CONSENT-BASED SITING PUBLIC MEETING

Embassy Suites Denver - Stapleton

4444 Havana Street

Denver, CO 80239

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FULL TRANSCRIPT

Mr. Jim Hamilton. Good afternoon. And for those in a later time zone via webinar, good evening. Welcome to Denver and to the fourth in a series of public meetings the Department is hosting on its Consent-Based Siting Program. Move in if you want – you don't have to sit in the periphery if you don't want to. We want to try to make it a little more intimate.

Thank you for being here today. My name is Jim Hamilton; I'm an advisor to the Department of Energy's Consent-Based Siting Team and my role here today is to help us all of us to have an open and productive conversation.

To start off, we have a few housekeeping issues. First off, emergency exits. There are four behind you; two to your right, and two behind me.

Secondly, you should all have received an information packet like this when you came in. Does anybody not have a packet? If so, raise your hand and we'll get you one. Great. Inside the packet you will see a copy of today's agenda; speaker biographies; a contact sheet for further information; content from the informational posters that you saw on your way in; sample themes and questions for the small-group discussions and I'll explain more about that later; an information booklet describing the Department's waste management approach; it looks something like this; and a meeting evaluation form.

For those on the webinar today, this information is also on the Department's website.

Now the goal of these meetings is to engage in a dialogue around consent-based siting of nuclear waste management facilities. To that end, we've designed today's agenda as follows.

Opening Remarks by former Wyoming Governor Michael Sullivan; we will then hear from Acting Assistant Secretary for the Office of Nuclear Energy, John Kotek, Acting Assistant Secretary for Nuclear Energy, Department of Energy; followed by what I hope are four panel members; we currently have three, who will share their thoughts; and then a question-and-answer session lasting about 45 minutes, followed by a quick break.

And after the break, we're going to have some facilitated small-group discussions, and I'll explain more about that in a minute. Followed by a report-out session from those small-group discussions; then ending with a public-comment period and some closing remarks. And we plan to adjourn around 9:30 PM tonight.

The public meeting is being streamed live and a copy of this stream along with a meeting transcript and a report summarizing the report-out sessions will soon be posted on the Department's website.

We hope to cover a good deal of ground today. And we look forward to your collective interest and participation. Again, thank you very much for being here on a Tuesday afternoon.

And to get things started, I'll turn it over to Governor Mike Sullivan for his opening remarks. Governor Sullivan.

Opening Remarks

The Honorable Governor (Ret.) of the State of Wyoming Mr. Michael Sullivan

The Honorable Governor Michael Sullivan. Thank you very much, Jim and good afternoon ladies and gentlemen and those of you who are streaming or whatever it is you're doing out there in cyberspace.

As Jim said, my name is Mike Sullivan; I'm not sure exactly my position here – I've seen it referred to as a keynote address, which I hope it's not the keynote. Surely, there's going to be more important comments made than mine. And welcome – and since I'm from Wyoming and we're in Colorado, a welcome might seem a bit disingenuous but let me welcome you to the region. And then to try to describe why it is I'm here.

By way of background; by education and experience, I'm a lawyer. I recently retired after 51 years. I say as a lawyer, but there were times in there where I wasn't being a lawyer.

I served as Governor of Wyoming from 1987 to 1995; as Ambassador to Ireland for 2 1/2 years during the late 1990s and early 2000's; and then went back to practicing law in Casper, Wyoming. And as I said, recently retired.

And interspersed through that are the reasons that I'm here.

The real reason is that in 1992 – that's 24 years ago – I wrote a letter. I wrote a letter to the County Commissioners of Fremont County, Wyoming and to the Nuclear Negotiator at that time covering the monitored retrievable storage siting process, which we had undertaken in Wyoming. Fremont County is a county of about 35,000 people and 9,200 square miles; largely energy- and tourism-related with a big oil and gas presence and a mining industry which is chiefly uranium, or was at that time. They thought they were ideally suited to host, under the siting process – then adopted for these things – the monitored retrievable storage site.

And if you're old enough to go back that 24 years, you'll remember that was a consent-based process in which people could raise their hands and say, "We'd like to do this." And the governor had to say, "Yes, we'll undertake the process." And the governor was given the opportunity to veto the process after they went through certain stages. Largely I would say the enthusiasm for this project was economic development. The economy of Fremont County and the economy of Wyoming at the time, in the early 1990s, was not good. Sort of the same situation now – any energy-related state – the economy has some difficulty. And the Fremont County Commissioners said, "We mined this stuff – we ought to host it. We

could do that." And I agreed that they should start the public process leading toward potentially negotiating for a site for the MRS.

We went through what was called Phase I, which was then a public education process – lots of discussion – Citizens Committee, County Commissioners – and when the Commissioners and the Citizens Committee reached the stage that they wanted to move to Phase II – as I think I said in the letter – Tom Cotton reminds me – that part of the letter I wrote said that the government in its infinite wisdom had dropped this issue into the lap of the governor. And for whatever reason, I was given the authority to say yes or no to furthering the process and in August of 1992, I said "no."

And in the letter I outlined the reasons that I said no. In the infinite wisdom of the Department of Energy, they haven't given me enough time to recite all the reasons that I put in the letter [smiles]. And why I said no. So I'm going to try to just summarize, in the minutes that I have been given, what happened, and why it was I made that decision. Because I think no matter how far you go back in these processes, the reasons and the issues haven't really changed very much. Had they changed, I might not have been invited to this event, because I have not been engaged in this issue, except periodically over the years, as a result, largely, of the letter.

And what happened was we unleashed a ***firestorm*** of debate as you will have an opportunity to discuss at this stage. The Fremont County Commissioners and the Citizens Committee thought this was a great idea – they had generally picked a site and it provided what they thought I think was a great economic stimulus for the county and maybe saving their future.

But it had all of the issues that still exist. One is, there wasn't – even though we started the education – there wasn't a clear understanding of why this was necessary; or what the science was; or what the safety aspects of the storage – on a temporary basis. There wasn't a clear understanding of, okay why are you going to bring it all the way out West and put it in Wyoming, or why would we do that?

And that brings to point the one question or the one issue that I think I'd encourage you to discuss and is important. Is there a proper enough foundation now, even all these years later, for the public to understand what the issue is? What the problems are? And what the challenges safety-wise and so on. Is there any real motivation to do this? And doesn't that require a public informational process that is different than just going into a place and trying to convince that populace that this is something that they ought to host? Because you cannot isolate the issue – it is more than a community issue, it is more than a county issue, it is more than a state issue. It has all the implications associated with transportation, with safety, with time, and so on.

The second issue I pointed out in the letter was Yucca Mountain. Were we really getting a temporary storage site or was it going to become a permanent storage site – was Yucca Mountain ever going to be granted regulatory authority? That was in 1992. And you know the rest of that story.

Third was uncertainty. What about the political changes that take place in an issue like this which is much longer than anyone's term; much longer than an administration, and subject to change? How do you protect the process and the project when Congress might just reach out and pull the rug out from under you? And what can you do to provide greater certainty and greater control for the entity that is undertaking this process?

The third – and I don't even remember the third point – but was, I said, "You're asking – you: County Commissioners; you: the Nuclear Negotiator – are asking us to dance with a 900-pound gorilla." And that doesn't put us in a very good position. And I thought today, as I was thinking about it, that there really was more than one 900-pound gorilla. You've got the government and you've got the nuclear waste issue itself and all of the things associated with that and you've got politics. And as a bit of an aside, in the state of politics today, how do you provide certainty? How do you get to a point where you can be assured that the decisions you make aren't going to be changed? And one of the areas that I know has been discussed and that I think has merit, at least for further discussion, is an independent body of some kind, that isn't necessarily within government, but has greater certainty and lasting power.

The letter went on, as I said – I'm going to run out of time here shortly – so I won't expand upon it except to say the issues that I pointed out are the same issues that you're going to grapple with here today, and at each of these meetings. I commend DOE for putting this back on the table. We can't – seemingly it doesn't make sense just to ignore it. It's a bigger problem than that, so it should – it should go back.

Let me conclude with two references. One, I did testify before the Blue Ribbon Commission as well; that was my second entry into this. That was 18 years – I was asked to come back to the Blue Ribbon Commission and recollect what went on in 1992. And now it's – I think that was four years ago so the half-life is getting shorter [laughter] and that may mean that this is moving faster. But I can assure you that it's not moving fast enough for my lifetime and probably not ours, but that's one of the issues in this; that this is a long-term issue that somebody has to grapple with.

There were three conclusions to the Blue Ribbon Commission. One – which are essentially the same as were in the letter – a public recognition, only after appropriate education or information dispersion that nuclear power is an important part of our sustainable nuclear strategy and a solution which is thoughtful and safe in handling of spent fuel is critical to the strategy's success – that is the foundational, informational – that we have political and business and private leadership associated with it.

Three, a quasigovernmental or other suitable independent structure that serves to the fullest extent possible to provide some certainty and remove the uncertainty associated with it. And a voluntary process that recognizes and considers and genuinely ***listens*** to the input from, and incentivizes, all of the stakeholders; and that is, incentivizes the stakeholders and not biases the stakeholders. Provides a partnership that has some control within the governmental or state which is undertaking this process.

I was going to make some reference – because it was essentially the same – to one of the panelists in one of the previous meetings that have been held in this tour that DOE is doing across the country, because that panelist was making the same comments about control and certainty.

And the final – the final issue – and she made it, and it was probably the key issue in my decision-making process is we did not have, in my opinion, the statewide energy to expend on the divisive nature of this process. I received letters from throughout the state – ***boxes*** – of letters. Not cards, not check-a-box responses – ***letters***; thoughtful, gut-wrenching, emotional, from people young and old, on this issue.

And in part that was generated by the fact that it – it got dropped in and it was coming up – there wasn't any background as to the critical nature of the issue and the science. Which is why I believe the foundation is so important. Those letters convinced me that of all the other issues that we had in the state,

we didn't at that time have the energy capital or the capital in an energy sense to put up with this kind of a divisive issue, only to potentially have it never go anywhere. Or have it jerked out from under us.

And that was the decision. Now all of those issues, I submit, are issues that you have the joy of dealing with this afternoon.

I commend you for your presence. I commend, again, DOE for having the discussion and I urge you to give it thoughtful consideration. Thank you very much. [Applause].

Mr. Jim Hamilton. Thank you, Governor. And now we'll hear from Acting Assistant Secretary for the Office of Nuclear Energy, John Kotek. John.

Mr. John Kotek. Thanks Jim. Before I get started, we've got a brief welcome from Secretary Moniz that I think we're calling up now.

Dr. Ernest Moniz, U.S. Secretary of Energy. [Recorded video]. Hello, and welcome. The meeting you're taking part in today marks an important step toward resolving a challenge that I've been working on for many years. Back in 2010, before I became Secretary of Energy, President Obama and Secretary Chu asked me to serve on the Blue Ribbon Commission on America's Nuclear Future and tasked the Commission with recommending a new plan for dealing with spent nuclear fuel and high-level radioactive waste. Currently, this material is stored on-site at reactors, or at DOE sites, both operating and shutdown, around the country. This system of managing this material is less secure and less permanent than either an interim storage facility or a geological repository. The effort to build a repository at Yucca Mountain made clear that building a repository in a community or state that did not agree to host one was not workable.

With that in mind, the Commission set out a path that we hope will enable the United States to find locations where we can store and ultimately dispose of spent fuel and high-level waste securely and safely. Today, and at meetings occurring around the United States, we hope to hear from you about what a fair and open consent-based siting process should look like. Your input will be essential to the Department of Energy's future approach to seeking a community or communities that agree to have a federal interim storage facility or repository in their area.

To be clear, the Department is not yet considering any particular locations for siting these facilities; rather, we are gathering feedback about how the process of locating such facilities should look going forward. That process will be important to removing spent fuel and high-level waste from on-site storage at nuclear plants and from DOE sites.

Moving forward with a workable plan is also critical to ensuring that nuclear power remains an option for low-carbon electricity in the United States.

I look forward to hearing from my colleagues about this meeting, and others occurring across the country. Again I want to thank you for coming out today to share your feedback about how a consent-based siting process should work.

Moving Forward with Consent-Based Siting

Mr. John Kotek. Thank you all, and again thank you all again for being here tonight. It's my great pleasure to speak to you today about the Department of Energy's plans moving forward for both nuclear spent fuel and high-level waste. It's great for me personally to be back here in the Denver area, as my wife is a Lakewood girl, Green Mountain High grad, CU-Boulder grad, always great to be back here.

