting expenses by 80 percent.

The _____ project I will present is _____ by GERES and aims at boosting the adoption of improved cook stoves. Product proposed GERES has developed the stove plus economy. It trains and encourages networking between social entrepreneurs offering cook stove solutions. The innovative aspect is that GERES aims to directly help entrepreneurs by providing sufficient meals and to indirectly answer local populations' needs as well as having a larger impact over a short period of time.

Their approach: open the corporation with businesses and public authorities is based on sharing experience and the transfer and ownership of technology. The project is key in three key major impacts. First entrepreneurs benefit from economic effects notably by having that business model and network improved. Secondly the community can cook safer with improved cook stoves. Indeed Philippine's population still relies on solid fuels and with the _____ cook stoves for household cooking occasionally leading to fires.

Overall there are at least 1,000 indirect beneficiaries with about 450 indirect beneficiaries per season. Finally the project fostered environmental conversation by contributing to limit forest degradation through the improvement of cook stoves efficiency.

Thank you for your attention. As you understood during this presentation social innovation is critical in addressing the topics of energy efficiency and energy access. It's bringing effective solutions to these topics with a strong positive social environmental and economic impact. I will now hand over to Thomas—yeah Thomas Thivillon from Entrepreneurs du Monde. And I will be happy to answer your questions during the Q&A session in the last 30 minutes of the webinar.

Eric Lockhart Great. Thank you very much Pascale.

Thomas Thivillon

Hi. Good morning Pascale, Reid, and Eric, thank you for having me with you this morning. I'm very glad to have the _____ of Entrepreneurs du Monde's experience with other Practitioner Network members. And I'm trying to give you an overview of what we've been doing in the _____ access to energy over the past seven years.

But first let me start by giving you a quick presentation of our work and our mission. So Entrepreneurs du Monde was created in 1998. It's a nonprofit and we're working in three different fields. First we're coming from the microfinance sector and our key expertise remains microfinance and especially social microfinance. And so we are trying to offer financial services to the most excluded households in mostly developing countries.

And we also have projects in the field of access to energy and finally a unit called Very Small Business Creation where we're trying to help entrepreneurs set up their business and especially activities with capacity to create jobs, so to create between five and ten jobs per business, slightly bigger activities than in microfinance.

We're currently working in ten different countries with 20 local partners or local social businesses that we set up and that we are still supporting. Most of the local partners we have are actually microfinance institutions or social businesses that were created by Entrepreneurs du Monde—EDM. And so we are reaching roughly 150,000 beneficiaries through those activities every year. Now why did a microfinance NGO become involved in the energy sector?

Well the reason is that while working to offer microcredits or micro _____ services to ultra-poor households we observed that they were spending a very significant share of their income on their energy expenditures, up to one-fourth of the household's budget in many countries. And we're also working in areas mostly in slums or in very remote rural areas where access to grid electricity is still very, very low. Like two out of three households don't have access to electricity on average in the areas where we are working.

And finally more recently the World Health Organization research was released which showed that the indoor air pollution from cooking with solid fuels had tremendous impact on the health of the families we were supporting. And so this was a certain motivation to invest in the access to energy sector and to start coming up with innovative business, social business, and ideas for this sector.

And so what we decided to do was to leverage our expertise in the distribution of social microfinance services. And in the creation of local microfinance institutions to improve the energy situation of our beneficiaries. So we decided to focus on fast to implement upgrade technologies that could improve the condition of our partners, of our local partner households immediately. And basically we know that in most of the communities we are supporting access to the grid will not be a reality before at least 10 or 20 years.

So there was clearly a relevance in the creation of the launch of an offer to purchase small individual energy solutions. And so we started working with biomass cook stoves at first. And then progressively we added to our range solar lighting products and also LPC cooking solutions. Of course all of those products, we select them based on international standards, the lighting global

certification for the lighting products, the ISO agreement on cook stoves for biomass cook stoves.

And all of them are significantly improving the efficiency of—at a significantly better efficiency than what the households were using in the baseline. But the thing is that once we had selected those products we had to come up with solutions to lift some market barriers that were preventing our partner households to access those products. The first barrier was they're very low investment capacity, which means that also they couldn't shift savings in their energy expenditures in the long-term.

