

UNITED STATES

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON NRC INTERNATIONAL ACTIVITIES

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THURSDAY,

NOVEMBER 10, 2022

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The Commission met in the Commissioners' Hearing Room, One White Flint North, Rockville, Maryland, at 10:00 a.m., Christopher T. Hanson, Chair, presiding.

COMMISSION MEMBERS:

CHRISTOPHER T. HANSON, Chair

JEFF BARAN, Commissioner

DAVID A. WRIGHT, Commissioner

ANNIE CAPUTO, Commissioner

BRADLEY R. CROWELL, Commissioner

ALSO PRESENT:

BROOKE P. CLARK, Secretary of the Commission

MARIAN ZOBLER, General Counsel

NRC STAFF:

LUIS BETANCOURT, Acting Technical Assistant, Office  
of Nuclear Reactor Regulation

DANIEL DORMAN, Executive Director for Operations

PETER HABIGHORST, Chief, Export Controls and  
Nonproliferation Branch, Office of  
International Programs

DAVID SKEEN, Acting Director, Office of  
International Programs

## 1 PROCEEDINGS

2 10:00 a.m.

3 CHAIR HANSON: Good morning, everyone. I convene  
4 this public meeting on the NRC's international activities. It's very important to  
5 keep the public informed of the agency's developments in this area, so I thank  
6 you all for supporting this meeting today and I'm looking forward to a great  
7 conversation.

8 We'll hear from one small panel. We've had both ends of  
9 the spectrum this week. I think we maybe had a total of 13 or maybe even  
10 14 panelists on Tuesday. We've got two today.

11 Before we start, though, I'll ask my fellow Commissioners if  
12 they have any remarks they'd like to make.

13 (No response.)

14 CHAIR HANSON: Okay. With that, we'll begin with Dave  
15 Skeen, the acting Director of the Office of International Programs. Dave, the  
16 floor is yours.

17 MR. SKEEN: Well, good morning, Chair Hanson and  
18 Commissioners. It is a real pleasure for me to be here today with Dan  
19 Dorman, our Executive Director for Operations, to jointly present to you the  
20 accomplishments and priorities of the agency's international programs.

21 As you may know, in years past, the Commission did hold  
22 annual public briefings on the international programs, and, with the increased  
23 interest that we're seeing in nuclear energy around the world, we are pleased  
24 to have this opportunity to reinstate that practice today.

1                   Next slide. So Dan and I plan to cover the NRC's  
2 international program accomplishments from fiscal year 2022 at a high level  
3 and then also address the agency's programmatic priorities for the fiscal year  
4 in 2023. Our remarks will be organized into five main categories, and that  
5 includes conventions and treaties, export licensing, international assistance,  
6 international cooperation, and cooperative research. For each category, we  
7 will emphasize how our engagements are targeted to meet the objectives set  
8 forth in the NRC's international strategy.

9                   For the benefit of our newer commissioners and for the  
10 members of the public who are joining us today, the NRC staff published the  
11 most recent International Strategy in 2021, and it is publicly available on the  
12 NRC's public website. The strategy was developed after extensive input  
13 from NRC senior leadership, as well as our colleagues from around the  
14 Executive Branch. The strategy has five strategic objectives, and that is to  
15 excel in executing our international program activities, to integrate NRC's  
16 international interactions with the efforts of the State Department and other  
17 federal agencies, and to partner with countries of strategic importance to the  
18 NRC and the broader U.S. government. Also, to lead by sharing NRC's vast  
19 regulatory experience with our international counterparts and assist other  
20 countries who want to strengthen their nuclear regulatory programs.

21                   These five objectives of the international strategy  
22 supplement the references to the agency's international engagement that are  
23 included in the NRC's strategic plan and serve to demonstrate the strong  
24 connection between our international programs and both the agency's

1 domestic mission and the broader U.S. government's foreign policy and  
2 national security objectives. As we go through the slides this morning, you  
3 will see that we noted which strategic objectives are supported by the work in  
4 each of the main categories.

5           Next slide, please. So as I mentioned at the outset, we bin  
6 the NRC's international activities into five high-level categories. These  
7 categories are consistent with the way the information was historically  
8 presented during the public international briefings to the Commission in the  
9 past. The activities listed here represent resources and expertise from  
10 across the entire agency across a very broad variety of both technical and  
11 non-technical disciplines.

12           Throughout the rest of our presentation, we will be  
13 discussing in more detail our accomplishments and priorities in each of these  
14 areas. First, I will cover our work in conventions and treaties, export  
15 licensing, and our international regulatory assistance. Then I'll turn the floor  
16 over to Dan to cover our bilateral and multilateral cooperation activities and  
17 our international nuclear safety research program.

18           But before I move on, I just wanted to highlight the photos  
19 on this particular slide. The top photo there is Chair Hanson in a bilateral  
20 meeting with his counterpart from Ghana, as a matter of fact, at the IAEA  
21 general conference this year. That's just one of the many bilateral meetings  
22 he had with head regulators during that week.

23           The middle photograph is actually one of our Region I  
24 employees, Don Jackson, with some of his students in Egypt. Don served as

1 an instructor at the IAEA School for Nuclear and Radiological Leadership.  
2 It's a training course to help train new regulators. And the NRC was heavily  
3 involved in developing this course with the IAEA. In fact, they requested the  
4 NRC to help them develop this course, and it's been very successful. And so  
5 we appreciate Don and Region I for allowing Don to participate.

6 Also, the bottom photo you see there, that is, again, Chair  
7 Hanson is there with a cohort of six of the Polish assignees at the Plant  
8 Vogtle site. The assignees came and spent six weeks at the NRC, including  
9 doing some formal training at the Technical Training Center in Chattanooga  
10 and then spending time with our folks in Region II, as well as NRC  
11 Headquarters for some on-the-job training, and then finally some time at the  
12 Vogtle plant. And as it turns out, that was fortuitous because they have now  
13 selected to build three AP1000s in Poland.

14 So I'll start with the conventions and treaties and just at a  
15 high level. So the convention and treaties category represents the  
16 legally-mandated activities as specified in binding international treaties that  
17 the United States government has. In addition to fulfilling the excel objective  
18 in our international strategy, our engagement in this category also enables us  
19 to demonstrate leadership in the international community and also integrate  
20 our activities with the broader U.S. government policy priorities.

21 The NRC plays a critical role in the U.S. government's  
22 implementation of its legally-binding obligations. In fiscal year 2022, the  
23 NRC, and specifically the NMSS folks and OIP, supported the Seventh  
24 Review Meeting of the Joint Convention on the Safety of Spent Fuel

1 Management and Radioactive Waste. NRC representatives served in  
2 leadership roles at this meeting as a country group chairman, as well as a  
3 country group coordinator, and also delivered the U.S. national report  
4 presentation along with the Department of Energy.

5 The NRC also, led by NRR, prepared and submitted on  
6 behalf of the United States the national report for the next review meeting of  
7 the Convention on Nuclear Safety. Both of these triennial review meetings  
8 were postponed in the last few years due to the pandemic and the inability of  
9 folks to travel to meet in person.

10 The NRC staff and management also played central roles in  
11 the first ever review meeting of the amended Convention on the Physical  
12 Protection of Nuclear Materials. The OIP also represented the NRC on the  
13 U.S. delegation to the Nuclear Non-Proliferation Treaty Review Conference  
14 this year in New York, and NSIR participated in the meeting of competent  
15 authorities for both the Convention on Early Notification of a Nuclear Accident  
16 and the Convention on Assistance in the Case of a Nuclear Accident or  
17 Radiological Emergency.

18 On the safeguards side, the staff continued its  
19 implementation activities under the U.S. IAEA Safeguards Agreement.  
20 Obligations under this agreement include providing information to the IAEA on  
21 the location of civilian nuclear facilities and providing access to those facilities  
22 to conduct inspections. Activities included serving as the chair of the  
23 subgroup on IAEA safeguards in the U.S., supporting the DOE's International  
24 Nuclear Safeguards Engagement Program, and supporting an IAEA

1 verification visit to licensees in Puerto Rico reporting under the U.S. IAEA  
2 Safeguards Agreement for the Caribbean territories.

3           Returning to the Convention on Nuclear Safety, we'll talk  
4 about the priorities for 2023. As the lead federal agency for the Convention  
5 on Nuclear Safety, the NRC will lead the delegation to the next review  
6 meeting in March of 2023. Chair Hanson will present the U.S. national report  
7 with the support from the Executive Director of Operations, as well as from  
8 the Institute of Nuclear Power Operations who will represent the industry.  
9 And we will have staff participating in each of the country groups during the  
10 review meeting.

11           The CNS review meetings provide a critical opportunity for  
12 nuclear regulators to peer review one another's regulatory programs, identify  
13 good practices, and recommend areas for improvement where necessary.

14           On the security side, we will continue to work closely with  
15 the Executive Branch to advocate to universalize the amended CPPNM,  
16 Convention for Physical Protection. The NRC will also co-chair the triennial  
17 meeting of the Code of Conduct on the Safety and Security of Radioactive  
18 Sources. While the code is not legally binding internationally, the United  
19 States has made a political commitment to it.

20           Moving to export licensing, in FY22, as the U.S. licensing  
21 authority for exports of nuclear material, components, and equipment, the  
22 NRC plays a critical role in meeting U.S. non-proliferation and peaceful uses  
23 obligations under the non-proliferation treaty. Our primary objective is  
24 maintaining a licensing process that is stable, predictable, and transparent.



