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Session 7: "Energy Data Needs"

[*Note: Recorders did not pick up introduction of panel (see biographies for details on the panelists) or introduction of session*.]

Ms. Anderson: …that the end use sector and the supply sectors are constantly changing and how do we keep up with it? A few years ago the huge demand was more information in the International arena because as markets were getting tighter and tighter we needed a much better understanding of what was going on in the demand side and the supply side around the world. Right now we are in a period where that is less pressing, but that's going to come back to be something – an important issue. So we have to balance this sort of "issue du jour" against the core program that we must maintain going forward. So we have to balance, again, what is popular today against what we think will be popular for the long haul. It takes a couple of years to mount up a new survey. It takes new resources to mount up a new survey. But sometimes, by the time we're ready to go, the issue isn't as important as it might have been. So it's creating those kinds of balances. So the first question I'm going to ask the panel is: What are the most pressing issues that the nation has to address for which the data are not fully adequate? And I'd like to get as specific as we possibly can about the things that you see coming up that we're not prepared to address. So I'll ask Jeff to go first. And perhaps a couple of insights there would be helpful?

Mr. Genzer: Well the State-level data, uh, is not sufficiently accurate to track the impact of State policies, uh, on things like energy efficiency, greenhouse gas emissions. I think that was one of the points that Phil made in

his introductory remarks. So we have pretty good data for maybe Texas, California and New York. But we need more State-level surveys for many more States. And with price volatility in all these areas, in all the energy areas, really, that level of survey data is very critical. Doing some of the surveys on a weekly basis rather than on a monthly basis would be extremely valuable. The natural gas price data for the industrial sector is not the best right now. I think ethanol data – we've had a huge shift in the biodiesel and the ethanol market in one year. And we weren't tracking it well enough. And it needs better tracking and more frequent tracking. So those are a few of them. I have a list of about 20, but I'll stop there. The monthly – the data quality on monthly gasoline consumption data is also a problem. Is that enough for…

Ms. Anderson: That's enough for now and perhaps someone to feed off of that or add some more to the list?

Mr. Hanser: Sure. To me the biggest question is this issue of what we are going to be able to get out of energy efficiency? I mean to me that's the biggest one in the sense that – I mean energy efficiency has the potential to – for example, to provide sort of a little bit of comfort room so that advanced generation technologies which are supposed to be less CO2 emitting can come on board. And so – and it becomes the kind of the – there's a huge kind of option value associated with trying to reduce the level of demand so that you have the capability to develop the information and the technologies.

The problem is that the data we have on energy efficiency is erratic. It's not very well organized. You know the data that tends to be good at State level tends to be good because the State has mandated, for example, take California – Title 20 and Title 24 standards. So it says, "Okay, you guys have to build a house and when you build a house it has to have a certain level of energy consumption per square foot." And on top of that the utilities have been

mandated to verify the level both penetration and the effectiveness of the programs that they've put in. And they've done so – well, since I lived in California and was involved in it 28 years ago. So those States have had a long history and so on.

But if you got to a place like, say, a North Carolina, not to pick on North Carolina, or you know, any of the other States, you'll find the data has been very sporadic and typically not very well organized in such a way so that if you came to the point where you tried to sort of mass together a mass in some organized way like the impact of programs, you'd frankly have very great difficulty.

The other issue that arises, of course, then is in some sense if you tried to change your focus from the data associated with a particular region to say a particular technology – so for example suppose I told you about heating, ventilation and air-conditioning and I told you the impact of some certain kinds of units or so on, the question would be, "Okay. Suppose I don't have the data at the State level, is there some mechanism that I could develop that would transfer the information that I got from one region to another?" Is there a way I can go and say, "Okay? The prices are at this level over here, but the prices here at a different level. They have this kind of rate structure as compared to this one that – the average level of cooling-degree days per year are this versus that." If we had a mechanism to do that, that might be some help. But to me, again, it's this question about, "What are we going to get? What's that potential out there for – in terms of future demand?"

The other impact, of course, that has is the choice of resources. That is to say it's not only enough to know that you're going to save some kilowatt hours from a program, the kind of technologies we're talking about are extremely time sensitive and the net result is that you not only need to know,

you know, what a kilowatt is going to be, but you need to know when that kilowatt is going to happen. Because for example, when we talked about wind, it's largely available during the evening and not during the day which is contrary to the time when most consumption occurs. So that if you're going to talk about bringing in those new resources, you not only need to know – you know fully the impact. Not just the kilowatts and the kilowatt hours, but even the more complicated piece – about when they're going to happen.

Ms. Neff: I can follow up on a – I'll give some concrete examples following on both of my colleagues discussions here – where data has been really important just in the last few years. I taught a class at Columbia at the Graduate School of International Public Affairs. It's an energy policy course – a lot of international students. And one of the things I do is have them do a comparison of renewable policy frameworks. They can take two countries, two States, a State and a country. And I tell them the most important thing you need to really to really evaluate the totality of the policy framework is data. And what they always wind up doing is students will come to me and they want to do various things and I'll say, "Okay. How much information are you going to be able to find that shows you how effective that policy really was?" Because the bottom line is the comparison of effectiveness.

And that's one of the big challenges not just in the United States, but all over the world. You know, what are the things that work? What are the things that don't work? When I was working for the Senate in 2001-2002 and we were doing the first iteration of a Federal renewable portfolio standard, I can tell you the lack of State level data – to be able to analyze the various programs different States have put in place over the years, just we – we just ran up against a brick wall. And we had to make a lot of assumptions about things.

