BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of:)
) Docket No. 10-IEP-1B
Preparation of the 2010 Integrated)
Energy Policy Report Update)

Joint Committee Workshop on Monitoring, Verification, Evaluating and Auditing ARRA Programs

CALIFORNIA ENERGY COMMISSION
HEARING ROOM A
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

MONDAY, JUNE 14, 2010
1:00 P.M.

Reported by:
Peter Petty

Commissioners (and their advisors) Present (* WebEx)

Anthony Eggert, Associate Member, Federal Stimulus Program (Ad Hoc) Committee
Lorraine White, His Advisor

Jeffrey D. Byron, Associate Member, Integrated Energy Policy Report Committee
Laurie ten Hope, His Advisor

Panama Bartholomy, Advisor to Chair and Presiding Member, IEPR & Federal Stimulus Program (Ad Hoc) Committees, Karen Douglas

Staff Present:

Suzanne Korosec, IEPR Lead
Mark Hutchison
Monica Rudman
Kae Lewis

Also Present

Presenters

Matt Rogers, USDOE
Laura Chick, Office of the Inspector General, State of CA
Valerie Nibler, KEMA, Inc.
Jarred Metoyer, KEMA, Inc.
Mikhail Haramati, CPUC

Public

Michael Theroux, JDMT, Inc.
Karen Hensley, SCE
Cynthia Austin, Heschong Mahone Group
Scott Tomashefsky, Northern California Power Agency

I N D E X

P R O C E E D I N G S

JUNE 14, 2010 1:05 P.M.

COMMISSIONER EGGERT: Okay, go ahead.

MS. KOROSEC: Good afternoon, everyone. I am Suzanne Korosec. I manage the Energy Commission's Integrated Energy Policy Report Unit. Welcome to today's workshop on monitoring, verification, and evaluation of the benefits of the American Recovery and Reinvestment Act on California's energy sectors. This workshop is being held jointly by the Energy Commission's Federal Stimulus Program (Ad Hoc) Committee and the Integrated Energy Policy Report Committee.

Just a few housekeeping items before we get started. Our restrooms are in the atrium, out the double doors and to your left. There is a snack room on the second floor at the top of the stairs, under the white awning, and if there is an emergency and we need to evacuate the building for any reason, please follow the staff out the doors to the park that is kitty corner to the building, and wait there until we are told it is safe to return.

Today's workshop is being broadcast through our WebEx conferencing system, so parties need to be aware that we are recording the workshop. We will make an audio recording available on our website a day or two after today's workshop, and then a written transcript will be

available in about two weeks.

We will have an opportunity for Q&A after each presentation and we will also have a public comment period at the end of the day. At that point, we will take comments first from those in the room, and then we will turn to the folks on WebEx. For those of you who are here in the room, if you have a question or comment, please come up to the center podium and speak in the microphone so we can capture it on the transcript and, when you do come up, it is very helpful if you could give the Court Reporter your business card so we can make sure that your name and affiliation are reflected correctly in the transcript.

For people listening in on WebEx, you can use the chat function to let the WebEx Coordinator know that you have a question or comment, and we will open your line at the appropriate time. And we are also accepting written comment until the close of business on June 24th. In today's workshop notice, which is available in the foyer, and also online on our website, it explains the process for submitting those written comments.

Today's workshop is the first of six workshops that we are holding as part of the 2010 Integrated Energy Policy Report, or IEPR Proceeding. Information on these workshops will be posted on our website at least 14 days prior to each workshop, it just gives you a general sense of what the

topics are going to be.

Just a little background on the IEPR itself. The Energy Commission is required by law to prepare an IEPR every two years, in odd numbered years. It takes a detailed look at California's energy markets, including our expected energy supplies and demand, energy production, delivery, distribution, market trends, and the major energy policy issues that are facing the State. We also prepare an update to the IEPR in the intervening years that identifies any new issues that might have arisen or provides a progress report on issues that were identified in the biennial IEPR.

This year, with the large influx of Recovery Act funding into California, the IEPR Committee decided to focus the 2010 IEPR update on examining the impacts of that funding, the benefits, the challenges, the energy policy implications of this huge investment of Stimulus funding in California's energy sector.

Today's workshop is going to highlight the processes that California and that the Energy Commission have established to ensure transparency and accountability in the effective use of ARRA funds. We believe very strongly that a robust monitoring and evaluation effort are essential, not just to track the money being spent, but more importantly, to track the results of the funded projects in terms of job creation, energy savings, reductions in greenhouse gas

emissions, and their overall contribution to California's energy and environmental policy goals. We do have a very full agenda today, so I will not take any more of your time. I will turn it over to Commissioner Eggert for opening remarks and for him to introduce our first speakers. Thank you.

COMMISSIONER EGGERT: Thank you very much, Suzanne. Welcome, everyone, good afternoon. This is the workshop that will highlight the monitoring, verification, evaluation, and reporting effort that the Energy Commission is putting in place to assess how effectively the ARRA funds are being used in energy-related programs. ARRA, I think, as probably everybody here knows, this stands for the American Recovery and Reinvestment Act of 2009, and the Energy Commission received $314.5 million specifically for energy efficiency and clean energy projects. These funds have provided California a significant opportunity to further its transition to clean energy by stimulating clean energy investments which will help retain and create new jobs, achieve lasting and measurable energy savings, contributing to the State goals for energy and environment, leveraged Federal, State, Local dollars, and private financing through new partnerships, and expend the money efficiently with accountability and minimum administrative burden. And we are going to try to make sure those two are

not in conflict.

Specifically, monitoring, verification, evaluation, and reporting is intended to examine the effectiveness of these programs by ensuring that the recipients use the funds in a way that is transparent to the public, that the funds are used for authorized purposes, and that the potential for fraud, waste, error, and abuse are mitigated, that funding projects avoid unnecessary delays and cost overruns, and that the actual goals for energy are achieved. This program is essential not only to track funding expenditures, but also to track the results of those expenditures, and to use that information to continually improve our processes here at the Energy Commission.

Additionally, this is going to provide us an opportunity to verify the installed performance of these energy technologies, some of which were actually developed with the assistance of our Public Interest Energy Research Program, and this data will be important to provide for the next generation of California's incentive programs, standards for buildings and appliances, and will help guide the Commission's future research priorities. A good MV&E Program should provide all of these benefits and we are looking forward to hearing from our staff and from our stakeholders and contractors today about how we are going to successfully accomplish this.

Before we get into the presentations, I did want to just recognize my colleagues here, Laurie ten Hope, who is the Advisor to Commissioner Byron, who is the Associate Member for the Energy Efficiency Committee, and the IEPR Committee, Panama Bartholomy, who is Advisor to Chairman Douglas, and Lorraine White, who is my Commissioner – my Advisor – sometimes I think it is the other way around, and then I also want to recognize, I believe, Commissioner Byron has actually joined us via phone. Commissioner, are you there?

COMMISSIONER BYRON: Yes, I am. Can you hear me?

COMMISSIONER EGGERT: Yes, we can hear you loud and clear. Do you have any opening comments or statements?

COMMISSIONER BYRON: Commissioner, I do. But, first of all, I am sorry I could not be with you in person, and I certainly appreciate everyone's participation. I will hold off on my comments. I am very glad that Mr. Rogers from the Department of Energy is with us today, and I understand he has a pressed schedule, and we need to get to him immediately. So I will come back later with some additional comments.

COMMISSIONER EGGERT: Okay, great. Thank you very much, Commissioner. So we do have a couple of very special guests with us today. They are going to provide their perspectives on the importance of MV&E, and the first is

Matt Rogers, who is the Senior Advisor to the Secretary of Energy for the Recovery Act. In this role, he has responsibility for DOE's $36.7 billion in Recovery Act appropriations, funds that are expected to support some $100 billion plus in projects and energy efficiency, renewable energy, energy infrastructure, carbon capture, energy and basic science, and environmental clean-up. Are you there, Matt?

MR. ROGERS: I am, indeed.

COMMISSIONER EGGERT: Okay, so we will go ahead and I think we have your – your presentation is going to be popping up here shortly via the webinar. Again, we very much appreciate your participation in this workshop and looking forward to your comments. Go ahead.

MR. ROGERS: Thank you very much for that introduction. And my apologies that I could not be with you in person and live today. It has been my privilege over the last year and a half to lead the American Recovery and Reinvestment activities for the Department of Energy. And what I thought I would do today is do four things as we walk through the conversation, and then I would be happy to take some questions at the end.

The first is, California has been a real leader in clean energy and energy efficiency over many years, indeed, I would say decades. And California has been a major

beneficiary of the Recovery Act spending in clean energy and energy efficiency, and so I thought I would talk a little bit about what that endowment looks like. The second major thing is that, in the near term, we are all going to be judged on the execution of these programs and, in particular, on the ability of these programs to create jobs in our local communities, so as we talk through the materials today, we will keep coming back to the notion of creating jobs today and making sure that these funds are doing everything they can to create jobs in the local communities every day.

The third major theme is that measurement and evaluation is a critical element of all the Recovery Act activities that we have underway. Here at the Federal level, we are working very closely with the Council of Economic Advisors to make sure that we implement detailed measurement and evaluation studies with every one of our Recovery Act programs. In part, this is, as you were mentioning earlier, to provide transparency, to make sure that the American taxpayer whose hard earned dollars are going into these programs understands what they are getting for this investment in terms of job creation and new energy sources. It is also important, though, for the long term, it is important for demonstrating that these are high return projects that the private market can take on, on a going

forward basis, once the Federal Recovery Act funding is complete.

And then there is the final notion, is that we think about this as a down payment on the nation's energy and environmental future, a down payment in this case, on California's energy and environmental future; and so I think the conversation that you are having today is particularly relevant because it is very important that state leaders have the foresight, as you are demonstrating, to look beyond the immediate Recovery Act funds and begin to look at where is this leading us. And the measurement and evaluation tools that you are putting in place are essential for making sure that, if you will, the compass that guides your path forward over the next decade or more is set to true north.

So those are the kind of things that I thought we would talk about today and, you know, if we just get into some of the numbers, California is, on an overall Recovery Act standpoint, the beneficiary of more than $3 billion in Recovery Act funding through some 499 different projects in the State. This includes more than a billion dollars for energy efficiency and renewable energy, and there is another billion plus, once another loan closes for a big project there in California, you know, 16 carbon capture and sequestration projects for more than $500 million. The one loan so far to Solyndra in Fremont, a big solar

manufacturing facility which the President has had a chance to visit, and I had a chance to visit with the Secretary and the Governor, you know, 22 Office of Electricity grid-related, particularly Smart Grid projects in California for $400 million, and then 66 projects for science innovation, and 15 for the Advanced Research Projects Agency for Energy, really positioning California on the leading edge of states in the country who are driving not only clean energy and energy efficiency today, but are inventing the technologies that will guide where we are in 2015 and 2020, and 2025 and 2030, and then two environmental clean-up projects. So quite a robust portfolio showing all the different parts of the Energy Department's Recovery Act activities and, again, $3 billion of Federal dollars coming into the system that then, in many cases, are matched with private sector dollars, so the total project spending is considerably larger than that. And as we get into this, with significant endowments like this comes significant responsibility. And I think, as you go through the discussion, how does California take all these pieces and turn them into something that is more than just the sum of 499 individual projects, but really the fabric for where a state can go on a forward basis.

If we look at the next chart, about the formula grant program fee, winterization assistance programs, which

bring energy efficiency technologies to low income families across the state, the state energy program, which is administered by the California Energy Commission for energy efficiency and renewable energy projects in the state, and then the Energy Efficiency Conservation Block Grant Program, which tries funds to the City and County level and the tribal recipients within the state for those same kinds of projects at the very local level. If you look at the various pieces, $185 million for weatherization assistance design to support the weatherization of more than 40,000 homes across the State of California, almost 7,000 done so far. The observation that I would make is, if you look across the portfolio of states, as I do at 7:00 East Coast Time every morning, California is at about 10.5 percent of the payments have actually been spent, whereas the leading states have actually spent more than 30 percent of their funding already, so in one of these, the weatherization programs, California is behind where we would like it to be and I know the folks in Sacramento are working very very hard to get it on track and to accelerate that spending.

At the State Energy Program level, again, $226 million of total awards, the State Energy Commission has done a very nice job in terms of then awarding those through a set of competitive processes within the state, so $169 million of that is already awarded, $26 million of it then

reimbursed by us back to the state, which is 11.5 percent. Here, California is doing above average for the state, and the only heading that we have provided here is we are anxious to pay you even faster, so submit those receipts on time and we are going to turn them quickly.

And then, in terms of the Energy Efficiency Conservation Block Grants, a lot of activities at the City and County level, you know, $242 million across 215 cities, $59 million across 13 counties, you know, $3.5 million for 90 tribes, so there is a lot of activities at the local level and we are very excited by the innovation that is taking place at the local level, and the summer of Recovery Act activities that is ahead in many cities and communities across the state.

One of the things that we have observed, again, across the portfolio of programs within the Department of Energy is, when the state and the cities and the counties along with the private sector and the nonprofits in the state, and the universities are working very closely to gather the returns to all these investments end up being very very high, so the kind of collaboration that can be occurring across California is quite exciting.

If we go, then, specifically to the State Energy Program that the California Energy Commission is administering, again, $226 million of funding, the most of

any state or territory in the Union; of that, all $226 million has been cleared by the Department of Energy and is eligible for spending. The State, then, has spent 75 percent of that, and we are hoping that the State is on track to have spent $181 million or 80 percent by the end of the quarter here, the end of June, so that we can keep on track with our commitments for moving the money out the door and making sure that these projects are all getting started as we head into summer here. What we are trying to do on the spending categories, is we want to reimburse California for $45 million by the end of September, and again, I think California is well on its way towards meeting those targets, as long as all the projects that have been awarded actually get started here as we finish off June and get into July and August.

California continues to pursue among the most innovative and transformative projects in the nation, we get very excited as we work through this portfolio of projects that California is pursuing under the State Energy Program. It is a long process. We at the Federal level work through a long process to make sure that the funds are spent wisely. California has worked through a set of long processes. I think both sets of those long processes are now largely complete and we are looking forward to seeing these projects moving in the marketplace, creating jobs all summer long

and, indeed, into 2011.

Again, among the big activities, a lot on energy efficiency, retrofits, both at the state level and in residential levels, as well as in the industrial sector, and the importance of energy efficiency, again, across industrial, commercial, residential, and in the government sector is quite clear nationwide. And then, a set of green jobs, workforce training programs, one of the things that we are very focused on is making sure that we have the workforce that is necessary for the United States be a leader as we move forward in the 21st Century with the clean energy economy, and so the investment California is making here are quite exciting.

The State Energy Program does, in fact, come with a set of guidance that encourages, indeed, strongly encourages very effective measurement and evaluation at the State level. Again, we are doing a set of measurement evaluation against large Federal programs, but the kind of insight that the states can pick up by doing evaluation of the individual projects within the states is very very important to both the transparency in the near term, and then providing the robust data set that the private market will need in order to take on these projects, long term. The guidelines are consistent with the standards that are used, the guidelines at the California level, the guidelines at the Federal level

are quite consistent, and really, four metrics that we are very focused on here; one is jobs creation, again, in the near term, we are all going to be evaluated on whether or not these projects create jobs and begin to move the economy forward, and drive down the unemployment rate from currently unacceptably high levels; the second block is really around energy and demand savings, how much energy are we actually saving for energy efficiency in these program? And how persistent is that energy savings? One of the things we can tell California has demonstrated to the rest of the country over time is that some changes in the energy efficiency system are very very persistent, they last for a decade or more, and other changes just result in a very near term change in energy efficiency. So, what happens short term and long term in terms of demand? How much renewable energy capacity and generation are we able to bring on to the system? You know, last year, the President at the Federal level was committed to doubling U.S. renewable generation and, interesting, renewable manufacturing capacity, in the first four years of his Presidency. Across the country, we were up 39 percent in 2009, and so are well on our way towards the goal of doubling the amount of renewable generation, and renewable manufacturing in the United States. I should note that California has a set of very exciting renewable energy manufacturing projects that have

been awarded as part of the tax credits for clean energy manufacturing projects. And then how much CO_2 we reduce, one of the clear goals of the Recovery Act Program was to put the United States on a pathway towards a much lower carbon intensity in the economy, and so what we want to be able to track is how much carbon emissions that we actually save through these programs and how that accumulates over time.

