

State Climate and Energy Program—State Technical Forum

Lead by Example Programs

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Introduction

Slide 1: Climate and State Energy Program Introduction/Agenda Slide

Catherine Morris: Hand it over then to Julia Miller to start us off. Then, I'll do some logistics.

Julia Miller: Great. Thanks Catherine, and welcome to everyone. Thanks for being on the call. I know Catherine has mentioned a couple times but we've got everyone on mute. So, when we get to the question and answers section later, you're going to have to press # 6 to unmute your line. I'd like to thank all the speakers for being with us today and share all your insights online. I'd especially like to thank Eric Freidman who was able to join us at the last minute. Our next tech forum call is going to be, we haven't pinned down the date yet but it will probably be the third week of April, so around April 13th. And we're going to talk about EPA Resources with ARRA the recovery act with the clean energy funding. We'll probably have a couple things to talk about their approaches to clean energy funding with their recovery funds. Couple things, sort of housekeeping. If this is your first time on the call and you'd like to be added to the permanent distribution list, then you can e-mail me at miller.julia@epa.gov. And, finally, we're always looking for future topics so if you have any suggestions you can e-mail me or Catherine Morris. With that I will hand it back to you, Catherine.

Catherine Morris: Let me just cover a couple webinar logistics. For those of you who haven't been on this webinar format before, let me just point out that you have a couple tools at hand. A control bar off to the right hand side that you can minimize if it's getting in the way of seeing your full screen, just minimize that by pushing the double arrow on the little sidebar. And that will minimize and bring it back as you need to. It will allow you if you have it open to ask questions online. So, if like you're having trouble getting online or if you're having trouble asking questions in writing, you can use that function by just clicking open the questions box and then you send it in and it will send your questions to me, the webinar organizer Catherine Morris, and I will make sure if we have time that it gets into the mix. And if not, we have posted the contact info for all the speakers on the Web site. I think, most of them, haven't checked all presentations, but looks like several of our speakers have put their contact info on their presentation. But I would definitely encourage you to use their contact info to get in touch with them after the call, if you have some follow up questions that we didn't get to.

And finally, as you note, we have a lot of time for discussion. So, what we're going to do is let each of the presenters give their presentation; we tried to craft the agenda so we have a lot of time for you to really direct the conversation. And when we get to that point, we'll remind you about the # 6 option. But, we'll be stopping between the presenters to ask clarifying questions as well. I think that's about it.

That's about all you need to know for now. If you have a question for me about logistics, you can send that also, if you're having trouble getting on or hearing. As you can see all three speakers. We've actually asked Niko Dietsch to give us an overview and he's going to talk about the Lead by Example Guidebook that's just come out, and he's going to give you a preview on that. Then we have three different state speakers for New Mexico, Ohio, and Massachusetts. Each of them, I'm not going to introduce them more than this, but each of them have been Lead by Example organizers in their state and so we've asked each of them to highlight the lessons

learned in their experience. And also how they're going to think about how they can integrate LBE programs into the money they might be receiving stimulus packages they'll be receiving from the federal government and how they can find some synergies between the two. With that Niko Dietsch can I let you take it over? And we'll cue up your slides for you so just give us the go ahead when you want us to forward your slides.

State Clean Energy Lead by Example (LBE) Guide: Update & Status

Slide 1: State Clean Energy LBE Guide: Update and Status

Niko Dietsch: Okay. Can you hear me Catherine?

Catherine Morris: Yes, we can.

Niko Dietsch: Okay. I'm Niko Dietsch with EPA Clean Energy and Climate Programs, and before our speakers get started I just wanted to take a couple minutes to tell you about EPA's forthcoming and near final guidance document that we hope will help to assist you in designing and implementing clean energy LBE programs. I guess first thing I want to mention is that we undertook this project in response to conversations with many of you where we heard about that LBE is a growing priority for your governors and state agencies and that's mainly due to the importance of demonstrating leadership and showing clean energy can actually save money and indeed in this guide we document the fact that the opportunities for saving money with LBE programs is significant. The local government controls about 16 billion square feet of facility space and state facilities office buildings, libraries, universities, prisons, etc. account for about 5 percent of the nation's non-residential building space and spend more than 11 billion annually in energy costs, which can account for as much as about 10 percent of government's annual operating budget. But we also heard from you that there are barriers and issues complicating the design and implementation of LBE initiatives: limited staff knowledge about clean energy options, strategy for initiating the program, lack of high level or agency support for LBE, lack of funding, insufficient staff availability for those kinds of things.

Based on this information, the objectives for the guide are to describe the value of clean energy LBE programs and activities. That is, why governments should care and how they can benefit by pursuing LBE. With this guide we also wanted to identify the measures and practices that states are pursuing and have been having success with and to provide examples and case studies from around the country of what's happening and documenting the steps for developing, implementing, and ultimately tracking and evaluating a comprehensive program.

So with all that we've come up with a long document but we think we've hit on the right topics that support states that are both developing comprehensive, multiple agency LBE programs but also those states that are expanding smaller efforts are starting on smaller scale LBE activities. I should also point out briefly that the focus here is clean energy in the building sector. We're not covering transportation programs although we recognize for many states this is a key component. We prefer you refer transportation questions to the Office of Transportation and Air Quality at EPA. They have a lot of information on this.

Slide 2: Overview of Contents for LBE Guide

Niko Dietsch: So, as I move to slide 1, the table, just to go over this briefly Chapter 2 gets into the opportunities and measures outlining LBE Programs. We talk about six key efficiency and renewable strategies: improving renewable facilities, integrating EE and RE measures in green buildings, procuring efficient products, and purchasing power and then supply technologies.