They could not invest in the products that would help them make those savings. And the second barrier is the lack of last-mile distribution networks in the areas where we are working. So we started pilot testing a business at first in Burkina Faso in 2010 where we were trying to leverage the skills of the local economic players in the communities where we were working to build those last-mile distribution networks and to make the products accessible both physically and financially to the families we were targeting.

And so we took our inspiration from the micro-franchised approach in the health sector that was already being used by some large health NGOs. We tried to adapt it to energy products. And that's what's shown in this chart. Basically we created local companies. It's called Nafa Naana in Burkina Faso. The local company is called Palmis Energy in Haiti. And so those companies are going to purchase products in bulk from local and international suppliers and then resell them to a group of retailers that have contracted with micro-franchising companies.

And that have agreed to resell the products at the conditions that have been defined by Nafa Nana or Palmis Energy. And finally we have connected those retailers with our target end users so that they can purchase the products from the retailers. Now what's key is that we are offering financial services throughout the value chain from the suppliers to the end users and also to the retailers. So the financial services to the suppliers are mostly payments in advance to help them purchase the raw materials they need.

Or sometimes this would purchase the equipment they need to produce the efficient cook stoves mostly that we purchase from them. So this of course is only offered to local SMEs directly in Burkina Faso or in Haiti for instance. Then when we come to the retailers we have designed some stock credit facilities to help them build their stocks without too much of a need for working capital because it's very hard for them to actually access working capital. And so they could not start the product if we did not offer them some payment facilities.

And finally a _____ of the end users we work in partnership with microfinance institutions that we are already supporting in our microfinance business unit. And we set up access to energy, microcredit products so that the end users can purchase their products with a loan. So like I said before we first piloted this approach in Burkina Faso in 2010. We then replicated it first in Haiti in 2012 and then progressively in Cambodia and Togo in 2014 and

finally where' just starting to pilot something in the Philippines since the end of 2015.

A quick focus on the financial services, or the financial products that we have designed to achieve our goals. The first product that I want to describe is the stock credit that we offer to the micro-franchised retailers. This is an example taken from Burkina Faso. The key thing is that the retailers like I said don't have the working capital needed to purchase a stock of products. And so it's very hard for them to make the promotion of the products without the products in stock.

We designed a service where they can get the products from Nafa Naana with just an initial payment to 20 to 30 percent of the value of the stock. And then they get to pay the remaining share of the value of the products after three months. And it's an in-fine payment, which means that there is no installment between the first payment and the last payment. And this is going to give them the flexibility to sell the products to their clients and to let their clients pay also in one or two or three installments if needed.

And so we categorized the retailers in different levels according to their experience. And as they progress through the levels their credit limit increases and they can increase the sale of the stocks. There is a cost of course for this service but it's much, much more affordable than if they were taking a loan from an MFI because MFI loans are not really suited to this type of business. It's designed for business with bigger margins.

And so in our case the retailers pay a three percent premium on the value of the products compared to what they would have paid if they had purchased their product with cash. Just an indication of the preference of this product, this financial service, in 2015 Nafa Naana disbursed more than €60,000.00 in stock credit to retailers. And the repayment rate—the on time repayment rate, which means payments during the months when the in-fine is due, was 90 percent.

And now I'd like to describe a product that is slightly different that we designed for rural areas because it's much more difficult to find retailers with a size which is significant enough to make it worth transporting the products to where they are staying, where they are based. So instead of targeting individual retailers in rural areas Nafa Naana decided to target farmer cooperatives, farmer organizations, and other types of associations and village organizations.

And so in that case the cooperative or the farmer organization that's going to purchase the products from Nafa Naana and resell them. And we have a similar type of facility with a 30 percent initial payment and in-fine—and sorry a 90 day credit duration except that with those actors because they are more remote we had to keep a monthly collection system. And to make it feasible we're using SMS payments—I mean mobile payments—to collect the reimbursements and to lower the cost of collection.

So this is actually—it has become the main sales turner for Nafa Naana and Nafa Naana lent more than €130,000.00 through that channel in 2015 with a slightly lower repayment rate for on-time repayment. But the ultimate repayment rate is still very good and very close to 100 percent.

Over the five countries that I mentioned earlier this approach has helped us reach an increasingly high number of households. And we are now scaling it up. We already distributed more than 75,000 energy appliances through this micro-franchise approach. And we're hoping to reach the 100,000 threshold in 2017. We're trying to monitor the impacts of those products that we are distributing in West Africa and the Caribbean and Southeast Asia.

