U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Building Energy Codes Program

Advancing Energy Codes: Improving Energy Code Compliance and Evaluation
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Presentation Video Transcript

I have a confession to make too. I was going to try to stay incognito this conference, but I am the big guy with the beard. Thanks for fingering me Gene. So, I will talk quickly and use small words only. BCAP you will learn a whole lot more about if you make sure you talk with and meet all my wonderful associates here and go out to our booth. There will be a BCAP session Thursday morning that I invite you all to attend. We do know a bunch of things about buildings. We know that at the point of new construction we have an opportunity to impact energy efficiency and energy savings and a pertinent environmental savings for a great long time. Likewise with existing buildings. However, we have learned over time that we have many, many implementation challenges with reaching those goals. We know that support and training is inadequate in most states and has been flowed over the years at the federal level as well. There is a huge misunderstanding of the requirements and how to build them into buildings. Compliance is low. We know that. BCAP knows that because we did a savings gap analysis some years ago and took a look at all of the evaluations that had been done up until about 5 years ago, when I ran out of space to put them in files.

We know also that we are not getting the projected energy savings. If everybody just assumes that we get from energy code, it happens automatically right? The same thing on evaluation side. Code efficacy is not often measured and it is measured in dozens of different ways. In order to get the support of policy makers, we have to have some sort of metric. You get what you measure, right? Also, we are not getting the support of utilities who we feel support so many energy efficiency programs and public benefit fund programs as well. How do we get there? Evaluation is very expensive. The folks in the Northwest will tell you that. They do it. California does it regularly. Finally, we learned in looking at all these myriad evaluations that there are no national standards. In fact, there is very little integration of energy code evaluation with many other efficiency program evaluation standards and discussions.

So, what do we do? It's easy right? We find ways to improve compliance and then we measure their efficacy in a way that hopefully will support energy codes, or bring support to energy codes in the future. So, to that end we recap with the assistance of the energy foundation, we decided to hold some round tables where we just took a look at these two issues. Compliance, improving compliance and how and where and with what do we measure it. We started out with the first round table session at the Resonant Conference in February, where we had primarily residential program providers, Hers Raiders, again Hers program providers, advanced codes, or I should say

advanced building program providers. Followed that we were invited by Nyserta to do another round table there with a very mixed group of residential and commercial audiences and program people, code officials, third party code compliance providers, etc. And we are going to do number three here tomorrow night, so you are going to have another chance to look at this as I zip through it.

Finally, we are going to follow up next week at the Westford Symposium with a commercial audience primarily. Some of the feedback we got at the first round table. Number 1 is energy codes are poorly enforced. All the program people, all the people in the trenches out there were seeing while they were doing their advanced buildings programs they saw that the code officials had a very low knowledge level. They also lacked energy and performance, building performance knowledge, which often times stood in the way of the advanced building programs, so sometimes the codes got in the way of doing better than code and we certainly do not want that to happen. The code officials, the code enforcement officials were looking for education and energy specifically, and in building science, not what BEF might be construed to mean. They have little time in their work a day life to concentrate on energy codes.

Finally, with respect to existing buildings, you know code enforcement, energy code enforcement on existing buildings was virtually nonexistent. We did find that amongst those energy providers, the Hers infrastructure was very interested and willing and in some cases engaged in assisting with this issue. We did hear some things about training that had to change. The program providers thought that we needed to stop training in a silo, so often we trained code officials in one room and builders in another room, designers in another room. We never bring them together, so we are missing opportunities to do a far better job and I see a compadre of mine nodding his head who only believes we should not train in silos, so we have some good feedback here tomorrow night, I hope as well. So get them out of the silos. Get them in the same room.

Finally, we need to do better and more comprehensive needs assessments before we actually do that training and do not just go out and hit the street with the same old stuff, you know, the same old training. Lets go out and ask them what they really need, how they really learn. From round table number 2, on the compliance side, we got...the discussion sort of fell into four pieces. First of all there was the feeling that we need additional infrastructure. The feeling that we got was that the traditional code enforcement infrastructure alone is not going to get energy done. It is not going to get building performance done. So, do we need to take a look at third party or special inspection infrastructure additions? Do we need to look at Hers or home energy ratings as codes, as is used in some places around the country? Do we have to add other folks in the building construction stream, such as building supply houses and certain highly trained design professionals or builders who might act as mentors in that stream to help bring the general consciousness up? We also needed, the group felt that more tools and training were needed.

