

## The Bangladesh Solar Home System Program – Lessons Learned

—Transcript of a webinar offered by the Clean Energy Solutions Center on 2 October 2013—  
For more information, see the [clean energy policy trainings](#) offered by the Solutions Center.

---

### Webinar Panelists

<b>Yasemin Erboy</b>	Senior Associate, Energy Access Team, UN Foundation
<b>Nancy Wimmer</b>	Director, microSOLAR
<b>Fazley Rabbi</b>	Senior Manager, Grameen Shakti
<b>Islam Shariff</b>	Head, IDCOL; CEO, SK Johnson
<b>Sayed Hassan</b>	Chief Operating Officer, Rahamafrooz Storage Power Division

### This Transcript

Because this transcript was created using transcription software, the content it contains might not represent precisely the audio content of the webinar. If you have questions about the content of the transcript, please [contact us](#) or refer to the actual webinar recording.

---

Sean Esterly

Hello everyone. I'm Sean Esterly with the National Renewable Energy Laboratory and welcome to today's webinar hosted by the Clean Energy Solutions Center and the United Nations Foundation's Energy Access Practitioner Network. Today we are very fortunate to have Yasemin Erboy, Nancy Wimmer, Fazley Rabbi, Islam Shariff, and Sayeed Hassan joining us. These outstanding group panelists will be discussing the lessons learned in the Bangladesh solar home systems program.

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 resource library as one of many best practices resources reviewed and collected by technical experts.

Now, before we begin, I just want to go over some of the webinar features. We do ask that all the panelists mute their microphone when they are not presenting. So, I am getting a little feedback right now, as everyone could just make sure they are muted to help reduce that. For audio today, the attendees, you have two options. You may either listen to your computer or over your telephone. If you choose to listen to your computer, please select the 'mic and speakers' option in the audio pane. By doing that, you will eliminate the possibility of feedback and echo and if you selected telephone option, a box on the right side will display the telephone number and audio PIN you should use to dial in. Again, I just want to ask all the panelists to please mute your microphones. We're getting a little bit of distortion coming through the line so if you could go ahead and mute your green microphone, please. So if anyone has any technical difficulties with the webinar, you may contact the GoToWebinar's help desk at 888.259.3826.

If you'd like to ask any question during the webinar which we highly encourage, just please use the question pane where you may type in your question. If you're having trouble viewing the materials through the webinar portal, you can find PDF copies of the presentation at [cleanenergysolutions.org/training](http://cleanenergysolutions.org/training) and I will send out that link during the webinar. Also, an audio recording in the presentation will be posted to the Solutions Center training page within a few weeks of this broadcast.

We have great agenda prepared for you today that is focused on showcasing work underway in Bangladesh to support energy access using off-grid renewable energy through the solar home systems program. Now, before our speakers begin their presentation, I will provide a short informative overview of the Clean Energy Solutions Center initiative. Then following the presentation, we have a question and answer session if time allows and then closing remarks and a very brief survey.

This slide provides a bit of background in terms of how the Solutions Center came to be. The Solutions Center is an initiative of the Clean Energy Ministerial and is supported through a partnership with UN-Energy. It was launched in April of 2011 and primarily led by Australia, the United States and other CEM partners. Now, outcome to this unique partnership include support of developing countries 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 specific to clean energy policies and programs. Third, the Solutions Center delivers dynamic services that enable expert assistance, learning, and peer to peer sharing of experiences. Lastly, the center fosters dialogue on emerging policy issues and innovation around the globe. Now, our primary audience is energy policy makers and analysts from government and technical organizations in all countries. We also strive to engage to the private sector and yield in civil society.

One of the great features of the Solutions Center is the expert policy assistance. So it's known as 'Ask an Expert' and its great service offered to the Solutions Center at zero cost. We have 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. For example, in the area of energy access, we are very pleased to have Ellen Morris of Sustainable Energy Solutions serving as our expert.

So if you have a need for policy assistance on energy access or any other clean energy sector, we encourage you to use this great service. Again, it's provided free of charge. To request assistance, you simply submit your request by registering through our 'Ask an Expert' feature at

[cleanenergysolutions.org/expert](http://cleanenergysolutions.org/expert). We also invite you to spread the word about this service to those in your organization and networks. So we encourage you to take advantage of all the Solutions Center resources such as the expert policy assistance, subscribe to our newsletter and participate in webinars.

Now, I'd like to provide brief introductions of our distinguished panelists for today. First stop today is Yasemin Erboy, a senior associate with the UN Foundation's Energy Access team. Yasemin will be providing an overview of the UN Foundation Energy Access Practitioner network. Then following Yasemin, we'll hear from Nancy Wimmer, the director of the renewable energy research company microSOLAR. Nancy will share her findings about general lessons on building a social enterprise that deliver energy services to communities as well as highlight the general dimension. Following Nancy, Fazley Rabbi, a senior manager of Grameen Shakti in Bangladesh will discuss his company's role in the development of the program, its delivery and implementation modalities and will share lessons learned that can be applied to other countries.

Then after Farley, we will hear from Islam Sharif, the head of IDCOL and current CEO at the SK Johnson. Islam will provide an overview of IDCOL's national model and discuss best practices at the national level around aligning incentives, structuring and approach. And then finally we will hear from Sayeed Hassan, the chief operating officer at Rahamafrooz Storage Power Division. They are deeply involved in the Bangladesh's solar home system program and by the end of 2012 has installed 1.16 million solar home systems for domestic use in Bangladesh.

With those introductions, please join me in welcoming Yasemin to the webinar.

Yasemin Erboy

Hello everyone. This is Yasemin with the United Nations Foundation. We just wanted to provide a brief overview of our webinar today and thank you all for joining and thank you to the Clean Energy Solutions Center for co-hosting yet another webinar with us. Next slide, please.

So we just want to briefly mention the Sustainable Energy for All initiative. Many of our participants today have heard us speak about this before. But it is an initiative created by the United Nations Secretary-General Ban Ki-moon to address three objectives by 2030: ensuring universal access to modern energy services, doubling the global rate of improvement in energy efficiency, and doubling the share of renewable energy in the global energy mix in the view of the ongoing importance of energy issues and the global development agenda. Two thousand twelve as you may know was the year of Sustainable Energy for All and following that, the UN General Assembly member states have declared 2014 through 2024 as the decade of Sustainable Energy for All. So we will be working on sustainable energy issues for quite some time to come. Next slide, please.

Here at the United Nations Foundation, we run the Energy Access Practitioner Network as part of our contribution to the Sustainable Energy for All initiative. It is the global network that was launched in 2011 and it has grown rapidly to about 15,000 members representing actually 191 countries currently. The Practitioner Network focuses on market-based sustainable energy applications and we emphasize distributed or mini- and off-grid solutions. We hope to catalyse energy service delivery at country level through providing a platform for our members to share their knowledge and best practices. We are technology diagnostic and we promote adaption of new technologies, innovative financial and business model. Next slide, please.