There is a clear example where the more data we have at the State level

– especially – you need it broken down in a way that you can really evaluate the policy tools that were in place at different points in time. I'll give you a couple of examples. Go look at what Germany has done and the data that's available in the incentive programs they've put in place for wind and solar over the last 15 years and then compare what we have.

Another issue Jeff brought up with respect to the biofuels world. I'm on the Federal Biomass R&D Technical Advisory Committee and I've been chairing the Infrastructure and End-use Subcommittee. And one of the issues that we're coming into very, very quickly is something called the "blend wall" where we can easily absorb – easily – 10 percent - we can easily put 10 percent ethanol in all of the gasoline in the U.S. Well, given where we are with the mandate and the level of demand for fuels right now, we're pretty close to that blend wall. Yet we don't have data on where the flex fuel vehicles are – the E85-capable vehicles are – in order to figure out where we should concentrate the siting of E85 infrastructure. So we're running into the situation now. I understand the auto companies - in fact I was stunned at a recent meeting to have my colleague from GM pull out a whole chart and I said, "Why doesn't EIA have that?" Those are the sort of things that the States need to know so that they can make decisions on permitting and whole host of issues.

So there are a number of things in that regard and I think one of the key issues going back to your initial question, Margot is "What do we really need?" We need to understand this transition that we are going through. We do a good job of making a determinations about where we want to be in 20 years, but it's this path to get there so that we don't have, you know, mis-investment or we don't go down one path that isn't going to get us in the end point because we don't know enough about what we have right now, the policies that are effective that will get us there. And we wind up in that case with abandoned investments

at some point down the road.

So that's the most critical thing is to have the information available in the granularity and in the time frames that policy analysts, policy makers and analysts can help us best track the path to these objectives that we are trying to reach.

Ms. Anderson: Frank.

Mr. Rusco: Thank you. This is a bit of an example of "Tyranny of the B's" which people whose name begins with "R" are very familiar with. That when you're seated alphabetically, all the good things have been said by the time they get to you, but uh…

Ms. Anderson: You'll go first next time…

Mr. Rusco: Okay, alright.

Mr. Rusco: But I would like to comment on a couple of things that were said and maybe add a little bit. With respect to ethanol and why is this important? Well, right now, there's ethanol being blended with clear, conventional gasoline many, many places in the country. And there are quite a few places that it's not being blended. And we don't have a very good grip on the volumes that are being blended or specifically, what it's being blended with and why is that important?

Well, eventually, once we hit this wall and all convention gasoline and all special blends, "boutique fuels," whatever you want to call them, will be blended with 10 percent ethanol – once we reach that wall, then refineries will not create clear, conventional finished gasoline. They will create a bond – they'll create a "blend stock" that has pulled out some of the high ends of the gasoline so that when you put in the ethanol, you don't have something that is, you know, has extra octane and extra higher Reid Vapor pressure than you want. So that's one issue. Until you know exactly what your gasoline is going to be blended with at

the final spot, the refiners don't know whether they should be producing this blend stock because it's going to be blended with 10 percent ethanol or a finished gasoline because they actually have to be able to start and run an automobile.

So this is an important issue and once we hit the wall, that issue sort of becomes moot, but there's another issue about ethanol. And that's how and where it's being splashed and what are the implications for various other policies and things we care about? For example, evaporative emissions, volatile organic compounds. Ethanol has higher evaporative emissions. So subject to how and where it's being splashed into the gasoline supply, you may have evaporative emissions that you're not expecting and to the extent that it's being splashed and blended – we generally don't "splash blend" anymore - but being blended at terminals within areas that are in non-attainment for air quality, then you might have an issue there that EPA would care about. But we don't have data about them and that would be useful information to have.

I'm going to say one more thing. I think with regard to electricity markets – in particular wholesale power markets. We really need – and this is maybe more of a FERC issue than an EIA issue - but we need some kind of uniform performance metrics for wholesale power markets, and why is this important? It's important for two reasons. One, the public doesn't really understand much about how electricity restructuring has affected the world and part of that is because we never really had a good baseline for how to evaluate that. And partly because of the way we implemented electricity restructuring in this country which my job prohibits me from commenting much more about – but finally the reason we need these metrics is that right now we have a situation where we have restructured markets and non-restructured markets. And we have the wholesale generators selling into both of these markets. And in the

restructured market where they have regional transmission organizations or independent systems operators, they themselves have developed market metrics to see how well these wholesale markets are working. And to see if there's any intervention needed either for security of the system – the reliability of the system – or because there may be as has happened a few times in the past, some bad actors that need some looking at.

And what has evolved is a situation where we have metrics that were designed for specific regions that are covered by regional transmission organizations or independent system operators. They're not uniform standards although they generally do similar things. And then we have these non-restructured areas that are still sort of run by public utility commissions. Well, what the States are realizing – the public utility commissions are realizing now is that because they're – all the new generation is being built by merchant power, they're buying increasing amounts of this wholesale power on the market. And when they do that, it's essentially cost pass-through to their customers and the public utilities can't deny the cost of a contract in the wholesale power markets.

And so what's happening I think is States – even States that didn't restructure – are starting to realize that, "Wow. We'd kind of like to know something about how well the wholesale electricity power markets are working." Again, that may not be as much an EIA issue as it is a FERC issue but…

Ms. Neff: Could I follow up on your point there? I think it is very much an EIA issue. One of the problems we have in addressing energy policy in the United States – it's so frustrating to constantly hear the politicians paraphrase, "We haven't had an energy policy in this country." Well, for one thing it's very difficult to have a national energy policy because of the different jurisdictions. And when you look at how much jurisdiction the States have over the electric

sector – FERC doesn't have jurisdiction. I mean FERC has some limited jurisdiction at the interstate level. That's why EIA and the State level data is so critical. We have four different categories of electric utility. Rural electric co-ops are rated in some States, not in others. Municipal utilities not regulated. Well, except by the mayor usually. You've got the Federal power authorities and we've got the investor-owned utilities. We have a system that doesn't fit into any neat national model and you certainly – no State can deal with it on its own. That's why EIA and yes, FERC but basically we need a Federal authority – EIA - that can aggregate this information and also break it down and present the information in a way that we can address all these issues that Frank just raised.

