Financing Residential Energy Efficiency with Carbon Offsets (text version)

Operator:
The broadcast is now starting. All attendees are in "listen only" mode.

Amy Hollander:
Hi. My name is Amy Hollander of the National Renewable Energy Lab, known as NREL, in Golden, Colorado. Thank you for joining today's Weatherization Innovation Pilot Program webinar on Generating Revenue from Carbon Offsets for Residential Housing. Today's webinar is sponsored by the U.S. Department of Energy and broadcast from NREL's new state-of-the-art, net-zero Energy Research Support facility in Golden, Colorado.

We're going to give participants a few more minutes to call in and log on, so while we wait I'll go over some logistics and then we'll delve into today's topic. First of all, today's slides will be available by email to all Weatherization Innovation grantees. For others tuning in, today's presentation with voice recording will be posted online at DOE's Weatherization Innovation Pilot Program's website in about ten business days.

If you have questions during the presentation, please open up the box at the red arrow in the upper right corner of your screen. Open the questions box, and there you can type in any question you have during the course of the webinar. We will then strive to address your questions during the question-and-answer segment of today's presentation.

With that, I'd like to introduce today's speaker.

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Steve Erario serves as the Carbon Project Coordinator at the MaineHousing, which houses the state of Maine's weatherization program. In that role he helped develop the certified carbon offsets project from 2010 to 2012. Steve managed the sale of carbon offsets to Chevrolet Motors, and the revenues from the sales are currently being used to weatherize low-income homes in Maine.

Steve holds a BA in Environmental Policy from Colby College and certifications from the Greenhouse Gas Management Institute from BPI, or the Building Performance Institute, and the Environmental Change Management Institute. He is a former Colby College Philanthropist of the Year, a Morris K. Udall scholar and a Clean Air - Cool Planet Climate fellow.

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Steve recently changed employment and now works as an Energy Programs Associate at Alarm.com, where he is working to provide interactive solutions to governments, utilities, and others seeking to manage energy use.

With that, let us start the revenue on Revenue from Carbon Offsets with Steve Erario.

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Steve Erario:
Great. Thanks, Amy, for the kind introduction. Welcome, everyone. I'd like to thank NREL for the chance to speak on this topic today, and also like to thank Alarm.com for allowing me to carve out some time out of my workday to speak to all of you. It's exciting to speak today about this topic because at MaineHousing we had over 100 organizations from the U.S., and from all over the world really, who were interested in replicating our carbon offset project, so this is a very popular new topic that's come up. I'm glad we can speak about it today.

I'll break up the presentation into a few parts. First I'll speak about the five-year MaineHousing pilot project that helped to develop a new energy-efficiency financing vehicle. Next I'll review the lifecycle of how carbon financing and weatherization financing work together. Then I'll go over how we implemented the project in Maine over eight phases of residential offset project development, everything from the feasibility study through project development through sales and marketing. And at the end of the presentation, we can answer any questions that the audience has typed in to the box at right, as Amy mentioned.

So just a quick disclaimer, before kicking everything off that the information presented today doesn't substitute for any sort of professional, financial, technical, legal advice. We advise you to seek expert advice in developing any sort of carbon offset project.

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With that, I'd like to give a little background on the Maine State Housing Authority, which we abbreviate, MaineHousing. As Amy mentioned, while I was at MaineHousing, I was lead author of Financing Residential Efficiency with Carbon Offsets, which I'm just gonna refer to as "the handbook" from here on.

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Now MaineHousing administers weatherization-related funding for the Weatherization Assistance Program, or WAP. Their funding levels under R were close to $20 million per year, allowing the agency to weatherize 2,000 to 3,000 homes annually. Before that, using regular WAP funding levels, MaineHousing weatherized a few hundred homes per year.

The need for low-income weatherization funding in Maine was always greater than funding availability. Maine's cold. Homes are old and leaky. About three-fourths of the population uses costly fuel oil for heating. Back in 2008 the State of Maine government estimated roughly 10 percent of the average Maine family budget was being spent just on heating the home, so because of these reasons MaineHousing focused on carbon offsets as an additional weatherization financing stream.

We started back in 2008 with the idea of hopefully overcoming barriers to weatherization implementation and extending Federal Department of Energy funding that we received.

After five years, in 2012, we are proud to say that MaineHousing proved that carbon financing could support weatherizations when we sold carbon offsets to Chevrolet Motors and used that money to reinvest in weatherization.