First of all, I thought I'd explain just briefly why somebody from the federal Department of Energy is here talking to you about the disposal of commercial spent fuel and high-level waste. Certainly, some of the wastes we're talking about disposing comes from Department of Energy activities; the larger part comes from commercial activities.

Under a law called the Nuclear Waste Policy Act passed by the Congress in 1982, DOE was given responsibility for providing for the disposal of both commercial fuel and high-level waste resulting from governmental activities and so that's why DOE is sponsoring these meetings tonight.

As the Secretary said, DOE is committed to finding a long-term, sustainable solution for managing the nation's spent fuel and high-level waste and to achieve that goal we're developing a process to site new waste management facilities collaboratively with the public, communities, stakeholders and governments at the state, tribal and local levels.

We're here today to get your input and your help in developing a consent-based siting process that is widely viewed as fair and reflective of the public's input. So that's what we're here to do today. Again, we want to get your input to talk about the nation's long-standing challenges with nuclear waste; to learn about your values, your perspectives, your concerns so that we can design a process that will enable a durable and sustainable solution that can work over the long-term.

Alright? So for starters. How did we get here? Alright. As a nation we've used nuclear technology for commercial power generation, for national defense, and to support science and technology research.

On the commercial side we've used nuclear energy for decades to produce electricity. And nuclear provides about 20% of the electricity generated in the US and about 60% of our non-greenhouse-gas-emitting electricity. But it also produces about 2,000 metric tons of spent fuel each year.

For those of you who aren't very familiar with nuclear power, a nuclear reactor produces electricity by heating up water into steam, and the steam then turns a turbine to produce electricity. Unlike plants that burn coal and natural gas, nuclear plants produce electricity through something called fission. Which is the splitting of uranium, and so of course using uranium as fuel.

So what does this fuel look like? If you were here earlier, you saw a mockup of a commercial fuel assembly out in the lobby. The uranium in a commercial fuel assembly itself is in the form of small hard ceramic pellets like the ones you see here. The pellets are then packaged in these long vertical tubes called cladding and those make up the fuel rods. Fuel rods are bundled into fuel assemblies. A typical commercial assembly is about 12 to 14 feet long and you've got anywhere from 200 to 500 of these assemblies in a commercial nuclear reactor, which represents about 100 metric tons or so of uranium oxide in a reactor at a given time.

Now, after about 4 to 6 years spent in the reactor producing power, the fuel can no longer efficiently produce electricity, and it is considered "spent." The fuel is then removed from the reactor and is stored at the site, typically at the site where it was generated – first in a wet storage pool like the one you see here at the top left, and then as those fuel pools fill up, the fuel can then be moved into dry storage containers like the ones you see here at the bottom right.

If you look at the inventory of spent fuel across the country, about two-thirds of it is currently sitting in pool storage and about a third of it is in this dry cask storage you see here.

Now as I mentioned earlier, we've also used nuclear technology to support a range of government missions and we need to provide for the safe disposal of waste generated from national defense, research and other DOE activities. So, for example, as I think many of you know, the U.S. Navy uses nuclear reactors to power aircraft carriers and submarines. Research and production reactors around the US are used to produce medical isotopes or to conduct research or training. And then of course we've got historical weapons production activities that have generated wastes. The activities that went on fairly close to here at the Rocky Flats site generated transuranic wastes which have been disposed of in a facility in New Mexico, but the activities that led to the plutonium production – for example, that supplied Rocky Flats – that activity has generated high-level wastes which need to be solidified and disposed of in a deep geological repository along with spent fuel.

So DOE spent fuel was mainly produced at facilities in other states. The Hanford site I mentioned earlier; the Idaho National Laboratory site up in Idaho; the Savannah River site down in South Carolina, and most of it is still being stored there.

Smaller quantities of spent fuel have also been or are being produced at other facilities like our Oak Ridge Lab and our Brookhaven National Lab and then we've also got DOE responsible for storage of other spent fuels, including the spent fuel at the Fort St. Vrain shutdown reactor site about 40 miles north of here.

So ultimately we need a capability to dispose of all of these different waste forms. And, so as you see here, there is about 75,000 metric tons of spent fuel, a large volume of liquid waste and other wastes that need to be disposed of from government activities and these materials are stored in locations around the country. This map, which is probably a little tough to see – I think we've got a more legible, more easily-read copy in the lobby – but it's showing you where materials are stored at DOE sites, at operating commercial reactor sites or shutdown reactor sites.

As I also mentioned earlier, it's the government legal obligation to provide for disposal of these wastes. Under the Nuclear Waste Policy Act, the federal government was to start accepting these materials from nuclear utilities by 1998. Because the government hasn't met this deadline, utilities have successfully sued the federal government for compensation, to cover the costs of continued spent fuel storage at commercial reactor sites around the country.

Damages awarded to utilities as a result of these lawsuits are paid out of something called the Judgment Fund from the U.S, Treasury, which is supported by general tax revenues. The liabilities associated with these lawsuits currently exceed $20 billion over the next 50 years on top of the more than $4 billion that has been paid out in judgments.

Making the matter even more urgent, there are already 14 sites around the country, including Fort St. Vrain that I talked about earlier, where power reactors were once operated – the reactors have been shut down, but the fuel is still there. Okay? And in several instances, in fact everything is gone except the fuel. The reactor is gone, the turbine hall is gone, the administration building is gone; all you've got there is spent fuel with guns, guards and gates.

The number of these shutdown reactors is bound to increase in the coming years, particularly as we get out into the 2030 period and beyond, and the existing fleet of nuclear reactors reach the end of their typically 60-year operating licenses – some may operate longer. But the fact remains, we continue to generate more of this material; principally at commercial reactors, and we need to provide for its disposal – safe disposable and management over the long-term.

So why act now? Well, a solution to siting, transporting and disposing this waste is going to take decades to implement. We think that just lends to the argument about why we should get started now. The waste was created either in producing electricity or in producing a nuclear deterrent; frankly for our benefit, or for the benefit of generations that came before us. The taxpayer liability as I mentioned before are large and growing. Funding to pay for disposal of commercial fuel has been collected from rate-payers. As you may know, consumers of nuclear-generated electricity up until recently paid one-tenth of one percent of a kilowatt-hour into something called the Nuclear Waste Fund, which has amassed a balance of more than $30 billion that was collected to pay for disposal of commercial fuel.

And the government has entered into agreements with the states and has a legal obligation to deal with and provide for safe management and disposal of that fuel, so you know, we think there are compelling reasons to get started now.

I won't spend a lot of time on the history and the approach other than to say we've tried several attempts at kind of a top-down, federally-driven approach and each time run into resistance from the states that would've hosted those facilities. We think it's time to try a different approach and that's what we're working to do here as part of the consent-based siting process.

Our plans build on successful experiences thus far in other countries. I won't go into all of these examples. Finland is actually furthest along; but each of the countries you see here has either employed, or is in the process of employing, a consent-based process to identify willing and informed host communities that have agreed to serve or could agree to serve as hosts for disposal facilities. I mentioned Finland – Finland has actually already selected a site that has been approved by their regulator and they'll shortly enter into the construction process.

So we've seen that a consent-based approach can work at other places. That experience overseas really helped inform the Recommendations of the Blue Ribbon Commission, which recommended that we move forward with a consent-based process for siting new facilities and it was the Blue Ribbon Commission Report Recommendations that served as the basis for the Administration's Strategy issued in 2013 and which is what we are here to implement.

Okay? So what do we intend to do? What's our vision for this program? Well, we want to develop an integrated waste management system that consists of facilities for interim storage of waste; consolidated storage; facilities for deep geologic disposal of waste and then a transportation system that ties it all

together. Alright? So you'll see that each of these are elements of the 2013 Strategy – the storage piece I think is worth spending a little bit of time on.

What we're talking about doing as a first priority is clearing out those 14 shutdown reactor sites. This would allow for permanent removal of spent fuel from these sites; it would allow the federal government to begin meeting its contractual waste management commitments and reduce long-term financial liabilities.

The existence of such storage capacity would also provide crucial flexibility for the overall nuclear waste management system such as the ability to repackage spent fuel and high-level waste if it were necessary. It would also provide a useful learning experience, including opportunities to conduct R&D on the behavior of spent fuel and high-level radioactive waste over time, as well as to learn from siting, designing and constructing and operating a storage facility.

Now a safe, dependable transportation system is a necessary link in the operation of any integrated waste management system. At a minimum, waste is going to need to be moved from where it's being stored to a final disposal facility and then and of course may also need to be moved to a storage facility. While there is no state, tribal or local consent required for transportation as there is for siting a facility, we certainly understand that people may be concerned about shipments and we're working to be responsive to those concerns. We work with state, tribal and local officials to plan for and train for these shipments and in turn state and tribal governments work with their local public and safety officials to answer public questions and to address concerns. Something I think we'll hear about a little bit later is our experience in transporting waste down to WIPP, which I think has resulted in more than 10,000 shipments to that facility.

During the transportation process, radioactive material is contained in large sealed containers licensed by the Nuclear Regulatory Commission like the one you see here. The purpose of these containers is to protect people and the environment during routine operations as well as in the unlikely case of a severe accident. The goal of course is to conduct transportation activities in a manner that people have confidence that the shipments are safe, and as I mentioned earlier, that means really working closely with state and tribal governments.

Now at the end of the day, all of this needs to lead up to the development of a deep-mined geologic repository. Every foreseeable approach to the nuclear fuel cycle will still require a means of disposal that assures very long-term isolation of waste from people and the environment. No such facility has yet been put into operation for spent fuel or high-level waste; Finland is the closest, as I mentioned earlier.

What you're looking at in developing a deep-mined geologic disposal facility is you want to pick a geology that you think will be stable over the very long periods of time required, and that will incorporate both a series of barriers, both natural and engineered, designed to contain the waste for thousands of years.

You will hear some talk about other disposal options such as deep boreholes that we're also researching. These have been considered, and may hold promise in the long-term, particularly for disposal of certain types of defense waste, but they are in a much earlier stage of development, and our focus is on developing a repository.

So how do we think we can get there? What's our path forward? Well, in order to achieve this integrated waste management system, we're developing this consent-based siting process; and again, this is why we are here tonight. Okay? And I'll move on to where we are now and where we are headed in the short term, right?

So we plan to conduct this consent-based siting process in multiple phases. The first involves engaging with the public and interested parties in learning what is important to you in the design of a consent-based siting process. The second phase will focus on documenting this process to serve as a framework for collaborating with potentially interested host communities and then in the subsequent phases, DOE will use the resulting process to work with interested communities and ultimately begin siting facilities.

We're at Phase I right now. Alright? And tonight we want to get your input particularly on these five questions; I won't read them to you now – they are in your packet. But the answers to these questions will help us design a process. Then we're going to break down into the small discussion groups to really tease out answers to these and other questions. Alright? The information you give us tonight will be used along with information we've got from our other public meetings along with responses we've received from an announcement we've put in the Federal Register, through our website, etc. into a summary report for public review and comment, and will feed directly into the design of the process that we plan to employ.

The effort to actually put this report together and to prepare an initial draft of a consent-based siting process – that's what will be doing in the latter half of the year 2016. As we look forward to 2017, we have requested funding from Congress – and Congressional approval – to actually move out with the implementation of a consent-based siting process. We've actually ask for funding from Congress to support grants to states, tribes and local governments and potentially others who want to start investigating aspects of this challenge. That request is pending before Congress right now, so we'll have to see how they act on that request. And then, of course, if Congress is supportive, we'll then move forward with the actual process of beginning to engage with communities, and state and potentially tribes that are interested in having the discussion – we will not be looking certainly for volunteers on day one. But ones that want to begin the process of investigation and potentially lead to a willing and informed host that can provide us a durable solution to the problem.

So, to sum up, this really is a problem of national importance; it is going to take decades to implement a solution. We want to get started now – we appreciate you being here tonight to give us your thoughts to help inform the process that we use going forward. I look forward to hearing from the rest of the panelists and I look forward to a good discussion tonight. So thank you for your time. [Applause].

Perspectives on a Consent-Based Process

Mr. Jim Hamilton. Thank you Mr. Kotek, and thank you Governor.