1 To that end, we prioritize frequent engagement with both our licensees and  
2 our Executive Branch colleagues to ensure that our process is well  
3 understood and applications can be reviewed in a timely manner.

4 In fiscal year 2022, the NRC completed 62 licensing actions  
5 with more than 90 percent of those completed within 60 days of receiving the  
6 Executive Branch views. OIP receives outstanding support and input from  
7 NMSS, NSIR, and OGC on all export licensing reviews.

8 Our staff also conducted a variety of outreach activities at  
9 conferences such as the Institute for Nuclear Materials Management and the  
10 annual National Conference of Radiation Control Directors. Also, at training  
11 courses for U.S. government employees, such as the Department of Energy's  
12 non-proliferation seminar. Also, in multinational fora, such as the IAEA's  
13 International Conference on the Safety and Security of Radioactive Sources  
14 and also to congressional staff on Capitol Hill.

15 We also continue our support for the Nuclear Suppliers  
16 Group, which implements international export controls for nuclear materials  
17 and equipment. Changes made to the Nuclear Suppliers Group guidelines  
18 result in commensurate changes to our own 10 CFR Part 110 regulation, so  
19 the staff must work closely with international colleagues in negotiations to  
20 ensure that any changes do not conflict with NRC's equities. Our  
21 participation in these activities is key to the success of U.S. policy.

22 Finally, the NRC continues its close engagement with the  
23 National Security Council, the Department of State and Department of  
24 Energy, and other U.S. government partners in policymaking discussions with

1 potential impacts on NRC's export and import licensing activities. This  
2 engagement included NRC participation in negotiations for bilateral  
3 agreements for civil nuclear cooperation under Section 123 of the Atomic  
4 Energy Act, which we refer to as 123 agreements, as well as detailing an  
5 NRC staff member to the State Department to work on export licensing from  
6 the Executive Branch's perspective.

7                   Turning to FY23 priorities, the NRC's export and import  
8 licensing program is required by the Atomic Energy Act, so our top priority  
9 every year is to prepare to license exports of advanced reactors. Just as on  
10 the domestic side, our technical staff is engaged in pre-application  
11 discussions to obtain important information and ask questions up-front, the  
12 OIP staff works closely with the NRC technical offices and our Executive  
13 Branch colleagues, as well as the potential applicants, to ensure that we have  
14 a robust understanding of the various reactor designs.

15                   We are also continuing our engagement with our  
16 counterparts in partner supplier countries to help ensure that international  
17 export control guidelines reflect the additional proliferation nuances that these  
18 new designs may bring. We are also working to ensure we have adequate  
19 resources to support upcoming physical protection bilateral visits.

20                   And, finally, we will continue to work closely with our  
21 Executive Branch partners on policy development activities that could impact  
22 NRC export or import equities. For example, in the recent past, information  
23 about China's misuse of U.S. nuclear technology resulted in a development of  
24 a policy restricting certain exports to China. And, currently, Russian

1 aggression in Ukraine is causing the U.S. government to focus on improving  
2 the domestic nuclear fuel supply.

3           The last area I will cover before turning things over to Dan is  
4 the NRC's international regulatory assistance activities. The NRC's  
5 international regulatory assistance activities strengthen global nuclear safety  
6 and security and align closely with U.S. government foreign policy and  
7 national security priorities. Through our assistance efforts, we aim to  
8 positively, independently, and in technically competent ways make sure that  
9 these new entrant countries can develop their nuclear regulatory programs in  
10 accordance with, mirrors the key principles of the NRC's infrastructure and  
11 regulatory approaches. This, in turn, contributes to nuclear power and  
12 radioactive materials being used more safely and securely around the world.

13           While we are an independent agency, we work closely with  
14 the Executive Branch to ensure that we are prioritizing our assistance work  
15 consistent with broader U.S. government objectives. A great example of this  
16 is our work with the Polish Atomic Energy Agency. The NRC has hosted  
17 Polish regulatory executives and 12 international assignees at the Technical  
18 Training Center, at our headquarters office, in Region II, and Vogtle. This  
19 one-year effort has allowed our Polish counterparts to immerse themselves  
20 on daily NRC activities associated with new reactor licensing, construction,  
21 and plant start-up. Supporting this activity has been a significant effort  
22 involving numerous offices, including NRR, Region II, OCHCO, the folks at  
23 the Technical Training Center, and OCIO. It demonstrates the NRC's  
24 commitment to help prepare the Polish regulator to license and regulate their

1 first nuclear power plant.

2                   As the Executive Branch seeks to limit Russian influence in  
3 the civil nuclear market, Eastern European countries like Poland have  
4 become important partners.

5                   Our international assistance work also touches U.S.  
6 government foreign policy priorities in other ways, particularly when there are  
7 emergent geopolitical issues affecting nuclear equities. In fiscal year 2022,  
8 we responded quickly to the continuing Russian aggression in Ukraine by  
9 leveraging our relationships across the U.S. government, coordinating with  
10 international counterparts, and working with other NRC offices to facilitate  
11 information sharing, address urgent technical questions and requests for  
12 information, and quickly commit funding to the IAEA to support Ukrainian  
13 regulatory counterparts.

14                   We are also working closely with the Department of State  
15 as it implements its foundational infrastructure for the responsible use of small  
16 modular reactor technology. I know that's a mouthful, so we call it FIRST,  
17 the FIRST program.

18                   The State Department highlights FIRST as a  
19 capacity-building program designed to deepen strategic ties, support energy  
20 innovation, and advance technical collaboration with partner nations on  
21 secure and safe nuclear energy infrastructure. Through our engagement  
22 efforts, we help ensure synergies between our engagement in the FIRST  
23 program to target countries' and states' efforts, highlighting the importance of  
24 credible safety regulation to the success of fledgling nuclear energy

1 programs.

2                   On the radioactive source and safety side, in fiscal year '22,  
3 we completed three radioactive source inventory phases in Africa. This  
4 phased approach refers to the work that the NRC staff and contractors do to  
5 help our assistance partners establish and maintain a national radioactive  
6 source registry. As each registry can take months due to the geographic  
7 size of the country and the number of sources, we conduct them in phases.  
8 Generally, we start in the country's capital and then begin moving out to other  
9 regions in subsequent phases.

10                   We also worked in FY22 with the government of Tanzania  
11 to develop some new transport security regulations in that country.

12                   Our international assistance work also touches U.S.  
13 government foreign policy priorities in other ways. I think I've already  
14 covered that. Sorry about that. Let's go to slide 11.

15                   So we have three main priorities for our international  
16 regulatory assistance work in fiscal year 2023. First, we will continue to  
17 integrate our assistance activities with U.S. government foreign policy  
18 priorities and, in particular, we will support high-priority requests from the  
19 Executive Branch related to the global deployment of new reactors. With  
20 Poland's recent announcement of its decision to construct three  
21 Westinghouse AP1000 units, we expect that our engagement with the Polish  
22 regulator will continue to increase. This will be impactful both from a safety  
23 perspective and a policy perspective, as our work will directly assist Poland in  
24 starting up its nuclear program as safety as possible with the benefits of our

1 expertise, which has the added impact of reducing Russian influence in the  
2 Eastern European region.

3           Second, we will continue to help embarking countries  
4 develop their regulatory infrastructure to enable them to regulate nuclear and  
5 radioactive material use safely and securely. And, finally, the NRC's  
6 regulatory assistance program will continue to support countries in developing  
7 national radiological source inventories, particularly in high threat regions of  
8 the world.

9           Our work in this area, combined with our engagement with  
10 regulatory bodies under the Code of Conduct on the Safety and Security of  
11 Radioactive Sources strengthens both safety and security worldwide. It  
12 reduces proliferation risk and facilitates expanded access to the peaceful  
13 uses of nuclear technology. These are all key obligations under the nuclear  
14 non-proliferation treaty.

15           In addition to these important areas, the NRC will continue  
16 its strong support for nuclear safety and security in Ukraine to continue close  
17 engagement with our interagency and international partners.

18           So with that, I will invite Dan to share his thoughts and  
19 insights from our international cooperation and research areas.

20           MR. DORMAN: Thank you, Dave. It's my pleasure to talk  
21 to you today about our many accomplishments and priorities in the areas  
22 Dave just mentioned. The NRC's international cooperative engagement  
23 benefits our domestic mission in a wide variety of technical and nontechnical  
24 disciplines. It also enables the NRC to share our expertise and demonstrate

1 leadership to strengthen other regulatory programs around the world.

2 International cooperation activities fulfill nearly every one of  
3 our international strategic objectives and involve a broad range of NRC  
4 offices, both headquarters and region and both technical program and  
5 corporate offices.

6 As you can see on this slide, there's a great number of  
7 committees, peer reviews, working groups, and other engagements that make  
8 up our international cooperation. I suggested to staff we do a word cloud on  
9 this one to capture the breadth and diversity, as well as the essence of all that  
10 we do here in one place.

11 In fiscal '22, NRC managers and staff led or participated in  
12 all of the International Atomic Energy Agency and committees responsible for  
13 the development, revision, and approval of safety standards and security  
14 guidance. We participated in 13 IAEA peer review missions and preparatory  
15 meetings, including leading the International Physical Protection Advisory  
16 Service mission in the Czech Republic and a follow-up Integrated Regulatory  
17 Review Service meeting in Zimbabwe and providing a deputy team leader for  
18 the IRRS missions to Argentina and India.