As we look at these guidelines, it is important to realize that these are not intended to be proscribed specific methodologies or approaches. The portfolio of projects that each state has are actually quite different, and so the appropriate measurement evaluation methodologies need to be tailored to the portfolio in that local state. But what we are trying to do is make sure that we outline standards that provide useful and reliable results. What we are trying to do is to make sure that we have some repeatability. Again, across these Recovery Act activities, what we want to be able to do is, say on a simple one like weatherization, we want to be able to demonstrate that energy efficiency investment by middle class homeowners are high payoff projects based on the experience that we have had with low income homeowners, and be able to use that as the basis for policymaking on an ongoing basis. We want to be able to demonstrate that Smart Grid investment in smart meters and smart substations and smart transmissions enable

high reliability, lower operating costs, more flexibility for integrating renewables in the system, and so we have got a whole set of measurement evaluations tools designed to quantify exactly how that works, and we encourage you to do the same for the portfolio projects managed by the Energy Commission.

Again, guidelines evaluation, administration and management, and then a set of technical standards for general design and objectivity. One of the things that we have been trying to do more of at the Federal level has been to do measurement of evaluation with actual control group samples that allow us to really normalize the comparison. One of the things that the Secretary has found concerning is, as we get into discussions about energy efficiencies, a lack of really good detailed control group econometric studies of energy efficiency, lots of good engineering estimates, not as many good econometric measures, so, again, this is where the kind of work that you are beginning and have structured; again, California has done more of this than others, historically, and it is so important to the overall progress in California and in the nation, overall.

Then, as we think about those various pieces from an administration and management standpoint, independence is very very important, making sure that there is not a bias in the way that these are done, you know, accurate attribution

of program effects, begin separating out what really drove this, as opposed to, you know, we had five fewer degree days in the summer, and therefore that is what really drove it. And then budget and timing, one of the things that, as we work this across states is, you could have the perfect measurement and evaluation system, but if it costs 30 percent of the total program cost, it is probably not a good idea, and if it takes 10 years to get good results, probably too long to be useful in this particular context.

The technical evaluation standards covers issues like study rigor and reliability, making sure that we have got appropriate sampling and that we do not have sort of biases in our samples, making sure that the survey design, again, does not introduce bias, and then having the repeatability of calculations of cost-effectiveness. They also reference a series of protocols for conducting state-of-the-art evaluations, by the way, including the California protocols there, and there is a set of recommendations for use of the field measurement evaluation tools, the International Performance Measurement and Verification of Protocols.

We are going to be doing a webinar on June 16th for states to walk through the SEP Evaluation Guidelines, so at the detailed level, the folks who run the State Energy Program for the Department of Energy will be able to go into

a lot of detail about structuring measurement and evaluation, and answer questions. We are going to do a series of these, depending on the appetite of the states for these discussions, and you can see and click through for more information and to register for those webinars. The contact information is on the slide there. The other note is that the specific guidelines the DOE has for states on measurement and evaluation are available at EERE.energy.gov and you can see the details there. One of the things, again, we are trying to do is to make sure that all that guidance is online and easily accessible to all the recipients under the State Energy Program.

The last couple thoughts, as we work through here, again, California has been and remains at the forefront of Measurement and Evaluation technologies. The Public Utilities Commission has played an important role in allowing the utilities to use this appropriately, the State Energy Commission obviously taking the leadership role in structuring the measurement and evaluation protocol, and this again positions California as it has often been in the leadership role in terms of taking Measurement and Evaluation, and integrating it into policy and economics in terms of the way that the state operates. And then, again, part of this is recognizing the role that behavior plays in energy efficiency, this is not just about putting in more

insulation, it is also about giving consumers more information and giving consumers more control over the way that they use energy. And the Commission has been very very effective in leading a set of thinking on this process, so we commend California, both the California Energy Commission, and the CPUC for their leadership in this arena.

And, again, as we were talking at the beginning, one of the nice things about the Recovery Act is it is a large block of funds with a discrete beginning and end, and therefore creates an environment that is actually well suited for measurement and evaluation. You have an opportunity to start and stop something across a finite period of time, and to observe the change during that period. We are quite sensitive to the cost of measurement and evaluation, and we are really trying to make sure that we are able with the states to design measurement and evaluation protocols that end up working effectively, but also economically with the states.

Lastly, thoughts on just best practices here. One of the things that we spend a lot of time thinking about in Washington is, you know, what are the metrics that are going to be needed later? And what are those few number of metrics that we actually need to accomplish? Each metric actually takes a lot of time and a lot of resources in order to manage appropriately. The second one is evaluation

actually takes time, they actually do have to have a baseline, a beginning, a middle, and an end, and to be able to do the evaluation at the end of that, and obviously we all would like and are getting accustomed in our technologically intensive world to being able to do real time evaluation of many many things, but evaluation does, in fact, take some time.

Again, the near term, we are looking at job creation; over the long term, we are looking at energy savings, and it is very important that we are measuring and evaluating both the near term and the longer term impacts, and then, as is the case with certainly what we do at the Federal level, it is really important that we not step on each other's measurement and evaluation activities. We will attempt to make sure our Federal programs do not get in the way of the states doing their good work, and likewise, at the city and county level, they are going to be doing measurement and evaluation, too, and the more we can be coordinated and aligned so that we complement one another, as opposed to getting in each other's way, I think, the better off we are going to be. So with that, I will go ahead and take a few questions. I appreciate very much your time. Again, I am sorry that I could not be there in person for this important conversation, but I again thank you for your leadership in moving forward both with California's

programs overall, and the measurement and evaluation activities, specifically.

COMMSISIONER EGGERT: Good, thank you very much, Mr. Rogers. That was an excellent overview of DOE's perspective on this topic. And it sounds like you do have time for a couple of questions. I will maybe start and then open it up to any others who might want to provide a question. I was actually earlier today on a call with the Energy Institute at UC Berkeley, and they do a lot of studies, including econometric studies and others looking at the different efficacy of programs, including for energy and energy efficiency, and when I mentioned that this dataset would potentially become available to them at some time in the future, I could almost hear them drooling over the phone, these are some of the premier academics working on energy policy in the state. And I guess my question is, does the DOE have plans, looking across the various states and their programs, to do some of those econometric models as it relates to the effectiveness of different programs subsequent to receiving this data? Could you maybe say a few words about that?

MR. ROGERS: Yeah, and so I think it is at two different levels, first, your observation about the Energy Institute is indeed an accurate one. The Council of Economic Advisors is actually contracted with the Energy

Institute at UC Berkeley to do – I think it is three different ones of our Federal level analyses, and they have been very very helpful in terms of how to structure those most effectively, so it is a great resource. And, indeed, what we want to do is be able to do a series – we are doing a set of just discrete evaluations of specific programs, but then what we want to do over the longer term is to do some meta analysis that incorporates the kind of feedback that we get from many many different states, so we can do a few things at the Federal level, but an even more insightful set of analyses will, of necessity, involve the data coming from each of the different states. And so we plan to do a set of meta analysis, once each of the states have completed their measurement and evaluation, to see what the broader trends are. And, again, because I think a lot of the research that can go on, or the measurement and evaluation activities that can go on at the state level, enable a precision about benefits and a diversity of situations that actually make the insights much more robust.

COMMISSIONER EGGERT: Okay, I will open it up. Does anybody has any further questions for Mr. Rogers?

COMMISSIONER BYRON: This is Jeff Byron.

COMMISSIONER EGGERT: Go ahead, Commissioner.

COMMISSIONER BYRON: Thank you. Listen, I would like to thank Mr. Rogers very much for his presentation,

particularly his acknowledgement of the work by Commissioner Grueneich, our colleague at the Public Utilities Commission. It is all about jobs and, of course, saving money through energy efficiency. I am concerned about some of the things in his presentation, as kind as his remarks were about California, we want to make sure we exceed – mirror or exceed all the DOE targets, and we are going to drill down on some of those, Mr. Rogers, I suspect, later on in this workshop. But, in particularly, I would like to ask, are there any that you are concerned about, you know, with regards to our hitting these targets. We seem to be behind on the weatherization spending and funds that have been spent by the target, I think, is September 30th, you indicated. Any in particular that you would like to emphasize that we should pay particular attention to?

MR. ROGERS: Again, I think the two pieces that I would, with this group, focus on the most are the weatherization program, again, where I think the Governor has taken some good efforts to move that program on track, and what we see is an accelerating pace there, and we just want to see that accelerating pace continued. But, you know, California has historically done a very good weatherization program and, indeed, the performance that we are seeing are from some really exceptional community action agencies in California that are actually performing above

the national average, but the total has not actually been as well developed as we would like. And this is a very simple one, California's success is very central to the Federal success of the Recovery Act Program, overall. We cannot be successful without California being successful, so I think the first one is on the weatherization piece. I think the second one, one of the things that we are really trying to do is make sure that each of the State Energy Program projects is actually getting started. There are all kinds of issues that human processes encounter, including state and local, you know, some local zoning regulations, and hiring issues, and things like that, and one of the things that we are trying to do, we at the Federal level have 5,000 individual recipients from the Department of Energy, and we are talking to each one, trying to make sure that each of the projects actually get started because, if we can get each of the projects started, then we are actually in very good shape for achieving our goals, so just making sure that California has done a very nice job of getting those funds obligated through competitive processes. One of the great things about competitive processes is that you can select great projects. The challenge of great projects is just making sure they get started, actually getting the shovels in the ground, getting the people hired, is the near term evaluation. And I guess the last thing I would encourage

California to do, and I think the California Energy Commission is exceptionally well positioned to do this, is to think about the investment that is being made in California broadly, under the Recovery Act, so rather than just thinking about the $263 million, thinking about the $3.1 billion and trying to make sure that, as an integrated package of investments, those are actually having the maximum impact across the state. You have the ability to see how each of those pieces fits into the broader energy equation in California, and so, you know, I think as a simple example, California has a set of Smart Grid programs, I think it is the largest single state in terms of the Smart Grid activities, again, not directly your spending responsibility, but I think in terms of how that develops, and California's ability to be a leader there, I think the California Energy Commission has great insight and your leadership will be important for the long term success of those programs.

COMMISSIONER BYRON: Well, that is no small feat, of course, paying attention to all those ARRA funded activities, we do coordinate a lot of material through our Public Interest Energy Research Program and the advisory structure we have set up with regard to Smart Grid, but I appreciate the challenge you put before us there. We will do our best. But that is quite an undertaking to keep track

of how that $3+ billion is also getting spent in California. So, thank you very much for your remarks.

COMMISSIONER EGGERT: Thank you, Commissioner. We have one here in the room. Go ahead and please state your name and affiliation for the record.

MR. THEROUX: My name is Michael Theroux. I have my own firm, Theroux Environmental. Matt, thank you very much for an excellent synopsis, particularly on the SEP proposed guidelines. On Item 2, in particular, the technical standards, one of the most strident complaints about advance clean tech conversion technologies by refinery technologies is the lack of third-party data, the lack of third-party validation. Can you speak, please, to the integration of the DOE's program development and design, and standards with the EPA's Environmental Technology Verification programs, or ETV, the six Centers of Excellence that have been established?

MR. ROGERS: Yes, so one of the things, historically DOE and EPA's coordination has been somewhat siloed, to speak candidly. One of the good things that we have here is that both the Assistant Secretary for Energy Efficiency and Renewable Energy, and her principal Deputy are both former EPA folks who now lead important parts of DOE activities. And so that collaboration has increased markedly, and so the working groups are trying to make sure that those two sets

of guidelines actually can act in sync with one another. I do not think we have actually gotten through all of the different pieces to make sure that that happens everywhere, but it is clearly something that we are working quite hard on, and recognize the differences have not been helpful to the expansion of these programs, and so, again, what we are trying to do is to make sure that we get harmonization across those different pieces, again, DOE and EPA have different sets of expertise, and one of the things we are trying to do is make sure each of us knows where the other is taking the lead, and who is in support, and then make sure that whatever we put out ends up being complimentary, and so it is a work in progress, but it is one that we take quite seriously. With that, I apologize, because I have got to go and run for an airplane, but I commend the conversation that you folks are having here, and California's leadership over long periods of time, and I really look forward to the results from both this effort and then, over the longer term, California's measure and evaluation of the State Energy Program.

COMMISSIONER EGGERT: Good, thank you very much, Mr. Rogers. And safe travels. So the next speaker, I think it is probably arguable that we have two of the most – the busiest people involved in the Federal Stimulus Program, joining us here for this meeting today, Mr. Rogers being

one, for sure. When the Federal Recovery Act was signed, shortly thereafter, Governor Schwarzenegger wanted to make sure that these funds were being expended in a way that met all the tests of transparency and accountability, and so he looked to hire somebody for the position that would oversee the $85 billion in Stimulus funds coming to the State across all programs, not just energy, but all programs, and he picked a very competent and reputable person, and that is Laura Chick, who has joined us here today to provide some comments. Laura comes to us from Los Angeles, where she was on the City Council from 1993, and then, in 2001, was overwhelmingly elected to become the City Controller, and certainly overseeing the finances of the City of L.A., I am sure, is a good preparation for this task. We welcome you here today and thank you very much for your comments.

MS. CHICK: Thank you.

COMMISSIONER BYRON: Ms. Chick, this is Commissioner Byron. Before you start, could I also say a few things?

MS. CHICK: Certainly.

COMMISSIONER EGGERT: Go ahead, Commissioner.

COMMISSIONER BYRON: Yeah, I am sorry to interrupt, but we were trying to be considerate of Matt Rogers' time constraints. We are very fortunate to have both him and you here today and I wanted to thank you. I am sorry that I could not be there, personally, and I understand our

Chairman is also tied up with certain obligations that she is fulfilling on behalf of the state today. This may go without saying, but measurement and verification is not everyone's passion, certainly it is a bit of a bother, but it is something we take very seriously at the Commission, it is important that we provide California with value from all of these projects, and that we verify those savings from the ARRA funding to make sure that that money is being spent well. Of course, it is also important that we try to mine all these projects for the lessons that we can learn from them. There are a lot of innovative projects, as Mr. Rogers indicated, with a great deal – a lot of significant efficiency potential, and we need to track and learn from those efforts. So I know you have probably some important findings and we are very eager to hear them. I will keep my remarks brief. Thank you, Commissioner Eggert, for chairing this in person on our behalf today. Ms. Chick, thank you for letting me interrupt your comments.

MS. CHICK: No, I thank you and I begin my comments thanking the Energy Commission for having a workshop that is focusing purely on the Recovery Act and specifically on how we are going to judge our success and our accomplishments. So near and dear to my heart, and when you were just making the comments about it is not too many people who get passionate about evaluation and assessment, well, I am one

of those few people. So when I was listening to Mr. Rogers, I was taking notes about all the things he was saying that are music to my ears, so I will go a little bit out of order from my prepared comments. He was talking about comparing apples to apples. What a common sense, beautiful concept that is, is how do you judge and evaluate if you are not comparing like things. He talked about eliminating replication, you know, the public so often does not think we are spending their money well, and one thing we do not need to do is to duplicate or replicate. He talked about connecting the dots and the elimination of illogical silos. So, all of those things and more, I think, fit with what I call the other goal of the Recovery Act, which is to begin to restore the public's trust and confidence that government can actually spend their hard earned taxpayer dollars wisely and well, and that is what this evaluation and assessment program is all about.