We now have the privilege of hearing from four panelists who will each offer their own perspective on the siting challenge. We'll proceed in alphabetical order. First we'll start with Maury Galbraith, from the Western Interstate Energy Board; followed by Don Hancock, from the Southwest Research Information Center; then Sally Jameson of the National Conference of State Legislators; and wrap up with Mervyn Tano of the International Institute for Indigenous Resource Management.

I'm not going to read their biographies – you've all got them in your booklet today – but we are all grateful for their participation today. To lead us off, I turn the conversation over to Maury Galbraith. Mr. Galbraith.

Mr. Maury Galbraith, Executive Director, Western Interstate Energy Board. So; good afternoon to everyone; it is good to be here. I want to thank John Kotek and his team at the Department of Energy for the invitation to participate on this panel. The Western Interstate Energy Board has been engaged in the discussion of the disposition of high-level waste, focusing primarily on the transportation of spent nuclear fuel and high-level waste, since 1985.

For most of those three decades the assumption has been that the spent nuclear fuel would be transported one time only for final disposal at a geological repository at Yucca Mountain. This assumption also underpins a very useful 2006 report of the National Academies on the transportation of spent nuclear fuel and high-level waste.

Today, however, we are now considering the prospect of transport of spent nuclear fuel to one or more consent-based interim storage facilities; the possibility of the subsequent transport of spent nuclear fuel to interim storage, or from interim storage, to a permanent disposal site or sites, and the possible transport of high-level waste to a defense-only geologic repository.

That could be an awful lot of transportation. Transport of 70,000 metric tons to Yucca Mountain was estimated to involve 1.3 million shipment miles over 25 years and to directly affect 891 corridor communities: one hundred of those in the Northeast; 289 in the South; 353 in the Midwest and 140 counties in the West. Of the 891 corridor communities, some would be affected by shipments from just one or two origins sites – perhaps over a very brief period of time. Whereas others would be affected by shipments from many origins sites, up to 40 or more, perhaps over decades.

So, thinking about that, actually the 70,000 metric tons of material that was estimated to be shipped and transported to Yucca Mountain, the actual total inventory is projected to be more like 140,000 metric tons. So the transport numbers that I gave you are likely to even be greater.

So although WIEB is focused on the transportation of spent nuclear fuel and high-level waste and protecting the interests and values of current and future generations living in affected states in corridor communities, there are clearly other communities with interests and values that need to be considered. And so a key question here is how should we the public at large and the U.S. DOE compare and contrast these often-conflicting interests and values?

In preparing for this evening's panel discussion, I read several excellent papers that DOE has prepared on consent-based siting. And one in particular titled, "Understanding Consent: Principles and Challenges for a Consent-Based Process to Site Facilities for Interim and Long-Term Storage of Spent Nuclear Fuel and High-Level Waste in the United States," is an excellent report, and I highly recommend it to you, everyone in the audience, to read.

However, in thinking about answering the question about how you compare conflicting values and interests, I fall back on two principles that have shaped my thinking on risk and economics over the course of my career. And those two principles are that there are many values in life that are incompatible

with one another and are often incommensurable; and, two, there is no single overriding value that can resolve all of these value conflicts.

It's just a fact. Current and future generations living in communities near shutdown reactor sites value safety. The same could be said for current and future generations living in corridor communities and those living in communities near potential storage sites. The risks involved here are not the same and are largely incommensurable. Current and future generations living in these various communities also value economic opportunity. Should safety always override economic considerations? How would you begin to compare those two values?

Federal, state and local governments have interests here as well, as we heard from Governor Sullivan.

If these values are truly incompatible and incommensurable, then the real task here is to figure out how all these interests and values hang together in a way that makes logical sense. In other words, it is important for the U.S. Department of Energy to articulate how all of these interests and values interact with one another and fit together as we move forward.

Why is transportation of spent nuclear fuel and high-level waste to an interim storage site important? How can the transportation be tailored to address the interests and values of corridor communities?

The key message here is that as we consider consent-based siting in host states and communities, we should simultaneously consider the acceptance of transportation in corridor states and communities. Assuming that a good transportation outcome will necessarily follow and be compatible with a good interim storage outcome is not a sound approach.

As one of my favorite thinkers, Isaiah Berlin, once said, "The optimistic view that all good things must be compatible is perhaps one of the least plausible beliefs ever entertained by profound and influential thinkers." So I encourage us to consider transportation as we go forward. Thank you very much. [Applause].

Mr. Don Hancock, Southwest Research Information Center. Good evening. I appreciate being here. I especially appreciate the invitation from the Department of Energy to be here, since numerous Department of Energy officials know that they won't necessarily agree with a number of things I'm going to say.

So I want to talk about my view of four basic facts that haven't been adequately presented in the Department of Energy process, and resulting questions that I think are worthy of the kind of debate, discussion and dialogue that we're trying to have here and in other places to help the thinking about what to do about this very serious problem.

So Fact #1 is that when it comes to nuclear facilities, consent is ***not*** the law of the land. It's also not the historic practice. John Kotek mentioned some of the facilities – Los Alamos in my state of New Mexico and Hanford in Washington – were sites that were developed on traditionally Native American land. There was no consent asked or given. When Rocky Flats – a plant that was mentioned – started in this area in 1952, there wasn't consent asked or given. In fact, when thousands of people in Colorado, a few of whom are even in this room tonight, demonstrated clearly that there was ***no*** consent for the continued operation of that facility, it continued to operate, until it was shut down by an FBI raid.

So these problems – the lack of consent in terms of our legal system and historic practice – is a very important fact that needs to be considered; and I'll come back to that when I talk about some of the questions that I think need to be addressed.

Fact #2. The problem of commercial spent fuel hasn't really been defined adequately. There's been some discussion from DOE and from John Kotek tonight about the problem, but fundamentally you can't develop a solution for a problem when you don't what you're talking about, and the United States, unlike some of the other countries that were mentioned, doesn't have a policy about how much commercial spent fuel will be created in this country over what time frame, in what amounts, and so therefore when we talk about geologic repositories, we don't know about the size they would need to be, how many they would need to be, etc., because we haven't defined the problem.

The third Fact from my view is that federal-government consolidated commercial storage sites are not necessary. The Nuclear Regulatory Commission has said that irradiated fuel can safely stay where it is for decades or longer. If that's not true, can we really trust the Nuclear Regulatory Commission? If it is true, there is no reason to have these kinds of consolidated facilities, and the risks of extra handling, as has just been discussed, the transportation – extra transportation problems – the extra costs of doing those things. The storage of irradiated fuel is the responsibility of the utility companies and if there's a need for consolidated storage, the utility companies can and should create sites to do that.

Fact #4. A defense-only kind of waste repository is not needed. For more than 30 years, Congresses, administrations, and others have said, defense high-level waste can be disposed of in commercial spent fuel repositories. And there is no technical reason that that can't be done.

So if we think about those four basic facts, in relation to the questions that need to be asked to have an adequate consent process, there are a series of questions.

The first one goes back to that legal authority that I mentioned. Given our federal system of government, which is different than any of the other countries that John Kotek mentioned, and given our historic practice, is consent actually possible without something like enshrining it as a right, and how we enshrine rights in this country is through the Constitution. There clearly are going to have to be major changes in federal law that guarantees these rights. As Governor Sullivan said, contracts, agreements can be changed. The Department of Energy has contracts – as John mentioned – with utilities saying we'll take your waste starting in 1998. Those contracts were breached.

Laws can be changed. In 1982, that Nuclear Waste Policy Act said that by 1989 the Department of Energy was supposed to have identified eight potential geologic repository sites. There was a lot of public, tribal, state opposition to how the Department of Energy was proceeding, and so before that timeframe was even carried out – before that law was carried out, Congress in 1987 changed the law. So if you even enact consent agreements in the law, what keeps future Congresses from changing those laws?

So these are very serious problems, and the fact that there ***isn't*** consent in Nevada. For 30 years it's been very clear that Nevada does not consent to Yucca Mountain – yet that law, the 1987 law that says it's going to be Yucca Mountain – still hasn't been changed. What kind of demonstration of the validity of consent – the respect for consent and non-consent – does that demonstrate?

So, regarding defining the spent fuel problem, how much irradiated fuel are we going to have – not the 75,000 metric tons that we have now – but how much are we going to have? And is that going to be enshrined in law in some way that it will be difficult to change those limits? Those are the kinds of things that need to be talked about.

Regarding geologic repositories, what are the technical requirements? We should be having a discussion of what those should be. What acceptable level of releases from a geologic repository would be? How do you define safety of geologic repository sites? That kind of discussion needs to be had.

Further troubling, as John said, there are no operating high-level spent-fuel waste repositories in the world, but the three large-scale repositories that ***have*** operated in the world, Asse and Morsleben in Germany, and the Waste Isolation Pilot Plant, WIPP, in New Mexico have all failed during their operational phase. So, what does that say about the technical and safety culture requirements that are needed for geologic repositories?

And finally, regarding consolidated storage. If it's needed, why do the nuclear utilities not do it? And [let's] hear about what it would take to have a consent-based process around commercial spent fuel sites with the states and communities affected to consent to long-term storage.

Thank you; I hope we can have some of that discussion tonight. [Applause].

Ms. Sally Jameson, National Conference of State Legislatures. Good evening everyone. My name is Sally Jameson. And I'm a Member of the Maryland House of Delegates. You're probably wondering why I am here in Denver. But I am here tonight representing the National Conference of State Legislators as their Committee Chair, Committee Co-Chair, for the Natural Resources and Infrastructure Committee that they have. I also, for NCSL, am the Co-Chair of their Nuclear Legislative Working Group. And I believe that through these positions I work closely on nuclear waste issues locally, statewide and nationally and I'm very pleased to be here tonight to offer our thoughts on consent-based siting.

As I mentioned, I'm here on behalf of the NCSL organization. It is a group that represents all 50 states, the territories and possessions, and including the District of Columbia. Across the United States we have supported efforts by both Congress and the Department of Energy on spent nuclear fuel storage issues and high-level radioactive waste management. And most recently we did submit remarks in regards to the consent-based siting process.

We do have an extensive record of working on all of these issues through the Work Group that I chair. That group is comprised, as I said, of legislators from across the country who are very interested in examining the issues surrounding nuclear energy, including the safe handling, storage and transportation of waste. Our group meets twice a year. We try to stay very active and involved on the latest issues that are before our group and we think that we are able to supply very important input into all of these issues.

I also serve on NCSL's Energy Supply Task Force. That task force has been around for a number of years; I believe since 2009. And that also consists of legislators from across the country.

We recognize that nuclear power is an integral part of a national energy plan and we also understand the need to address certain issues regarding storage and disposal of used nuclear fuel.

We play an important part of the role in developing nuclear energy policy, and it does not matter whether it's in state houses across the country; whether it's with local government; town hall meetings – we believe that it is very important that our thoughts be heard on this issue.

We also recognize that DOE needs to develop a process that is both efficient and effective in order to be able to have a constructive environment for nuclear waste storage efforts. However, it is of the utmost importance to the NCSL that efforts to streamline the consent-based siting process not overlook the important role of state legislators across the country. We feel that DOE can accomplish this consultation by clearly specifying in any rulemaking or guidance that the presiding officer of each legislative chamber be included in regards to site selection, study and siting for both the repository and storage facility processes. This language would also allow DOE to remain consistent with the Nuclear Waste Policy Act of 1982, Section 117, which clearly states that, "the Department shall consult and cooperate with the governor and legislature of such a state."

Furthermore, NCSL supports the creation of a public-private partnership to manage the backend of the nuclear fuel cycle rather than the establishment of a new federal agency.

Additionally, for any consolidated interim storage facilities that are approved, they should be licensed for a specific, limited time not to exceed 25 years. And the reason I say 25 years is because the organization – before we can have any policy that is accepted by all – it must be approved by three-quarters of all the states. Seventy-five percent of our states have agreed to our policies on nuclear issues. That is a very important statement.

You know, when it comes to me, I come from a community where there is a nuclear power plant. I live close to the Calvert Cliffs Nuclear Power Plant; very close to the Chesapeake Bay – it accounts for about one-third of Maryland's energy generation and it produces enough power to light up every home and business in the city of Baltimore.

