

# Innovative Business Models for Energy Efficiency Financing

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Webinar Panelists

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<b>Mark Hopkins</b>	UN Foundation
<b>Jonathan Maxwell</b>	Sustainable Development Capital, LLP
<b>Bruce Schlein</b>	CITI Ban

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**Vickie**      Hello everyone, I'm Vickie Healey with the National Renewable Energy Laboratory and I'd like to welcome you to today's webinar which is hosted by the Clean Energy Solutions Center in partnership with the United Nations Foundation. Today's webinar is focused on Innovative Business Models for Energy Efficiency Financing.

Before we begin, I just wanted to make one note of mention and that is that the Clean Energy Solutions Center does not endorse or recommend specific products or services. The information provided in this webinar today will be featured in the Solutions Center Resource Library as one of many best practices resources reviewed and selected by technical resources. I mean technical experts.

Just a few housekeeping items, before we begin I'm just going to go over some of the webinar features. First for audio, you have two options. You may either listen through your computer or you may listen over your telephone. And if you choose to listen through your computer, please select the mic and speakers option in the audio pane on the right hand side of your screen, by doing so this will eliminate the possibility of feedback and echo and other background noises.

If you choose to dial in by phone, please select the telephone option and a box on the right side and again in that pane on the right side of the screen will display the telephone number and audio pin you should use to dial in. And panelists we've already asked you to mute your audio devices, but again just a gentle reminder to do so unless you're presenting. Also just real quickly, if anyone is having any technical difficulties with the webinar, you may contact the help desk at 888.259.3826 and they'll be happy to assist you.

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I have the URL link there displayed on the screen. You'll be able to find this presentation and also other formative Clean Energy Solutions Center webinars and video interviews with thought leaders on Clean Energy leader topics. So today's webinar agenda is centered around the presentations from our great panelists. First, we have Mark Hopkins from the UN Foundation. We have Jonathan Maxwell and Bruce Schlein. And these panelists have all been very kind enough to give up some of their time and share their experiences with us on today's webinar.

So, before our speaker's presentations, I'm going to give a very short informative overview of the Clean Energy Solutions Center initiative and following the presentations we'll have a question and answer session where you can participate and the panelists will address your questions that you submit. Then we'll have some closing remarks and a very brief survey. Next slide please. Okay so this slide provides a bit of a background in terms of how the solutions center came to be. The Solutions center is one of thirteen initiatives of the Clean Energy Ministerial that was launched in April of 2011 and it's primarily led by Australia, and other United States Ministerial partners.

Outcomes of this very unique initiative includes supportive developing countries and emerging economies through enhancement resources on policies relating to energy access. We provide no cost expert policy assistance and peer-to-peer learning and training tools such as this webinar that you're attending today. The solutions center we have four primary goals.

First, we serve as a clean house of clean energy policy information resources. The solution also serves to share policy best practices, data, analysis tools and other resources specific to clean energy policies and programs. The solutions center we deliver dynamic services that enable

expert assistance learning and again peer to peer sharing of experiences and lastly we foster dialogue emerging policies and innovations that are occurring around the goal.

Our primary audience is energy policy makers and analyst from governments and technical organizations in all countries but we also strive to engage with private sector and GEOs also in civil society. We have a marketing feature that we like to highlight and that is our Solutions Center provides an expert policy assistance and we call this very valuable service, “ask an expert”. Again it’s offered through the Solutions Center and we’ve established a broad team of over thirty experts from around the globe who are available to provide remote policy advice and analysis to all countries and the service is provided at no cost.

So for example in the areas of buildings, we’re very pleased to have on our expert team, Sesser Trevino who’s the leader of the Mexico Green building counsel. He serves as one of our policy experts in the building sufficiency area. So if you have a need for policy assistance in building or any other clean energy sector, we encourage you to use this free valuable service. And again this assistance is provided free of charge. To request this assistance, you may submit your request by registering through our “ask an expert” feature at [cleanenergysolutions.org/expert](http://cleanenergysolutions.org/expert) and we also invite you to spread the word about this service to those in your network and other organizations.

So in summary we encourage you to explore and take advantage of the solutions center resources and services including the expert policy assistance that I just mentioned. Explore the database that we have of clean energy policy resources. You can subscribe to our newsletter and also continue to participate in our webinars.

So now I would like to provide a brief introduction for today’s panelists. First up we have Mark Hopkins of the United Nations Foundation. Mark directs the UN foundations to incorporate strong energy efficiency commitments in international agreements and help countries employ energy efficiency through the UN Sustainability for all the initiative.

Following Mark will be Jonathan Maxwell, who is the CEO and Co-Founding partner of Sustainable Development Capital LLP. And following Jonathan we’ll have our final presenter who will be Bruce Schlein. Bruce is the Vice President of Corporate Sustainability at CITI Bank. So with those introductions complete, I’d like to welcome Mark to the Webinar, Mark thank you for joining.

**Mark**

Well Vickie, thank you so much for that introduction. Today we’re going to explore a couple of approaches to financing energy efficiency. This is an important issue in the whole effort to try to expand our global adoption of energy efficiency. Of course, most energy efficiency comes from the decisions we make in terms of policy.