19 I want to highlight the expertise that our regional offices  
20 bring to the table in this area. Five of the peer review mission participants in  
21 the last fiscal year were from the regions. At the Organization for Economic  
22 Cooperation and Development's Nuclear Energy Agency, we led and  
23 participated in standing technical committees responsible for setting the  
24 NEA's budget and program of work and publishing technical positions to

1 strengthen nuclear safety regulation in a variety of areas, including reactor  
2 oversight, waste management, radiation protection and public health, safety  
3 culture, risk reduction, human factors, and others. The staff has also led  
4 cooperative engagement and training development in the areas of risk  
5 communication and nuclear law.

6 Under the Memorandum of Cooperation on Advanced  
7 Reactor and Small Modular Reactor Technologies, the NRC staff successfully  
8 collaborated with our Canadian colleagues on advanced reactor topics and  
9 issued unified positions through first-of-a-kind joint reports. This past  
10 September, the NRC and CNSC, our Canadian counterparts, signed a charter  
11 documenting collaboration on a new project associated with GE Hitachi's  
12 BWRX-300 design. Ontario Power Generation and the Tennessee Valley  
13 Authority are working together on the industry side to share experience and  
14 enhance design standardization. NRC and CNSC agreed that the initial  
15 topics of cooperation will be in the areas of advanced construction  
16 techniques, safety strategy, and pre-qualified fuel verification and validation.

17 The NRC-CNSC is intended to reduce duplication of  
18 licensing review efforts, jointly utilize third-party verification, identify areas for  
19 collaborative verification, share expertise, and leverage analysis performed by  
20 each regulatory organization.

21 The staff has also collaborated extensively with regulatory  
22 counterparts in Canada, Finland, France, Japan, the Republic of Korea,  
23 South Africa, Spain, and the United Kingdom on operator licensing  
24 benchmarking activities to help inform the development of the Part 53



1 rulemaking, which will establish a new transformative regulatory framework  
2 consistent with the Nuclear Energy Innovation and Modernization Act.

3           On the security side, the staff has engaged in cooperative  
4 discussions with the UK, Canada, France, Japan, and the Republic of Korea  
5 on security-related topics, such as drones and oversight activities related to  
6 the force-on-force program. These are all prime examples of how the NRC's  
7 international engagement is essential in strengthening and informing our  
8 domestic activities.

9           Finally, in the past year, we have welcomed international  
10 assignees from Japan, Poland, and the Republic of Korea to work alongside  
11 NRC staff for on-the-job training and experience. These highly-qualified  
12 experts contribute to our work as much as they learn from us.

13           The next slide. It will not be a surprise to hear that the  
14 main priorities for the NRC internationally align closely with our domestic  
15 priorities. This presents opportunities, as well as challenges. In the  
16 opportunities category, international cooperative engagement enables us to  
17 share expertise with regulatory partners and multilateral organizations,  
18 demonstrate leadership to influence the direction and content of international  
19 standards and guidance, and learn from our counterparts in ways that  
20 enhance our domestic reviews. Our cooperative work directly aligns with  
21 most of our international strategic objectives across a wide range of technical  
22 topics.

23           In the challenges category, the same experts who are  
24 leading domestic projects are sought after internationally for their knowledge

1 and expertise. This makes it especially critical that we prioritize our activities  
2 appropriately so that our domestic work is not adversely impacted.

3                   We expect an increasing number of requests for  
4 engagement focused on SMRs and advanced reactors. Bilaterally, we will  
5 continue our joint technical review work with Canada. We also expect to  
6 expand engagement with France, Japan, the Republic of Korea, and the  
7 United Kingdom in this area. And multilaterally, we will continue our  
8 leadership of the IAEA's SMR Regulators' Forum and work to influence the  
9 direction of the new Nuclear Harmonization and Standardization Initiative, or  
10 NHSI, at IAEA so that it can strike an appropriate balance between optimizing  
11 the efficiency of regulatory reviews and preserving critical sovereign  
12 responsibilities.

13                   We will also engage strategically with Canada and the UK  
14 on a trilateral basis, as well as bilaterally with France, to partner in the  
15 development of multilateral activities related to physical and cybersecurity and  
16 emergency preparedness for SMRs and advanced reactors at both the IAEA  
17 and NEA.

18                   NRC staff and management will also serve as team leaders  
19 or deputy team leaders for IRRS missions or preparatory meetings in  
20 Germany, Poland, Sweden, and Finland, among others. We will hold  
21 steering committee meetings with Canada, France, Japan, and Republic of  
22 Korea, and bilateral technical meetings with India and Taiwan. These  
23 meetings, under the leadership of Senior Executive Service champions,  
24 provide opportunities for fruitful bilateral discussions with some of our primary

1 regulatory counterparts that include a documented list of prioritized  
2 engagements for the coming year. This enables both parties to judiciously  
3 allocate resources to various activities on a specific timetable.

4                   We look forward to resuming these meetings in person after  
5 several years of COVID-related uncertainty, and we'll also continue our  
6 cooperation with Canada on the front end of the fuel cycle and transport  
7 issues.

8                   On that subject, every area of the NRC's work was  
9 impacted by the COVID pandemic and international engagement was no  
10 different. But I wanted to emphasize that the staff worked extremely hard to  
11 ensure that COVID would not significantly disrupt our cooperation with the  
12 staff participating in virtual meetings at all hours of the day and night with  
13 counterparts in different time zones. We are leveraging best practices,  
14 lessons learned, and expanded IT abilities from virtual engagement, as we  
15 consider how to most efficiently collaborate with our international partners.  
16 This includes greater use of hybrid approaches to bring the right NRC  
17 expertise to the right meetings at the right time and realizing cost savings  
18 whenever possible.

19                   I wanted to just briefly note on the slide here is the signing  
20 of the charter for the BWRX-300 project with myself with Ramzi Jammal, my  
21 counterpart from Canada.

22                   NRC management served on OECD NEA standing  
23 technical Committee on the Safety of Nuclear Installation and the Committee  
24 on Radiological Protection and Public Health. In addition, the staff

1 maintained leadership roles in many NEA working groups and IAEA  
2 cooperative research projects.

3                   We have calculated that our involvement in OECD research  
4 projects yields up to a ten-to-one cost-benefit ratio. Having access to the  
5 international research facilities enables the NRC and its counterparts at  
6 regulatory bodies and technical support organizations to share costs and  
7 leverage expertise on a wide variety of projects with far-reaching benefits.  
8 Data and results from these projects have direct impact on NRC's regulatory  
9 work in critical areas like fire protection, component degradation, reactor  
10 system phenomena like passive heat removal, and severe accident  
11 prevention and prediction.

12                   International nuclear safety research has important  
13 applicability to both conventional and new reactor designs and is informing  
14 the NRC's preparedness for review and licensing of new designs. Absent  
15 these multinational research efforts, we would have to construct similar  
16 research facilities in the United States at significant cost to the U.S.  
17 government in time and resources that would almost certainly be detrimental  
18 to meeting our domestic nuclear safety objectives.

19                   The staff also initiated or renewed 18 computer code  
20 sharing agreements in fiscal '22. Computer code sharing yields important  
21 insights to help validate our computer codes for thermal hydraulics, severe  
22 accidents, and radiation protection. In fiscal '22, we've collected \$1.8 million  
23 in revenue from our computer code-sharing programs, as well as an array of  
24 beneficial in-kind contributions from countries conducting research alongside

1 us.

2                   We also resumed technical meetings with our research  
3 counterparts in France and Germany. As these organizations are separate  
4 from the regulatory bodies in those countries, our relationships with them are  
5 especially important.

6                   Looking forward to fiscal '23, we will continue our  
7 engagement with the Canadian Nuclear Safety Commission and UK's Office  
8 for Nuclear Regulation on overarching principles for evaluating the uses of  
9 artificial intelligence technologies. The goal is to establish a common set of  
10 principles for evaluating the use of AI technologies based on existing  
11 knowledge and identify further areas of collaboration after considering these  
12 principles, helping inform future regulatory approaches for AI.

13                   We will also continue our leadership of the NEA agreement  
14 for the Framework for Irradiation Experiments II, or FIDES-II, a follow-up to  
15 the Halden Reactor Project. International collaboration under FIDES  
16 agreement allows for international collaboration to foster and facilitate  
17 radiation experiments to test materials and fuels. This agreement fosters a  
18 multinational community in the field of study, industry, and research that  
19 shares goals, resources, and results to define and implement Joint  
20 Experimental Programs, or JEEPS, and cross-cutting activities. The NRC is  
21 gaining access to the results of these joint programs, which will help inform  
22 NRC safety and licensing strategies for nuclear innovations, such as accident  
23 tolerant fuels, extensions to fuel burnup limits, and the high radiation  
24 exposure of reactor materials such as stainless steel welds over subsequent

1 periods of extended operation. Research Director Ray Furstenau is the  
2 Chair of the FIDES governing board, which authorizes these Joint  
3 Experimental Programs.

4 Before we close, we'd like to share a quick snapshot of our  
5 international program accomplishments over the last year. I want to thank  
6 the Office of Public Affairs for sharing their format of the NRC By the  
7 Numbers graphics, which they release quarterly, to provide you with this  
8 visual representation of some of the overarching accomplishments in the  
9 international programs.