So, the Energy Access Practitioner Network is premised on the idea that roughly 60% of the people who currently lack access to modern energy services will not be reached by the traditional grid and that distributed energy services will be required to reach this large percentage.

Technology—small-scale technology such as solar home systems which we'll be talking about today will be crucial in this development. Looking at Bangladesh specifically, a Lighting Asia study notes that Bangladesh has a very low electrification rate with only 28% of households in rural areas being electrified. Therefore, we wanted to take this opportunity to look into this particular region and look at its success with solar home systems. Next slide, please.

The Practitioner Network actually has a pretty strong membership base in South Asia and in Bangladesh specifically, we have close to 60 organizations that are members of the Practitioner Network. We hope some of those are joining us today for this webinar and that we believe that the discussion of the success of the Bangladesh solar home system program is an opportunity for all practitioners to learn more about the different aspects of this program and see how those can be scaled up and applied to different geographic context as well.

With this webinar, we bring you four illustrious presenters to discuss this program. Thank you very much.

Nancy Wimmer

Hello, everyone. This is Nancy Wimmer. Welcome to my presentation on Bangladesh. Some of you listeners I know are there. My two months stay there this year was my 25th trip to your country. But please, everyone, join me now to learn about rural business and innovation in Bangladesh. Next slide, please.

Pictured here is a solar home system. It only consists of a handful of components: a panel, a battery, a charge controller. It powers lamps, maybe a black and white TV, maybe a mobile phone. Actually, it's totally unspectacular. But the next slide... The next slide shows that these solar homes systems are having spectacular success rural Bangladesh. A local company there is installing 1,000 solar home systems a day. At the end of 2012, a total of one million and plans two million installations by 2015. So

apparently there is a huge demand for light and electricity in rural Bangladesh. Eighty percent of the population lives there. So why if this market is so promising, did most villagers have to wait until the 21st century to have electric light? Next.

Because this market is tough. It's tough because solar home systems are expensive and most villagers are poor. Here you'll see Mr. Majid, a food vendor. How can he afford an expensive solar home system? Next. It's a tough market because people live in scattered villages. There are few good roads, mostly mudded paths. They can be flooded in the rainy season for weeks. Some parts of Bangladesh are flooded for six months a year. Bangladesh is a delta, with more inevitable waterways than roads. But, even travelling by boat is difficult during the rainy season and often impossible during floods. But there are more reasons. Next.

Rural business is tough because of the high risk involved. The delta is a continuous shifting landscape. This house and its solar home system could be washed away during a flood, for that matter even the whole island irrespective of the earth's warming and rising sea levels in a few years. But rural business is also risky because customers suffer from crop failure. They get sick. They're not insured. They're unable to pay.

The next slide shows who these customers are. They're mostly farmers, fishermen, no big earners. Small businesses like this sawmill that you see here and still there is a company which is installing 1,000 solar home systems a day in rural Bangladesh with this low-income person clientele. Next. Where does this unique success come from? A Harvard genius maybe? A multinational corporation and who is this company?

The next slide shows what is no surprise to the people on this webinar. Grameen Shakti is the company. Its name means village energy. But it's not so much about what Shakti does but how this company succeeds in this tough market. This is significant and I can only briefly describe it on this presentation but is described in great detail in this book. For now, let me name three causes of Shakti's success but we should keep in mind during this presentation. Success comes from Shakti's experience, its ability to innovate, and its ability to reach scale. Next.

This begins with the fact that all business is rural. This is fundamental because this is where the people who have no electricity live and this is why all Shakti staff lives and works in the village. Does this sound obvious? No, but it's very unique in practice. And the next slide shows that not only does all business take place in the villages but that Shakti does this large-scale. It has 12,000 employees who work in 1,500 branches in every district in Bangladesh. Here you'll see engineers and technicians. Please note one woman who served 2,000 customers on a remote island. Living and working here on an island 50 kilometers from the mainland is a must.

It's a must because the next slide shows...that every branch provides full service and this is a must. Otherwise, it doesn't work. Why full service is a must is detailed in my book. Of course as expected, engineers and technicians install, maintain, and repair solar systems. But they do much more than that. They manage the customer financing. They even train the customers. Here, you'll see one of Shakti's first installations in 1996. Next.

And this here is important because Shakti was founded in 1996 and there were three decisions that were made in that year which are fundamental to Shakti's development. One, the Shakti model is not fee for service but customer ownership. Two, Shakti will provide its own customer financing, down payment and monthly installment. Three, Shakti field staff will provide full service. Next.

But, this is only one of the important developments. I could give you only brief examples today. For example, this slide, Shakti depends on qualified personnel. Why? Just look at these engineers. They have a lot on their plate. They run the branches, assess the market, improve the products, and counsel the customers. Their stories are told in my book but you won't find them on remote islands like the one I just showed you because they're not there. Shakti has to train them. It has to train its entire staff. Next. And this is why every engineer is a trainer and every branch a training center. The engineers learn rural business from scratch at the village branch. Next. This is why Grameen Shakti hires local people like this technician to interface with the village society.

Next. To talk to people like Mister Majid. He sits down with Mister Majid and they figure out how he can afford a solar home system. The system must be tailor made to his needs. Here, you will see a 25-watt system on top of his cart. It's enough to light his cart and to run his radio so that he can attract customers. It has to be low enough in cost for Mister Majid to earn more than his money beyond his funds. The repayment period must be long enough to keep the installments small. This is not a one-time decision. Branch staff to collect the installments once a month they go and see Mister Majid. How is he doing? You make sure his system is running and they listen to his problems, which is good and it works. But there are other rural customers in Bangladesh to cater to. Next.

Fifty percent of Shakti's clientele are women. If not the owners, then users of the solar system and they need to be trained. And this is why Shakti employs women engineers like these three pictured here. These are women engineers. But the second reason why the engineers are needed is to manage Shakti's village technology centers for local production and repair. Shakti calls them Grameen Technology Centers. They are incubators for further innovation. The engineers here trained village women to be energy entrepreneurs and the next slide shows you one energy entrepreneur at work. She installs solar home systems but she also

can maintain them. Shakti has 46 village technology centers, 1,500 village branches. But what holds all of these together? Next.

Part of the glue which holds all of these offices together is the audit and the audit is another must in a decentralized company. It's so important that I devote one whole chapter only to the audit. The audit team checked every branch twice a year. They spot and pass on good ideas. They do finance and performance checks. Next.

So now, let's go back one step and look at what's happening here. We talked about some of the success factors for world business and indeed, there are many as indicated on this slide. But everyone please, look only at what is highlighted to see how these success factors fit together and how one thing triggers another. A model on how to do rural business in developing countries is taking place. Some of the musts of this model are beginning at the left-hand top, the importance of rural presence. The staff lives and works in the villages. Important because full service is so important and full service includes customer financing and this demands qualified personnel, otherwise, you can't do it and the personnel has to be trained. So the training plays a key role and then those little audits to keep a widely distributed company together and bring the best of it. Because customers buy and own a solar system but usually can't pay for it, the start-up funding of the company is crucial. Shakti has to have started the funding because it had to finance the loans to the customer.

