

Nuclear Energy Advisory Committee Meeting

January 16, 2025

Microsoft Teams

Committee Members Participating:

- Richard Arnold
- Stu Bressler
- J'Tia Hart
- Maria Korsnick
- William (Bill) Magwood, IV, Chair
- Raluca Scarlet
- Sonja Schmid
- Temitope Taiwo

Other Participants:

- Rian Bahrn
- Alice Caponiti, Deputy Assistant Secretary for Strategic Crosscuts, U.S. DOE
- Nick Carter, U.S. DOE
- Brittany Cash, AST (Meeting Minutes)
- Erica Davenport
- Guillermo Del Cul (Bill), U.S. DOE
- Aleshia Duncan, Deputy Assistant Secretary for International Cooperation in the Office of Nuclear Energy at the U.S. Department of Energy
- Mike Goff, Principal Deputy Assistant Secretary, Office of Nuclear Energy, U.S. DOE
- Jonathan Higdon
- Lauren Joyce, Deputy Chief of Staff at U.S. Department of Energy, Office of Nuclear Energy
- Stephen Kung, U.S. DOE
- Dennis Miotla, U.S. DOE
- Paul Murray, Deputy Assistant Secretary for Spent Fuel & High-Level Waste Disposition, Office of Nuclear Energy, U.S. DOE
- Justin Myers
- Andrew Noonan
- Robert Rova, Office of Nuclear Fuel Cycle and Supply Chain, Office of Nuclear Energy, U.S. DOE and Alternate Designated Federal Officer, NEAC
- Michelle Scott, U.S. DOE
- Melanie Synder
- Ming Tang
- Jackie Toth
- Billy Valderrama, U.S. DOE
- Jennifer Wachter, AST
- James Willit, U.S. DOE
- Richard (no last name)

Meeting Agenda

11:00 a.m. – 11:15 a.m.	Welcome and Opening Remarks
11:15 a.m. – 12:00 p.m.	NEAC Recommendations Discussion
12:00 p.m. – 12:15 p.m.	Public Comments
12:15 p.m. – 12:30 p.m.	Wrap-up and adjourn the January 2025 Meeting of the NEAC

OPENING REMARKS

William (Bill) Magwood

Thank you very much and welcome to everyone joining us online today. This will be the first meeting of NEAC in 2025. But also, perhaps in some ways our last meeting with our current charter. Let me thank all of the NEAC members for the time, their thoughts and creativity as we've gone through many discussions over the last couple of years. Also let me thank Dr Goff and his team, for all the excellent support they provided since we've been undertaking these activities. This is an important time really in the history of nuclear technology. We are seeing a tremendous amount of interest, explosion of productivity across the board in so many different ways. And I know that our friends at Department of Energy (DOE) are challenged to keep track of everything that's going on, because there's so much happening around the world and in the U.S. And what we have tried to do over the last few years is to focus on a few areas that we think do require some more policy level thought and give some advice to the agency as it goes forward. So, we will focus on looking forward today, and provide our recommendations at this meeting, and to look forward to comments from the public if you are ready. So, with that I will hand it over to Dr. Goff for his opening remarks.

Dr. Michael Goff

And actually, I'm just going to echo a lot of the stuff that Bill just said so welcome to everyone, especially the NEAC members, the Department of Energy staff and the public participating here. Let me add my thanks to NEAC members, and you know, Bill, especially you as chairing this group. We do appreciate all the effort that went into developing a report. We do appreciate you extending the term of this charter so that we can get the report here. So, we appreciate all that extra effort. And I do agree with what you said, this is a very important time for nuclear energy internationally and domestically. We, in the United States, are going through a transition where thankfully nuclear is one of those things that has a lot of bipartisan support. So, we appreciate all the input to help see how we can go forward to make sure that nuclear plays a critical role in energy security needs moving forward. We also look forward to receiving the report from the committee this morning. And again, welcome everyone. And again, thank you very much to the NEAC members and their service and working on this committee here. So, thank you.

