

Front-Runners in Energy Renovation Policies: What Can We Learn From Them?

—Transcript of a webinar offered by the Clean Energy Solutions Center on 29 April 2014—
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Webinar Panelists

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Sophie Schapp	Policy Analyst, Global Buildings Performance Network
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Sean Hello, and welcome to today's webinar, which is being hosted, by the Clean Energy Solutions Center and also the Global Building Performance Network and today's webinar is focused on the front runners in energy renovation policies and what can we learn from them. And one important note of mention before we being our presentation is that the Clean Energy Solutions Center does not endorse or recommend specific products or services, information provided in this webinar is featured in the Solutions Center's resource library as one of many best practices resources review and selected by technical experts.

Now before we begin, I just want to go over some of the webinar features for audio, you have two options. You can either listen to your computer or over your telephone and if you choose to listen to your computer please select the mic and speakers option in the audio pane, doing so will just eliminate the possibility of feedback and echo. And if you choose to dial in by phone, please select the telephone option and a box on the right side will display the telephone number and audio pin you should use to dial in. And panelists, we ask that you please mute your audio device while you are not presenting and if anyone has, is having technical difficulties with

the webinar you may contact or go to webinar's help desk at the number at the bottom of that slide which is 888-259-3826.

Now we encourage anyone from the audience to ask questions at any point during the webinar. To do so you may type your question into the question pane and submit it there and I'll present those questions to the panelists at the end of the webinar during the question and answer sessions. And if anyone's having difficulty viewing the material through the webinar portal, you will find pdf copies of the presentation at cleanenergysolutions.org/training and you can follow along as our speakers present, also an audio recording of the presentation will be posted on that site within about a week of this broadcast and the GPDN will also be providing a live tweet of today's webinar and attendees can use the hashtag globalbuildings to follow the live tweet and also participate in that.

Now today's webinar agenda is centered around the presentations from our guest panelists, Jens Lausten, Sophie Schaap, Lindsay Robbins, and Conny Peterson and these expert panelists have been kind enough to join us to provide insights in to how to introduce and to develop a best practiced policy package that contributes to realizing a reduction in energy consumption of the residential building stock, what factors are significant in driving change and what the market's condition and technical developments are behind best practice renovation policy packages. So before our speakers begin their presentations I just want to provide a short informative overview of the Clean Energy Solutions Center initiative and then following the presentations we'll have a question and answer session where the panelists will address questions, submitted by the audience, closing remarks and then a brief survey.

Now this slide provides a bit of background in terms of how the Solutions Center came to be formed and 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 is primarily led by Australia, the United States and CEN partners. Outcomes of this unique partnership includes support of developing countries through enhancement of resources on policies relating to energy access, no cost expert policies, computer, peer learning and training tools such as the webinar you're attending today. There are four primary goals for the Solutions Center, first goal is to serve as a clearing house of clean energy policy resources, second is to serve to share policy best practices, data analysis tools specific to clean energy policies and programs, third, the Solutions Center strives to deliver dynamic services that enable expert assistance, learning and peer sharing of experiences and then lastly the Center fosters dialogue on emerging policy issues and innovation from around the globe.

Now our primary audience is energy policy makers and analysts from governments and technical organizations in all countries but the Solutions Centers also strives to engage with the private sector, NGOs and civil

society. Now one of the marquis features is that the Solutions Center is happy to provide is the ask an expert, which is a valuable service that has established a broad team of over thirty experts from around the globe who are all available to provide remote policy advise and analysis to all countries at no cost. Hold on, I'm sorry, I'm getting some feedback. And so for example, in the area of building we are very pleased to have Caesar Travini, leader with the Mexico Green Building Council serving as our expert. So, if you have a need for policy assistance in buildings or any other clean energy sector we do encourage you to use this useful service. Again it is provided free of charge. So to submit a request, simply fill out the form at the Ask an Expert feature at cleanenergysolutions.org/expert. We also invite you to spread the word about this service to those in your networks and organizations. So, in summary we encourage you to explore and take advantage of the Solutions Center resources and services including the expert policy assistance, the data base of clean energy policy resources, subscribe to our newsletter and participate in webinars like this.

And so now I'd like to provide brief introductions for our distinguished panelists today. First up our first speaker is Yens Blossom, a senior policy expert and advisor at the Global Buildings Performance Network. And then following Yens, we will hear from Sophie Schnap, a policy analyst at the Global Buildings Performance Network. And then following Sophie we will hear from Lindsey Robins, a senior project manager at the New York State Energy Research and Development Authority, where she manages Phase I of the cleaner greener community programs. And then our final speaker today is Mr. Connie Peterson, who is president of Swedisol, the Swedish trade organization for the leading insulation companies. And so with those introductions, please join me in welcoming Yens Blossom to today's webinar.

Jens

Thank you. May I get my slides on here to welcome everybody and do a very small introduction to the webinar but I'm not one of the important speakers here. I'm just introducing. Next slide please. First a few words about the Global Buildings Performance Network, some of you might know us from one of the previous webinars we host but we are a global network, having a global agenda trying to put buildings on the global agenda but also having a regional presence in India, China, in Europe and in U.S., where we work together with different organizations and we are starting up new activities in India, no sorry, in Southeast Asia and we try to develop recommendations for policies. Show what policies are working and develop information about business practices and potentials and more. Next slide please.

We have, can I have the next slide? We have looked into the climate change issues and we have done studies on what are the potentials. What are the possible scenarios for the future and we have, as it's shown down in the right corner, looked at what would happen if we have a frozen policy scenario. We don't do anything more, we would have an immense increase in energy consumption in the building sector because of the

growth, in particularly in the emerging economies. Then the second party we have looked at, what would happen in case we implement the current policies but we implement them the best possible way and we do them more business than we do today, that would be the blue scenario, which is still giving us an increase in energy consumption. Finally we looked into what would happen if we implement best practice around the world and try really to do a step change or a totally transformation of the market for energy efficiency and only in that case it would be possible for us to get a reduction from the building sector. Next slide please.