You will hear more about the important topic of funding from IDCOL today. And you will hear more about how the solar market developed in my next book. Next. We're not done yet. But this model is a good step. So let's make it fly to start an industry. Next. Thank you.

Now, may I introduce a very good and old friend of mine Mister Fazley Rabbi, senior manager at Grameen Shakti.

Fazley Rabbi

Okay. Again, good morning, everybody. Thanks, Nancy, for your nice presentation. This is Fazley Rabbi from Grameen Shakti. It is my immense pleasure to welcome you again in my presentation. It was organized by the United Nations Foundation. In my presentation, I will discuss about the use of the solar home system program in Bangladesh which is the single largest solar home program in the world. I have all put it that into slides and I will try to conclude my talk within that 20 minutes.

For your understanding, Grameen Shakti is a Bengali word. The word 'grameen' means 'rural' or 'village' and 'shakti' means 'energy' or 'power'. Therefore, Grameen Shakti means 'rural or village energy.' Next slide, please. Grameen Shakti was established as a company limited by guarantee back in 1996. Likened on the company in 1994, it is an association limited by guarantee of some working and developing and supply of environmental friendly and sustainable renewable energy and prohibiting any demand of any dividend to the members. Our vision;

we've been a future where rural houses of Bangladesh would have access to clean energy at affordable cost. Our mission is empowering the rural people with access to green energy to generate income, reduce poverty, and improve the quality of life. Next slide, please.

This is describing Grameen Shakti's solar home program. It is important to give some information about the current energy scenario of Bangladesh. We can see in the slide at present Bangladesh has about under 60 million population. According to the Bangladesh Power Development Board, 60% of population had got access to electricity and the rest 40% have no access, which means about 65 million population who are totally not having access with the modern source of electricity. We cannot think about any success for the development by keeping this millions population out of electricity. The total power generation capacity of the country is 8,500 MW and most of our power plants are being operated by natural gas which is quickly depleting. Some experts say in the next five, six years Bangladesh will have no more gas. Please, go to the next slide.

Our Shortage of Energy and Major Concerns. About 90% population depends on biomass fuel for cooking and heating purpose. Energy shortage and unstable supply lead to high cost on the economy. I have already mentioned about the limited reserve of natural gas. Import of fossil fuels puts huge pressure on our economy. Of course, environmental degradation and energy scarcity push rural people into poverty. Next slide, please.

Actually, the situation was even goes back in 1996 when Grameen Shakti started its renewable energy program. It was about only 18% population who had access to the green electricity. Grameen intervened in the market under the uncertain circumstances. When Grameen Shakti was created, it promoted renewable energy technologies and make it affordable for the rural people. In the beginning, Grameen Shakti's program back in 1996, they started piloting with few solar home systems in the district of Tangail which is about 130 kilometers north of capital city Dhaka. At that time, we didn't know how to run a solar grid in the rural environment.

Currently, we are taking care of four programs. Our prime program is solar home system. Our second program is biogas. Our third program is improved cooking stove and also organic fertilizer. Miss Nancy Wimmer has elaborately and accurately described how Grameen Shakti was started these activities in her book, 'Green Energy for a Billion Poor.' In 1996, various people and what's called Grameen Bank on micro credit but not solar power. They were aware about the need of electricity but thought it would only come from conventional ways. But the villagers with solar system seemed like magic.

We focused on how rural people would benefit from solar power and we learned that light means security for rural houses and children studied at night where they got to review. We were actually leaning from our rural



friends as the pioneer in an unexplored market. Grameen Shakti focused on creating a project that people can join. We have so far installed 1.2 million solar home systems and the daily power generation capacity is 185 MW/hour. We are having about 11,000 staff and 1,500 offices all over the country. Our monthly install is—installation rate is over 26,000. Next slide, please.

We have created a vast rural network in all 64 districts of Bangladesh and having 1,500 offices. Let us see how Grameen Shakti is organizing its renewable energy programs. Beginning at—we have a full stake organizational structure. In the remote rural of these areas, we set up a branch office. You can see in the diagram a branch of this is composed with one branch manager and other 10 to 15 technical and non-technical staff. They are selling and installing solar home systems, collecting monthly installments, keeping the account, records, collecting after care service, and also doing troubleshooting.

Again, six to eight branches are being supervised by a regional office. Usually, a senior diploma engineer who is the branch manager earlier at the beginning of his job promoted and become a regional manager to supervise the activities of branch. Both these branches and regional offices are being supervised and supported by divisional office. The divisional manager usually is a senior diploma engineer or a graduate engineer. Who is leading the divisional office? The divisional manager and administrative control and support to the branch with supply of necessary components of solar systems. We have then divided the whole country into four zones and each zone is taken care of by a senior manager sitting at the head office. Next slide, please.

Creating trust of rural interest is the key to the success of energy business in Bangladesh. We created trust through our quality materials of our solar home system and good offers and services. We listen to our clients and we design customized products. There are 13 different solar home systems being designed based on the capacity of electricity production and number of lights. Grameen Shakti's old solar home systems are now easing. Latest technology of energy lamps with low power consumption and these lamps are having five years of life term. We also provide 20 years of warranty for solar panel and five years for battery up to six years of Grameen Shakti's energy business development.

In the year 2002, the Infrastructure Development Company Limited in short IDCOL, has launched a project called rural electrification through solar portable light system. It was handled by the World Bank. The initial project set up a target to install 50,000 solar home systems in five years in—of the rural areas in Bangladesh. The project adapted Grameen Shakti's financial model of seven solar home systems which is based on credits. Grameen Shakti participated along with other five partners and with the financial support of IDCOL the project achieved the target within two and a half years.

Since then, IDCOL and Bangladesh government have been supporting the solar home system program in Bangladesh and help the domestic world. We are also creating capacity for our staffs with paper. We call them 'social engineer' as they are building rapport with rural people, developing their standard of living. Linking to income, the solar system can increase income of its users. It can extend those business hours especially in the shops, markets, work clinics, working pumps, medicine shops, fishing boat, etcetera. Next slide, please.

Let me quickly give you the description of our financial system. Anytime, you can buy a solar home system if he or she agrees to pay 15,000 down payment in advance. The Grameen Shakti—then Grameen Shakti install the solar home system and the rest of the money, the plan can pay that—sorry. Our power goes up. I think you could come back. I'm in a dark situation [laughs]. That's why we need solar electricity. Yes, if you could just please come back for me. Then when you install the solar home system, the rest of the money they can pay that by 36 monthly installments with 12% service charge.