NEAC RECOMMENDATIONS DISCUSSION

Opening of Discussion (Bill Magwood)

Thank you very much, Mike. So, I won't spend a lot of time with preliminaries. What I'll do is ask the chairs of the subcommittees to make some remarks and then we'll also ask each of the NEAC members to make some comments individually, because I think it's important to hear from all of you today. So let me begin by asking the Infrastructure Working Group. Stu, I think that you have a short time frame today, so I want to start with you to give your thoughts and any reflections you have at this stage. The floor is yours.

Infrastructure Subcommittee Summary (Chair: Stu Bressler)

Thank you, Bill. And good morning, everyone. Great to be with you. My name is Stu Bressler from PJM interconnection. Reporting out for the infrastructure subcommittee, we really opened our discussions and our contributions to the community's recommendations on really the need to accelerate commercial deployment of nuclear energy, given our country's really ambitious goal, DOE's ambitious goal for increasing nuclear energy output and then what would we need to support accelerating that commercial deployment. So, we recognize the need for large scale build out, as well as an advancement of other technologies and we think that there can be lessons learned applied from really sort of near-term paths of large-scale deployment. As well as material qualification and other things that would support efficient

licensing nuclear buildout as well. We recognize that really, this nuclear buildout that we're talking about is primarily a private sector activity, but we think government support could be judiciously applied in a way that they can help support it, primarily through protectionism to recognize that there are significant cost and risks associated with the nuclear buildout that the federal government can help with. As well as, really helping with the development of advanced technologies through partnerships such as National Labs, Universities, and Private sector partnerships to really develop state of the art tools in various areas. They're going to be necessary. So, you can support the advance of the technology necessary to achieve those ambitious goals. And further, I think you can help with collaborative leadership with respect to international collaboration as well, with like-minded country's ability to, again, facilitate the same kind of goals. We think that the DOE should work hard to enable a broad range of fuel cycle options. And again, you know, they have partnerships I think, are going to be really key to that in several different areas. And really, I think what we lack right now is kind of a full-suite of experimental test facilities. So really a strategic approach to our facilities, the purposes that we have in developing new facilities as well, again, through collaborations and partnerships, including international efforts, is really going to be important. And one thing we did focus on too are sort of recycling efforts, fuel recycling efforts and I like making progress there, because the discussions of this have been somewhat circular in the past. And then the last thing I'd like to mention, as I know, sort of overlaps with another one of our subcommittees is enabling and training a global workforce with respect to, again, Duke energy technologies buildout. There are real opportunities for partnerships, private sector, university and national labs, and, again, you know, for international opportunities to develop a global workforce to enable continued nuclear buildout. So those are really just the highlights, I think, sort of, where the infrastructure subcommittee came out based on the letter to the Secretary. So, thank you both for the opportunity.

No Questions.

Workforce Subcommittee Summary (Chair: Sonja Schmid)

Good morning, everyone. My name is Sonja Schmid. I'm faculty at Virginia Tech in the Department of Science, Technology and Society, and chaired the Workforce of the Future subcommittee. Our committee focused on the urgent need for broadening and diversifying strategic workforce planning and for sustained capacity building in the nuclear education sector. We actually started off from a more ambiguous point where the future of nuclear energy is in this ambiguous state, where on the one hand there is big planning, but on the other hand, there is a kind of attrition. And we're dealing with well-known problems such as aging workforce, long development timeline, where training requires several years and also recruitment and retention issues. But in addition to that, we identified significant imbalances in workforce supply and demand. On the one hand, as I mentioned, demand for nuclear workers might increase in the future but in the present is subject to fluctuation, with demand surging, especially during outages. But on the other hand, high, uncertainty regarding long-term nuclear project commitments. A future nuclear workforce requires a range of skills that go beyond traditional nuclear engineering with advancement in reactor technology, the growing importance of nuclear forensics, and the need for safe decommissioning of older plants. The industry now demands expertise in diverse fields, including electrical, chemical, and civil engineering. Moreover, there is a pressing need for skilled trades people in areas such as welding, construction, assembly, and maintenance. The industry also recognizes a significant gap in non-nuclear disciplines. I already mentioned skilled trades, but there's also projects related to advanced reactors, decommissioning, fuel cycle management that will need newly skilled workforce. And in terms of strategic workforce planning, the subcommittee focused on three recommendations (1) data collection- where we encourage industry, academia, government to share their results. In other words, industry, academia, and government should combine forces to create comprehensive data collection tools on workforce trends, needs, and gaps. Also looking to international best practices, as was already mentioned. (2) diversifying people and institutions and broadening funding targets accordingly. So, we recommended support for certificate programs, mentorship and union apprenticeship programs, some of which are already existing but may need a kind of reinvigoration, in addition to traditional four-year college