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So the main driver, really, for MaineHousing was to find non taxpayer money to subsidize and create more sustainable, longer-term funding streams for weatherization projects, and we had three goals. First we needed to create a methodology that allowed us to quantify the number of carbon offsets we could sell. Second, we wanted to test this methodology and to create carbon offsets and to see if we could actually find a buyer for these offsets on the market, and, third, we knew we wanted to share lessons learned. How could other organizations like yourself determine if a project would be financially attractive or not? How could they reduce the amount of time needed to develop a project and to sell carbon offsets?

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So this timeline shows an overview of the five-year pilot project at MaineHousing and describes who helped financially and intellectually support the project. I think some important takeaways are – just starting from the left-hand side of this graph – from 2008 and 2011, you can see that MaineHousing took three years to develop a methodology. I think perhaps the most important takeaway on this slide is that the methodology is publically available. You can use it and save yourself three years of time.

So the methodology development process, during that time we explored the concept with partners that were listed on the left side of this page, but I next wanna draw your attention to the right side of the slide that shows the actual carbon offset project funders and partners that came together, primarily in 2011 and also running into 2012, to quantify and sell offsets. The funders were the U.S. Department of Energy. In that grant they asked us to develop a methodology that could be used publically to test the concept and to share lessons learned.

Then Chevrolet, they were the buyer of carbon offsets, which we actually negotiated through their partner. If you look over in the partner side, Bonneville Environmental Foundation, we call them BEF. Now Chevrolet was motivated to invest in our project through the purchase of carbon offsets. BEF was the broker who helped to administer Chevrolet's $40 million investment in carbon offsets. So having someone like BEF and Chevrolet is a critical piece. For any agency trying to sell carbon offsets, you must be linked with a buyer, either directly to a buyer or through a broker like BEF.

Next Climate Focus, they advised MaineHousing on our project on a number of issues with a focus on technical issues. It's important to have expert advice, as I mentioned before, when implementing this type of a project.

Next First Environment, they were the independent, third-party auditor who insured that our project was actually achieving savings and creating carbon offsets. Any successful organization that wants to access carbon financing needs to hire a third-party auditor like

First Environment, and there are about two dozen such auditors that are approved under the Verified Carbon Standard, which I'll talk about in a minute.

Lee International, also a consultant on our project, especially for strategic, legal and carbon-market-related issues.

Finally, the Verified Carbon Standards. Now they're the authority that serves as a home for the methodology that we developed, and they put the rules in place for the overall carbon accounting process, a key partner for anyone developing carbon offset projects.

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I also wanna talk a little about the contributing organizations that made the project a success. Two organizations were critically important to the five-year pilot project in Maine. They still consult on the project. Both are listed top right, Climate Focus and Lee International. I mentioned them both earlier as some of our key partners.

The three organizations on the left-hand side of the screen were brought on to the project in 2012 to help complete the handbook and the associated financial calculator. Those are Clean Energy Solutions, or CESI, Stantec, and Conservation Services Group. Now all three are consulting organizations, and they all seem to be continually active in the advising and implementation of residential offset projects.

Some other organizations still active in the area include NREL, of course, NASCSP, for the National Association of State Community Service Providers, which is working through a partner approach to aggregate residential offsets from a wide range of agencies – and they are using the partner model to keep costs down – and LEAP, in West Virginia, is developing a residential offset project. There's of course others active in the area. I couldn't mention every one, but that gives a sense of who's active in the space.

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I mentioned the handbook a few times and the financial calculator. They are available for download on the MaineHousing website, listed on this slide. The handbook was published in December 2012. The cover of the handbook shown at left. The financial calculator, a screenshot of that is shown at the right. These resources are available free of cost, and, as Amy mentioned, this slideshow will be available online so that you can pull this slideshow and audio as well.

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So that's a little background on MaineHousing, and now that we've talked a little about why MaineHousing wanted to undertake this project, who the partners were, let's look at the financing model that MaineHousing helped to create. And this is, of course, the core building block of the project.

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Before we talk specifically about carbon financing for weatherization, I just wanna talk about carbon offsets, which are the building blocks of carbon financing. One carbon

offset is one ton of carbon dioxide reduction that is saved to counterbalance an emission elsewhere, or as the definition here states, "A reduction in emissions of carbon dioxide or greenhouse gases made in order to compensate for or to offset an emission made elsewhere."

So, for example, on the left in this picture, is an entity burning fossil fuels for transportation or energy in creating carbon emissions. These emitters can invest in a project on the right, like planting trees or weatherizing homes, to reduce their impact on the environment.