So, from the very beginning, the Recovery Act has presented government at every level with an opportunity to do things differently and better, that is the challenge of the Recovery Act. And even though the money has come down and out, very often, maybe not so much Energy Commission money, but some of the other program money has come down and out in the same way that the programs have always operated, but the tracking, the scrutinizing, and the eventual

evaluation is unprecedented, and I think guarantees that we are going to see different results from this expenditure of public money than we ever have before. The Office of the Recovery Act Inspector General has as its sole focus to track the Recovery dollars that are coming to the State of California, and to ensure that they are being spent wisely and well, that is why Governor Schwarzenegger created the position that he asked me to fill. My mission was very clear from the beginning, I call it the 3D's, to Deter, which is all about prevention, to detect, to find when there are problems, and to disclose whenever I do find problems, in the expenditure of the Stimulus funds. As part of the prevention and deterrence phase, I met at the very beginning with each state entity receiving Recovery funds, including the Energy Commission, and I asked, "What is the plan for watching these dollars?" Too often, and as we heard Mr. Rogers talk about at the Federal level, too often we are operating in silos and a bunch of disconnected dots. But this is about doing it differently and better. It was interesting to me that so much, and I am sure it was more than interesting to you, that so much was reported early on, on the high risk of the California Energy Commission in terms of Recovery dollars, high risk predominantly because you were receiving so much more money, in a rush, all of a sudden, so much more than ever before, with all kinds of new

mandates on how to spend it.

We have already heard some mention today from the Commissioners and from Mr. Rogers about lessons learned. I want to emphasize my roll with you because you have also, besides in-house staff, and bolstering your oversight efforts, you have hired very qualified, with careful scrutiny, you have hired very qualified outside consultants who are going to be working for you and performing some of the oversight function. I want to pitch today how important it is on lessons learned, and not to wait until the end of the day to share them. For instance, I note that some weeks ago, the Energy Commission came out with an announcement that it is extending – and I am going to get the program wrong – but the program for subsidizing and giving rebates to consumers who are being energy efficient appliances.

COMMISSIONER EGGERT: The Cash for Appliances, yes.

MS. CHICK: The Cash for Appliances Program. And that it is not going maybe as quickly as was expected, and so there has been an extension of the deadline, which is a great thing. But I think it would be very useful to now, at this point in the game, take a step back and take a look – what were the things that maybe, if you had had all the time in the world, which you did not, that you could have done differently on the Cash for Appliances Program, some of the things that you have already learned and noticed, and the

changes that you are already making to make that program even more effective, to make it go more quickly, and to be forthcoming and public about your analysis. This is what we have learned so far because these lessons are not confined to the Energy Commission. One of my great frustrations throughout my 20 years of experience with the public sector is that we are so worried about looking bad, that instead of jumping on problems, solving them, and advertising how we have solved them, we often shove them down and away, and I think that is a great mistake. A big part of what I do when I am going in now with my small group of auditors, and we are going out into communities and we are looking at how our sub-recipients are spending their money, we will be doing that with some of the money the Energy Commission is giving out. When we find problems, we are advertising them, not to make anyone look bad, everyone makes mistakes, and this is all brand new, and it is a learning experience. But how do you learn from stubbing your toe? How do you learn from making mistakes? How do you learn from doing things right? It is by sharing those lessons. And I think that the Energy Commission is going to have both lessons to tout, steps, and things that you have done that have worked out very well, and everyone should pay attention and emulate and copy, not just on energy savings, but on how you are operating, and there are lessons that you are going to learn that maybe,

"Gee, we wish we had thought of this sooner, but we want to tell everyone so you can benefit from those lessons." And I am seeking to work very closely with the Energy Commission to help you share those lessons in the most productive way possible. I think is the gist of what I wanted to say. I do not have lots of lessons to share, you know, that I have learned already, short of what I am advising you now.

In terms of that, I guess, challenge, maybe, from Mr. Rogers about trying to make sure that all of the projects that you are funding are on the move, I would love to pursue that discussion with you also, what are ways that are not onerous, where maybe you can have your sub-recipients submitting quarterly reports on how they are doing, so that, again, if they are stuck, if they are stubbing their toes, there might be ways to help – much better to find out how this is going on a real time basis than going in with an audit after the fact when it is too late to fix the problem. So I will stop. I do not know if you have any questions. I think most of our work together is yet to be done, but it has been a very good beginning and foundation.

COMMISSIONER EGGERT: Thank you very much, and I do have a comment and I would open it up if anybody has any specific questions, and I am very glad you brought up the Cash for Appliances Program, as one that we are already

learning lessons from, and I might share one with you. When that program was initially launched, we targeted three specific appliances and we set what I would characterize as very rigorous standards for energy efficiency for those that would qualify for the program. We also did it during a time when a whole bunch of other states were launching similar programs. And I think one of the things we found was that there was a number of models that were available on the floor, and were perhaps not as many as we might have hoped for, and there was some supply availability challenges, and one of the things we have done in order to address that is to extend the deadline for the program, as you have mentioned, and to work with the suppliers so that they can actually get their models on the list of qualified appliances, and we have been able to add dozens of new appliances to that list. And a side benefit that I do not think we had originally anticipated is that it has become a program to drive the suppliers to certify their products to California's energy efficiency standards in order to qualify for the incentive. And when it was just a four-week long program, that was sort of too short of a window for them to have that incentive. I think we are going to continue to learn from that program –

MS. CHICK: Great, that is great.

COMMISSIONER EGGERT: -- and we are going to

continue to make adaptations, including simplifying the paperwork and other things, so that consumers are best served. But I agree with you wholeheartedly that we should be setting up these processes in a way that allows continuous improvement, so that we can continue to feed into the program design and not wait until the end.

MS. CHICK: Right. And it is really fine-tuning, it is not something typically government does well, is to constantly be evaluating and asking and answering the questions: how are we doing? And how can we do it better? And I think that is really the kind of process that the Energy Commission is setting up, and it is going to have pay-off results that will reverberate on and on.

One other thing I did want to mention, I was looking and preparing for today, at things you have already gone over in terms of the goals of the monitoring, verification and evaluation efforts, and the goals of the program, and I think it is very important to always keep in mind that the goals have to be measurable, and I believe that is what the Energy Commission has done. Since I arrived in Sacramento to begin to do this job, I kept asking, what is the strategy at the end of the day to be able to say, “Here are all of the lasting benefits?” And I am very pleased to see that the Energy Commission has been at the front end putting measurable goals into place, so we will have the answers at

the end of the day.

COMMISSIONER EGGERT: I would invite any questions from – is Commissioner Byron on the phone?

COMMISSIONER BYRON: Thank you, Commissioner. No real question, but Ms. Chick, I really like your addition of that third goal about restoring public confidence on spending their money well, and we will make every effort to do that, but that also is a tough order, but I really like that. Thank you.

COMMISSIONER EGGERT: Panama.

MR. BARTHOLOMY: Thank you very much for your comments. The chairman wanted me to send her regrets for not being able to make it, she is actually fulfilling some duties for the County of Yolo.

MS. CHICK: I understand Jury Duty was high on her list.

MR. BARTHOLOMY: Yes, so trust me, she would rather be here with you today. I just wanted to make a comment that you have hit on one of the major themes and goals for the 2010 Integrated Energy Policy Report update, which is sharing the lessons learned, this massive infusion of money represents an amazing opportunity not only to build better communities and save energy, but to really learn more effective ways to roll out government programs, and so it is absolutely our commitment to use this update as an

opportunity to share some of those lessons learned, and we look forward to working with you on that.

MS. CHICK: Great. Including, I should add, how do we make things go faster without denigrating important regulations and protections and open competition, but when we see how difficult it is for government to move expediently, I think part of lessons learned need to be analyzing what are all these steps? What are all these hoops we have to jump through? And are there ways to smooth out the process without denigrating that it is impeccable and that it is protecting the environment, etc. You know, this project, shovel ready projects, and moving on a dime is a real challenge for government, and I think part of the lessons learned are going to go to analyzing that, as well.

COMMISSIONER EGGERT: Yeah, thank you very much. And I also just want to appreciate your comment that you had at the beginning, which was the money that is coming through the State Energy Program is, I think, about 100-fold what it would be in a typical year, so in order to staff up for that, you know, we obviously had to borrow lots of staff from other programs, which of course all have their own needs and deadlines for continuing our standards work, etc. So it definitely has challenged the Commission substantially, and I think the programs that we have developed, I hope, are going to demonstrate how you go about

creating lasting benefits. You know, we wanted to do more than just make work-type projects, we really wanted to create sort of lasting institutional frameworks that will allow for ongoing investment in energy efficiency, and this MV&E effort will tell us how well we did.

MS. CHICK: I look forward to participating with you. Thank you very much.

COMMISSIONER EGGERT: Thank you very much. Okay, I think I am going to turn it back over to Suzanne, who is going to go into the presentations.

MS. KOROSEC: Our next presentation will be by Mark Hutchison, who is going to be talking about our contract for auditing ARRA activities.

MR. HUTCHISON: Good afternoon. Mark Hutchison with the Energy Commission's Executive Office. I am going to take a few minutes, about half a dozen slides, to step you through the following topics, the Bureau of State Audits Review, Program Support and Audit Services, and Reporting Requirements for the Department of Energy and the Office of Management and Budget.

In hindsight, I guess probably I was so eager to jump into these topics, I probably should have included a little bit of background on ARRA. A number of us have been living it for the last 15 months, so it is pretty second nature. But the $314.5 million that Commissioner Eggert

mentioned early on in his introductory remarks consist of four Grant Programs, the biggest is the State Energy Program, it is $226 million; there is also an Energy Efficiency and Conservation Block Grant Program for $49.6 million; there is the Cash for Appliances Program for $35.2 million; and then, finally, an Energy Assurance and Smart Grid Program for $3.6 million. All of them have very broad, similar objectives to create jobs and create energy savings, but, as you drill down into those separate grant awards, and their agreements, they have different rules, requirements, and whatnot, and that will certainly play into bullets 2 and 3 as I get into my presentation.

So the BSA, the Bureau of State Audits, they started their review in the Fall of 2009 to determine the preparedness of the Energy Commission to receive and expend ARRA SEP funds, that is the largest grant the State Energy Program funds for $226 million. Their review did not include the other three grant programs. So the BSA came in, did their field work, wrapped that up in November, and issued a report on December 1st, 2009. They had two primary recommendations. The Energy Commission should take the necessary steps to implement a system of internal control to award and ensure that the ARRA funds, the SEP ARRA funds, are used appropriately, and second, the Energy Commission should promptly solicit proposals and execute contracts,

grants, and agreements. So, in response to this, the Commission prepared a 45-day response, a status report, in mid-January, 2010, and also provided testimony at a Joint Legislative Audit Committee hearing on January 20, 2010. Additionally, the Energy Commission provided a six-month staff's report on May 1st, which was followed up by another visit by the BSA around mid-May, and then in prep for a Joint Legislative Audit Committee Hearing, which was held last Wednesday, June 9th.

So, what have we done to respond to those two main recommendations? So first, internal controls. The Energy Commission executed two contracts to provide internal control monitoring and verification assistance, the Perry-Smith Contract to perform program support and audit services, and the KEMA contract to provide what we call the MV&E effort. The Perry-Smith Contract was executed May 13th, just last month, and work is underway. The KEMA contract was executed April 28th, and is also underway. I will provide more information on the efforts of the Perry-Smith Contract and the next presentation by Monica Rudman will drill deeper into the MV&E effort.

Second, progress in awarding funds. The Energy Commission has made significant progress over the last six months, awarding SEP ARRA funds. In fact, all SEP ARRA funding has been encumbered, except for $28 million in what

we call our SEP 110 projects, and the Clean Energy Business Financing Program. In contrast, back in November we had encumbered or awarded approximately 17 percent of the $226 million; by the end of June, we will be at 87 percent of encumbrance, or awarding, of the SEP funds, so significant progress since last December 1.

So the Program Support and Audit Services Contract, this is the Perry-Smith contract, Perry-Smith will have three broad tasks, conducting an organizational assessment of internal controls and recommending improvements, performing financial reviews or audits to funding recipients, and then providing programmatic communication support. As I mentioned, the contract started in May, it will go through April 30th, 2012, the contract amount is $3.75 million, and it will cover all of the ARRA grant programs, so the State Energy Program, the Block Grant Program, the Cash for Appliances Program, and the Energy Assurance Program.

Some of the efforts that are underway, or about to commence by Perry-Smith. They are beginning work, conducting a review of the Davis-Bacon, or what we commonly refer to as prevailing wage review of all ARRA agreements. They are getting ready to conduct an organizational diagnostic of our internal controls, determine weaknesses, and develop recommendations for improvement. They are

working on developing a project monitoring process whereby we can memorialize policies and procedures, and develop training materials and train staff so that we can more clearly define the project monitoring process. It will be quickly conducting financial review of the Clean Energy Business Financing Program, that is a subset under the SEP Program, it is a very innovative loan program, and we want Perry-Smith to do some financial analysis of potential applicants to make sure that they are financially credit worthy. Perry-Smith will also be developing a financial risk assessment of funding recipients that will help us identify where we may have some riskier funding recipients out there, and we want to go out and visit them sooner, and maybe more often. They will be developing a financial review guide, a financial review or audit plan, and then, of course, the marketing and communication effort I mentioned as one of their broad tasks.

So, coordination of this effort is extremely important. The Perry-Smith contract will be closely coordinated with the MV&E effort being undertaken by KEMA. The importance here is to share information and to build off of each contractor's information base, in discoveries and findings when conducting site visits. KEMA is currently participating in our weekly Perry-Smith status meetings. And unfortunately, the Inspector General has left, but I

also wanted to mention that the Perry-Smith work effort will also be closely coordinated with the Inspector General's Office. In fact, when we prepared the contract, the audit contract, we worked closely with the Inspector General's Office to make sure that we incorporated some scope information in there, which required Perry-Smith to report audit findings to the Inspector General's Office concurrently with the CEC. Furthermore, the Inspector General has a staff person that is participating in our weekly Perry-Smith status meetings.

So on to the reporting requirements. I will start with the Department of Energy requirements, first. DOE requires states to report in a number of metrics. In Mr. Rogers' PowerPoint, he touched on these a little bit. I will drill down a little bit deeper, but, again, this effort will be much more detailed in the MV&E presentation. So DOE requires what I consider three broad categories. There is a jobs, financial, and performance. And the jobs, it is hours worked both federally and non-federally funded work. That was kind of a nuance that came out recently whereby DOE wants to be able to capture job creation with what we call leveraged funds. In terms of financial information, they are interested in outlays, which refers to funds expended, and obligations, which refers to funds encumbered. These are all, again, reported monthly and quarterly to DOE. And

then the performance metrics – I will just touch on some of the higher level ones. A number of building retrofits by sector, square footage by sector, number of loans and amount, number of grants and amount, number of renewable energy systems installed including capacity, electricity generated from PV, and other renewable energy systems, energy savings reduction, natural gas, electricity, fuel, oil, propane, gas, and diesel fuel, emission reductions, GHG and criteria area air pollutants. So, the Energy Commission submits both monthly and quarterly reports to the Department of Energy.

As a special note, early on, we recognized the importance of being able to collect this information and to be able to synthesize it and report up to the Feds on a timely basis. So we hired a contractor, oh, a little over a year ago, I think last May of 2009, to help us build a reporting system. The result of this effort is the database that we use to collect both the OMB and the DOD data, as well as another smaller subset of Energy Commission data to assist us with the reporting. And this database will also be an important tool for the key MV&E effort, to be able to look at what is collected and go out and do some actual measurement and verification.