programs. (3) diversify the content. So, focusing on the beyond technical training by committing a percentage of funding to social sciences and humanities training that might include regulatory and legal competencies, radiation safety and medical training, leadership and management skills, as well as community engagement and crisis communication training. And, I'll leave it at that.

No Questions.

Consent-Based Siting Subcommittee Summary (Chair: J'Tia Hart)

Hello everybody. My name is Dr. J'Tia Hart. I am a Nuclear Proliferation Division Director here at Idaho National Laboratory and I had the extreme pleasure of leading our consent-based siting subcommittee so we got to work and came up with a few concise conclusions, more of them are listed in the overall report. We started our work by actually pulling in some expertise outside of our team. We spoke with former Senator Bingaman, who was involved in a lot of the legislation surrounding waste disposal. We also reached out to our international partners in Canada with Lisa Frizzell from the Nuclear Waste Management Organization, because they have had much success in their waste siting. And I think just picked a location after three years of engagement with their populations and different sites that expressed interests in being involved in the nuclear waste management of the country. And we also reached out to the private sector, universities. So, I definitely want to say thank you very much to all of those who lent their time and their expertise outside of the committees, and to my fellow subcommittee members. Also, to Paul Murray - we have had many conversations and back and forth about current activities that are going on within NE. So, at the end of this time, after a few years, we came up with a couple of recommendations that have been captured in this letter. First, consent-based siting is not easy. It's going to require iteration. It's not a one size fits all. And the most important part of being able to move forward confidently with a plan for consent-based siting is moving at the speed of trust with other stakeholders. So, involving a very wide group of stakeholders. Not speaking to the people, but actively involving ourselves in the communities that have a vested interest, and making sure that we hear their thoughts on how they would like to move forward. And making the best plan not just for the government's point of view, but also for other stakeholders that are concerned. And so, if that takes time, we'd rather take time and do it correctly, then move too quickly, and trust is not in the equation. Another thing is, we thought that the DOE needs to continue to allocate resources for this stakeholder engagement. It may feel counter-intuitive. You know, if you go out to these communities and you may need to go back. But again, the whole point is that we want a plan that's comprehensive and that we have the stakeholders on board that requires continued engagement and continued funding for that community as stakeholder engagement and realizing that the timelines and the scope may change and the funding that needs to be supported and comprehensive as well. Also, we need to make sure that the stakeholders that we include, includes marginalized communities that necessarily haven't had a seat at the table. So again, drawing from the Canadian example, they did a great job of going outreach to Native communities and making sure they understood the past interaction between government and leaders, communities and other stakeholders, civil society organization, professional organizations across the board. And we must really facilitate their availability and work with them, because, again, the stakeholders are not involved and not up to speed. And sometimes that may mean getting our stakeholders up to speed and educating these stakeholders so that they can understand what's going on and have a confident voice in the process. Our last recommendation is that we think that the DOE should expedite the publication of a strategy for integrated waste management. So, I think that will help across the board if everybody understands the plan that we're heading to, even if the plan may change, it would be great to know the plan for now. And again, we talked about iteration. That was kind of our very first recommendation. We understand that changes will be made, and that's not a bad thing, but we can still have a plan put together and update that plan, as needed. So really, sharing a plan publicly is our last, recommendation. We understand that there may be certain hurdles to that, but until everybody knows where the goal line is, and it's hard to, you know, run in that direction.

So I think that is a summary of the fact findings of this subcommittee recommendations. I'd like to open up to my other committee members. I also have to say a very warm wish to Lake Barrett, who started out in our subcommittee but has moved on. He put in a lot of effort, so I would be remised if I did not mention his efforts in shaping this recommendation.