10 We'd also like to acknowledge OPA's efforts in publicizing  
11 the Commission and staff's international engagement on social media,  
12 including international and domestic visits, important agreement signings and  
13 conferences, and the release of our international strategy. This is another  
14 area where we can model transparency and learn from our counterpart  
15 regulators' engagement strategies.

16 With that, I'll turn it back to Dave to give some brief closing  
17 remarks.

18 MR. SKEEN: Thanks, Dan. And thank you, Chair and  
19 Commissioners, for affording us this opportunity to brief you on the agency's  
20 international activities. This was not, by any means, an exhaustive list of  
21 activities and priorities, but I hope we gave you a snapshot at least of our  
22 work and how we are meeting our strategic objectives.

23 Our international work directly benefits our domestic  
24 mission. It enables us to learn from and share knowledge with partner

1 countries. It strengthens global safety and security through regulatory  
2 assistance, allows us to demonstrate leadership to influence important  
3 international safety standards and multilateral initiatives, and closely connects  
4 our work with broader U.S. government policy priorities. Our goal in creating  
5 the international strategy was to enable all NRC staff to clearly identify how  
6 their individual work helps meet the agency-wide international objectives, and  
7 we are very proud at the way this is demonstrated across the NRC in  
8 headquarters, in the regions, and across all technical disciplines.

9                   With that, we'll be happy to take your questions. Thank  
10 you.

11                   CHAIR HANSON: Thanks, Dave and Dan. Really  
12 appreciate the high-level overview. I think I'm just going to dive in here with  
13 some remarks, and I may make my way around to a question at some point  
14 in the ten-minute period, but there are no guarantees in that regard.

15                   So let me kind of repeat some things that I said in some  
16 other contexts about how important I think the work that OIP does and the  
17 way OIP really leverages the rest of the agency in these international fora.  
18 The relationships that get built over time, you know, one of the things about  
19 these relationships is you're never quite sure when you're going to need  
20 them, and you need them to be robust and you need to have gone through a  
21 few ups and downs by the time something bad or something maybe even  
22 very good happens so that you're ready for that opportunity. As Brooke  
23 occasionally likes to say, fortune favors the prepared, and I think that that is  
24 an awful lot of what the work of OIP does, the work in staffing and bringing

1 our expertise to bear on these international fora.

2                   You know, as I get to travel internationally, one of the great  
3 things I've enjoyed is getting to know the technical experts that we bring over,  
4 people that I may not see around the building, people from the regions, and  
5 other kinds of contexts who are really, you know, exceptionally highly  
6 regarded internationally for their expertise. And that kind of almost kind of  
7 one-on-one relationship building is so critical. And I think we saw that in our  
8 relationship with Poland. That's something that started ten years ago.  
9 We've ramped it up a lot in the last couple of years because Poland has come  
10 to us and asked for the strategic, as well as the prosaic, you know, document  
11 management and licensing reviews. We did a workshop on that maybe 18  
12 months ago.

13                   And, again, the relationships that got built, we had our  
14 foreign assignees there. They went down to Vogtle and they met our on-site  
15 construction inspectors, as well as our resident inspectors for Units 1 and 2,  
16 as well as the folks in Atlanta and so forth, and all of those relationships really  
17 matter because what we're ultimately doing here, besides sharing our  
18 expertise, is actually sharing our values. The ultimate objective, in a way, is  
19 for us, as part of these engagements, particularly with embarking countries, is  
20 to build strong, independent, technically-competent regulators who are  
21 capable, who can certainly learn from us, sometimes even the technical stuff,  
22 right. I mean, you mentioned Ramzi Jammal, Dan. Ramzi's saying is a  
23 neutron is a neutron is a neutron. Yep.

24                   But building the capability in these other countries so that



1 they can make their own technically robust decisions around that is really  
2 critically important and not only around those technical conclusions but also  
3 around our overall kind of philosophical approach to regulation, right. Our  
4 principles of good regulation and our values. And, you know, I'm particularly  
5 enamored with those in the international context because I really believe that  
6 our nuclear safety values, the things that we go out and espouse, are also  
7 democratic values, and they're worth sharing from that perspective, as well.  
8 And that, in some cases, is how they fit in to the overall USG strategic foreign  
9 policy context on some of these things.

10                   Let me talk for just kind of a minute about Ukraine and our  
11 relationship with the Ukrainian regulator. Congress saw fit to provide us with  
12 a little extra money so that we could help support them. We've done that  
13 both on the nuclear safety side with regard to the safety of some of their  
14 plants, particularly Zaporizhzhia and the continued detailed ongoing  
15 engagement there, but also on some of the material side, right, and helping  
16 them keep track of, in a war zone essentially, their radioactive sources, which  
17 we also care about the safety and security of.

18                   And that, you know, with regard to that then, it's also  
19 important, you know, what we have in the Russian invasion of Ukraine, the  
20 Russian war against Ukraine; let's call it what it is, right. We have a direct  
21 kind of assault on the international rules-based order, and that rules-based  
22 order exists in a lot of context, right. It exists in treaties and laws, but it also  
23 exists in these organizations, the IAEA, the UN, the OECD NEA, the OSCE,  
24 NATO, other kinds of contexts. And it's our involvement in those that sustain

1 those institutions and make them robust and make them robust in times of  
2 conflict and in times of attack. And particularly when it comes to nuclear  
3 safety and security, this agency has a direct interest in sustaining the  
4 international rules-based order through, you know, a lot of the conventions  
5 and agreements that you guys made in your remarks. And those institutions  
6 are the thing, because Russia invaded Ukraine, it scrambled the global  
7 nuclear fuel cycle, right. And so there is a real need for like-minded  
8 countries to come together and rewire that fuel cycle to everyone's benefit.

9           And we're figuring that out but an awful lot of the things that  
10 have to occur are going to come through this agency. Greater capacity for  
11 enrichment, greater capacity for conversion, export controls of technology,  
12 ensuring peaceful uses, ensuring safeguard standards are upheld, et cetera.  
13 And we're going to have to do all that, you know, not in a vacuum, in  
14 partnership with our USG colleagues, and, again, with our allies on so many  
15 of these things.

16           And in that way, you know, as we endeavor to do that, none  
17 of that stuff is charity, right. This is all in our national strategic interest. And  
18 so it is just one way in which, you know, we get to play our small role in the  
19 overall U.S. government foreign policy.

20           Let me just put in a quick plug here for materials, you know.  
21 Nuclear power gets a lot of focus, as well it should, right. For a lot of these  
22 countries who are embarking, it's about energy security, it's about national  
23 security, maybe down the road it's about climate security. But like in the  
24 U.S., you know, peaceful uses of radioactive materials are people's exposure,

1 everyday exposure to the nuclear world. And supporting those efforts  
2 around the world are also really important. Talking about source security  
3 and working with our friends at the National Nuclear Security Administration,  
4 enabling the peaceful uses for human health and development, participating  
5 in things like the IAEA Rays of Hope, which endeavors to put radioactive  
6 source cancer treatments into more countries. Well, what enables all of  
7 that? Well, again, strong independent regulators. They don't have to be  
8 very big, you know. I was down in Panama earlier this year, and they've got  
9 five people. Not a fully-independent regulator, they're part of the Ministry of  
10 Health, but we're down there and we have modest efforts to help train  
11 personnel in radiation protection and health physics and other kinds of things  
12 down there that enable those uses. Even though that regulator is small, you  
13 know, we went to the COPEG, the screwworm eradication facility there that  
14 the U.S. and Panama jointly operate, and, you know, sure enough, in the  
15 room with the radioactive source was the license from the Ministry of Health.  
16 And so they're fulfilling their obligations, and we can help with that, too.

17 On some of my journeys and interactions, particularly in  
18 Latin America, I've learned a lot of about disused sources, right. A lot of  
19 these countries now have several decades of experience in using these  
20 materials and, by golly, they've got a growing inventory of disused sources.  
21 Well, you know what, that might be something we can help with or we can  
22 participate with our international partners on helping with. Does each  
23 country need its own, you know, what about storage, what about security of  
24 those sources, et cetera. I think it's just one more example where, again, it's

1 in our strategic safety, security interests. And, you know, I've thought and a  
2 lot of other people have for a long time that, you know, supporting  
3 international human health and development goals is also in the U.S. interest,  
4 even if we don't see that immediate benefit right away.

5 So I just want to express the appreciation and the great  
6 pride I've had in getting to travel internationally with people and, you know,  
7 have international counterparts come up and say, you know, we don't know  
8 you from Adam, but we really like so-and-so in the NRC staff. I mean, it  
9 really is enormously satisfying.

10 So, again, thank you all across the agency for what you do  
11 and, I think, some of the success that we've had in these efforts, and I look  
12 forward to hearing a lot more about it.

13 Commissioner Baran.

14 COMMISSIONER BARAN: Thanks. Well, with growing  
15 interest in new reactor construction in the U.S. and around the world, NRC's  
16 international work has never been more important. Some countries are  
17 interested in learning more about our regulatory approach as they develop  
18 their own regulatory capabilities. At the same time, there's growing interest  
19 in collaboration on technical issues that need to be evaluated in the licensing  
20 reviews of new designs, and nuclear export licensing may become a larger  
21 focus area for us. So I think this is a valuable and timely meeting.