The deep scenario, as we call this scenario where we go for implementing the best practices is meaning that we are up-scaling the development of state of the art buildings and policies so that we can follow this part and we need to implement that very fast, meanings all countries need to move quickly and implement this kind of policies within the next ten years. Next slide, please. This slide is just illustrating what we are trying to achieve. There is a lot of policies which can help in developing what is today, the best of the market to become the hundred percent of the market or the major part of the market, if you click on more time it will show that this is normally taking like twenty years, or what we have seen before, and one more click and we want actually that people do this in only ten years. So it's a very ambitious framework we have. When we look at the emerging economies, it's highly new construction, which is important but if we look at the developed part of the world and in particular Europe and U.S., it's renovation that's needing to take place and it's deep renovation and it's more renovation and therefore we have worked on developing this new tool which has been led by Sophie Schaap, will give you more details on the tool itself and I will leave the floor to her to introduce you to this new tool. These are just some of our reports for, next slide; Sophie will take over here.

Sophie

Hello there, good afternoon or morning, depending on where you are in the world and thank you for your attendance. My name's Sophie Schaap and I'm a policy analyst at the Global Building Performance Network and I'm the person in charge of the development of our existing building project. So firstly, I want to provide you with a bit of background to the GBPNs existing building research project on more and deeper renovation. Basically, this, our fundamental goal is outstanding deep renovation as, Yens Blossom mentioned earlier, so last year we published a report that's called, What is a Deep Renovation?. We found deep renovation to be quite popular buzzwords in the community at the moment and we felt that there was a real need to harmonize this and define it. So we looked at the differences in regions in the EU and the U.S. and we're using a sort of consensus seeking process with the group of experts in the field of renovation. We came up with a final definition for, or a few final definitions for a deep renovation or a deep retrofit.

So the next part of our project or overall research project was we then wanted to find a set of state of the art criteria for a policy package that

targets energy renovations. This fits into the new policy tool for renovation that we published this month. And with the findings of this tool we present you with a webinar series that we are involved in right now today on how to save energy using energy renovation policy methods. The aim here is to take a deeper dive into how to set up a best policy package using insights from best practice jurisdictions.

So now I'm just going to give you a quick overview of my presentation, I'm going to initially discuss the rationale behind the webinar series and then I'd like to talk about the policy comparative tool, the methodology behind it and.

Sean

Sophie, sorry to interrupt, but your audio is coming through a lot more static than it was earlier. If possible to change something, either, I know you have another computer there maybe it would work that one.

Sophie

Give us a second, we're just going to try something, maybe if I speak into some headphones it might work better. Can you let me know if this sounds any clearer?

Sean

That's a hundred percent better.

Sophie

Oh, well, then that's perfect, we shall continue.

Sean

Thank you.

Sophie

I just need to re-track where I was. Okay, overview, so yeah, we're, I'm going to discuss the sort of the tool that really, was, allowed us to introduce this webinar series and then I'm going to talk about this sort of subject matter of the webinar which is overall performance, how the sort of success stories of two front runners in energy renovation policy. And finally I'm just going to conclude by introducing the topics of the up and coming webinars. So why have we decided to host a series of webinars? Well, what we really want to do with this webinar series is to provide you the viewers and policy makers, hopefully, with some in depth insight into how a jurisdiction uses this specific policy measure or combined measures to renovate their building stock. So experts from best practice jurisdictions have been invited and will be invited to present their knowledge and insight as to how the policy measures that were adopted in their regions was successful in reducing consumption in residential buildings. The webinar series will provide insight into the challenges and opportunities of the best practice jurisdictions have faced during the implementation of policy measures and hopefully outline key factors and lessons learned that are significant in driving this change that we want to see. The webinar should provide people with a platform or a platform for jurisdictions to learn from the practices of others.

So I'm going to discuss our tool a little bit that we've just promoted. Taking it back a few years in 2012 the GPBN developed a methodology

for defining best practice building codes which targets new buildings so now in 2014 we're moving on and we want to add to this collection of tools that GPBN have and so now we've set up a set of criteria that will be used to define and support the up-take of state of the art renovation policies. This tool that we have identifies key themes and elements that support the development policy packages and it also analyses and compares best practice policy packages based on the things and elements identified.

So I'm going to discuss the criteria with you, how we came about deciding or finally coming to a consensus the state of the art criteria. Okay, well you can see the final criteria at the top of this slide there and to basically come up with this, a consensus process was encountered or established to develop support in criteria and some questions that could be used as a tool to determine whether a renovation policy package contained best practice elements. So we used an expert committee help us here, a group of thirty experts who know about renovation policy and have been working with renovation policy for their lives almost so that was what really gave this criteria the stamp of approval it required. So the final criteria we came up with, we have six things along the top row there. You can see regulatory measures, building assessment, financial instruments, economic instruments, capacity building and over performance and then under these we have fourteen sub-criteria that form the bases of the state of the art renovation criteria. The methodology really used to develop the criteria included a desk top study of current literature, expert input, and a peer review process.

Then we also have defined a methodology to identify best practice jurisdictions and for a region or jurisdiction to be accepted, to be deemed a best practice region and to be selected by the GPBN to be analyzed it must have met a series of criteria, firstly the jurisdiction must've already have, of course, an active policy package supporting the uptake of renovations and hopefully aspects of energy or deeper renovations within this policy package. And secondly the jurisdiction must've significantly reduced the energy consumption of their residential building stock. This was a bit of a tricky part as well. So initially we ran a literature of new process of current best practice renovation policy, we then run this past our experts for the first round of selection and then we looked into the consumption data of all the different states in the U.S. and all of the different countries in the EU and finally narrowed it down to six regions in the U.S. and six states, no six states in the U.S. and six countries in the EU. So I'm going to go over some of the key findings from our tool. Firstly, energy renovation policy is really an emerging field and we found, along with our scoring committee and experts that there still is scope for further progress. We're only touching the sort of, the base of what we could be doing in the environment. Secondly, holistic policy package must be in place and it must address many aspects of a renovation process. Thirdly, this is quite a big one, there is really no such thing as an overall best policy package and

all countries and states can benefit from best practice sharing which is what we're trying to do today.