Additional Comments

Maria Korsnick

Actually, Bill. This is Maria. I just wanted to send some love to J'Tia because she made it all sound so great and she did so much of the work as well, keeping us focused, keeping us on track and it was real pleasure to work with her and be on the team. Great job, J'Tia!

International Subcommittee (Chair: Bill Magwood)

Let's move on to the last subcommittee which I chaired, and I admit, we spent a lot of time talking about these issues, and found that it was very still, as you might expect on the international side, one that was very much a policy conversation, as opposed to much of a programmatic conversation. And this policy conversation really not only goes beyond the Office of Nuclear Energy, but really goes beyond the Department of Energy, and it really has to involve the whole federal family. We had excellent conversations with senior officials across the Federal Family of Commerce Department, across the DOE, NNSA, State Department and others. And it was a very educational experience, and for me particularly, because I had formerly been in the infrastructure, and I was very, very pleased to see that there is a lot of conversation that takes place within the federal government, among different agencies about the direction of U.S. policy. So that was very important, very gratifying. But at the end of the day, I think there was also a very clear impression that we had that there's still lacks a centralizing of vision for what the U.S. government is trying to accomplish with large international build. What is it when we speak of and develop U.S. leadership—what do we mean about that? And in a practical matter, what steps are we willing to take to reach it. And it was certainly our observation that there's many gaps in between the agencies where things fall, not totally completely captured in the conversations that take place today. So, we really do think there's a need for a much more comprehensive vision to be created within the federal government about what it wants to accomplish with the area of nuclear energy when it comes to leadership internationally. Now, obviously, there's been lots of discussion of having structural changes to have some senior people at the White House or elsewhere to try to reorganize some of this. But in the near term, our recommendation is really that there should be a very high-level conversation within the federal family focused on what do we mean and what are we trying to accomplish? And how should this be articulated within the country, within the U.S., but also with our allies. As we are confronting so many different challenges around the world, and to recognize that this is as usual approach that is underway today that really has, that doesn't bring the government essentially into the conversation about projects overseas, as it is with other countries. It really puts U.S. industry at a disadvantage as it's dealing with markets where we also see Government sponsored companies doing business and making investments across the world in particularly in the global south. And this is an area where we see in the U.S. starting to fall behind because of the lack of investment. We've seen, however, that there is some, some bright spots. Deputy Assistant Secretary Duncan, on the call today, has done a lot in Africa, but we're still, at this point bringing a knife to a gunfight. We really do need to have a much more comprehensive approach to do what we're trying to achieve overseas, and to be able to articulate that both to our friends and others and our competitors. And I think this really intersects across all the areas we've heard about. Particularly in the area that Stu talked about in the infrastructure, very important in the workforce, because I think one of the real missed opportunities for the U.S. is the fact that in some of our competitor countries, they are bringing hundreds of young people to be trained as nuclear engineers and scientists and going back to their countries. The U.S. really originated it. The U.S. created things. Back in advance for these days, but really doesn't do it nearly the scale that we're seeing its competitors. So, these are areas to define the position of the government leadership and what it really means. It would make a big difference, and I

think the letter tries to capture that at the policy level. Now, that's it. I think it's also important emphasize that we're probably stronger now in this area than we have been in the past. It's just that the challenge is so big that we have to be better. Other want to chime in?

No comments – then I will conclude by noting that the letter that we will present a few minutes, also makes some comments about the Nuclear Energy Advisor Committee itself. For those of us who have been around for a very long time, remember that when we had the original Nuclear and Research Advisory Committee there was a much more intimate connection between the advisory committee and the senior staff that enabled the advisory committee to put real resources into its reports and efforts. And if you go back and look at the reports that were done on things like Gen IV reactors, University programs, you will see that there's a lot more detailed substance in those reports that would ever be possible with the way NEAC operates today. I think there is a very strong case that we should go back into the older practice of having a much more integrated approach with you guys working with the senior staff of the department in order to solve specific strategic problems and answer questions. We found that would be extremely valuable back in the old days, for those of us who wanted successful careers. An advisor might go to the Hill to say, we've looked at this issue very carefully here's our report and then exchange with congressional staff about what the conclusions were. I think there was real value to that. The way it is today there really isn't an opportunity to get into that level of detail.