Mr. Rusco: Uh, hum.

Mr. Hanser: Can I just raise one issue? It's kind of tricky – as Frank has already raised – about evaluating this market. But there are two reasons. One is it's not only just because of the nature of the markets themselves in dealing with [unintelligible] but there's also implicit a change in the retail rate structure that has often gone along with it. And the problem is sort of separating the two out and partly it's kind of philosophical. The philosophical issue is, "Do you want to present to customers at the retail level prices which truly embody in some sense the marginal costs of meeting their needs?" As opposed to, "Do you want to retain the existing traditional model in which you provide a blended price of historical investments and the new investments and use that as a pricing mechanism?"

And what I've found is that we often get confused between those two separate issues. One is an issue that really underlies retail rate philosophy in which you believe in. And to some degree it has an impact also in future trends which is a smart grid in terms of thinking about how we want it to look. And so I guess my point is only that there are metrics you can develop for a wholesale

market that will tell you whether it's operating properly. But you'll still find folks who feel very uncomfortable with the eventual retail rates because of the way that the retail rates have been structured. And so that evaluation about whether, you know, the restructuring has been successful has confused those two issues it seems to me often. And so I think that aggravates the issue that you're raising.

Mr. Genzer: I think I'm going to have to respond and disagree on some of the elements of the discussion here. Shirley is absolutely correct that what we need is EIA data on the electric markets. That is critical. We have inadequate data on the nationwide basis. To suggest that the markets – wholesale markets are operating somehow better in restructured environments than non-restructured environments is a fairly ludicrous suggestion. I think the suggestion that you can somehow divorce data from the practical policies that have to be implemented at the State level or at the Federal level frankly is also a fairly ludicrous suggestion.

But I think what we all agree on is that we do not have consistent data across all these areas – wholesale and retail markets that allow policy makers to make reasoned decision. Whether it's on energy efficiency policy or climate change policy or does this wholesale market work? Or does that retail market work? We don't have good data on that and we need better data on that.

And with all the new policies…I'll give you another example. You know, we've been drinking at a fire hose since November on stimulus dollars. The stimulus package has added billions of dollars in the energy area – tens of billions of dollars in the energy area. I've been spending a whole lot of my time trying to figure out how to appropriately work with States to have them spend $5 billion in the weatherization program and over $3 billion for the State Energy Program and over $3.2 billion for the Energy Efficiency and Conservation Block

Grant. And now we're going to have another $4.4 billion for Smart Grid depending on whenever somebody figures out what that is…
and then we have Green Jobs Initiatives.

But what we don't have is consistent analysis and data that tells us whether we will succeed or can succeed and how all these programs fit together. So it's very difficult to put your arms around this discussion, but I think – again we have an enormous challenge right now with dealing with the stimulus dollars. It's a real time issue. There's an expectation there will be metrics. There's an expectation that everyone's going to know the energy saved and we're going to know the jobs created and we're going to know the renewable energy production and we're going to be able to analyze this down to the single individual. Whether we use the term "ridiculous" or not, I don't know. That would be the fourth time in this is very "ambitious." But without the basic EIA data sets that we could consistently apply across the United States, we can't do it.

Ms. Anderson: Well, it really puts EIA at the center of a rather large debate about what kind of data we could and should collect. If we were to suddenly wave our "magic energy consumption survey wand" and collect data for all 50 States for whether we're talking about residences or commercial buildings or manufacturing organizations, you would need far more than $140 million a year… so one question that we always ask and that we want to ask the panel, "Are States really the right level of granularity? Well, they are when you're talking about programs and program dollars going to individual States because the States are managing that money and want to account for that money and that's the right area of governance. But in fact if you're talking about looking at metrics and footprints that might deal with climate change, maybe you want to look at getting good data for climatic regions or for States that look

alike in terms of weather or the kinds of energy that they use. So maybe the States, while an extremely important entity, maybe it isn't the only entity which you want to collect data for. And it may not be the right entity when you're looking at other kinds of policy measures that you don't have to have State-by-State data. We not only get requests for State-by-State, they want it region. They want it sub-region. They want it city-wide. They want it county-wide. You go on and on and our ability to collect that kind of data with the instruments and the resources that we have now would be a huge lift.

One thing we worry about at EIA is our we missing an opportunity to collect the data in a different way with the kind of technologies that are being developed on how we collect, gather, put data together – we're going to get into this in a minute – marry it with data that other Federal entities are collecting or State entities collecting. Are we really thinking – horrible cliché – "outside the box" enough to think about "Are there other ways to get data than going door-to-door or company-to-company or building-to-building and say, 'I have a questionnaire. Can you fill it out, please?'" So these are – again – a big arm situation of lots of different issues. But maybe there are ways to help collect data that could get at the level of granularity that we're looking for. I'm not sure that the current way we're doing it is going to get us there given the increasing demand and timeliness. We put our end-use surveys out every four years. If you want to know how well you did with the stimulus money in six months, you've got an issue…

Speaker: I'll say.

Ms. Anderson: (PAUSE) So I'm going to toss out the issue of "Are States the most appropriate way for everything we want to collect? Are we - is everyone willing to think about perhaps a different ways to collect these data that might help us and which might mean partnering with other Federal entities

and make sure we're not doing duplicative efforts to kind of get the information that ultimately gets the analysts what they need, the policy makers what they need, the regulatory authorities what they need and still can provide the kind of credibility that we need at EIA to make sure that we're not putting data out that are not usable and not credible and reliable. So who wants to take that one?