For instance, the countries adopting a high efficiency appliance standards doesn't necessarily require any financing, improves performance in refrigerators and when consumers go out and buy a new refrigerator that is, we make improvements in that area. We're a building codes so we put in place policies to build better buildings, more efficient buildings and there maybe some costing price to that but that's usually incorporated into long term financing of any given building. There's a range of these sorts or policy options.

However, there is a whole area of efficiency improvement that requires financing often many cases that may be internally generated resources, say a commercial building owner or someone who owns a manufacturing facility, but there is a whole range of customers who would need financing to make more major improvements.

And to be frank this has been a problem for some time because of a whole range and barriers of the size of most energy efficiency loans are relatively modest in terms of other forms of financing. Unlike financing a car we have an asset and we don't pay the car, somebody can take the car back. They have recourse on that financing and for energy efficiency often that is very difficult. We're not going to rip installation out of a building, pull out the windows, that sort of thing. So there's a range of barriers that exist on energy efficiency financing.

But, there is a huge market potential in that area and there are a number of people at financial institutions who are now tackling new ways, new business models to deliver energy efficiency and financing that overcome some or many of these barriers and so as part of our efforts here at the UN Foundation in supporting sustainable energy for all UN initiative, especially as it relates to energy efficiency objective to double the improvement in energy efficiency by 2030 we've had a focus on outreaching to the financial community and trying to identify these business models and promoting their greater use.

So today we have two examples of different approaches of innovators who are weeding this effort. And first we're going to hear from Jonathan Maxwell who is the managing partner at sustainable development capital. That is an investment firm in London who is doing some very innovative work that he's going to be telling us about, then Bruce Schlein is Vice President of Corporate Sustainability at CITI Bank.

So without further ado I will turn it over to Jonathan and have him tell us about what he's been doing and how we should be thinking about energy efficiency financing. Jonathan?

**Jonathan**

Thank you so much and thank you Mark for inviting me to make this presentation, which I will keep short unless we have, questions later. Just a little bit of a background of Sustainable Development Capital, we're actually seeing an acronym for the specialist manager. We only invest in

energy efficiency projects and I'll distinguish that very quickly. We invest in projects not companies. So our funds are tied up to projects that reduce the margins of cost energy and through the outcomes of those projects. So we fund projects that save energy based on the things we've generated.

As a quick overview, business is primarily three jurisdictions today although we're expanding our footprint at a rapid pace. All three are based in the UK, Ireland and Singapore. They all share common shares and features. They're all pretty much the same thing, which is energy efficiency projects in return of shares generated. And they all also I should say share common characteristics with very little government backed. So to go through these very quickly and show some examples of what we've been doing.

The UK fund was our first institutional fund that we launched in September 2012 that's now operating in our investment program; 50 million pounds came from the Greenland investment bank in the UK. That's a British governance investment bank. That's a capital commitment made mainly investors that fund. The other 50 million pounds that have come in are invested alongside of the Greenland investment bank with other sources like corporate strategic investors, European financial institutions and some UK property and infrastructure invested.

So very, very interesting mix of government and private sector investing side by side and well able to Sustain Energy Efficiency projects. The fund specifically targets projects in the non-domestic, nonresidential sector so we have four main strategic investors in the market. One can be buildings; another can be actual leader or sector buildings, secondary, it's a very huge opportunity that we've been working on very closely.

[inaudible] [00:15:54] industrial he uses from sustainable sources like the four barriers of infrastructure. That will be straight lighting, district energy schemes. So those are the four major ways of focus routes that investment purposes funds. We identify projects, we work with energy service companies and house to create a financial solution and once we're done with an infrastructure and accounting structure, the legal structure we make an investment and in return with a project.

So the UK fund we are able to replicate more or less the public modern. The public modern for a fund manager to manage a fund, just like the UK energy efficiency investment fund we are very pleased when we mandate through the publication process. Government of Ireland also really for an investment funds, we've invest in the energy fund in Ireland secured investment from private sectors and in this case one of our investors in the UK. Classical and strategic investor in Ireland, so we actually achieved the first closing fund a few weeks ago, announced the first investment.

You'll see the investment focus from the slide you can see that the investment focus for that fund is very similar to the UK and will be the

underlying building for infrastructure that we focus on otherwise clammy as public sector service through the agriculture which is a huge part of the Irish Export economy. Lots of commercial assets like hotels that we're very big on in that area, France street lighting which is a massive initiative for a large government to switch and other forms of energy efficient lighting.

Then lastly Singapore, Singapore like the UK and Ireland doesn't have interestingly enough subsidized energy. One of the things that makes energy efficiency work in all three jurisdictions is the government is very serious about achieving energy efficiency for their economy. The second thing with those countries is that energy crisis are high and they have been rising and not really subsidized to a great degree.

So in Singapore particularly motivated to this energy market and energy waste. Not least sure long time economic in the manufacturing sector, so Singapore working with the corporation on an economic level of Singapore. It's very for the manufacturing sector. It's going to be an industrial efficiency certainly like a speech. So in a manufacturing focus in Singapore, so those are our three funds. We've already around December, about six months ago we had plans to launch a new fund later this year and we're considering other markets as this market is becoming more proven.