So I think that's something that could be kind of taken in the future. But at the end of the day, we also want to thank the Department for all the cooperation that it provided. And I particularly wanted to call out Bob Rova, who started off today for his efforts and what Krystal D. Milam has done as well. Bob, I want to ask for your help to make sure that we give floor to all the other NEAC members.

NEAC Members Thoughts/Comments

Maria Korsnick

Thanks, Bob. You know, I don't want Bill, you to take the silence as that. You know, people aren't interested. I just think you did a great job. You know, summarizing, I'm really proud of the letter that's been written. I think it does a great job of giving enough detail to show that we were engaged in, involved in the details, but you also stayed at a high enough level to say some of the help and support that is needed, as you just highlighted, is, more of a government approach. And I think you communicated that very effectively. And what you just added in terms of even how NEAC operates, how it could operate in a way that would be even more helpful and beneficial to the DOE. And so, I just think you're spot on, and I really appreciate how you've woven together all of the information that the committee has done, and I think you've done a great representation of the work. So, thank you.

Raluca Scarlat

Oh, yes, I would like to also echo, thank you for the opportunity to participate in the activities and in NEAC and thank the subcommittee chairs for a very good summary of all of the topics that we have discussed at length. And I am hopeful for doing even better, as Bill said, with the challenges that we have ahead in terms of both the infrastructure, the workforce planning, the international engagement. I think these are really important challenges. And I thank the subcommittee members for highlighting with the summaries.

Richard Arnold

Well, I would never turn down an opportunity to share some old country boy wisdom. So, I appreciate that, and truly, this has been an honor not only being a participant of NEAC, but really looking at where we're going. And I think it was through the collective wisdom of everybody that had participated, that we were really able to have some balanced discussions, and me being the first Native American on NEAC, I mean, I definitely took that to heart and appreciate that. And I also appreciate the confidence of not only my colleagues, but of NE having the wisdom, if you will, to think about bringing on and diversifying

participation on NEAC, or whatever model we may use in the future. Now, for me, I've been around also for a long time, it's been really an experience. I was brought on early on with Yucca Mountain, when the amendments came through in 1987. I participated in that quite heavily, a lot of discussions, trying to broker some of the conversations—technical conversations with some of the tribal folks that were involved in that particular situation. We were dealing with 16 different tribes that had cultural affiliation to Yucca Mountain. And so that was, was one of the experiences that we were able to draw upon, and that's what was one of my foundations. And currently I am involved with a Nuclear Energy Working Group, which is a charter working group of NE and then also with the Transportation Tribal Radioactive Materials Transportation Committee. But I think it's something that, when we look becoming involved in something that is as technical as nuclear energy, nuclear research. It's something that we all can benefit from—and sometimes it's the perceptions that we have to deal with of that technology. I think that sometimes is challenging. But, you know, I was called upon to co-author an article, and it was a scientific article, and it was very interesting talking to other scientists. But then I told them, I said, one of the challenges is often that we need science with a conscience. And the conscience is it's great to talk about technology and all the things that we want to do among ourselves, but we need to figure out how to get it out to a broader audience. And I think that's what's been helpful, not only with NEAC and bringing all the discussions together, bringing up some good talking points, giving focus, but the challenge will be sustaining what we have. We've done a lot of work, and my appreciation and hat goes off to everybody on NEAC and the chairs that were able to really bring everything together. But how do we sustain the conversation to make sure that it doesn't die on the vine, and we keep it going. We know that it can. We know there's interest in there now with bipartisan support it's looking like there's a good opportunity there. And so, we have to seize the moment. But also, we have to have people championing the cause to make sure that we're moving forward. But anyway, great experience. I'm glad I was able to participate, and I look forward to crossing paths with many of you in the future. And I'm sure that we'll see some good things for all of us, and hopefully all of us like to be able to turn on that light switch and make sure that, you know, electricity is here. And for me, being a tribal person, and looking at the importance of doing things that are ecologically sound and that are going to be balanced and response to a need. I think it's going to be a good thing for everybody. So once again, thank you.