With Chapter 2, we draw heavily on the ENERGY STAR's guidelines for energy management document that lays out a comprehensive and robust strategy for improving efficiency in these programs. Then Chapters 3 through 6 of the guide are focusing on steps in developing an LBE program and the process that's entailed by doing so. Chapter 3 is establishing the framework and identifying the team of people across agencies who will participate, obtaining support within the government, setting goals, initiating the program, and so on. Chapter 4 is greening activities and measures. So this provides measures on assessing the universe of activities described in Chapter 2 to hone a small portfolio of high priority options from the perspective of your unique situation in state government and then describe the resources and tools for how to combat this greening process. Chapter 5 is developing a comprehensive program, so we address key design and implementation issues, how to integrate multiple individual LBE activities into a program, what some financing options are how to effectively conduct communications and outreach. And then provide technical and financial assistance to local governments and I think that big opportunities are there particularly in light of the stimulus funding. Chapter 6 is tracking, evaluating and reporting, and of course, this is a key component, everybody wants to know how well they're doing and we provide some resources and tools and options for those doing so in tracking and evaluating.

So each of these chapters is supported by a lot of examples. There are more than 20 case studies in all. We have 10 appendices with additional information. A lot of work has gone into the document, each chapter describes which appendices are related to the subjects discussed as I just mentioned. So moving onto the next slide.

Slide 3: Quick Turn Review of State Policies/Activities

Niko Dietsch: So moving on to the next slide. Clearly this information has taken a while to gather. We'd like your help in ensuring that the data we selected for your state is still accurate. We started gathering information...it must have been a year and a half or more ago. So I think that there's a lot happening with LBE both the policy side and administratively and at state agencies Web site URLs change, staff contact information changes, so we want to make sure we have the most up-to-date information possible for your state. So, if you have time and are interested I'd encourage you to go to the Web site listed on this slide and select the full document for view and use the search function and type your state in and identify the examples of case studies we've listed for your state, and just confirm that's the right information.

Appendix G is a list of contacts in your state dealing with LBE and we want to make sure that the phone number e-mail, and personnel listed are correct. We've already conducted a review of content and issues more broadly with the guide so this is just really making sure the information we have on your state is accurate. So it's a limited review. If you have time and can do this by next Friday the 27th that would be fantastic. It's a tight timeframe. But we'd like to get the guide out as soon as possible particularly in light of the opportunities presented by the recovery act funding. So please let me know.

Slide 4: Status

Niko Dietsch.: On my final slide is some contact information. So that's about all I have. I look forward to hearing from our speakers. Please contact me if you have issues with how we've presented the information on your state in the guide. Thanks.

Catherine Morris: Any questions for Niko before we move onto our state presentations? If you have one, hit # 6 and we'll be able to hear you.

Energy Efficiency in State Government Operations—Lead by Example in New Mexico

Slide 1: Energy Efficiency in State Government Operations—Lead by Example in New Mexico

Catherine Morris: Well, let's go ahead and move into our state presentations. I noticed that there is a lot of material to cover that they won't be able to get to in 10 minutes, so we want to be sure that we give you enough time to ask questions about some of these slides that they can't cover in detail. I'm going to first turn it over to Erik Aaboe; I hope I pronounced your name correctly. You can correct me if I'm wrong. Erik, I understand you've been overseeing this program in New Mexico for a while and fill in the details in terms of anything you think we should know about your background.

Erik Aaboe: Thanks. Can I have the desktop? I actually made some changes to my presentation. Very minor changes but I thought I could use those slides if that makes any sense. If that's makes sense.

Catherine Morris: Sure. No ... Got it?

Erik Aaboe: My name is Erik Aaboe and for 11 months I've been the Lead by Example coordinator here in New Mexico. Did you guys get a change of slide? Catherine?

Catherine Morris: Not yet. Oh, there you go.

Slide 2: Establishing LBE Activities

Erik Aaboe: Since this is a relatively new program, I thought I would go into the creation of the program. Thought that would be useful to folks. And the things you might want to consider are bulleted here. Would they have an impact? And, do you have the existing policies in place to make implementation work? Do you have a staff or resources you could focus on this? And do you have support? Here in New Mexico, our governor happened to write a book called Leading by Example, and so he's totally on board with this and has a number of programs.

Slide 3: Management Support is Crucial

Erik Aaboe: If you happen to be in a place where the leadership is not in tune with these principals maybe there are some other considerations that they might be able to focus on: good government, responsible government initiatives or the financial impacts. Governor Richardson has put together a large number of executive orders...

Slide 4: Governor Richardson's Climate and Energy Executive Orders

Erik Aaboe: ...developing a cabinet level development council in 2004 going through a greenhouse gas reduction policy. It's a CCS model that a lot of states have gone through in 2005. Establishing a green building requirement for state buildings—LEED silver for state buildings with an energy component. Fifty percent of CBECS (Commercial Buildings Energy Consumption Surveys) for the building type in 2006. When the climate change process was

completed there are a number of activities and policy options that were suggested, and so he made some directive space on that. And in November 2007 he put forth energy efficiency goals for state government. That actually, the energy efficiency goals were the most, had the greatest reductions in greenhouse gas emissions. And in 2008 put some policies together for telework and flextime.

Slide 5: Suggested Organizational Structure—December 2006

Erik Aaboe: And we got some support from EPA's Clean Energy and Environment Office in 2006 and ENERGY STAR. And we had some staff do brainstorming on what would be a good organizational structure for us. So as you can see, the clean energy development council off to the right, these agency heads who report directly to the governor. We figured that a position – this was called Government Energy Efficiency Coordinator at the time—a position that would really be reporting to a number of agency heads and responsible for implementing energy saving practices throughout state government. Figured that would be a good model for us. It's an unfortunate acronym but that didn't stick.

Slide 6: Executive Order 2007-053

Erik Aaboe: The executive order in 2007 set these goals, and there are many executive orders and legislative actions similar to this, but it's relatively broad based. There are state energy reduce goals of a 20 percent reduction. Same thing for state vehicle fleets. And there is also a per capita statewide set of targets, which you can read on the slide here. This is the executive order in November of 2007 that created the position I was hired into. So I was hired in April of last year.

Slide 7: Where to Begin?

Erik Aaboe: On the ground we already had management support. We already had a number of policies and our state energy office—Office of Minerals and Natural Resources Department—they already had expertise for outreach. Through some work, we already had funding through extra projects, so our focus was really on implementation. That's why they chose to put the position in our General Services Department where there's fleet and building management responsibilities. And, this is really closer to where the rubber meets the road as opposed to more policy focused. But your mileage is going to vary depending on what your organization is and what you all need, where they person would focus.

