An Integrated Waste-Management System and Consent-Based Approach to Siting

Consent-Based Siting Initiative Kick-Off Meeting

Renaissance Washington, D.C. Downtown Hotel

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FULL TRANSCRIPT

Mr. Jim Hamilton. So good afternoon, welcome and thank you for being here. And for those joining us from earlier time zones on the webinar and conference call, good morning. My name is Jim Hamilton. I am part of the North Wind Consent-Based Siting Team advising the Department and I will be facilitating today's meeting.

Before we get started, a couple of housekeeping items. For your safety and in case we need to evacuate the room, there are three emergency exit locations behind you where you came in, and behind me.

Second, you all should have received the information packet that you picked up on your way in. It contains the following items: an agenda, biographies of today's speakers, a copy of the invitation for public comment as published in the Federal Register, a question-and-answer sheet with five questions the Department is looking for your help in answering; a For Further Information contact sheet and copies of the informational posters you see in the back of the room. I also want to point out that all this information is on the Department's website at the URL listed there. Does everybody have a copy of their information packet? Good. Thanks.

Now I'm going to review the agenda briefly. We'll start with opening remarks by Dr. Orr, Undersecretary for Science and Energy. His talk will be followed with a panel presentation by Acting Assistant Secretary for the Office of Nuclear Energy John Kotek, Director of the Office of Used Nuclear Fuel Disposition Bill Boyle, and Andrew Griffith, Associate Deputy Assistant Secretary for Fuel Cycle Technology. We will then take a 15-minute break around 2 PM and following the break we will move to a 45-minute written question-and-answer period. Following that, Mr. Kotek will make closing remarks and then I invite you all to the one-hour poster session in the back of the room and we encourage you to stick around for that.

Now a bit about the written question-and-answer session. As outlined in the invitation for public comment, the Department is asking you for your input into the design of the consent-based siting process. That input today is in the form of answers to the five questions and the information packet you have before you. Today is the kick-off meeting for that process. Now to facilitate this question-and-answer session, each of you has four labeled colored cards. Blue is for consent-based siting, red is for transportation, yellow is for storage and disposal – there's a typo; it should say storage and disposal, and green is for other. So if you have a question about consent-based siting, fill out the blue card. During the break after the panel, we will collect the cards and the Department will do its best to answer your questions today. For those questions that are asked and answered, the Department will post those questions and answers on their website in the coming weeks. And for those questions that were asked but not answered due to time constraints, the Department will do its best again to post those questions and answers in the coming weeks as well. And finally for those on the webinar, the Department also wants to hear from you today. To that end, there is a chat box in the lower left-hand corner of your screen for you to type your question. We are recording those questions in real-time today and they will be incorporated into this afternoon's question-and-answer session. Again, if the Department does not answer your webinar question today, those questions will be asked and answered in the coming weeks and posted on the website.

Okay. Thanks for your attention. I will now turn it over to Undersecretary for Science and Energy, Dr. Orr, for his opening remarks. Dr. Orr.

Dr. Lynn Orr. So, good afternoon, good chilly afternoon, here in Washington. I'm actually quite glad to be here today to talk about our path forward for developing a long-term sustainable solution for managing our nation's nuclear waste. Secretary Moniz first announced the start of this process last month and I want to thank him for his leadership on this important issue. I'd also like to thank my DOE colleagues who you'll

hear from in the panel discussion later this hour; they were introduced a minute ago, so I won't do that again, but they've been working hard on thinking about how to make this consent-based process one that can work for all of us.

So if you took an honest look at the long history of siting nuclear activities, you'd have to say that it's had its ups and its downs. In 1949 the Atomic Energy Commission selected the site in Idaho to host the first-ever nuclear reactor and the testing station there and the surrounding communities were ecstatic. The Idaho Falls Chamber of Commerce produced some new stationery dubbing itself the Atomic City, and nearby Arco, Idaho celebrated being chosen as the location for the Idaho Operations Field Office by hosting a torchlight parade down the main street. At the same time, the Atomic Energy Commission set some quite strict parameters for the location of facilities like this in a way that hinted at future points of contention limiting them, for example, to areas which were not prone to earthquakes. In the decades since, projects involving nuclear power plants and the disposal of nuclear materials have continued to be met by a mix of both pride and concern by local communities.

Today the Department of Energy is attempting to learn from that long and complex history and to move forward in a way that will prove to be both successful and durable. So we're here today to begin a conversation about designing a consent-based siting proposal for future nuclear waste management facilities; you'll notice that I didn't talk about designing future facilities, I talked about designing a consent-based process.

We need to get this right because the United States depends on nuclear energy for reliable, low-carbon electricity; something like 19% of the electricity we generate now comes from nuclear power and that is hard to replace in a low-carbon way. We'll continue to work on this as we seek to reduce carbon emissions further to avoid the worst impacts of climate change, and that's a big responsibility for all of us going forward. So our ability to meet climate goals will depend in no small part on ensuring the continued viability of America's nuclear energy industry. That's why in the president's FY16 Budget there is a provision for something north of $900 million for the Department of Energy to support the US civilian nuclear energy sector. But meeting long-term nuclear waste management needs is an absolutely essential component of ensuring that nuclear power continues to provide the nation with safe, sustainable and responsibly generated electricity.

Nuclear technology has also played and continues to play a crucial role in providing for the nation's defense. Nuclear material is used to power naval vessels, was used to build the US nuclear weapons stockpile during the Cold War, and the deterrent provided by the nation's nuclear stockpile has kept this country safe for generations.

And I would just note that for those of us who think that the exploration of space is exciting and important, nuclear power provided the modest number of watts of electricity to communicate from Pluto back to here through a nuclear thermoelectric generator and our nuclear energy program has helped over time to build those devices that help explore the solar system around us.

So of course the nation's defense and commercial electricity generation activities have generated significant quantities of spent nuclear fuel and some high-level radioactive waste. Although the Cold War ended a quarter-century ago, and commercial nuclear power has been around for half a century, the country still lacks a permanent disposal solution for these wastes. Instead, commercial spent fuel is stored at operating and shutdown reactor sites around the country, while waste from defense activity resides at Department of Energy-managed sites. And while it's safe and secure in these locations, a long-term solution is needed to ensure that the public and the environment continued to be protected.

As I hinted earlier, previous attempts to develop long-term solutions for storage and disposal of this waste haven't always gone so well. The Blue Ribbon Commission on America's Nuclear Future noted that they ended in controversy, litigation, protracted delays and ultimately a failure to address the problem. So based on the recommendations of that Commission, in 2013 we released a strategy for the management and disposal of used nuclear fuel and high-level radioactive waste. The strategy outlines a three-step process involving pilot, interim and long-term geologic storage facilities which I'll walk through shortly. Throughout each step the strategy also emphasizes the importance of building trust by listening to the concerns of everyone involved.

Step one of that process begins with developing a pilot interim storage facility that will mainly accept used nuclear fuel from reactors that have already been shut down. The purpose of a pilot facility is to begin the process of accepting spent fuel from utilities, while also developing and perfecting protocols and procedures for transportation and storage of nuclear waste. Step two is the development of a larger interim storage facility with more capability and capacity. Establishing an interim storage facility as part of a comprehensive system for the management of commercial spent nuclear fuel will allow the federal government to begin meeting its obligation to accept spent nuclear fuel earlier, provide some flexibility and improve overall system reliability once a geologic repository is in operation. The final piece of the Administration's strategy is moving toward one or more long-term geologic repositories for both spent nuclear fuel and high-level radioactive waste.

Now there is a consensus in the scientific community that geological repositories which would store nuclear material deep within the Earth's interior in safe, scientifically proven locations, that those represent the safest and most cost-effective method for permanently disposing of spent nuclear fuel and high-level radioactive waste.

Now we continue to be interested in additional disposal options; we just recently selected the team to test the concept of deep borehole disposal, for example, which could ultimately provide an additional disposal option to complement, but not replace, the overall three-step strategy. So as we continue to move toward an integrated waste management system with each of these components, the Department is committed to earning the public's trust and confidence. We want communities and tribes and states as partners to have a say in where and how new facilities are developed in order to ensure a long-term process that is successful.