Grameen Shakti staff visits their houses at least once a month and collect the installment and ensure accuracy of service for the solar home systems. The monthly installment of the solar home system is about equal to the cost of monthly kerosene. An average daily cost of kerosene for each household is about 15 cents. So the monthly kerosene cost is about \$4.50 which is equivalent to the monthly installment of a solar home system nowadays. Next slide, please.

Yes, here is the graph. You can see the financial growth of solar home system installation since the inception of Grameen Shakti. We have achieved the one million milestone in the year 2011 but 2012. You will see that at the beginning, from 1996 to 2012, it took us about 15 years to achieve this one-million milestone. But we have deadlocked our capacity and we believe, we strongly believe that we can reach the second million milestone by the end of 2015. Next slide, please.

Yeah, this is—this is an important observation. You will see in the current time, the installation of different solar home systems. I have mentioned earlier that we have 13 different solar home system based on the capacity. Here, I have categorized in three items. Small solar home system which is 20 to 30 watt and you can see that more than 53% solar home system installing every month with this small solar home system. So this is one important message that we are making the low-income group people with the small solar home systems. Next slide, please.

We have here some photographs about the uses and benefits of solar home systems. You can see a rural clinic using solar home system, a solar refrigerator to store vaccination, a rural tailoring shop using solar home system, and a teacher and students. They are studying under solar lights. Next slide, please. Yeah, we have some new initiatives. The solar mini-

grid, we have—this is our first mini-grid and the capacity is about 2.07 kilowatt and it can provide electricity at least 30 homes. Next slide, please. This is another example of solar powered irrigation pump. This is also a piloting project. The capacity is about 11.2 kilowatt. Next slide, please. We are also using the solar power for the telecommunication tower. This is a 6.4 kilowatt in the system. Next slide, please.

Apart from our Grameen Shakti structure and offices, we have created Grameen Technology Center as Nancy had already described it. We have set up 46 Grameen Technology Centers all over the country. In the year 2005, we started this technology centers and only female engineers are managing these technology centers. These technology centers are actually providing training to the rural girls and women who are unemployed and through this training, they are becoming a skilled technician and they are ready to provide their service to the clients who have been using the solar home system. These technology centers are also helping Grameen Shakti by assembling different solar home system components. They are regularly organizing schoolchildren awareness program while they demonstrate the solar home system and other innovative technologies. In this way both, they are awarding the young generation, at the same time they are doing helping micro people Grameen Shakti. Next slide, please.

Through our used efforts and activities, we are actually emitting the—we are actually carbon emission reduction. You see by installing each solar home system, we can reduce 108 liter of kerosene and yearly kerosene savings is 132 million liter and we can save \$116 million every year with the installed system by Grameen Shakti. Next slide, please.

The challenges of solar home system: the limited sector system. We are entirely depending on one source of funding, which is IDCOL. I have already explained the funding source of IDCOL. Actually, the commissioned funding in this sector is not available. Maybe some of the banks are interested to provide funding but then the rate of interest is very high. The second challenge is high organizational and operational cost. In order to run this business, we need to invest a huge amount of money and managing procurement and inventory. Since Grameen Shakti has a huge network and we are installing every month more than 26,000 solar home system, so have to manage a huge inventory. That's the big challenge for us. Providing after sales service. Since Grameen Shakti is working in the very remote rural areas, reaching to people every time is a big challenge for us. Lack of trained manpower is also another challenge for Bangladesh and Grameen Shakti. Next slide, please.

What we have learned, a SWOT analysis. Our strength, we have a vast countrywide network. We have technology know-how. We have good supply chain management. We are assuring qualitative products. We ensuring effective after-sales service and we have a strong monitoring and auditing system. In fact, we have 16 divisions I mentioned in the organizational structure and this division they are having at least three

audit teams. So each audit team, there are two staff. They are working together. So there are more than 100 audits staffs that are regularly auditing the activities of the branches.

And our weakness: lack of renewable energy technologies training institutions and the trained manpower available. It is not available in Bangladesh. Reaching the BOP, bottom of the pyramid. The big challenge—one of the big challenge of solar home system is the high it can cost. Still, the people who are earning a dollar or below one dollar, it is a big challenge to reach in to this people with the solar home system. Keeping big-sized inventory is also a big challenge and a dropout of our field staffs. The dropout rate, it is about 30% staffs there every time dropping out. It is because it is a very direct intensive work there. They have to stay in the rural areas so this happens.

Opportunities. The replicate ability of this model. Dr. Yunus says, ‘Once you start a program and it could benefit five to ten people, you have invented the seed. Now we can plant it a million times.’ So Grameen Shakti has been working in Bangladesh successfully since its inception and we believe it can be replicated in the other parts of the world. It is also suitable for inaccessible areas. It is reachable to millions of off-grid people in Bangladesh. Bangladesh is a land of microcredit. So for doing the solar home system business, people has already bought a quality packages because we are providing the solar home system within reach. The growth of RET industry and new job creation. Actually, there are more than 50 organizations who are working in the country who have—together we’re installing solar home systems. There are limited companies like [Indiscernible][0:45:28], the Lamb, the Chesterton Solar, [Indiscernible][0:45:31] such as whose business has been deadlocked.

The threats: the high upfront cost of the system is a big threat still. Dependence on imported. We are still depending on importing the solar panel. Still there are few companies producing solar panel in Bangladesh. But still, about 98% solar panels are coming from abroad. Limited source of fund and of course a big threat is natural disaster. You know Bangladesh has a disaster concern. Next slide, please. Our future plan, we are for solar. We are planning to reach two million milestone by 2015. Next slide, please.

Yet, as you—as you know that Grameen Shakti is actually working with the principle of Social Business. So, there are seven principles of social business and which it is always the people’s problems. So by disseminating renewable energy technologies, we are actually addressing the problem of energy. Through energy, we are creating jobs and we are reducing poverty and we also providing training and entrepreneurial skills which can enable people to income generation. We uphold women empowerment. We improve standards of living and we help growing other industries. We’re creating social awareness, environmental sustainability, and a main component of the Social Business is profits should be

reinvested to expand energy service for more rural people. Thank you very much. Please next slide.

Fazley Rabbi May I now introduce Mr. Islam Sharif, the ex-president and CEO of IDCOL.

Sean Esterly Are you there, Islam? Make sure you unmute yourself.

Islam Sharif Yes. Good morning, good afternoon, and good evening. This is Islam Sharif. Just to clarify in the interest of disclosure, I think Sean mentioned that I'm with IDCOL. Actually, I used to be the CEO of IDCOL which is Infrastructure Development Company Limited, in short, IDCOL. So we go ahead and say IDCOL after this from 2009 until 2012. So I guess today, here, I am, to basically challenge to all of you and I've tried to bring in some sort of wrap-up the IDCOL Solar Home System Program you heard from Grameen Shakti and Nancy Wimmer was talking of Grameen Shakti. But the program is a much bigger one. In other words, IDCOL actually has fifty partners that installs and around the program. So I'll just go ahead to the next slide and go ahead and discuss all that throughout the program.