So in this presentation, we call carbon offsets, which are created from weatherizing homes under the Verified Carbon Standard, or VCS, residential offsets, so you'll hear me use that term "residential offsets" for the rest of the presentation.

So the next question is: Who wants to buy carbon offsets, and how much do they wanna buy?

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The dominant buyers on the voluntary carbon markets are organizations that want to be more green, and to be able to publicize that they have reduced their environmental impact, and to be able to publicize that they've invested in local economies, typically.

This is a graph of the transaction value of the voluntary carbon market. You can see that in general the trend's been upward since 2005 when the market barely existed, to about $500 million annually in 2011.

Another thing that's helpful to note here is that there's two kinds of carbon markets. One is voluntary carbon markets, which is represented on this screen. The other class of carbon market are the compliance carbon markets, such as the European Emission Trading System. The compliance markets are many, many times bigger than the voluntary carbon market, roughly hundreds of billions of dollars in value. At the current moment, residential offsets can only be sold in the voluntary markets. That's why I showed this voluntary carbon market slide.

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Now the Verified Carbon Standard, or VCS, operates a greenhouse gas program, and they provide the framework for creation of sector-specific methodology. So what's that mean? It means that there can be innovation in the carbon markets, and there's methodologies created for a number of different sectors, not only trees and forestry and transportation, but also the weatherization methodology that MaineHousing created.

VCS acts as the overall standard-setting body, making sure that the carbon accounting standard is increasingly robust. It's important to have a robust accounting standard because that allows groups like MaineHousing and other organizations to sell their carbon offsets for more money on the carbon markets.

VCS has a rigorous process by which they approve third-party auditors, and in turn those auditors do most of the legwork, do most of the technical reviews of the projects, and, again, VCS sort of acts as the overall policeman and standard setter for voluntary carbon markets.

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So this is a picture of the cover page of VM0008, which is the approved standard methodology for the weatherization of single-family and multi-family buildings. This is the methodology MaineHousing spent three years developing. The VCS approved the methodology. Again, you can use this. Thankfully, you don't need to duplicate those three years MaineHousing spent on the project. It's downloadable from the VCS website. Again, these slides will be available after the webinar.

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So now, finally, the carbon financing model. There are six steps to this carbon financing model. We'll start from the top and work to the bottom. First there's some capital investment made by the homeowner, by a lender, by a government, and so on, to upgrade a building to make it more energy efficient. Carbon offset financing can help to overcome barriers to weatherization project development. Second, the dwellings are weatherized, and, third, weatherized dwellings generate energy savings.

A significant amount of data needs to be collected in order to sufficiently prove energy savings. We'll talk about that soon.

Fourth, the savings need to be quantified and examined by an independent third-party auditor. This is a combination of checking data, developing calculations and resolving legal issues.

Fifth, and importantly, a buyer needs to be located who's willing to buy the verified carbon offsets.

And, sixth, finally, revenue from the sale of carbon offsets is reinvested in the capital investment phase of weatherization.

I think it's important here to note that given current marketing conditions for the value of carbon offsets and the cost of weatherization activities, one calculation we performed showed that the net present value of carbon offsets would cover 10 percent of the initial upfront cost of the weatherization activity.

So what does that mean? So, for example, if $5,000.00 was invested in upgrading a building in a weatherization project, the net present value of the future residential offset cash flows would be roughly $500.00. So while operational efficiencies could raise that amount a bit, it's helpful to know just overall that carbon offsets are not gonna pay for the full cost of weatherization activities. Energy savings are gonna be more significant in value than the value of the carbon offset revenues.

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So now we've spoken a little bit about MaineHousing, what their role in this five-year project was. We reviewed the carbon financing model MaineHousing helped to create. Now let's look at the eight phases of a residential offset project development, the eight steps that MaineHousing went through to successfully complete their project, which we've outlined for other agencies to hopefully take advantage of.

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So this picture here is from the MaineHousing handbook. It outlines the eight phases of the process we used, and it focuses primarily on the incremental activities related to residential offset creation and sale, so it doesn't focus on how to operate a weatherization program in general. It focuses mostly on the incremental steps for carbon financing.

So the first four phases – just to set this up – generally need to be completed once every ten years, so once in place, the four phases do not typically need to be revisited until about ten years later.

So Phase 1 and 2 relate to the setup of the project, and they answer the question "Should we implement the project, and if so, how will we finance it?"