However, due to the lack of a national fuel repository, or an interim storage site, the plant's used fuel is forced to remain on-site. To give you an idea of what exactly this looks like at Calvert Cliffs, we have 78 existing modules that are loaded with fuel and we have a total of 2,112 fuel assemblies in dry storage. Forty-eight of the modules hold canisters with 24 assemblies each. Thirty hold canisters with 32 assemblies each. There are 1,528 fuel assemblies currently in our spent fuel pool. They expect to add another 36 more modules in the future. Although there is plenty of storage capacity to take Calvert Cliffs to the end of its extended license period for the two Calvert Cliff units that are currently there, we still believe it is important that we move forward as a nation to ensure that there will be a national repository.

In closing, I thank you all for letting me participate in today's discussion. We do believe that it is extremely important that not only that you are speaking to those at the national level, but also those at the state level, the local level, the municipal level and certainly reaching out to all of our tribes. We have, as I said, an extensive history in working on these issues; we do hope that DOE will continue to have us included as part of the discussion. We believe we have a lot to add. And I thank you again. And I wish you good luck, the very best of luck, in moving forward with these issues. Thank you very much. [Applause].

Mr. Mervyn Tano, International Institute for Indigenous Resource Management. Aloha. My name is Mervyn Tano, I head up the International Institute for Indigenous Resource Management based here in Denver, Colorado. We are a law and policy research institute. Prior to establishing the Institute, I was General Counsel and Director of Environmental Programs for the Council of Energy Resource Tribes. I've been working with Indian tribes around energy issues and more specifically have placed interns with David Leroy and Chuck Lempesis when working on the monitored retrievable storage. I've done a lot of work organizing workshops, roundtables, around energy issues, including radioactive waste and energy issues and taking tribal leaders to places like Sellafield, and La Hague, and Hanford, etc.

I've been doing this, as I say, for quite a while.

Let me say one thing – I'm going to skip forward, quite a bit. I find a lot of discussion about consent-based decision-making to be somewhat disingenuous, okay? It is, to my mind, very much like selling cake.

I raised that analogy with some colleagues, and one of my colleagues from USGS said, "You know, you ought to pick a better analogy, because people like cake." Whereas, you don't see NIMBY-type movements around cake or bakeries, generally. Whereas, for waste management facilities, you see such a thing.

And I responded, and I said, "Look, I've given this a lot of thought, and I think the analogy works." At least for my purposes here; here is why I think consent-based siting, as practiced, or articulated, here by DOE, is like selling cake.

So, what you're buying is a cake that has been planned, designed, decorated, and iced by DOE. That's it. You got the cake. That's the cake you're buying. So if you want carrot cake, that's not what you can get – that's not an option. You're gonna get ***that*** cake. If you want lemon chiffon, you're not getting that. You're going to get the DOE cake.

So consent is this kind of cake. Now if you say, "I don't really want cake, I want pie." Well, you're going to have to get through the guardian, the gatekeepers, like Secretary Moniz, and his nonproliferation folks up at MIT who'll say we can't do reprocessing because of nonproliferation concerns. But you know, you say, "But that's the pie I want." But you're not going to get that.

So consent is this cake. Not pie. So, if you're concerned, for example, that the current paradigm of nuclear energy in this country means that people are going to be knocking on your door, drilling around your lands, or on your lands, digging up your lands, to mine uranium and you say, "Geez, there ought to be a better way of doing that." You know – if we use something like mixed oxides, going through the reprocessing facility, maybe you wouldn't have to visit all these environmental, social, cultural harms on our people. And our people are folks in Australia, there are folks in Africa, there are folks in places like Canada, New Mexico. First Nations people, Indian nations, aboriginals, whatever you might want to call them – they are all indigenous peoples. And much of the mining takes place where they live.

So, if you want something else, I'm sorry. That's not what you're gonna get.

Now if you're concerned, you know, that some of our people might be allergic to the nuts that you have on the frosting, well that's, you know – we can't do anything about that. What you should do though is make sure you've got the EpiPens available, and we'll provide some of those EpiPens.

So, yeah, I know this is simple-minded. But that's how my mind works, in very simple-minded ways.

When you talk about consent, one of the reasons I titled my presentation, "Radioactive Waste Management Facility Siting and Indian Tribes through UNDRIP" (The UN Declaration on the Rights of Indigenous Peoples' Lands) is because enshrined in UNDRIP is the principle of free prior informed consent. And I like that principle. I'd like to see the Department of Energy adopt that principle. Because to be talking about transparency when you're talking about that cake – is through a glass darkly. It's not very transparent from my position.

I understand we've got a backlog of spent fuel in all manner of places; Calvert Cliffs, etc. But I think it is perhaps a better thought to be thinking about consent in a much broader way than this cake. To look at all the processes, the decision-making, that goes into this whole enterprise we call nuclear energy. And start informing people, educating people – getting people aware of how all of these things operate. And how they come to roost in your neighborhood, or your grandkid's neighborhood, and all the kind of environmental, cultural, social, political, economic interests that are at stake.

The Institute has spent lots of time doing work with a lot of analysis, a lot of workshops, a lot of roundtables talking about energy issues – impact of energy on specifically tribal issues, tribal concerns, tribal interests.

We adopted the notion of free prior informed consent because that's how we think life should operate in a democratic society. Alright? One of the things that I think has to be overcome, though, is the gosh awful fear of institutions like the Department of Energy to engage in that kind of dialogue. In that kind of public information. Because they would rather sell you this cake rather than open up the bakery and say, "Let's look at the value chain that's part of the cake. And let's come together and start talking with each other and figuring out what we want – whether it's cake, whether it's pie; and if it's a cake, then what kind of cake are we going to get?" So, I'll leave it with that. Thank you. [Applause].

Facilitated Public Discussion with Panelists and Acting Assistant Secretary John Kotek

Mr. Jim Hamilton. Thank you Mr. Tano and thank you to all panel members. That was a pretty impressive sort of set of observations and perspectives.

Now we are going to open the floor to questions from the audience with these five panel members here. We've got two wireless microphones, so simply raise your hand and we'll get you a mic, and you can ask your question and we will engage in a dialogue in that respect.

For those on the web stream, we're taking questions from the Web as well, so simply type in your question and we'll find a way to get that up here so you can ask your question that way. For those in the audience, all I ask is that when you ask your question, simply identify yourself and your affiliation, if any. And we can go from there.

So the agenda calls for about 45 minutes for this Q&A followed by a break. And with that, I'll take the first volunteer question.

Okay, I've got one, two and three, so [pointing] one – and then two – and then three. Alright? Sorry for pointing – I was trying to find a way to make this work.

Mr. Todd Bryan. Thanks. Todd Bryan from CDR Associates in Colorado. And I have a question for Mr. Tano. I wonder if you could describe the difference in your mind between free prior informed consent and consultation.

Mr. Mervyn Tano. Consultation is when you are selling the cake. Free prior informed consent is ***prior***. So it's looking at that value chain. If you want to call it that. And see where those decisions come from.

I did a piece that talked about distributive justice. And how that doesn't seem to work in this instance. Because, generally speaking, when you're dealing with these kinds of issues, it's around distributive justice. How close am I to the facility? How close am I to transportation networks?

Alright. And those are important – and so elements of this distributive justice ought to be part of it. But if we look at the procedural justice aspects of it, ignoring, for a moment, what people have and what they don't have, and look at where decisions are being made, and how those decisions come to roost, back at Paiute in Nevada or Yakima up in Washington, and start asking yourself how do we engage people in ***those*** decision-making processes? How do we get them, as a representative, at the Academy of Science committees? How do we get them engaged in the various kinds of high-level discussions about nonproliferation? So, that's, to me, is one of the fundamental differences.

Mr. Jim Hamilton. Did that answer your question?

Mr. Todd Bryan. Yes.

Mr. Jim Hamilton. Okay, great. Then we've got the gentleman here in the brown vest.

Dr. Gail Biggs. My name is Gail Biggs and I represent myself. I'm going back to the beginning of what the people have said. We must define the problem. And especially the components in the cake. And it appears to me like interest is primarily on uranium. But when one looks at the Rocky Flats site out here, the real problem, as it was defined by the Colorado Health Department, a little over 2 1/2 decades ago, was plutonium-239. Because plutonium-239 consists of very small particles; breathable particles, and once you breathe these particles in, it's been shown that that stays in your body for the rest of your life. And it usually picks a spot in the body, which I will not talk about right now, and just discharges.

And, well, one comment that I was going to give later is that it's been estimated by several scientists that if you were to spread a tablespoon of plutonium across Denver – it has the capability of potentially killing every citizen. And I've heard nothing about plutonium in here at all.

Mr. Jim Hamilton. So I guess you want to take that up, Mr. Kotek?

Mr. John Kotek. I can certainly start it. So the material we're talking about – you know, the spent fuel, for example – there's plutonium. Spent fuel, when it's discharged from a commercial reactor, it contains about 1% plutonium; about 1% of the uranium has been converted over to plutonium. But you're talking

about the material that is in a ceramic, inside a metal cladding; you know, a fuel rod, that will then go into a storage container. So certainly things like that are things you need to be worried about in terms of managing and making sure that those elements don't migrate out of the waste disposal area and then into the accessible environment over the time period you're talking about here.

Which I think is a very different situation from what you're referring to, which was the handling of materials and shaping of plutonium that involve getting particulates or what have you. So I think we're talking about a fairly different type of handling process that's involved. I don't know if any of the other panelists like Don or anybody else wants to add anything to that.

Mr. Don Hancock. Well, plutonium is clearly a problem. It's a specific problem that relates to Rocky Flats, as you suggested. And there's continuing problems with the plutonium that's still left at Rocky Flats. The plutonium waste that was generated at Rocky Flats is supposed to be going for disposal to the Waste Isolation Pilot Plant in New Mexico. And a lot of Rocky Flats waste went from Rocky Flats to WIPP and a lot of Rocky Flats waste went to Idaho and a significant amount of that waste, more than 40,000 cubic meters of that waste, has been shipped from Idaho to WIPP as well. So that's one part of the problem, you know, that's being addressed in one way or another.

The part we're talking about tonight primarily the high-level waste and the commercial spent fuel is another big part of the problem which is why I did say I think we need to better define both the commercial spent fuel problem, the high-level waste problem, and these other problems in order to come up with the kinds of solutions and I think there needs to be some discussion about that.

Back to my point, unlike some nations, we don't have a policy in the United States about how much irradiated fuel we're going to have from commercial nuclear power plants. That seems to me part of the discussion as well and what are you going to do when places that want to consent want to put limits on how much waste can come to their site.

Mr. Jim Hamilton. Thank you Mr. Hancock. Number three, over there. If anybody else has a question, raise your hand so we can figure out where you are in the queue.

Ms. Kathleen Rude. Thank you. My name is Kathleen Rude and I'm with Nuclear Energy Information Service. And Mr. Tano, I appreciated the analogy of what's the cake – what's the cake that's being promoted here and what I'm aware of, is that in this process of consent-based siting, part of what the cake being sold is the assumptions that are here – number one, that nuclear power is going to continue to be a part of our energy strategy here in this country and that we're looking for ways to move this waste out of existing facilities so they can keep generating more waste. And these are assumptions that I don't think are necessarily what people in this country are consenting to and looking forward to as far as moving into more carbon-free and renewable energy.

So that's an underlying assumption in this cake that I'm hearing here tonight. And the other piece – and then I wanted to ask, in particular, Mr. Hancock, if you could continue to explore this, is that you made the point that the other assumption here is that we've got to get this waste away from the nuclear reactor sites. And that again is a big assumption that it needs to be done and that it's the safest thing to do; and we also heard Mr. Galbraith [talk] about the issues around transportation and transporting this more than once. And so I'd really like to hear a bit about the – and discussion about the possibility of leaving this

fuel where it is, where it's being generated from, and finding ways of doing hardened on-site storage rather than looking at moving this and the risks involved there and then creating more contaminated sites somewhere else. So I'd appreciate some more discussion about that and your thoughts on that.