Financial mechanisms need to be locally adopted and linked to broader national renovation strategies; we found that many of the best practice regions lack a presence of short term implementation plans or roadmaps to lead the way to realizing their targets. Also, although there are many national targets for renovations, national targets for reduction of energy or reduction of carbon dioxide emissions, there really is an absence of clear ambitious targets for the renovation of existing buildings or generally in buildings themselves.

Okay, so, I'm just going to quickly discuss this first webinar, I think we've gone over quite a bit. So we've invited jurisdictions who've successfully reduced their residential consumption to present their own specific success story. We believe at the GPBN that the overall performance of a quality package is quite critical when analyzing whether the package can be defined as having best practice elements. Although most of the best practice jurisdictions have actually managed to reduce their consumption indicators. There have been two real golden stars that have the steepest and greatest reduction that were found in the past ten years and this is New York and Sweden. So a little applause to them really. For this I'm really proud to present Lindsey Robins from the New York State Energy Research and Development Center and Connie Peterson from Swedisol. They're going to provide us with insight into how these two jurisdictions have successfully reduced the energy consumption of their households in the past ten years. Finally just a quick overview of the webinar series in general. This is the first webinar and thank you all for being present. We're talking basically about front runners who have successfully reduced their energy the most.

Our second webinar is going to be held at the beginning of June and is going to be looking at energy saving targets, whether it's overall national or building and renovation related. The third webinar is going to be held around the beginning of July, open by a special guest that we won't name yet and we'll look into how labeling and certifications schemes lead to energy reductions and if they need to be linked to a package of measures. And the fourth webinar will be held after the summer, which is quite a topic for everybody to be discussing at the moment is how can we finance energy renovations so we're going to take some insight from best practice jurisdictions on how they've managed to go about doing this. So thank you very much for listening and I hope you enjoy the webinar.

Lindsay

Well good morning everyone or good afternoon depending on where you're located in the world. My name is Lindsey Robins, I'm with an organization called NYSERDA in New York State, and I'm really happy to have the opportunity to be here today to talk to you about some of the successes we've had with implementing clean energy in the residential sector. For those of you who don't know, NYSERDA stands for New York

State Energy Research and Development Authority. Most people in New York State don't even know what it stands for, this very long name; we really stick with NYSERDA because it's easier to remember. Basically what we are is a public benefit corporation, was established back in 1975, however we essentially operate like a state agency. For the first couple of decades we were around, really from 1975 up until 1990 the majority of what we did was what our name says, research and development. While we've continued to do that since the mid Nineties really since then the majority of our staff and budget and responsibility has focused on running the state's clean energy program. And really, we run programs that address all sectors, commercial, industrial, agriculture, but what we're going to talk about today is mainly focusing on the programs that impact the residential sector, including everything from single-family homes all the way up to very large apartment complexes.

So this is our mission statement and as you can see we really are focused in both improving the state's economy and its environment. And we focus mainly on innovative solutions related to energy in order to accomplish that. But we are far from being the only organization in New York State that is working towards that mission. I think it's definitely a big asset to New York State to have an organization like NYSERDA, there are only a few other states in the United States that do have an entity like us that's really focused specifically on these issues and has a mission dedicated to them. But the real key to this success that New York State has achieved is the fact that all the entities that you see here are actively collaborating on energy related issues in the state. We have our public service commission that regulates the electric and gas utilities, they collect rate payer surcharges that fund the clean energy deployment programs, they also have a staff that works collaboratively with both NYSERDA and utilities to design and run those programs. We have our governor's office that sets the state's policy agenda, sets bold targets for energy and renewables also launches special initiatives that address current issues with energy in the state. We have the state legislature that can establish programs or initiatives via legislation. We have municipal and investor owned utilities that collect rate pair surcharges and work with NYSERDA to collectively administer clean energy programs. We have New York State, other New York State departments that we actively collaborate with and some cases co-run programs and policy initiatives with. And in New York State we actually have fifteen hundred different municipal governments in the state, all of which have the ability to implement policies and programs and, you know, public policies on their own.

One of those, of course, is New York City, who is no small player globally or in the United States, especially when it comes to sustainability policies. On that of course there are many community benefit organizations and non-governmental advocacy organizations that we collaborate with on policy outreach and program related matters. So I was really delighted to hear from GPBN a few weeks ago about the fact that New York State has

performed so well in the study that they did and really have the opportunity to think about, you know, what it really is that has led to New York State's success. It's kind of neat to have the opportunity to think about it from that perspective and pulling together this presentation. These are kind of the key factors that I came up with that I really think contribute to the success that we've had in the residential sector.

I'm going to walk through each of these in more detail but in a nutshell I really think the strengths that we have are, one the fact that we have a relatively long history of running clean energy deployment programs and as a state we've harnessed a lot of funding to support those programs over the years. Two, the fact that we've had the opportunity to shape a lot of what has happened on the national scale by being the first to try out and implement some of the innovative residential related programs and policies that have gone on in the United States. Three, the consistent political support we've had from the top down, from our current governor, Andrew Cuomo and governors in the past, the legislature, our mayors and municipal governments. All of which have set some ambitious clean energy goals and helped the state to harness the necessary resources that have merged to achieve them. Four, the fact that we've placed a great deal of emphasis on the importance of bottom up solutions and strategies that are engaging people on the community level so we're really coming at this from both sides so it's top down policies and bottom up engagement and solutions which I think is especially important on the residential sector. And finally I think the key factor to our success is the focus that we've consistently had both with policies and programs on market transformation. We're not just incentivizing good behavior or mandating it but really helping the market to adapt to deliver effective solutions on its own.