Phases 3 and 4 really relate to the first implementation component of the project. Phase 3, the project description, spells out how the carbon offsets will be quantified, and if the validation process has a third-party to approve the plan will be Phase 4. And, again, generally Phase 3 and 4 are renewed on a ten-year cycle.

So then moving into Phases 5 through 8, which are repeated cyclically, Phase 5 and 6 relate to the actual quantification of carbon offsets. This involves data collection. This involves quantifying the offsets as agreed upon in the project description created in Steps 3 and validated in Step 4.

Now the verification process in Step 6 dives in and looks at how many residential offsets are created, and the frequency with which an organization goes in and completes Phases 5 and 6 varies on how often an organization wants to sell offsets. Typically it's annually.

Phase 7 and 8 relate to the sale of offsets and the outward face in communications relating to the sale. This answers the question how can the most money be secured for residential offsets, and how can my organization and its buyers make statements that achieve the desired public relations goals?

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So before getting into more detail about each phase, just talk about overall project timelines: approximately from one to three years, although it can vary. Just two examples of how long a project might take, so on the left-hand side there might be an organization with a very rigorous online data collection and monitoring system, a few legal issues, so, for example, they are reducing emissions through weatherization in electricity in a state where electric carbon emission are not capped. There's clear

ownership. There's a willing buyer. They have previous experience with third-party monitoring and verification processes. It could take one year or less.

Now, another example, on the right, might be an organization with a manual data collection process with some ownership issues. For example, the homeowners may have not signed over emission reductions. There's some ambiguity there. There's a lack of sufficient resources to dedicate to the project. That could take two years or more.

So those are just two examples of how long it might take to develop a carbon offset project. Again, it can vary.

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So now starting to think about Phase 1, Feasibility. Can this happen at my organization? There's a number of make-or-break criteria that your organization must confirm in order to be eligible for carbon offset creation, so in this table we've listed a few generally eligible categories of energy savings in weatherization types of activities, and we've also listed some generally not eligible activities. Again, this is just in general, and typically there's specifics that can apply to each situation. Those walk from top to bottom.

In terms of the types of energy savings, electricity and fuel savings are eligible to be accounted for. Under our methodology, they're eligible to be turned into residential offsets. One major caveat here is that there's an increasing number of states where electricity savings, and also in some cases fuel savings, may be subject to issues in terms of existing cap-and-trade regulations.

For example, in Maine we fall under REGI, or the Regional Greenhouse Gas Initiative, where our electric utility emissions are subject to cap-and-trade regulations, so even though MaineHousing was weatherizing homes and upgrading fridges and lights, which saved electricity, we couldn't claim electricity-related emission reductions from those measures because they were being accounted for by utilities, so we focused on bulk fuel savings.

The types of buildings that are generally eligible – moving further down the table – are existing single, multi-family buildings as well as mobile homes. Not eligible are new construction, commercial buildings, industrial buildings, industrial processes.

In terms of income level eligibility for carbon offset creation, low or non low-income, homes can be included. Geographic locations of projects – again, generally any areas in the U.S. or internationally can be included – and the types of measures, anything from lighting and appliances to heating and cooling systems, building envelope upgrades are good, generally, and generally not eligible are fuel switching, so, for example, changing from oil to natural gas or renewable energy, solar, geothermal and biomass.

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So perhaps the most important question that we received from weatherization agencies and others that wanted to know whether or not they could develop a project is what's the

financial impact of a project? Is my agency going to make money on a project investment? The simple answer is it depends. The revenues can vary widely, based on things like the price per carbon offset secure. Cost can vary widely, based on things like how much additional work needs to be done to collect sufficient data, what the scale of the project is.

One thing that's important to know is that once a home is weatherized it can generate carbon offsets for the duration of energy savings from the home, up to 30 years. The handbook recommends calculating costs and revenues on a ten-year time horizon, to be conservative. This graph uses a ten-year outlook in three price points: low, middle and high.

So let's walk through the assumptions in this graph, and then after that I'll actually explain the graph itself. So the cost assumptions are a combination of upfront costs and recurring costs. The costs for this project are assumed to be $120,000.00 in upfront setup costs with annual recurring costs of $25,000.00, the recurring costs related to project upkeep and verification. The assumption is that there's no partners, meaning that this is one agency unilaterally developing the project, not sharing the costs with other organizations.

Again, just one reminder that the costs do not include the actual energy-efficiency upgrade cost, the cost of weatherizing the home. This only includes the incremental costs needed to monetize carbon offsets, things like data collection and verification, finding a buyer.