22 My recent trip to the Darlington site in Canada, President  
23 Velshi and I discussed NRC's cooperative efforts with the Canadian Nuclear  
24 Safety Commission on the GE Hitachi BWRX-300 design. I'm very

1 enthusiastic about our two agencies looking at some of the technical issues  
2 and trying to come to common technical positions that could then feed into  
3 our separate licensing reviews. Can you give us an update on the status of  
4 those efforts?

5 MR. DORMAN: Sure. Thanks, Commissioner. As I  
6 mentioned, and we had the picture on the slide, the first step was establishing  
7 the charter for that work under the MOU, and Ramzi and I signed that in  
8 September. And then concurrent with that, the staff was working with  
9 General Electric Hitachi and with OPG and TVA, as well as with CNSC, to  
10 identify topics that were ripe for that sort of collaborative effort. And so those  
11 three projects have just within the last week or so been laid out, so we now  
12 have established the three projects areas that we'll be working on with our  
13 Canadian counterparts as we work with those applicants.

14 COMMISSIONER BARAN: That's great. And when I met  
15 with Mark Foy of the UK's Office for Nuclear Regulation, it sounded like they  
16 might be interested in getting more involved in the cooperative efforts we  
17 have with Canada. Are we having those discussions?

18 MR. DORMAN: We do have those discussions with Mark  
19 and his team. One of the challenges in this international collaboration is an  
20 applicant bringing the same technology to multiple regulators at the same  
21 time, and that's what we've got with the proposals from OPG and TVA for our  
22 Canadian counterparts.

23 I know GE is having discussions with a number of countries  
24 on the X-300 technology. UK is high on that list. UK has other technologies

1 that are talking to them. So I know ONR is interested, and, at this point, I  
2 think we've had conversations more about them participating as an observer.  
3 We have the established MOC with our Canadian counterparts. If we  
4 wanted to go deeper, we would have to develop the appropriate instruments  
5 to enable that.

6 I think there are a lot of other countries. Every time I talk to  
7 a vendor, their list of countries that they're talking to is growing. And so I  
8 think one of the challenges with harmonization and standardization is we've  
9 already, through some of the first projects that we did with our Canadian  
10 counterparts, worked through some of the challenges of just getting two  
11 regulatory frameworks to work together. The more you bring into the  
12 conversation, the greater the risk that that harmonization effort is actually  
13 bogging things down, so we don't want to do that. But one of the things in  
14 the IAEA initiative is to look at how downstream regulators can take credit for  
15 or learn from the first regulators. There's a great example of that experience  
16 between UAE and South Korea and the development of the Barakah project  
17 in the United Arab Emirates and the NHTS effort at IAEA is looking to learn  
18 from that to identify a framework where a newcomer coming to an established  
19 regulator who has already licensed the technology can gain efficiencies from  
20 that process, as well.

21 COMMISSIONER BARAN: Thanks. And I think you make  
22 a really good point, which is that I think sometimes there's the temptation to  
23 think, well, cooperation with more countries simultaneously on something is  
24 always better. And I think what we've seen in our work with the Canadian is

1 that sometimes actually something that's more bilateral or trilateral you can  
2 really get a lot of, just from the practicalities of it, get more real product  
3 deliverables at the end of that effort. And I think that's really valuable.

4 I'm interested in hearing a little more about separate  
5 trilateral effort with Canada and the UK on artificial intelligence. It sounds  
6 like that might be just getting started. Can you tell us a little bit more about  
7 that?

8 MR. DORMAN: I'm going to go to a lifeline on that --

9 COMMISSIONER BARAN: Okay.

10 MR. DORMAN: -- and ask Stephanie or Luis from  
11 research to give us an update on that effort. Thanks.

12 MR. BETANCOURT: So good morning, Commissioners.  
13 So thank you for that question. So the purpose of this project, as Dan  
14 Dorman mentioned, is to evaluate AI technologies, and the plan is by the end  
15 of the year of calendar year 2023 we will deliver the white paper that basically  
16 shows a common position on how we plan to evaluate this technology and, to  
17 your point, how can we better leverage the expertise across the Canadians,  
18 the ONR, and the NRC to be able to have a common product that will be  
19 useful for both the industry, as well as the regulators.

20 COMMISSIONER BARAN: Great. Well, that sounds like  
21 a great project.

22 Let me ask a slightly different question. To assess NRC's  
23 readiness to handle potential advanced reactor exports under our Part 110  
24 regulation, the staff conducted a review. Can you talk a little bit about what

1 the staff found and how the Part 110 rulemaking is going?

2 MR. SKEEN: Yes. Thanks for that question,  
3 Commissioner. And I can take that one. So that's done under our group  
4 under the import/export licensing folks. And, yes, we figured out a few years  
5 ago that, with this new interest in some of the advanced designs, we asked  
6 ourselves a question: if we got an advanced reactor export application, could  
7 we do that under current Part 110, our regulations?

8 And so the working group got together, they met with a lot  
9 of folks, talked internally, talked to some of their folks externally, and basically  
10 what the report came out with was that we could with more advanced designs  
11 today under Part 110. However, there were a number of ways we could  
12 improve that and be prepared for some of these new designs that we see  
13 coming down the road. And it was fortuitous the designs that we looked at  
14 and the kind of components that we were looking at and materials that would  
15 be used are actually the same five that NRR now is getting interest in and  
16 getting applications for. So that was good that that kind of meshed together.

17 So as a result, we decided to put together a rulemaking  
18 plan for the Commission to consider, and that will be coming up to you guys  
19 probably in the first quarter of calendar year '23 to talk about ways that we  
20 could improve on Part 110 if the Commission decides to go forward with that.  
21 And so you should be seeing that soon.

22 But I don't know if you need more details, Pete Habighorst  
23 is our branch chief in that group, and he could probably speak to a little bit  
24 more on that.



1 MR. HABIGHORST: Good morning, Chair. Good  
2 morning, Commissioners. Just an addition to what Dave mentioned, he  
3 asked me to expect a rulemaking plan and we look at that as an opportunity  
4 for the Commission's decision, obviously, on a path forward on 110. We just  
5 know that, from advanced reactors, it's already happening on exports. We've  
6 already approved an export six months ago dealing with TRISO fuel to the  
7 Netherlands for nondestructive examination and fuel qualification.

8 So even though we believe it's down the road, we're starting  
9 to see, as vendors start to test and get ready for advanced reactors and  
10 licensing, we start to see those exports.

11 COMMISSIONER BARAN: Great. Thanks. Appreciate  
12 the update.

13 One last question I had. One important aspect of our  
14 cooperation with our international counterparts is IAEA peer review missions.  
15 Our frequent involvement in the peer reviews of other regulators was  
16 mentioned earlier. NRC had its last peer review in 2010, and most of our  
17 counterparts have been reviewed more recently.

18 To promote U.S. international leadership and gain the  
19 benefit of the findings and perspectives of our international partners, I'd like to  
20 see NRC begin exploring the scope and timing of a future peer review  
21 mission. Can you talk about the staff's efforts in this area?

22 MR. DORMAN: Yes. Thank you, Commissioner. And I  
23 may go to a lifeline for more detail, but I think, as we prepared for the  
24 Convention on Nuclear Safety, we, I think, coincident with your approval of

1 our national report, you asked us to take a look at this. So the staff, over the  
2 next year or so, will be looking at the issues associated with conducting an  
3 IRRS, receiving an IRRS mission. It's a significant multi-year effort. There's  
4 a structured self-assessment that IAEA has laid out the framework for that's  
5 about a year for the regulator to develop that self-assessment as an input to  
6 the team that then comes and engages in a review of our program against  
7 IAEA's standards.

8 And then there's a several year effort following the IRRS  
9 mission to address the findings of the team and, typically, then a follow-up  
10 mission three to four years after the original mission. So you mentioned the  
11 2010. I think we had our follow-up in 2014.

12 And the other -- so there's a timing issue, there's a scope  
13 issue that the staff will explore and present options to the Commission on  
14 what we would ask IAEA to bring a team to look at. And the 2010 mission  
15 that you referred to, we focused only on the operating reactor program. As  
16 we go to some of the other countries, a lot of them do full scope, so reactors,  
17 materials, everything.

18 With the size of our programs, that's a very heavy lift. And  
19 so the Commission, in 2010, decided to focus to just operating reactors, so  
20 we'll explore those options and bring those to you in response to the direction  
21 you provided.

22 COMMISSIONER BARAN: Great. Well, I look forward to  
23 all those discussions and appreciate all the work you're doing and your teams  
24 are doing. And I agree with the Chair that it's just vital work. It always has

1     been, but I think it's especially true today. So thank you.

2                     CHAIR HANSON: Commissioner Wright.

3                     COMMISSIONER WRIGHT: Thank you, Chair. First off, I  
4     want to thank you for your comments. I was -- they were very good and they  
5     covered a lot of ground, and I'm hoping to maybe refer to some of them in  
6     what I want to do today. I may have a question, maybe not. I don't know  
7     that I'll use my whole ten minutes either.

8                     But, one, Dave, I want to thank you and all the members of  
9     your team and your office for what you do and what you have done. It's one  
10    of these areas that is overlooked probably on a national scale by other, you  
11    know, we know what we're doing, right. But outside the building, maybe  
12    people don't really realize. And you're doing it on a very limited budget,  
13    which is one of the areas I think we need to maybe look at and delve into in  
14    the future because what you're being asked to do on the international side is  
15    to a scale now that we've probably never done before and it's going to get  
16    even bigger and it's more and more important.