Slide 8: Always Expect the Unexpected

Erik Aaboe: With a position title of Lead by Example Coordinator, it's kind of a Rorschach test so people would send requests for information on a large number of things and outside of the original scope. The bicycling lobby is actually very active, there are not enough slots. We need to get some of the bail out money to get employee biking benefits money on the ground. It's actually really interesting to have a wide open job title like that.

Slide 9: Implementing EE EO for Fuel

Erik Aaboe: I do have a responsibility to reduce fuel use. I know this is a little bit separate from the general topic but that is a big issue. So, for us we happen to have a central fueling card system, but there are a number of fleets. It's a relatively complicated structure. But, the reporting is. We saw there was an opportunity to generate some reports from distribution to agency head to make sure the appointed folks on staff are on track to meet targets. One of the challenges has been in the application of technical solutions, to be able to facilitate more efficient webinar and conference calling has been really a challenge.

Slide 10: Implementing EE EO in Buildings

Erik Aaboe: In buildings the control division has been able to acquire some funding from the legislature in prior years. Three to four year money to be able to do energy efficiency projects because of the management support. So the various building owners are interested in doing those upgrades because there is some funding that's available. The opportunities and challenges really relating to the changing environment in the last year. I've been doing this for 11 months, and in that time our state budget situation has turned sour and also the stimulus money has kind of changed the tone of the game as well.

Slide 11: Lighting retrofits—High Priority

Erik Aaboe: One of the things we've been focusing on first, this is something relatively new, it's in our 11 million square feet of buildings. We probably still have a lot of low hanging fruit out there in improving technologies, but we did focus some time on—in addition to making sure we were making these technology changes—that we were doing some good work in leading by example in recycling the fluorescent lamps that were removed. Tube lamps, you're probably all familiar that there's a big hub-hub about mercury and CFO in fluorescent lights that are probably over your head right now. We went out and acquired a system to recycle those bulbs. And even if we do contractor work we have them leave the lamps behind and we'll do the recycling of them.

Slide 12: Building Energy Use Tracking

Erik Aaboe: This is a hugely important component and it's something we focused on using Portfolio Manager from EPA. We have a distributed system of payment so the compliance and making sure that agency staff keep the systems updated is an ongoing effort. There is no doubt about it. We do not have any automated methodologies to go between our utilities and the tool, and because we have some relatively unsophisticated rural electric co-ops as energy providers, that's not even an option.

Slide 13: EPA Portfolio Manager Example

Erik Aaboe: We also do have responsibilities to do green power purchasing and we track them separately on spreadsheets until portfolio manager makes a change. Here's an example of one of our facilities, the penitentiary of New Mexico. As you can see the, it's not eligible for an ENERGY STAR and we didn't really expect it to be. But, you can see it costs us about a million dollars a year for this one facility, about a half million square feet.

Slide 14: Penitentiary of New Mexico

Erik Aaboe: And, I wanted to show you one of the pods within this facility as one of the buildings that we're really looking for perhaps some stimulus funding to make changes. One of my responsibilities is to address the ongoing, as projects are rolled out, the improvement of projects we really want to take into account, how can we improve the performance of these buildings. So this is one of a couple pods. It's a maximum security pod at the penitentiary of New Mexico. The blue dot shows where the boiler is and there is more than a mile of eight inch steel pipe insulated with light-weight concrete, which light-eight concrete isn't necessarily a great insulator with 160 degree water running through these. We're losing a lot of heat. There's a maintenance problem because steel and concrete do not really match too well. So we're actually proposing that we replace the single boiler with some distributed high-efficiency boilers, and we'd get a very prompt payback for this, which is unusual for something of this size.

Slide 15: Helpful Resources

Erik Aaboe: There are a number of things that are useful, and a couple of them have been mentioned. I learned a lot from the fourth bullet down—EPA's Building Upgrade Manual. It's a really good book that describes procedures to run through and to make assessments. It's something worth perusing. That's pretty much it. I'm racing through this just to accommodate the time, but if you have any questions, please don't hesitate to contact me.

Slide 16: Erik Aaboe Contact Info

Catherine Morris: I'll give folks a the chance to ask follow up questions right now by hitting # 6 on your keypad, then you can talk to Erik directly. Perfect timing. Thanks a lot Erik. Questions? And you can see his contact information if you do want to follow up.

Question and Answer:

Catherine Morris: One of the questions I wanted to ask is to follow up on your comment about how you have had to both readjust for the shortfalls in your state budget and possible some more money coming in through the federal stimulus package. Have you had a chance as a state to really sit down and think about how that affects your Lead by Example programs?

Erik Aaboe: The concept of the program when I was brought in—and I think I was selected because I had some implementation experience, and I thought we had to really work to put procedures in place—do some upgrades, make some progress, before we start telling people to follow us in the Lead by Example model. And so because we were able to secure some funding from some of the forward thinking folks who do our capital and replacements, we're going to be able to do a number of projects irrespective to the changes to the operating budget. So our focus really is on improving our building stock, and we're fortunate because we happen to have a number of funding mechanisms. The stimulus is a big one but a number of funding mechanisms are already in place.

Catherine Morris: Thanks. Other questions? Niko are you still on the phone? We had a question about trying to actually check in and provide comments on the Lead by Example Guidebook. You did have a slide that showed the username and password to login, and one of our participants tried and forgot the username and password. Can you repeat that if you're still with us? Or, if you want to send the information to me, I can send it out in writing to the whole group.

Niko Dietsch: Yeah, let's do the latter.

Catherine Morris: Alright, I'll send that information out again. And I should have said that all the presentations as well as the executive summary, a somewhat abbreviated version of the executive summary, of the Lead by Example Guide have all been posted to the Keystone Web site. You should see that in your welcome chat and it was also on the agenda, but I'll send that link out to people that would like to follow up and get the presentations materials.