Temitope Taiwo

Thanks, Bill. And I appreciate being on NEAC. Thank you, Mike and DOE and NE leaders. I would like to reiterate one item. Nuclear is an important source for energy and national security and economic prosperity. And the U.S. consumer is needed for this energy source that we helped conceive, innovate, and deploy. Consequently, at this time, the U.S. needs a product for the market to compete internationally. So most likely this would be the solution, and subsequently maybe the advanced non-light water reactor systems. So significant deployment is expected. Maybe threefold by 2050, of the nuclear capacity. In my mind, this requires finding a solution that uses nuclear fuel from those systems. Material management is important, including consent-based siting. But also, important to consider the reuse of the used materials that can extend the period of use of the few materials by close to a hundred-fold. So significantly making nuclear a sustainable energy source. An approach to do this in a safe and secure manner is important with consultation with the Department and stakeholders in nuclear security, industry and regulation. And thank you again for your opportunity.

No additional comments from J'Tia Hart and Sonja Schmid. All members present have been given the opportunity to speak.

Bill Magwood

At this point, let me ask Bob to put the letter up on display that we've put together. Seeing no comments, do I take to admit that this letter is officially approved by the Committee for transmission to the Secretary? ***PAUSE*** There are no objections. Therefore, Mike, it's now a legal letter in your hands. And again, thanks to everyone for the contributions to this. I do know that there is an opportunity for public

discussion. So, bob, I'll ask you to facilitate that now.

Bob Rova

So, thank you. I know that I didn't receive any advanced questions from the public. We do have a handful of members of the public, and I also invite the staff if they have any questions. This would be the time to do that. ***PAUSE*** Seeing no questions raised Bill, I hand it back to you.

Bill Magwood

I think everyone's ready for lunch. That works for me as well. Let me ask Mike to give final closing comments, then we'll wrap this up.

Mike Goff

Again, I want to extend my thanks to the committee. I mean, this was a very thoughtful report. The recommendations are, again, very thoughtful. We will take them the heart as we're looking and going through a transition and looking at what things we can do to improve. The items identified from the infrastructure area, workforce, the global competitiveness, the back end, you know, including consent-based siting, We do appreciate those recommendations there. They will help us as we look to formulate going forward what changes may occur in the future here so we appreciate that, and I appreciate especially that you as a group, have great expertise, but I appreciate the extra effort also to go in and get input from the inter-agency, from other organizations, and all as well that makes the input even more valued. Also appreciate the input on how we formulate the committees we look going forward as well, whether we change the structure and all you know, do. Again, very much appreciate that. And again, want to stress, appreciate your service and serve it on this committee to provide us this information. This is very important for us, because, I think, as we all agree, this is a very important time for nuclear. We want to make sure that we're successful for meeting all the various energy goals that we have. Again, I just want to add my thanks. And again, thank you for extending to make sure that we actually got this report so we can actually issue it formally as well. Bob, I also want to add my thanks to you. Krystal, I don't think is on, but we do appreciate all her work with the committee through this time period as well.

Bill Magwood

So that brings us to a close, again NEAC members it's fantastic getting to know all of you. Getting to work with all of you is the real experience and certainly do echo what I heard from some of you, I hope we will cross paths again. I suspect we will. It's a small world. I know there's a lot of work ahead. And I know that you're also anticipating that next week, the whole universe over in the Forrestal building will be changing. And as you know, I have been through a transition in the past, and I know how much fun that is, so I know you'll enjoy every minute of it. But the good thing about these transitions is that it opens up a whole new avenue of possibilities for the future. And I know the new administration will be very pleased to have people like you available the tap your expertise and your wisdom and your experience as they get to know you. So, best of luck with the transition. So, with that, again, my thanks to all of you. Thanks to Bob, Mike and team the NEAC members, all observers—go have a great lunch. And best luck for everyone in the future. Meeting is closed.