So to that end the Department of Energy is seeking the help of all Americans to develop a fair and effective approach to consent-based siting. What kind of process would you like to see for identifying potential sites? Who needs to be involved? What challenges and opportunities do we need to take into account? On those questions and many more we want to hear from all of you. We'll be accepting public comments via e-mail at consentbasedsiting@HQ.DOE.gov, consentbasedsiting is all one word, and through a series of public outreach meetings across the country this year. So I can announce today that the first two meetings will take place in Chicago in March and Atlanta in April, and as was mentioned earlier, you can look for additional details about those meetings and others to be posted on energy.gov/consentbasedsiting; again, all one word consentbasedsiting, as they become available, so there will be opportunity to comment and a good way to keep track of what's going on throughout the whole process.

Again this initiative is about listening and learning so I thank you for attending today. I'm optimistic that we now have a window in which we can begin this consent-based siting effort that will have lasting results. Working to solve this critical problem we are protecting the health and safety of all Americans both now and into the future and ensuring that our nation can continue to benefit from the significant contributions of nuclear power to our energy, defense and environmental needs. So for all the work that has gone into this so far and all the work we will all do together going forward, thank you, and best of luck going forward.

Mr. Jim Hamilton. Thank you Dr. Orr. We're now going to hear from our panel. As I mentioned before we're going to start with Mr. John Kotek and then follow it up with Dr. Bill Boyle and then Andy Griffith will bring us home for the break. Thank you. John.

Mr. John Kotek. Thanks very much. And really it's a pleasure to be here with you all today, to see so many familiar faces; I've got to say it's a little reminiscent of the meetings we had with the Blue Ribbon Commission, and as I look around the room whenever we have one of these events or get together with some of the alumni from the BRC experience, I have to remark first of all about how much we miss the late Mark Ayres from the BRC and Alex Thrower from the BRC staff so those of you who knew those fine gentlemen will just know how much how much they're missed. And it really also isn't a BRC meeting without Judy Treichel and Steve Frishman here; I hope they're watching on the webinar, but they were regular participants in the process and I look forward to seeing them again going forward. And as I mentioned it's great seeing so many familiar faces here in the audience today.

We really do hope this marks the beginning of a process that will deliver a more permanent solution to securing the back-end of the fuel cycle. Development of a consent-based siting process as recommended by

the BRC and as embodied in the Administration's strategy will inform the Department's planning for an integrated waste management system which we intend will transport, store, and dispose of both spent fuel and high-level radioactive waste. So we really do appreciate your participation today in helping us with our efforts to begin the formulation of the consent-based siting process that we see as crucial to implementing an effective integrated waste management system.

So consistent with the Administration's strategy and as the Under-Secretary said, we envision an integrated waste management system that may contain one or more of the following, including pilot interim storage facilities which would be focused on accepting spent fuel from shutdown reactor sites, full-scale consolidated interim storage facilities that provide greater capability within the waste management system, and then of course geologic repositories to dispose of spent fuel and high-level waste.

As some of you know before I returned to DOE in 2015, I spent a number of years working in the State of Idaho as a public affairs consultant, and in fact was a consultant when I was staffed to the Blue Ribbon Commission. And a big part of my job was working with multiple stakeholders on permitting approvals for large projects like wind farms and transmission lines and you name it. And so I've been to many, many dozens of public meetings; you know, some big, some small and I've learned a few things, I'd like to think, along the way.

One of the primary lessons I've learned is that early and frequent and open dialogue with folks like yourselves and potentially impacted communities really is a cornerstone of any successful project. I mean one of the most successful public meetings I was over at was at a wind farm in southeastern Idaho and some community members – it turned out they were concerned about having this thing built in or near their town. One of the local residents said, "I don't like when you've got this…where you've got your distribution yard set up." And the landowner and the project owner went over and they huddled in the corner and they came back in two minutes and said "OK, we'll move it." Right? Now I don't know that we can be that responsive to this process, but I mean really listening to people's concerns and being able to do something about them when reasonably you can is a big part of building confidence and these are the types of forums through which we can hear those concerns and understand what's important to people as we begin to go down this road and be as responsive as we can to the input that we receive.

So I hold this principle to be to be really important and I think it's something we're going aspire to do going forward. As Andy is going to discuss later, the success of any effort to design an integrated waste management system hinges on public acceptance. In order to gain and earn this confidence, public participation is crucial to this consent-based siting effort, so we're going to conduct this process in multiple phases and each one is expected to enhance and inform the next.

The first phase involves engaging with the public and interested groups to learn from them what elements are important to consider when developing a consent-based siting process. This characterizes the work we'll be doing this year - to meet with and hear from folks like yourselves and other interested members of the public, including but not limited to of course state governments, tribal governments, local communities, NGOs, others who have a stake in this issue.

The second phase will focus on documenting a consent-based siting process to serve as a framework for collaborating with potentially interested host communities, and of course you know we're committed to a phased and adaptive approach. We're going to try to design something that we think is where we all collectively need to head, recognizing that as we learn things, as events unfold, we'll probably need to change some things, tweak some things, along the way. In subsequent phases, though, we'll use this consent-based process to work closely with interested communities, states and tribal nations with of course the goal of siting facilities. In all stages of this work, DOE will work collaboratively with the public and interested stakeholders to design a process that will allow us to identify potential partners in managing the nation's spent fuel and high-level radioactive waste.

In our review of successful siting processes in the US and abroad, including the siting of the disposal facility for transuranic waste in New Mexico, the WIPP facility, but also recent positive outcomes in Finland, France, Canada, Spain and Sweden; there are lessons to be learned and we've been paying close attention.

We now turn to you to help us define what this process should look like going forward so at today's meeting

we're going to share some initial thoughts on how we plan to learn from and engage with you so that we can take the next steps needed to solve this decades-old problem. We aim to conduct this process in a way that's inclusive, adaptive, responsive and transparent. We believe the public is deserving of us upholding these standards and we look forward to working with you and all interested parties on this going forward. So thanks for being here again and I'll turn it over to my fellow panelists.

Mr. William Boyle. OK, thank you, John; I'm going to start off where he just finished, which was to thank you for being here and we look forward to the question-and-answer period.

The goal of the Office of Nuclear Energy is to find long-term technically feasible and sustainable solutions for managing the nation's nuclear waste. Today I'm going to give an overview of the technical work the Office of Nuclear Energy has been doing with respect to all components of the waste management system to support a consent-based siting process. Although the ultimate goal is disposal, there are additional efforts related to storage and transportation which are key elements in an integrated waste management system. These efforts related to storage, transportation and disposal sometimes referred to collectively as disposition are split between first, research and development, and second, efforts laying the groundwork for interim consolidated storage and preparing for large-scale transportation.

I will start with a description of the efforts on laying the groundwork for interim consolidated storage and preparing for large-scale transportation.

Development of interim consolidated storage capability was a key recommendation of the Blue Ribbon Commission. An interim storage solution could enable the federal government to begin meeting their waste acceptance obligations sooner and ultimately reduce liabilities caused by the delay in meeting those obligations. It would also allow for a greater flexibility of the system and in the near-term, enable removing fuel from shutdown reactor sites. The work being done to support development of a flexible storage system includes: development of pre-conceptual designs of generic interim storage facilities; performing systems analyses that would help reduce costs and accelerate construction time and promote integration of storage into the waste management system; evaluating potential system benefits of standardization; and compiling lessons learned relative to siting processes.

With respect to large-scale transportation: no matter what form the integrated waste management system takes, a carefully planned and developed transportation capability will be required to support all components of that system. The planning and activities that have taken place related to preparing for large-scale transportation of nuclear waste have an initial focus on removing spent nuclear fuel from the shutdown reactor sites and on key stakeholder engagement in keeping with the focus on a consent-based approach to siting.

The DOE values the contribution from states and tribal nations as they are responsible for public health and safety within their jurisdictions and they also provide a perspective that often challenges and thereby strengthens the decision-making in the development of the transportation system.

Current work underway in transportation includes developing operational tools to support the understanding of potential routes and the emergency response infrastructure related to those routes, as well as performing analyses to understand the unique requirements that pertain to the shipment of the inventory from each reactor site. These efforts on transportation of spent nuclear fuel and high-level radioactive waste will support interim storage as well as the ultimate disposal of both spent nuclear fuel and high-level radioactive waste.