So quick overview, I won't spend too much time on this. Bangladesh—this is how I'm going to present my webinar presentation. I won't spend too much time over it because I really want to tell the story how it all came about.

So Bangladesh is very well situated, in terms of radiation and marginal source of sun so it's a good place to have a solar program available where people can get the solar power for electricity. So I think someone already mentioned, in terms of the distribution of off-grid households. So in short, about half the country had is off the grid and of—about 50% that's off the grid, about half the people. Well, roughly 40%, they don't have electricity.

So, again, I'll come back with the story of what happened in around 2001 is when IDCOL, which actually is a financial institution, is owned by the government. It was approached by the World Bank to design a program called RERED which basically stands for Rural Energy and Renewable Energy Development in Bangladesh.

So you have seen this picture. I think Nancy had one. This is the most commonly designed solar home system It's got a panel, a control panel, batteries, and I think that that nature is pretty. Everybody on this program, I say, around thirty-one of them know how that works.

So Rural Electrification of Bangladesh how is it been done so far? There's a government local REB. They've done a few systems. There's a government department called LGED. They've done a few systems. BPDB which is again on the government agency then, IDCOL which is a government-owned non-bank financial institution, who actually

accidentally run in to this program because they're approached by World Bank to design and run this program. So I'm going to more details on that later on, and then Grameen Shakti. Grameen Shakti actually started in 1996 and they have installed about ten, or maybe eleven thousand systems right before IDCOL came in. I have a slide later on showing how actually the system installations took off after IDCOL designed the program and started running with it.

So this is for people, who I'm assuming are interested to go out and help to design a program in the future. One of my personal interests, just a little bit of information, I actually came back to the US. What I'm working on right now to see how this program can be customized and utilized for global launch. Just to give you a basic idea of this, they have to be customized for different culture and countries.

The way it works is IDCOL actually receives some funding, low-cost funding from World Bank and IDCOL, in turn—and they pay an interest. This is entirely, none of it is grant. At least the treasury funding is not grant. IDCOL receives a funding from World Bank through the government. The government adds, sort of, about two and a quarter percent of charges that covers the foreign currency risk and it lends it to IDCOL at a certain percentage. Then IDCOL, in turn, lends it to fifty partners. Grameen Shakti is one of them, the largest one. There are another 49 partners through which IDCOL installs the systems and IDCOL lends to Grameen Shakti at say, I don't know, 8% and Grameen Shakti and BRAC and RSF and there's Srizonny there. I couldn't name them all. I should remember them all one time, would lend it to the partners. They are called 'POs', Partner Organizations who would in turn, based on the IDCOL implementation modeling, including financial requirements and instruction requirements and technical requirements, would lend it to the costumers.

Now, on the left corner of the slide, you would see there are some grant making organizations, GPOBA, which is written there, a grant-based output-based funding that's usually a World Bank and some revenue program there as well. KfW, GTZ—it's actually AZIZ now which are the German Technical Cooperation.

So, again, I wanted to do this just to show you. What happened was when World Bank was approached by or, say, IDCOL was approached by World Bank to do such a program, which Rabbi mentioned in his presentation that they wanted to do fifty thousand systems. So IDCOL actually decided to sign up because IDCOL is actually a financial institution and it didn't see itself doing as well as system installation throughout the country. At the end of the day, you know, IDCOL is a company that's supposed to help infrastructure financing in the country and electricity is infrastructure. So IDCOL set out to—I guess it could eventually agree to do the program and then set out to do design the program.

This is some information about IDCOL, some numbers, as you know it. As of—I was in Bangladesh last month. As of June 2013 and these numbers are current as of June, there are 2.4 million systems that's been installed by all of the fifty partners of IDCOL.

What I want to talk about is this slide I alluded to before which is the history of solar home installation of Bangladesh. So since about 2002, before which, Grameen Shakti was the only player in Bangladesh installing systems and then, when IDCOL finally agree to come in and I spent some time in terms on how the program was designed and what basis. If you look at 2003 and then it started slowly. I mean we have a lot of things to learn.

Then, it took off badly. I joined IDCOL in 2009 and when I—again, I promised to tell you my story. I decided to go back to Bangladesh. I'm from there, originally. I was looking to do something. I was a commercial banker. I still am in my heart. I wanted to do something that I'm passionate about. When I found out that IDCOL has this program, it just happened they had an opening for CEO. I decided to apply and I got in.

So in 2009, when I went in Bangladesh, they're installing over twelve thousand systems. By the time I left in 2012, which is April, we have installed a million systems. From twelve thousand a month, by the time I left, it was forty-five thousand systems. You might ask me, 'How did that happen?' I'll be happy to share them with you.

Primarily, the program was up and running very well. When I came in, a couple of things that I observed immediately which was the reason that IDCOL program was successful was it had a particular technical standard that have to be met. In other words, any product where there's batteries, or panels, or any other accessories, that were have been sold by the partners, PO as we call them, it have to meet certain technical standards. So that was one of all the things that I think I focused on, make sure that's better.

Let me come back to the numbers. If we look at 2003 and then, at the end of 2013, I think they are going to go probably hundred thousand systems a month. I mean, can you imagine and everybody that's listening to me. A small country like Bangladesh, well there's a lot of people in it and the size is small, they're installing, well as of last month, there were eighty thousand systems a month. On an average day, I mean this is nighttime in Bangladesh. On an average day, well I don't know, eighty thousand divided by thirty, that's—I don't know. I don't have the numbers. This very high number was being installed on a daily basis. So I think about five hundred systems are being installed every day.

So I want everybody on this meeting to think and imagine for a minute. Every day, the partners of IDCOL are changing lives of 5 times—five comes from number of people on an average home in Bangladesh. So twenty-five hundred systems times five, again, I'm not good at math, but

that should be—so you are changing the lives of, I don't know, about few thousand people a day. And, no, I think the part I love most is we're changing the lives of people, especially young people. Did your kids last night they are reading on the kerosene and they have a clean solar light today. So they can actually think of being whatever they want to be. So that's where IDCOL is playing their role by working with all the partners, of course.

Islam Sharif

I wonder what happened. So there's a technical glitch.

Again this is, kind of, what's the objective of IDCOL in the future is.

These are sample packages that the partners of IDCOL actually promote. There are more of that, more than that these days but this is just to give you an idea. So I think, as of when I left in 2012, the most popular system was the 50Wp system which usually lasts for lamps, a black and white TV, and a mobile charger. I have this number of three hundred and eighty dollars on the right side as the cost. I'll go on to the next slide to talk about actually how the model works.

Again, these are just mapping of the number of systems sold in a particular time. These are case studies.

So this is my favorite slide. I mean, I'm sure all of you want to know that how does this work. So this is an example of how actually the financing method works. IDCOL, remember, is a financial institution. It is a financial intermediary. It gets the funds and finances all the partners. They have lent four, five hundred million dollars already. I think to Grameen Shakti alone, we lend them over a hundred and fifty million dollar US.

