2022 Carnegie International Nuclear Policy Conference
The Hyatt Regency Washington on Capitol Hill, October 28, 2022

Wizardry from Oz? AUKUS and Nonproliferation

Speakers

Ian Biggs
Ambassador for Arms Control and Counter-Proliferation, Australian Department of Foreign Affairs and Trade

Mariana Nascimento Plum
PhD Student, Pontifical Catholic University of Rio de Janeiro

Laura Rockwood
Former Director, Open Nuclear Network

Moderator

Alex Ward
National Security Reporter, POLITICO

Alex Ward: All right. We're good? Hi, I can hear myself in echo so it's definitely working. Also you guys are a very obedient bunch, it hit noon, you just stopped talking. That was very impressive. I don't think we'll keep that up, but we're going to do our best. Thank you for coming to this session. We know you had many choices, but you chose to be with us today. I appreciate you hanging out with us. I want to introduce the esteemed panel we have here before we get right into it. By the way, kudos to whoever named this panel Wizardry from Oz AUKUS and Nonproliferation. I want to take credit for it, but I did not pull it off, so it's not me.

Let me just quickly introduce who have here. In the middle over here, we have Ambassador Ian Biggs, he's the ambassador for arms control and counterproliferation at the Australian Department of Foreign Affairs and Trade. Then we have Mariana Plumb right next to me, who's a PhD student, and I'm going to get this wrong at the Pontifical Catholic University of Rio de Janeiro. Then all the way across, but just because you're far doesn't mean you're far away from me is Laura Rockwood, Former Director of the Open Nuclear Network. I'm Alex Ward, I'm just some random reporter of Politico. Thanks for having us.

Ambassador Biggs, I want to start with you. We're now in the final 6 months of the 18-month consultation period, and there are key concerns that remain about the presence that AUKUS sits. For example, a non-nuclear weapon state receiving highly enriched uranium from a nuclear weapons state to be used for military purposes outside of IAEA safeguards. I don't know if you guys can pull that off, I can never pull that off for whatever reason. Some fear that other states might draw on these precedents to pursue naval nuclear propulsion as a cover for developing nuclear weapons. Sir, how are the AUKUS partners addressing these concerns?

Ian Biggs: Thanks very much for the invitation. I wish I could share your enthusiasm for the title. There's nothing magical that we're doing. In fact, most of the technology
that is being shared is coming from the United States and the United Kingdom, hence the name AUKUS. It's not really Wizardry from Oz, but nevertheless, sincere thanks to Carnegie. I have something by way of a statement that I'm supposed to read, coordinated across the whole of the Australian Government and therefore, I can't completely ignore it. Let me attempt to say in three minutes.

Ward: That's strong interagency work.

Biggs: That's absolutely right. It's a technology sharing agreement between three countries with deep and long-standing defense ties. I have here the wonderful words, it supports our goal for an open, stable, secure, inclusive, and prosperous Indo-Pacific, which just about answers it all. The centerpiece at the moment of the AUKUS partnership is the proposed acquisition of nuclear-powered conventionally armed submarines. Naval propulsion is not a new technology or capability, it's new for Australia, but it's been around for some time globally and in our own region. It has nothing to do with nuclear weapons, and that's probably the most important message and answer when you talk about precedents.

It's not straightforward. We've just heard Director General Grossi speaking about the challenges of doing safeguards and doing them on nuclear-powered submarines at sea is not simple, but we will succeed. We've had consultations regular and ongoing with the IAEA to make sure that we can, in fact, verify nonproliferation undertakings in connection with the submarines. Part of your question about suspending safeguards does not in fact apply. We have arrangement well underway to be announced by March of next year at the end of the consultation period to confirm the nonprofessional undertakings in connection with these submarines.

This reflects the depth of AUKUS partners commitment to the nonproliferation regime and the rigorous dedication of the IAEA staff to the nonproliferation mandate. Then, I'm going to skip some of this because otherwise I'll exceed your three-minute limit and be in great trouble. One of the things to be said in answer to the question about how we will do this is that the 18-month consultation period is not hypothetical, it's a serious attempt to get it right. Working out the optimal pathway involving the IAEA safeguards experts, but the technologists and officials from three governments is a major undertaking, and no final decisions have been reached yet.

Our arrangements will all be in full compliance with the comprehensive safeguards agreement and the additional protocol that bind Australia's participation in the IAEA safeguards system. I have a note here about article 14. I'm sure we'll get on to that later, but to say that's part of our safeguards agreement, and one of the things that we're working through with the agency effectively. The NPT, the basis for the international nonproliferation system does not, in any, way prohibit naval propulsion. If you look back at the toggle for concluding the NPT, it's clear that this was a challenge that people were well aware of in the 1960s, but it is also true that no non-nuclear weapon states so far has acquired nuclear naval propulsion.

We will be setting a precedent, and our objective is to make sure that precedent is a strong one, and that it strengthens the global nonproliferation regime. We are working closely and transparently with the IAEA. We've used those words open and transparent in the language, for example, of the NPT review conferences consensus minus one outcome document from August this year. We are determined to protect
both the sensitive nuclear information that underlies the technology of the submarines, but also to protect the technical objectives of the IAEA to confirm non-diversion, no misuse, no undeclared activities, and we can do that.