So starting off with funding and experience, we've really been lucky enough in New York State to have sixteen years of experience running great public funded clean energy programs. It can really take a while to get these programs right and even after sixteen years, we're certainly still working to make them even better but, you know, essentially practice makes perfect and we've had a lot of time to learn over the years what works and what doesn't in administering these programs. Another key factor is what I talked about before, the fact that this state, as a state, we've been working together for years across departments, across municipal governments, with utilities and not for profits and many other partners to design policies and programs that work and to take advantage of the multitude of know-how and resources in both the government non-profit and the private sector. We've also been fortunate enough to harness a lot of funding to support our clean energy work. And not just federal funds but funds that come from the state itself. The rate payer surcharges and from our participation in the regional greenhouse gas initiative.

So, to give you a little bit better idea of how funding programs and some policy initiatives have been proven over time. I pulled together this

timeline, which by no means shows all of the key events in energy in New York State but just a few important ones that I wanted to highlight. In 1996, New York State deregulated utility markets meaning that utilities were no longer responsible for generating electricity or gas rather focus instead on the distribution of those resources and at the same time that that happened the state government and the public service commission thought that it was important to create some programs that would ensure good stewardship of our energy resources. So they instituted the first rate pair surcharge at that time to fund programs that will transform the marketplace, encourage energy efficiency and keep energy affordable for low income households in New York State. And that was really the beginning of the SPC or assistance benefit charge funding stream and program which as you can see from the bottom of the timeline are still running and their fourth generation today. So the state when they started this needed someone to fund those programs and NYSERDA had been around at that point for a couple of decades doing R and D and also, you know, state energy planning and research and development and we seemed like a good candidate to do that so they gave the primary responsibility for designing and administering those programs to NYSERDA and we've been the primary person running those programs in the state ever since.

Going a little bit farther down in 2004, the public service commission instituted another portfolio standard, this time to support renewables specifically both on the commercial scale and on the customer focus scale. We refer to that funding stream as the Renewable Portfolio Standard. And then in 2008, another portfolio standard was put in to support specific electric and gas savings goals the state had set for itself and that was called the Energy Efficiency Portfolio Standard or EEPS which funds programs that require electric and gas savings to meet our state target. In that same year New York State began its participation in the Region Greenhouse Gas Initiative which brought in a new type of funding table. So for those of you who don't know, the Regional Greenhouse Gas Initiative or we refer to it as RGGI, was the first mandatory cap and trade program in North America, it involves nine different states, each of which use the proceeds from carbon options that occur in the states to fund different types of programs and clean energy initiatives and that's a non-rate pair funding source so we have funding clean energy programs in New York State which is great because it is a little bit more flexible than an average rate pair source. So moving on to kind of the next point of leadership and innovation some of the pluses to having a diverse set of programs that have funding sources and starting early in the program game, so we got the opportunity to really be a part of creating some of the program standards and training certifications that are now used nationally in the United States in the residential marketplace.

The home performance energy star program which provides standards and guidelines and supports the work necessary to improve the energy

performance in existing homes is now used throughout the country and was initially piloted and developed in New York State. We were the first to implement the program and so we've really been fortunate and had a longer time to learn what works and what doesn't in running in our state which definitely gives us an advantage and of course has given us more years to acquire savings from that program. Same with the energy star certification for new construction multi-family high rise buildings just based off of a pilot program designed and run by NYSERDA, the first four buildings in the country to receive that label were built here and really because we've been doing this for a long time a large majority of the energy star label multi-family buildings in the country are still located in New York State. And in order to serve all these innovative residential programs that we've been running since back in 1996 was really near the qualified workforce so we also had the opportunity to work very early on with an organization called the Building Performance Institute to develop certifications and training for residential energy professionals that were really based and developed here and are used nationally today.

So we've also had the chance in New York State via New York City to enact some of the most innovative legislation which is, one of the best and known examples in which, is New York City's Greener Greater Building Plan which addressed all of New York City's large buildings which are defined as those that are over 50,000 square feet. So that included, sorry I think we've had a few technical difficulties, I think I'm back on now, can everybody hear me?

Lindsay

I'm going to keep going. So the Green Greater Building Plan addressed all large buildings in New York City, which are defined as those that are 50,000 square feet or larger. That includes commercial buildings but the majority of those buildings are actually multi-family residential buildings, 75% of the buildings that were impacted by this legislation were residential buildings. Some of the key factors from this legislation was that it mandated annual bench-markings plus energy audits every ten years for those buildings and also enacted stricter energy code requirements and some workforce development policies. Even though this is a New York City lead initiative it's also another great example of how the whole state kind of works together and why New York State has been successful. NYSERDA and many other state partners collaborated with New York City to support the legislation with technical resources, funding for training and New York City has really worked to use the legislation to drive people into participating in State funded and run clean energy programs. So it's really been something to stir both sides. So another key factor in the success that we've had is really the great political support that we've had, you know, from the top down in the State.

We've had tremendous leadership from our current governor, Andrew Cuomo, and from previous governors as well. As I mentioned before we have a robust network through state and municipal governments, agencies, regulators, all collaborating together to implement some of these policies

and programs. Clearly, you know, our participation in the state's decision to participate in RGGI has brought a lot of different great resources to the state that we can use to run these programs and one of the really great things that we have that happens in New York State is state energy planning. So really developing comprehensive state energy plans to think strategically about how we want to use energy and how we want to promote clean energy going forward. We developed our first state energy plan back in 2002, we updated that in 2009 and are currently in the process of updating another one for 2014 and that kind of leadership has really been a key factor in that. So the Green Jobs Green New York program is something that I want to talk about as an example of a successful community based strategy. It's a great example of how we've tackled issues both from the top down and the bottom up.

Green Jobs Green New York is a RGGI funded NYSERDA run program. It was originally mandated by the New York State legislature and it focuses on providing technical assistance and financing for residential buildings and small businesses that want to invest in energy efficiency improvements and it also supports the training of service providers. But even though this program is mandated by the legislature and is run by NYSERDA which is a statewide organization, I think one of the keys to its success was the fact that we really spoke of community based outreach strategy that put a large amount of the responsibility for finding participants, conducting outreach and helping participants navigate the program, it really put a lot of that responsibility with strategically selected community based organizations around the state that have really strong ties to their communities and can tailor their outreach strategy with the specific needs of their constituents. And I think that led in large part to the success of the program. Another advantage of the top down program that we succeeded, that had a lot of success from engaging people from the top down, the bottom up is our Cleaner Greener Communities Program.