So, as I mentioned, in addition to the DOE reporting metrics requirement, there is also what we call the OMB

1512, which is the Office of Management and Budget. They have what we call “static information” and “dynamic information,” the static information gets into award number, sub-recipient name, highly compensated individuals in the private entity and their compensation, and then more dynamic information where they want information on jobs created, description of the jobs, and the funds disbursed. So, again, this information is loaded into that database that the Energy Commission has developed, and what we do is, the OMB information is actually uploaded only quarterly, and that is uploaded into the Office of the Chief Information Officer, into their system which is commonly called CAAT, which is the California ARRA and Accountability Tool. Then, the State of California, as a whole, will upload their information to the Federal Recovery website. So, I think that pretty much wraps it up and I will open it up to any questions.

COMMISSIONER EGGERT: All right, thanks, Mark. So we are now open for questions. I guess, for any of those here in the room, if you want to approach the mic. If you are on the phone, I guess it is just a matter of – there is an option, you said, to raise your hand via the webinar, is that right? Okay. Or make a question via the comment portion of the webinar. And, also, Commissioner Byron, you are always welcome to –

MS. KOROSEC: Apparently, we have no questions. Mark dodged a bullet on that one.

COMMISSIONER BYRON: No, not quite.

COMMISSIONER EGGERT: Go ahead, Commissioner.

COMMISIONER BYRON: I just want to make a quick comment, and this may not be the right forum to do it, because this workshop is all about scrutinizing our efforts, but I would like to acknowledge Mr. Hutchison's efforts. I think he has done an excellent job here, and it really is not characterized in six or seven slides, the amount of effort that has gone in here, Mark. But, I wanted to let you know publicly that we appreciate all your efforts, but that is not going to stop us from continuing down this path to making sure that all the dollars are well spent and the Ts are all crossed and the Is are all dotted. But, thanks.

MR. HUTCHISON: Thank you, Commissioner.

COMMISSIONER EGGERT: Well said, and I second those remarks. I would note that, based on Mark's numbers, that we will be beating the DOE target by June 30th, which is 80 percent obligated, we will have 87 percent, assuming that the Commission adopts the proposals for the rest of the SEP 110 projects.

COMMISSIONER BYRON: Yeah, that is the note I jotted down, too, that is excellent.

COMMISSIONER EGGERT: Yes.

MS. KOROSEC: Commissioner, we do have one question that has just come in online from Karen Hensley. Can you open the line? Karen, your line is open.

MS. HENSLEY: Karen Hensley from Southern California Edison. Just one question regarding the various oversight of the audit process. When you mention the EECG, the block grants, I know that the Commission was responsible for allocating those sub-grantees; will there be the same kind of oversight on the Federal grantees? Or just on the State sub-grantees?

MR. HUTCHISON: I think – I am going to try to paraphrase your question. You are asking if our oversight, our accounting oversight, would be different whether it is the block grant or the State Energy Plan, and I think that the simple question is no. Our efforts are to – it is all about accountability, transparency, mitigate, avoid fraud and abuse, so it does not matter if the money is going to a small local jurisdiction or a private entity, whether it is a loan or a grant or a contract, we are going to be looking at them in earnest.

MS. HENSLEY: So you are only looking at SEP-funded? Because I saw the –

COMMISSIONER EGGERT: Actually, if I might interrupt, is the – the question relates to the direct grants that the cities are getting from the Federal –

MS. HENSLEY: Vs. the sub-grants, yes.

COMMISSIONER EGGERT: Vs. our flow-through from the sub-grants.

MR. HUTCHISON: Oh, okay, I did misunderstand your question. So, our auditing and our MV&E contracts, the Perry-Smith and the KEMA, have direct oversight for the ARRA funds that are coming through the Energy Commission and are being administered by the Energy Commission, so the direct Block Grants from DOE to large jurisdictions, that will not fall underneath this review.

MS. HENSLEY: Thank you.

MS. KOROSEC: All right, well, we will move on now to talk about our MV&E effort with Monica Rudman.

MS. RUDMAN: Good afternoon. I am Monica Rudman with the Special Projects Office and I am here to talk about the measurement, verification, and evaluation aspect of our ARRA Program. The Energy Commission is responsible for four American Recovery and Reinvestment Act of 2009 funded programs totaling $314.3 million, and here is a list of the programs. I know we briefly talked about it, so you can take a look at the different programs, and they have kind of a broad scope. We have SEP programs; we have the Energy Efficient State Property Revolving Loan Program; we have a low interest Energy Efficiency Financing Program for $25 million; a Municipal Financing Program, this is going to be

part of what we call our SEP 110 here, Comprehensive Residential Building Retrofit Program, Municipal and Commercial Building Targeted Retrofit Program, those three, the budget for that is $110 million; we have a Clean Energy Business Finance Program with a budget of $30.6 million; Green Jobs Workforce Training Program for $20 million; and then the Energy Efficiency Conservation Block Grant Program, we have direct grants to small cities and counties at $33.3 million; and then discretionary funds that are being developed, as we speak, and we are pretty far along on that process, for $12.9 million; the State Energy Efficient Appliance Rebate Program for $35.2 million; and the Enhanced Energy Assurance Smart Grid Program, which is covered there – I think it is $3.6, so it is a diverse portfolio of programs, they have a variety of different delivery mechanisms, and not all of the objectives are going to be energy efficiency, some of them are to encourage manufacturing of equipment, and the Energy Assurance Smart Grid is to do Energy Assurance Smart Grid Plans, and then the Green Jobs is more of a jobs program. So, it is very diverse.

Why evaluate programs? Well, I think you have heard, it has been made abundantly clear to us at the Energy Commission that the Federal Government and California's Administrative and Legislative Branches will subject these

programs to intense scrutiny; we got the message. But, actually, it is not a problem for us in California because it is really the professional standard in California to do measurement and verification. For decades, the CPUC, the State of California, has directed evaluations of investor-owned utilities, energy efficiency programs, policymakers have put energy efficiency first and the loading order of resources, which is justified, extensive measurement verification and evaluation. And the Energy Commission itself has evaluated and documented the impacts of many programs, including our Peak Load Reduction Program of 2001 and we will be talking about some other programs later in the day.

Also, we want to tell the story, what benefits did we provide to California, at what cost? What worked, what did not? Why some approaches work better than others, I mean, that is just really reiterating what Laura Chick was saying, and I am glad this is something that we really plan to do. How did efficiency technologies that developed through the PIER Program actually perform, in practice? Part of what these programs are doing is going to the next level, we developed technologies that may work, and now we are going to have an opportunity to see how they actually work and practice when they are implemented. And then, what information is applicable when developing future building

and appliance standards? Some very specific objectives for the evaluation are to ensure proper use of program funds, confirm progress to program implementation milestones, verify installation of appropriate end-use technologies, verify the accuracy of reported energy savings, assess programs' cost-effectiveness, determine energy savings, generation impacts, and peak demand reductions from programs. We are going to be estimating climate change impacts, carbon reduction emissions. And we will be evaluating market transformation impacts, and that is kind of an important element of our SEP-funded programs, and also what is very different is assessing job impacts. Obviously, that is a very important goal of the programs.

The Energy Commission has a multi-faceted approach to Measurement Verification and Evaluation. First, upfront, technical staff can very carefully scrutinize funding recipients, projects and proposals, prior to making any awards, and we work with our applicants to develop the best projects. This upfront work really guarantees – does not guarantee, nothing will guarantee – but it helps to kind of move us in the direction of making sure that, upfront, we have the best projects, that we are using the most up-to-date technical assumptions, and that we can avoid any problems in the future; you cannot guarantee it, but, I mean, we do our best to kind of work upfront to avoid it.

Funding recipients are required contractually to participate in Measurement, Verification and Evaluation activities, it is written into their agreements. We have contracted with an Independent Evaluator, KEMA, who will be making a presentation following mine, I will talk a little bit about it, and then, in terms of Measurement, Verification and Evaluation, we are coordinating with the ARRA support contract, Perry-Smith, so we are trying to carefully coordinate those efforts. So, together, these efforts are a multifaceted approach.

A little more detail about the obligations common to all funding recipients, they are required to comply with Federal reporting requirements, they are required to allow access to facilities and records, they are required to provide data needed to measure and verify electricity and fuel reductions, and they are required to provide associated data, as necessary, to establish baseline energy or fuel use. As I said, this is written in the Grant Agreements and this is written in the contracts in the terms and conditions. They should not be surprised when we coming knocking on their doors.

In addition, because of the importance of Measurement and Verification, some of the SEP project selection criteria actually evaluated potential funding recipients on their approaches and activities to verify

energy savings and demand reductions, and collect Measurement, Verification and Evaluation activities. So I think this is something that is somewhat unique in terms of the Energy Commission, and I think this is actually another way of supporting the Measurement, Verification and Evaluation.

I am going to talk very briefly about the RFQ process to select the Measurement and Verification contractor. You can get more detail from the notes, from the presentation, and I think in the interest of time, I will not spend a lot of time on it, but we did do a solicitation process to select a team of engineers to assess the impacts of the Energy Commission's ARRA Programs up to $4.1 million, as budgeted. $3.9 million that is coming out of the ARRA Programs, and then, because the evaluation is really kind of a lagging event, you do the program, and then you evaluate, we put in $2 million of our own funds to have the ability after the ARRA funds are ended to spend some of that money on evaluation after the ARRA funds are ended. Now, this money is actually not 100 percent firm, but we have got it planned. I will skip through the solicitation process, if you are interested in that, you can read it.

We ranked the teams on their approaches to task in the work statement qualifications, examples of prior work, references, and discussions. We considered – the Scoring

Committee considered the level of understanding of the work statement, the ability to carry out all tasks, experience, and the ability to offer economic benefits to California through local office, and the highest ranking team was KEMA. Subcontractors to KEMA include a very diverse set of consulting firms with vast experience, and they are listed here if you are interested. And I think KEMA is very experienced and qualified, I think you have heard people mention that. Team members were responsible for designing and implementing the vast majority of the 2006-2008 IOU Energy Efficiency Program Impact Evaluations on behalf of the Public Utilities Commission, and the measures evaluated through the studies conducting by KEMA, the KEMA Team, accounted for nearly 75 percent of the IOU portfolio claim, so it is a very experienced team with a lot of expertise. It is based in California. For the majority, 80-86 percent of the contract resources will be allocated to California resources, and the team will be working through offices located throughout California and the Western United States.

In terms of the contract Measurement and Verification, they will be developing an Action Plan using engineering expertise to monitor and verify ARRA program activities and products. And then they will implement the Action Plan. And then they will develop an Action Plan for Evaluation, and they will implement the Evaluation Action

Plan, and then they will do Annual and Final Reporting, and then Administrative Support Services. The difference between the Monitoring and Verification, and Evaluation, is we see the Monitoring and Verification is sort of focusing on perhaps the projects with the highest risk, while, for the Evaluation, we want to make sure that there is no bias – these are for the technical, of course – but that there is no bias in the Evaluation activities, so the evaluation would involve more of an assessment, overall, of the program impacts, not bias towards the more complicated, difficult projects.

The effective date of the contract with KEMA was April 28th, 2010, and since it is a work authorization contract, we executed the first work authorization, which covers the Administrative Support Services on May 10th, 2010, and the evaluation pre-planning work has commenced, and they will be talking a little bit about some of that work. The SEP funded projects must be completed by March 31st, 2012, and the Energy Efficiency Block Grant Projects must be completed by September 13th, 2012, and the contract ends June 30th, 2013, although we think a lot of the work will be done concurrently with the funding, the ARRA funding, lining up.

The study design standards that we are following, the Department of Energy Evaluation Guidelines that were mentioned by Mr. Rogers, we are following those. The

International Performance Measurement and Verification Protocols, and then, where possible and where it fits, we will be following the CPUC's Evaluation Protocols. What is different about ARRA-related evaluation? We have got very short timeframes, the projects have to be installed and implemented quickly, and we will be conducting the evaluation concurrently, we will be trying to do some real time feedback. We will be assessing jobs, and that is somewhat different from the traditional evaluations. We will be assessing carbon emission reductions and the Federal government does have some guidelines about National Federal Emission Reductions and, very surely, we will be trying to apply a more California-specific number to that. And then, an interesting and different thing about the ARRA evaluation is there is an emphasis on attribution of effects under jointly funded projects. Our funding recipients were encouraged to get funds from the utilities, any type of matching funds they could get, that has to be factored into the evaluation, and then the market transformation impacts of evaluation. That is it. Questions?

COMMISSIONER EGGERT: Thank you very much, Monica. I have, actually, I guess I have a couple of questions. First of all, I wanted to just note that, on your slide 10 which says that the MV&E considerations were included in the project selection criteria for the SEP projects, that is

good to see because I think that, hopefully, will make it much easier, that the actual project implementers can participate in the collection and submission of that data, to make it easier for KEMA to collect and process it.

MS. RUDMAN: Uh huh.

COMMISSIONER EGGERT: And then I was also heartened to see that we have, at least, a plan for ongoing evaluation because I know a lot of our projects will not conclude at the end of the ARRA, the 2012-2013 timeframe that we are basically putting in place some of these institutional programs. Is that the purpose of that additional $2 million?

MS. RUDMAN: Well, we have to completely flesh that out since we are developing the Work Plan, but part of it would be the fact that some of the evaluation of the maybe shorter term projects would have to occur after the projects are installed; but, yes, part of it is that, if you do your job right, you should not have to have Federal funding, you should not have to have State funding, that these programs will be transitioned to the private sector, and they will continue, and that is part of the goal of the SEP projects, and certainly that would be an aspect of something that we would be trying to tell the story about and evaluate, so, yeah.

COMMISSIONER EGGERT: Excellent. And then I guess

one question, and I do not know if this is for your presentation or the KEMA, but Ms. Chick had mentioned, as well as Mr. Rogers, about the need for sort of an ongoing assessment of project effectiveness.

MS. RUDMAN: Oh, right, yeah.

COMMISSIONER EGGERT: Will this allow for that sort of continuous improvement and feedback into the programs?

MS. RUDMAN: We think that is important and we have had discussions about how to communicate the ongoing evaluation results on a more real time basis. When we did the evaluation and the peak load reduction program in 2001, we had like a bi-weekly, bi-monthly kind of e-mail update, and we are having discussions perhaps on doing some type of dashboard, or something like that, where the results could be published on our Internet, or somewhere where they could be assessed on a regular basis, so, yeah, I think that is important and that is something that will be built in.

COMMISSIONER EGGERT: Excellent. Okay, I am going to turn it either to the audience or to those on the webinar if there are any questions, again, I guess you can raise your hand or enter a comment into the comments section. Do we have anybody in the audience before we go to the next presentation?

MS. KOROSEC: We have nothing on the webinar, so let’s go on.

COMMISSIONER EGGERT: Okay.

MS. KOROSEC: All right, our next presenter is Valerie Nibler from KEMA.

COMMISSIONER EGGERT: Okay, actually, while you are getting set up, I do want to recognize the couple of individuals who have joined us for this meeting, who are integral to the implementation of California's ARRA Programs, and that is Rick Rice, who is the Director of the ARRA Task Force, and Eric Alborg, who is also on the ARRA Task Force, I think I see him in the back there, if you want to just stand up? Thank you for coming. Go ahead.

MS. NIBLER: Good afternoon. I am Valerie Nibler. I am with KEMA and I will be talking to you today about the project overview, and Jarred Metoyer from KEMA is also here, he will be talking about the M&V objectives, approaches, and application, and also getting into a little more detail on what we have been able to identify so far as approaches for MV&E for the ARRA Programs, and I am guessing we will not have time for anymore but, time permitting, we have prepared a few additional examples.