And so we're using some indicators from the Gold Standard Foundation and the Global Off-Grid Lighting Association to estimate this. So it's not based on field measurements. It's really an estimation based on default indicators. But roughly the sales of products that we've done until now enabled the households to save more than 120,000 tons of food and more than 200,000 tons of CO₂ equivalent. But the most important indicator for us is the savings for the households.

And on average the products—the solar lanterns or the cook stoves—over their whole life plan will help the families save roughly €200.00 which altogether means more than €12 million saved. So it's quite significant.

As a conclusion, I'd like to give you some insights on some current developments that we are doing also in the Philippines, in the slums of Manila—a little bit like LP4Y in Pascale's presentation. So we are currently pilot testing a number of rent-to-own offers for solar lighting kits. And the idea behind those rent-to-own offers is to be able to reach households that are even poorer than the ones we can reach through our micro-franchise approach and through the microfinance institutions who give loans to the end users.

Because sometimes it is too poor and they don't have the stability that would be required from the MFI to receive a loan. So instead we're trying to give the payment facilities ourselves and so we're using two types of technologies. Some solar kits that have been designed for battery swap model where the battery can be easily transported. And so we can basically rent the system to the household. But the charging of the battery will remain under our control.

And so that's how we secure the payments. And when the products have been paid the families can become the owner of the system. And sensing this pay as you go technology—so we are renting the kits to the families for a duration between one year and one-half and two years. And they can—so the difference is that in that case the kit contains a keypad where you enter a code to unlock it. And so we—of course the families have to pay to unlock the kit on a regular basis.

And after a year and one-half or two years they become the owner of the kit. And what we're also trying to do, and that's what you can see on the picture on the top right of this slide, is to link those rent-to-own offers with other social products. And so link access to energy with other social issues through

a rewired mechanism. So basically on the amount paid by the families it's usually a daily installment or a weekly installment because the families need very flexible payment terms.

So on those daily or weekly installments we keep ten percent aside, which are transformed into loyalty points. And when the families have enough points they can exchange their points against a social product—for now a water filter, or an improved cook stove, or a school kit for their kids. And so we are using this to have a broader impact than just access to energy and also to increase the loyalty of the families to the rental service because the turnover of the families was an issue for us. So we used this rewired mechanism to solve this issue.

Okay sorry for being a bit long. I'm done now. Thanks again for having me with you and for listening to me. And I'm handing it over to Richard for the last presentation.

Eric Lockhart Thank you very much. And just before Richard gets started I'd like to remind the attendees to enter questions in the "Questions" pane as they come up. With that we'll turn it over to Richard Caperton.

Richard Caperton

Hi everybody. Okay I've got my screen going. So my name is Richard. Thank you for having you with me—or having me with you. I work at a company called Oracle. We're a software company based in the United States but working globally. And Oracle just recently acquired a company called Opower, which is where I had been working. Opower was a software company that provided services to electric and gas utilities around the world working with about 100 utilities to delivery energy efficiency and demand management.

And customer engagement and in general improve the customer experience with utilities and help people manage their energy consumption. What I'm going to talk about today is the work that we did on behavioral energy efficiency and will continue to do on behavioral efficiency. I'll explain what that is, how the products work, how the system works, and the results we've achieved. And then talk a little bit about what we have done and what we would like to do more of in Asia and especially in developing Asia.

I'll aim to finish in about ten minutes here just so we have plenty of time for questions and answers. If you do have questions feel free to chat them to me or interrupt especially if they are clarifying questions that you want to ask. So let's get started.

Our cofounders when they founded the company back in 2007 had a mission of helping people use less energy. And they explored a lot of different models, some nonprofit models, and different business models. And then they came across a science experiment that was done after the California Energy Crisis of 2000 and 2001. For those of you internationally you may not remember that in California in that time because of energy shortages there were rolling blackouts that caused a lot of public outcry and obviously harm to people because they didn't have the energy they needed for their lives.

So these behavioral scientists: Robert Cialdini and his partner Dr. Schultz did a study about what messaging would help people use less energy, motivate people to use less energy. And so they went around and hung doorknob hangars on people's houses that said if they would turn off their air conditioner and run a fan—which obviously saves energy in the house—they would achieve a result. They would save money. They'd help the environment. Or they would be a good citizen.