This program was enacted by Governor Cuomo in 2011, really with the idea of empowering the ten different regions in New York State to help them develop sustainability plans and then to implement projects from those plans to ensure that we're actively working to improve the sustainability of our communities throughout New York State. We're one of the first, the first state in the country to create comprehensive regional sustainability plans for the entire state and I think this was a really tremendous effort creating these plans really happened on the community scale in each of these regions involving, you know, hundreds of different municipalities and thousands of active participants, real citizens on the ground that sat on working groups and contributed to the development of these plans and now feel invested in their communities and in working towards sustainability and I think that was a real tremendous success of the program.

So the final point I wanted to touch on was really the idea of market transformation and then key role that plays in programs that we've run in

New York State. What you see here is something called the Energy Innovation Chain which is something that NYSERDA uses internally to make sure that we're approaching our program design in the right way so that we're really taking new energy efficiency strategies or technologies and kind of bringing them all the way through with strategic interventions along the way to take them from the point where their new and get them developed and get them out into the market place and so this is something we really think about is, you know, taking something and helping it evolve throughout the full process to the point where it can really stand on its own and become a standard practice in the marketplace that doesn't need incentives or other types of things to support it. So one of the things we do when it comes to market transformation that we really focus on, especially in the residential sector, for those of multi-family homes is creating an educated workforce and market mechanisms for delivering clean energy services.

As I mentioned before, you know, we've place a lot of emphasis on training, we've put a lot of funding in training, you know, really on the multi-family side we've also put a lot of time and effort into developing consulting firms and people who are really out there delivering this service to building owners. You know helping to support their business development, helping to support their training and really ensuring that as a state we have a low bus network of service providers who can provide these services and that we're not just having those people be available but actually helping them develop their business plan so that ideally in the future they don't need to rely on incentive programs in order to get customers but they can show customers the value they can bring to the table just on their own as a service that help people save money and save energy. Another thing that we do is really actively utilizing information from the programs that we run in order to inform the market place.

One of the things that we've done on the multi-family side is see how one of the few programs that actually measures energy used before and after renovation so that we can really see if the savings the projects are predicting are going to get with energy models is whether or not their actually getting those. That's obviously important to customers that are considering participating in the program, it's also important to the finance field and whether or not their interest in providing capital for these projects that they really think they're going to save the energy their predicting they're going to save. So we've used some of that resource research to try and get it out to the market place to provide that information and use that strategically.

Another thing we've done is try and find creative strategies to stimulate actions in the market place that, you know, aren't necessarily associated with incentives or even with legislation. One of the things we've done in the state is partner with New York City, to the multi-family sector to run something called the New York City Carbon Challenge for multi-family buildings which basically, you know, isn't an incentive based program we

provide, you know, outreach assistance but we've gotten at this point, I think, twelve of the largest property management firms in New York City to finance the challenge and bring in significant chunks of their portfolios to multi-family buildings and to make a commitment to reducing energy use, carbon emissions in those buildings by thirty percent over the next ten years.

So that's really, you know, using the ideas, the competitiveness in the market place to really kind of stimulate people to say I'm going to step up and make this commitment and do this work. In the multi-family sector, you know, results have really tried to stimulate participation in our programs and people reaching out to the certified consultants that we have in our network. You know, we created things like Google Maps that show how many people have participated in our program so that you can go to the map and look and see, "Oh, you know, there's five different buildings within two blocks of me that have participated in this, maybe this is something I should paying attention to in order to have a competitive, you know, residential business that I can continue to make sure my buildings are competitive with others in my neighborhood and in my city." So taking those types of strategies to stimulate activity without incentives. Finally, you know, really focusing on connecting clean, excuse me, making connections with economic development and finance.

One of the things that Governor Cuomo's done is created the ten regions throughout the state, which each have regional economic development councils and are really focused on improving the economy of New York State. And when we ran our Cleaner Greener Communities Program we were able to connect the sustainability plans that were developed for these regions with their economic development strategy to really have this be something people felt invested in because they knew it was going to not only improve the sustainability of their communities but also the economy of them which for a large part of upstate New York is especially, you know, has been suffering for many years. Another strategy that we've taken is increasing the availability of capital for clean energy projects. We launched as a state, as a city, several years ago the New York City Energy Efficiency Corporation which has been focused on developing innovative financing packages to assist buildings for commercial and residential in New York City was getting capital to do energy efficiency projects and recently as a state we launched a one billion dollar initiative to launch the statewide green bank which is going to try and make innovative steps in the financing industry in order to make more funding available for clean energy projects. So taking that approach as well I think has led a lot to our success. And that's it for my presentation, are we holding questions until the end?

Sean

Yes, we're going to hold questions until the end, right now we're going to switch over to Mr. Connie Peterson for his presentation and we do have his slide deck up right now.

Conny

Yes.

Sean

Hi Conny.

Conny

Hi, can you hear me?

Sean

Yes we can.

Conny

Good, good. My name is Connie Peterson, I'm invited to the seminar to talk about Sweden and how we have been able to save energy renovation through our political situation. And I'm sure glad that we are considered a strong front-runner but I'm also a little bit surprised because I also think we could do things much better. But I'm happy to share our experience with you. So can I have the next slide? My presentation will include the political context relating to the renovation world. I will also try to explain the key factors that were significant in Sweden in driving change and how we in Sweden could reduce our consumption of energy and then market conditions and also explain [inaudible 0.46.49] the renovation story in Sweden and I will also show you two examples from renovations in Dalsland Sweden. Can I have the next slide?