So, Monica presented the tasks that are in our contract. And the planning tasks for the M&V and the evaluation have a lot of overlaps, so we are approaching those simultaneously, and we have started with an initial program review. We started by reviewing all of the

proposals and the RFPs and, also, we have been meeting with the Program Managers, I believe we have met with most of the Program Managers at this point, and we have a few that we will be meeting with over the next couple of weeks. And all of these efforts are geared toward helping us to prioritize our evaluation efforts and to get some fast track M&V activities planned out. We are also working towards the detailed M&V Plan which will include sample design and data collection approaches, the analysis plan, timelines, and budget.

Once we have a plan, we will implement the plan, and some of the activities in a typical evaluation include selecting a sample, collecting lots of data, including telephone surveys, site visits, pre- and post-monitoring, and conducting analysis, which may include billing analysis, engineering analysis, analysis of the survey data, and, of course, reporting. As Monica showed you a slide, we have nine sub-contractors. A couple of things to point out on this slide, one is that the overall effort is being led by Kathleen Gaffney, who unfortunately could not be here today, and I am assisting her with the project management. And we have a very deep bench in engineering resources, so there is a big cluster of firms over there on the left. And since the Commissioner asked the question about our plans for regular reporting of progress and lessons learned, I would

also like to point out, over on the right, that we have set aside some funds and we are going to be working with one of our subcontractors on developing some systems to facilitate that type of reporting. So this is a timeline which covers some of the things that I have already talked about. We are in June now, conducting some of our interviews, moving into July we will continue to analyze data. We are looking forward to some of the implementation plans being released by some of the sub-recipients, so that we can understand the program plans a little bit better, and the data collection that the sub-recipients are proposing to support the EM&V efforts. We will be conducting follow-up interviews, as needed, and this again will help with our prioritization efforts since we have quite a broad set of programs, as Monica pointed out, and a limited budget with which to evaluate them, so prioritization is an important part of the data collection effort and the communication back and forth at the Energy Commission that is happening over the next couple of months. So, we expect to have a more detailed plan towards the end of August. As these programs roll out, we will be also updating the plan through the end of the year, and in parallel with that, though, we will begin some efforts, some of the M&V efforts, for the projects that are characterized as high risk, and then, of course, moving into the overall evaluation effort. So, now I am going to turn

it over to Jarred, who will talk to you more about the M&V objectives, approaches, and applications.

MR. METOYER: All right, thank you, Valerie. Good afternoon. Monica outlined nine specific objectives for the EM&V efforts, six of which are really going to be the priority and focus of KEMA. We will be working in concert with Perry-Smith and the Energy Commission on all nine of the objectives. The six specific ones that we want to focus in on today's presentation are verifying installation of appropriate end-use technologies, verifying the accuracy of reported energy savings, assessing program cost effectiveness, determining energy savings generation and peak demand reductions, estimating climate change impacts, and evaluating market transformation impacts for SEP-funded programs.

So what are the approaches that we are going to apply to each of these objectives in order to achieve them? For installation verification, the California evaluation protocol outlines a verification only protocol, we will also be reviewing any verification data collected by program implementers. As Monica outlined, some of the sub-recipients were selected specifically because of their plans for oversight and verification.

In terms of reported energy savings verification, we will be reviewing the implementation plans which are

forthcoming over the next couple of months, and then we will also be reviewing the ongoing stream of tracking the data savings, as well as the work papers that have been developed to estimate the savings. For cost-effectiveness, for the programs that are stipulated to apply, the DOD guidelines for Btu's saved per $1,000 of SEP funding, we will be using that criteria. And then we will also be collecting other data to support other types of cost-effectiveness analyses, such as those stipulated by the CPUC, generally termed the E3 calculators, which are spreadsheet calculators to apply the CPUC adopted Total Resource Cost Evaluation Tests.

For energy and peak demand impacts, we will be applying the California Energy Evaluation Protocols, as well as IPMVP, which has been mentioned a number of times throughout the day. This is what outlines the site and/or measure specific evaluation and measurement details. In terms of carbon emissions, from those energy savings that we evaluate, we will be applying Department of Energy National Level and Energy Commission State Level factors to those energy savings, to determine the amount of carbon reductions. For market transformation, we can follow the California protocols, once again, which outlines market effects and specifically details coordination between the Energy Commission through the Joint Committee, the CPUC, and us as the contractors, with the first step of any market

effects study being the Scoping Study, which we will talk about a little bit more in the presentation.

So what are these protocols that you have heard so much about, so far? You have heard about the California Evaluation Protocols. And you have also heard about IPMVP, or the International Performance Measurement and Verification Protocol. You can think of these as a set of standards and guidelines, and not a specific step by step methodology, so we are going to think of them sort of as a menu, it tells you the ingredients and what the dish is, but it does not provide the recipe. So, in order to apply these protocols, KEMA's experience in the 2006 and 2008 Impact Evaluations was to develop evaluation plans at the program level, which cover the California protocols of impact, sampling, as well as measurement and verification. In terms of IPMVP, you will often hear of the four IPMVP options, which are lettered A, B, C, and D. The first two options, A and B, are retrofit isolation, meaning if we are doing one particular energy efficiency project, measuring the impacts, the energy consumption before and after to determine the savings. Options C and D cover whole premise, or whole site evaluation. So, just to go through the options, Option A is partially measured retrofit isolation, meaning usually the pre-case is unmeasured, Option B means measuring the actual before and after cases, Option C is a typical billing

analysis, and Option D is a calibrated energy simulation or a building model. In addition to these overall guidelines and protocols, the Public Utilities Commission did, in the '06-'08 Impact Evaluations, develop some specific net savings methodologies which are covered in the attribution section of the presentation, as well as spillover guidance to meet those protocols.

So how do we apply all these letters to actual evaluations? One of the best examples for Option A, partially measured retrofit isolation, is in terms of measuring the impacts of a lighting retrofit. So in that type of evaluation, we would use time of use lighting loggers to determine the time of use of the fixtures, and then either on a site specific or a market average basis, determine what was the equipment installed prior to that retrofit, thus it is termed "partially measured" because we are not measuring the actual case before the retrofit. Option B would be something more like what we did in monitoring pre- and post-efficiencies of air-conditioners, where we had to meter power temperatures and airflows to determine what was the efficiency before and after the maintenance on the unit, in this case, adding or removing refrigerant charge. One of the more complex is Option D – once again, Option C is a typical billing analysis – Option D is a calibrated energy model simulation, which we applied

in KEMA's experience for non-residential new construction, and our subcontractors applied to numerous retrofit projects in the '06-'08 evaluations. Here, we not only meter the efficient equipment, but we also do a full building audit and planer view so that we can build an energy simulation model typically in DOE2, is the software that is used. Then, the end-use meter data is used to calibrate the output of the energy simulation to make sure that the overall model agrees with the actual usage patterns of that new efficient equipment.

So we have covered energy savings and impacts and how do we assess those, but we have yet to cover another important aspect, which is market effects. We have heard a couple of mentions in the earlier presentations about the Institute, which is the California Institute of Energy and Environment and UC Berkeley. KEMA was one of the co-authors on the white paper on market transformation evaluation, and the CIE developed three specific research plans for the CPUC market effect studies to cover CFLs, residential new construction, and high bay commercial lighting. So, once again, in terms of market effects for our evaluations, we certainly would be looking back to the CIE, working together with the Joint Committee, in terms of market effects.

The California protocols also offer a market effects protocol. Like all other evaluation, it begins with a

program, a record review, and a review of the program designs, and then, more specifically, it goes into the development of a scoping study. And to achieve that, we would develop a market change theory and logic model, which we would then identify the market change indicators and data sources that would be used to assess whether or not the market effects could be attributable to that market transformation program.

Okay, there has been some mention of attribution effects and the DOE Guidelines do provide some guidance here. Most importantly, in terms of leveraged funding, the effects of jointly funded initiatives will be allocated in proportion to the percentage of funds. Most of the awards were given to a sub-recipient which specifically outlined how they would use leveraged funds, and the energy savings from those programs would be attributed to the leveraged funds and ARRA funds, based on the amount of funds. In addition, this says that we have to document the effects that are above and beyond the effects that would have been achieved without ARRA funds, and studies should focus on net effects. So what we mean about that, it would go into a little bit more, but we do know that there are multiple programs, all serving these same targeted markets, many, if not most, of the ARRA programmatic activities cover all these same markets. There is a specific cooperation

leveraging which is intentional in the design of the programs.

So when we talk about attribution, the methodology that can be applied systematically is one of definition, validation, and quantification. In terms of definition, we are really developing a hypothesis of what the baseline behavior would have been in the absence of the program, and what would have been the behavior in the absence of the program to the market actors. Then, to validate that, a system of review of program documents and secondary sources, as well as market actor interviews, can be conducted for a qualitative assessment of the attribution hypothesis. Both of these activities can be performed on all of the activities. In terms of quantification, this would be focused on the higher risk activities, so, once again, those with the highest risk may receive the most quantification in terms of net benefits. So this is an assessment of the attribution hypothesis and attribution and assessment of the net impacts.

So how does one go about measuring or quantifying attribution? There are three general approaches, which we have here applied to some hypothetical types of activities. Number one is market actor self reports, which are applicable to a number of different program types. These type of self reported surveys were used in the CPUC ’06, ’08

evaluations. Another method is a cross-sectional method, which is more in line with the econometric models that we have also heard about today, which look at what were the impacts in states or regions where there were not energy efficiency programs funded by ARRA. The third method, which is typically used for research and development, emerging technology, is an expert judging method, which basically uses a structured solicitation of an expert panel, the most common of those methods being the Delphi Method. So, here you can see we have looked at five theoretical types of programs: energy efficiency investment in public facilities, financial support of efficient technology deployment, technical assistance and training, codes and standards development and enforcement, and research and development demonstration. And you can see that some methods are applicable to all of these areas, and some are more geared towards others.

So this was an overall view of the types of protocols and methodologies that need to be undertaken to do EM&V. Now, we will talk a little bit more specifically about how we apply these approaches and objectives to the actual ARRA programs that have been awarded. So here, once again, we have brought back the areas and the objectives that KEMA is focusing on, and we have basically outlined a number of activities, mostly data collection activities,

that will be undertaken in order to evaluate each of these. So, going through the rows are basically the objectives that we listed earlier from Monica's presentation. Installation verification, reported savings verification, and so on. For all these activities, there will be a detailed review of program records and implementation plans, which is essential to create an optimal evaluation for any of these areas. You can see that, for some of these areas, we will also be doing secondary research for things like cost-effectiveness, market transformation, and job impacts. We will also be doing some analysis using deemed savings values such as the reported energy savings review, once again, the cost-effectiveness in applying deemed factors for carbon emissions to the energy savings that we evaluate. In addition, there is the verification component, which may include surveys and on-site installation verification, as well as site or measured specific measurement and verification, which also includes the actual installation verification, as well as one of the IPMVP options that we talked about in terms of actual measurement. In-depth interviews may also be conducted, both in terms of attribution and net effects, as well as directly assessing market transformation and job impacts. And then, finally, surveys where their phone or online could also be used to support net effects attribution, as well as a primary driver

for market transformation and job impacts.

So, now looking more in depth, we have now flipped the last graph on its side and put all the specific activities in data collection on the rows, now, and now the columns are in line with all of the ARRA programs. So, here you can see which types of programs would receive site-specific MV&E, things like the SEP retrofit programs, in particular, as well as aspects of the block grants, engineering analysis using deemed values may be more applicable to certain aspects of municipal financing, and sub-portions of commercial building retrofits. In-depth interviews, once again, which are used for both market effects and potentially for net effect attribution can also be used for a number of areas. So here we basically try to take it all the way from the objectives laid out by the Energy Commission, and Monica's presentation, and then apply those down to the program level. Taking this one step further, is to also look at the measures and end-use technologies which are present within these programs, and which are conducive to evaluations of common measures across programs.

So, in the next slide, which has a lot of information, you will see three different letters, "E" stands for Education and Training, "M" is for the actual manufacturing of more efficient equipment, and "R" is just

an actual retrofit, which is the predominant type of energy savings that is going to be achieved, especially through the SEP 110 programs. So, here you can see that there are a number of measures and end-use technologies which cut across several different programs, things like lighting retrofits essentially cut across all the various program activities. And general M&V Evaluation Plans can be developed so that one program is not judged by a different criteria than another, just in terms of the energy savings quantification.

We have also developed some more detailed examples of some hypothetical programs, so more about what would this look like. So, a more simple example would be something like street lighting, a retrofit program which had been awarded to, perhaps, a Block Grant. So here, as we said, all of the evaluations start with the program application and records review. There is then a more detailed site contact and verification site visit. And then, at that point, there is a determination of whether deemed or proscriptive input assumptions are correct, so either there needs to be an adjustment to those deemed savings values after verifying the equipment is installed, or we can just accept the documented energy savings, and then that will feed into a program summary analysis. So that is one of the more simplified examples.

A more detailed example would be something like a

large HVAC project at a municipal facility. This would include, once again, the project application review at the outset, but, here, we would first look at whether the project requires establishment of a baseline and pre-monitoring. So, if you follow the top half of the flowchart, and if pre-monitoring assessment is intended, and baseline conditioning still exists, we would then focus on doing a visit for implementation of the energy efficiency measure, doing some monitoring, and then coming back later, after the completion of the installation, and once again doing measurement and evaluation, which would then feed over into the final assessment of the impacts of that project. So here you see one application where we are just focused on verifying the installation of the equipment, and accepting the reported savings, and then this more detailed example, which we are primarily developing the energy savings impacts. And this would more likely be applied to a large impact or high risk-type project, as we have been talking about before.

I have tried to move through the presentation fairly fast to get to these last three slides, to cover the State Energy Programs, and got into more detail of just looking at the individual sub-recipient programs over the type of technical services provided, what was the financing mechanism, and then what are the detailed evaluation

approaches, drilling down into these sub-recipient programs. So, at this level you can see where we are applying the IPMVP options, Option C and D for the multi-family buildings program, Option A and D for single-family retrofits. You can also see on the far right whether or not pre- and post-billing data was a requirement of that program, as well as whether we think that pre-monitoring data could be achieved for that project. So these are the residential retrofit building programs. You can see a similar table for the municipal and commercial building targeted retrofit programs, which once again outline the specific measures, as well as the specific evaluation approaches, which could be applied to these programs. And then, once again, whether or not pre-metering is potentially available.

Finally, for Municipal Financing, once again, a similar look drilling deep into the actual sub-recipient programs and what type of approaches would be applied. And with that, that covers the presentation. You can always e-mail Valerie or I with specific questions, or any other questions, time-permitting, now.

COMMISSIONER EGGERT: All right, thank you very much. So we do have some time if there are any questions either here in the room or on the webinar. I guess I will go ahead and throw one out there. With respect to the attribution, which I know is often times challenging,

actually I want to maybe even pick up on one program where – the last one you mentioned, the Municipal Financing Program, so we currently have got about $30 million attributed to these projects, these five projects, that is leveraging somewhere north of $350 million in private funding, and our funding is going primarily to set up sort of the institutional framework that allows for the financing to occur. Can you maybe speak a little bit more about sort of how an attribution analysis would be done in the context of a financing program, where it is sort of enabling the financing to occur for those projects?