So there are two kinds of sale. One, if somebody is buying in cash, and there are people in the countryside that are able to buy in cash these days, they only qualify for what we call the 'buy-down grant.' Buy-down grant is simply to bring down the cost of a technology you just give what you can to reduce the price. That reduction in prices is supposed to go on to the customers. So if you look at an example of 50Wp system, so if somebody just pays cash to get the buy-down, they have thirty-eight dollars and forty cents and then, they pay rest.

But majority of the costumers are actually credit costumers. One of the things—one of the reasons this program is successful, as many of you know, Bangladesh is known for its micro finance programs and that was actually one of the pieces that we looked at when we designed the program.

So let me go back to how this particular financing method works. So let's say at three hundred and eighty dollars, buy-down grant of 38.40 and then, there's a two hundred and ninety dollars. This was actually given as a



credit to the customer. So from the 380, you take 38.40 down and then remaining cost is three hundred and forty-one dollars.

Now, one of the things that we implemented is we needed everybody in the chain to have this in and again. In other words, the customer is buying a system. They need to make a down payment. I mean, if they don't make a down payment, they don't already have an ownership to it. So it's like the old financial, what crises we had, people are buying homes where there are no downpayments. So they were brought carrying that much just to leave the house.

So we require the customers make a down payment. Then, we also require that the partners, the Grameen Shakti, the BRACs, the RSFs to also make a down payment. In other words, they need to—we don't finance a hundred percent of the money that they are giving to the customer. We only finance 80% of the remaining amount. So if you noticed, getting to the customer is two hundred and ninety dollars but we are giving our partners two hundred and thirty-two dollars. Purpose of that is everybody in the chain needs to have a financial involvement. It's a business. We always thought it should be business. Our objective was always to come in to do this and once it's commercialized, then, it should be on its own. I think we are there almost. Someone mentioned the cost of systems. I mean, as a matter of fact, the cost of panels used to be about 60% to 70%, at some point, is less than 30% because you could buy panels, good ones over sixty cents from what. From China and they're not the bad ones. So our concern right now, I think, is toward the panel's kicks off.

So let me finish this financing method. So customer gets a loan from a partner of two hundred and ninety dollars. On certain terms, we require them to lend them for at least 2 to 3 years and then, adding just, sort of, a certain amount, percents less 12% so they would only eleven dollars a month. Can you imagine how proud these people are in the villages? Once they have a system, they only pay eleven dollars a month for 36 months. Now, they have a system that can run for a good thirty years.

So other piece that works in Bangladesh, you might be asking, 'Why does it work in Bangladesh and not elsewhere?' The few factors I'll go over it but more the things is that there's the ownership pleasure. People like to brag about it. I mean, there are people in the villages that would say, 'I have a solar home system. How are you doing?' Not exactly like that but it's something they brag about. There are a lot of rental models globally and I have some opinion on that but I think we'll just focus on this today.

This is the amount of funding that we got from many, many organizations. Of course, this would not have happened unless all these things came into place.

So at the end of the presentation, I'll talk about how to bring about all the players and partners and design such a program. Again, one of my goals is

it's something I'm very passionate about I is why—if we can take the IDCOL model. Again, the keywords IDCOL and I'm missing a question on this. So how does it all come together? I'll hold the answer later on. I'm expecting a question on this but there are a lot of pieces to it. This has to be brought in together and managed by somebody, someone an institution.

So again, I'll just skip over this. This is just about money.

These are success stories. These are pictures of people enjoying solar home system and how this is generating income. One of the things that I personally enjoyed and I think people loved the idea of how people's incomes have changed since they have been sold the solar home system. I still enjoy a lot going to the villages talking to people.

One of my trips, I talked to a tailor. I mean, he's got this small tailor shop, one room, and I asked him, 'What's your income?' and he says, 'Three thousand.' This is a guy who has a solar home system. Then, I said, 'What was your income before you installed the solar home system?' He said it was one thousand. So his income has tripled. There are thousands of stories like that was. Actually, there's an actual economic impact to people's lives. Besides changing the lives from the angle of education for children, people are actually earning more because they can work longer, where they couldn't in the past.

These are, again—that's pictures of different activities.

So I think some of you wants to learn or find out what is, what makes IDCOL program, I guess, successful if you can say that. So IDCOL has installed two and a half million systems and I just want to run the numbers again. They're installing eighty thousand systems a month and they have fifty partners installing the systems, on an average day, a couple of thousands. So I think in our experience, the challenges on the left side.

Usually, governments lack the capacity and/or the interest or the excitement or you know, any kind of eagerness to do this. Our program, well, I don't work for them anymore. IDCOL program has been able to take advantage of—again, I mentioned how World Bank gives money to Bangladesh government. The Bangladesh government gives the money to IDCOL. So this public-private partnership, whereas, which UN, United Nations as I know only works with the government. So this could be a program where—perhaps UN can take the role but that's a different story. So IDCOL has the buy-in of the government. For example, since IDCOL is owned by the government, it doesn't have to be owned by the government but it helps if it's owned by the government or it's going to support the government. So I think IDCOL program runs well because there's an IDCOL, first of all and then, it has the relationship with the government and the private sector and NGOs.

Lack of tailored financing package, again, I think the financing model has evolved over the years. I happen to think the grant is not necessary anymore. When IDCOL started its program seven years ago, the cost of solar was seven dollars and sixty cents. So again, Capital Buy-down Program basically means that you bring down the cost of the technology. So I think we are at a stage where we don't necessarily need grant anymore or that piece of the program. I'm sure this is controversial but something that we can discuss and perhaps we need to look at. However, we do need, I think, the Institutional Development Grant whereas, a new partner coming in, we would provide this, the financing, to improve or enhance their capacity. So again, on that part is still required but if you go to a new country, maybe it's required. So again, it depends on what the objective is. So I talked about the lack—this is the key, I think.

There are many different business models. But I don't know if anybody has actually taken look at the most successful ones and tried to combine them and make one. Grant that one side doesn't fit all, but I think someone globally needs to come in and take the leadership for us, 'Look. Let's take all of these models. Have one that can work for maybe half the countries.'

So these are my own comments about subsidies. That's controversial so I limited that.

These are some extra slides.

Again, just if you are curious, what I am doing right now is I'm trying to see if we can, sort of, design a program a la IDCOL and other systems worldwide that can be launched for the benefit of other countries and that's all I have. Thank you.

- Sayed Hassan Hello?
- Islam Sharif Next up. Yup, go ahead, Sayeed.
- Sayed Hassan Yep. Alright this is—
- Islam Sharif Yep, so my apologies. So let me go ahead and introduce Mr. Sayeed Hassan with Rahimafrooz as the next speaker. Mr. Hassan?
- Sayed Hassan Yeah. Just give me a minute. It's just my computer locked out but, no, it's okay now. I'm back. Hello! This is Sayeed Hassan here. Good morning and good afternoon and good evening to all of you. Hello, can you hear me, Sean? Because—
- Sean Esterly Yes.
- Sayed Hassan Yes, okay, fine. So I will mention we have heard already from Mr. Sharif, as well as from Mr. Fazley Rabbi about the structure, how it is actually and all of these done of the solar system. I'm coming more from the

environmental. I'm coming more from the supplier. Well actually, we are supplying the systems also batteries, panels.