Sweden's adopted policies focusing on the environment fields since the 1960's so it has a history in Sweden and another thing that's a little bit special for us and another part of Europe is the cold climate, we are forced to build more efficient buildings. It needed to better building envelope and many other countries have to have. Another thing that's a little bit different for us is we have hydro and nuclear power production. We use a lot of [inaudible 0.47.44] fuels with, all of these have low initial greenhouse gases. So there is not so much greenhouse gases produced from heating of the buildings but still about fifty percent of the total greenhouse gases are from use of energy in our buildings. And we also have quite ambitious counter-production targets for the climate and energy. We have a zero energy net greenhouse emissions, that's the target for 2050 and we have a general, more ambitious goals than the U.N. has for, especially for emissions and renewing better resources and we also set other goals.

And one of the most important goals for success in saving energy in our buildings has been a goal of increasing energy efficiency in the buildings which we are trying to reduce the energy consumption by twenty percent to 2020 and by fifty percent to 2050 and that's compared with what we used in 1995 and the uses set by [inaudible 0.49.16]. We can move to next slide. I always talked about the first point on this slide. The building code in Sweden, we have the same requirements for renovation as we have for new buildings so it's quite easy to fulfill the requirements for a new building and that covers [inaudible 0.49.48], from different factors to achieve a better, a higher demands on energy consumption. That's not good if you want to have a rational construction business so that has been noted by the [inaudible 0.50.08] system that we will try to work with the

requirements and a new one will be accepted in June this year, and the new requirements will come out, in general next year.

The labeling scheme, EPC, Sweden we are having a calculated energy performance at the final phase and then the performance is checked in every new building and I think this is a little bit different from other countries. That's good, gives you a lot of experience when you do it that way. We also have strict performance and implementation of these things and a large percentage of the buildings do have labels but there still are improvements to make on these audits. They are providing information on energy savings and how to improve the performance in buildings and that is something to be better on in the future, at least in Sweden. We have training and education campaigns, we have a national establishments in Lowden and it's operated by the University in Lowden and the industry is the first of its kind in our country.

The background for this establishment center is a huge renovation need of the multi-family housing, that typically in [inaudible 0.51.52] we have in, what we call the million area. The million area or the million program was a political driven program we have to eliminate the shortage of housing in the Sixties and Seventies. But one million apartments/single family houses were built during ten years and we have total of 4.5 million apartments/single family houses so this million program is a big, big share of the total buildings and these are about to be renovated. We have several one stop solutions centers and this new one center for renovation we are also have Bebo, that's a corporations for multi-family houses, Belok for commercial buildings and a new Besma, that's sort of recent for single family houses. But there's quite a lot of single family houses, we have 4.5 million apartments/single family houses, of these houses 2 million are single family houses. Take the next slide.

And then these are the two styles of renovation. One on the top is multi-family house through Bowden in the Southwest of Sweden. It's a big housing area from the Million Program that's renovated to build energy performance right now. It's totaling sixteen buildings that's completely renovated and it was not just for renovation, they had to be redone, it was, of course, renovation management performance. But there also was a need to change the image of this area and they wanted to have another mix of size of the apartments, they wanted more area to, that was possible to have more area. So this case is well known in Sweden, you can find a lot information on the internet and in this case the rest of it is the Sixties houses. So the rest of them moved out to an empty house while they are working with one house [inaudible 0.54.37] and so the other example is the single family houses. It says we have about 2 million single family houses and 1.5 million of these were built before 1980 and lots of portions of these are in need of renovation and to energy efficiency. Three companies have developed the renZero concept, renovation for zero energy use, cost effective renovation for all the houses. And the house is worth, it's [inaudible 0.55.18] it was renovated last year and both these

cases they kept the original look of the houses. They look about the same as they did before and in the last example the people were still living in the house during the renovation work and it was an extension, the renovation of the exterior body, the windows, doors, stoops, but there were also installed new ventilation for heating and energy system in the house and you can also find that information on the internet on the renzero.se. Okay, can we run the next slide?

These are all the figures, I think maybe it was this one that the [inaudible 0.56.19] in the beginning. The figures for the energy consumption in Sweden, it's decreasing [inaudible 0.56.29] all for the intensity of falling. Of course these figures for the housing sector is depending on the weather conditions and that's what they are varying a little bit from year to year. Next slide, thank you. Here the building stock, actually we have a goal for 2050, almost seventy percent of buildings will have, by that time, it's already built so if we have achieved the goals we have for the energy issued to build must specifically look at the existing houses and then stay we're renovating about twenty to thirty thousand a year and that's not enough and especially if you take into consideration that we have the Million program coming to the renovation phase now but we have to upgrade the number of renovations and we're also guessing that we need incentives to increase the number of renovations on houses to get them down. So after Million program was made for getting new housing, we have to make a new Million program for renovation right now. Can I have the next?

It's quite costly to make the energy efficiency and the renovation work. The lower cost for energy will not cover expense for renovation and the work that the energy should. Single family houses in Sweden are generally, they have generally maintained while the need for renovation the specialists pronounce in the amount of family houses so when you're making calculations for renovations you have to include the benefit to the society and you can see on this slide there's a lot of benefits for the society. One of them is creation of new renovations, those have to create better safer less segregated living environments and also have to maybe share in the change with the, mix with the work places and the services. So these practices have to be considered when you start the renovation work. Next slide.

The construction sector has earlier been used as a mean to increase employment in times of recession and that has not been good for the construction companies but they, the subsidies have been kept and that's the pay work for the construction industry. And that's fully accepted and we would like to have it that way. Another thing that the effectiveness is the tax reduction for renovation work in Sweden and that has been like, of course, stimulated energy efficiency and renovation but it was not promoted to, it was not developed to promote renovation work, it was to get rid of the black economy [inaudible 1.00.40] in Sweden. We wanted to jobs to be done by companies that pay taxes and so on. Another market

condition is the collaboration of market parties to deliver renovation solutions and one of them we have in the Low Energy Building Program, Lagan, shows include examples for the rest of the market. And the next slide.