Mr. Don Hancock. Well, as I say I think there are a couple of fundamental questions that aren't really being adequately addressed in the process but hopefully tonight some of you all can help talk them. And Sally can help talk about them because she is, as she said, from one of those places and I find it amazing that we aren't asking the question, "If it's safe where it is, why does it need to move before there is a disposal site?" If it's an economic benefit – which is one of the ways that consolidated storage gets talked about as it will be an economic benefit to communities that agreed with that – why did the folks who are in the business – the nuclear utilities that are in the business of generating the electricity and handling the waste and it's in their very great interest and they have more experience handling commercial spent fuel than anybody else does, including the Department of Energy – so why can't it stay where it is? And as I said, the question is why aren't we talking about what kind of consent has been given from those communities and states to have storage and what would it take – what's involved in a consent process for them – to say yes we can do – whether it's called hardened on-site storage or some kind of long-term thing or if consolidated storage is a good idea, why don't the utilities do consolidated storage? I think those are questions that are worthy of our discussion and lots of folks' discussion; but they are not the kinds of questions that normally have been asked at these kinds of meetings.

Mr. Jim Hamilton. So I've got I think at least four panel members who want to jump in here. So I'm going to try and herd the cats. I've got Sally first, then Maury, did you want to say something too? And then John; okay, so.

Ms. Sally Jameson. So just to kind of follow up a little on what you were referring to – I am pretty comfortable having that nuclear waste stored on-site at Calvert Cliffs. And the reason I am comfortable with that is because I know that that facility was licensed by the Nuclear Regulatory Commission. And I believe in their determinations. They always follow the science to the best of their ability.

The other part I think we need to remember in this is that in 1998 the federal government was supposed to have received all of the spent used fuel at these sites. We are two ***decades***, almost, past that deadline. While I may be ***comfortable*** with that ***temporary*** storage – it is licensed as a ***temporary*** storage site – it is not a site for ever and ever. While I am comfortable with that, I believe that there was a commitment to our constituents that that fuel would be removed from our sites.

I think that nuclear energy plays a huge part moving forward as we look at carbon-free opportunities. And I think that if we want to maintain the progress that we have been able to make so far – on that part of the equation – we need to be doing what we can to ensure that the nuclear waste is being taken care of as the federal government said they were going to take care of it.

Mr. Mervyn Tano. Very quickly, regarding the on-site storage of spent nuclear fuel, I suggest looking at that through a different lens which addresses Governor Sullivan's concern about certainty. The only reason we are concerned about certainty is basically because we want it out of sight. If we embrace the waste, then we come up with a different kind of paradigm. Because all of a sudden we are looking at adaptive approaches as opposed to figuring out how are we going to convince anybody that 10,000 years from now that cake is still going to be something you want.

Mr. Jim Hamilton. Maury?

Mr. Maury Galbraith. I would simply add that this is an issue that is, you know, important to the Western Interstate Energy Board. We've had numerous staff discussions about, you know, why is it that we need to transport this spent fuel from the existing sites? And what's the justification for doing it?

I'm certainly willing to entertain the idea that it's not a universal answer. That each of these sites is very different – their location is very different; the interests at those sites are very different – and I think ultimately you have to sort of weigh the pros of transporting that material from a particular site against the risks of transportation and the interests involved. So you know I would just encourage everybody to think in terms of not universal answers to the question, but to look at the specific sites.

Mr. John Kotek. Yeah, a couple of things I think are worth remarking on there. One, when we talk about the need or the desire to move forward with consolidated storage – remember first, our priority is to shut down plant sites. You've got the 14 sites around the country where the reactor is gone, alright? You've still got spent fuel storage, several of which – that's all that's left – is spent fuel.

It makes a lot of sense to me, at least, to move that material to a common storage facility so that's our priority for consolidated storage.

To hear the other [points] – for example, you know, you decrease the federal liability when you move that material. Every one of you who is a taxpayer is paying for this right now. Okay? We'd like to reduce that liability. When your reactor is shut down, and decommissioned, and gone, you don't have the same fuel-handling capability resident on-site as you would have at a consolidated storage facility. So in the event you need to repackage, you've got more capability to deal with that.

I would refer you to the remarks that we heard from, I believe his name is Governor Al Hill, from Zion, Illinois, which is playing host to a commercial nuclear power plant that is being shut down now. They've got what I think is a 400-acre site on the shores of Lake Michigan – that they would very much like to have access to as a source of development opportunity for the community, but it's going to be a consolidated storage site for as long as it takes us to be able to move that waste. Consider their perspective. I would just call your attention to that and ask you to take a look at what they had to say.

With respect to this question of how much, I think – how much fuel is going to be generated and how much would go into a waste facility – I think there are really two different things here.

In terms of how much waste a community, a state or potentially a tribe would be willing to take, I think that's part of the negotiation that is inherent in a consent-based siting process. What is the community willing to sign up for? That's a different question than how much material is going to be generated nationally. Alright, we, the US government, have not been in the business of saying exactly how much of X-type or Y-type of electricity generation we're going to have. Other countries have done that. We don't do that here in the US.

It remains to be seen whether nuclear energy is something that we in the US rely on for a growing amount, about the same amount, or a lesser amount of our low-carbon electricity as we drive towards what I know this Administration believes is the need to essentially decarbonize the electric sector if we're going to meet our climate goals. Alright? I've got a boss, Secretary Moniz, who believes that nuclear is

likely to play a big role in meeting US low-carbon energy needs. Others might feel differently, and that's fine.

But regardless, it's very hard to predict what vector the future of nuclear generation is going to take in the U.S. right now. I don't think we need to lock in on that. I do think it very much needs to be part of the conversation, though between, again, states, tribes and local governments in the waste management organization as to how much waste a particular community, state and potentially tribe is willing to take and now we're sort of getting to define what kind of frosting is on this cake, right? I think, you know, that is something that as we move forward we are going to need to be able to be responsive to those what I view as the preferences and desires of the potential host jurisdictions to ensure that, you know, what we are ultimately driving towards in terms of a solution in the consent-based siting of a facility with a willing and informed host or local community, their preferences ***have*** to be reflected in that negotiation and I think we need to move towards that, but that doesn't mean we need to somehow limit the amount of fuel that is generated in the US – it might just mean we need more facilities in the long-term.

Mr. Jim Hamilton. Great. Thank you. We've got a question over here – the gentleman in the back. He was first and you are second. So if we can – blue shirt? Thank you.

Mr. Rich Andrews. My name is Rich Andrews and I have a small engineering consulting business in Boulder, Colorado.

I've done studies with nuclear materials. I've done modeling of consequence models; of attacks; or accidents at spent fuel facilities. Those at the nuclear power plants both in the pools during the cooling period as well as the hardened storage facilities. I've presented all this information to a number of agencies – the NRC, the EPA, DOE, the Nuclear Waste Technical Review Board – and my concern is what I feel is the lack of urgency in dealing with this. Particularly when I hear gentlemen like Mr. Kotek say it's going to take ***decades*** to solve this problem. We've already been dealing with this problem for 70 years. It's time to get the solution done, resolved and unless we can't get it done very quickly, I contend that we need to stop making this stuff. [Applause].

So, one of the modeling studies I did – I used the very same model that the NRC uses – it's called the RASCAL model – available from Oak Ridge for anybody wants to do the modeling themselves. And I tried to think like a terrorist. You may not want to hear that, but terrorists are darned smart. And we have a lot of these reactors with this waste sitting in very unsecured facilities at all of these nuclear plants. And that waste is vulnerable to attack. I would like to ask you to respond to this and say where is the urgency. I don't see it.

Why are we talking, by the National Academy of Sciences, and the NRC and its waste confidence process, about all the way out to 50-to-100 years out? Come on. It only took us a few years to figure out how to get to the moon. It only took us a couple years to actually figure out how to make the first atomic bomb. Let's get with it.

Mr. John Kotek. Thanks for that comment. That's why we're here tonight so we can get moving on this. At the end of the day though, I mean, my comment earlier still stands. The process of identifying a site, characterizing that site, building a repository and shipping fuel there – that takes decades, right? So let's get going.

I'm curious why you think you can characterize a site, build it, put it into operation, and then move fuel in – so you think that is something we can do in a few years?

Mr. Rich Andrews. Yes, absolutely. We decide to go to war in a matter of weeks, and, you know, mobilize trillion-dollar expenditures to do that. Why can't the government get with it and get this problem solved? We can. We have the know-how. It's just the will just doesn't seem to be there. It seems like all we do is write reports. And do job security for people in all these agencies. And we're not getting there.

Mr. John Kotek. Yeah. Well, thanks. I certainly share your desire to get moving quickly on this.

Mr. Jim Hamilton. Mr. Hancock?

Mr. Don Hancock. So just two points really quickly. Sometimes the sense of urgency gets us to where we want to go like, to the moon. Sometimes the sense of urgency actually slows things down. Which is what's happened with nuclear waste. We were in a hurry in 1982 and 1987 to have a geologic repository operational by 1998. So Congress made some decisions in 1987 to hurry up, we have a sense of urgency, let's stick it to Nevada, let's stick it to Yucca Mountain, let's put in the ground and get it into the ground by 1998. How well did that work? Not at all.

But the other part if there's some urgency, the people who ought to, actually, in my view, have the most urgency are the folks who have the fuel now. The nuclear utilities. And if there's an urgent problem that needs to be addressed, they have the means, the capability and the facilities to do it. There are places that utilities could do consolidated storage. They don't seem to have a sense of urgency in part, maybe, in some cases because John Kotek mentioned the liability that we the taxpayers have that are paying – who are we paying that money to? We are paying it to the utilities. So they're getting money to continue to store the waste at their facilities.

Mr. Jim Hamilton. Thank you Mr. Hancock. The gentleman in the white shirt over there. Any other questions, let me know. Okay.

Mr. Rick Reynolds. Good evening. Thanks for this meeting this meeting. I appreciate it. My name is Rick Reynolds. And I just spent 22 years in the DOE complex at six different DOE sites, of which two of them were twice. And Don, I want to let you know that from 1990 to 1994 myself and 11 other individuals wrote your processing manuals for your backyard. Okay? Just to let you know for WIPP – we wrote them.

In February of 1994, DOE contacted me because of my legal background and said, "Rick, we need for you to write – we need to legalize the storage at Rocky Flats." It's never been legal from 1951 to 1994. We wrote the Consent Agreement with the Attorney General, the DOE headquarters, EPA, state EPA and the Health Department here in Colorado. And that took two years to do. It wasn't done overnight. But there was never a legal facility to store nuclear waste.

The thing that's got me about – the thing that has sort of to an extent aggravated me about Yucca Mountain is the fact that I put up the first fence around Rocky Flats – around the first nuclear facility that came down in this country. October 1, 1996. All the workers at Rocky Flats put all that waste in wooden boxes. We put it in a 20- or 40-foot cargo container and we put it on the back of a truck and we WIPP-ed

it. We shipped it, excuse me. To the Nevada test site. We dumped it – absolutely, because I've been there, in the dirt. Contaminated waste. Okay?

And then we got a special agreement somewhere down the road from October 1 of 1996 to October 19, 2005 when they shut it down. We just throw stuff in the dirt. We don't need to put it in a wooden box; so we just started packing it in cargo containers. Shipped it down to WIPP. Or excuse me, to the Nevada test site. Throw it in the dirt.

And then we said, "Let's put it on a rail car." Cheaper. That's what we did. They were dump cars. They went down there, contaminated waste, we dumped it in the dirt and then all of a sudden they say Yucca Mountain isn't good enough. For what we honest to godly need in this country. A spent fuel depository. That really just upset me to the n^{th} degree after what we did at Rocky Flats with our waste and now these nuclear regulatory power plants and stuff can't do anything with their waste. And that just – it gets my goat, personally, I guess after 22 years; I'm still cleared, I'm still waste-certified, I can package waste, I can do anything I want. Okay? In my last seven years I made nuclear weapons for this country. I'm sorry to say that sir, but I did. And I got out of it because I got crapped up three times.

Now the last thing I'm going to say, John, and you may or you may not know this, but I'm pretty positive you do and I hope you don't get upset with me for saying this, but I spent two sessions at the Portsmouth site in Ohio. Okay? As a project manager. Right now, a 1.5 million square-foot building that processed depleted uranium is being torn down by Fluor International. Somehow, someway on top of the eight above-ground storage facilities that are covered in dirt – right now, they're doing it again. EPA – I don't know if they got involved. State of Ohio had to have gotten involved and they are burying the cooling towers and 1.5 million square feet of depleted uranium processing facility – I've been in there, I know what I'm talking about – is being torn down, right now. Stored. Above ground.

We have problems. No, they are not solved overnight. Believe me, working with the WIPP facility like I did – I designed the trucks with these guys; the True Packs and everything that go down your highways. We designed them. All the welding spots – all that stuff. It doesn't happen overnight, and trust me. But, it's got to be funding-oriented and it's got to be the right people in the right job to get the job done. Thank you all very much for your time, I appreciate it.