State of Ohio 2007 Energy Initiative Executive Order 2007-02S & U.S. EPA Portfolio Manager

Slide 1: State of Ohio 2007 Energy Initiative Executive Order 2007-02S and USEPA Portfolio Manager

Catherine Morris: Now I'm going to hand it over to Lane Beougher, and Lane is going to talk about his experience in Ohio.

Lane Beougher: I'm going to pick the spotlight up so I can move around. My name is Lane Beougher. I am an architect, and I work in the state architect's office in the state of Ohio. One of the program units in our office is the Office of Energy Services, which at the current time are two very talented engineers who are classified as energy specialists. One does mostly capital projects with a fund of money that we get from the legislature, and the other is focused on performance contracts. They both do a lot of work for the Department of Corrections. Our program is fairly mature. We've been at this about ten years, so we've got a little bit of experience.

Slide 2: Ohio's Chronology

Lane Beougher: We've had some experience over the years with EPA and ENERGY STAR and the Green Lights program early on. We got a new governor in 2007, who promptly as his second executive order issued a requirement for energy efficiency with reduction goals. So, over the state's energy expenditures and consumption, his goal was to save 5 percent in the first full fiscal year of his term and by the end of his term (June 30, 2011) we are to save 15 percent.

Slide 3: Facts about Ohio's Program

Lane Beougher: We're also asked by the Executive Order to create a tool or adopt a tool. And here are some of our calculations on our progress. The number of capital projects we've done, or at least the square footage, construction costs, and annual savings, and we're just about over 5 million dollars in annual savings each year based on the whole program from its inception.

Slide 4: Elements of Executive Order

Lane Beougher: The governor's Executive Order created an advisor, who is Mark Shannahan in the Office of Air Quality and Development. It also required each agency to come up with a person to become accountable for their energy use. And then, the Department of Administrative Services where I work was required to come up with a tool to track consumption and allow auditing of the facilities. We had Julio come in once again and talk to us. He gave us some early training in January-February of 2007 and by the deadline we had adopted Portfolio Manager and we began rolling out some training..

Slide 5: Elements of Executive Order (cont.)

Lane Beougher: ...which started with some web-based training followed by some face-to-face training for agencies that had larger staffs and need that extra effort. Our deadline to get the baseline data in was June 30, 2007, and we fell a little short. Obviously, energy bills take a little while—read the meters, and process, and have in front of you so you can enter the data. That's been an ongoing issue of getting people to respond in a timely way and be able to pull a report that's current. But at the end of our first fiscal year (June 30, 2008), we ended up showing a 9.5 percent reduction. Now, some of that can be attributed to some missing bills, but I was very vigilant in getting everybody to get their data in. I did eventually pull the final report about 3-4 months later. We were very pleased with the result on one hand; on the other hand it meant that we were doing ok without spending additional dollars so it's kind of a double-edge sword. Once again, our deadline is 15 percent by 2011.

Slide 6: Chosen Approach

Lane Beougher: I mentioned we selected Portfolio Manager. Cadmus Group, Julio, helped us put in the data initially. We used our risk management database, which lists all the buildings, their square footage, and type of construction. Once that happened, we set up accounts and rolled that into a master account we manage and provide training. Sherry Hubbard in our Ohio Energy Office group provided some help desk support as well.

Slide 7: Chosen Approach (cont.)

Lane Beougher: Once again, we got through the baseline period fairly well. By the end of the first year, we were actually measuring it, I was very confident in the baseline data and its accuracy. We still have a couple non-cabinet agencies that are holding out and refusing to participate, but most cabinet agencies are doing it and understand the importance of it.

Slide 8: Chosen Approach (cont.)

Lane Beougher: We also are looking at the tool to understand the energy use of each facility. When we're looking at doing a performance contract or capital project at a facility, my energy specialists can go in and see what the consumption is. Maybe go to the site and look at the actual bills and verify if they're accurate or not. Last July, we also acquired a list of consultants. There are about 45 consultants who have expressed an interest in helping us with their energy program, and we're about to deploy them and start doing some physical audits and also some verification at each of these facilities.

Slide 9: Current Work

Lane Beougher: Obviously, doing the renovations and so forth will require additional money. I was hoping there would be some stimulus funds available. Sherry told me last week that she is getting 96 million in state energy dollars and there are 3.6 billion in applications on the Web site so far. So, I'm not sure. It's going to be fight for the money.

We are tracking not only state-owned buildings but also leased buildings. Agencies were asked to verify the data, make sure they matched meters to the buildings. Cadmus only put in the

buildings. Agencies had to go in and figure out which of their bills matched which of their buildings.

Slide 10: (Untitled)

Lane Beougher: This is a screen shot of the tool itself. Erik showed us a little of this earlier. I came up with a view that seems to work, where I've got current site energy and testing, total site, and whether normalized, electric gas, cost, and then greenhouse gas emissions. We complained a little bit to EPA through Cadmus and said the process in only identifying where there is reduction in greenhouse gas emissions was not doing us any good in managing a large portfolio of 1,029 facilities. So they modified the tool a few months ago, and it now tracks increases and decreases. We can get good data out of the system as a metric for the whole portfolio. So, we really appreciate that change. Data is one thing, but it's difficult to read especially for architects like me. I'm a very visual person.

Slide 11: State of Ohio—All State Owned Facilities

Lane Beougher: I like graphs. So, I started tracking it in a graph form. Each point represents a quarter. This is our reduction showing the 9.5 percent decrease. Each of the lines, this is our baseline (red line), this is our five percent goal (blue), and the green line is our 15 percent goal. So, I'm tracking energy intensity, and total energy, and gas on that screen.

Slide 12: State of Ohio—All State-Owned Facilities Scorecard

Lane Beougher: This is a sample of the explanation or narrative for each scorecard. This is the state's overall. You can see, we've placed the current reduction in the corner. It talks about which agencies are participating, which are not, and how much square footage we're tracking.

Slide 13: (Untitled)

Lane Beougher: This is the screen for the building I'm sitting in now. Basically, the scorecard is the same. Looking at the baseline which is June 2007 versus our current period, which right now is December.