The revenue assumptions in this example project are a function of the number of offsets sold and the price per offset. So the number of offsets sold in this scenario is assumed to be 1,000 dwellings per year times an average of 2 offsets per home, so for the first year there's 1,000 dwellings times 2 offsets per dwelling, is 2,000 offsets. For the second year, there's 4,000 offsets, and so on. The price per offset is varied under three scenarios, and it's assumed to be $2.00 at the low range, $15.00 at the middle, and $30.00 at the high.

So now let's look at the actual graph, and this graph comes from the financial calculator, which, again, you can download from the MaineHousing website. The resulting lines show cumulative, so not annual, the cumulative profit in the three scenarios. The orange line on the bottom shows that the project never breaks even at $2.00 per ton. It's always a net loss. The green line shows that at $15.00 per ton the project breaks even in about Year 3, and that's $1.5 million over ten years, and the blue line shows that at $30.00 per ton the project's cash positive in Year 2 and nets $3.5 million over the project lifetime.

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So organizations interested in determining whether or not a project is financially feasible should use the financial calculator online to explore sensitivities in revenues or cost, for example, how different variables generally cause overall revenues to change and how changes in variables cause other variables to react.

But the financial calculator was not made specifically to inform investment decisions. There's a lot of different factors that contribute to profitability of an organization that can begin to be explored with the financial calculator, but what it's aimed to be is to be a beginning and not to be the basis of determining large-scale financial decisions. That should be left up to expert input and judgment.

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So other than costs, some things to weigh when deciding whether or not to implement a carbon offset project are whether or not there are any sort of nonresidential offset revenue benefits from implementing a project. So, for example, there's a proof of positive program impacts that comes with developing a carbon offset program. There's a third-party verification of savings that might be streamlined with other M&V requirements on weatherization agencies, and that third-party M&V process and outcome can be used to highlight benefits, like job creation, cost savings.

There may be opportunities to improve program management with enhanced tracking of the process of weatherization, and finally there might be an opportunity for an organization to demonstrate some advanced abilities to plan and execute projects to support energy efficiency. There might be an opportunity to impress external funding sources or internal funding sources that are interested in demonstrated competencies in those sorts of areas, so, for example, maybe impressing a foundation or a grant-writing organization.

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So now on to Page 3 and 4, Project Description and Validation. If a project is determined to be financially feasible, the next step is to put together a plan for quantifying the data and to have a qualified third party approve the plan.

So the required data to verify energy and carbon savings is going to vary significantly between organizations, and to my knowledge there's no way to base calculations off national averages. Data has to be dwelling and location-specific.

Some example data points that may be included, may be required to be gathered for your project, are energy-building data, pre-and-post-energy audit information, home occupancy information, weather data – like heating degree days and cooling degree days – income eligibility data, ownership of emission reductions. For other examples of required data, you can see MaineHousing's documentation, accessible through links in the handbook.

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This slide demonstrates a checklist of what's necessary to put in the project description. Again, the exact requirements in project description vary from state to state, from county to county, but in general there needs to be a description of the weatherization program, a description of the types and groups of weatherized units being included, a detailed overview of some of the data to be included, and eligibility criteria for new instances or

new dwellings added to a program, and a detailed description of information management and quality control.

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Other things that need to be included are an estimate of the residential offset volume, a full disclosure of assumptions, a detailed monitoring plan, and a good description of all of the key players involved in execution of not only the weatherization activities, but also of the carbon offset quantification process.

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So once the project description is complete, we'll move on to validation, and before moving on from Phases 3 and 4 you'll need two key documents. The documents at the top left is the cover shot of MaineHousing's project description. It's about 60 pages long, lots of details about how emission reductions are measured. Hundreds of pages of background documentation and data is also exchanged with the auditor at this stage, including documentation about how databases work. That's not all included, obviously, in that 60-page report.

Now the document at the bottom left is the third-party validation of the project description, so this happens in Phase 4, Validation, and the validation comes from the auditor, who for MaineHousing was a company called First Environment. The validation report is about 15 pages long, and it summarizes key findings.

I wanna call out one statement from our auditor, First Environment. It's the last sentence in this callout to the right-hand side of the page. It says that, "In summary, First Environment is reasonably assured that the project meets all relevant VCS Version 3 requirements and correctly applies the approved methodology, VM0008." So what that means is that, great, now MaineHousing can go ahead and quantify the number of offsets that we sell.