MR. METOYER: All right. There are a couple of aspects to the Municipal Financing, which are much different than the retrofit types of programs. As you mentioned, the SEP funding in some cases is geared towards setting up institutional framework, but in many cases it is still working toward buying down the interest rates, so the first step would be to basically separate how much of the funds are being used to set up that institutional framework, and how much funds are actually going towards buying down interest rates, which is similar to what the leveraged funds are being used for in those programs. So at that first level, that would be the first driver of determining how much of the energy savings of a project would be attributed to each of those sources. In terms of setting up an

institutional framework that is going to have a lasting change after the ARRA cycle, I think that is another challenge to developing both the market effects evaluations, as well as attribution, because the institutional frameworks that are being developed are more intended to have a sustainable impact, and basically keep the program going beyond the ARRA cycle, so there would be basically a quantification of the short-term impacts, in terms of what was the first year savings that can be attributed to those funding sources, but really, the lasting impacts and the lifecycle savings could primarily be attributed to ARRA funds if that really would set up the sustainable ongoing system that basically created that – they take in more money than they give out, thus creating a cycle that they can sustain.

COMMISSIONER EGGERT: All right, thank you. I see we have one here in the room. Go ahead.

MR. THEROUX: Yes, thank you, Commissioner Eggert. Michael Theroux, Theroux Environmental, you have my card, JDMT. You have your hands full. An excellent summarization of a huge amount of work, I want to thank you for that. The ARRA funds are, in a large way, the seeds, and our Muni's and our utilities, in particular, are now looking to harvest that as we go forward, and that is the market transformation piece. That goes in two directions. We have companies that

have won awards in California that will be expanding their operations and finding good ground outside of California, and we certainly will have the opportunity to attract into California awardees, perhaps, and like-like transformational technologies into California, as well. Can you speak perhaps, and I think perhaps this is more toward IEPR at the Commission here, later, but within your own program development, how are you watching and tracking the flux of next steps, if you will, from our awardees here, outside of California, and those that perhaps are awardees out of California that we can attract into our state?

MR. METOYER: To address the first part of the question, which is talking about the awardees within the state and that expansion, that is really going to be the focus of the job creation, evaluation, which will be in conjunction with the support contractor in terms of not only are these jobs created by ARRA Funds, and they can be traced back to those ARRA funds, but really, once again, back to the issue of sustainability, and are those jobs sustainable in the market. For the second half, in terms of looking across other states and attracting in other entities coming into play in California, I think that will elude itself more when we get the more detailed program implementation plans. At this stage, we have the accepted proposals from each of the sub-recipients, and I believe, as they flush out all the

details in terms of what type of market transformation activities they are going to be undertaking in their implementation plans, we will have a better idea of where these things cross lines. We did touch on one aspect, and it was early on today, Mr. Rogers did touch on the type of cross-sectional econometric modeling, and that is something we will have to essentially support throughout our evaluation, all the way up into 2013, is to basically work with the Federal evaluation of all ARRA funds, nationally, because that seems the best place to do that type of cross-sectional analysis.

MR. THEROUX: Excellent. Those market actors are not waiting, they are watching carefully where we might have next steps available. I would encourage a very aggressive approach to those larger communities, larger municipalities, and utilities, that indeed can implement projects, and programs, and concepts, that are coming out of this funding because that will quite clearly – these already occurring – the programs from that, the programmatic assistance from that is something that all of our Muni's and all of our utilities need, is help with understanding these programs, help with understanding the protocols, assistance in implementing next steps, and I would encourage you and the Commission, please, to recognize that, that we are moving quickly, as quickly as we can, to absorb this knowledge, and

to put it to play in the marketplace.

MR. METOYER: Okay, thank you for your comments.

COMMISSIONER EGGERT: Actually, just one more quick question on – are you having conversations with the utilities, both the IOUs and the POUs about issues of attribution and, you know, we want to make sure, to the greatest extent possible we are leveraging their funds, as well, and I know there are some – go ahead, Monica.

MS. RUDMAN: I can quickly answer that. We formed a working group with the California Public Utilities Commission and the Energy Commission, and we are meeting on a regular basis, and the purpose of it is to discuss and coordinate evaluation issues, and that is obviously one that is a big concern to everybody. So we are starting the process of talking.

COMMISSIONER EGGERT: Thank you very much.

MS. RUDMAN: Oh, and while I am here, I would like to make a correction to my presentation. I made a really heinous error on the slide of funding, the ERPA funding that will be contributing to the evaluation is going to be $200,000, not $2 million, so just for the record, I would like to correct that.

COMMISSIONER EGGERT: So, did one of the monitors catch that?

MS. KOROSEC: And we do have a question from online,

from Karen Hensley. Karen, your line is open.

MS. HENSLEY: Thank you. Karen Hensley, Southern California Edison. I actually have two questions, I believe I am entitled to ask both. The first is with regard to the Energy Star benchmarking. I did not really see any lessons to that in your pre- or post-evaluation plans, and I wondered how much you would like to see the individual awardees taking initiative to measure themselves with that tool – or to use that tool in reference to any of their approaches?

MR. METOYER: All right, to address the Energy Star benchmarking for commercial buildings? Or overall?

MS. HENSLEY: Just the commercial building, that is the only one I am familiar with at the moment.

MR. METOYER: Right. That is one of the – in terms of that being a requirement of the programs, that is something we have, as Valerie mentioned, we are in a stage where we are interviewing the program managers and the contract managers at the Energy Commission, that are in charge of each of these programs, and it will not be until the stage of their review of the program implementation plans where those types of requirements could be suggested or recommended by the Energy Commission to the sub-recipients, in order to include that systematically in their programs. So, at this time, we have not had an opportunity

to comment about having those types of requirements, or we have not seen the implementation plans where, if those are already in place, we just have not seen that level of detail yet. But, certainly we will be considering a number of data collection-type activities such as benchmarking in terms of our comments and recommendations to the Energy Commission when reviewing those implementation plans.

MS. HENSLEY: Thank you. And the other question was with regard to, and perhaps this does not apply to any of the sub-grantees, but I have seen at least one of the Federal Grantees identified KEMA as their partner for MV&E, and so I just – who is taking the initiative on any potential conflict with the State having hired you for this purpose?

MS. RUDMAN: Thanks for answering [sic] that. Yeah, this is Monica Rudman. That was very much a concern, and so – and the process has been very accelerated in terms of getting the measurement verification contractor on board, as well as the program implementations happening all in the same timeframe, so as the process evolved, we realized that there were these two separate, but related firms, that had applied for program implementation, as well as measurement and verification, and in further discussions we decided, along with KEMA, that they would drop out of the one project where they were program implementers, so there is no

appearance – they were separate firms, there was a lot of safeguards in place, but there was a concern that there was an appearance of a conflict, so, in further discussions, KEMA – there is KEMA, Inc., and there is KEMA Energy Services, and the KEMA Energy Services dropped out of the contract where they were program implementers. So they are strictly the evaluators.

MS. HENSLEY: Thank you.

COMMISSIONER EGGERT: Thank you very much. We have one more here in the room. Go ahead, please state your name and affiliation.

MS. AUSTIN: Cynthia Austin with Heschong Mahone Group, and I was hoping that you could provide some detail on the types of coordination your evaluation effort will be with the sub-recipients, how much back and forth will there be, or will it be strictly an outside review with little communication between them?

MR. METOYER: Right, in terms of communication with the sub-recipients, at this stage, we do not have any direct contact because we are still awaiting the detailed program implementation plans, which will then go to the Energy Commission's Program Managers and Contract Managers, respectively. Then, at that stage, we will be able to review the implementation plans, and that seems the appropriate stage in order to start communicating with the

sub-recipients. In order to do any type of pre-implementation, verification, or measurement, we have to coordinate with the sub-recipients. So, in terms of when we say any type of pre-measurement, it is implied that we have to coordinate with the sub-recipients.

MS. AUSTIN: Would it be at the – just a follow-up question – would it be at the same level as what is required with the CPUC about evaluations? Or will there be any differences? Right now, there is much more of a buy to make sure everything is kept – the firewall is kept pretty much in place with the CPUC about evaluations, such that there is not as much back and forth in past evaluations.

MS. RUDMAN: Right, yeah. As I said, we are still developing our evaluation plans. I think one of the things that is different about the Energy Commission, we are maybe a little more nimble, maybe a little more flexible, is we are not paying shareholder incentives, so there is not the need for that real, what do you call, hands-off type of relationship. So I think there might be opportunities where maybe we can identify, through the evaluation, we might be able to identify some type of problems that might be fixable, and that is really the goal, I think, for us, is we want to have good programs, and we want to achieve the energy savings, so I would think we would establish processes in place where, if there are things that can be

identified that are fixable, that we would want to then have those things fixed, not just to stand back and let somebody fail, and then evaluate them harshly later. That is really not necessary in our case, since we are not paying shareholder incentives. Hopefully that, you know, it all is kind of ongoing and developing, but that is kind of the intent.

MS. AUSTIN: Thank you.

COMMISSIONER EGGERT: And I guess I would even say more assertively that we should probably be proactive about feeding those lessons, both at the prime and the subcontractors, when we see the opportunity.

MS. RUDMAN: Yeah, and that is why part of, you know, we have emphasized in the discussions, it is really important to have sort of that feedback loop and ability to – real time evaluations so that we can actually be impacting the course of the programs.

COMMISSIONER EGGERT: Excellent. Okay, that is a very impressive and appears to be a very robust program. I know, Panama, did you want to say something about California bringing California activity, or more activity to California?

MR. BARTHOLOMY: Just, uh, sir, you had asked about efforts to encourage and bring more of the clean energy economy market players to California, and I just wanted to

draw your attention to some of the comments that Ms. Korosec made to kick off this workshop, that we are going to be having two workshops in this IEPR Update, specifically focused on this issue, July 13th is going to be focused on how we have used Public Interest Energy Research Funds and Clean Transportation Funds to increase investments in these areas in California through the Recovery Act; and then, on July 22nd, we are going to be taking about efforts underway using Recovery Act money to increase investment and building a clean energy economy and manufacturing base in California, and particularly hearing from market players, but what more California could and should be doing in that area, so hopefully you will be able to join us for those workshops, as well.

MS. KOROSEC: We had one other question from Carol Zabin, who is not on the phone, apparently, so I will read this out for you: "Can you tell us more specifically about the Jobs Impact Report? Are you collecting data on just the number of jobs, or wages, benefits, retention rates? Who is getting jobs? Will you be surveying or using EDD data?"

MS. NIBLER: At this – this is Valerie – at this point in time, we are not collecting anything on jobs beyond what is required by the program. So, in this early planning stage for the evaluation, any additional data requirements, we have not identified any additional data requirements yet

for the job evaluation, but that will be part of what we will be looking at as we move into reviewing all of the awards and talking with the sub-recipients, and completing our interviews with the Program Managers.

MS. KOROSEC: All right, that is the end of our online questions, I believe. Next, we will move on to changing gears slightly, but we will be talking about the PUC's and the Energy Commission's efforts on investor-owned utility and publicly-owned utility MV&E, and how those may cross over with what we are doing here for the ARRA MV&E. So I will turn it over to Mikhail Haramati.

MS. HARAMATI: Good afternoon, everyone. I am very impressed, I have to say, that Suzanne was able to pronounce my name correctly, it is a toughie, so good job. My name is Mikhail Haramati, once again, and I am an analyst in the CPUC's Energy Efficiency Evaluation Section. We recently completed our three-year $97 million evaluation effort of the Utilities '06-'08 Programs, so I am quite delighted to be here and to be sharing some of our lessons learned, especially as somebody who enjoys M&V, it is great to see the increased interest on this topic and recognition just of how much there is to be gained through evaluation.

Just a quick overview of the presentation. Let's see if you can still hear me. So I will be talking quickly about the 2010 through 2012 IOU Energy Efficiency Portfolio

Programs, what are planned evaluation is of those programs, and then we will give you kind of a run-through of our '06-'08 evaluation, and then discuss some areas for coordination. So the 2010 through 2012 portfolio is one of $3.1 Billion of energy efficiency programs throughout the State, and those are to be administered through our four largest energy IOUs, which are PG&E, Southern California Edison, San Diego Gas & Electric, and SoCal Gas. And there are three-year savings potential of 7,000 gigawatt hours, 1,500 megawatt hours, 150 MM Therms, 3 million tons of CO_2 emissions avoided, and this is equivalent to three large power plants not being built, and we are supporting an estimated 15,000 to 18,000 new or retained jobs through this effort. And then, additionally, we have 750 million for low income home retrofits and appliances. So we are doing this through 12 uniform statewide programs, those are, very quickly, residential, commercial, industrial, agricultural, HVAC, lighting market transformation, workforce education and outreach, marketing education and outreach, integrated demand side management, emerging technologies, codes and standards, and new construction for residential and commercial, and then we also have additional efforts such as the Cal SPREE Program, benchmarking efforts in retrofits, comprehensive HVAC, on bill financing, training for contractors, architects, and others in the industry. We

have a pathway to zero net energy new construction, we are looking into shifting away from basic CFLs and are doing that through an advanced lighting program, and then we are also doing statewide marketing and outreach coordinated across all four IOUs, in addition to some behavior-based programs such as the one that is operated by OPOWER.

So for our 2010-2012 evaluation, we have roughly $125 million allocated for EM&V projects, and that is about 4 percent of the portfolio budget, a little bit down from '06-'08. And $34 million of that $125 million is for the IOUs, those are the utilities evaluation, measurement and verification, they do their own set of evaluations for things like process improvements and customer satisfaction, marketing, and they do it on sort of a continuous basis to try to be improving the programs during the program cycle. And, in addition, just some market assessment work, and then roughly $91 million for the CPUC's evaluation, measurement and verification. So, in '10-'12, we are maintaining the firewall, which was mentioned, I think, in one of the questions in the presentation before this one, between implementers and evaluators set out in CPUC Decision, and again, what that is, is it essentially says that a firm cannot be evaluating or participating in evaluation work if they are also implementing energy efficiency programs, so we want them to be as neutral and unbiased as possible.

So, very quickly, reasons for evaluation, and I know Monica touched on some of these, too, so slightly different from the CPUC's perspective, but definitely a number of areas for coordination. We want to determine the program performance, improve programs, and develop new measures, measure whether the utilities are meeting energy savings goals set out by the PUC -- and a number of these are quite aggressive -- determine if the utilities should receive an RRIM, a Risk Reward Incentive Mechanism payment and/or penalty, and that is something that we have not quite figured out yet for the '10-'12 cycle, so it is under review and it is currently being heard in an open proceeding, so we are not quite sure what that will look like, but once we do determine what that will be, then our evaluation will need to support that, and also to ensure that the state can depend on energy efficiency as a resource, this is a big one because this is how energy efficiency essentially becomes real in California. We are using it to avoid building new power plants and take it very seriously, and that is where measurement is quite critical, so that we can rely on those savings.

Okay, so right now, the largest document, the most significant document guiding the Evaluation, Measurement and Verification work, is the joint M&V Plan between the CPUC and our regulated utilities, so a couple basic themes are

increased collaboration using a flexible framework, also valuing transparency, like the CEC ARRA effort, try to get consensus among the CPUC and utilities wherever possible, cost efficiency, and making use of synergies between the two groups of evaluation efforts of the CPUC-led independent evaluators, and then the utilities own evaluations. So Phase 1 of evaluation as outlined in the joint plan is essentially doing an inventory of past evaluations, identifying where there are gaps in evaluations, where we potentially need to be putting more effort and need to collect more data. We are looking into scoping out and developing our reporting tools, and then also the utilities primarily will be undertaking early M&V. So, in Phase 2, and we are just entering Phase 2, kind of at the cusp here of Phase 1 and 2, we are looking to finish scoping out our M&V work to undertake some process evaluation and market assessment research, and we are hoping that this will inform program refinement for the '10-'12 cycle. And then for Phase 3, this was intended to be summative and undertake primarily ex post evaluations for the programs, as they have happened, for the purpose of gathering program portfolio accomplishments and to do other formative research, as needed.