Now I'm switching to defense waste disposal. On March 24th of last year, Secretary Moniz laid out the path forward for defense waste. The path forward is based on a finding by President Obama that the development of a separate repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities is required. The finding authorized the Department of Energy to move forward with planning for a separate repository for high-level radioactive waste resulting from atomic energy defense activities. As DOE plans for a defense waste repository, the work will be informed by the consent-based siting process. The decision to move forward with planning for a separate defense repository was based on the changed circumstances, experience gained, and lessons learned over the last 30 years.

Now I'm turning to the efforts in research and development or R&D. Ultimately R&D is the foundation of

all the technical work in moving forward on storage, transportation and disposal. R&D provides a sound technical basis for disposition, increases confidence in the robustness of generic disposition alternatives for safe disposal [no, hold on] robustness of generic disposition concepts and develops the science and engineering tools needed to support disposition concept implementation. Specifically, for storage and transportation R&D, this includes work on: extended storage of used nuclear fuel; R&D on fuel retrievability and transportation after extended storage, and R&D on the storage and transportation of high-burnup used nuclear fuel.

For disposal research and development, the work related to disposal includes: providing a sound technical basis for multiple viable disposal options in a range of geologic media such as clays and shales, salt and crystalline rock. The R&D also includes identifying alternative generic disposal technologies, evaluating the technical feasibility of the direct disposal of existing storage and transportation canisters and evaluating the feasibility of deep borehole disposal. With respect to borehole disposal, multiple factors have indicated that the deep borehole disposal concept may provide a technically feasible and cost-effective alternative for safe disposal of some smaller DOE-managed radioactive waste forms. Just two weeks ago, it was announced that the Department selected a team led by the Battelle Memorial Institute to drill a test borehole near Rugby, North Dakota. This move forward to test the technology for deep borehole disposal, which is consistent with the recommendation of the Blue Ribbon Commission that DOE conduct further R&D to help resolve some of the current uncertainties about the concept, is an important and significant step in further exploring whether this will be a suitable option for disposal for certain types of radioactive waste. If borehole disposal proves to be feasible, it could complement, but not replace, a mine geologic repository, which would still be required for the other waste forms. As DOE moves forward with a consent-based approach to siting in the United States, the Department will continue to look internationally for lessons and insights and will keep abreast of the latest developments in other countries' waste management programs. Thank you for your time and attention.

Mr. Andrew Griffith. Hi, I'm Andy Griffith, I'm here to round up our discussions on the panel and I gotta tell you that I am really excited to be here; really happy to move forward with this process; it's really important for our program to move forward with a durable solution to this very tough problem. I'm going to talk about the details of our plans this year and how we hope to engage with the public and stakeholders to find a durable solution. A solution that can, you know, move forward through all the different things that have tripped it up in the past.

So we are going, as John and Dr. Orr mentioned, we are going to proceed with a listen-and-learn approach. We have our own thoughts, we have studied others who've headed in this direction, but we feel there's a lot more to learn and the first step to at least introducing or implementing a program in the United States is to build on the recommendations of the Blue Ribbon Commission and learn from the many lessons that have been experienced around the world.

Clearly we're looking for a phased and adaptive approach, as John also said. At each step of the process there are things not only to be learned, but details to be worked out, discussions to be held, input to be provided, and so we want to digest all that as we develop our plans for the next subsequent step.

So I'm going [to start] with a brief overview of the three elements that we're looking at employing this year in this process of developing a durable solution.

The first one already started in December with the Federal Register Notice for an invitation for public comment; I'll talk a little bit more detail about each one of these elements. The second element is a public engagement part of our program where we are going to be holding a number of public meetings; Dr. Orr mentioned the first two locations of Chicago in March in Atlanta in April. We'll be having further meetings later on in the year and I'll talk about that as well. And the third element is really the most flexible element from the standpoint of our program. We want to be, we want to make ourselves available to meet with any stakeholder, any organization that's interested in holding a discussion with us and so, I'll talk about that as well.

The first element, as I mentioned, it was issued December 3rd – the Federal Register Notice that was in each of one of your packets. It's basically the study – the concrete, the available mechanism – for you to provide us with your inputs. It is comprised of five questions you see there on the screen; I'm not going to read those

to you, but the first four are pretty general; they're dealing with the consent-based siting process, but the fifth one, it's the open door, okay? We have some structure, we have some thoughts, but I'm sure there are things we don't know that we haven't considered and this is your opportunity to provide some input and of course we're looking at these questions to be answered and to be provided in writing for the record. We want to make that part of our fair and transparent effort to go forward with your input.

Also in each one of your packets you have a couple pages with blanks on them. If you have a moment to jot down some of your thoughts on answers to those questions; this is a process we've intentionally established to be an opportunity for you to weigh in early and often. It's intentionally a long period; it's going through December 15th. People are asking why so long? Well, it's long because we're going to be holding a number of discussions, public meetings, and other things; we look to introduce some other opportunities to discuss things with the public, but it's open that long because we know thoughts will evolve and if they don't that's fine; if you have updates to your thoughts and you want to supplement your answers, we welcome that.

So with that let me move on to the second element and that's a broad public engagement. The public meetings; as I mentioned, the first one in Chicago in March and Atlanta in April; we don't have specific venues or dates yet, but we're working on those and we're also going to be working on similar meetings across the country in each subsequent month, on the order of about once a month. We want these to be opportunities for us to have good dialogue, solicit verbal comments, meet with people, and really build on what we've learned so far and expand our awareness of other inputs from different people along the way.

We're looking to supplement the public meetings with opportunities like webinars, conference calls as we have updates or something that we want to share we might schedule a webinar, step through what our thoughts are, what our plans or what concepts we've come across; we'd like to share them with you and then have some structured dialogue in the webinar type of technology process where we get your thoughts back in response to that. And this is a way of keeping everyone up to speed hopefully as we progress through this process.

We're also looking at engagement with the public that might not have dedicated as much of their time or energy to this topic as we all have here. We want to get a better sense of the average American and what they might think about the subject, given some time for information sharing and discussion and sharing their values back to us, and I hope to be able to share more with what kind of process we're looking to employ in the future.

Next I'll talk about the third element, which is the broad program availability to hold discussions with you. We don't want to limit it to big rooms and big groups; we know that various people have specific things they'd like to have a dialogue with us over. We're looking at building on, as we go around the country with our public meetings or groups would like to meet with us, we want to make ourselves available to meet with them. If anyone is in the Washington DC area and they want to meet with us, we welcome your expression to meet with us and we'll make time to do that. We will reach out to people with whom we may not have had many conversations with in the past and we'll hope to have conversations with them. We're looking at taking advantage of opportunities such as the Energy Communities Alliance meeting in Austin next month as well as the Waste Management 2016 meeting in March or we could have meetings, as with others who also attend those events.

In conclusion I'd just like to say that this is really exciting for us; we've been putting a lot of work into this effort and in preparing for this engagement. I know the staff, the team, is dedicated to doing the government's work in finding a durable solution. I think there's a lot of people who want to address this. I know there are communities out there that would like to understand what we're looking at and what we're thinking of and we welcome having a discussion with them. If they want to continue to have a dialogue, great; if they don't, that's fine, but we think it's worth the effort to engage with the broad spectrum of views and the governments at all levels out there – community-level, state-level and tribal-level, and move this solution forward. So with that I'll wrap up and look forward to your questions. Thank you.

Mr. Jim Hamilton Thank you, Andy and thank you panel members. OK, we're going to take a 15-minute break. We're going to meet back here at 5 minutes to 2:00 and start our written question-and-answer session. For all of you who have filled out those little colored cards: Elizabeth and Mike, you want to stand up? Pass the cards – they'll be collecting cards; also pass them to me or you can leave them on the desk right

there. But our goal here for the next 15 minutes is to take your cards, assemble them and we'll use them as the start of our question-and-answer session starting at 5 minutes to 2:00. Restrooms out the door to the left; Starbucks upstairs; see you back here at 5 minutes to 2:00. Thank you very much.

Question and Answer Session

Mr. Jim Hamilton. Alright, thanks for coming back, I appreciate it. As you can see, we've got lots of questions; I believe we'll probably have more questions than we can get to today, which is a good sign. So thanks again for your participation. As I said, what we're going to do now is we're going to ask questions of the panel. We've got red, yellow, blue and green cards. And we're just going to start from the top and see where we go.