Mr. Genzer: Well, I think we agreed that "R" comes before "G"…

Mr. Rusco: …Yeah, well I want to start by saying I'm not sure who Jeff was disagreeing with on the last question, but if anyone else thought they heard me say that restructured wholesale electricity markets are working better than non-restructured – I want to go on record as saying that wasn't what I intended to say. So…

Mr. Genzer: I probably just heard it wrong…

Mr. Rusco:…how well either are doing because we don't have metrics and we particularly can't compare them because we don't have common metrics across the different types of structures. So that was my point and so on this issue, is the State level the appropriate level? Well, it depends on the user and it depends on the analysis obviously. I'm going to give one example where it isn't the right way.

GAO is currently working on a study of refinery outages and the effect on wholesale gasoline prices. Well, having State data on where petroleum products, you know, in sort of bulk are first sold is not a very sharp tool to look at wholesale markets. Because if you think "What is a wholesale market?" Well, that's a deep question but the only way you can really answer it is "Where do you have a wholesale price?" That's a wholesale market 'cause if you don't have a price, you definitely don't have a market that you can use it in an empirical sense.

So we have prices on bulk terminals. And we can get these prices – buy

these prices from a couple sources. But at any rate, we have these – these are the markets that matter. You want to know sort of how a particular refinery outage affects a particular city where there's a terminal where you have a price for wholesale gasoline. Then you want to know something about the supply that serves that city and we don't have anything in the EIA data that can get us there. We don't collect volumes of types of fuel shipped to particular or sold to particular locations. And I'm not saying we need to collect those data. These are data that are, you know, you'd have to do a cost benefit analysis – how useful is this? In our study we went out and bought data from a vendor who has a model that sort of calculates where the flows of particular types of gasoline are going. So we have a measure of this and it turns out it is really important for the analysis – to have such a thing.

I'll give you another example. If you were doing work on evaluating the competitiveness of particular regions and these are questions that GAO gets all the time – in particular, say petroleum markets, you would want to be able to calculate some measure of concentration that is relevant to a demand market - so an area that's served by a certain number of suppliers. And right now we can calculate concentration in markets at a State level, at a spot market level, at a PADD level, but not at a level that we would sort of sit down and say, "This looks like a market to us." And so I think – I'm going to stop there.

Ms. Neff: In my 20-plus years in the energy sector, one of the things that has happened is we've become increasingly electrified. And the growth of computers and all sorts of commercial equipment has really changed the low profile for a lot of utilities. And peak loads are really driven a lot by the commercial factor now. I spent a lot of time over the past few years working on solar PV issues in a variety of different States and when you start to look at where these new technologies fit in, you realize how incredibly important urban

load centers are. So there you go down to city data, county data, metropolitan statistical area. The vintage and the composition of the load that's served is very important and one of the points you raised, Margot, is the issue of whether there are other entities you could collaborate with.

I think some of the other statistical agencies in the government, Census, BLS. One of the things – and going back to Frank's points about fuel – look at what's happening in what we thought was the Rust Belt – is it rusting again? what does that mean for some of these areas and if you could integrate – if we could have better integration so that we've got a better sense of what's happening with the industrial, manufacturing and commercial sectors in different areas. You really have to break it more down to the urban areas, not just the cities, counties and the MSAs. And I think you can do more of that I think with the electronic tools that are available. Believe me, this is not my forte. I have minimal knowledge as an outsider that reads the general press. But I would think that there are ways we could do this that would provide what I think – my sense and just from my own, you know, even person experience – renting new office space, dealing – I'm the chair of the Greening Committee in my condo – and so those are the sort of things where it just seems to me if we had better data there, that's where we have to go in the future 'cause that's really - those are the commercial centers in the United States. They're at the State level – that you have policies set – they're at the urban level – but you have policies at the State level and the federal level.

Mr. Hanser: So I guess my thinking is that it's a question of – let me see, it's a bad way to say it – but I sort of think of a kind of a large data hypercube in the sense that I can slice the data by geography. I can slice the data by time. I can slice data by technology. I can look across, you know, some combination of technology and time. So it seems to me the question you really have to sort of

think about is, “Okay. What’s this cube – and it’s in fairly high dimensional space that you’re thinking about, that you want to start to organize it in.”

Because if you start to think about it that way, then you can sort of think about, “Okay. Suppose I wanted to create a database that was organized along some sort of principals. So for example, suppose I wanted the database to include average heating or cooling degree days. All right? That would get to me a climate zone. And so for example, it might be that if I looked at the way in which energy was used in Vermont, it may be not very different from the way energy is used in New Hampshire. It might be that if I looked at Northern California in the Central Valley – up there and I looked at the Central Valley in Oregon, maybe there’s not a huge difference in energy use, but I somehow have to correct for the fact that there are differences in prices, of course, between those two regions.

That suggests then that if I can think about how I’m organizing this, I may have – I certainly have to have the State as a boundary and have to have other kinds of political boundaries in which to aggregate to. But if I think about it a little broader, and I start to organize my data that way, then maybe I’ve got a way to of kind of getting around this problem without, “Okay. It always has to be at the State” or whatever. And so I think one of the things that the EIA has to do is to come in and sort of say, “Okay. Let’s have a larger conceptual framework that the frame that I’m going to start to sample my data from so that I can start to get to those answers.