And all of these you would think would matter a little bit—the saving money for obvious reasons. The environment—the environment is broadly popular. And citizenship was specifically tied to helping to keep the lights on and being part of an active management that would be good for the state. Impressively and intriguingly none of these messages had any impact on consumption. So what the study found is that these traditional messages didn't actually drive behavior change.

But there was a separate message that said that your neighbors are already doing this action. That message helped people—encouraged people—to save six percent of their energy—so very significant drop in consumption. This is an incredible insight about what motivates people to save energy and that people care about what other people are doing. Let's let that sink in a little bit. But that is the key insight that people care about what other people are doing.

And Dan and Alex, our cofounders, decided to take this science experiment and turn it into a business to help people around the world save energy. So it was no longer just a few graduate students going to specific people's houses, but they were going to reach millions and millions of people. And they did that by founding a software company called Opower. It ultimately became Opower. It had a different name at the start. But they founded Opower, delivered a very –

They turned that insight and delivered targeted messages to people at their households. This is an example of the tool they developed based on that science experiment. This is something that we send to customers of the utility in Chicago in the United States: Commonwealth Edison. And you'll see a few things. And you'll see a few things. The first is on the left. This is a piece of paper that we send to those customers. On the left, you'll see a three bar chart showing how a person's consumption compares to their neighbor's.

This person is in the middle somewhere between efficient neighbors and the average neighbor. And then there are some more insights on the bottom on the left that shows how that neighbor comparison has changed over the last 12 months. Then on the top on the right it shows how their neighbor efficiency rank has changed over the recent length. And then the important thing is not only do they motivate people to take action—again your neighbors are doing this.

But you also have to give people an action to take, similar to the turn off your air conditioner and run your fan. In this case Opower has targeted tips that are specific to the people and what we know about their house. So in this case they got three different tips. One was quick fixes. Another was a smart

purchase, a relatively small thing—switching to compact, fluorescent lightbulbs, and the third was a great investment—switch to a new refrigerator that would be much more efficient. It tells them how much money they could save.

So this is the basic product. We started delivering it via paper. Now we deliver it via websites, paper, and other electronic communication—e-mail mostly. But the insights are the same. It's always neighbor comparison and personalized tips to encourage people to take action. We are sending this to about 15 million households around the world now and helping people save energy at those households. And the results we see are pretty uniform that when people get that information they save somewhere between 1.5 and 3 percent on their energy bills.

Or they reduce their consumption by that much. And we measure this with what's called a randomized control trial where you have a control group that doesn't get any communication from us, and then a treatment group that is statistically similar or statistically identical that does get the energy usage information. And then we measure the difference in those. These results have been evaluated by companies and organizations like those listed along the bottom: consultants and evaluators, programs, and academics.

And again they find remarkable uniformity especially in the United States of how much people save. So we are helping people save this much energy. Now these are global results but here are some results from an Asian utility. And you'll see that they're very similar. Now there are a few things—at least two things—that make Asian utilities unique and Asian consumers unique. First is they use less energy than people in the United States and Europe as well—but especially in the United States.

And second is a lot of them live in multi-family housing—so apartment buildings instead of single family housing. You'll see this is represented here. These were 55,000 Home Energy Report—again that piece of paper recipients. One-hundred percent of them were in multi-family homes and they used an average of just 348 kilowatt-hours a year. Now that represents the overall market in this particular Asian market. And what you see is that large users do save more energy but everybody does save—even the lower users.

And again it's right in line with what we see in the rest of the world where the average reduction is just about 1.5 percent, so very comparable results in Asia to the rest of the world. Now there is secondary result which makes this especially interesting for the utilities that run the program. I think it's a little less important for this group here but I still like to mention it so people understand the multiple benefits we deliver. And this is around customer satisfaction with the utility.

You see here on the left we have the control group. That's the blue bar. Again that's for people that don't get any communication. And then the orange bar is the people that do get communication—the treatment group. There are two comparisons. On the left is dissatisfied with the utility. You see a drop in that by more than 50 percent or 5 percent in raw numbers. And then there's the

satisfied with utility where you see a 9 per cent increase in customer satisfaction.

So these are important results, impressive results, and they're one of the best things that a utility can do to improve customer sentiment. Once you improve customer sentiment—as an aside—the utility becomes much more of a trusted energy advisor. And our theory—and we're proving this out in some examples in the United States—is that that utility is then better positioned to offer new energy services like rooftop solar for example or demand response or other energy efficiency programs.