Mr. John Kotek. So before you get started, if I may so rudely interrupt; alright, I just thought it might be a nice touch as we're embarking on this process to give you all an opportunity to at least get to know some of the folks that we've got working with us and I'll introduce the folks who are working in the DOE Office of Nuclear Energy who are working with us on this project. Of course, Bill has been working on these repository programs and waste disposal programs for quite some time; I would imagine he's very familiar to a lot of you folks and he's extraordinarily valuable to us. Bill is now working for Andy Griffith who I think many of you know; I've asked him to take a lead on the waste program elements within the Office of Nuclear Energy, so the used fuel disposal R&D programs and the nuclear fuel storage and transportation programs now all report up through Andy. And in addition to Bill, Andy's got another direct report, Melissa Bates; Melissa stand up, wave your hand. Everyone say hello to Melissa. So she runs the nuclear fuel storage and transportation team. We've also got; and I didn't take role as they walked in, so if I miss somebody in NE, I apologize, but Erica Bickford's here in the back. Mike Reim who I think some of you saw on the way in; Mike; ok, Mike's back there too. Nancy Buschman is working with us; Jack Wheeler; Jack; I thought I saw Jack; Jack's in the back. We saved the good seats for you all; put all of our folks in the back; Pat Schwab is here somewhere; there's Pat. Andrew Richards is my Chief of Staff; I don't know how many of you know Richards, he's standing up there in the back. Jay Jones is here; where's Jay? There's Jay. Bill Wicker has come over to NE in the last several months to do communications for us. Bill's standing there in the back. Lisa Trunzo from our team is here. Farah, are you still here? Farah; so she's also in the back so as we go around, particularly when we do the session at the end and if you can hang around for the poster discussion, go on up, say hello, get to know some of these folks. These are the people who are working on this issue for us and we know we're not going to have it solved next Tuesday, so it's worth spending some time with these folks, get to know them and I just wanted you to know who you'd be working with. At least from the Fed side, we have an expert national lab and a consultant team, of course, helping us out with this as well and you'll get to know some of those folks, but at least I wanted to introduce you to the Feds. Did I miss anybody, Andy? [Andy: "I don't think so.'] All right, super. Pardon the interruption. Please, take it away.

Mr. Jim Hamilton. Thank you very much. So we're going to jump right into this. And like I said, I've got blue, yellow, red and green cards and more on their way. And so I'm just going to throw questions to the panel. They're going to answer them and we're going to just chug through this. So to start, and just hit it hard.

Question: What is meant by consent? Who consents? How is consent demonstrated? When can consent be withdrawn and can flexibility be built into the process? Question 1.

Answer: (John Kotek): Those of you who read the BRC Report know that the BRC did not try to define consent and we haven't at this point yet. Part of what this process is about is understanding what's important to folks and I think as we go along we will find that consent – an expression of consent by a willing and informed host community, host state, host tribal government – could look different in different places, alright? So while I point to the examples of – if you look at the siting of WIPP, for example, right, that was very different from, say, the Settlement Agreement in the State of Idaho. Those of you familiar with the Settlement Agreement in the State of Idaho, right, the governor and the attorney general signed an agreement with the Energy Department that allows the Energy Department and the Navy to bring certain amount of nuclear fuel into the state in return for cleanup commitments and other incentives or other

concessions to the state; there's some name the lab the "lead lab" for DOE spent fuel; provided some economic development funding; put milestones on, you know, certain clean-up commitments. Not shortly after the state signed on to that, there was an initiative to put it on the ballot; so it went to the ballot and I think it was upheld by a 63-to-37 vote, something like that, and so it's actually, you know, an agreement that was signed by the governor and then ratified by the voters, right, so that's what consent looked like there, so I mean it could be, could look very different in different places, so I don't think that we should try to define it at the outset, I don't think that would be smart. In terms of when can folks opt out; I think, again I think that will be an element of an agreement; I think the BRC said – where's Tom? Tom Cotton are you back there? He probably remembers this better than I do; there's Tom. Tom might remember this better than me. I think; if I remember correctly, what the BRC said was that a state should be allowed to opt-out up to the point that an application was submitted for licensing. All right; I think that's what it said; it was suggested, yeah, it was suggested what it might look like, right, so the BRC, even after having looked at this for quite some time didn't come up with something concrete; again I think that could be an element of a negotiation, but then that's just my conception coming into this. We want to hear from folks, so to the extent that people out there have a definition of what consent should look like; have an idea on when you think a state, a tribe and/or local government should no longer be able to opt out of an agreement, tell us what you think. We want to gather that input and let that inform any decisions that we have to make on it. Anything you gentlemen would add?

Mr. Andrew Griffith. I would agree with all of that; I would just add that I think fundamentally consent is in the eye of the beholder. And the process that we're trying to move forward with is one where the community, the state, the tribal governments – those most invested that are considering hosting a facility of the integrated waste management system is in the driver's seat, really. We're looking at a bottoms-up approach that has broad support, not just locally, but in the state, and we want to build on that. There are many, and I know there are some in this audience, that have studied this topic a heck of a lot more than I have and hearing them speak of it and others speak and write about it; it's confidence-building initially, and then as you grow to understand the challenge, as communities and states or tribal governments are willing to consider hosting a facility, that confidence is built; but everyone involved recognizes that that confidence and trust can be lost in a heartbeat if something happens that's not in everyone's best interest. So it really has to be a collective willingness to explore opportunities in everyone's best interest.

Mr. Jim Hamilton. Great. Thank you. This question is from Elaine.

Question. The US has tried voluntary siting before unsuccessfully, i.e. nuclear waste negotiator. Why do you think this will work now?

Answer (John Kotek): Well, one, I think if you look at the experience globally, nations by and large that have had success have used an approach where they sought to partner with a willing and informed host community. So I think this provides the greatest opportunity for success. We can have a longer discussion on why the nuclear waste negotiator did or didn't succeed; you know the Blue-Ribbon Commission heard from David Leroy who actually felt like he was making a lot of progress and then there was a change of Administration and the office sunset, so I forget; it was in existence for what, by the time they named a negotiator, it was five or six years or something like that? That's a longer conversation I would suspect, but in terms of why we think it will work; we just think this gives us the best chance of success and I think experience around the globe bears that out.

Mr. Jim Hamilton. OK, great. Did that work for you, Elaine? Alright, thank you.

Question: You have described the process; but what is the ultimate product? [Jim Hamilton: And I added, just to clarify: near, medium and long-term.]

Answer (John Kotek): Ultimately, there are materials that exist right now: spent fuel, high-level waste, in various forms and in various locations around the country, that need to be safely managed and over the very long term isolated from people and the environment. Right? I mean this is stuff that will remain hazardous for many millennia and we've got a responsibility to do something with it that we believe, based on the knowledge we have today, that is protective of people and the environment over the long term. And so ultimately the scientific consensus globally is that a deep geologic repository is the best way of dealing with this stuff over the long-term. Right? So that's the over-the-long-term answer. In the very near term for us,

over the next year or so, it's understanding what people want see in a process like this and using that to inform the development or at least the drafting of a process that we think will work, getting some feedback on that end, and starting the conversation, getting this conversation going among community, tribes and states that might be willing not to say yes right off the bat, but to learn more. Alright, and if you look at the process that the Canadians have used, for example, alright, they started similarly where they asked people what their values are, what considerations did they want to see included and reflected in a process. They then after seeking feedback on that, and spending some time socializing and communicating broadly about the problems and the need for a solution, they started looking for expressions of interest and I think they wound up with 21 or 22 communities stepping forward to say they were interested; in fact, that they had shut off, terminated the open call for expressions of interest and now they're going through this process of working with these communities to figure out whether they meet or potentially could meet the criteria that they've established for a repository, and I think they're down to eight or nine communities they are working with now. If memory serves. Eric Knox knows a lot more about this than I do so shake your head if I'm screwing this up. Alright, and so in the near-term it's taking those steps, so again trying to learn from the Canadian process and others of understanding what people want to see as part of a process and reflecting that in proposals for moving forward that we can get feedback on that ultimately get us to having these conversations outside of Washington and in these communities, tribes and states; I think that's the near-term objective.