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So Phases 5 and 6, we can now move on to because we've completed the project description, and the project description has been validated or approved. This Phase 5 and 6 is similar to gathering data and gaining third-party approval for energy efficiency, savings and M&V calculations. Data's gonna be based on previous weatherization activities, and it comes from your program databases, and if you have it in paper files as well as from various external sources, everything from verification income-eligible status, to based on energy use, to post _____ energy use may be considered.

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So in terms of what's needed for the monitoring report, here are some of the things that you might need to quantify the number of offsets you can sell. Again, you'll need basic information about the project; a description of what's going on during project implementation, whether everything is going as you described it in the project description; talking about data management, whether all the parameters were monitored, and which parameters they were, and so forth and so on.

On thing to note is that not all your data goes into the monitoring report, only summaries of data, of database extracts and spreadsheets and the items listed in the slide. So the monitoring report is a summary. A lot of the data, spreadsheets, database, communication does happen with the auditor directly.

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Again, just as you needed two documents to get past Phase 3 and 4, so, too, do you need two documents to get past Stage 5 and 6. They're both shown on the left-hand side of the page. The document at the top left is MaineHousing's Monitoring Report. The monitor report is about 40 pages long, and, like I mentioned, some of the details about how the residential offsets are measured. It talks about supporting data. And then the document at the bottom left is the Third-Party Auditor Verification Report of the project description. It's about 15 pages long and summarizes key findings.

I wanna talk again about the callout to the right and look at the last paragraph there where it says that, "The project claims emission reductions of 7,008 metric tons of carbon dioxide equivalent emissions, where one ton is equal to one carbon offset." And it says that, "First Environment's reasonably assured that the project meets all relevant requirements and is consistent with the VCS methodology and validated VCSPD."

What that means is that MaineHousing has certified 7,008 carbon offsets. Now it's time to actually go ahead and sell these carbon offsets to a buyer.

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So that brings us to Phase 7 and 8, Sales and Marketing. This is where we actually go out and find a buyer.

I think that something important to note here is that, again, we looked at the slide that showed the voluntary carbon market where transactions were worth roughly $500 million per year. It overall is actually illiquid and the most typical buyers are businesses looking for some sort of pubic relations benefit, and there's not clear markets for the sale of a lot of these sort of voluntary carbon offsets.

So the main approaches that are advocated are either direct sales to a buyer, where there's no middleman. It does require a little more time on your part for the organization selling offsets, and it requires more knowledge of markets to find the right price and the right buyer. There's broker sales, which use a middleman to identify a willing buyer. They typically take a percentage of the revenue, the brokers do, and a retail sale is similar to a brokered sale, except the carbon offsets are sold to a higher number of smaller-volume buyers.

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So here's where a project's partners and buyers and brokers come into the game in the sales process. First, I wanna mention that contracts for the purchase of greenhouse gas offset projects are typically called "VERPAs" or Voluntary Emission Reduction Purchase

Agreements. MaineHousing consultant LEED International acted as our carbon broker. And, again, brokers have contacts with interested buyers in the carbon offset space.

MaineHousing and its consultants negotiated on price and terms with Bonneville Environmental Foundation, who in turn acted as the broker for Chevrolet. Like most contracts, the one between MaineHousing and BEF unfortunately does not allow us to specify the price and terms, so unfortunately I can't answer any questions relating to the contract.

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A lot of agencies get excited about the sales piece. It's important to not forget about marketing. The strong public image and perception of your project is what really provides value to your carbon offsets. So, for example, if your carbon offsets are not seen as being created in a robust way, buyers will be less willing to pay high value for them because they have less public relations benefit, so it's important to get marketing right.

Some of the things that are important to emphasize in the marketing phase are to emphasize the co-benefits of a project. There may be criticism, for example, directed at the technical aspects of a project, how the carbon accounting is done. Typically the most easily communicated outcome of a residential offsets project is the co-benefits, and co-benefits are things like increased local economic activity, overall energy cost reductions, the benefits to local families.

For, example, even if there's criticism directed at the technical aspects of the project, it may make sense to answer it with evidence of the co-benefits of a project and then to maybe speak to the overall robustness of the VCS program.

Depending on the audience, it may make sense to focus on the independence and strengths of the VCS program. Any project created under VM0008, it might be a good reminder it must undergo third-party certification by a VCS-accredited auditor. VM0008 also underwent a number of stringent approval processes overseen by the VCS, overseen by a number of independent auditors, and so it's a very robust process.