We have also looked at what we could do in other markets. These are developing markets in Asia. And these are households—we think that we could serve across China, India, Malaysia, and the Philippines about 500 million households. Now those are households we could serve cost effectively and reasonably operationally we could do it. Things like the households have enough energy data, and the households use enough energy to save enough to make it worthwhile to do given what it costs to run the Home Energy Report program.

You'll see China is no surprise what we project to be the biggest saver. But all of these countries are doing a lot. Then the next line down below energy is carbon savings, megatons of CO₂—or metric tons of CO₂. And we think we could save more than 10 million tons of CO₂ across these markets. So these are results—we are seeing results in Asia that are in line with what we see in the rest of the world. And we think that we could take those results to all of Asia and deliver significant savings that would benefit all of these households and benefit the climate and the environment as well.

That's what I have. I look forward to any questions about it and I'm happy to talk more about our work and how behavioral energy efficiency works through questions and answers. Thank you.

Eric Lockhart Great. Thank you very much Richard. Just a reminder to the attendees you can enter questions into the "Questions" pane anytime throughout the question and answer session. So the first question speaks to social innovation in particular. And if there are kind of strategies for identifying promising social entrepreneurs kind of what's the best approach and what adjustments might need to be made vis-à-vis traditional venture investing?

So that might be something that Pascale or Thomas might want to address. The question is about identifying promising social entrepreneurs that may have less familiarity with the finance system or less familiarity with packaging their businesses.

Pascale Giet

So, this is Pascale speaking. On our side the way we proceed is that now it's like five years. We are working out in that field and obviously we have built a tremendous network. Most of the initiatives we identify come from the network. But, also, we have other sources which could be our partners and our partners in the different countries working on these kinds of initiatives.

And of course in our case we really focus on what is related to energy access as I mentioned before.

Eric Lockhart Great, thank you. Thomas just a follow on question for Thomas. For example you mentioned Nafa Naana that there's no collateral put down in exchange for loans. So I was wondering what your strategy might be for identifying promising entrepreneurs so you feel comfortable wanting to capitalize is.

Thomas Thivillon

Okay well I think yes Nafa Naana is supporting micro-entrepreneurs. And there are only—I mean it's a lot of course that they're focusing on retail sales of our products. So in our case our identification process is really based on the progressions through the different levels. And pretty much anyone can join the network and receive a first very small loan. The only condition is to have pre-identified five customers to whom you're going to sell your products.

And then the progression through the levels is based on your performance. So how you repay the loan and how much you sell in a month or over six months. And so that's for the very last _____. But I think maybe the initial question was more on like social entrepreneurs with potential to create businesses on a national scale or regional scale. And in that case our experience is very mixed because initially EDM was trying to identify local initiatives and support them with technical assistance and funds.

And we shifted to an incubation approach at the turn of the 2010 decade. And we decided to create our own social businesses to be the social entrepreneurs because we were not happy with the results of the local entrepreneurs we were supporting. And especially we were often dissatisfied with our dedication to social issues. And after a few years of planning we very often found out they were more interested in profits and in social impact.

So those conclusions came from the microfinance sector or microfinance activities. But we applied them to our access to energy projects and that's why we are creating ourselves those social businesses in Burkina Faso, Haiti, and other countries.

Eric Lockhart Great, thank you very much. All right our next question: a participant asks are there any gender differences in design implementation or results in impact in any of the experiences presented? For example do women in households or -headed households respond differently or need different strategies? That's really open to all the panelists.

Richard Caperton

This is Richard. I think the questioner is probably more interested in some of the examples other speakers used but I will say that for our Home Energy Reports we see similar results across every demographic group that we have studied. I'm not aware of any analysis we've done on women-headed households. We have done analysis on income group and age of family members. So we find that people save across all income levels and across all age ranges. But I don't know about gender differences.

I would expect that they would be very similar and that men and women would respond comparably to the normative comparison or the neighbor comparison.

Thomas Thivillon

This is Thomas speaking and my answer to this question would be that interestingly of course we men are the most interested in the products we are promoting. They are in charge of the cooking tasks in the households and so they have more contact with cooking fuel expenditures and also with the lighting expenditures generally with the household expenditures. But we are still struggling to reach the parity between men and women in our retailer networks.