The general comment was that the res check and comm check tools were fantastic tools that have changed over the last 10, 12 or more years. Compliance across the country and you know we need to make sure they are still robust, still utilized and taken advantage of. We heard about IC3, a private software product that Texas A&M is producing at the energy services lab and what

about other private compliance tools that might help us out here? Also we talked about tools that could be integrated in the design process with the various C.A.D. programs, such as you know integrating comm check or portfolio manager, target finders done in some places. Again, we heard that we need to end silo training and provide more hands on training as stake holders prefer to learn, in the trenches, in the buildings, in the homes that they work in. Two other sectors that we found great interest in is that we heard that consumers and stake holders needed to be given a value proposition to see the level of compliance brought up and to help that compliance level be brought up. We needed outreach to home buyers and owners on energy codes.

We need to emphasize the life health safety aspects of energy codes. You know, code officials spend most of their time on what they consider the primary codes, the life health safety codes and the energy code, for various reasons, has always been considered secondary so you know we need to emphasize that the energy codes to contain considerable life health safety elements so they are more seriously worked with. We also need to train everybody in the community; code officials, the policy makers, you know everybody in the whole train to get this to come along. Then finally, a number of pilot ideas came out. We felt the idea of utilizing the home energy rating infrastructure and raiders as a compliance mechanism was worth getting into, but we needed to put together some really well researched pilots to take a look at that, take a look at all the successes and failures of the folks who have tried it in various places and put together some good pilots and come up with some recommendations.

Again, the code mentors of various sorts, perhaps the estimators at building supply houses or design professionals in a certain region or community and circuit rider training approaches were worth trying, so we need to pilot those kinds of approaches as well. And, we also have to conduct and learn how to conduct and develop some guidelines for conducting training assessments, so we do not just jump up and do the same old stuff and have the same old results. There is some indication that jurisdictions in states that have adopted advanced energy codes are seeing higher compliance levels and we heard that from several areas. We need to research that and try to figure out why that is. There is some interest in energy code professionals being developed in communities from Massachusetts that you will probably hear more about this week. Finally, there was some suggestion that we might start a national focus group to flush some of these different pilot ideas out. Then again you get what you measure. How do we evaluate all this? What criteria do we use? One of the things we learned in the BCAP savings gap analysis was that these evaluations were done over the last 15 years. The data was all over the map. We were pulling this data together to try to figure out what the gap was, you know what the savings gap was between or in the savings lost by low compliance. We could not because all the measurements were all over the map, so you know we need to come up with some criteria.

We need to do bench marking and base lining as a baseline for that. It was generally thought that Ara or the stimulosus provided by Ara could provide resources for guidance on a national metric and then you know could we somehow or other connect the compliance work, the fine compliance work that PNL is putting together some how or other with determining what we are getting in terms of energy savings ans some more real metrics that we might be able to take to the bank, so to speak. Is this evaluation better achieved if we are looking at compliance from a

performance method? Do we need to be doing more modeling when we do our evaluations? I do not know. Then of course we need metrics we can sell for support. You know one of the reasons that we do not have a great deal of support at the state level is that you know codes are assumed to be automatic.

Again, you know, we get the compliance because they are law. Many public benefit funds do not allow credit for utilities to invest in energy code support. So, in order to make any of this come through and in order to you know sell the savings, the great savings that could be had with energy codes, we have to measure it in some manner that makes sense for those that might invest in it. So, thoughts on evaluation. States need to use some money from the Ara stimulus both for evaluation. Somehow that needs to be encouraged. Measuring energy savings in true energy savings will help draw sustainable support. Increased integration with beyond code programs are possible. Advocates in the room, the advocates we find for energy codes are never in the room to hear about the implementation problems and we need to open that dialogue as well. You know, should we be evaluating residential and commercial code successes with modeling and then true up against actual energy bills? Do we need to establish a national evaluation criteria? Some of the folks in the room you know indicated to us that there was no connection between energy efficiency program evaluation and energy code evaluation. Could this be an extension of the R 90 percent work? Second evaluation again we heard.

Develop a national guidance or standard. Can this be somehow connected to the 90% compliance work that is being done? Do we need to research potential for increased utility and public benefit fund involvement and do we need to engage in the national evaluation energy efficiency evaluation process? Finally, that national energy code evaluation working group should be formed. Again, I zip through this very quickly and stumbled over half my words, but I would ask that you know you consider that we all need to share our ideas on these issues. We need to join in the national discussion and of course raise that discussion in your jurisdiction and states and help us try to improve energy codes and their compliance and evaluation. We've got a session going on tomorrow night that I encourage you to join. It is at 6:00 o'clock, right after the Cracker Barrel for a couple hours. First beer is on us and the energy foundation. We have some munches too. We hope you come along and join in the discussion. We will also have more complete summaries of the actual findings of the first two round tables. I encourage you to come and pick up and hope to see you then.

Thanks.