So, if you go to the next one, I just described the Rahimafrooz structure, how it is. The Rahimafrooz actually is a diversified group. So I'll just show you the group structure and then, the certification that we have for our, you know, the battery company and the typical installation of the solar home system in Bangladesh, then the applications in Bangladesh. We have a slide on the Ashden Award that we got in 2006 and the systems and requirements in Bangladesh. So these are actually the few slides we go through.

So if you can go the next one, this is just show the structure of Rahimafrooz. As I said, this is actually a diversified company. So I'm in the Storage Power Division where we are making the industrial battery under the Rahimafrooz Accumulators Limited and the solar battery is made here which have accumulator battery. Then, we have another sister company which is under the Energy Division, the Rahimafrooz Renewable Energy Limited and together, actually, put the solar home system together. So this is how we are actually coming from the supplying.

If you could go to the next slide, please.

So the Rahimafrooz Accumulators Limited is the one which is making the batteries. So we have actually the certification of the ISO 9001 for QMS and ISO 14001 for the environment and the BS 18001 for the environmental health and safety.

Can we go to the next one?

So as actually Nancy mentioned that if you looked into these, you know, the equipment, these are not glamorous but actually, most of the designs are indigenous. The Rahimafrooz started selling solar system in 1991, 1992 on a commercial basis. But it was very small, you know, marketed at that time because hardly—maybe can sell hundred, you know, in a month. Until actually IDCOL was formed in 1997 and it was structured under Dacron, it didn't take off but we started, actually, much earlier. If you see on the left side of the picture, there is all of the equipment and the panel and the battery. On the right side, you can see the installation where the panel is set up on a home and the bottom also there is the—how the system is connected. I think Nancy covered it quite well so we move to the next one.

Next slide, please.

Okay, so you can see also these pictures as shown by some of the other panelists before. One of the restaurant, they can operate at night. The computers have been used at some of the trainings where it was not possible before. There was no electricity. The education can actually go

late at night and some of the people can do some work even it's the electronics or something repairing work. So the life has better change in the village when the, you know, when the solar system was introduced and it is giving actually a better lifestyle for the people in the village.

Can you go to the next one, please?

Rahimafrooz received actually the Ashden Award which is given from UK for the contribution in renewable energy sector in 2006. So this was just the plaque that we received.

Next one, please.

So if you look into the—I have put here the first few numbers I'll show you. There are certain confusion in the number because I'm seeing here actually 2.3. There will be 2.4 but this is really close to the number that I'm seeing: 2.3 million. Actually, home system has been installed as of September 2013. So I'm talking about the few—last few days. So this is the—because we actually passed the two-million mark in April this year. If you look into the system range, 10- to 15-Watt systems are sold and the battery range is actually 15 to 130. So, actually, there's a ratio 1.5. I'll be giving some technical information because as I say, we come from the supply end. Number of batteries applied by the Rahimafrooz so far, out of the 2.3 million, it's about 1.3 million batteries has been supplied by the Rahimafrooz Accumulators Limited up to now from the beginning.

The solar home system requirements are noted below. It says that the battery type is actually tubular battery but these are actually what you call the flooded type and the low maintenance because we found that in the rural Bangladesh, where the high temperature is there and the temperature fluctuates in there. Actually, people taking a lot of, you know, abuses can also happen. So based on that, we found this is the best battery because we have actually distributed for a number of years. So warranty is given for 5 years of the battery and the panel warranty has to be given for 20 years.

So daily operating hours that actually is allowed, normally, it's 4 hours per day. That is how they are using the system and we have the autonomy of three days. It means if the sun is not there, it's raining. For 3 days, you should still—so the first day is sun and then, after that, three days there's no rain, the system should be still operated and give the 4 hours, you know, service and under a full autonomy period, the maximum depth of discharge of the battery allowed is 80%. So this is how the system is configured and that's how we have found that it is really working very well in the Bangladesh environment. We have actually seen battery life of going up to, you know, eight, nine, ten years.

Can you go to the next slide, please?

So these are some of the tubular batteries that Rahimafrooz is actually making. Some of them are for solar application and there are some other applications also. Some of the batteries actually go to the telecom solar application where actually it is a bigger system or also, sometimes in the mini grids.

Next slide, please.

So what has been the performance of the tubular batteries in the solar home system so far? So we have been using it since actually 2001. I put 2001 but it has been used since, you know, 1996 or so. But actually in a bigger scale, it has been started being used in 2001 in Bangladesh with 5 years warranty. These are low-maintenance type. With this battery type, it has to be maintained. That is easier to tap up from time to time but this done by this people that, you know, Grameen Shakti's presentation on selling and also the other Partner Organizations, who are people in the field who maintain those batteries. Mainly, tapping up and ensuring also that it has not been, you know, abused so because there can be situations where people try to tap into the battery directly and actually the battery is too much discharged. They cannot be charged by the solar system. So this has to be done in the field level.

The operating temperature range from 6° to 40°C because in the winter, it can go down below 6°C and then in the summer, it's up to 40°C.

So as I say, the application environment is not very controlled. Difficult to enforce sometimes the 4 hours maximum daily usages. Direct tapping on the battery for mobile charging cannot be avoided. So this actually causes some problem, especially in the batteries. So one of the successes, I think of these apart from the micro grid and all these that we know people have talked about, is the field, you know, people who are ensuring that the batteries are actually maintained, all the systems are being maintained. That has made it to successful program.

We have seen under this kind of condition, we are having an average 1% battery return per year which is actually a tolerable level and battery life so far observed in the field is seven to eight years. They have actually batteries also running up to 10 years in the field but average life we have seen is seven to eight years.

Can we go to the next one?

Actually, during the interview that was given by our MD, Mr. Munawar Moin in the Intersolar which was held in Munich in 2013, yeah, I think in June. He gave an interview to the PVTECH and he mentioned the reason for the success of this rollout in Bangladesh. I think it was mentioned by few of the previous panelists, system sales through micro financing arrangements. And also, as I mentioned also in my presentation there, besides micro financing the partner organizations are also having offices

and taking care of the systems. So this is one of the main reasons for the success.

The second one, I mean, we feel is that participation of multi-lateral agencies like World Bank, ADB, KFW in the program with soft loan facilities. As actually mentioned by Mr. Islam Sharif, this is also called the effect that in the initial stage, this was absolutely critical, but as time has gone, it is now slowly becoming a commercial rival solution. I think for the timing still, starting this kind of soft loans support from the multi-level, I think it is still a requirement.