I think in each case the most important thing for me for the last couple years as we've been putting these funds together is just as important as the investment funds that have been committed to us and how we have been investing in that category. Energy efficiency for the next is relatively small, relatively complex and all of this to deliver a project in the set skills required for me; contracting, accounting, you know structuring expertise, we've had developers especially for competitive skill being in energy efficiency schemes.

So the costly of the titles is very specific investing capabilities here. The results of that is understanding is relatively the market and that we have managed to deliver a number of energy schemes, which I'll talk about for two seconds. Again one of the things that we've been using that's a part of investing and secured against the damage is of course the host party and building against the infrastructure or directly lending to the energy service investing in projects themselves our returns of functions and savings of the outcome of the projects.

The realtor project financing awfully a very small scale for the size of the projects, the history here are a few examples and then I'll let Bruce move on to his success in the US and the collaborations they're working on together, I'm very pleased to say. I'll just give two or three examples of things that we've done and in July in last year, July the 3<sup>rd</sup>, we invested in a project to reduce energy demand for one of UK's industrial industries

which is called Kingspan group. They're very well known in the UK, a very huge supplier: installation, installation goods.

So if you like the green energy efficient company but the problem was that the place that they make the tunnels, they've got the biggest tunnel manufacturing facility in the world in North Wales and we found in terms of the escrow that we've been working with that from the huge energy efficient opportunity and factory.

So we, what we adjust controls to look at the engineering side that they've put together, it's a pretty more that they've put together for the plan of Kingspan and we want to controls the Kingspan and translate that and work on that investment grading into a slow contract. Instead of paying the upfront cost associated with the contract, Kingspan can instead procure the list of service where they decide this fee they will pay and be less than the savings they'll be generating by an energy performance contract which owns the controls.

So Kingspan realtor is a real important deal to us in the UK mark they were the first off balance sheet full funded energy performance contract that is kind of the industry industrial sector and the structure will be replicated in a number of different environment for both public and private sector clients since thing.

Second thing that we did, one of the complaints about Kingspan is that it's a business. It's business people. It wasn't necessarily known more broadly. We're very pleased in December we put a real household then, a real house hold name which was national car parking, NCP which is the biggest supplier of its kind of car parking. In the UK most of car parks in town, underground, multi-story car parks, car park NCP, obviously spread a large amounts of money on lighting in particular. So the switch from the existing lighting stock to another form of energy efficient lighting may the huge amount sets for the business.

Again the problems upfront of cost and the contract associated with the deal to provide a solution investment of that place in all the NCP is unable to tie it to the which is covered by the savings being generated over a period of time. So that was another interesting project and then a third one which I think caught attention at the public sector here, which in the health service in the public sector in the UK, and actually health service is the biggest user of energy expenses. My number here is hugely out of date in twenty eleven, twelve it was 900 million pounds a year of energy so electricity prices have been going up every year substantially. The numbers are higher.

Certainly the biggest energy is in the UK. What we did, the oldest which is in the UK is in Bogs Hospital and I think it was built in 1924 from the combine heat and power solution using GE technology and HP engines. We fully funded the ph solution and then majority in most cases cost

associated on a couple of savings. Again the hospital is in a good position. There's no upfront cost and they're able to use the savings generated to help pay for the project and use a great light.

So I think, going back through those examples with the done deals in the industrial sector buildings, we've done deals in the private sector in the building and logistics and we've also done deals in the health care sector and we've been working on new transactions. In building, what we've done in the past one of the gratifying things for us is that most of our clients for us when building a new structure and to come back in a month or two of completing the last project they want to understand the value of money that we can offer instead of what we can use using our fallen assets.

This is not becoming much more mainstream replicable, scalable model for us out in the UK. So we're very pleased to see the progress in the UK and actually I spent so much time of installations in the UK that maybe when we moved into the public we were read from the beginning so yeah we announced that weeks ago. Instantaneously we announced the firm, which is of seven large schools for testers, one of the UK's many testers we gave those schools lights and in that case 540,000 in Euros every year in energy for our investors.

So we've been very focused on this space for a long time. We learned in our early years how applicable this market was. We also announced hopefully corporate a mobile which we were able to replicate in many other countries having a public sector on board and enormous help from the governments perspective, market perspective but, we do expect this market to grow substantially going forward and we want to be a part of it.

**Mark**

Thank you Jonathan. It's very interesting. I hope we have some great questions. There's a few I want to ask you when after Bruce presents. Next we'll hear Bruce Schlein from CITI Bank on an approach that he and his organization has been taking to open up this market. Bruce, please.

**Bruce**

Mark hi, everyone. Thanks for the introduction and the opportunity to speak today and Jonathan, good to be back in touch with you and Vickie thank you for the introduction. So, I'm just going to take a few minutes to walk through what looks like a very complicate matrix that is up there on the screen but I will walk through it in a way that hopefully makes sense to everybody. The matrix in front of you is one that we at CITI have put together to help us understand the market and the various approaches that are available in the market and to help organize our efforts to help catalyze and scale energy efficiency and to do so with a line of sight to bridging to the capital markets and helping to establish energy efficiency as a new asset clause.

So the verticals or going across the top of the page there these are different property types. We are organizing our efforts by property types largely



because we are thinking about how to approach this on a portfolio basis and to build pools of like activity, and by like activity I mean that the hosts or the underline property owner is a similar credit if you will. The credit profile of the owner, the characteristics of that profile are largest enough for us to be able to work with them on a portfolio basis.