We’ve been largely driven by legislation and whatever else as to the way that we can see this large sort of data framework. And I think what’s happening is that this transition that’s been spoken about by Shirley – it requires us to kind of change that kind of in a way. You still have to come back to those questions that you want to answer – somebody’s going to drop a billion bucks in your lap

and say, you know, “Here. Go invest in so-and-so.” But I think you have to start off by kind of changing that whole framework.

I think that’s a real role for EIA. EIA has real expertise in terms of thinking about statistics and how you frame these questions and it has resources to draw upon to do that. Also, at that same point, if we’re going to start talking about these larger data kind of frameworks, we’ll also have to start to think about interchangeability, about data protocols, so that we can start to kind of move data across. I think to me that’s a huge issue in terms of what can be done.

You know, I spent a number of years living in Silicon Valley. You know one of the ways in which Silicon Valley managed to succeed is that it managed to create some standards in terms of, you know, interconnections, buses and things like that then people can build to. It seems to me, you know, you don’t require that every utility or entity that’s collecting billing data have exactly the same billing system. But if you had a standard that you could sort of say, “Okay. Here’s a standard report that your database has to produce.” That would be extremely useful, because then you could [unintelligible] all unload that. That’s just a key element. So I think, I mean in terms of, you know, the way to think about it, I think we need to move to a much larger framework because in fact I think that’s the kind of thing that’s going on.

Ms. Anderson: A response?

Mr. Genzer: It’s not really a response. I agree with everything that’s being said by the three speakers performing on this question. I do think surveys every four years are inadequate. The markets are changing so rapidly that every four years isn’t working. Whether it’s more States than the ones we have surveys for, I don’t know. It could be on a regional basis. You could divide it by climate zone. As Phil mentioned, you need to look at urban, rural type of issues

– heating degree days, cooling degree days. All those things have to be factored in, but clearly it has to be done more frequently. It has to be done – I don't know whether it's more States or more regions. That clearly has to be done.

But with all the expectations imposed on the energy markets as it evolved – I mean you just look – five years ago would anyone have thought of the advent of plug-in hybrids and transportational electrification – the way we think of it today? A year ago would we have thought ethanol would have had the huge price drop? Maybe Shirley would have, but I didn't. The notion of Smart Grid. Congress had zero dollars for it. Now it's $4.4 billion and people are talking about new transmission super highways. How do intermittent resources fit in with all of these things? A huge problem.

On the countervailing side, we talked about State data. Well, one of the things Congress did was fund this thing called the Energy Efficiency and Conservation Block Grant. That's $3.2 billion. A large chunk of those dollars going directly over 1,700 communities across the United States – counties and cities. Now New York City has a sufficiently robust energy program and personnel in place that they can evaluate how those funds are being used.

Whether they can determine exactly what they've saved and the employment, that's a different question. But what if you're a town of 40,000 people that has no energy infrastructure in place? The kind of data we're talking about from EIA – the kind of standards, the kind of models – absolutely critical on a going forward basis. You know, when GAO is requested to do a report on how these funds have been spent and how they did the metrics on jobs and leverage and energy saved and energy production, you know, I hope that I have retired.

Mr. Rusco: We're reporting every two months on this, so please, do

hurry with these data…

Ms. Anderson: But it raises…you know, it raises a lot of issues about – we're spending a lot of money on programs to improve energy efficiency and to help the States adjust with energy conservation and, you know, all kinds of programs. But are we building in to any of those programs any standardized way of collecting the minimum kind of data that you might need to do the comparability. And it's one thing to do the end use consumption surveys where you're marrying information about the household to put that together with the supplier data. To look at some economic analysis about how people are responding to changes in the market, but that's another thing of getting a specific kind of short term response to how many homes did you weatherize. What was the impact before and after? And so sometimes, a lot of data can be the harm can be at the expense of a little bit of data that might help you gauge whether you're making progress. We don't have the time to wait every four years or even if we went every two years, we've got to go faster. So what might you be able to put in place that would get you – maybe not data, enough data that would serve John Conti's purpose of doing the long term energy outlook and getting that kind of data but data related to programatical might be a different kind of data. But we're not really thinking about building that in and comparing it across the kinds of programs that I think we're thinking about. Does anyone have a comment on that?

Mr. Hanser: There are a couple of things. I mean there are standards. There is a standard that has been in the process of being promulgated relative to energy efficiency programs in RTOs for example. I think it's the National – I'm going to get this – American Standards Board – I always get this…and they're trying to work on some standards. But there are a couple of things that can be done. One is – I kind of thought about this a little bit – is you know, they have

this thing called “arXiv.” A-R-X-I-V. Have you ever seen it? It’s just a collection of papers that people send in and has their research results. I’d love to sort of see EIA behind something like that for all of the DSM program evaluations and things that are being done whether it’s utilities or various entities. Now the only trick there is that you sort of have to do it in such a way that so that nobody comes back to you in a rate case or whatever and you know, tries to hang you by it. You know, there is data out there and so one thing that could be done is sort of started to do that, there might be standards in terms of the data and the way the papers are put in. For example we tried to look at the impact of all these [unintelligible] programs. And lots of estimates of impact. Not a single estimate of the standard deviation of the impact. So when it came time to try to combine the estimates to come to, “Okay. If I, you know, do real time pricing, what can I expect or if I have peak time rebates, what can I expect?” You had lots of estimates, but no estimates of the variance and so it’s impossible to combine them in a statistically valid way. All you’re doing is averaging and you can be averaging good and bad at the same time.