Another one is the structured approach to rollout the program through the IDCOL, the one Mr. Sharif mentioned, the Infrastructure Development Company Limited which is actually a company floated by Bangladesh government.

System performance as per expectation      Of course, if the system has not performed, this would not be a successful program. So the system starting from the panel, the batteries, the controllers, everything actually is at least, performing to the level that we expected and also if this is what we think altogether, you know, maybe the very success will rollout which is one of the largest rollout in Bangladesh.

I think I finished my presentation, Sean, so back to the moderator. Thank you.

Sean Esterly

Alright, thank you, Sayeed and I just want to thank all the other panelists of the great presentation. Now, we do have—we did have quite a few questions come in. Unfortunately, we're not going to have time to get to all of them but we do have a couple minutes. So I'm just going to start with the first question as they come in. And I want to let everyone, all the attendees, know that I will be emailing the questions along so that people can answer on their own time.

So with that, I would like to start with the first question and it goes back to one of the earlier presentations. I believe it might have been Nancy. The question was, do the electrification figures of 28% also include the two million solar home systems disseminated in Bangladesh or is that 28% only representing the grid-connected household?

Islam Sharif

I think that number was quoted by Yasemin.

Sean Esterly

Ah, Yasemin, could you—did you hear the question?

Sayeed Hassan

Was it Nancy, really?

Yasemin Erboy

Hi, Sean. Could you repeat the question again, please?

Sean Esterly

Yeah and again, it was either directed at you or might have been directed at Nancy, as well. Do the electrification figures of 28% also include the

two million solar home systems disseminated in Bangladesh or 28% only representing the grid-connected household?

- Yasemin Erboyl Ah, so, I should clarify that filled in for one of my colleagues, today, who was sick and could not give the presentation but I can look into where the numbers came from for whoever is interested and I would guess that the number does not include those that already been...
- Nancy Wimmer [Laughs]
- Yasemin Erboyl ... connected in some way or you could have even access to electricity but we can definitely look into that.
- Sean Esterly Alright, and I can—I'll email that question along as well. So we'll move on to the next one, then. The next question is regarding the Shakti model. It just mentioned that it's widely known as the Shakti operates within important support from subsidies and the question is, do you believe this model can be a successful in a 100% market-based approach or should all practitioners look for a combination of subsidy and credit?
- Fazley Rabbi Do you want me to answer?
- Nancy Wimmer Yeah.
- Sean Esterly Sure, yeah if you're—
- Nancy Wimmer I think that Sharif has the best answer to that but I'll follow up when he finished.
- Islam Sharif I think Rabbi was going to say something. Let him finish then, I'll come after that.
- Nancy Wimmer Oh, Rabbi, okay.
- Fazley Rabbi Yeah, actually ever since 2002, Grameen Shakti has been operating successfully in the sustainable way. So we are making enough profit to run our business.
- Islam Sharif So, I think if I may jump in, I'm actually, I'm in the middle of designing a program and I'm actually testing it out. So to answer the question is the buy-down grant is probably not necessary anymore in all countries which, based on the cost of the system. However, there's still reluctance from the commercial financing institutions in all parts of the world to come in and finance in groups this kind of program. So I think, again, you know, this is not something I've analyzed really closely but I'm in the middle of doing it. Whereas, the need for a low-cost financing, concessional financing is still necessary but the grant portion, I think, is anti-productivity, anti-efficiency. So I am, in general, at a point I think grant because the solar home system prices have come down to, I don't know, about half, 50% of



what it used to be three years ago. It's not necessary anymore but concessional financing is still a requirement.

Nancy Wimmer May I add something to that. This is Nancy. It's a—almost a superstition that so many people maintained that Shakti depends solely on subsidies. It's probably done with other companies as well. The main point of the presentation is rural business in Bangladesh. Shakti was founded, not as a project. It was founded as a business. From the day one, its purpose was to breakeven and then to create profit. This is the recommendation for all companies that are going to start with rural electrification. Not to be there for only a few years and depend on subsidies but to become—to be a market-based company, and eventually be able to support itself. This has happening with Shakti. I devoted a great deal of time in the book to describe exactly how Shakti was funded in the beginning. Yes, it had to get loans. It had to get grants. Otherwise, it couldn't have started. This is important for start-ups but how it gradually managed to leave these and the important role of IDCOL. So that's the magic combination, actually and that is something that I hope this webinar has helped to understand.

Sean Esterly Thank you, Nancy and thank you, everyone else. We have time for one more question. It is addresses to Mr. Rabbi. So we'll start with him but then, obviously, others can provide further information. So the question is, how do you handle all of the data generated by rural branches? So how do you control and monitor the thousands of daily new systems installed and then how do you collect payments? And to tie in some other peoples question how do you ensure payment?

Fazley Rabbi Well, we have about twelve hundred branches all over the country and we have the started computerization of all the branch data we have set and we have one hundred and sixty-six information centers. According to the structure of Grameen Shakti after the branch, we have regional offices. So there are a hundred and sixty-six regional offices are—or maybe even computerized and all the data are coming from the branches to these from the central information center. And thus, we are actually—we have a center so far and we are actually getting all the sales and other information every day at the headquarter.

The collection, when we install the solar home system, this is a must for, not only Grameen Shakti for other, any kind of business to provide after sales service. Without ensuring after sale service, this type of business cannot grow. So we have signed an agreement with the client to provide three years free after sales service after the installation. So our staff has to go every month at least once to collect the installment to the costumer house. And at the same time, when he is collecting the installment, at the same time he is building the system and whatever the support or service the system requires, he could do it during the visits. I hope this would answer.

Sean Esterly Yes, thank you very much and that unfortunately is all the time that we have today for the questions. Again, I will—I received all the questions. I have the contact information from when you—all the attendees registered for the webinar. So I will forward those questions along so that panelists can answer on their own time and with that, I'd like to just ask that all the attendees just take a very brief survey. It's just three questions that provide feedback to the people hosting the webinar and also the panelists. So, Heather, if you could just play the first question, please? That question is the webinar content provided me with useful information and insight.

Sean Esterly The next question Is the webinar presenters were effective?

Sean Esterly The last and final question is overall, the webinar met my expectations.

Sean Esterly Alright, thank you for answering those survey and on behalf of the Clean Energy Solutions Center, I just like to extend a thank you to all the expert panelists that were able to make it here today and to our attendees for participating in today's webinar. We had a great audience, a lot of questions that I will forward along, and we very much appreciate your time. So I invite everyone to check out the Solutions Center website over the next few weeks to view all of the PowerPoint presentations and also, to listen to the audio recording of today's webinar as well as any of the previously held webinars. Additionally, you can find information on upcoming webinars and training events. We also invite you to inform your colleagues and those in your network about Solutions Center Resources and Services including the No-Cost Policy Support. Hope everyone has a great rest of your day and we hope to see you again at future Clear Energy Solutions Center events. This concludes our webinar. Thank you.