Something else to think about is maybe to provide additional transparency around the weatherization program outcomes. So you're producing a number of long reports that will be provided to auditors that talk to the technical details of the project. It may make sense to sorta synthesize and summarize the process that was undertaken at an agency and to communicate that in a publically available way.

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That ends the slide portion of the webinar. Thanks for your attention, and now I believe Amy is gonna field questions from the audience.

Amy Hollander:

Yes. Thank you, Steve. That was very interesting, very informative, and I've got some great questions coming in here. The first question is, "How much outside help do I really need to hire to create a carbon offset project?" They're wondering if this would be a fulltime employee who would need to take this on or – what are your thoughts on that?

Steve Erario:
No, that's a great question. It's one of the questions that MaineHousing faced. As in many situations, I think the answer depends. What might be some helpful guidance is that the more – I gave two examples earlier about the type of organization where it would take about one year to complete a project and the type of an organization where it would take about two years to complete a project, and the key differences between those two organizations were the amount of data that they needed to collect, the amount of changes they might need to make to their IT system, whether or not they've gone through a third-party monitoring and verification process before.

So where there's a lot of work to be done on the IT system, where there's a lot of work to be done for data collection, where there's not much familiarity with third-party M&V, it's gonna take an organization longer. Therefore, it's gonna take either more dedicated staff time or more dedicated outside help. So I think that is just one indication of whether or not more staff time or outside help's gonna be required.

And in terms of whether or not outside help is required to understand the carbon offset process, I would say that it's pretty invaluable to have someone, if not inside the organization, if not outside the organization, with experience in carbon markets because there are a lot of moving parts here, and it is helpful to get an expert opinion in terms of whether or not you're getting the right price for your carbon offset project and for each carbon credit, and there's just many different instances where it's helpful to have someone that's gone through the process before.

And it's helpful not just to save time, but it's also helpful to make sure that your agency is getting the best deal, the highest dollar per carbon offset from your buyer. There's often a return on invest for hiring someone that's qualified and experienced to provide advice related to carbon markets.

Amy Hollander:
Okay, so it sounds like a good combination of contractors or consultants. Plus, at least some dedicated staff would be appropriate.

Steve Erario:
Yeah. I would say that, in general, there's two sets of activities that need to be done to quantify offsets. One is the monitoring and verification process, so in essence that's Phases 3 through 6 that require data collection and going back and forth on data collection. And then there's the carbon-related part of the process, the carbon market, the carbon feasibility, and interpreting the carbon rules. Those are mostly Phases 1, 2, 7, and 8.

So there are sort of two parallel tracks of activity going on. It's important to have staff or consultants with competencies in both areas.

Amy Hollander:
Okay. Great. Thank you. This is a very good question regarding work done in the past. "Can carbon offsets be completed – can weatherization projects, for example, be completed before a VERPA agreement is executed?" In other words, if you weatherized houses two years ago before the VERPA contract, can you account for that savings that was done in the past?"

Steve Erario:
Yeah. Yeah, that's a good question, and I think the core of the question is how far back can an agency go to count their carbon offsets, and the answer is that it depends more on the validation and verification process – so those were Phases 3 through 6 – than it does the VERPA. And so what that means is that it's very important – and this will get settled in the project description – to identify a start date for your project. It varies, but it's often from one to two years prior to the validation of the project description that a project may be eligible to begin creating carbon credits.

So the start date question is tied in with the product description. It's generally about a year or two. It could be less contact-specific. And a VERPA can be set up to purchase carbon offsets that were created a very long time ago. So, again, it depends more on the project description, generally about a year or two.

Amy Hollander:
Okay, well, that's very good news. Thank you. Can you give examples of types of data that weatherization agencies may need to collect for selling residential offsets that they don't currently collect now?

Steve Erario:
Sure. Sure. So one group of data that a lot of agencies that were contacting MaineHousing were asking about was whether or not they had to have energy usage data, so records of how much natural gas or electricity was used over time. And the answer is, in general, yes, and that data has to be available not only after the weatherization activities have occurred, but also before and for a sizable sample of the homes. It's not all of the homes. So that's one thing to be cognizant of. That's a very frequently asked question.

Let's see. Some of the other areas where data collection might be required – there does need to be some collection of weather-related data, so how warm or cool it is. At MaineHousing we were able to pull that data up from NOAH, the National Oceanographic and Atmospheric Administration, and so that is another set of data that needs to be integrated into the carbon offset calculations.

I think those are two good examples of data that might be needed, and there's even more listed in the handbook on the MaineHousing website.