So, one thing that could be done and it’s just to start to mass in one central place with anonymity or what is required and with some standards about the information that has to be there, all of the data that’s going on in the various programs. And I think that would be at least a place to start, to kind of start to amass that. The other part that can be done, is just – if there’s data that is available, the interconnection possibilities of the Internet and the EIA as being the means by which some kind of set up of protocols for communicating among the different pieces that are out there so that it isn’t a matter of my searching the Internet and trying to figure out, you know, I’ll Google – you know, every word that’s a variant on efficiency, or demand for whatever in electricity, right? But rather I can go to the EIA and there’s some way in which they’ve cleverly

organized things so I just sort of say, “Okay. Here’s one stop shopping at the EIA for all that information.” It seems to me that would be helpful and useful right away to try to get a handle on something you can do fairly quickly.

Ms. Anderson: We’re at about 10:05 and I’d like to give our audience an opportunity to ask questions, comments for our panel? We have microphones in the room if we’re asking you to go – there’s a microphone over here and one over here and if you would line up. State your name, your affiliation, and ask your question of anyone on the panel. Sir…

Voice: You can bring the mike up…

Ms. Anderson: Thank you.

Mr. Harbison: Stan Harbison

Ms. Anderson: Stan.

Mr. Harbison: I have a non-functional LLC, Hudson River Global Energy. I don’t know if I’ve been doing this longer than Shirley or not, but 25 plus. Most of that was for an investment management firm where I had to look at financials and strategies – international oil companies, independent oil companies, gas companies. Recently I’ve been doing work for non-profit government direct research on oil and gas production, economics in lower 48. I worked at a trading company with Dreyfus. Worked for John Brown, BP. So I’ve been in different places and there are compartments in life and one of the big ones for me is the public source of information of which the IEA (EIA?)is a terrific example. The other is – arose out of the same problem that the IEA (EIA?)rose out of which was the energy crisis in the ‘70s and that is the regulatory disclosure on reserves production and so on of the companies. And there are hundreds of companies that when publicly traded have to disclose this. So when I went looking for economics of production of oil and gas, that’s a terrific source. You have to work hard with it, but it’s there. So the comment is –

Shirley mentioned GM with data.

That there needs to be in the minds of the government side and on the private side, ways to make – at least point to the fact that there's information on both sides. The amount of information those [unintelligible] is incredible and can be helpful. Second of all, because oil and gas was subject to dereg…to regulation of that sort, the information is voluminous. I've been educating myself and sort of squashing anti-renewable sentiments the last day or so but one of the problems I think with renewables is there's nothing like SEC's mandated disclosure of economic firm profitability data.

I mean one of the issues that we have with renewables is potential profitability. But I don't know what would be available to put into that matrix that maybe a policy issue rather than an EIA but anything that can be done data-wise is very helpful. And finally just a compliment in terms of global information, I was led to use the IEA for which you pay a lot of money. You pay for everything except – well, you pay for everything. And you don't pay for anything at EIA and I think the quality of the data is generally better on international than the IEA if I could be a heretic on that. So just a comment and sort of a question whether that's been thought about? FRS I don't mean to ignore, but it's rudimentary compared to what I'm talking about. It seems to me oil – it may be morally hazardous, but oil prices set the framework for every other piece of energy that's being discussed at this conference.

Ms. Neff: Can I comment on the cost data on renewables? I've spent a lot of time for a number of years working at the State level on PV policies and it is true. I agree with you to a point, Stan, on oil and gas prices sort of setting prices, but I think when you get down to distributed technologies and especially something like PV and efficiency metrics, it's a different story. But one of the frustrations there is that you have the cost of the modules, et cetera and then

you have the installation cost. And you know, in some cases the utilities don't – and the vendors, you know, the installers, don't want to have to reveal complete data. So we have these ranges of estimated cost – of cost installation.

For one thing, it makes it very difficult when you've got the State, especially at the State level, you know, providing these big incentives, these rebates – capital rebates which is what California was doing. And then discovering that there was a huge windfall in some cases to the installer or various places along the value chain. And through greater transparency, it really brings those costs down and I think as more of that data has come out – and California did finally public some of that data, people got a much better sense of what this should actually cost. They also got a better sense of how much these systems should generate. I think when the State discovered, "Gee. People were putting them in Malibu where there's not as much solar insulation as there is, you know, say as in the valleys. That sort of thing. And it takes a while to get that data out there, but it is absolutely critical. It's starting to happen, but you also have to enough critical mass that it's valid. And I'll just leave my comment at that.

Ms. Anderson: Can we move over here, please? Sir?

Mr. Cotchen: Yes. Good morning. I'm Don Cotchen with McGrawn Hill Construction. We supply construction information to various government agencies including to the EIA for CBECS. My question – excuse me. I'm going to take the opportunity to ask Mr. Rusco. The recent press release last week said GAO's going to be tasked with issuing bi-monthly reports on the effect of the stimulus package? And I understand that there's teams going to be sent out to 16 States to gather information about the effect on jobs and cash flow and spending and so forth. Can you explain a little bit about what might be gathered and would have any value for EIA – to be shared with EIA?

Mr. Rusco: Yes. Well, we are, as part of the Reinvestment and Recovery Act, we're required to report every two months on the program and we have essentially focused in coordination with the Inspectors Generals of all various different Federal programs also receiving money. We have decided to focus on money going to the States, just to divide up the workload and so we are only in the beginning of that although we do have report out I believe by the end of this month for the first time. But we're sending groups of people out to talk to all kinds of State entities from the top to the bottom and trying to get a handle on what's going on? Where are the monies going? How are they being used? We've discussed quite a bit the difficulties methodologically of that. I think, you know, last time I looked the economics profession isn't unanimous on what the effects of The New Deal were. (LAUGHS) And how effective the stimulus spending was during the Great Depression, either. So the difficulties are myriad. I don't think that we are collecting any data in a systematic way that would be able to plug into an EIA database and be useful to answer other questions. There are going to be State-specific programs, specific information that sort of track and monitor what's being spent where.