And so starting from the left, I don't know if this is a universal term or not, in the US we refer to MUSH as the municipalities, university schools and hospitals. We then have the federal space, single family residential, multi-family residential and corporate and industrial. Before I go to the product solutions, let me just say a little bit about these different property types and how the credit profile informs our ability to work on portfolio basis so many of these property types have publicly available information about the equality of the owner.

So in the case of MUSH, Corporate and Industrial, those are typically publically rated organizations in terms of the credit quality. In the case of single family residential, again in the US we have a score that is available, a biker score that we can use to understand and assess credit quality. The reason why multi-family and commercial show up as yellow is the harder to do, the reason that is the case is because in those two property types it is possible of course to understand the credit quality of the owner of that property but it is difficult to do on a portfolio basis, it's not comparable information or comparable information as it is in those other categories.

So from our perspective and our approach thinking about a portfolio of let's say a couple hundred commercial buildings as oppose to a couple hundred or a couple thousand single family residential buildings is a lot harder to do because we would need to figure out how to analyze each of those commercial properties independently. So what's interested about that point is that you can see that those columns become easier to do depending upon the product and solution.

I'm not going to go through this whole matrix but this is just one important point that I want to make is that in the case of commercial the significance of understanding the quality of the credit decreases when there are other instruments available to help insure repayment. So for instance in the case of property assessment energy or ongoing repayment those are two mechanisms where another institution is using some mechanism to help insure that a loan is repaid. In the case that there's a lean on a property in case of on bill it is the utility, utilizing its remedies for insuring payment.

In both of those cases I will also add that it does depend on how those products and solutions are structured and those are part dependent upon policy mechanisms so in the case of on bill repayment for example whether or not the payment for the commodity charge and the payment or repayment of the loan is treated equally or paired too, is an important vision because if for instance a property owner paid a partial utility bill

and that partial payment went all to the commodity charge and not to repaying the loan that would present difficulty obviously for the lender.

And so how these products and solutions and underlying policies are structured does matter with respect to providing market actors like rating agencies and institutional investors, the information and conference they need to be certain about the likely hood of repayment. So on the left hand side you see there a list of a number of different ways that energy efficiency can be financed. And I should of started my comments by saying that, I think me and others reviewed that there is no silver bullet at least not yet and that the fragments of market by property type and by geography and by a number of dimension policies and that this does at this point in time require or merit different ways of approaching the financing of energy efficiency.

And let me conclude with just giving a few examples off of this page where we and others have been able to make some progress. The names on this page which are underlined are projects or transactions that CITI is involved in and we've put a few others up here from other organizations that we're aware of and who we received permission from to share their progress as well. So let me start with, I'll just mention a couple that I think are interesting and are worth spending a little bit of time on.

Under single family residential, so column three row two, Pooled Asset deal, in the last six months we have put in place two warehouse facilities where they are purchasing loans that have been originated through other platforms who either in the case of Kilowatt a private company, consumer finance company that has originated loans across the US to be able to loan secure loans to home owners or energy efficiency improvements or appliances and in the case of Wheel, the originators or the originating platforms are public programs; state and local programs that have in some cases been in place for a number of years, lending to households for the same purposes.

We are working with these two clients to help provide them with a bridge to the capital markets if you will by purchasing loans from them, warehousing them and then getting them to a size and format that is appropriate for capital markets investors. And this I think is significant in the sense that one of the challenges in this space has been the lack of that bridge if you will. So there are capital markets investors we know that wanted to employ capital into this space and on a project side one of the challenges have been building sufficient size and characteristics that meet those investor requirements.

So we are working toward these two instances with the goal of helping those programs grow and scale and replenish their capital and give them access to less expensive capital by securitizing those portfolios. Another example that I should mention, maybe two others quickly or three others quickly, we are working together with Jonathan and his company on a

project in London where CITI is the both the host or the property owner as well as the debt partner on the deal and this is for one of our plant centers and we're really excited about this and the model that Jonathan and his team are promoting and developing in the sense that it allows for us to pursue deeper and more retro fits with accounting treatment that is important to us as far as it being off balance sheet.

A couple of other examples just quickly another one in that last column I think is an interesting one to mention. This is a corporate bond issuance that was done by Unilever in the last month or two where they disclosed that the use of proceeds of that issuance would be dedicated to improvements of their properties and a number of different markets around the world. So this interesting, this is in the Green Bond category where issuers are disclosing to investors specific use of proceeds and allowing for investors to play capital for specified use and so in the case of Unilever their use of proceeds in this case is largely for efficiency improvements.

I believe there are some in more ways than other dimensions of built environments that their consuming, a lot of it is energy related. I think I will, Mark why don't I conclude there. Happy to answer any questions and look forward to the discussion and thanks again for the opportunity to speak again today.

**Mark**

Well thank you Bruce. That was very interesting. We usually questions come in from people participating in this, but let me ask a couple of questions that came to my mind as you all were talking and first, maybe this will be directed to Jonathan. In the three examples you used, two of them in Ireland and the UK, the government has made a, in essence you used taxpayer dollars to invest in this effort. From a public policy point of view to try to get these kinds of investments off of the ground, I wonder if you can discuss to what degree that has been a critical element in moving this effort forward in an international effort of energy efficiency.