Now that's talking about the consent-based siting piece; there's a lot of other stuff going on, and I don't know if the questioner had questions about things like conditions at shutdown plant sites, and developing transportation routes, and transportation infrastructure and designs for facility sites or what have you. Andy and Bill can talk in detail about what we've got going on there, if that's what the questioner wanted.

Mr. Jim Hamilton. OK, we'll see if we get one of those questions going forward. Here's a question from Heather at Prairie Island.

Question: With respect to the repository, have you determined what technical [geologic] media you are looking for? What media can be eliminated?

Answer: (William Boyle). I would say any geologic medium that works will be considered, and any that don't work will be found to be deficient. Now having said that, for those of you who don't have much familiarity with the disposal program in the United States, I encourage you to go look at Section 112 of the Nuclear Waste Policy Act of 1982 because it's spelled out in the law some of the things that should be considered, and Section 112 told the Department to develop guidelines for evaluating sites and eventually the Department published 10 CFR Part 960; you can go to Google and search on 10 CFR Part 960 and you can find it. And the Nuclear Waste Technical Review Board, which has at least one staff member here today, in November published some reports where they commented favorably on certain aspects of 10 CFR 960, which spells out these are the sorts of things you should consider with respect to siting for a repository including, you know, geologic factors but also in addition, things like population density, transportation considerations, and by explicitly considering pre-closure aspects of a repository as well as the post-closure aspects in some ways the pre-closure considerations are a good surrogate for the things you'd look for for a site for spent fuel storage, as well.

Mr. Jim Hamilton. Thanks, Bill.

Question: Here's a question around consent but with a transportation angle to it. Kevin asked this. Will consent be required for all the transportation corridor communities along road, rail and/or waterways needed to ship spent nuclear fuel and high-level waste to storage and/or disposal facilities?

Answer: (Mr. Andrew Griffith) I would just comment on that with respect to – there are certain regulations that deal with Commerce - and this is part of Commerce - and to the extent that consent weighs into that, we'll consider, but there are other constraints at play as well. There are also certain security aspects of transportation routes that have to be considered. Clearly, in terms of transparency and transportation routes, the regulations are quite clear on that as well that routes do have to be approved; however; when you get into the operational aspects of transportation, it becomes more sensitive from a security standpoint. But clearly, all the states and corridor communities through there from an emergency response, emergency preparedness, and in other aspects of that, do have to be well-informed. Clearly as a

program, when it comes to timing and transportation of material, I think listening to stakeholders on time frames to avoid if there are certain events or what have you under way, or on the schedule that the shipments could be adjusted. However, there are a lot of details to be worked out before we get into those types of operational-type considerations. And I think the first part of that is just engaging with the corridor states and county and local governments, and to the extent we can have discussions, to figure out how you can conduct such shipments, I think that would be very helpful in the long-run. Because I think without question as we stand up a transportation system for this type of endeavor, it's going to be a big effort and it will be complicated, and so the earlier we can have those types of discussions we would welcome that.

Mr. Jim Hamilton. OK, thank you, Andy. We got a question from the folks on the webinar and the phone; that if the panel members, when they ask or answer a question, if they can identify themselves first for the people who are remote and they can understand. Alright. Got a question from Mike McMahon around…I'm going to read this, bear with me.

Question: One of DOE's stated goals is to establish a pilot consolidated interim storage facility by 2021. What is DOE's plan to capitalize on the presence of "volunteers" interim storage facility sites in Texas and New Mexico. These seem to present the best chance for achieving the DOE stated goals in the timeframe.

Answer: (Mr. John Kotek) Certainly the emergence of these private initiatives in communities that have stepped forward and expressed interest in potentially hosting facilities even before we started this process; I mean that's very promising; to one of the earlier questions, one indication that the consent-based siting process in the US can work and in terms of going forward, working with one or more of these initiatives, certainly we'll engage in discussions with those folks. I'm very enthusiastic just about the fact of their mere existence. We do as the Administration's strategy was put together, for example, the thinking there was that a government facility would be constructed to serve as a pilot interim storage facility and so there are some things that are different in contracting space, for example, in dealing with one of these initiatives, but it's too early to say exactly what our engagement with them looks like over the long-term but it's a very promising development, as we sit here today.

(Mr. Andrew Griffith) I would like to add that if members – I'm adding to what John said – if there are those here in the room or those on the webinar or conference call, if you have thoughts on how those types of initiatives could be incorporated in a consent-based type of approach in a fair, transparent and competitive way, we welcome those kinds of inputs thank you.

Mr. Jim Hamilton. Okay, here is a straightforward question from the webinar from Phil.

Question: When will the other locations and dates for the consent-based siting meetings be finalized?

Answer: (Mr. John Kotek) As was mentioned earlier – where we are now is just; we've got the months and the locations for the first couple. Over the next several weeks we intend to nail down details, but of course we've got things like venues to line up and other commitments we've got to balance on our end that are complicating things, so but we're committed to ensuring that we've got ample notice for people who want to participate in these things; I mean it's pointless to spring them on folks and have nobody show up, right? So bear with us.

(Mr. Andrew Griffith) And clearly we're going to be posting any updates on our website, but we also understand that you have more things to do in your life other than check our website every day, so if you're not already on our distribution list for announcements or if you want to ensure that you are on our distribution list for announcements via e-mail, please send us your e-mail and express a willingness to be on that distribution and we will send you updates as they occur and clearly the locations and venues of our public meetings around the country will be of great interest I'm sure.

Mr. Jim Hamilton. OK. Thank you. One question with no name.

Question: How will you ensure that this process lasts beyond an Administration change?

Answer: (Mr. John Kotek) With an initiative like this or frankly any of the major initiatives that this Administration or past Administrations have taken on, this is my third time working at DOE so I've seen a few, what you want to do is show that what you are doing is worth doing and it's working. And so a big part of our effort over this next year is going to be ensuring that we can engage with you all and with folks

around the country who have an interest in this issue. That we design a process and that we move forward in a way that builds confidence; it gives people a feeling that this type of initiative can be made to work and gives people both inside the government and people in tribes, local governments and states a reason to want to see it continued beyond the end of this Administration. Alright? So that's our challenge over the next 12 months. Or as Dr. Moniz said earlier 11 months 30 days 12 hours or whenever we have left. I have left, he'll be here.

Mr. Jim Hamilton. I think on a related vein:

Question: How does this effort square with existing law, i.e. the Nuclear Waste Policy Act, which has not been repealed or otherwise amended?

Answer: (Mr. John Kotek) So, of course we're moving forward doing things that can be done within existing authorities. I think what was said in the Administration's strategy is that full implementation of the strategy will require new legislation.

Mr. Jim Hamilton. Question from the webinar from Jan:

Question: Aren't deep boreholes already being used at Hanford?

Answer: (Mr. William Boyle) First, let's define deep. Just so everybody realizes what we refer to as deep borehole disposal for radioactive waste is down to a depth of about 5 km; that's deep for disposal, but not for oil drillers – they go much deeper than that. So I do not have a comprehensive knowledge of what has been put in boreholes at Hanford, but I am willing to take a bet that nothing was put in a borehole drilled to 5 km at Hanford, so whatever is in any borehole at Hanford, it's not really the same thing as we're looking at in the deep borehole disposal that's being looked at as part of this test near Rugby, North Dakota.

Mr. Jim Hamilton. Thanks, Bill. Here's a question from Diane.

Question: If DOE takes title to the waste at a site of interim storage or interim centralized storage, what happens if no permanent site for the storage of that waste is found and/or if cask certification expires?

Answer: (Mr. John Kotek) And I think the questioner is getting into this question of linkages and again, how do you make sure that an interim storage facility doesn't become a de-facto permanent facility? Obviously, we are intending to move forward with both storage and disposal, and I think everybody here that's been involved in the Department's program knows that a deep geologic repository is the ultimate solution for the stuff, so that's been the direction in which we're all headed. One of the things that at least I personally observed during the BRC process was, you know, you heard this concern, but from folks who were potentially interested - they're potentially interested in potentially hosting a facility; their attitude seemed to be well – we recognize that schedules aren't always kept, whether it comes to nuclear waste or anything else and it will be on us to build in protections for ourselves, for our community, for our state, in the event that something like that does transpire and that waste isn't moved out as soon we thought, so again this is going back to my BRC experiences that the observation then seemed to be that that would be an element in a consent-based siting negotiation.