17                    The relationships that you've been building over the years,  
18    they're certainly bearing fruit, and they're more important today than they  
19    have ever been. And going forward with the work that we are doing and with  
20    what the future kind of looks like with advanced reactors and some of the  
21    things that these countries are trying to get involved in, they're only going to  
22    be successful if we are successful here on the domestic side, right. And if  
23    we don't meet the mission, if we don't meet the moment here, then we're not  
24    helping, we're not going to be able to help them the way that they need to be

1 helped.

2                   It's going to be important for us for several reasons. It's  
3 what we do, it's how we do it, it's when we do it, right, because time limits for  
4 some of this is critical, right. The need is there.

5                   I've been fortunate enough to start traveling again and, as  
6 you know, went to Romania back in May. A very successful trip. And I've  
7 done a number of trips. This is the first time that I was involved in a trip  
8 where other federal organizations were actively present, and we were  
9 actually, although we're an independent agency, we have a role to play, you  
10 know, and we were used in a good way. What we participated in had real  
11 value.

12                   You know, I was able to work and meet and work directly  
13 with the Canadian regulator over there, and Cantemir and CNCAN over there,  
14 and I met with the -- you know, never met a prime minister before; I met a  
15 prime minister, right. I got to actually have a dialogue with the prime  
16 minister, with the minister of energy, with the general secretary and others.  
17 And what we were able, along with DOE and with State and Commerce, you  
18 know, we were able to talk about the importance of not what we do but how  
19 important it is for them to do and support their regulator in a way that they can  
20 thrive, that they can grow, that they can build a team, and that they are able  
21 to then do the regulatory work that they're going to be asked to do, right.  
22 And they know that. They're trying to address the financial issues that  
23 they've got, you know, and to be able to pay their inspectors what they need  
24 to be paid in order for them not to be picked off by other countries or even by

1 the state-run utilities over there.

2 I've had eye-opening experiences before. That was very  
3 eye-opening because one of the things that I learned over there, you know,  
4 Romania, depending on where you're at, some of them are still living a  
5 hundred years ago, you know. You can be driving down the highway in a  
6 bus, and you're seeing the guys with wagons full of hay pulled by donkeys  
7 going up the street the other way. They don't have power. And one of the  
8 things that we learned there was that the regulator, not only do they have to  
9 provide the power but they have to provide it in a very affordable way  
10 because the people will choose just not to plug up, right.

11 And, you know, this goes to what the Chairman was talking  
12 about, you know. So when the Chair was saying there's a health benefit to  
13 this, you know, from the materials side. There's certainly the growth  
14 opportunities that come from it economically or whatever jobs in those  
15 countries. Electrification, period, in some other countries, you know, that  
16 they don't have. And, yes, we don't technically, supposed to concern  
17 ourselves with that economic part, you know, things, supposedly just the  
18 safety. But what we do overlaps. Other countries, their regulators have to  
19 be concerned with that, right, so we have to help them in a way that I think it  
20 certainly teaches, it educates us on our side. And I'm very, I'm very grateful  
21 to be able to be a part of that, and it's only because of how you all train us up  
22 before we go and help us when we're there that allows that, you know, allows  
23 us to feel like we're doing our part, right.

24 So I know that what we're -- if we do our things right here

1 and we meet the moment here, we're going to be allowing countries to  
2 produce clean water, right, to get into food production in a way they've never  
3 done it before, to provide just those things that are going to help the residents  
4 of their country. Their citizens experience something people before them  
5 never have, right, and that, to me, is exciting and you guys are on the front  
6 line.

7                   In fact, I do understand that a connection we made in  
8 Romania with one of the people that were there were, the U.S. Trade and  
9 Development Agency, actually contacted us this week, connected my office,  
10 about some investments they're looking at, I guess in South Asia maybe. So  
11 that's a benefit that comes from this, and I really think that it's exciting to me.  
12 That's part of what we do as commissioners that I'm appreciating more and  
13 more. I just want to be sure that, as a commission, that we are able to help  
14 you the way that we need to going forward.

15                   And I guess -- so I'll ask one question, I guess. So are  
16 there other areas, you know, where OIP and Dan and then your shop think  
17 Commission engagement would also be beneficial in the coming years, which  
18 would further strengthen our international relationships and work, you know,  
19 on top of what we know is going on with, you know, the harmonization stuff.

20                   MR. SKEEN: Well, let me start and maybe Dan, if you  
21 want to weigh in. So thanks for those comments, Commissioner. I  
22 appreciate all the remarks you made there, and, certainly, the kudos to the  
23 staff. The whole office is high performers, and they do a great job. And  
24 Nader and I built a good team there, so we certainly appreciate that.

1           As far as your last part there about is there something  
2 Commissioners could do, I think I'd like to take the opportunity just to say  
3 thanks to you and to Commissioner Baran for your visits to Canada and to  
4 Romania and in your meetings with Mark Foy in the UK. I've seen the  
5 Chairman's schedule for travel, and it is a lot. And I know when Nader was  
6 traveling with him, they traveled quite a bit internationally. And what I would  
7 say is what it looks like right now, I think we're going to be increasing our  
8 engagements internationally. So I'm not sure the Chairman can take all the  
9 international trips to go meet with all these people, so I think we may be  
10 calling on Commissioners to maybe help with some of that. And it's just as  
11 you said: the value of Commissioners going and talking not just to the  
12 regulator but to those who provide the funding to the regulator or they write  
13 the legislation for the regulator, to ensure that they're coming up with, first, the  
14 independent piece, that you're not tied to the energy department, that you can  
15 make your own decisions based on safety; the fact that you need to have  
16 enforcement capabilities because identifying problems and not being able to  
17 do anything about it, that doesn't help either. The regulator will be ignored.

18           As far as the staffing piece, you're exactly right. We see  
19 this in country after country that the regulator gets, they'll hire people and  
20 train them for a year or two, but, because many countries, the government  
21 caps what a government worker can make, they can't make enough money to  
22 keep the people. So what happens is the utility can pay more or those  
23 people leave completely and go to another country and work.

24           And so some of the regulators get caught in this, it's just a

1 catch-22. If I train people up, they get pretty good at what they do and they  
2 leave. And so now I'm in this constant training mode of I've got to hire new  
3 people and train them, and they don't stay either.

4           So those kind of messages, I think, delivered at higher  
5 levels in the government is very helpful. So what I would say, is there  
6 anything the Commissioners could do, I think we will be coming to you. And  
7 it's probably a good thing we have five now instead of three. Depending on  
8 how fast this goes with some of these countries, but we are seeing it's  
9 accelerating, it's not a constant pace. It's the more countries you meet with,  
10 almost every country we meet with now is interested in SMR, if not a large  
11 light water reactor because, while they can't use maybe a thousand megawatt  
12 base load plant in their country because of their grid condition or their island  
13 nation is spread out everywhere, that distributed type of power system is  
14 attractive to them. But as we tell them, you know, if you don't even have a  
15 materials program, we talked about the materials previously from Chair  
16 Hanson, if you're not even tracking the materials you're using for industrial or  
17 academic or medical purposes and you come in and say I want to build a  
18 nuclear power plant, it's like, well, you've got a ways to go before you're ever  
19 ready to set up a nuclear power program.

20           So I think all of that, helping carry the message forward,  
21 having someone other than just the Chair doing that, and having  
22 Commissioners engaged, I think we would welcome that if we're able to do  
23 that.

24           Dan.



1 MR. DORMAN: I would just emphasize, Dave touched on  
2 legislation, and I think in my travels over the last couple of months and seeing  
3 these aspirations, I've actually heard of one country that actually has draft  
4 legislation to establish a regulator to build a nuclear power program, so I think  
5 there's opportunities there to work with the rest of the government and  
6 engage those countries early on and particularly emphasize the importance of  
7 the independent safety regulator and the role that that plays in ensuring that  
8 they'll get their safely.

9 You know, we've worked with some countries who have  
10 gone through this process, and it takes the better part of a decade with a  
11 concerted effort to build an effective regulator to be ready to license and build  
12 a nuclear power plant. So I think that early engagement to help make sure  
13 that they get on the right track legislatively and applying the principles, you  
14 know, we can export the principles of good regulation, I don't think we need a  
15 license for that. But I think that's real opportunities that seem to be growing.

16 COMMISSIONER WRIGHT: Thank you so much.

17 CHAIR HANSON: Thank you. And I'd just, for the record,  
18 I and my family would welcome broader engagement on international travel.

19 (Laughter.)

20 CHAIR HANSON: Commissioner Caputo.

21 COMMISSIONER CAPUTO: Thank you, gentlemen, for  
22 your remarks today. I'm going to start by associating myself with the  
23 Chairman's very thoughtful and articulate remarks on this. I know he has  
24 certainly been incredibly busy with international activities lately, and that's a

1 job well done and very important.

2                   And I also want to follow on from Commissioner Wright's  
3 comments about, you know, utilizing the four of us Commissioners. It's  
4 incredibly important to build these relationships abroad, but, to a certain  
5 extent, some of us may have a limited time frame that we're here and we  
6 may be interacting with counterparts who also have a limited time frame.