There's often a great deal of focus on public partnerships which conceivably is about the idea of limited public dollars being able to use and stimulate much use of investment from the private sector and it seems what you're doing is a clear example of that and maybe if you can express that and how all of this is from a public investment from that side, so Jonathan?

**Jonathan**

Okay thanks and I think [inaudible] [0:44:53] you're exactly right. What we're doing is a public partnership and it has been a really important part in getting the young market moving and building up confidence. And I think the confidence instills in building that infrastructure that we have been entrusted with private as well as public money investing into these projects and before I get onto the terms here that are important, the effective parts in the market are understandably that if you are a host in infrastructure and dealing with us at least you know that we have to have the high standards of governance support so that's been a very, very

important part with the confidence build exercise, you know someone of the public and NCP and industrial commercial site speak the city of its kind. But an important feature that we have prevalent for government for making these investments certainly.

That's also the case in Singapore. I think that helps confidence and that helps propagate the concept of energy efficiency. It's been hard to move renewable energy cost and action today. Bruce has mentioned some of that we believe in and have gotten as a partner have been very helpful for confidence building. I replied earlier to the science and complexity the skill sets the fixed agencies for infrastructure. That's my background and my colleagues however to fix those markets we created it to fix itself other than the efficiency market business.

Having the governance to reach the markets in which we operate Bruce is backed into the large amount sheet that the large sheet has. We suffer a disadvantage but that's partly really collaborations that we have. So that's sort of the real life side. It's something that I believe in whole-heartedly. Also it creates business global and so we have not been encouraging the government to provide anyway self-capital into the market place. What we have been doing is focusing on design of business models. We focus on countries and projects where savings is the capital cost over a reasonable time.

In business tastefully building more infrastructure can provide a range of financial solution and [inaudible] [00:48:38] tons are reasonable and commercial and that's also the basis that the government is project basing. They're not providing us with subsidies they are investing side by at the same time professional institution investors are investing. But they are in the same investment return at the same time and private sector institutions also. That's an important feature that the government here in the UK and the UK investment bank has invested in our firm under the same terms as everyone else.

It's actually the same in Dublin. There are investors in terms in that case to major institution investors. So to answer that question yes it's been important and it's also a model that we are expanding because we believe in it and we've been doing this for a long amount of time. We see what works and what doesn't in the public, private partnership combination you know project investment under reasonable terms. This is starting to work. We have to be able to solve accounting problems for clients who is why we need specialist expertise behind us is extremely important. We try not to raise in China that case a large part as a partner in China. We have an energy business which happens the energy market will be big in renewable's. We're extremely impressed with their work in the United States and certain states less uniting have a very, interesting approach and opportunity. A good combination of support from the market prices range and some of us in the market might even replicate in the US.

So to answer your question, yes it's important and yes it's working and yes we like to carry on in the sectors.

**Mark**

Thank you Jonathan. I like to see Bruce, that chart that you had. Maybe the Solutions Center can bring up the chart you had. I wonder if you might go through a few of those blocks to indicate what you see looking towards the future, the clear opportunities in a few sectors related to the product, the solution in which you see over the next few years. There's a lot of potential in making changing colors in boxes where you would like to see public policy focus on that would make a difference in terms of liberating financing for energy efficiency.

**Bruce**

Sure, so I think I would start Mark by saying that if we were to figure this chart based on square feet that commercial, that multifamily and commercial those are big, big buckets that for us are harder to do and I think that there are a couple of ways of getting at them. I did mention a couple of policy related ways to try to tackle them where as I said earlier paste an on build provide which are only dependent upon policy.

Do both provide provision for implied credit enhancement if you will and I think another area of that that is interesting is this notion of hybrids and what we mean by that is there are many organizations that fit in that last column with C and I, corporate and industrial column that have relationships in the two related columns; multifamily and commercial. And those relationships might be property management relationship or franchise relationship, or supply chain relationships, but some relationships between the two where the C and I entity has a good understanding of those properties both potentially from an energy sector relationship from a credit perspective or an economic liability perspective.

And so what hybrid is suggesting there is that a C and I entity would use some of its credit capacity or balance sheet in some fashion to help assure the repayment of loans by the property owners in those two segments and I know I think Jonathan perhaps, you may have some views on this as well it's in some respects it might be understand or appreciate that that is an aspiration ask of let's say of the C and I entity but one can imagine a world where that C and I entity might pick the top ten percent or some percent of the portfolio of those properties which we've recently have this relationship and be willing to provide that type of support that I mentioned for let's say the better performers.

And I did think in general in this case since this still is relatively new at least at the scale that we're pursuing, I do think that we should enter into a construct where what's being done today is being socialized with credit and risk folks and rating agencies and with investors and that a level of comfort is achieved that then will allow for us and others in the market as a whole to start tackling harder to do stuff.

So I would say, Mark going back to your policy question, I think anything that policy makers can do to help overcome those hurdles and get us to a place, as Jonathan said you know we want the market to be sustainable and part of getting to that level of sustainability does require some socialization you know working through new things, you know working through the new can often be helped by policy or public support.