(Mr. Andrew Griffith) I'd just like to add that I think we're already in a de-facto situation like that where communities are expected to continue to store the spent fuel - it's accumulating around utilities near their homes and that's not exactly fair, I think, in my book. I think we have to find a solution to move it forward and to find a way – and it has to be part of a system – it has to be part of a system where disposal is the ultimate objective and if that means having sites for interim storage along the way to progress toward that ultimate objective, and if we can figure out a way to do that in a consent-based and a durable way, meaning that it can survive the various things that have influenced the opportunities in the past, then I think I that's what we're all working toward.

Mr. Jim Hamilton. Alright. Thank you. Here is another question around consent from the webinar, from Don.

Question: Why is DOE trying to proceed with consolidated interim storage when 30 years of experience with public and private consolidated storage sites shows that there is broad and enduring opposition to such facilities? Why not recognize non-consent?

Answer: (Mr. Andrew Griffith) I'm an eternal optimist well, maybe not eternal, but I am an optimist, and I think it's worth the effort to go forward and see if there are communities out there that want to have conversations; clearly there are some private programs out there that are moving forward and that might be pushing for a more near-term solution, but I think there may be communities out there that have not yet fully engaged in this type of opportunity, and so if they're out there, we welcome them making contact with us and asking us if we can have a conversation with them. And if it progresses from there, great; if not, then those doubters might be correct.

Mr. Jim Hamilton. Alright. Thank you. From Catherine.

Question: Will there be corridor input along transportation routes? [Jim Hamilton: This was similar to a question asked previously, but let's answer it again.]

Answer: (Mr. John Kotek) I'll turn this one over to Andy to talk about some of things we do through the National Transportation Stakeholders Forum to ensure that communities and states that could potentially be affected are informed and prepared, so Andy do you want to take that?

(Mr. Andrew Griffith): Erica Bickford on the staff who was introduced earlier – she does attend the regional government groups as well as the National Transportation Stakeholders Forum. Clearly, transportation is a big part of our laying the groundwork for the future, and as I said before, it will be a significant enterprise, so there's a lot of work there. In terms of some of the hardware that is going to be necessary to operate such a significant transportation activity, we have started the development of a prototype cask car and buffer car that meets American Association Railroad Standards that are driven toward minimizing derailment and other safety features. This is a truly a rail car that is designed to – not like the cask where if something bad happens it will contain the material in the cask – this is to avoid situations where that cask containment is ever needed and if we can take those kinds of steps and to minimize any kind of hazards to the public, then I think we'll be able to have a safe and sustained transportation operation. And those are the kinds of things that I think [we need to do]; the steps we need to take today to plan for the significant [aspects] and they'll be expensive, they'll be complicated, but the better we can do in preparing for those, building those relationships with the states and regions from an operational standpoint and developing the hardware so that the need for response is reduced, I think we'll all be in a better place in the future.

Mr. Jim Hamilton. OK. Thank you. The next question is from Tim.

Question: With so many unanswered technical and policy questions that have yet to be answered about high-level waste disposal and storage why is this [and I assume this means that topic of consent] the first question DOE is trying to address?

Answer (Mr. John Kotek) It's certainly not the first question DOE is trying to address and of course we've got a lot of experience in dealing with transportation of fuel, development of repository concepts, storage of spent fuel, you name it, lots of aspects of this. As I mentioned earlier, the international scientific consensus is that deep geological disposal is the way to manage this material safely and responsibly over the very long term. So we are determined to pursue that as an end-goal. In the interim we see that the ability to have interim consolidated storage capability could really benefit the system as a whole. First and foremost, it would give us the ability to clear fuel out of shut-down plant sites, but could also offer other benefits to the system as well, and given that we need repositories as an end-state, we would like to build storage facilities to benefit the overall system. We think now is the time to start the process of identifying communities that might serve as willing and informed hosts and that we can work with to locate new nuclear waste management facilities. So that's were trying to go from here.

Mr. Jim Hamilton. OK. Thank you. Question from Elaine.

Question: Some programs using a consent-based siting process, such as Canada's, have target dates for repository. And this focuses interest on moving the process forward. How does this affect – this principle or idea or approach – affect DOE's 2021, 2025, and 2048 target dates for storage and disposal facilities?

Answer: (Mr. John Kotek) As was laid out in the Administration strategy, there were dates set there and of course this strategy was also predicated on legislation being passed to enable full implementation of the strategy and we haven't seen that happen yet. So, but over the long term, what the BRC recommended again was don't try to establish firm dates, but instead give time bands within which you think certain things can

be achieved, recognizing that as you go through a phased and adaptive process you are going to learn things as you go, and based on new information and based on experience gained, your target dates might need to shift somewhat. But we're determined to show continued progress to continue moving forward, recognizing that the path we set out on day one is probably not going to look like the path we traveled when we finally get to the final solution.

Mr. Jim Hamilton. Okay. Here's a question from Jeff.

Question: If Nye County Nevada or another entity near Yucca Mountain presented to DOE a consent-based proposal to use the Yucca site, would DOE consider it?

Answer: (Mr. John Kotek) All I'm going to say on that is that DOE is looking to work with states, tribes and local governments that can serve as willing and informed hosts and would consent to host the facility.

Mr. Jim Hamilton. Okay. Here's a web question from Lisa.

Question: To build trust, this consent-based siting effort will require DOE to engage with stakeholders in a more open and transparent manner than has traditionally been the case. Please describe how DOE will do this; specifically, what actions will DOE implement to communicate with stakeholders in a way that is open and transparent?

Answer: (Mr. John Kotek) I'll start, but maybe Andy and Bill will have something they want to add. That's what this process is designed to do and frankly I'm thrilled to see so many people here today who can start engaging with us on this. We want to get out and we want to hear from communities outside of DC and hear from folks from across the country who have an interest in this, in this issue, and we want their input and their experience, their values to help inform the process that we pursue. One of the things that I think we didn't get during the Blue Ribbon Commission proceedings, to the extent that I think we're going to need going forward, is input from folks who don't live and breathe this issue; for a lot of folks in this room, this is not your first nuclear waste meeting, right? I see some nodding heads. And when we went out and when we did the BRC work, it tended to be with folks who were also involved with their communities, you know at a DOE site, their power plant, NGO organizations, tribal governments, state governments, you name it. I think in addition to hearing from folks who are very well-versed on this issue, we need to try and solicit input from folks who don't think about this day in and day out, but whose values and principles and beliefs should help inform whatever process we use going forward. I'll let Andy give a little more detail as to the way we want to engage with folks, but frankly another part of the reason that I want you to get to know the people we've got working on this is to – yes, we'll have a formal process through you'll be able to ask us questions, but also like you to be able to reach out to folks and to start building relationships with people on my team who will be working this for years and years to come.

(Mr. Andrew Griffith) As a career federal employee nobody has to tell me what we face challenges to bureaucracy. I think probably one of the toughest tasks we will have is to be able to work efficiently within the bureaucracy, but I think the proof is going to be at the end of the year when you tell us how we do. Our intention is, to the extent possible, we want to over-communicate through the mechanisms of having the public meetings as well as webinars, conference calls and have e-mail exchanges; if you send a question to the consent-based siting e-mail address that was said earlier and is in your pamphlet, we will answer that question; if it's not a direct answer to you individually, we intend to use it to populate a frequently-asked-question area of our website. In addition, like I said, the announcements we plan on issuing announcements to our e-mail distribution, so those who want to be informed can be informed. When you meet with us in forums like this, and around the country, we want to have not only presentations here where we're speaking to groups, but we want to be able to talk to you individually as well. So by all means, you know, the proof is going to be at the end of the year, the end of next year, or throughout the process. Our objective is to be as transparent and open as possible in our dialogue with you and other stakeholders.

(Mr. William Boyle) I want to follow-on to Andy's remarks where you mentioned just a minute ago about meeting with people individually; my recollection is that question came from Lisa, and I would encourage Lisa to comment on this meeting. Was this meeting a step in the right direction? Did she find it useful? If she has suggestions for improvements, please give them to us, we want to know.