Mr. Jim Hamilton. Alright. Thank you. Just a little time check here. We've got 13 minutes left. There's a public comment period at the end if people want to make public comments, but we're trying to get some questions to the panel members while they are still here. I've got a couple questions from the webinar that I'll read in a little bit – but do you want to respond to that John?

Mr. John Kotek. No.

Mr. Jim Hamilton. Okay, alright, fine. So. [Pointing] I've got you first, and then you second and I've got a web question first I'm going to read. Then you two. Okay.

For the presenters (this came from the webinar): What happens to the nuclear material within the cask when a fuel tanker truck collides with a truck hauling nuclear waste? What is released into the surrounding air? Isn't this risk of this accident much higher than the risk of it being held where it is?

Mr. John Kotek. Well, certainly, transporting material has to be done safely and that's one of the reasons we use these transport containers like I showed in the presentation earlier. Those have to go through a series of tests – drop tests, fire tests, leak tests, puncture tests – to ensure that they can withstand, you know, a range of accidents that could potentially occur during transport. And so, that's something – while we don't regulate that; that's a Nuclear Regulatory Commission activity – but that's something that has to be a part of any safe transport planning program.

Mr. Jim Hamilton. Okay, thank you. We've got one question here – the woman with the black top – and then [Pointing] over there.

Ms. Joan Seeman. My name is Joan Seeman. I'm the Sierra Club's Toxics Chair for the State of Colorado. I also have to say that I'm a victim of Rocky Flats and missed the EPA Advisory Notice that said my ground was contaminated with plutonium – but it was within the ***guidelines*** of being exposed to plutonium.

But this issue, at this point, we, the Sierra Club, got involved in Pueblo, Colorado. And Pueblo, Colorado had been approached by an attorney who wanted to build a nuclear power plant in Pueblo. And people were on board and through the research of a lot of different people we found out there were some really corrupt things going on with the potential permitting, etc., corrupt not being the DOE or NRC, but the folks that wanted to fund it. There were a lot of questions NRC asked and DOE and so we had a community that was not very informed about what nuclear power is.

And so the question I have is – is this Sally, is that your name? There was a major issue, and the press took this on about the attorney – we were questioning the waste, at least just to try to entertain that conversation in the community about the generation of waste. We knew there was no place to take it – that's what began the conversation with the County Commissioners. They were trusting the NRC, DOE and NRC never showed their face in that community. It was just a lawyer working with the community, and the lawyer kept telling the press and everyone, "Well, nuclear power doesn't generate any hazardous waste." [Laughter].

That was the discussion in the newspapers. And we had to prove that hazardous waste actually is being generated and it should be permitted through RCRA, etc., which it is not.

But so Sally, the reason I'm bringing it to your attention is that this community was left out there to hang. We had to prove that; well, they only knew about ***hazardous*** waste and zoning regulations based on ***hazardous*** waste. They were left out there not understanding, and we had to help educate them about spent nuclear fuel and that it is extremely dangerous and that there ***is*** a risk and tonight I'm not hearing any potential conversation about the canisters – I'm getting data from around the country that say, you know, there hasn't been a conversation truly about the canisters; the problems with them, etc., the safety, and what risk, Sally, does your community think that they might accept with a criticality or with just the exposure from this storage and do you really want to move it because you do have in Maryland some security issues.

So that's my question, Sally. How do you help a community like Pueblo, Colorado?

Ms. Sally Jameson. I think that the process that we're going through tonight is educational. I don't think any person in this room will leave here tonight without having gained some knowledge. Now I'm not saying that everybody is going to ***like*** what they learned. But they will have learned from this process.

So I think it's a good opportunity – we all understand that there's this issue before us. And I think it's good that DOE is bringing this to the local communities. Sure, I may be from Maryland, but I'm representing an organization that represents all of the states. Each one of the regions around the country is going to have different concerns. But tonight we're talking more about just the utility waste. So I think that, you know, there are a lot of things that we can pull from – for instance, the WIPP facility – it's been mentioned a couple of times here tonight about transportation. They have one of the best records that I have ever seen when it comes to moving a hazardous material.

So there is information that we can gain – we can learn from that process.

Certainly, each community may not agree, but that's what this is about. It's about determining that if you as a community decide that this is what you want to do, then ***everybody*** in that community has to buy in. You've got your opportunity to be part of it. So I would encourage all the communities – you hear about these meetings – if your community happens to be one that is interested in moving forward with a possible process to become an area for one of these facilities, that you get out there, and you get involved. And you make sure that your questions are answered.

Mr. Jim Hamilton. Great, thank you. We've got the gentleman in the back here.

Mr. John Heaton. Hi, I'm John Heaton. I'm from Carlsbad, New Mexico. And I thank everyone for being here. Aside from the fault lines where some of the waste is being stored, and on top of that some is in very highly dense population areas, we've already heard comments about terrorism; fuel pools are overloaded at virtually every plant, without question. And even to the extent that they need to have enough space to get their core out. But it means the way you have to – have to mix it in the fuel pool is sometimes difficult; takes a little bit more time, and so these are issues aside from what has already been mentioned but what I'd like to do is ask Mr. Galbraith a question because – with the WIPP site as an example, we have had shipments, loaded shipments, that would be equivalent to going to the moon and back 26 times. The Defense Department has been shipping Navy fuel for over 30 years without incident. And the WIPP shipment system is the envy of every trucking company probably in the world, but it certainly is in the United States. And it doesn't occur lightly. It occurs because of the integrity that's put into the system. It's the training, it's having people that have never had a moving violation, it's the way the trucks are monitored, it's the only truck going down the highway whose tires are filled to the right level; there are no leaks in the hydraulic hoses and it's the only truck going the speed limit, by the way. So it has some unique characteristics aside from being monitored continuously in its routing.

But I think the purpose of this meeting really is to try to understand what ***you*** want – I mean, you laid out problems, but what do you want in terms of ***solutions*** to the transportation? It's clearly the most visible part of the system; it's the system that affects the most people throughout the country, so what do you want to see in a transportation system? And moving it twice – you know, I think that a repository clearly was probably going to be in the West. I mean I don't think anybody would argue that statement. And so if it's going to be in the West, and you can move it three-quarters of the way from the East Coast; and however many miles, 1,000 miles, from the West Coast, it seems to me you've made a big step, and

you've cut down a lot of the risk by doing so. But do you want more training along the route – do you want more – what do you want in a system that would make you feel comfortable? I think that's the question we all need to begin to ask ourselves. What do we want the system to look like so that you're comfortable; I'm comfortable. It's a system that has integrity.

Mr. Jim Hamilton. Thank you. Maury?

Mr. Maury Galbraith. Well, I don't know if I have a complete answer for you. But so first of all, to start with, it's my understanding that we're primarily talking about rail transport here, so I think that there might be some vehicle transport at the location of the generating site to get to the rail, but then once it's on rail, we're primarily talking about rail – rail transport in the West.

And again, my understanding is that you know these transportation casks are tested for all kinds of risks and accidents, right? You know, I think that all of that is good. I think that the consent of some of the corridor communities as we mentioned earlier is important. I'm not certain that all of the communities along the routes are well-informed that that kind of spent nuclear fuel is moving through their communities, and you know so I think one thing we would want is, you know, more information to be available.

Now that doesn't necessarily mean you tell them exactly when it's occurring, but I think they need to know that it does occur from time to time.

I think the issue of multiple transport and trying to minimize the number of times that the material is handled is key. The switching in the rail yards is something that I think needs to be discussed and people need to be reassured that that's going to work well.

And so beyond that, I don't know that I have specific recommendations for you. This is sort of early in the process for myself.

Mr. Jim Hamilton. Alright, thank you. I've got two panelists who want to say something. We're running close to our 45-minute time limit. So they're going to have the last word. So I've got Mr. Hancock first.

Mr. Don Hancock. So two quick facts. The WIPP shipment process that John Heaton mentioned is solely by truck. And as Maury said, commercial spent fuel will be moved by train.

The second fact is 92% of the commercial spent fuel we're talking about is east of the 100th meridian. It's in the eastern part of the country. So ask yourself why it makes sense to transport it all to the West.

Mr. Jim Hamilton. Sally and then Mervyn.

Ms. Sally Jameson. Thank you. Well I think I'd just like to add that these transportation issues have been discussed across the country for probably the last 20 years that I know of. I'm part of the Southern States Energy Board and we've discussed rail routes, training along those rail routes – we've been working on that for a long time. And NCSL has also participated in some of that planning.

The thing I want to bring out is if there is a community that wants to participate in a site, that we need to ensure that they are going to receive the funding that they need in order to ensure the safety in that area. The training of your fire and rescue people and everyone else along the way, so as we begin to develop a

consent-based process, I want us all to remember that dollars are very important and that these communities – if they're ***willing*** to do this – they will need funding to help them.

Mr. Jim Hamilton. Thank you Sally. Mervyn, do you want to bring us home?

Mr. Mervyn Tano. Yes, very quickly. Several years back we had a young lady who is now a professor at various universities in Tokyo who did her dissertation on the Goshutes and that situation. I would recommend it as a great case study for what looks like consent but turns out not to be not all that consensual. So if anybody's interested, get in contact with me, and I'll turn you on to where you can get that dissertation.

Mr. Jim Hamilton. Thank you very much. Thank you panel members. We are now going to take a break, but before we do I want to turn your attention to what happens when you come back from the break.

We're going to break up into small groups and have facilitated dialogues to dig a little bit deeper into what you've already heard about today. To make this an equal distribution so we get the right number of people at the right number of tables, on your blue folders there is a number. When you come back from your break, all that we ask is that you sit at the table that matches the number on your blue folder.

The goal of these discussions, again, is to dig a little bit deeper into about what you've already heard about today and to generate your own ideas and thoughts about what is important for the Department to hear from you. There are no prescribed topics for this discussion, but in your folder is a sheet of paper with some ideas about how you might get the conversation started.

Each table is supported by a neutral facilitator. Their job is to help you have a productive conversation. And I want to ask them to raise their hands or stand up so you know who your facilitators will be.

At the end of that discussion period which will be about 75 to 80 minutes, there will be a report-back session summarizing the small-group discussions. The summaries will highlight your key issues and recommendations to the Department. They will then be condensed into a meeting report that will be on the Department's website shortly after this meeting.

Following the report-out period, there will be an opportunity for public comment. To that end, if you wish to participate in the public comment period, there is a sign-up sheet at the registration desk. Please fill that out now.

For those on the webinar, we've learned that multiple, small-group discussions make for bad television. So we're going to put the webinar on pause and we will bring it back up once we start the report-back session.

So, it is 7:05 PM. We're going to meet back here at 7:20 PM. Restrooms are out behind here. For those on the webinar, the broadcast will resume in an hour and 35 minutes.

Have a good break – we'll see you back here in 15 minutes. Thank you very much.

Small Group Discussion Summary Session

Facilitator 1 [Mr. Stuart Smith]. Alright, ladies and gentlemen, welcome back. I know that a few of the facilitators are just writing in a couple notes. My name is Stuart Smith, I'm with Leadership Strategies – the third-party objective facilitators leading you through this. What we are going to endeavor to do, in very short order, about in no more than 3 minutes per group, is to give you the highlights and to have you hear from each group, since you weren't involved in every group.

So I was working here with the group at Table 2 and we were asking about our summary – what would be key to share with the other groups. So, understanding that the consent-based siting process not only has to have a risk assessment and a factual risk assessment, but it also needs to include the benefits. So that the other side of the risk and also some of the economic benefits and incentives and those sorts of things, so when we see the consent-based siting process, we should see those components in that.

That there needs to be a level of community involvement – and we had a big discussion around at what level is it appropriate – how would we gain that level of agreement, and we also needed folks who were very key about listening to the science. And ensuring not only that they do hear the science, but you've heard from people with a different point of view, even though the scientific fact is there – you needed to hear a different point of view about that.

Deciding about who decides and that goes back to this community involvement piece at what level.

Understanding the numbers and the data. Understanding the long-term risk of the decision. And that was key, because obviously when it is stored, it is stored for a long time, so what's the impact of the decision, especially as it involves risk, and then how can the public really be involved? We had a discussion really about what does it imply if people in the public who would be impacted by the decision don't participate in how the decision is made.