I'm a little bit bummed here in Sweden for renovation stories, why did we succeed and why wouldn't, did we get such good rating? I think the most important factor is the need to have a plan, to have a goal that the market can get around, has to be pronounced and, you know, that has been really important for us. And we also have a different sector that's wants to do better, they know they can do much better, they can improve the efficiency, the energy use in the buildings and it's more than business sector who's thriving than ministers and their choices in Sweden. That has been important and that is all important for most of the society, you are told at a young age [inaudible 1.02.28] that these topics are important for you and we also have good and safe quality. If you're going somewhere it's good to know your present position before you are moving and we are really good in the formation about the condition of our buildings and we know what to do and it's those have sold that most of the buildings have done about the time same way, both the multi-family houses and single family houses have the same complexion. There is also a higher standard for building performs and when we would use the energy we also have improved the building envelope when we are major renovations. But we also have good help from the district heating, they installed a lot of heat pumps, we have installed better windows with triple glazing and there has been a low rate of new construction. That means that has compelled, been important with the renovation work for the whole construction market and it's also been a big help to have this network in Bebo and Belok to share experiences through different companies and they have also made a market development of solutions for improved energy of the building envelope. Here and the next and last slide.

What I can see from our point of view is the need and important to continue with and improve is to settle corporations [inaudible 1.04.46] government and construction sector. The renovations work, it's not [inaudible 1.04.56] the benefits for all to exist for society. And there's some big need for financial solutions [inaudible 1.05.09] renovation and these varies are not always economically justified that's a marker for the government to help with the kind of financing. We must also find rational solutions for establishment, the building to share experience also increase the performance of deep renovations of the building stock and it's also a big need for more information to the whole public about the goals and how to reach the goals. That was the last point for me.

Sean

All right. Thank you Conny and to each of the other panelists for your presentations and at this point we're going to turn back to Jens Lausten who will be addressing some questions to the panelists. So Yens, whenever you're ready. Yes, you're still muted in case. Jens, are you there? You're still on mute.

Jens Hello?

Sean Yes.

Conny Shall I say something or no?

Sean Hold on we're trying to get Jens on the line, he's still on mute. Yens if you can hear us, could you unmute your phone. Do you have some questions for the panelists? All right, he might be having some technical difficulties so I apologize for that. So we're going to go ahead and present some questions from the audience to the panelists. And so one of the first questions that I received was, "In regards to the drivers of the Broaden, how replicable is that project? Is it scalable and what's the financing package?" Can you talk about some more of the details regarding that?

Conny Yes. It's a total of sixteen houses and they were really front-runners and the first house was quite expensive it was almost at the level as they could have built a new house. But they have learned after time, at this time they are all much lower in cost. So the investment for the Brogarden, [inaudible 1.08.30]. So they knew that this would be expensive but they learned so they no loss more, but of course they reduced energy consumption that did not cover the expenses for the renovation, not at all.

Sean Great. Thank you Connie.

Conny Yes.

Sean And let's check back in with Yens to see if he is able to figure out his audio. Yens, it's showing you as still muted, are you able to unmute yourself? All right, very good. We'll move on to the next question then. And this question is just a general one regarding the GBPN, "Could you talk a little bit about how the GBPN integrates with the ISO?"

Sophie I'm not quite sure about that one. I think Yens would be a good person to answer this, can we hold that back until we find out where he is?

Sean Yes. We definitely can.

Sophie I can actually ask Lindsey a question, I know that we were quite interested finding out, sort of, more about collaboration and, hold on if you would just give me a second, okay, so maybe, what are the sort of drivers, why do you feel that New York are doing better than other states in the U.S. because I think that's, I think a lot of the states in the U.S. can learn from New York State, so what kind of advice could you give to other states in the U.S. that are looking to follow your path, your lead?

Lindsay Well I think especially on the residential sector we've had a lot of success and working organizations that have missions that are different from ours to, but are aligned with what we're trying to do. To collaborate with them in order to further the reach of our energy efficiency programs. One of the

examples of that, especially on the multi-family side, you know, we've collaborated with state and city agencies who fund and support affordable housing that's being built and continued to be managed and maintained throughout the state and, you know, certainly in large chunks in the city as well. We've really collaborated with them, you know, on the new construction side that they basically agreed to kind of require all those people who are getting financial assistance from the state to construct affordable housing, to participate in our programs and to make sure that that housing is energy efficient and, you know, I mean on just the building inside to make sure that when affordable housing buildings, that their getting financial support from the federal government or from state or city government that when their doing these renovations, when they're changing hands, they're going through an energy efficiency renovation process. And I think it's finding opportunities like that, where missions are aligned where, you know they want to build affordable housing and maintain affordable housing, we want energy efficiency, energy efficient housing is more affordable to the residents that live there and finding those types of connections can be really meaningful to further advance both policy agendas.

Sophie

That's great. I think I have another question.

Sean

Yes, we can hear you, go ahead. Hi Sophie sorry, when your computer is providing feedback and echo so when you're not speaking you just have to make sure to mute yourself. I did receive a few questions from the audience. I'd like to go ahead and present those to the panelists at this point. And so, the next question that I had states that, "One of the panelists mentioned that the subsidies have been cut significantly, so according to your observations what is more effective to promote renovation? Is it taxes or subsidies?"

Conny

Can you repeat once more, the last sentence?

Sean

Yes. Definitely, in your observations what has been more effective to promote renovations, taxes or subsidies?

Conny

What has motivating?

Sean

Renovation.

Conny

It's the big problem here we have in Sweden, the owner of the real estate, they don't have the benefits that's for getting more employment, for getting a secure area, and so on. They ask you the benefits of the lower energy consumption and maybe if they raise the standard they can take higher rent. It's not.

Conny

No, it's not enough, you have to some way you have to calculate and take care of the social benefits. Otherwise, we don't have no renovation work, it has to be taken into consideration, you need some incentives especially for

the multi-family houses. It's another situation for single-family houses at least in Sweden. The house is owned by the owner, the owner has to benefit from the whole housing project but it's a big difference between single-family houses and multi-family houses. And in Sweden the multi-family houses are heated by district heating in a quite small area the average area is seventy square meters for, in an apartment, in a multi-family house. It's not so much to say that by the, if they use district heating. So you have to have other aspects involved if you start renovation work. It's a different in single-family houses, there's other drivers driving aspects involved in a single-family houses.