7                   So sometimes, as important as relationship building is, I  
8 really do think it's crucial for the staff that we have to have long-term  
9 relationships but that also have that expertise and ability to advise us and  
10 prepare us and to engage as productively as we can. So as you look toward  
11 a proposal for how the four Commissioners can engage internationally, I  
12 would just encourage you to sort of think beyond just relationships and look at  
13 outcomes and results and ways that we can, you know, achieve something  
14 that's going to be longer lasting than just our visit and putting a face with a  
15 name.

16                   Let me ask a question here about the UK. Dave, in the  
17 Commission's fusion meeting this week, we heard from a UK speaker on their  
18 preparations to regulate fusion. They seem to be probably farther along in  
19 their thinking than we are at this point. Given how much we collaborate with  
20 them, is there a particular effort ongoing in fusion?

21                   MR. SKEEN: So I don't know of anything that ONR has  
22 brought to us to cooperate on fusion. They may have talked more through  
23 NRR, but, in my discussions with Mark Foy, when I talked with him, he hasn't  
24 brought anything to us about cooperating in the fusion area.

1 MR. DORMAN: I'm getting head shakes from the back of  
2 the room there that we don't have any specific bilateral engagement with  
3 them on fusion.

4 MR. SKEEN: But we can raise that with them now that  
5 you've raised it with us. We're happy to ask that question.

6 COMMISSIONER CAPUTO: Thank you. I'm also going to  
7 follow on. Commissioner Baran talked about Canada and our collaboration  
8 with Canada, and Dan talked about the success we've had in that  
9 collaboration. Once we've completed our work with Canada, do you see  
10 potential to build off that success and either expand that cooperation or begin  
11 establishing other bilaterals?

12 MR. DORMAN: Thank you, Commissioner. I think one of  
13 the things I mentioned was having a vendor that's bringing the same  
14 technology to multiple regulators at once seems to me to be a key to a  
15 specific collaboration. And I know there are, beyond GE Hitachi, there are  
16 other vendors that are talking to both us and CNSC. So I think, as we get  
17 through the GE experience and learn from that, I think we'll be open to other  
18 opportunities under that MOC.

19 I think my personal view, if we can be successful in that  
20 under NHSI, the framework for then follow-on regulatory engagements where  
21 we would have a technology that we've already licensed and are partnering  
22 with somebody else who's looking at licensing it and they can learn from us  
23 and gain efficiency in their process. I think those will be, in my view, the  
24 opportunities for the greatest success. But I do think there will be

1 opportunities in particular in our bilateral relationship with Canada. And as  
2 we get better at it, you know, maybe there are opportunities to bring in ONR  
3 or others. But as I say, too many cooks in the kitchen can be problematic.

4 COMMISSIONER CAPUTO: Well, I've often used that  
5 same expression, which leads me to my next question on harmonization.  
6 There's been a lot of international discussion about harmonizing regulatory  
7 requirements and there are multiple efforts out here. How do these  
8 harmonization efforts differ from MDEP, the multi-lateral --

9 MR. DORMAN: Yes. So I think, first off, fewer cooks, you  
10 know, if I take the Canadian example, bilateral, there's fewer cooks in the  
11 kitchen. MDEP was around specific designs and had many cooks in the  
12 kitchen. The harmonization initiative at IAEA is not about designs, it's more  
13 process focused. There is a regulator track and an industry track. Both  
14 tracks have an item on information sharing, which has multiple pieces to it.  
15 There's a government interest in export control aspects of information  
16 sharing. There are vendor interests in proprietary intellectual property rights  
17 that might inhibit sharing of information.

18 So there's a couple of conversations going on on  
19 information sharing, but, fundamentally, that gets to, okay, a vendor wants to  
20 go talk to how many regulators and the government side of that is how many  
21 different processes do they have to go through to get the agreements on  
22 information sharing. So that's a process efficiency issue.

23 I think the other two tracks on the regulator side, one is to  
24 develop, at the concept design review stage, a framework for an applicant to

1 bring its conceptual design to IAEA for assessment against the safety  
2 standards there. And I liken that to our pre-application discussions that we  
3 have on an extra-regulatory basis. They're not a requirement, but it's an  
4 opportunity for them to see, you know, what kind of questions the regulator is  
5 asking, as well as our reviewers, to get familiar with the technology as they  
6 develop it.

7                   So that's a piece that, you know, we'll see how many  
8 vendors want to actually do that because it seems like a step before a step to  
9 the regulator. I hope it doesn't become another step.

10                   And then the one that I mentioned, which would be looking  
11 at building on the experience that United Arab Emirates engaged with the  
12 Korean regulator that licensed the APR-1400, as well as with the technology  
13 supplier, got up to speed on the technology, as well as what was done in the  
14 regulatory review and then came back to UAE, in their sovereign  
15 responsibilities, decided what they could take credit for that Korea had  
16 already done. And so looking at what are the issues that are ripe for that  
17 kind of exchange so that, as we meet in the moment, as Commissioner  
18 Wright said, and get the first-of-a-kind done in the originating country, that  
19 other countries can gain efficiencies in carrying that forward.

20                   COMMISSIONER CAPUTO: I've often thought data  
21 qualification is really maybe perhaps a low bar, but, if we could at least agree  
22 internationally on just the quality of the numbers that we're all using, even if  
23 we reach different decisions, that, I think, would go a long way to jumpstarting  
24 some of these applications. But that's just one small aspect of it.

1                   MR. DORMAN: I agree that's a very ripe one in that last  
2 category that I talked about is, okay, the host regulator has already done  
3 analyses that support it and they have a V&V behind their analytical methods,  
4 so maybe the new country may want to run a couple of their own runs to  
5 validate that they get similar results but they don't need to revalidate the  
6 code.

7                   COMMISSIONER CAPUTO: Yes, exactly. So, Dave, I'm  
8 going to take a moment to sort of look at international programs from a  
9 results-driven angle. Taxpayers invest significant resources in our  
10 international programs, and you mentioned a variety of accomplishments  
11 today. One thing I think that's good about this meeting and the briefing that  
12 we've had today is, certainly, as a Commissioner, I have this sort of  
13 awareness that there is always a lot going on in international programs and  
14 we get weekly reports on what's being done. But seeing the full scope of it  
15 right before us today is always a great reminder of just the high level of work  
16 that goes on, and it's very impressive how you and your staff cover a lot of  
17 ground.

18                   But in your work, at least in some of the activities that you  
19 engage in, how do you measure return on investment and sort of analyze that  
20 to ensure that you're applying your efforts and resources where you have the  
21 greatest impact?

22                   MR. SKEEN: Thanks for that question. And it's  
23 something we ask ourselves all the time, right. A lot of what we do is more the  
24 intangibles, as you've heard here. It's that relationship building so that, when

1 a country is ready to get assistance or to cooperate with the NRC, we've  
2 already built that relationship with them.

3                   But, you know, it's hard to come up with the tangibles of  
4 what is the value of international programs, right. You have to look at the  
5 overall aspects, including the training that we do for some of the regulators. I  
6 mean, what we're doing is trying to build, as is said, the independent  
7 regulator, the competent regulators. And so we know we're successful when  
8 they complete things or they get materials licenses in, they know how to do  
9 that. I'll go to the materials side and I would look at the Panama situation  
10 where we helped develop the master's degree program there for radiation  
11 safety officers. So they had nothing ten years ago, and now they have a  
12 program that every year puts out some master's level radiation safety officers  
13 that make a real difference in radiation safety within their country.

14                   So, for that, we can certainly see that that's a success, right,  
15 when you do something like that. But also we've seen, as we export our  
16 materials knowledge and when we go to these countries that they have no  
17 regulations or they have regulations but there's no kind of inspection program  
18 for the materials that they use in their country. Panama was an example  
19 where they used to take the density gauges when they were building the  
20 Panama Canal, when they got through with them they threw them over the  
21 hill. No one tracked them, they didn't know where they went.

22                   So we talked about orphan sources, the Chair talked about  
23 that. They found a lot of orphan sources in Panama, and so tracking those  
24 down and making sure that those get put into a safe storage place, as well as

1 just training radiation safety officers not just for the regulator but for hospitals  
2 and for the industrial uses that they have. That's how we measure the  
3 success, when you're putting out those kind of people, those professionals  
4 that are now looking at the materials in their country, that's a measure of  
5 success.

6           Also, I would say that where we've gone in and provided  
7 this database, our program that we developed and we provided database to  
8 these countries to track their materials. When you go back and see in a  
9 year, two years, they've got all the sources in there, they've got a schedule of  
10 when they go inspect to make sure that those sources are still in the places  
11 they're supposed to be, that's a measure of success that we can take.

12           And, quite frankly, if we work with a country and we have a  
13 few workshops and we see that they are not moving forward or they're not  
14 really moving that far ahead, then we will not prioritize them as a country to  
15 deal with and we will move on to someone else that is more ready or more  
16 accepting of the assistance that we can provide.

17           So in a few ways, that's how we measure success. The  
18 other thing I would say is, as far as our international assignee program, right,  
19 we have folks come here from regulators from all over the world, and many of  
20 those become the head regulator or senior officials in their organizations  
21 when they return home. And it may take a year or five years or ten years,  
22 but we see a lot of folks who were assignees at the NRC who are now head  
23 regulators or very high up in their regulatory bodies, as well.

24           So I think from that standpoint of training international folks



1 and sending them back to their countries, again, we're exporting regulatory  
2 expertise, right. I always say the NRC does not promote nuclear energy, but  
3 we promote nuclear safety. So when we do things like that and you see  
4 those folks rising up in organizations, that's another measure of success that I  
5 think we have.