So, the primary evaluation activities for '10-'12 are savings measurement and verification, program

evaluation, market assessments, and this is new for ’10-’12, something we did not do quite a lot of in ’06-’08, we will be determining performance metrics and then using these to see whether or not utility programs are on track, this is also new in ’10-’12. Evaluation activities will also support policy and planning work, and then we will be undertaking a financial and management audit. So this is a list of programs that require us to think a little bit more with how we need to address them from an evaluation perspective for ’10-’12: this is IDSM, the Integrated Demand-Side Management, and these are a set of programs which are intended to cover numerous demand-side management program offerings such as doing response energy efficiency, customer-side renewable generation, and that sort of thing. ZNE is Zero Net Energy, so we have a whole chapter of our Strategic Plan and group of programs devoted to Zero Net Energy buildings and we are going to need to be assessing those, as well. Also, Sustainable Communities, we are going to be looking at behavior as a resource for the first time, again, through the OPOWER Program. And then, we also have a whole slew of third-party programs, which because there are so many of them, just have not really received the amount of attention that they probably deserve, so we are hoping to be looking a little more closely at those and those will likely require some more creative evaluation methods.

Okay, so now we are going to get into the ’06-’08 evaluations, and I know a number of the staff in the room are pretty knowledgeable about this, so you guys can jump in after if folks have questions. So, a span of the evaluation effort for ’06-’08, total evaluation budget of $97 million, that was 4.8 percent of the overall program budget, so, again, the ’10-’12, was 4 percent, so a little bit less. We evaluated roughly 90 percent of the savings in terms of different parameters that we were able to collect data on, and I should say that, as a contract manager, I am quite proud of these numbers, and I should point out that Jarred Metoyer was very involved in this and should be proud, as well, as I am sure he is. We had 23 technical contracts, roughly 1,000 staff from various evaluation firms, we completed over 50,000 surveys, and visited over 12,000 sites to collect data.

So the goals of the ’06-’08 evaluation were to measure and verify energy and peak load savings for individual programs, groups of programs, and active portfolio level, to generate the data for savings estimates and cost-effectiveness inputs, to measure and evaluate achievements of energy efficiency programs, groups of programs, and the portfolio terms of performance basis established under the PUC adopted EM&V protocols. This is a little bit of jargon, but this is kind of what our

evaluations were designed to do, and also to evaluate whether program or portfolio goals are met. So the types of evaluation and field work and analysis we did included participant and non-participant surveys and assessments. We did numerous phone surveys, large customer and retail and manufacturer interviews, statistical analysis, therm life in situ metering, spot measurements taken on-site, baseline data collection, and we did building modeling using IPMVP Option D, and others, in case you have not heard IPMVP Option D enough today. Hopefully it will become familiar soon. Okay, so the way we prioritized this work, since we have so many programs and a pretty small Commission staff, we were roughly eight to 10 during that period, we did a risk assessment and we identified the highest impact measures, so those were the measures which contributed one percent or more to a utility's total claims for demand energy savings or therms. And we were able to successfully evaluate 90 percent of the claims savings through this approach, but what it also meant was there were some programs that we were not able to really do evaluations on, but according to Commission decision, this was the way that we were able to come up with the most accurate savings assessments for the purpose of putting them into load forecasting, and also determining utility incentive payments.

So the key evaluation parameters that we used in our calculations and collected data on were UES, which is Unit Energy Savings, Net To Gross, NTG, and Installation Rates. So everything that we did rolled up into one of these three key parameters, good ones to know, I guess.

Okay, so our evaluation challenges, what you guys have been waiting for, a little bit, at least. So essentially we had an extremely high stakes outcome with a possibility of up to $450 million in utility incentives, on the line depending on whether the utilities were found to have met their energy efficiency goals or not. We had a very large evaluation effort and limited staff resources. We found numerous inconsistencies in utility program data quality and record-keeping, so this was something that we had to go back and forth with the Utilities on, even though we had pretty good program requirements for reporting, we still found that there were problems with the way data was being collected, with third-parties not quite understanding rules about how to report the data, or the timeliness of the data, and one of our utilities would be aggregating the data, you know, according to certain amounts of time, another was not, and we found duplication of those, so it was something that took a lot more time than we expected, and for that reason I really want to point out. We also had a lot of difficulty in acquiring data from the utilities and

we actually had to build a database to upload all of the data, too, so that we could then have our evaluation staff format it properly so that we would have it in a form that was useful to us. Jarred was also quite involved in this, and I see him nodding.

We also found that there was a real need for real time data collection and cooperation with our implementers to gain access to customer sites, and in some cases we really needed to have live sites, so we needed to be able to collect pre-data, so timing of data was also really critical for us, and also, we had a tight evaluation timeframe in that we had to complete all evaluation work by sort of, I guess, mid-2009 and have a report out by April of this year, so we had some real hard deadlines and just kind of had to cut it off at some point, as will the CEC, it seems.

Okay, so some lessons learned: Get evaluators on board early, the sooner, the better; we had some contracting delays with DGS in terms of approval of our contracts, which meant that we were not able to get out into the field until later than we had wanted. Develop a broad M&V plan early and fill it in as more program details are known. So we spent a long time developing detailed M&V plans, and it seems like, in hindsight, if we had been able to kind of agree on something a little bit more general, then we could just go out and start the type of data collection we knew we

wanted right away, and then kind of finalize the other parts as we were going along instead of having a complete document upfront. Also, once again, get out in the field early. Reasons for this are so the baselines do not have to be reconstructed after the fact. Once something is removed, once the old piece of equipment is gone, it is really hard to know what was actually there, so you can talk to people, and you can talk to manufacturers, and try to get a sense, you can go on-site and try to figure out what the specs were, but it is hard to know not only what was there, but also what the reasons were for removing it, and that is a big thing for us when we calculate net to gross, which is the free riders, because we want to be incenting incremental energy efficiencies, so we want to get people to either move up in the efficiency of a new measure that they put in, or we want them to do it sooner, or we want to get them to put in more efficient units than they would have otherwise if, for instance, if they have four air-conditioners and they are only going to replace one with an efficient unit, we would like to get them to move to two, or three, or four.

And also, it is important to be able to get out in the field early so that you have results early, and then you can make sure you have adequate time for data collection and you can check errors, you can go back and, if something looks funny, you have time to go and check it. And then,

also, you have some data that you can give back to utilities for program improvement purposes, so a lot of good reasons if you can to get out as soon as possible. Also, to prioritize evaluation efforts for time and resources, this is, I think probably always a big one and hard to do, just trying to figure out how much staff time you have, and what you want to accomplish in that period, and there are always things which come up, which seem like good ideas, but just good to keep the end in sight and to be aware of how much budget you actually have and what your highest priority items are. Check reporting submissions early to ensure guidelines are followed and data is reported accurately. We talked about this a little bit in the context of data collection issues and data delivery from the utilities, but also, one of our major findings was that there were a lot of program eligibilities rules which were not being followed, so that meant that utilities had unexpectedly lower savings than they expected, and in certain areas, and if we were able to kind of find that out earlier and get that information to them, that would enable them to run their programs a little bit better. Also, avoid receiving same data in different formats, and make sure to set up reporting systems early. So the sooner you have a sense of how you want the data to be delivered and can build a system that is capable of receiving that data, the better, so that you can

start analyzing it, you can figure out where the errors are, where there is missing data, where you want to kind of dig further. And also, the more times you ask for the same data, we found, the more errors you also find, so if they are going to ask for the data, try to keep it in the same format and not to have it kind of sliced and diced different ways because it just adds cost to the eventual evaluation.

Okay, so areas for CPUC-CEC ARRA coordination: As Monica mentioned, we have an Evaluation Working Group between CPUC and CEC staff, working on evaluation to address leveraged funds used by recipients, so what I think – I am trying to remember whose presentation it was in this morning who mentioned that this was something that was really encouraged in the selection of the ARRA recipients, but the fact that they were taking advantage of monies in other places, and what that means for us at the CPUC in terms of figuring out attribution, is that a lot of our utility funds are going in combination with ARRA funds, together to kind of incent one action, rather than, you know, our utility funds would get people to do one thing, and ARRA funds would get them to do another. And an example of that is combined rebates, like for the Cash For Appliances Program where customers bought one refrigerator and received a rebate from both PG&E and the CEC. So participant contact and sampling, the need to minimize over-contact, especially of smaller

customer bases, and like industrial and commercial is really important, we found, even within ’06-’08, we got a fair amount of respondent fatigue, so we want to be kind of judicious and careful about how we contact them, and the same goes for sampling. Also, financing and marketing of same efforts, the more we can identify where the funds are coming from and coordinate on the way those are being used, the better, so we can track what is contributing to what, exactly. And then, that leads in to the reporting of costs and savings. Another area of coordination, which is the reason why we are here today, is load forecasting and making sure that we are using the same or congruous methodologies, and also in the way that we look at uncertainty, or calculate uncertainty.

So, these are more for your reference, these are key evaluation resources at the CPUC: Our ’06-’08 Evaluation Report, the California Evaluation Protocols, which we have mentioned a couple of times today; our April 21st EM&V Decision with the Joint Plan, which are the different phases of evaluation; also, EEGA, our Utility Savings Reporting site, these are unverified savings and, in ’06-’08, we had the utilities report them monthly and then annually, also; also, the Prime Evaluation RFP, so we currently have an RFP out for our main evaluation contractors, we have not selected one yet, we have received the bids, but you can

kind of see what we are looking for at that length; and our New Energy Efficiency Rulemaking, like at the CEC, sort of everything we do revolves around a proceeding, so it is really important to have those numbers at hand; our EM&V Published Document site, and then also our Standard Practice Manual for EE Evaluation.

Okay, so if you have questions, my supervisor, Zenaida Tapawan-Conway, is the leader of the Energy Efficiency Evaluation effort within Energy Division at the CPUC, and then you have my contact information, as well.

COMMISSIONER EGGERT: All right, thank you very much. I think we are very fortunate to be able, I think as Mr. Rogers mentioned earlier, to be able to take advantage of the significant amount of expertise and institutional knowledge that has been built up at the PUC and through the utility programs, so we very much appreciate your coming and sharing your perspectives on this. I do have to say, I am amazed at the – I have to assume that we are tremendously leveraging that previous work and getting such an incredible bargain for our own MV&E, for its $3.9 million vs. what is currently proposed to be expended through the programs. I do not know if – is there any thoughts on that, or – never mind, that is not a question, just a comment. Okay, so I think – do we have time for a couple of questions?

COMMISSIONER BYRON: Commissioner Eggert?

COMMISSIONER EGGERT: Yes, please go ahead.

COMMISSIONER BYRON: Thank you. Ms. Haramati, thank you so much for the presentation. I have to tell you, first of all, we certainly acknowledge the effort and commitment to energy efficiency on the part of the Public Utilities Commission and the close coordination and efforts between our two organizations, but your presentation, I have always been wondering, why don't we see the EM&V results from your previous year's programs more quickly? But your presentation is very good at revealing how complicated and how involved that process is. Just a couple of quick questions, one is, the PUC is not relying on any ARRA funds for these programs, are they? A-R-R-A funds?

MS. HARAMATI: I am getting a "no" headshake from Cathy Fogel in the audience, who is working on their '10-'12 planning.

COMMISSIONER BYRON: I assume that is the case. Well, this is an enormous undertaking for both of our organizations, and maybe this goes back to Commissioner Eggert's question that he withdrew about the – let's just say the lower cost that already the EM&V efforts are, but the fact that there are incentives for the investor-owned utilities, and I fully understand why, and I think it is a very good idea, I applaud the Commission's efforts to put the right incentives in place for the investor-owned

utilities, but that must make this a lot more complicated. Am I correct?

MS. HARAMATI: I would say that there is definitely an increased level of scrutiny as a result.

COMMISSIONER BYRON: When there is $450 million worth of incentives on the table, there is a lot of pressure to get this right – I should say "added" pressure. Well, again, I really learned a lot from your presentation and you have got some great acronyms, I noted some new ones there – UES, NTG, HIM, which I think is Highest Impact Measures –

MS. HARAMATI: That is correct.

COMMISSIONER BYRON: If you are going to have an HIM, you need a HER, so let me suggest the Highest Energy Reduction measures, as well.

MS. HARAMATI: Oh, that sounds fabulous.

COMMISSIONER BYRON: Okay, glad I could contribute. Thanks again for coming this afternoon, in all seriousness, it was very good.

MS. HARAMATI: Okay, great. Just quickly to address the sort of feedback of results, we did have a verification report come out, I want to say, in 2007, which were kind of the first round of results from our evaluation efforts. That report had incentive payments linked to it, so it sort of was not finalized for a while, as were the incentive payments, but they definitely did have kind of the results

of the first round of data collection.

COMMISSIONER EGGERT: Okay, do we – oh, go ahead.

COMMISSIONER BYRON: Yes, I am sorry I was delayed getting back, I put it on mute so I do not interfere. Yes, I am familiar with that report and, again, I fully understand why the added complexity of incentives means that all that information needs to be verified and approved by a full Commission, and I know that takes a while. Commissioner, if I may, one last question. Is there anything in particular – you have made a lot of good recommendations for us in terms of measurement and verification, anything – I am getting in the last word – in particular you would like to emphasize that we should pay careful attention to at the Energy Commission?

MS. HARAMATI: Was that a question for me?

COMMISSIONER BYRON: Yes.

MS. HARAMATI: I guess I would probably say data and reporting, that those, you know, they take a lot longer than you expect and, for us, were a lot more expensive that we ever anticipated, and it seems like it is something that should be relatively straightforward, we had requirements in our decisions for what program level information should be reported, and when, and going through that data, getting the data, and then going through it to make sure that it is correct and usable is just very very different, I guess,

from what we expected. So –

COMMISSIONER BYRON: Yeah, good point. And I think this is a lot more complicated than many people think, particularly the attribution aspect. Again, thank you.

MS. HARAMATI: Sure.

COMMISSIONER EGGERT: In terms of the data submissions, is it – have you guys established protocols or sort of online submission forms that make that easy and, you know, improve the quality of the data? Is that something that we are taking advantage of in our program?

MS. HARAMATI: You know, we are currently working on our reporting submission requirements and we did have a lot of online data submittal requirements for '06-'08, but it is just – there are always data quality issues, especially when you have a lot of different people filling in these online forms, and some of them have training, some of the do not, they are either utility run, they have been contracted by the utility to run a program, or they are third party implementers, entirely, and making sure that everybody interprets questions the same way and that the data is being checked by the utilities, it is just – I mean, we had data submissions with hundreds of columns and thousands of rows, so I will just try to put that in perspective, that we were not able to start looking at the data until we had built the database to house it, and were able to start running queries

on it. It is such a huge dataset that, you know, we are just talking about so much detailed data from all these different programs that it is something else, entirely, I think.

COMMISSIONER EGGERT: Thank you. All right, I think we have one more.

MS. KOROSEC: We did have one extra question, but it is actually back to KEMA again, so with your indulgence, again, from Carol Zabin: "Going back to the KEMA evaluation, is there a way to comment on the Jobs Impact Analysis Methodology when the time comes to scope it out?" Anyone on the KEMA team?

COMMISSIONER EGGERT: Actually, maybe this could be a general question –

MS. KOROSEC: Maybe an offline question?

COMMISSIONER EGGERT: Or a general question which is, as these are being developed, is there a docket for people to submit – will there be an opportunity for drafts or anything like that, for people to submit comments through a docket, or anything of that sort.

MS. KOROSEC: For the KEMA evaluation, you mean?

COMMISSIONER EGGERT: For the KEMA evaluation, yeah.

MS. KOROSEC: There are consultations going on.