Slide 14: (Untitled)

Lane Beougher: Once again, you look at the data and it's one thing. We also had an issue with some of the agencies not understanding the split bills. We had one bill for supply, one bill for delivery, and they couldn't understand how to reconcile and consolidate those into one meter. So, I put out a spreadsheet, which was originally this first section here, and then started adding some detail and some bells and whistles and then finally ended up with some charting tools.

Slide 15: DAS General Services Center—4200 Surface Road:

Lane Beougher: This allows us to see a little bit more granular fashion of individual facilities, what each type of type of energy consumption is month to month and year to year. So, it's a little

more data than you get out of Portfolio Manager, and it's a little more labor intensive, and I'm only doing it on facilities I'm tracking for our department.

Slide 16: Ohio Department of Administrative Services—General Services Center

Lane Beougher: And then I'm tracking these metrics on a monthly basis and you can pull that data very easily out of the tool. The quarterly reports, I'm currently asking for an e-mail to report and then linking that to my charts in the spreadsheet.

Slide 17: Activities in parallel

Lane Beougher: So we have kind of a three pronged approach. We've got design standards that we're adopting by rule. We're also doing an Moderators certification training program, which by next Sunday the 29th will be mandatory for each agency to have a certified building Moderator at each of their facilities or for each of their districts depending on the type of agency. We also have an awareness campaign. My feeling there is that the traction isn't as great as it should be in some agencies. Others are really going gangbusters.

Slide 18: (Untitled)

Lane Beougher: This is just a page of our rules. We're looking at LEED. Right now it says "designed to achieve." I had stronger language before. But, we've also rolled in the energy efficiency metrics that are in the federal guidelines or federal law based on the 2030 challenge. We haven't gone through the hearing process on this. I'm sure there will probably be some vocal opponents and supporters.

Slide 19: (Untitled)

Lane Beougher: This is the rule for the building Moderator certification. We have some waivers in place for Moderators that are certified under other programs.

Slide 20: (Untitled)

Lane Beougher: Part of our awareness campaign was to roll out a Web site. As you can see, we're featuring agencies and a few COs in leased space. But, they're just going around and taking out light bulbs and doing all kinds of things to save energy even though the state's not paying directly for the energy. They're really gung ho about the program.

Slide 21: Green Energy Ohio (GEO)

Lane Beougher: Another demonstration project that was implemented a few years ago was on our governor's residence carriage house. Green Energy Ohio put in solar panels. These are currently owned by the suppliers; they're just on loan. But, there's a Web site that you can go to through GEO and see how much energy is being produced and how many cups of coffee that would brew.

Slide 22: Ohio Federal Stimulus Initiative

Lane Beougher: You mentioned the stimulus, and I mentioned that we have four times as many requests as we have money for the state energy program. Right now we're triaging those requests and trying to make sure everyone gets contacted and knows what the application process is for those programs.

Slide 23: Contact Information

Lane Beougher: There's my contact information in the middle. Jeff Westhoven is our deputy director, and Sherry is our Lead by Example Coordinator. She operates our Ohio Energy Office. That is the end of my presentation.

Question and Answer:

Catherine Morris: Thanks very much Lane. We've had a couple questions that have come in online. One is regarding the certification process. I'm wondering if you know of any other states that have followed your lead in trying to designate certifying operators' training requirements for them.

Lane Beougher: I don't know. The requirement and the rules statements for that came from our properties and facilities folks, and I'm sure they did some research on other states. I think it's a program that has a lot of merit. They go into portfolio manager and teach them how to enter data and how to analyze the data and obviously talk about how to maintain a facility properly. I'm not sure if any other state has a mandate like that. I'm afraid I'm not answering the question.

Catherine Morris: Another question is, why in your proposed rules have you exempted higher education?

Lane: House Bill 251 was passed about two years ago and set another goal, a separate goal for universities. So they actually have a goal of reducing their energy consumption by 20 percent by 2014. Our roles only cover state agencies; they have their own mandate.

Catherine Morris: You mentioned in your presentation that you had some agencies that were reluctant to join the Lead by Example programs and opportunities. Can you give us some insight into why that was so?

Lane Beougher: I think the communication wasn't reaching them. Obviously, the governor has pretty good of his cabinet. So each of the agencies that are cabinet level agencies he tells them to do it, they'll do it. A lot of the boards and commissions—and we've got an Ohio Historical Society, which is kind of a quazi-governmental entity—were kind of slow in coming in. We've also got our state house; it's actually managed by a board, and they have taken some different approaches. They are tracking their consumption differently, and they have done some audits on their own. We also have the Ohio Building Authority, which was created to finance five state buildings, and they are actually more aggressive than we would think to be in trying to get their energy consumption down. Each of those five facilities are ENERGY STAR labeled, so they've

kind of done this a few years ago and they recently came in. So, even the ones that were reluctant to do it at first are coming in as we go along.

Catherine Morris: We had a question come in about one of your earlier slides that showed graphically the general services buildings – the general services administration buildings. Can you show us that slide? There was a question about some of the information on there.

Lane Beougher: So we're talking about the graph? ...

[Now on slide 16] Catherine Morris: There was one that had a black diagonal line. They were asking what the significance of the black diagonal line was.

Lane Beougher: The black diagonal line is just the trend line that Excel can do. I just used the linear trend line. It shows whether we're going in the right direction or not. It takes the average of all the points. If you took calculus in college you could figure out what the slope of that line was and where you'll be in 20 years or something. Some of our facilities are showing lines that are going up significantly. Our computer center for instance is really going off the chart. We keep putting more equipment in there, so it's got a line that's equally as acute going the other direction. Obviously, since it's larger, it makes the whole agency look pretty bad. But we're doing some things out there to try and remedy that with more energy-efficient cooling and UPS devices and we're also looking at more efficient servers to replace our entire server arrays.

Catherine Morris: And one more question online: Has there been a total drop in your CO₂ emissions per square foot overall for your agencies?

[Questioner]: Can I chime in there? This is my question. I was wondering if it looks like your Btus per sq foot has dropped off and your total carbon emissions. Have you increased the size of your footprint?

Lane Beougher: Have we increased the size of our carbon footprint?

[Questioner]: No, of your actual physical footprint. Have you been growing?