And for now there is still a majority of men and we're trying to balance this. But it's challenging for us to promote more women through the retailer networks mostly because those retailing activities require them to be fully available all day and not all women can do this. So yes that's a very big issue and something we still need to work on.

Pascale Giet

This is Pascale. On our side, we don't target end users. We are targeting projects but I would say that's—as we are focusing a lot on education and improving the understanding of the challenges. Women in the different projects that we are managing are of course very sensitive on that topic. So that's my own experience but we don't have any survey on that.

Eric Lockhart Great, thank you very much. Our next question is about the role of local governments and how local governments can support these initiatives, particularly social innovation. And the question asker is particularly interested in Africa but feel free to comment on other regions—on the role of local government in one of these initiatives.

Pascale Giet

This is Pascale speaking. So as a private company we don't interface a lot with local governments. But from a personal point of view and I would say from a general point of view I would love local governments to be really involved because ideally this kind of topic should be raised at the higher level and at a larger scale. And the only way it could happen is building public and private partnerships in that _____.

Reid Detchon

This is Reid coming in. I think that to add on to what Pascale said local governments particularly in developing areas are usually the best mechanism for organizing action. And so for example one might imagine organizing farmers around productive uses of electricity for irrigation or refrigeration. And having the local government engaged in that support activity gives it both credibility and statute for potential partners.

Or to take another example that touches on some of the work that Rexel Foundation supported training the service—the ongoing service providers—to make sure that these systems are sustainable over time is a mechanism where government engagement can be important. And then lastly another example: we are involved in storing solar systems in health clinics in Uganda currently.

And having a local government engagement in creating an ongoing small revenue stream for the support and maintenance of those systems is critical as well. So there are many ways where local governments can facilitate the delivery of off-grid energy services. And it's important to engage them in order to have full community support for the activity.

Thomas Thivillon

And on the side of EDM I'd like to add that we have a very clear need for the local governments to help us in the certification process of grid and energy solutions. In most of the countries where we are working consumers are not very familiar with energy products and how you can differentiate between and efficient and a less efficient product. And it's very hard for them to make the right purchasing decisions. And every often some low cost and very inefficient products will be very successful in those markets.

And it's come to a product—It's not a positive outcome for the country. So we've had some experiences where local governments or even national governments were setting up national certification schemes or local certification schemes to help clarify the market and help consumers go to the products which were the most beneficial to them. And I've seen this is something that could be replicated and would be really helpful.

Eric Lockhart Great, thank you very much. The next question is about scaling energy solutions and energy related social innovations. How much consideration when engaging social entrepreneurs is given to the ability to scale to different geographies, whether regionally, nationally, or internationally?

Richard Caperton

This is Richard. At Opower we made a decision from the start that the key to achieving scale was going to be working with established actors in the space. Now that's not to say there's not a role for innovators. I think of our cofounders as social innovators who are driving change in the utility space. But they drove that change at scale because they worked directly with the incumbent players that were serving millions to tens of millions of households.

And we did that rather than trying to go directly to every household and get them to save energy. And I would encourage people to think about working with—when it's appropriate—established organizations that already have scale. And they created scale newly.

Pascale Giet

Well I agree with Richard on our side. Obviously when we select a project we first start to define some KPIs and to make sure that they're approach is relevant considering our standards. And then we have our own internal experts in the company being able to support those initiatives and then help them to scale in their business by partnering with them in the different geographies. So that's one way to do it. Obviously there are other ways to do it.

Eric Lockhart

Great. Thank you very much. Our next question also related to geography. There are several questions about country selection for programming so I'll ask them together here. And then we can go to Pascale, Thomas, and then

Richard. One attendee asks where the Rexel Foundation is based and also how countries are selected for your programming. Pascale mentioned that based on the company's footprint but perhaps you could expand on that.

For EDM a participant asks where you're considering expanding. And for Richard there's a question of if there's any interest in extending your findings and your programming to West Africa. So maybe we could go Pascale, Thomas, and then Richard for that country selection and expansion question.

Pascale Giet

So our side as I mentioned we focus on the regions where we have business. So this is to say North America, Europe, and Asia. The reason why we do that is also why I mentioned in the previous question that we are conscious that the more we can rely on our people the more efficient the project will be. So we need to have some employees around to support the initiatives.