Mr. Jim Hamilton. Thank you for that. Here are a couple of related questions and they all continue to

circle around the issue of consent. So I'm going to try to merge them.

Question: How are other voices going to be considered when defining consent, examples: in Texas and New Mexico they are claiming they have "consent." And on a related question: It can't be called consent when a local community is opposed, but isn't able to vote. But their local officials are saying there is consent. So again there is an overlapping theme here. So do you, the Department, support the requirement that a county/community be able to vote on whether there is consent?

Answer: (Mr. John Kotek) That's part of the reason we're doing this is to get input on questions just like that. Right? And frankly to see what sort of input we get from various other communities and states across the country. So I think it's too early to try to give a precise answer to any of those questions, just know those are the types of things we want to explore over the next year and frankly as we go throughout the process.

(Mr. Andrew Griffith) I'll just add that in a community and a scenario where the community leaders make decisions and if they're public officials, elected public officials, and that the electorate doesn't approve of those decisions that they weren't allowed to vote on, I think the next vote will come at the next election and so, clearly like I said, we're looking for something durable, we're not looking for something expedient that's an election away from pulling the plug.

Mr. Jim Hamilton. OK. Thank you. And just to note I think your questions so far are really good, you're not pulling any punches, so I appreciate the effort you've put into these cards. Here's a question from Kevin.

Question: The BRC made as one of its top recommendations the replacement of the Department on spent nuclear fuel and high-level radioactive waste management due to decades of deep public distrust stemming from DOE's past "performance." Why then is DOE still driving this train? Does DOE intend to remain in charge, including constructing and operating consolidated storage in the 2020s and disposal around 2050?

Answer: (Mr. John Kotek) The Administration's strategy, like the BRC report, recommends establishment of a new organization to do this work over the long term. Having said that, it's important to note that DOE has the mission today, and it's important for us to continue to be moving forward on it, so we're trying to go as far as we can within the limits of existing legislation.

Mr. Jim Hamilton. OK. I'm getting more and more consent-based questions, although we've answered most of them. From Catherine.

Question: Please explain the outcomes of a study to ensure transport and storage containers can be the same in reducing the need for transfer to all consent-based siting communities [which] will need to know safety monitoring of casks and action levels.

Mr. Jim Hamilton. So I guess the question is standardization of transport and storage containers with the underlying theme of safety?

Answer: (Mr. Andrew Griffith). That's a great question; that's an area where we're spending a lot of time looking at possible solutions. As I mentioned earlier, we've kind of backed ourselves into a scenario where we have different storage systems in different configurations across the country and now we try to consolidate this at, first, a pilot facility and a larger consolidated storage facility, we have to figure out how to accommodate a lot of different designs, a lot of different configurations and there are ways of doing that; we've done some studies on various ways of doing that and I think the key result is that it's doable; the question is how best to do it in a way that is clearly safe and efficient, in that order. But I think ultimately we are looking for a greater system applied where when the fuel is pulled out of a storage pool and initially placed in a transportation canister, that that canister is not only designed for initial storage, but it's designed for transportation and for ultimate disposal so it would be a more multipurpose type of canister and somehow, somewhere along the way we can transition from a very kind of divergent, heterogeneous mix of different designs and move towards one of harmonization of designs and ultimately into a truly system approach where the fuel is managed; it's only handled once when it's placed in that first canister, and it is then transported, stored and disposed in that canister ultimately in the most efficient way. And part of the challenges we face in making that transition from the current state to a future more systematic or integrated system is really the benefits – most of those benefits of integration and efficiency will play out at the end of that system and so how can you use those benefits and somehow incentivize making that shift from the current state to a possibly more complicated operation at the utilities to get those efficiencies elsewhere in

the system. How do we figure out how to incentivize those that it would complicate their life even if it's at the benefit of easing the operations at the end of the system, so anyway those of some of things we're looking at. I don't think I've done it justice in this brief description, but there are a lot of alternatives and opportunities I think to make that transition.

Mr. Jim Hamilton. OK. Thank you. Question from Tim.

Question: Dr. Orr said that nuclear power will be hard to replace with a low-carbon energy resources. Is that DOE's official position on renewable energy storage and efficiency and demand management?

Answer: (Mr. John Kotek) I think what Dr. Orr was alluding to was simply scale; more than 60% of our carbon-free electricity generation these days comes from nuclear, and it's an important component of our existing electricity-generation system. And as we look to the future and the need to as the Secretary says, essentially de-carbonize electricity production over the long term - if we're going to meet climate goals then nuclear is one of what we think of as a series of tools that the US and countries around the world are going to need to enable a low-carbon electricity future.

Mr. Jim Hamilton. OK, thank you. Question from Allison.

Question: How will consent be applied to future generations; for example, if the community chooses consent now and that same community in the future determines that they no longer wish to house high-level nuclear waste, how will this issue be resolved?

Answer: (Mr. John Kotek) That question is frankly one – we will continue to seek input, particularly from folks in the social science community who've thought deeply about this sort of thing to help us address that and frankly when you think about this issue going forward, that's something that you expect a community or state or a tribal government to be mindful of – as that they're making their decision as to whether they want to potentially consider hosting a facility; so as we go through the process of working with communities to achieve this end-state of being willing and informed hosts, we would expect to be asked a lot of questions about what does the long-term look like in terms of management of these materials so they can make an informed judgment as to whether they're making the right decision not just for today, but for their communities over the long-term.

Mr. Jim Hamilton: OK, thank you. A question from Sam following up on that.

Question: What social science research is the Department supporting to study this topic?

Answer: (Mr. John Kotek) Andy, I don't know if you've got anything in particular to point to right now. We commissioned several papers through the Blue Ribbon Commission process that I think are still timely that I know I refer back to from time to time to get some of the best thinking on this broad subject area. As we go forward and as we hear the types of questions that are raised throughout this process, I think that will give us a rich opportunity to look at more areas that might be worthy of more exploration by the social science community.

(Mr. Andrew Griffith) I would just add that I agree that the social science aspect of this very vexing challenge is going to play a bigger and bigger role as we go forward. I'm an engineer; you know, we tend to look at calculations and say well if the calculation works then it works, it's within our design, within our technical objectives, but I think having a better appreciation for what's important to communities and state and tribal governments and the people who live in the areas that we're looking to site facilities, we really have to have a better understanding of what's important to them, not just that calculations and some engineer standing in front of them saying that this is going to be the facility, it's really good, and it's going to meet a national need; it is going to take more than that.

Mr. Jim Hamilton: Okay, just a time check here, we are 48 minutes into a 45-minute question-and-answer session. There's a bunch more questions here; they're still more coming in on the webinar; would be okay if we went for about 10 minutes longer? And wrap this up at three o'clock? Are we okay with that? Nobody is saying no.

(Mr. John Kotek). Are you going to ask us? We're fine with that. Please proceed.

Mr. Jim Hamilton: So they want to keep this going. Thank you. Thank you for your support. Here's a question from the webinar. From Tom.

Question: During the GNEP process, private entities proposed DOE sites for reprocessing facilities. For the current effort on waste-management facilities, how can a private or non-DOE entity possibly propose a DOE site owned by the wider public? I anticipate this will not be allowed. Is this correct? [Was read twice].

Answer: (Mr. Andrew Griffith) Interpreted that the site is a DOE site and therefore owned by the government and therefore the people.

Mr. Jim Hamilton: Do you want to go with that?

(Mr. Andrew Griffith): Sure.

Mr. Jim Hamilton: Because I don't want to ask a question that was not asked. Or translate it. So perhaps we can maybe get back to Mr. Clements and make sure we're answering the right question.

(Mr. Andrew Griffith): If it's a question of how a DOE site could be folded into the consent-based process…?

Mr. Jim Hamilton: Go ahead.

Answer: (Mr. Andrew Griffith) It would be up to the community around that site and other missions at that site that support the Department of Energy. So, it's an interesting twist on consent-based siting, but if there's a sincere proposal out there by a community and the state is supportive of the effort as well as the tribal entities possibly involved, then it would be worth talking about.

Mr. Jim Hamilton: OK, thank you. Here's a question about communication, dialogue and transparency.