Lane: Well, that's another thing. In looking at how and what to measure, we did a lot of thinking about, if an agency is expanding are we going to use total energy or are we going to use intensity. And so we thought we might give them the benefit of the doubt and say, if you're expanding then we'll say you've met the goal, if your intensity goes down. So you're building more efficient square footage but your actual total energy increases, you ought to be recognized for building more efficient square footage. You don't want to punish somebody because their program is expanding. We also have a couple agencies that are consolidating facilities, and so we said we would also recognized them as meeting the goal if their total energy decreases. As long as their intensity isn't getting out of whack. As they close facilities, their total energy is going to decrease and, obviously, we're looking at their intensity as well. So, there are a couple different scenarios for each agency. As far as the state in total, we're tracking pretty evenly. So one agency consolidating, one agency expanding, kind of evens out over the whole portfolio and the whole portfolio is over a half a billion square feet—a fairly large infrastructure.

Leading by Example Program: Commonwealth of Massachusetts

Slide 1: Leading by Example – the Commonwealth of Massachusetts

Catherine Morris: Thanks a lot Lane. I'm going to now turn it over to Eric Freidman who is the director of the LBE program in Massachusetts. Eric, we'll cue up your presentation for you.

Slide 2: Discussion Topics

Eric Freidman: Thanks for having me on here. It's great to be a last minute addition. I'm sure you'll here a lot of consistent themes in my presentation with the previous two speakers both in terms of approaches and barriers.

Slide 3: Executive Order No. 484

Eric Freidman: I think we can skip this because we'll just get into some of the topics.

Slide 4: EO 484 Requirements

Eric Freidman: I'm the director of the Leading by Example program here in Massachusetts. The program is overseen by two executive agencies—Energy and Environmental Affairs and the Administration of Finance—who are chairs of the Leading by Example council. The program has been around for a number of years, but was formally and officially codified by Executive Order 484 issued by Governor Patrick back in April 2007, just a few months after he took office.

The order does a number of things. The first thing it does, which I think is important for any program like this, it to set targets and goals in a number of categories. As you can see here, we have a series of greenhouse gas emission reductions, for energy reductions, increasing our use of renewable energy and also our use of bio heat instead of No. 2 oil, and also some water conservation targets. For most, there are goals for 2012 and 2020, but we do have that nice light blue, long term goal for greenhouse gas reductions, which is 80 percent by 2050, which we're told we all have to do to save ourselves if not go even faster. The Executive Order does apply to all executive agencies as well as our higher education, our 29 state and community colleges and five UMass campuses. There are a number of other entities that are participating, and although voluntarily, are participating very fully. Agencies like our trial court, which has dozens of facilities around the state, and some of our other authorities: our airport, water resources authority, turnpike authority, and so forth.

Some of the more specific requirements in the Executive Order...a number of energy efficiency requirements. I'm not going to walk through them all but simple things such as:

- Banning the purchase and use of incandescent bulbs
- The requirement that all exit signs have to be LEDs
- Procure only ENERGY STAR equipment and office equipment
- And also looking at some of the larger building projects and requiring the state to do comprehensive energy projects at all facilities over 100,000 square feet

- And also looking at metro commissioning at some of the smaller-medium-sized facilities, which means going back and looking at all of our affiliates and making sure they are operating in the way they were designed and that equipment is not broken or not working properly.

The order also established a green building standard, which we call Mass. LEED Plus, which essentially requires all state construction projects to be LEED certified, but also added on a couple of other energy provisions that were minimum requirements. The main one is that all of our buildings had to perform 20 percent better than the Massachusetts energy code, which at the time was at a ASHRAE standard based on 2004. That code has changed now and become more efficient, and also we're now looking at the next iteration of a green building standard. There are also a couple of other criteria having to do with water conservation and smart code criteria. All buildings over 20,000 square feet in the state have to meet this standard.

Slide 5: (Untitled)

Eric Freidman: The next slide shows an example of the letter the governor sent to all agencies last year reminding them that Lead By Example was a priority and encouraging them to specifically take steps to lay down the provisions of the Executive Order and lay down some specific paths and efforts that all agencies should take.

Slide 6: Legislative Context

Eric Freidman: The Leading by Example program is really just one small part of a much broader effort here to change the way we address energy and renewables. In Massachusetts, there were five fairly significant bills that were passed last summer that pretty much change and transform the way we deal with energy here in the Commonwealth. Some key things that will affect both of our state and private facilities include things like decoupling rules, which I won't go into, but we can talk more about that was related to the legislation though not directly included in it. Also, will result in a whole host of new funding opportunities through utilities as well as other funds coming to the state. Some of which will be available hopefully for state projects.

Slide 7: Legislative Context

Eric Freidman: The next slide goes more specifically into some of the impacts of the legislation. Some of the big ones are that utilities are now required to fund energy efficiency as long as the costs of those efforts are less than the cost of new supply. We expect that to double or even triple the expense on efficiency. Right now it's about \$125 statewide, we expect that to go well over \$200 million into \$300 million in the next several years. And there were a couple of provisions in the bill that will help speed up some of the energy work and construction work on state projects. I've listed just a few of them here, but one of the ones that we're looking forward to is a provision that exempts our agencies from going through state construction laws for efficiency projects if the utilities are providing incentives that cost less than \$100,000. We're now permitted to engage directly with the utilities without a competitive bid process, because they have incentive programs that nobody else can match and start putting together efficiency

programs at hundreds and hundreds of small buildings throughout the commonwealth. There are a couple other provisions that will help facilitate our projects as well.

Slide 8: Leading By Example Council

Eric Freidman: This is just a slide on how our Lead by Example council and the program is managed. We do have a council similar to other states. Made up of key states, some of which have specific issues, such as our office of environmental protection or along with a whole list of facilities that are very large agencies. So, all of our colleges, Department of Corrections, our parks agencies, and our health and human services agency. So, they all sit on this council and they meet periodically to review programs, policies, and also get feedback on what assistance and information would be most helpful to them. And we do encourage all agencies since there are a number of non-executive agencies that participate voluntarily.