MS. HARAMATI: I am going to have to hunt on that one and say that is an interesting thought. We have not

specifically set up a docket or a process for public comment on evaluation plans, so we will certainly think about that, and obviously can get back to stakeholders if that is something that we choose to do.

COMMISSIONER EGGERT: Thanks.

MS. KOROSEC: All right, so our last presentation from the day is from Kae Lewis, who is going to be talking about, I believe, the publicly-owned utilities side.

MS. LEWIS: Okay, I am Kae Lewis, I am in the Demand Analysis Office, and I am going to talk very briefly about one of the responsibilities that the Energy Commission has that is related to energy efficiency in the publicly-owned utilities. And that is measurement and evaluation of efficiency programs. First of all, so who are we talking about? The publicly-owned utilities, we monitor about 40 locally owned electric utilities. In terms of efficiency program saving in 2008, the investor-owned utilities vs. the publicly-owned utilities, the savings were about 92 percent to 8 percent, so we are talking about a smaller number of savings, but a growing one. POUs tend to be very heterogeneous, more so than the big IOUs. Retail sales range from about 100 megawatt hours in the City of Biggs, to 288,000 megawatt hours, which is LA Department of Water and Power. Customer mix can differ very much. A particular small utility might have a couple of large commercial

customers, which really determine their participation in an efficiency program, might really determine how that utility does overall for the year. Some of these utilities have a very large majority of residential customers and little of C&I. When you look at savings, LADWP and SMUD are by far and away the largest, these two utilities combined contribute over 65 percent of savings in this year, 2009. The 15 largest utilities contributed 97 percent of the savings. So, typically, we focus our attention on the largest 15 POUs and, likewise, when we look at – although evaluation reports are a requirement for all utilities, we really focus on the largest 15.

So what is our mandate here? It is relatively new, the Energy Commission's mandate in energy efficiency as regards the publicly-owned utilities. There are a couple pieces of legislation here mentioned, both of which emphasize increasing energy efficiency in the publicly-owned utilities. And since that time, both the POUs and the Energy Commission have been given a number of responsibilities; dealing with measurement and evaluation is really just one of them, and that is the one we are going to focus on right now. Utilities have to report their efficiency program expenditure savings and cost-effectiveness information, and they have to have a third party, independent, evaluation of their efficiency programs.

What we are responsible for is monitoring annual progress and reviewing the POU Independent Evaluation Studies, and we report the results through the process, to the legislature or Governor, and if we believe modifications are necessary, then we put that as part of our report.

Our real interest, our ultimate interest in being involved with efficiency program evaluation is that we need to use the results of projected savings estimates in our bi-annual load forecasts. So, at this point in time, we have been working for over a year, very closely, with the IOUs in trying to get our forecast of efficiency savings and the PUC's forecast and the utilities' to all make sense together, so that, when we use them in our forecasts, everyone is comfortable with the kind of savings reductions that the demand forecast shows. We have not yet started to do that with the Public Utilities because we are just in the early stages of getting these reports and evaluating them. But that is our ultimate goal, is to be able to be ensured that the savings are reliable.

So where are we now? What we are working on now is, since 2008, the POUs have sent us studies every year that they have done. They have completed evaluation plans which basically set out for each utility, set out what their evaluation priorities would be, and what schedule they would follow, and they have done those and, at this point, about

half the utilities have completed impact studies. For the most part, probably all of them have been doing process studies, but we have not been collecting those. We have additional studies – Southern California Utility is a little behind Northern Utilities, which have all done impact studies, to one extent or another, sometimes more than one. But the Southern utilities are just getting underway with their evaluation plans and their initial impact studies. The studies that were submitted to us in 2009, they had very high savings realization rates, and much higher than anything we had seen in the IOUs, so we wanted to look at that more closely, and over the last year, we did an in-depth review with a consultant, of the reports, there were about 10 reports that they evaluated, and they discovered some shortcomings in the methods and documentation. And so, therefore, we went back and very closely looked at these. It was not that, in any of these reports there was any intention to mislead, it was simply that, given the time and given the limited budgets that many of the smaller IOUs have, they did things a little less comprehensively and a little less clearly than would be ideal. So, in some cases, we could not even evaluate certain methods simply because there was not enough information there.

So, what we did to try to correct this in the future and to be helpful to POUs that are looking for some

guidance, was to develop an actual M&V framework for future impact studies, and to provide some training services that would begin in 2010, this year. This training, by the way, is going to be just as much for CEC staff and consultants that work for POUs, as well as POU staff, because we really need to learn from them. We are setting up expectations and we have to make sure those expectations are reasonable. And that is why I put the word "draft" – this just gives a little snapshot of our criteria framework and basically it is derived from the PUC Evaluation Protocols that you just heard a lot about, and the International Protocols. And we basically developed a checklist of documentation, protocols, methods, calculation algorithms, a whole host of things, that would make up a comprehensive, thorough M&V study. And I will just go through – I think I talked about most of these things – one thing that we really needed was a thorough explanation for differences between the ex ante and the ex post savings impact because that really leads to reliability, being able to make a statement of reliability of savings, and also in program improvements. So, well, I will not belabor that.

The last thing that I was asked to talk about was challenges to efficiency program evaluation in POUs, and I think this sums that up. I think right now, and it was indicated in the Energy Reports that we got, that funds that

are currently allocated for M&V work in the publicly owned utilities may be too limited for a comprehensive review, as we define it. Can that be mitigated? We need to learn more about that.

POU staff are new to EM&V and have other efficiency and utility responsibilities. For the most part, POU staff are only going to learn so much about M&V. We have people on our staff that are new to M&V, so we can empathize with that issue. But it makes it harder for them to be expected to do a full blown M&V study. And this next one is related to that, although the CPUC protocols may be ideal in some respects, they may not be practical for small utilities, and our staff needs to learn more about POU constraints so that we can work with them.

The last item is the topic of this workshop, and that is ARRA. And I frankly have not given much thought to the fact that we are going to have attrition problems here -- at least not until this week when a number of people came by and mentioned it -- that different POUs are talking about getting credit for different things, and I thought, “Oh, yes, that’s a little bit down the road for us,” but we are going to have to deal with it. I was happy to hear that there is a work group with the CEC and the PUC that is going to be talking about these issues because our people working on the POU work should definitely join in because, although

the issue is going to be different for us, we are definitely going to have it, as well. And we have a number of cities, actually three-fourths of the cities that we deal with are receiving money, and some are receiving money with the POUs, SMUD and of course LADWP have received quite a bit of funds, and we have about six utilities getting Smart Grid funds. So the attribution problem is going to be a challenge. So that, I think, is it, unless there are questions.

COMMISSIONER EGGERT: All right, actually, I think your suggestion of, you know, bringing the folks working on the POU stuff into the working group sounds like a great idea. Is that something that can be accommodated readily? I see nodding heads.

MS. LEWIS: No one is going to throw me out, right?

COMMISSIONER EGGERT: And then, I guess in terms of the attribution issue, with the POUs it is not so much associated with shareholder profits, it is just a matter of what they would report through this reporting protocol? Or are they somehow getting credit in other forms?

MS. LEWIS: Right, well, one thing I did not go into is the fact that the POUs adopt targets, we negotiate targets with them, and our Commission goes through a process of adopting savings targets, and then we monitor annually how they are fulfilling the targets, so they want credit for

ARRA achievements towards their targets.

COMMISSIONER EGGERT: I am all for sharing credit to the extent that we can figure out a way to make it work. Is there any questions from the – I see one here in the audience. Go ahead and state your name and affiliation.

MR. TOMASHEFSKY: Thank you, Commissioner Eggert. I am Scott Tomashefsky with Northern California Power Agency, and it was good to meet you, actually, a pleasure to be back here. I just wanted to comment on a few things. I was going to be quiet, but I decided not to. First and foremost, I guess in terms of the discussion with respect to Stimulus funding, I think a lot of what is in here is probably a topic of another much longer conversation, so I just want to be cautious about its impact in terms of Stimulus funding. And what you will find within public power, at least in terms of municipal cities that have funding that has been provided to them under the Block Grant Program either at the Energy Commission, or at DOE, there is a distinction between us in there, and in many of the cases, with respect to Stimulus funding, the way that the rules are set up, a lot of the smaller utilities really focus their attention on direct purchases, and so the process of trying to get the use of dollars in the most efficient manner, when you do address issues of evaluation, administrative type of things, the smaller the utility goes, the inverse

relationship you get to the effectiveness of a program, you do not want to completely absorb a program in administration and not have anything left over, and so those are some of the things that you have illusions to, and when the comments about some of the staff are new to EM&V, it is a little bit of a statement that is probably too simplistic. You know, larger utilities have been doing this forever; they have not necessarily reported it in the same way, but it does go on, and in a smaller utility perspective, you have different types of evaluation, it might not be quite as comprehensive. So it is somewhat disingenuous to suggest that we are new to this. We are not new to this, we are trying to build it in a framework that the statute has guided us to address in the last four years, so there is a lot of that, that goes on. In terms of how these dollars do come into play, when we look at the programs that we are looking to evaluate, we have been working with the Commission staff, it has actually been a very good working relationship in terms of how we address this, and the 40 utilities, large and small, DWP is size-wise, as large as San Diego Gas, and most public utilities are smaller than 200 megawatts load, so you cannot quite treat it the same way, you have to find a way that works, and in the best manner. So one thing we have talked about is trying to come up with a coordinated way to evaluate programs so that we are all looking at certain

things, say, for one year, we will look at maybe HVAC programs, and we will take a sample size of evaluations, but we are trying to get the information, and different from the shareholder concept, the target audiences for our own programs to say, “Well, we want to spend public dollars the most effective way,” because it is local dollars, it is taxes and other things that go into that, utility contribution to that is one element of the public dollars that get invested into a city. So our objective is to spend it the most efficient possible way, putting everything into consideration, and so we are not looking at the shareholder investment perspective, so it is a different business model that requires -- as complex as the PUC process is, our coordination process is much more complicated in terms of finding the best way to make it work.

COMMISSIONER EGGERT: Thank you for that comment. I have a question. In terms of, so I understand with the smaller utilities, because of the limited staff, you would not necessarily be able to provide a full, you know, FT, a full time person, for evaluation.

MR. TOMASHEFSKY: That is correct.

COMMISSIONER EGGERT: Are there any moves afoot across the POUs to consolidate resources? I think maybe that is what you were saying with respect to sort of across HVAC, is there across all POU service territories, you would

sort of pull your resources together to do that? Or did I understand that comment correctly?

MR. TOMASHEFSKY: Yeah, you have, I think you are going along the right track. In terms of the dollars that are attributed to each city, you get the sensitivities of why would one city subsidize someone else, but in terms of intellectual sharing of knowledge and addressing issues of common ground, I think you definitely do get to that point. So you can say, “Let’s go ahead and look at this one particular element,” and you could have 15 utilities looking at that particular issue, perhaps in their M&V analysis, whereas maybe another set of utilities are not looking at those things in this particular instance, so you are not evaluating everything, every year. And that is something that the statute does not require, it is the results of your evaluations. So, rather than sit there and evaluate everything year after year, you can evaluate certain components of it, and you have a pretty good sample size when you look at the range of public utilities. So we just have to find a way to make that work best, and not only serve the interest of moving state policy forward in energy efficiency, to make sure we have got it right, but also for our own programs because, really, we definitely have a much – a close relationship with our customers, so our customers, either they are going to use the services that we are

offering, or they are not; and if they are not, we need to recalibrate what we do. It is a much longer conversation.

COMMISSIONER EGGERT: Yeah, no, I would be interested in continuing it. I also sit on the Energy Efficiency Committee, as well as Commissioner Byron, and I know we are both very much interested in understanding from the POUs how to maximize the energy efficiency savings that can accrue from some of the programs that are being initiated within the territories, and I know we have the new reporting function through the CEC, but figuring out how to best leverage the knowledge that exists, especially including in the POUs and these other programs, would be a good conversation to continue.

MR. TOMASHEFSKY: Yeah, absolutely.

COMMISSIONER EGGERT: So, thanks.

MR. TOMASHEFSKY: Thanks for the comment.

COMMISSIONER EGGERT: Thank you.

MS. KOROSEC: All right, we have no more comments from online, but this is one last chance for any public comment in the room here on anything that we have heard today? All right, go ahead and open up all the lines. Anybody online that would like to make any final comments?

COMMISSIONER EGGERT: I think Charlie Brown's teacher is trying to chime in there.

MS. KOROSEC: All right, so I will turn it back

over, then, to you to make any closing comments you might like to make about what we heard today.

COMMISSIONER EGGERT: Sure, actually, I will turn it to my colleagues here. Do you have any closing comments before we close the session? Okay, well, I find personally, and – actually, Commissioner Byron, are you still on the line? Did you have any –

MS. KOROSEC: Oh, we need to unmute him.

COMMISSIONER EGGERT: We are going to unmute you here, hold on a second.

COMMISSIONER BYRON: Good. I heard a click.

COMMISSIONER EGGERT: You are live, now.

COMMISSIONER BYRON: Okay, yeah, technology has been wonderful today. The phone lines and the WebEx held up very well for me, I hope they have for everyone else that is on the line, plus it is good for Commissioners to experience what our call-in and monitoring attendees at our meetings have to go through every once in a while, but this one worked pretty well.

Commissioner, if I could, just a couple of comments. You know, I think it is fair to say that measurement and verification and everything serves a number of purposes, some of those are a little bit easier, or, at least I will say more straightforward than others. First, we have got to make sure we eliminate the waste, the fraud, and the abuse,

and our first line of defense there is a our staff on the oversight of these contracts, the second, of course, is Commissioners providing oversight and accountability, and we will certainly rely on our contractors that we have hired for this purpose, and give them unfettered access and unfettered reporting, that is essential. But the second, and maybe even a little more challenging is the accuracy for the determination of the energy saved and the jobs that were created, and it is extremely critical that we do that as well as we can, and as best as we can, and also in capturing the lessons learned, so that we can work on that objective of making sure that we are spending money wisely. I note that a particular challenge that has come up in the last couple of presentations is the attribution of the savings is extremely challenging year in and year out, as we implement the various energy efficiency programs and coordinate those efforts with the Public Utilities Commission – and even amongst the publicly owned utilities, as Mr. Tomashefsky was pointing out, it does become challenging to distinguish between the causes and effects as customers take advantage of all these different programs that are available.

So I guess I will conclude by saying that we are going to continue at this Commission to put resources towards assuring that our citizens are getting the value for the money that is being applied here, the ARRA funds, and we

will do our best to capture the best programs and emphasize those for future energy efficiency savings. And then, also, as Ms. Haramati and others have suggested, we need to make sure we factor the results properly under our demand forecasts.

So I would like to thank everyone that was in attendance, excellent comments, excellent presentations. And this is just really a recap of the work that is ahead of us in doing this EM&V work, but I think it has been a very successful workshop.

COMMISSIONER EGGERT: Thank you very much, Commissioner. And I would echo those comments and also, just reiterate that, you know, much of what we are going to learn is going to help form the basis for other programs, standards, AB 758 comes to mind, we are going to be crafting that, the regulations for that program, and the information that comes out of these evaluations is going to be instrumental in making sure that we design that program to be as effective as it possibly can be. And I would also just note, again, I think which was mentioned by Mr. Rogers, is that it is not just the eyes of California on us, it is, I think, the eyes of the rest of the country. You know, we frequently taut the advantages of energy efficiency and the benefits that accrue to the State for those investments in energy efficiency, and I think this is another opportunity

that we have to actually demonstrate what we can actually achieve through well designed programs. So, with that, I would like to close the workshop. And thank you, everybody, for those of you here in the room who have come, and those of you on the webinar for participating. Thanks.

MS. KOROSEC: All right, thank you.

[Adjourned at 4:22 P.M.]