**Jonathan** So Bruce, this is Jonathan. I would like to say something.

**Bruce** Oh go ahead please.

**Jonathan** When you say C and I for the credit, do you mean for private sector has provide a credit.

**Bruce** So I'm imagining that a private company that has interim relationships with private is owned by others where they have an understanding than anyone else how well those properties perform for an economic standpoint. And based on that knowledge might perhaps in a shared savings or some shared fashion take on some of that risks.

**Jonathan** I know the reason I asked I think your pointed to something that is really important. For an investment perspective there are two really big risks involved with many of these deals, so I can call the residential market public and private commercial sector. The risk can credit the possibility of structure and the performance risk and investor in that case is a great factor risk of the host party risk of the supplier actually. As an investor we have found to get ourselves quite comfortable with the manage, the construction operational risk project and reservation techniques and performance calamities and plumbers I like to think that the infrastructure to investor with the familiar an asset it says the challenge is credit.

And I can't answer your question directly, we did actually solve this problem around the credit in December extremely I'm pretty good in a good way, we're interested in investment that the credit of NCP was challenging but we look for investment grade or better for accounting for the NCP credit was a challenge because it was private equity and in that catalyst what we did was secure a credit guarantee from two counterparties and we selected one over the other but we found the credit solution through the private sector market but the actual solution question was actually an insurance sector a scheme that the British government produced here in the UK which is called the corporate guarantee scheme and it is designed to guarantee elements of the infrastructure projects with national strategic importance.

So in that case we have really considered energy efficiency that's part of the scheme that we are successfully able to argue energy efficiency which is critically important infrastructure project and that's successfully secure a credit guarantee which actually we made it happen to be honest and frankly we have a backdrop in the private sector. We have insurance

company credit. I think what is really important which is one of the big factors actually can make some of your processes difficult and I think one of the solutions we found have some great credit quality client quality and another one that we have done is to be creative in infrastructure guarantees for clients and that makes it happen. I think it's a really good idea to put on the table of leverage.

**Vickie**

Great. Mark and Jonathan and Bruce, thank you so much for this great presentation. Mark did you have any follow up questions to the one that you asked? We have several from the audience so I can start with those if, if we are all good. And Jonathan the first question is for you and it's really a two-part question so I'll start with the first part. Regarding with the government backing that you mentioned were you referring to a guarantee or something more along the lines of collaboration such as a cost share or co investment activity?

**Jonathan**

So in the UK and Ireland there's been a co investment with public sectors so in both place both to share in a sense that the capital that we investing on the same terms and at the same time of investing capitals. So to answer your question in the UK it's actually some private investments in our firms. In Singapore it's slightly different. I would describe it more of a collaboration in Singapore. There is an element and that I forget a more important part of it is the actual action and support by the Singapore government you know to communicate the energy efficiency investment to manufacture investors in Singapore can be manufactures and to help us get closer to the market both with energy and companies.

So Singapore is a very hand on promotion for solution. You go to Singapore economic website you'll find details about how it can be available so for the most part it's co investment but it's also hands on corporation,

**Vickie**

Thank you Jonathan. Real quickly the second part to this question in locations where escrow is small and don't have a lot of collateral for a loan would you recommend energy savings from a project rather than escrow collateral?

**Jonathan**

Right. That's what I said we don't take a model with security packages and the balance sheets nor the large ones in escrow. Our security we're investing in terms of the project. So therefore that's the size that matters to us in some respects no and some respects yes of course this is the forms of the project. We have worked with small energy sectors that are a big deal. But in most cases we'll assign warranties or revenue structures, construct structures at the host that we set off the energy sector companies. That's just a few examples in the UK about 18 months ago at the time pick of one but we secure initially the performance levels of construction that we translate that to the energy performance back on the ones we insures.

Test with support that the energy service can provide the appropriate performance guarantees so we have done this in escrows. But in that case we typically include another technique in the state performance risk.

**Vickie**

Great, thank you so much Jonathan for that very well worded and comprehended answer. This next question Bruce I believe is for you. It's a bit general but the question is what amount of assets are needed to proceed to cure the sensation?

**Bruce**

That is a good question. I think it is fair to say that at this point in time in this sort of early stages of secondary market activity that those institutions who are securing curizations are stretching if you will to size transactions that are smaller than what is typical or optimum. And I think typical or optimum is in that 200 250-bottom end of typical and optimum is around 200 and 250 million.

The facilities that we have, one is 100 million with kilowatt, the other is 25 with Wheel on wheel our intent is to issue medium turnouts so over the course of the year we can imagine that it's doing 100 million worth of notes there was another deal for a portfolio of case loans in California. That too is 100 million. So it seems like you in these early days and in these first fields the sizes seems to be in that range sort of 25 50 100 we're imaging all of the minds that the potential for the growth is quite significant that the activity reflected in those deals are surfaced in this case the single family residential market in the US. And that we're hopeful that the ability to bring cheaper capital to bare the other scaling that is taking place not on the part of the planning side but the execution side, marketing side, and others will help grow those numbers.

**Vickie**

Great thanks so much Bruce. This next question is actually for both of you Jonathan and Bruce. Jonathan you had mentioned a fund in China and the person asking this question is asking if both Bruce and Jonathan can talk a little bit about the opportunities that you see around energy efficiency and emerging markets such as China and others.