Thomas Thivillon

At EDM we have a strategy to expand our energy projects in the countries where we are already implementing microfinance activities. And especially we aim to expand further in West Africa where the needs both in the microfinance sector and in the energy sector are the greatest. So the countries we are exploring for now include Ghana, Benin, Senegal, and Guinea. And that's not—I mean we could add more countries to that list. But we won't launch something in a new country until two or three years.

Eric Lockhart

Richard if you wouldn't mind also speaking to the country expansion. You spoke about it a bit. There's a particular question about if Africa is on Opower's radar. Richard I see you've come off mute but we don't hear you. Now we can hear you.

Richard Caperton

Oh I'm sorry about that. There are two ways to answer that for us. The first is that Oracle has a truly global footprint and works with many African utilities and all across Africa. So that may enable us to do more in Africa and that's countries like Nigeria and Kenya. Now in the most undeveloped parts of West Africa I think there's a different challenge, which is, that when you look at— Well which is that those households may not use enough electricity or energy to make our insights cost effective and our behavior cost effective.

Let me say a little bit more about that. When you look at like the Asian countries that we've done work in that is what we think of as low usage. And it's say 300 to 350 kilowatt hours a month. That is significantly lower than the United States and Western Europe, but significantly higher than most people in West Africa. Given that it costs some money to send these insights to people and that people save typically call it 2 percent on their energy it takes a certain amount of usage to make these programs cost effective.

So we have not been able to find extreme low users and extreme—the most developing parts of the world that are cost effective. We are certainly happy to talk with people if there is a way to change that math and make it cost effective. If there are government funds available, as long as those government funds are sustainable and would be around for several years. But it has not been a focus of that because of the difference in usage.

And frankly that's okay. I think that there are other energy issues facing that part of the world like providing better energy access rather than helping people use less energy. It's just a different challenge than the parts of the world where we do work.

Eric Lockhart Great. Thank you very much. Our next question is about knowledge transfer and how your organizations—analyst organizations—ensure that knowledge is gained from different projects and how you manage and disseminate that knowledge and translate what you learn from certain country contexts to other country contexts.

Reid Detchon

Well this is Reid. I'll comment briefly. Others should come in. But honestly this webinar is an example of how we try to do that, through the energy access [audio cuts out] Practitioner Network. The Network has a monthly newsletter and other communications with its members to share best practices and success stories. And these webinars are another example of how we attempt to do that outreach.

So I think that the question implicit—or the question behind the question—which is why is it so difficult for success stories to replicate across borders is a challenge for all of us. But that's exactly what we're trying to address through the Practitioner Network.

Pascale Giet

I fully agree with Reid on our side. Of course this would be _____ and this partnership is a good example. But also we share all the time everything we learn. And we publish on our websites different tools. The last one we published was a social impact guide that we have and realized that we have done with our partners. And also we provide trainings. We have those meetings with our social entrepreneur's part of our platform. And during those meetings we of course we encourage this best practice sharing. And we aim at facilitating it as much as possible.

Eric Lockhart

Great. Thank you very much. Thank you all very much for those fantastic presentations and for all of those very informative answers to the questions that came in. For the attendees whose questions we didn't have time to get to we'll reach out to you directly via e-mail with responses and connections. So thank you again to all of our panelists.

Before we conclude I would like to turn to a quick survey that will appear on your screen shortly. The first question is, the Webinar content provided me with useful information and insight. The next question is, the Webinar's presenters were effective. Overall, the Webinar met my expectations. Do you anticipate using the information presented in this webinar directly in your work and/or organization? And finally, do you anticipate applying the information presented to develop or revise policies or programs in your country of focus? Wonderful and thank you for answering our survey.

On behalf of the Clean Energy Solutions Center I'd like to extend a thank you to all of our expert panelists and to our attendees for participating in today's webinar. We've had a terrific audience and we very much appreciate your time. I invite our attendees to check the Solutions Center website if you'd like

to view the slides and listen to a recording of today's presentations, as well as previously held webinars.

Additionally you will find information on upcoming webinars and other training events there. We are now posting webinar recordings to the [Clean Energy Solutions Center YouTube channel](#). Please allow about one week for the audio recording to be posted. We also invite you to inform your colleagues and those in your networks about Solutions Center resources and services including no cost policy support. Have a great rest of your day and we hope to see you again at future Clean Energy Solutions Center events. This concludes our webinar.

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