Sean Thank you Conny. And Sophie, just so you know, we took you off mute and that's, you're self-muted so if you want to add to any of the comments, feel free to unmute yourself and go ahead. Sorry, Connie did you have another comment to make?

Sean All right. We'll move on to the next question then. One of our attendees asked about, they heard about new policy packages for building energy renovations, so that's somewhere to the topic we were just discussing. Could you talk a little bit more about these new packages? Or have you heard anything regarding them?

Sophie In Europe we have them.

Sean Yes. Go ahead.

Sophie I'm sorry. Okay. So in Europe we have them. The European commissioner that sets the policy for all member states to have a sort of defined renovation road map, which would then feed into a policy package. We, at the GBPN, have defined what we would call a state of the art policy package should be and so that's, I mean, I'm not really sure what you mean by that question but for us a policy package is different policy elements working together to help to sort of upscale, and yes, we found that Germany had the many regions in Europe and some in the states who have uptake sort of defined policies to work together and that's what we call a policy package.

Sean Great. Thank you, Sophie. The attendee did provide more detail in regards to their question after I asked it, they were wondering specifically about new policy packages in Southeast Asia or in Singapore that they heard about. Do you have anything to comment on that or should I move on to the next question?

Sophie Yeah, I think there's some in Singapore are starting to build on their policy packages and there's a state in China that are also working on this as well. So there's definitely movement in Southeast Asia but I can't tell you much more about it.

Sean All right. And so the next question that I received is, "What are the most prescribed, sorry, subscribed financial assistance in New York and why?" So this is for Lindsey.

Lindsay So, I'm not sure I fully understand the question, my guess is, if I'm going to interpret it, I would guess here, you're asking what the most, you know, popular programs that we run that offer financial assistance for renovations would be? And I would say that, you know, it's, we don't offer a huge variety of programs. We usually offer, you know, for each different sector, so residential versus multi-family, you know, we offer to each of those sectors programs that address whole building renovations. We've had a lot of success with those programs, you know, on the residential side, I think, you know, we've served about sixty thousand different single family or one or more unit homes. On the multi-family side at this point, we've touched about a hundred and sixty thousand different units of multi-family housing with our comprehensive programs. But certainly, you know, we have utilities offering kind of rebate structure programs for, you know one off energy efficiency measures and then NYSERDA tends to offer comprehensive programs that involve bringing a technical expert into your home or into your multi-family building to do an energy audit and develop a comprehensive package for doing significant energy efficiency reductions. Certainly those comprehensive projects are much more beneficial but they are also obviously much more challenging to get people to participate in because it involves a lot of time commitment and a lot of capital outlay from their perspective even with the incentives that are provided to them. But we try and kind of offer a different [inaudible 1.21.01] programs to address the needs of different types of customers. I hope that in some way shape or form answers the question.

Sean Yes. Definitely, thank you Lindsay. And just looking through the questions, that is, I do have another question regarding the GBPN but we have lost Yens Blossom so I'll move ahead and I'll email that one along to that it can covered. And then the GBPN also works in China and India, what are the lessons from, either New York or Sweden, that can be, what are the main lessons that you think could be applied to those regions, so that the regions they refer to are China and India?

Lindsay Is this question for—I understand this is a question for Sophie or for Connie and I?

Sean It was presented generally, Sophie I think they do refer to the GBPN, if you could address that question, you are self-muted right now.

Sophie Okay. Sorry about that.

Lindsay I can definitely state that it's been tremendous in New York State and a lot of these things and having these rate pair charges that utilities are implementing and actually generating funds to finance these energy

efficiency programs because, you know, having some sort of funding on the table, either to provide incentives or technical assistance and to support outreach and, you know, all different types of strategies to get clean energy implemented, it really is important to have a dedicated source of funding to support that and I think that that has been a tremendous help in the United States, in New York specifically. And so finding some way to get that type of revenue source, you know, is a huge asset.

Sean Great. Thank you very much.

Sophie I'd like to add something to that.

Sophie If I can, I'd like to add something to that. I think that also because there's some regions or jurisdictions in China and India, who don't necessarily have the funding at present to really work on strategies so I think initially they need to have a sort of umbrella target to, or the government actually has to initially have the will to want to renovate so they should have some national targets set for renovation. But then also, it might not necessarily require too much funding is have, feed down sort of learning resources into different regional sectors in a specific region so that they have the accessibility to education modules and sort of building regulations to know how a building should actually be built. I think it's the fundamental part for some of their regions who are starting to build a renovation strategy.

Sean Great. Thank you both. And so with that, we are approaching the end of the webinar and also that was all the questions that I received from the audience at this point so I'd like to again just thank the panelist for the presentations and the discussion afterwards. Now I'd like to ask our audience to take a quick minute to answer a survey on the webinar that you viewed today. We just have three short questions for you to answer. You can answer directly through the go to webinar platform. Heather, if you could go ahead and display that first question? Great and then next question. Webinar's presenters were effective. And then the final question Heather? Overall, the webinar met my expectations. Great. And thank you for answering our survey. On behalf of the Clean Energy Solutions Center I would just like to send a hearty thank you to our panelists and also to the attendees for participating in today's webinar, very much appreciate your time and I do invite you to check the Solutions Center website over the next few weeks if you'd like to view the slides again or listen to a recording of today's presentation as well as any previously held webinars. And I'd also like to invite you to join the next webinar in this series, which will be taking place in June, and we will be sending out announcements for that prior to the webinar. And we also invite you inform your colleagues and those in your networks about the Solutions Center resources and services including the no cost policy support and we hope everyone has a great rest of your day and we hope to see you again at future Clean Energy Solutions Center events. And this concludes our webinar.