Slide 9: Energy Strategies

Eric Freidman: So when we talk about energy, this is kind of the list of all of the different things we think about when we're trying to do energy, all the way from our new construction down to renewable energy to alternative fuels to products that we buy to looking at our fleet.

Slide 10: Green Buildings

Eric Freidman: So I'll just walk through a couple of these quickly.

Slide 11: Energy Efficiency

Eric Freidman: So green buildings, we had our first LEED certified building a number of years ago and we're in the process of certifying a number of LEED buildings right now. This one was modeled to perform 35 percent better than code and include a lot of renewable. Comprehensive energy performance contracts through energy services companies, this was a big one. We generate about a 10 years savings, so this one is producing energy costs about \$1 million a year. We'll be doing this across the state.

Slide 12: Energy Efficient Products

Eric Freidman: Products: there a couple things we look at. Incandescents, exit signs. One of the things we did recently was issue a new computer management standard in collaboration with our information technology division that requires all agencies to establish a computer management policy for all computers with several small exemptions. We estimate that, with the 50,000 computers we have, that we'll save about \$2 million a year, presumably at no up front cost because, as most of you know, there's a free EPA software that you can download to actually help you do that.

Slide 13: On-site Renewables—Wind

Eric Freidman: The next two slides talk about on-site renewables. It's a big part of our program, looking for every opportunity for large scale wind turbines. 660 kilowatts here at the Mass Maritime Academy, but we're looking at a number of more sites for more turbines of 1-1/2 to 2 megawatts each. So we hope that over the next years we'll have more than 5-10 megawatts in state facilities.

Slide 14: Onsite Renewables—Solar

Eric Freidman: We're looking to put a lot of solar up wherever we can. Recently, we used several million dollars of federal CREBS money (Clean Renewable Energy Bond money) as well as some other money to install a megawatt of solar across 10 sites across the state.

Slide 15: Onsite Renewables—Biomass

Eric Freidman: Biomass is another renewable energy fuel/resource we're looking at.

Slide 16: Alternative Fuels

Eric Freidman: We have one large scale biomass plant up, and we're looking at a number of smaller ones, and also looking at opportunities for biomass combined heat power at some of our larger campuses. We've also been looking at biofuels, although this is a little bit on hold, just based on some of the low carbon fuel standard results coming out of California, and we may or may not be pursuing this as we go along. We did do a pilot a couple years ago doing bioheat at several agencies and they actually loved the product because their boilers ended up cleaner than they were at the beginning of the year.

Slide 17: Energy Tracking

Eric Freidman: So the next slide talks a little bit about our energy tracking efforts. I'm very impressed with the previous two speakers talking about some of their energy tracking efforts. We too are trying to figure out how to track our efforts in 65 million square feet of buildings and thousands of electricity and natural gas accounts, all of which come from multiple utilities and are paid in different ways and different people. I'm impressed Lane that you were able to get all of your agencies to actually input that data. I think we would have had a revolt on our hands if we had tried to do that.

Our approach is to actually try and use a third party to develop an automated, online tracking system that will take data directly from our utilities and upload it to a site where we'll be able to take a look at energy in a whole host of different ways. We'll actually be able to track energy use and track our progress towards our goals in the Executive Order. We'll also be able to track down to the building and complex level so we can start making comparisons across the Commonwealth, not just agency to agency but also within an agency. So, our Department of Corrections can look at their different prison complexes and start understanding which complexes on a square foot basis are using more energy and start trying to identify why and address the energy issues. Right here as an example the source kBtu per square foot energy

intensity in all of our community colleges, and is one of the ways we're going to prioritize which facilities are going to get energy performance contracts and energy efficiency efforts.

Slide 18: Financing Options—Renewables

Eric Freidman: The next few slides focus on what some of the more interesting and creative financing options are that we're trying to access here in Massachusetts to fund some of our efforts. We do have the luxury here in Massachusetts of the Mass Renewable Energy Trust, which is funded by a small fee on everybody's electric bill that goes into a small account that is distributed out based on a whole host of criteria to facilities around the state for renewable energy projects. That is one source that we try and help reduce the cost of renewable energy. Part of that, they have a commonwealth solar program and have set aside a certain amount of money for public buildings through a streamlined process. And then we looking at small solar projects, and don't really need to talk about that.

Slide 19: Financing Options—Efficiency

Eric Freidman: For efficiency there are a number of funding opportunities. The one we've traditionally used is to actually have third party financing and then do a performance contract, and then pay for the cost out of those savings. We were traditionally helped by 10 year pay back by law, the new law now allows us to use a 20 year term. And we either use Tax Exempt Lease Purchase, which is sort of a third-party bank that provides a low interest loan, or an energy services company provides the financing and we sort of roll the cost of that financing into the total project cost. The advantage of that approach is that there is no up front capital required. You can address long term energy reduction and approved facility maintenance. You get a lot of differed facility maintenance without using capital costs and obviously start helping to meet your energy and greenhouse gas reduction target. With Lease Cost Energy Procurement the latest legislation will help provide some additional funding to utilities and get some incentives there. And again we have that provision that allows us to immediately access with no upfront money small efficiency projects in Massachusetts directly through the utilities.

Slide 20: Financing Options—Other

Eric Freidman: There are also a couple other financing options that we either have access to or are trying to access. Third party ownership model for renewables, power purchase agreement. Fairly simple concept: you hire a third party who agrees to come in and agrees to install and maintain given product, let's say a solar array on your roof, and then you would buy the power from them for 20 years and everybody wins. So, we get lots of solar up, don't have to pay for it, don't have to maintain it, and we get a relatively fixed price for power over long term. There's lots of advantages of the model, and we're looking to get that out on a large scale across state agencies, particularly for solar.

We're also interested in waiting for the guidance to come out on the new round of CREBS. These are zero interest renewable energy bonds specifically designated at public entities who can not take advantage of tax credits. We did, as I said, access several million dollars of CREBS over

the last few years for our megawatt of solar, and we're looking to hopefully do that again in the future. Hopefully this round will be less complicated than the last one.