Amy Hollander:
Great. A follow-up question to that is, "What kind of database reporting is needed to satisfy the third-party verifiers?" I think you answered this question, but what format does the data need to be in, or can any Excel spreadsheet suffice?

Steve Erario:
Sure. I think that in general if an agency is running a – well, I'll take a step back and I'll say that what the auditors are most concerned about is making sure that the overall quantification of emission reductions is correct. So, in general, they can be flexible in terms of the types of databases and Excel spreadsheets, etc. that they can work with.

I guess to answer that question with an example: at MaineHousing we worked with the auditor to provided them not only Excel-based extracts of our database, but also to provide them with reports that came out of our database in PDF form. We also walked them through our database structure and the architecture, and so if you have a database, that's probably a plus, especially if it's robust and can do good reporting, but I think that there was probably willingness as well to work in Excel.

Amy Hollander:
Great. Thank you. One question everyone probably always asks you is how were you able to engage Chevrolet as a willing buyer? Clearly, this is a high-profile corporation. I think you mentioned they wanted to invest $40 million in carbon offsets. I know you had a broker who developed this relationship, but can you just talk a little bit more about finding that special sponsor?

Steve Erario:
Sure. I think there's a few factors that contribute to finding a willing buyer, and one of those, as you mentioned, is finding a good broker. Another relates to publicizing the project. So, for example, MaineHousing had been issuing press releases and generating media coverage of their project for months, if not years, before we actually executed the sale, so that gave some public awareness that the project was under development, and that is a good thing for any agency to do, in my opinion.

And that just relates to, again, Phase 8, marketing, the overall importance of publically positioning the project as something that's happening that's creating good, positive impacts on local families and that might get a local business to even proactively contact a weatherization agency and say that they might be interested in developing a project. So generating media attention can definitely be a positive contributor to finding a buyer.

Amy Hollander:
Fantastic. And was Chevrolet located in Maine, or is there a Chevrolet plant in Maine? In other words, was this a result of your proximity to the any Chevrolet plants?

Steve Erario:

Sure. I'm not certain as to the details. I know that Chevrolet does have dealers in Maine, as they do in every state, and that the project in general is aiming at investing in projects across the U.S. I'm not familiar with the details beyond that.

Amy Hollander:
Okay. Great. Thank you. Are there any legislative policies that you know of that can support this type of program, and if not, do you have thoughts on what a supportive policy would include to help this type of program in states across the nation?

Steve Erario:
Sure. Well, I guess my answer would be that there is a growing emergence, it seems like, of cap-and-trade policies around the U.S. For example, I mentioned the Regional Greenhouse Gas Initiative in Maine, and that caps sector emissions, including electricity emissions in the state. When institutions and legislation enabling REGI is created in other parts of the country, if there are carve-outs that allow carbon offsets to be created from weatherization, that would be supportive of these projects.

Also, I think it's not really legislation, per se, but more execution of some of the carbon markets that are becoming active, for example the markets spinning out of AB 32 in California. There is a possibility that residential offsets could be made eligible to be bought and sold on that market. That would create another, I think, positive impact on the residential offsets development process because there'd be a buyer that is well known and has a sort of large demand that might make the process easier for residential offsets project developers.

Amy Hollander:
Okay. Great. Thank you. We have time for one more question. You mentioned in your slides that Maine could not count electricity as part of the savings that contributed to the value of the carbon offset, so in regions where homes are not heated by oil, and a REGI system does not exist, and one could count electricity, how much greater – I think you mentioned that $500.00 per unit could be captured per weatherized unit could be captured. How much would you estimate that that could increase, if you were to count electric savings? Say refrigerators, for example.

Steve Erario:
Yeah. No, that's a great question, and the answer depends. It could vary by an order of magnitude, depending on which state that electricity is being produced and consumed in. Some states have very low carbon intensities because their renewables are nuclear-based and others are more coal-based. I think the general rule of thumb is, in states with higher emissions intensity, that developing a carbon offset project from residential offsets will be more lucrative. But I think that the financial calculator, which is available on the MaineHousing website, can help to sorta inform that sort of analysis.

Amy Hollander:
Great. Thank you. I'm afraid it's time to end our webinar. I hope it was useful to all of our listeners. Steve, do you have any closing comments?

Steve Erario:
Not too much. Thanks, again, to you, Amy, and to NREL for the opportunity to speak today. As I mentioned, we had well over 100 organizations interested in developing our project, so it's great to have the opportunity to present this webinar to the audience and to have it online, and would just like to say thanks again.

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