**Jonathan**

Bruce Schlein gave a quick observation on the need to address that.

**Bruce**

Sure

**Jonathan**

So first thing to mention for us as a firm and the energy efficiency story or the opportunity starting in China. The concept certainly has been a challenging market for us to achieve results that we wanted to. So in the meantime we're developing China's strategy. You know we have launched funds in three other markets. We're very, very pleased to approach the China market this year.

What's really challenging it's a very different market and structure. Very different forms of contract in the UK, Ireland, Singapore funded based on English or China so the commercial drivers and capital are all very



different in China so what we found as a form is that we need to be invited and that's capital and access the fund that we have started to put together with our partners the opportunity to co invest with and that case in China mostly in the noncommercial public sector state and underground and what all we're looking at, a large clinical structure. There are a number of relatively large scales of the government and large private sector deals going forward.

What we're also looking to do in addition to the sector agencies provide technology and we also identify that China efficiency technology solutions, the technologies that can help address energy efficiency opportunities so it controls optimization and we have successfully in the UK and Ireland we will be looking at opportunities in China if we can pull through the technologies and apply them in China.

So what we developing for China is that yes it's building on the investment capabilities but it's also keeping an open eye and fast technology as well as financial solutions. I think the opportunity in China is enormous and I think the market to remain in China is the right or some form of public parts it's so important. In terms of other emerging markets I think the biggest challenge is the first one I mentioned is the investor and will not be lending to a contracted industry based on the outcome of the contracts and the strength of our ability is really important and doing that emerging market context.

Just challenging doing it at least under the English law, I think that is the answer to the question. But Bruce you probably got more experience than I have in this sector.

**Bruce**

I'm not so sure about that Jonathan but I concur with Jonathan's remarks. At the moment we are geography agnostic and credit focused. So Unilever is actually a good example. In the case of Unilever they are improving Unilever facilities in China, South Africa, Russia a few markets where they are deploying that capital for building performance improvements and so that is one half way to getting to the emerging markets. Certainly by no means a sufficient one to get to the magnitude of opportunity that exists but that is one way that we can see it starting.

**Vickie**

Great thank you both for your answers to that question. Jonathan again this question is for you and I love the specificity of the wording of this question so listen carefully. The question is what could the hypothetical king of the city of 100,000 people with a mix of public and government housing, a government lateral for the university in my industry do to help track the businesses like yours to capture energy efficiency? Did you catch all of that Jonathan?

**Jonathan**

Yeah, I think I can [inaudible] [1:17:09] also it's important, there are three elements that moves a company like ours to try and put together a public private partnership investment in energy efficiency solution deals it's

these three conditions of the operations that are very clear. Number one in a government support we do not ask to put anything on the table with energy efficiency with provided their own subsidize energy efficiencies which are suppressing energy crisis so that's what I said in UK and Singapore there are not subsidies materials going into the market. They are increasing with the market. On the backing process we don't ask government to add subsidies but with current waste so building codes and regulations recommend the government to do energy consumption 90 days because it can be at least all of today's building infrastructure.

I would say with today's community particularly to say 20 to 30 percent all of the mandating of the energy use in the public sector to sort of speak energy adoption in 2020 so that's one spectrum that building codes and regulations are important to the market in the UK after 2017. Commercial properties they may not be allowed to rent their buildings out if energy standards allow it. So we created through regulation the building in a cleft creates a leveled playing field in the market. On the market side the conditions we look for under the policy bracket are relatively high and electricity fights it in particular you know typically find that in the risk of subsidy and a third is the limitations of what we do you know we do a lot. We develop and secure structuring we have balance sheets that we put together to make this happen only the best in the world, which is why we're working with Bruce to our project.

What we don't do is add from coast to coast in operation and maintenance. We are not an operation where financial solutions have. So what we do for any company we go to it's a project. In the UK there are over 100-company facility management, specialists that goes and manufactures and honor still based on very large and small specialist I'm pleased to say. So I'm very pleased to say a hypothetical space the enlightening to support the right market and monitor the right prices.

**Vickie**

Great, thank you so much. The next question is for both Jonathan and Bruce, and the question is if Jonathans funds lends to escrows the energy efficiency projects would it be a good idea to pull the loans and securitize them after and there's actually a second part to this question and if so would it free up capital for the escrows and enable them to implement more projects? And Bruce would you like to take the first crack at it?

**Bruce**

Jonathan do you want to take this one?

**Vickie**

Or whichever sorry.

**Bruce**

Oh sure, I think the idea in general is spot on. It does depend somewhat property type by property type and what you're describing is the general model that we pursued and there is another transaction we closed with a company called Green campus partners which is akin to what you're describing is a facility that they can use for doing retro fits on a portfolio basis. I mean the short answer is yes. For a more perspective that is where

we want to get to across the spectrum is to figure out how to effectively aggregate and scale and provide these portfolios of basically fixed income cash flows for investor that are looking for those types of opportunities like pension funds and insurance companies. Jonathan I don't know if you want to add or,

**Jonathan**

Yeah I was getting myself together and within making available funds for escrows for projects, we did need to review each of those projects on a deal to deal basis and in the event of a couple energy services I like to deliver a project, such frame or parameters then we'll take it all seriously and see if we can get it financed but I completely agree by providing a capital we free up the escrow and we keep the business capital like the assets of the time and not limited situation and situation for the projects as well. Projects have gone 4 or 5 years on the short end up to 12 years plus on the longer end. But absolutely we're added for the projects and the escrow.