6 So there's a number of ways, but we're always looking for  
7 other ways to do that.

8 COMMISSIONER CAPUTO: Thank you. And thank you  
9 both for being here today.

10 CHAIR HANSON: Commissioner Crowell.

11 COMMISSIONER CROWELL: Thank you, Mr. Chair.  
12 This has been a helpful presentation for me, and I'm glad that I'm going last  
13 today because I get to learn a little bit from all of my colleagues' questions.  
14 You know, in my short time at the NRC, I've been very impressed with OIP's  
15 staff and their engagement, and you guys probably have more work now than  
16 you've ever had before and I don't see that ending anytime soon. And I  
17 think, in that context, you guys are doing great work on, you know, advanced  
18 reactors, you know, engaging with the international community on traditional  
19 reactors, things of that nature, and maintaining our, you know, gold standard  
20 that the U.S. has in that realm.

21 But an area where the U.S. doesn't have the gold standard  
22 is in spent fuel and waste management and potentially transportation. And  
23 curious, you know, if one of you could talk a little bit more about our  
24 international engagements on that front where we could have some lessons

1 learned, where we could benefit more from those engagements to help our  
2 domestic situation here with regard to spent fuel and waste management and  
3 disposal.

4 MR. DORMAN: Thanks, Commissioner. So as you note,  
5 there are a number, particularly the European countries, who are farther down  
6 the path toward long-term disposal. Finland probably leading the way and  
7 several others well down the path.

8 So we participate in a regulators' forum, about a half a  
9 dozen of us, Canada, France, Finland, Sweden, Switzerland. I think I got all  
10 of them. I hope I didn't miss anybody. And, you know, at one point, we  
11 were kind of the leader in that field, and we took a step back and now they're  
12 moving forward and making progress in that area. So that's a forum for us to  
13 learn from our counterparts.

14 So we can learn from that from the regulatory side. I think  
15 there's also opportunities, as we look toward a national policy that's outside  
16 this Commission's responsibility, but looking at consent-based siting and  
17 getting to a solution in the U.S. I think there's an opportunity for us to work  
18 with other parts of the government that have that responsibility and convey  
19 what progress is being made on that front.

20 That's the disposal of what we already have. Just earlier  
21 this week, I was at an NEA workshop in Canada looking at how we're thinking  
22 about the end product of advanced reactors' fuel cycles and how the vendors  
23 are looking at that and what are the things we can look at, what are the things  
24 that they're looking, and what are the things that the broader nuclear safety

1 community can be considering in the design and the implications for the back  
2 end of the fuel cycle for reactors that are currently aspirational.

3 So I think that there's a number of areas where we engage  
4 to stay abreast of what's being done both for the existing inventory, as well as  
5 looking forward.

6 COMMISSIONER CROWELL: And I noticed that the IAEA  
7 director recently made a comment about, you know, light water reactors being  
8 potentially run for a hundred years. So this issue is not going away. But as  
9 we look to both traditional nuclear, as well as advanced reactors, it's critical,  
10 it's indispensable in the context of addressing climate change, but if we're  
11 helping solve that generational problem but ignoring the back end of the fuel  
12 cycle and, thereby, creating a generational problem in terms of waste and  
13 spent fuel, we haven't done our job as a public officials.

14 And so I think that, I'm hoping that OIP and even the other  
15 staff within your realm, Dan, that we have adequate capacity to focus on  
16 these things and really gather some lessons learned and do the engagement  
17 that's necessary and have a good partnership with DOE here in the U.S., as  
18 well as our partner countries going forward. And if that's not the case and  
19 you need help or assistance from the Commission, please let us know as  
20 soon as possible.

21 MR. DORMAN: Will do. Thanks.

22 COMMISSIONER CROWELL: Kind of on a similar front,  
23 hopefully, the real nuclear renaissance is underway this time. There's still  
24 decommissioning happening, and I'm curious to know how, I wanted you to

1 speak a little bit more to how, you know, the more advanced western nations  
2 do decommissioning of their plants and how that compares with how we do  
3 decommissioning here and if there's anything that we could learn or do better  
4 domestically on decommissioning that we've gleaned from our international  
5 partners.

6 MR. DORMAN: So, yes, we do maintain ties with a  
7 number of countries who are involved in decommissioning and, obviously,  
8 some of them, Germany in particular, has a very active decommissioning  
9 program. So we do have, through the standards committees at IAEA,  
10 looking at radiation protection and waste issues, issues around  
11 decommissioning, and also through bilateral engagements, share information  
12 on decommissioning.

13 COMMISSIONER CROWELL: Are we as far along in that  
14 process, from a technical or from a community relations standpoint, as other  
15 countries are?

16 MR. DORMAN: In many ways, yes. In many ways, we  
17 have more experience with it. You know, we have completed  
18 decommissioning of quite a number of nuclear power plants and other  
19 significant nuclear facilities. The community relations piece, you know, I  
20 think that's one where we could always learn and grow and do better. But I  
21 think that the experience that we've had over several decades in promoting,  
22 kind of encouraging licensees in decommissioning to have constructive  
23 engagement with the communities in the process, it's not something that's  
24 been imposed as a requirement. But we have had, in the '90s and 2000s,

1 we had significant positive experience where community safety boards with  
2 different models. You know, I've seen community safety boards that were  
3 chartered by the utility and advised the utility. I've seen them established in  
4 state legislation to advise the governor. So there's different models that  
5 have been used. I think all of the models have been good, but I think the role  
6 that we have played in that, as a licensee approaches the closure of a facility,  
7 to encourage them to engage such a process.

8                   So it's something that we've promoted, but it is not  
9 something that we've required.

10                   COMMISSIONER CROWELL: I see a direct relationship  
11 between our work on new and advanced reactors and our decommission  
12 efforts, and that connection is, if we're not doing decommissioning very well  
13 and having the support of the communities, we're not going to have that  
14 support in the communities that are looking to host nuclear facilities. And so  
15 it's important that we give equal attention to both of those things.

16                   My last question, this is a kind of open-ended one on a hot  
17 topic that either one of you can jump on, but can you talk a little bit more  
18 about fuel supply, both in the context of traditional reactors and fuel needed  
19 for advanced reactors and from the mining, milling to the enrichment, full  
20 scope?

21                   MR. DORMAN: How much time do we have?

22                   COMMISSIONER CROWELL: So I asked last, and I went  
23 last, so you can go as long as you want.

24                   (Laughter.)

1                   MR. DORMAN: I think the conversation has touched on  
2 this a little bit. I mean, we're already, without the added energy security  
3 impetus that's come up through the invasion of Ukraine, we already have  
4 significant challenges on the front end of the fuel cycle, as various fuel  
5 providers explore different advancements in fuel technology, and then,  
6 ultimately, those would need to get into production and make some changes.  
7 And part of that, there's an increased interest in the industry in higher  
8 enrichments and burnups to support longer fuel cycles, and so there would be  
9 a need for increases in the license limits for our enrichment facilities and for  
10 the facilities that then handle that.

11                   So that's already there. Then overlay on that, now we  
12 need to look at the whole supply. You know, where is the uranium coming  
13 from the ground but then, as was also mentioned earlier, then the capacity to  
14 provide the conversion services and the enrichment services needed to  
15 support the U.S. fleet but also the global fleet is a significant challenge that's  
16 before us. And then overlay on that, you know, TRISO fuels and advanced  
17 reactor fuels and so forth.

18                   So there's a lot of work that needs to happen to touch all of  
19 those things in the coming years in the fuel cycle.

20                   COMMISSIONER CROWELL: Just one small and  
21 potentially unfair question I'll ask you. What's your gut sense of where we  
22 are and how far along we are on advanced reactors and then, in terms of time  
23 line for the first ones coming online? And the fuel supply and enrichment  
24 conundrum, are they going to match up or are we going to have a

1 disconnect?

2 MR. DORMAN: So I think the first-comers that are small  
3 modular light water reactors are using either existing or evolutionary fuel  
4 designs, so I think the changes there can be in place to support deployment.  
5 I think the first-comers in the non-LWRs are generally looking to the  
6 government to supply their first cycle of fuel. TRISO fuel, X-Energy is  
7 moving forward on a fabrication facility, so there is some movement on the  
8 industry side to establish the capacity that would be needed in the long term.

9 But I think the short answer is, for the first of a kinds, the  
10 LWRs, I think the existing infrastructure can support it. For the non-LWRs  
11 and the more different fuels, we'll need to develop their front end.

12 COMMISSIONER CROWELL: Thank you.

13 CHAIR HANSON: Thank you, Commissioner Crowell.  
14 And thanks, Dave and Dan, for a good conversation this morning. I really  
15 appreciate it, and I think we all do.

16 And thanks to my colleagues. I think we hit on a number of  
17 key and important issues. Commissioner Crowell's, obviously, emphasis on  
18 other parts of the fuel cycle is really timely and important. I certainly agree  
19 with Commissioner Wright and Baran that kind of doing our own work well  
20 and our own, to meet our own needs is a critical part of actually productive  
21 international engagement. And thinking about results and the end in mind is  
22 also a point well taken. So, with that, thank you all. And we are adjourned.

23 (Whereupon, the above-entitled matter went off the record  
24 at 11:33 a.m.)