Ms. Anderson: Thank you. Over here, please…

Mr. Richardson: I'm Norm Richardson with SNL Energy. I wanted to just throw out something to the panel to comment on and that's the availability of cost data for the public power utilities. I know this was something that was previously collected by EIA through the 412 Survey until it was suspended about five years ago. I believe the importance of this is in evaluating the effects on joining retail transmission organizations. Two examples in particular. One in California where you have the two largest municipal entities – Los Angeles and Sacramento not being a part of the California ISO and being able to determine – does that have an adverse effect to the rate payers being a part or excluded

from the California ISO without some of the detailed cost data. But most significantly is with last week's joining of basically the entire State of Nebraska into the Southwest power pool – the only State in the lower 48 without an investor-owned utility, without a commission that sets rates where you actually have a significant impact on the effect that that has on the other States and the other rate-payers, members, without being able to really quantify some of the cost savings in the future. I guess my question – or what I'm seeking from the panel is how would that type of analysis be done and maybe this is a question that's more directed towards FERC data rather than EIA.

Ms. Anderson: Phil, do you want to take that one?

Mr. Hanser: I'll take a shot. It's important. I would like to have the data for lots of different reasons. Part of the reasons is that it's not only useful from the standpoint of evaluating the value or the change in benefits or costs, whatever, for the municipals but it also serves as the metric against the measure other utilities, right? So that you can do cost comparisons across utilities in terms of what's going on. So the data would be useful to have to say the least. To some degree it's a little bit easier dealing with it at the public utility because a public disclosure of their assets and so on. And so the issue isn't quite as large as it might be otherwise. But from a convenience standpoint in terms of uniformity across data collection, it's a loss for us.

Mr. Genzer: Let me just add on that. And I think Phil's point is well taken. Consumer-owned utilities and especially municipally-owned utilities do have in most States an obligation to reveal most of this data under the State Freedom of Information Act so I think a lot of that data is available. As to consistency on how it compares across State lines, that's a different question. Whether FERC form one is an adequate substitute is an adequate substitute, I don't know, but in terms of, you know, I know the municipal utilities in California for example

look very hard at Cal ISO and determined at least from their perspective that it would significantly increase their costs. So I think they did a pretty reasoned analysis on that on the basis of history there.

Ms. Anderson: Let's go over here…

Mr. Bardin: Good morning. I'm David Bardin. I started – my comments go mainly to Jeff and Shirley – I started about 50 years ago on my interest in energy data and more recently in 1977 I was the Deputy Administrator of the Federal Energy Administration that was responsible in the run-up to the creation of EIA for some of the data I'd like to talk about. More recently, a couple of years ago, I contributed slightly to the supply side part of the Hard Truths report that the Secretary of Energy requested. And my interests here are on the supply side but I think they illustrate points about States and Federal government and corporate enterprises. And the weakness – and the fact that we have a very divided set of responsibilities in our country.

EIA has an important responsibility today on proven reserves of natural gas and crude oil and natural gas liquids. It picked that up from previous work that had been started by the American Petroleum Institute and the American Gas Association many years ago. In the course of that they have to deal with production and they come up with annual production volumes. Historically, that was on a State-by-State basis whether it was wise or not, that was the way the predecessor agencies did it. And it's been done that way ever since. There are slight differences between the production data by the State agencies that are responsible. To the extent that the resources are available, you can learn a good deal and teach one another by combining the resources are only limited.

But much more serious, much more serious, are the resources for dealing with the endowment, proven, speculative, in various cases of categories in the rocks in the United States and of course, in the rest of the world. EIA in its

modeling of production, its Annual Energy Outlook and its 10-year projections is very heavily dependent – I would say almost exclusively – on United States Geological Survey assessments for some parts and the offshore – Bureau of Land Management assessments. In the case of natural gas, EIA several years ago was not quite satisfied with the USGS assessments and therefore went to come up with its own, different.

But the facts of life here is as follows. Each of these agencies is starved for funds. Jeff, you're a laudable effort – extracurricular I guess for today's discussion…but your laudable effort to enhance the EIA budget really should be paralleled with similar efforts on USGS and BLM. This is what gets starved all the time. If you talk to the people who actually work on these programs, you will be unhappy to put it mildly, at what they have to cope with. In the case of USGS domestic U.S. crude oil resources, the unproven but technically recoverable in USGS estimate, it doesn't take four years to update them. In some cases – in one critical case it took 10 years to update. We're just not doing the job we need to do. So there's a great deal to be done.

The models that EIA uses for the Annual Energy Outlook, I think they are gradually in the course of being updated, but they still depend heavily on the data from other agencies which is not being updated adequately, frequently enough. So here's a challenge for the new Administration, thinking that, recognizing that on a world scale, the U.S. remains one of the top three producers of oil and top three producers of natural gas in the world. And whatever you like to say about the projections for the future, that isn't going to go away. In fact as EIA has demonstrated for almost ten years now, in the case of natural gas we're really on an upswing and most people didn't notice it 'cause it was just in the statistics and it didn't get advertised adequately. So the challenge here is to figure out how – in a world where there isn't as much –

there may not be as much political sex appeal that it got even in the Bush Administration. Not to mention the Obama Administration. The domestic oil and natural gas resources and perhaps other energy resources – how do you do an adequate job, an objective job of assessing the various categories of resources you have so that you can plug that into your future.