And then finally, agreements – long certain sustainability of those agreements – and documentation of those agreements at different levels. So that's what group 2 discussed. I think we are going here.

Facilitator 2 [Mr. Chip Cameron]. Great, thank you. We had a great discussion here at Table 1, and what Table 1 would like report out to all of you is that the main recommendation – and are they getting this on camera?

Mr. Jim Hamilton. Yep, it's right up there.

Facilitator 2 [Mr. Chip Cameron]. Okay, cool. A new organization is needed to manage the consent-based process. Various reasons given for that. No trust with DOE and it was also mentioned that they didn't think that any government agency could manage this. An organization that is insulated from the election process. It was mentioned that the legislature is dysfunctional so let's have a new organization to do this and this would be a quasi-governmental organization. Well-articulated charter needed about what they could do, over what time frame.

There should be a solid financial base and it should be an independent base that couldn't be manipulated. The $30 billion in the Nuclear Waste Fund was mentioned for that. And we talked a little bit about composition and this was sort of a mix of expertise needed – of course, they would hire a staff to do this,

but expertise needed as well as stakeholder representation and [they] talked about eminent scientists; risk management – people who are skilled in risk management – an environmental organization; certainly, a utility organization; a governmental organization or organizations like NCSL; local communities, tribal and a cultural component to it. So that's what they would like you to know. Thank you.

Facilitator 3 [Ms. Janice Neitzel]. So Group 3: we had a very lively conversation with a lot of ideas. We came up with three key ideas where we thought one of the most important things for this group is the credibility of the DOE and it was important that we said that acknowledging the mess made and the people hurt at Rocky Flats. So there was talk about restorative justice as a model for doing that and we talked a lot about the pros and the cons and how that could be done.

Next that we talked about that was important – is somebody besides the DOE running the whole process. For an example, not to hire contractors that have been fired in the past. So that was brought up. And we talked about a lot of different examples and how things could be done.

And our third topic that we wanted to report out on is minimizing transportation. So there were discussions about using existing storage sites – not moving it at all – and the group agreed that the most important thing to focus on is to minimize transportation. Thank you.

Facilitator 4 [Mr. Bill Olsen]. Good evening. My name is Bill Olsen reporting from Table 4 here. And we had actually 12 different discussion points and it was interesting how that consolidated down to three key takeaways.

So first of all it was all about informed consent. Secondly, we addressed several models, and lastly, risk.

So let me kind of go into each of these.

On informed consent: that doesn't need – you know, not only does consent need to be defined, how is that consensus-based specifically, and it must be informed – so a lot of depth on what that really means. What is the threshold that would define consensus or agreement? Who is involved? Who were all the key players, the stakeholders, communities, tribal, state – what authorities out there – and it must be unbiased information so that the communities aren't pushed into something; that they really are making the right decisions and because they have total access and free prior and informed information that comes out of that model. Those are just how they considered options, and those options are not just simply that we have nuclear waste or we don't.

What are some other economic options that they might be considering, and that should also be part of their process.

The next one was models. And in the models – actually kind of flowed several – you know, what are some of the models out there that might be adaptive for consent-based siting? One of them is what's currently in-place for naval nuclear; particularly as ships are – their fuel is replenished – the spent fuel – how is that working, and it is working currently? That might be able to be adapted, particularly for the transport area. There is a book I believe – it is by Barry Rabe – who talks about what's happening now in towns in Canada and how they've adapted and used that. Another model, as already mentioned, is the free prior and informed consent – how that works into it, as well as what's happening right now with WIPP.

Lastly is risk. We spent a lot of time talking about risk, particularly in context with transportation. How risk is not only real, it's also perceived, and how that affects the communities and what does that risk right now if a siting is going to occur, as well as long-term, over the long haul. And how that risk is ***very different*** depending on whether the transport is by rail, whether it's by highway as well as what the risk might be at the transfer point locations themselves. This really needs to be taken into deep consideration.

Facilitator 5. [Ms. Susan Nurre]. Hi, I'm Susan Nurre. And I was with Table 5. And one of the things that we just wanted to share – it's not news to you – but this is ***unprecedented***. What we're talking about here, and what we're working on accomplishing and fixing and everything, is unprecedented. And we see that the nation needs to come together as a community to solve this. And so using that we had some different kinds of ideas. We did talk about communication; how important it is to engage people. And we talked about that truly community is going to drive the communication. Because different communities engage people and communicate with people in different ways.

One of the suggestions we have is that we'd like to see an interactive model of what this might look like, including transportation, include all the different pieces so that people could really be made aware of the risk. And that would give, you know, people a chance to kind of manipulate it, and they would be engaging and understanding more and more about the process, and that's really one of our goals.

As far as consent goes, Group 5 wants to put consent and the responsibility for it on the community. So we talked in terms of something like an RFP process – a Request for Proposal – that could be issued by DOE. And it could have different aspects. We talked about possibly an RFP to consider the process itself. Or just saying that the site-based process – I say, "Hey, RFP, we want to do it in our community." But then the community would be responsible for getting consensus. And they would use their referendum, their ballot issue process that they use every day. So whoever put it on the ballot, would be responsible for helping to communicate. They would engage daily; they would have to be a partner, but they would use third-party independent experts and say, "Help us research this." Because if they're really trying to sell it to their community, they want to have some good backup information.

One issue here is we have to be concerned with consent is not just for the community – you could have a community vote to make and approve it, but then there are other possibly state issues or neighboring towns that could be some other additional national consent pieces. We didn't get to that.

So those are three of the things that we talked about that we wanted to share with the rest of the group.

Mr. Jim Hamilton. That's it? Well done. So here's what's going on. It's a little after 8:30 PM. We're going to have a public comment period in about 10 minutes and we've got some closing remarks and we're going to get out of here by 9:30 PM.

But what I've got right now is about three or four minutes to sort of take a leap of faith and try and process what we've all just heard. Now, there's no way you can tie a pink bow around five different small-group discussions and come up with anything that's sort of consistent throughout, but you've heard talk about risks and benefits; you've heard a lot of new organizations that I think drive to trust; you've heard a lot about transportation, which inherently talks about risk; and consent, and community models and all those sorts of things.

My job is not to, you know, distill that into a soundbite, but I'm going to turn it back to the audience and just sort of give people – if anybody wants to sort of say anything about the process they went through or what they've heard as a result of this small group discussion, we've got a little bit of wiggle room timewise – and if you got something that is, you know, helpful or interesting, or you want to get off your chest on this – we also have the public comment period coming up, so, you know, keep your powder dry for that. If there's something you want to talk about that pertains to this, I'd open it up if anybody's got something they want to say. We've got some wireless mics and we can just have a brief dialogue about it if you want; otherwise we can move to the public comment period so…

[From floor]: Can we take a break?

Mr. Jim Hamilton. Pardon me?

[From floor]: Can we take a break?

Mr. Jim Hamilton. You're the first public comment speaker, so we could allow that to take place if you want and we can move you back down a little bit, or we could just keep moving, but… alright, so we'll keep with the time, but does anybody want to throw out a comment about any of this or not? If not, we can go to public comment, then, fair enough? Alright, okay, I just wanted to check in with you all, so thank you very much for letting that take place.

Public Comment Period

Mr. Jim Hamilton. Alright, so, public comment. We've got 10 people who want to say something. We've got about half an hour give or take. That's 2 minutes and 30 seconds per person. And we'll try to keep on time. Is Tim in the audience anywhere?

Mr. Tim Frasier. Over here.

Mr. Jim Hamilton. Okay, Tim is our timekeeper. If you look at Tim when you give your public comment, he's got two colors of papers. One is yellow and one is red. When he waves the yellow one, you've got a minute left. When he raises the red one, it's time to pass the mic to the second person. Alright? So, you can give the public comment where you're sitting now, or you can come up to the mic here – there's a stand here – whatever you'd like to do first. So, the first three people I've got are Phil Ord, Gail Biggs and Ron Brown. And so we've got Mr. Ord right here. Mr. Ord.

Mr. Phil Ord. Hello. Okay, so. My opinion is with the whole waste controversy, the problem is scientific illiteracy. Waste is not the issue people make it out to be. It is well-managed and occupies little space. We want to reprocess fuel into – I think is called mixed oxides – in places like Canada and France. The anti-science folks fought that. So we can't recycle the waste, so it has to sit there. We've spent billions on a reasonable, though imperfect, site in Nevada to store waste. The anti-science folks still fought it. Next-generation nuclear reactors can eat all of the waste and leave remnants that are radioactive for a maximum of 300 years instead of for thousands. Anti-science folks spend money elsewhere – might I add, wind and solar. We need nuclear power to solve climate change. Anti-science people say we don't. And they are letting them close, undoing years of climate progress.

Might I say that the foremost climate scientist, James Hansen of NASA, says we cannot solve climate change without nuclear power and to believe anything else is equivalent to believing in the Easter Bunny or the Tooth Fairy. He said that. Nuclear power is statistically the most eco-friendly source of power. Yet anti-science groups only focus on the tiny issue of waste, when climate change is the real problem. Maybe the problem is with the citizens and not with the waste. It is time for people to rethink this NIMBY attitude. Not in My Backyard has to go. Thank you.

Mr. Jim Hamilton. Thank you Mr. Ord. I've got Gail Biggs then Ron Brown. And we are encouraging the use of the mic up here or you can do it where you are seated, but…

Dr. Gail Biggs. Hi, my name is Gail Biggs. And I would like to just make a couple of comments here.

As I've said earlier, I'm very worried about plutonium. It's probably the most dangerous weapons waste that we've got to put away. I was a little disappointed – I know it's the larger issue – but if we look at the hazards, plutonium is first as a weapon waste in my mind and is more important than power plant waste.

And we've talked about informed consent. And you've got to have confidence in what you're being told. Again, a little over two and half decades ago, I was appointed by Governor Romer to a scientific panel where I was Chairman of the Air Committee. At our first meeting with him, he said he wanted us to tell him the true facts about Rocky Flats. Because it was the upper management, DOE, telling him that everything was peaches and cream and everybody else was telling him that it was horrible out there.

So we went out there and we found that the workers could be very candid to us when we asked the questions. And they said that the management out there very, very poor. Their waste dumps didn't get dumped, so they went out and dumped their plutonium all over the plant site itself. And if it was too much, they buried it. The workers estimated that 60 to 90% of the plutonium coming off that site was from fugitive sources. When we put our report together, we told it as it was. Our report was never published. And so anyway all I'm saying is that you've got to have confidence in the people who are telling you what is going on in order for you to make a good decision. Thank you.

Mr. Jim Hamilton. Thank you very much, Mr. Biggs. Ron Brown, Ted Ziegler and Kathleen Rude. And I'm going to raise that microphone stand. There you go.

Mr. Ron Brown. Actually, I think I'll give my time to the next person as Phil Ord basically covered my main points. The biggest point is that waste is not a problem. It can be burned up in advanced reactors. We need to develop them and move in that direction.

Mr. Jim Hamilton. Thank you very much, Mr. Brown. Ted Ziegler, Kathleen Rude then LeRoy Moore. Do we have Ted Ziegler?

Mr. Ted Ziegler. I would like to speak on my past experience at Rocky Flats. Many people are not educated and do not have hands-on experience of what the contractors – I went through three contractors – at Rocky Flats. Dow Chemical was the first contractor and I was an employee there, hired on in 1982. And that was when I started at Rocky Flats. Went through three contractors – they all pretty much handled the conduct of operations in the same manner. There was no mandatory conduct of how you handled your toxic hazardous waste. The employees were allowed to work in beryllium and asbestos and other toxic chemicals without risk-prepared proper equipment.

Now the trenches out at Rocky Flats – there are a lot of hazardous wastes and many, many different types of waste. And most of them that are there can be airborne and are just as hazardous to your health as the plutonium is. Beryllium, for instance, is a very lightweight metal and when it's machined there is quite a bit of powder that comes off of that – this was sprayed throughout the plant site from leach ponds and that can become airborne if it's disturbed.

The contractors that have worked for 20 years since I retired disturbing the soil out there – there is no record of that – there is nothing that I have of record, that there was protection for those individuals. And I'm sure that the sliding of the hillsides and the trenches that are collapsing, implosion of the materials. My time is up, and I do appreciate the time. Thank you.