And then lastly, demand response. In our grid, not sure if this is true across the country, but in our grid in New England the ISO has a program that enables you to sign up and agree to reduce power if there is ever an emergency. And regardless of if they ask you to reduce power, they will actually pay you a certain amount of money per year based on your commitment. We've earned several hundred thousand dollars over the next few years, and expect that amount of money to go up.

Slide 21: What's Next?

Eric Freidman: So, where are we headed? There's a lot going on as far as stimulus money. We're looking to take some of that money and really leverage that in larger projects across the Commonwealth and in the mean time we'll be looking at a new task force report that came out from zero net energy task force that the governor appointed, and we'll be establishing a new performance standard that will well beyond the current standard that we're operating with. We're also looking at one to three buildings that we'll hopefully be designing with a zero net energy standard, which is hopefully a building that produces as much power as it uses over the course of a year. We have also, because of the stimulus money, taken an effort with building office to really streamline the process by which we do performance contracts. Historically, we've done three to five of those a year, and we're looking to triple or quadruple that to take advantage of stimulus money and also to get energy efficiency gains up and running on a large scale.

I'll stop there. I think I'm over time.

Question and Answer

Catherine Morris: Thanks a lot Eric. One of the questions that came in online while you were talking was whether or not—and I actually would direct this to the other speakers as well—you've been able to take advantage of the emission reductions of these programs or projects in your state implementation plan or your greenhouse gas goal?

Eric Freidman: That's a great question. The answer is no we have not.

Catherine Morris: Is there a hurdle to doing that?

Eric Freidman: I'll defer to the other speakers . . . I have to check on that. It may be hard.. yeah...I don't know. That's a good question.

Erik Aaboe: In New Mexico, most of our buildings are in Santa Fe and we're in payment for all standards. We're members of Chicago Climate Exchange, so any work we do of course will be tradable, and I'm not sure what will happen with any kind of... I don't think ownership will happen down at the use level for any kind of contemplated cap and trade system.

Lane Beougher: Our program is matched by Ohio Air Quality and Development Authority. I should mention that the bonds we used for performance contracts are actually OAQDA bonds that are financed on the basis that they are generating reductions—greenhouse gas and carbon emissions. So, we're taking advantage of a bond program's basis in reducing emissions. But as far as, I know that Mark Shanahan, the governor's energy advisor, is tracking the Chicago Climate Exchange and they want to get involved in that at some point and they're just determining feasibility. Not sure what's happening there lately.

Catherine Morris: I'll direct this to all speakers, you'll notice in some of our discussion questions we ask whether or not you have had an opportunity to raise the awareness through your Lead by Example programs in both the public and private sector and how you've been able to leverage these programs to effect action by other people.

Eric Freidman: Great question. One of the purposes of the Lead-By-Example program is to try and get out front with some of these issues and try and transfer the knowledge, expertise, and information to other sectors. Couple of quick examples: I think our use of biodiesel and bioheat as part of a pilot a couple years ago gave enough certainty and support to legislators and the governor, who then wrote a bill that required all diesel in the state to contain a minimum of bioresources. So that's one example of where we helped move the legislative initiative. I think on the building side—the Mass LEED Plus—the buildings 20 percent above code also contributed to the recommendations task force that is really pushing for much higher energy standard and recognizes there's a stake in building efficient buildings and it shouldn't be that hard for the private sector to follow suit.

Erik Aaboe: Here in New Mexico there are a couple of programs that some of the local governments and the City of Santa Fe have a similar program. I actually meet with the city's energy specialist once a month. The technologies and things are really similar. The procedures

are really different just because of the nimbleness of local versus state government. But, there's a lot of opportunity there for localities in a lot of cases.

Lane Beougher: In Ohio, we've had contact with several cities who are interested in how we're doing performance contracts. Our school facilities commission has a different program that's basically financing by the energy services company, and I think that's been fairly successful. (There are some issues with the savings and monitoring verification but overall it's been a successful program). The other aspect, we received a Department of Energy grant about a year ago to develop what we're calling an Ohio Green Lease program, where we go into one of our leased facilities and determine if there are upgrades we could do. Paying for design funds out of this grant and one of our thoughts for some of the stimulus dollars was actually using stimulus money to pay for construction of some of those improvements. Our thought was to finance with air quality bonds, but the problem is the landlord would then have to pay back the money, which everyone is looking for free money these days.

Catherine Morris: Thanks. Erik A. had a question for Eric Friedman.

Erik Aaboe: Hi Eric. So, about how much renewable energy capacity have you been able to put in place using renewable energy purchase agreements? Do you have a streamlined process to get that rolling; do you hope for more?

Eric Friedman: Actually, we've not put in any, but it's something that we're trying to develop. We think we're going to try and use what's called our 25A process—our energy performance regulation—to move that forward. We don't know. We still don't have a streamlined process.

Erik Aaboe: So, the first one is going to be really hard, and then you have a track to run it for the rest.

Eric Friedman: Right, and I think our first one we're going to try and bundle 20 megawatts across the state to do it. So, it shouldn't be that hard to do.

Catherine Morris: Any other questions for our speakers? If you haven't already, you need to hit #6 to unmute your line. Well, then let me just remind everybody that you can download these presentations on the Web site that's in your chat box. If you press on your chat box, you'll get the link to that page. A couple of the presentations weren't up earlier today but they're up there now. If you see on the agenda, it's also posted there. They also go up on the EPA Web site. It takes a couple days to get them up there, but you'll see them there as well; there's a link you can see at the bottom of the agenda.

Catherine Morris: One of the other questions that came in was the question of how do you get onto the site with a username and password to comment on the Lead by Example Guidebook and we'll get that information out to you after the call. We'll send out a link and all the information to all the people who participated today. With that I want to thank our speakers again. I appreciate your contribution and everybody staying pretty close to on time. We will have our next call in April, when we'll be talking about the opportunities under the stimulus package, which has now got an official name that is translated into an acronym we can pronounce, but I

can't remember what it was. ARRA We'll be talking about that next month, and we'll send out information so that everybody can put it on their calendar as soon as we know. So, thanks and we'll talk to everybody again next month.

Julia Miller: Great. Thank you.