Question: You are encouraging one-on-one meetings and small group meetings. How will these be documented? How will you maintain transparency while engaging in a series of private conversations?

Answer: (Mr. Andrew Griffith) That's a great question. I think at a minimum, I think if we meet with a group on this subject, we would want to make it be known that we met with the group on the subject; that we don't want to hold any meetings that are secret or behind closed doors; where somehow someone would have the impression that we have a power to make a deal because we don't; we're just trying to have a conversation that we want to have. So I think at a minimum one of the conditions we would have established is that the discussion would at least be acknowledged and posted in some form. I think the best scenario is that we would draft a summary of the meeting and then post that as well. I think that would be an appropriate and constructive way to make sure that we guard against some misperception that we are somehow meeting outside of a public and transparent manner. And then if the entity who we met with wants to post something from their perspective on what the discussion was, I think that would be great as well. Now, if other people have ideas of what's your threshold, which expectations in terms of what would you expect from such meetings at a minimum and then optimally, I think that would be really helpful to know. Recognizing that the staff to document all of those things, to make all that happen, and you've seen us, there's not a lot of us.

Mr. Jim Hamilton: OK, thank you for that**.** Another question from the webinar.

Question: Has DOE secured funding for this multi-year process of defining the consent-based siting process? And what timeline do you estimate to establish the defined process and for ultimately going out and commencing searching for consent-based siting locations?

Answer: (Mr. John Kotek) We got appropriations in the FY 2016 agreement reached by Congress late last month that allows us to continue to lay the groundwork for the consent–based siting process, which is what we're doing here by getting people's input. It's too early to say what exactly what the FY 2017 request will look like. And of course as I think most of you know, we work on annual appropriations. And so the Administration's request to Congress is due on February 9th and we'll be able to talk a little bit more about what comes beyond the end of this fiscal year at that point.

Mr. Jim Hamilton: OK. Here's a question about…

Question: If there already exists a host site willing to host the pilot plant, what are the main constraints

preventing accelerated implementation at that site?

Answer: (Mr. John Kotek) I'll start. As Andy and others have mentioned, we're looking for a durable agreement with an informed host, community and state or potentially a tribal government, so we want to use this time to get input from interested parties on what they think a consent-based site ought to look like, and to the extent that there are communities and states that have already expressed an interest in participating; we hope to hear from those as well as through this process and to get a better sense from them as to what they think the process of working within that community or within that state would look like.

Mr. Jim Hamilton: OK. Here's another question from the web. We're going to wrap up in another couple minutes here.

Question: Who is the decision maker for the process itself and its integration with system design and governance?

(Mr. John Kotek) Did one of our lab people ask that? (Laughter). I'm sorry, who is the decision-maker for process?

Mr. Jim Hamilton: I'll read it again. Who is the decision maker for the process itself and its integration with system design and governance?

Answer: (Mr. John Kotek) Okay in terms of when the Department moves forward and says based on the input we've received here is the process that we're at least going to move forward with and get feedback on; if that's the nature of the question, that will be made at a senior level of the Department. Whether that's something the Secretary will make, or whether he will delegate it down to Dr. Orr or me is not a discussion, we haven't had that conversation yet, but we'll need to over the next couple of months.

Mr. Jim Hamilton: OK. Another question from the web.

Question: Will there be any public meeting on technical issues related to interim storage? Who should we contact on those issues? This is needed before consent.

Answer: (Mr. John Kotek) At least we'll observe that the Nuclear Waste Technical Review Board has held at least one meeting looking at this issue, probably more; I've not been back into this issue for that long. That's one avenue for those types of discussions. If there are other specific issues that the questioner doesn't think are getting adequate treatment through things like the Nuclear Waste Technical Review Board or things that the NRC is doing, I'd love to hear that so we can evaluate whether that's something we should try to catalyze on our end.

(Mr. Andrew Griffith) That includes the pre-conceptual type of design options work that we're doing; as it gets reviewed and is made available we're posting it on the website so that our technical work can be known and available for people who are interested.

Mr. Jim Hamilton. OK. From Kevin.

Question: DOE often argues, as it did today in the context of a pilot consolidated storage site opening in the early 2020s, to retrieve stranded or orphaned spent nuclear fuel at permanently shut-down nuclear power plant sites, which includes those that may be completely decommissioned except the spent nuclear material itself. This is a top priority. What about community groups such as Big Rock Point in Michigan and Citizens Awareness Network in the Northeast who explicitly say "not in our name?"

Answer: (Mr. John Kotek) From a systems perspective, if you go back to the recommendations of the Blue Ribbon Commission to use consolidated interim storage as a way to start by clearing out the shut-down plants, it would seem to have great benefits; from a number of perspectives, including ultimate cost to the taxpayer who of course, is currently paying out of the Judgement Fund for settlements of lawsuits due to DOE's inability or failure to have moved waste right now. From the broader perspective of the American taxpayer, it's been our belief that moving forward with consolidated storage is the right thing to do; through this process we welcome the views of these groups that were mentioned: states and communities around shut-down plant sites and others. We would be curious to hear whatever views we get on that particular question.

Mr. Jim Hamilton. OK, alright. Thank you. So, last question and then we're going to have give Mr. Kotek

closing remarks and then we'll go to the poster session. This was from the web and came in recently.

Question: I'm concerned about the pro-nuclear rhetoric which claims that nuclear power is "green and carbon-free, and even a solution to our climate problems" when all the statements cannot be supported by facts. Question: Will the consent-based siting process be a green light to allow more dangerous and waste-generating nuclear plants to be built?

Answer: (Mr. John Kotek) That's actually a good segue into my closing remarks because I know there are some people in this room and people on the webinar certainly who believe in the use of nuclear technology and there are some who don't. I accept that. The Administration's view and certainly the Secretary of Energy's view, for those who have been listening over the last couple of months, is that as we try to address this global climate challenge, we're going to need all of the tools that we can possibly muster and that nuclear offers a lot of advantages and potential advantages going forward that make it one of the options that this Administration believes we need to keep on the table and to continue to pursue aggressively as part of solving the climate challenge both in the US and abroad. I know they're going to be some who don't believe in that and that's fine; I accept the fact that folks can hold a different view. Regardless, when it comes to the nuclear-waste challenge, whether we build more plants or not whether we continue operating the current plants or not, this stuff exists, right? And we need to manage it safely and responsibly over the long term. And so I'm excited that we had the opportunity here today and going forward to begin an inclusive and adaptive and responsive and transparent consent-based siting effort that I believe can have lasting results.

I'm confident, based on my experiences both through the BRC process and then my other experiences in facilities siting back in my private sector career, that we can develop a process that's going to enable us to locate one or more communities who want to serve as partners in managing the nation's spent fuel and radioactive waste and that we can work with state, tribal and local governments to get there. So I think that as states, tribes and communities look at this issue and decide whether they want to potentially participate, they're going to ask themselves, "can this be done in a way that's safe and protective of people and the environment? Can it be done in a way that leaves their community better off for having done so?" Experience around the globe shows that communities and local and state governments can be found that are willing to engage in that discussion and be part of the solution. So with that let me invite you to join us for an open house in the back of the room; we've got a number of posters we put together to illustrate various aspects of the potential integrated waste management system and communicate about other aspects of the challenge and give you an opportunity to meet some of the people that we have on the team working this issue going forward and I do want you get to know these people; I think what you're going to find is that they're extremely bright, motivated and hard-working people who want to really create a solution – and find a solution to this problem.

Please also note that this is the first meeting; we see this as the beginning of a dialogue, a conversation with you all and others around the country who can give us great feedback and help us adjust and get better at doing this as we go. So if you see something about the posters that you don't like, if you see something about the website that we've put together that you think could be improved, let us know. We want to evolve this stuff going forward, we want to communicate effectively with you all and with people around the country and we can't get better unless you tell us what you think and give us your advice. Because together I think we can make significant progress towards finding a long-term sustainable solution and I'm really excited to work with you all and embark on this first step to what I hope will be a long-term solution for nuclear waste management in the US. So thanks for being here.

Mr. Jim Hamilton. I'll just echo that, thank you panel, thank you audience, thank you folks on the web and the conference call. We're adjourned. And as John said, please come to the poster session in the back. Thank you very much.