Mr. Jim Hamilton. Thank you Mr. Ziegler. Kathleen Rude, LeRoy Moore and Alesya Casse?

Ms. Alesya Casse. Yes.

Ms. Kathleen Rude. I'm Kathleen Rude with Nuclear Energy Information Service. And we have a short list of things that we feel all really preconditions that need to be addressed before informed consent can really be effective.

The first one is to fix the credibility gap. DOE has to keep its word and the government on all previous commitments, treaties, contracts, laws, regulations, first, before any other radioactive waste facilities are sited.

Two. Compensate communities already affected by nuclear contamination presence. For example, tribes, like 10,000 abandoned uranium mines, orphaned waste communities like Zion and Big Rock Point; contaminated fuel chain facility municipalities, like Metropolis and West Lake Landfill.

Three. No bribery, duress and bait-and-switch. No means no. So exemption from eminent domain proceedings. We need to begin to know the unknowable. Fully disclose all technical aspects of the proposed technology to be used; the geology; the health physics; transportation and all aspects of the facility that would have a health, environmental or economic impact on the community as a basis of approach and the conditions informed consent.

We need financial support made available to communities to retain independent teams of experts: law, technology, radiation, health to represent their interests to approach the conditions required for informed consent. Local control to set safety standards they deem necessary, which might require acts of Congress to preempt the NRC.

We need independent baseline health studies done by professionals in the local communities choosing prior to establishment of a facility. And compensation to communities commensurate for helping solve one of the nuclear industry's and US government's most pressing problems. It should be large, fair and intergenerational.

It should also include plans for a just transitions termination fund for when an active site operation ceases. And funds for long-term health and environmental monitoring for as long as the wastes are present.

And there should be severe penalties for government and industry violation of noncompliance. And also we need to stop making more of this waste. Thank you.

Mr. Jim Hamilton. Thank you very much Ms. Rude. LeRoy Moore, Alesya Casse and then David Earnshaw.

Dr. LeRoy Moore. Okay. Alright. I'll start where she just ended. The first thing to do is to stop producing the waste. Stop producing the waste. And then the second thing to do is to wake up to the fact that we are creatures on the planet with all other kinds of creatures. Wildlife, plant life, even the sticks and the stones. And our human responsibility is to understand these other creatures that are on the planet and stop doing the things that harm them. If we want to harm ourselves, let's go about it; but let's not make war on the planet itself.

And that means that we really must understand the other creatures. And how to take care of them. And in the human enterprise where we are making decisions, let's not consent to something that is harmful to all those other creatures. Let's understand what their needs are; what their realities are, and let's not make a decision that is harmful to them. Thank you.

Mr. Jim Hamilton. Thank you Mr. Moore. Alesya Casse – I think I've mispronounced that, but I apologize; followed by David Earnshaw and Jonathan Socha?

Ms. Alesya Casse. Hello everyone, my name is Alesya Casse, so you were close. I just want to thank everyone for being here and thank the DOE for allowing us a forum to speak.

I want to address something that's ***missing*** in the discussion. We have this great opportunity right now to address something that, you know – we only have the one component of it, and that's the commercial waste coming out of power plants. What we're not talking about is the waste that's coming out of the weapons manufacturing. And I'm talking about what's happening at Rocky Flats and I'm not talking about what happened 20 years ago. I'm talking about what's happening now.

I have a report from July of 2015 talking about the plutonium that is leaking into the water and that is testing higher than the allowable limits. This is leaking right now. Do you know what they do to remediate it? They plant more plants. How is that responsible nuclear waste management? We have a leaking Superfund site here in Colorado ***right now*** and we're not talking about it. We're talking about fuel rods transporting from the East Coast. We are missing an opportunity to address a leaking nuclear waste site here that needs a cap on it basically the equivalent of a pyramid, right? The Pyramids have been around for 6,000 years, and will probably last another 6,000 years, and we have waste out there that has to be contained for 24,000 years. So I invite everyone to consider that there are broader issues than just what is happening in nuclear power plants. Thank you.

Mr. Jim Hamilton. Thank you Ms. Casse. David Earnshaw; do I have that right? Jonathan Socha and then wrapping it up, Jay Hormel. One second before we continue; did you have a question?

Ms. Joan Seeman. [From audience]: I forgot to put my name on the list.

Mr. Jim Hamilton. Okay, then you will be number 11. How's that? Alright. Take it away.

Mr. David Earnshaw. Yes – my solution to all this is totally outside the box. Because I think instead of going straight for something, I think that we need to make an end-run. And for the last six years, I've been extremely interested in liquid fluoride thorium reactors; the reactor name is LFTR. And for the first two

years, I tried to figure out what was wrong with it; it just seemed too good to be true. And I couldn't really find anything. There are some challenges and so on, but the reactor – first off, would only make about two or three percent of the waste that reactors do today. There would be no transuranic waste from it. There wouldn't be any plutonium. There wouldn't be any other of that other stuff. It doesn't have the uranium-238 going along for the ride and so essentially all you'd have is the fission products.

If we develop this reactor, it would need to be continually processing out the fission products, but they would have a storage requirement of maybe 300 years compared to 10,000 years so – and one other thing from this reactor, is that you could actually begin to dribble in the waste from all the other reactors, the conventional reactors, that we have today and you could actually begin to burn it up in that reactor and take all this nasty stuff and what would come out would be the fission products that are much more amenable to treatment. So that is a possibility.

Mr. Jim Hamilton. Thank you Mr. Earnshaw. Jonathan Socha – you're going to pass? Okay. Mr. Hormel? And then we're going to wrap it up – you're the second to last one. Thank you.

Mr. Jay Hormel. Thank you. My hat says "Nuclear waste is not your friend." Just in case you can't read that. That came from the Snake River Alliance, Idaho's nuclear watchdog group, and overseeing the Idaho National Lab. I'm part of the Rocky Flats Nuclear Guardianship group, which believes we need to expand our timeframe to include future beings, future generations, way down the road, when we're considering nuclear waste.

And I do want to say regarding Rocky Flats, what Alesya brought up, we have a national wildlife refuge with a Superfund site in the middle of it as a bonus. Which makes no sense to me, as a taxpaying citizen. But, since it is a national wildlife refuge, the Fish and Wildlife Service are treating it like pretty much any other national wildlife refuge and using it as an educational opportunity. Unfortunately, that will mean that they will want to bring kids out there and so on, while that Superfund site is leaking, it does not respect the fence that's around it, so we are concerned about people going out there at all, especially children. So please, folks, let's keep the kids off Rocky Flats. And talk to your teachers; talk to parents; talk to school boards – everyone should be concerned about this health risk for young children going out on a contaminated former nuclear weapons plant site is just irresponsible. So keep kids off Rocky Flats. Thank you.

Mr. Jim Hamilton. Thank you, Mr. Hormel. And then.

Ms. Joan Seeman. I have to start out by saying that the group I was participating in; well I guess you know I didn't realize again, it's like going back in time and revisiting that I bought my first home next to Rocky Flats. And there was no Rocky Flats Advisory Notice. And I had to learn this – a Welcome Wagon lady told me about Rocky Flats and that I shouldn't be concerned about the spraying of Malathion in my front yard and the airplane that was spraying 2,4D in my backyard – when I should be concerned about the Advisory Notice. Well, I got that Advisory Notice because it had been pulled, and it had said that plutonium was safe according to the EPA guidelines with the standards; so I was a banker with Bank of America for all of my career and you know I did not want to have to read the science. But I knew there was something wrong when there was only a guidance.

And so at this point though I want to say I will speak out for Sierra Club – we do not support nuclear power. We do not support the transporting of the high-level nuclear waste across this country. And at this point one of the biggest concerns is that you can see DOE is not trusted here. And NRC is definitely – you know NRC and DOE have different standards. So in our group we talked about science. You know, whose science? Anyway, I will just close with this. At this point I would just like to say Sierra Club will be very actively involved in opposing this transport because we don't need to transport it. We need to deal with it. Thank you.

Mr. Jim Hamilton. Thank you very much. So that wraps up the public comment period. And thank you again for all of your comments. And now I'm going to turn it over to Mr. Andrew Griffith, the Associate Deputy Assistant Secretary for Fuel Cycle Technologies, to offer his closing remarks. Andy?

Mr. Andrew Griffith. Thank you, Jim. And thank you all for being here tonight. I know you all have busy lives and spending it here on a typical Tuesday evening is probably not your idea of fun. But let me assure you that it's really important – that the Department very much values your input and we appreciate you spending your time being here and offering it. On behalf of the Secretary, John Kotek, and the entire Consent-Based Siting Team, we could not move this challenge forward without your valuable input and so we really do appreciate it.

And this is a national issue that we are trying to address. There have been attempts, as discussed in the past, to address it. But it is not an easy problem to solve. It's going to take a lot of good ideas; it's going to take a lot of discussion, and I thought that Governor Sullivan kicked us off in an extraordinarily perceptive manner, recounting his letter from 24 years ago and highlighting the fact that this is a process. It has to be a partnership-building process. You have to have a foundation of understood technologies to have this discussion and to build these partnerships. And where there is disagreements or differences in understanding, you have to be able to figure out a way to communicate and work together to identify those solutions and develop plans on executing those plans and following through and solving those problems.

And it's not easy. It's not easy at all. But I also like Mr. Tano's analogy of a cake. I thought that was appropriate because it really does get to the essence of what our objective is in developing a consent-based siting process. And I'll talk about that in just a minute. But first, although this is our fourth meeting – we've got four more to go – while we touch on some similar themes, I think in each one of these meetings, different nuances come out. Yes – the Department is operating at a credibility deficit. We totally understand that and all of us on the team are working hard to overcome that. And our presence here – taking in your input, digesting it, we're trying to develop a plan that can get beyond the challenges that we face and have a credible, durable solution to this challenge.

Also, how do you define consent; what are the issues associated with transportation? These are all things we are going to have to address. And we really are trying to come at it in the true spirit of a consent-based siting process that is phased, and adaptive.

We may not know where this process is going to end up. But one of the most important aspects of this is getting started. And even though, while we all agree in this room, including the Department, then a separate entity should be responsible for this important task, we are not there today, but it's not – it's too important for us to wait for this separate entity to be formed, established, chartered, and so forth. We don't

want to waste that time – we need to start on a solution today that can be picked up by this hopefully formed separate entity, and carried forward. So we're doing things in a way that helped move things down the path and don't hold back or restrict a future entity that could pick this up and carry it to success.

Some of the other nuances here besides the cake analogy I think the backdrop of the issues that are being faced at Rocky Flats were very informative. We need to figure out how to factor that into our plans moving forward, especially in the aspects of building trust. Because it has to be foundational to whenever we do.

So, what are our objectives, what are we going to be doing with the input that we received tonight and at the other meetings across the country? We're going to develop a draft report that summarizes this input and that also articulates what we believe is the first important steps to take – what are the first important steps to take. And part of those steps are how do we start the dialogue at the community level; include the state and any affected tribes for communities that are interested in hosting one of these facilities of an integrated waste management system.

By starting the path to building partnerships, we believe that's going to be the path to success ultimately. And it has to be a phased and adaptive process because we don't have a perfect crystal ball; we don't know where all these conversations are going to lead, but they have to be trust-building. They have to be credibility-building, and we have to enter into this process in a way where this is a dialogue. We are not dictating things; we can't dictate things. The past failures, we believe, have had too many things dictated and not enough things discussed and agreed upon and not sufficient partnership-building involved in the process to go forward, so we're trying to get there and I think with your help tonight we're going to get there. We're all optimistic. I'm encouraged that we're going to be able to move this solution down the path and I want to thank you again for all your contributions – it's very helpful. And if you have any other thoughts or ideas, you have the information of where to send them on the consent-based siting e-mail address. Please keep the e-mails and inputs coming. Like I said, we're going to need all the good ideas and help we can get so thank you so much for your help. Good night. [Applause].

Mr. Jim Hamilton. I'll be brief. Thank you Mr. Griffith; thank you panel members; we thank you audience here in Denver and on the webinar. Thank you logistics team. Thank you all for showing up. I really appreciate the dialogue, the feedback, the hard work. Please don't forget to pass in your session evaluation forms. We take that input pretty seriously to design meetings in the future.

This wraps it up. The webinar is now going to close. We're having informational posters sessions outside again for the next half-hour or so for those who want to join us there.

Thank you again, we are adjourned. Have a pleasant evening; safe travels.