I'll give you one concrete example where I think the government failed 'because nobody told the government what the data were. We've had a very significant effort in the Rocky Mountain area to increase oil production and it's been pretty successful for the last few years. But when the Bush Administration team went to talk to our neighbors, Canada and Mexico, about issues – energy issues for North America a few years ago, the need to enhance oil pipeline capacity to more American-produced oil to American refineries in larger quantities wasn't noticed. The need to do the same thing with Canadian-produced oil was noticed, was very much on the agenda.

And it's not only the government, the corporate world also looks to the EIA data and EIA projections based on the data for judgment. The largest oil pipeline company in the region, Calgary-based, in all its projections assume we would have a steady decline in Rocky Mountain oil production in the United States which would create part of the capacity for moving more Canadian oil into the United States. I would like to stop there. If there are any reactions, I'd love to hear them – on how the…

Ms. Neff: I have many reactions…

Mr. Bardin (Continues): …we face up to these things?

Ms. Neff: …having dealt with this issue for many years in the Senate, and then just having spent several months working on the transition team in a Department of the Interior, and looking t exactly those issues, I can tell you that EIA does an absolutely magnificent job with the few pennies that are tossed its

way out of the federal budget. BLM – less so. Granted they both have the same problem and that is that in the budget environment that we've been in for a number of years, the one thing when you get these sort of average increases, it's a decrease for these agencies because they're people-heavy. They have human resources and the costs go there and everything else gets cut. Unfortunately, BLM does not do a great job of collecting production data. And in fact, most of that data comes from the Minerals Management Service. The other thing is in going back to the 2000 Energy Policy and Conservation Act and this – we put some language – I drove this language – to require BLM to start collecting information on a GIS basis so that we could tie it with the USGS estimates to see what was actually available or accessible if you will. I mean there are estimates that may be, you know, in areas that are totally inaccessible. They may be under the city of Denver, for example or as we've discovered, Fort Worth. And one of the problems has been, here we are and I can tell you, I was in an oversight role in the Senate for several years as this started happening at the beginning of the Bush Administration, EIA was there at the table. GIS was, USGS was there. BLM was not in a position to start developing this information. So we have to better fund these federal agencies. We also have to have, you know, this whole question of the resource information and understanding – you know, that we constantly hear from the industry complaints about access – access being a problem. It's more – far more complex than that, but it's very hard to analyze because we don't have good information. Especially on public land.

Now as far as the pipeline issues and all that sort of thing, there are big differences there that also have to do with the commercial sector and communication and that sort of thing. But everything you say is right. We do have this frustration with the fact that we haven't done a very good job of

cataloguing and managing the data on our own resources and I'll leave it at that.

Ms. Neff: MMS does a great job... Well, they are absolutely starved, but at least because they have to collect the money, they get the information on the production.

Ms. Anderson: Are there reactions? I think we've got time for one more question. I've to leave – I've got to get out of here at 10:30…so, sir? You have the final floor. I'm sorry.

Mr. Nissen: I'm David Nissen from Columbia University. I run the program that Shirley's teaching in. I'm glad to report that since oil hit $147 bucks, we've got about 120 concentrators which is about 10 percent of the whole policy school, so that the supply of new people is responding to the value that we see in the market, as I point out to my students.

I want to make two very quick comments and the first is about cities. As we talk about State-level, national-level data, we all know, we structure analyses around that data that is available. But cities are now and are increasingly an important nexus of both systems, management and political decision-making. Mayors matter an awful lot in ways that we don't think about at the national level – land use policy, transportation building standards, and so forth. And a colleague in our Center for Energy Management, for Energy Transportation Policy, Steve Hammer, is running a cities program. We're involving 10 Chinese cities. We're working for the Mayor of New York. Let me give you kind of an example of where a mayor should have and didn't understand the implications of policy carried out in his city. In New York City there was thriving program prior to 911 in building micro-turbines in which are not as efficient as central-powered turbines, but when you count the co-gen, they are. And after 9/11, the Fire Department, without consulting with anybody,

said, “No more high pressure gas lines in buildings in New York City.” And a thriving and efficient business vanished from New York City and it was because nobody at the mayoral level understood how to keep score across this broad set of decisions. So the point is you gather data to inform decisions and to inform them with respect to the jurisdiction and with respect to the scope of the cost and the benefit and that should always be a primary design issue. And more attention needs to be paid to the metropolitan area. I’ll make one other comment about data and data. There’s a big data side of EIA and then there’s a lot of data that is in fact, the parametric, behavioral, and technical data is maintained by the modelers. And I actually estimated the demand while I was in [unintelligible] and I was here when the FEO was here. I was contemporaneous with Dave Bardin – so for counting rings on our own trees…and I know the way model development happens is driven by questions from the Congress or the Administration and the desperately try and be responsible – somebody’s got to answer the question. They reach out for data. They commission surveys and what you get is a NEMS model which is 200 pages of primary documentation and 1,000 pages of the 10 modules and all hidden in there are all these jewels, but it isn’t structured. It isn’t standard. It isn’t transparent.

That data needs to be thought of as a professional responsibility with independent management apart from the modelers in the next evolution of the EIA. And we need to be able to conduct a technically, scientifically informed discussion with all the other people that are modeling energy systems in the world on the basis of a format that allows this kind of conservation. We can’t achieve the documentation standards that the IPCC affords itself every four years. But we can look at the “5-Lab Study,” Marilyn Brown’s “Clean Scenarios” (“SCENARIOS FOR A CLEAN ENERGY FUTURE”) and look at the way the publication of this data enters the public and even referee literature. And so that

the data that's buried inside what the analysts manage needs to be brought to the surface and separated and managed separately I think.

Ms. Anderson: On that note, I believe it is 10:30. Our time is up. Thank you very much. Have a cup of coffee. Hope to see you at the next session. Thank you, panel. Great.

(APPLAUSE)

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