**Vickie**

Great thank you both. This next question is related to Green bond funding and the question is when commercial projects tend to be longer why is that bond funding is lacking in the sector given that the number of parties is small and this can be a solution that can be identified easily and just a bit of disclosure on the person asking this question, they represent bond investors who are looking for investment opportunities in this area but see few.

**Bruce**

I think one way to answer that question is that the bond does not provide the accounting treatment that SCCL does. So, that is one reason I think why we are not seeing as much uptake of the use of bond issuances for efficiency improvements.

**Mark**

Bruce would you explain what you meant by accounting treatment.

**Bruce**

Yeah so there are a lot of industrial incorporate companies that have set thresholds for what they can finance and those thresholds preclude their ability to do everything that might make sense from an economic perspective or it might make sense from the enterprises greenhouse gas goals and targets. And so a corporate has three choices. I guess I should also say that many corporate that have been at this are exhausting the opportunities that meet that criteria, so you're basically left with three choices I think. You can stop in which I don't think anybody wants to do or the collector meeting its environmental goals. You can change those criteria which would mean reallocation of capital and potentially using the policy of a bond issuance or energy as oppose to some other business activity or you can seek third part capital and my sense, since this is largely what Jonathan is pursuing and SDL is pursuing is that you know option one we should take off the table which means the towel and reduce of admissions.

Option two: I just don't have a sense that even though the activity might be of use of capital you know it's not the core activity of the business to consume energy services or energy improvement. So that third option pursuing third party capital I think makes the most sense, seems to be gaining traction and does put the activity in the hands of entity that want to be and are best suited in the business whereas the corporate may not be, but if you think about this in the instance of copying service. We outsource that too. We don't want to operate and own copying machines we want that to be in a business that has that expertise I think is similar construct and I think I would ask Jonathan if I have that right to speak on his behalf but that is my sense of where I think Jonathan is.

**Jonathan**

Yeah I mean this is using our solution and I think the only thing is of three reasons one of which is importantly made around music capital. All companies have scarce capital and that's usually directed into corporate that solutions focus and even if they are they are typically however attracted to an institution contractor that is the first reason.

Second reason is risk techniques that we are able to help deliver and the third is energy and that goes back to my previous point solution we're presenting is a solution that we're presenting with a balance sheet so that goes, Green bond I would think would be enabling others. There are governance in bonds but of course that is not the use of proceeds, it's direct of which is for the business. Typically that is not the way to get a sensitive clients are looking to gather fundamentally looking to grab something quite simple and trying to gather a service and equipment. So we combine equipment together with elements of restaurants but in both the cases we have outcome off of balance sheets, which are important for the customers so I think you got the background of that.

**Vickie**

Great thank you. Gentleman, Mark , Jonathan, and Bruce thank you so much I was just looking at the clock and realized that we have hit our time limit for the webinar and I'd like to thank. We still have a few questions from the audience. Interesting presentation has definitely generated some questions and thoughts from the audience and I would like to try to get answers for the people who have asked some questions after the webinar. So can I send to you a couple of the remaining questions now for responses?

**Jonathan**

Sure, absolutely.

**Vickie**

Great thank you. And so with that,

**Bruce**

Likewise

**Vickie**

Oh great thank you so much. So with that we are going to take a very quick survey but before we do I would like to offer the opportunity for our presenters any closing remarks before we go to the survey.

**Mark**

Well this is Mark Hopkins and I just want to thank Bruce and Jonathan that whole discussion for me was informative and I hope our listeners did too. I think this is in a past couple of years with Jonathan and Bruce and a number of others there's been more progress on energy efficiency financing the last two years than it's been in the past twenty. I think this is a whole area that is really going to grow. And not only one that needs to grow, but I think there's a business here and starting both US and UK I think there's a spread quickly because there is plenty of demand and thanks to the Solutions Center, doing a great job.

**Vickie**

My pleasure, thank you Mark. So with that I think Heather if we can move to our first question in our survey there. Three very short questions we would like to have audience feedback so that we know how we would like to improve what we're doing with these webinars and understand what we're doing well and what we need to improve on. So our first question is, the webinar content provides me with useful information and insight and we'll give you a few seconds to answer this question. Our next question, the webinars presenters were effective. And our third and final question is, overall, the webinar met my expectations.

Thank you all for participating in the survey so with that I would like to say on behalf of the clean energy solutions center I'd like to extend a very hearty thank you to our steam and expert panelist today and of course send a thank you to all of our attendees participating in today's webinar. You've been a great audience and you provided us with great questions and definitely added a terrific value to our presentations. Just to let you know you will be able to review the slides and listen to a recording of today's presentations which will be on the Solutions Center website training website and also will be adding this to our [YouTube channel](#) in a couple of days.

And additionally if you go to the training page you will find information of other webinars and events. And again we ask you to please inform your colleagues about solutions center resources and our services including the no cost assistance including no cost policy support that I mentioned earlier. With that I would like to wish everyone a great rest of your day and we hope to see you again at future clean energy solution events. This concludes our webinar.