One of the great reassurances that I've drawn from the work with the IAEA secretariat over the last nine months since the first serious discussions, is that it is possible. This has been confirmed by the director general's reports to the Board of Governors and the documents issued by the secretary in connection with the NPT Review Conference. That it is possible to do this kind of verification for the acquisition by a non-nuclear weapon state of conventionally armed nuclear-powered submarines. I have some notes here, which again I won't read out because it will become a little tedious, but we have, Australia, a certain pride in leadership of the international nonproliferation effort over several decades.

There are exercises that people here will be familiar with such as the Canberra Commission, and then the International Commission on nuclear nonproliferation and disarmament. Where Australia made a good faith effort to find pathways towards disarmament that were compatible with the NPT obligations with nuclear weapon states, but also with the challenges of a seriously challenging international strategic environment. One, which has become only more challenging over the last couple of years.

I think I've dealt with the main question, but the point that I want to leave with people before we move to the more difficult some follow-up questions. Is an absolute commitment on the part of Australia to strengthening the international nonproliferation regime through the example we will set through the precedent that we will be making in this process of acquiring a capability that is in our strategic interest and that threatens no one. Thank you.

Ward: Thank you. Well, kudos to the interagency for the statement. I want to continue these opening remarks before we get deeper into discussion with you. Mariana, for decades, Brazil has been working to develop nuclear-powered submarines, and then recently initiated discussions with the IAEA, nailed it, on special procedures for using nuclear material for naval nuclear propulsion. How do Brazilians view the AUKUS project, and do they see opportunities for Brazil to work with Australia, and to establish nonproliferation standards and norms for naval nuclear propulsion?

Mariana Nascimento Plum: Thank you, Alex. First of all, I'd like to thank Carnegie for the opportunity to be here, it’s an honor for me to share this discussion with such distinct panelists and with such a distinct audience. Regarding your question, AUKUS cause mixed feelings in Brazil, and I'm giving here a Brazilian perspective, but this is not the Brazilian perspective. When I say to Brazilians, I'm including scholars, navy, diplomats, and what I'm saying mixed feelings. At first, Brazil will not oppose a non-nuclear weapon states trying to develop nuclear technology for peaceful purposes, because that's allowed by Article 4 of the NPT, and it is a non-proscribed activity under our safeguards agreement.

Brazil will support a country that do that in compliance with nuclear norms, nuclear rules and the International Atomic Energy Agency safeguards.
Ward: Nailed it.

Nascimento Plum: However, that's the mixed feelings. You will find this perception especially with scholars in Brazil. The fact that the US and the UK are going to transfer a military equipment loaded with HEU and this has been part of the efforts of both the UK and the US to minimize the use and commerce of HEU. It rings the bells of inequality, discrimination, double standards in the nuclear nonproliferation regime. For scholars, and this lies in the center of the criticism that the nuclear nonproliferation regimes receives. For some part of Brazilians, this is not quite the perfect deal to be pursuing.

The second part of your question, regarding if we could cooperate with Australia, I think that not only we could, as we should, because not only Australia, but Brazil is also going to set a precedent with our nuclear propelled submarine. The nuclear nonproliferation regime will get stronger if two non-nuclear weapon states work together to find minimum ground for this special procedures. However, the programs of Brazil and Australia are very different. Starting that Brazil will load its reactor with low enriched uranium and Australia will have a reactor with highly enriched uranium.

Other differences is that the safeguards agreement of Brazil states that the Quadripartite Agreement between Brazil and Argentina. The bilateral agency that Brazil and Argentina have, ABACC, and the International Atomic Energy Agency has establish special procedures that will be applied to all nuclear activities and not only to peaceful nuclear activities. These are details that have to be negotiated between Brazil and Australia and that could be challenging. I think they should work and that will make the regimes stronger, but I think that will need a lot of negotiation between our diplomats. We could find a common ground for that and the regime will be better if we could.

Ward: Great. I'm writing down questions, I don't know about you guys. Later on as you can put questions in the app and I’ll get them up on here thanks to the magic of technology of Google Docs. Laura I want to go next to you. AUKUS will also set an important precedent for how the IAEA addresses naval nuclear propulsion. The AUKUS Partners are turning to the agency to attest that they are undertaking all the efforts to maintain non-proliferation standards. While AUKUS critics are putting pressure on the agency not to endorse AUKUS. How should the IAEA approach it?

Laura Rockwood: Well, this is such a great subject for me to talk about. One of the first tasks that I was assigned in the Office of Legal Affairs at the IAEA was to respond to the Canadian request for consultations on a possible nuclear enabled propulsion program. As everybody here knows, because you've probably been aware this for a long time, they decided not to go forward with it, presumably at the motivation of the United States, which is interesting.

One of the later tasks I had was the negotiation of the Argentina, Brazil Quadripartite Safeguards Agreement. One of the big points of departure was Article 13, which corresponds to paragraph 14 and 153. It's the submarine provision. Argentina and Brazil are committed to exclusively peaceful uses of nuclear energy under the Tlatelolco Treaty, they asked for us to negotiate a slightly different, a variation on paragraph 14. Actually, I wish in retrospect that the negotiators of 153 had done it and called these things special procedures instead of non-application of safeguards.
With my two minutes left couple of things. Current legal issues, no the AUKUS program is not a violation of the NPT. It's clearly that nuclear-enabled propulsion was carved out as an exception of the NPT, that is a specious argument. Second specious argument, the participation of the IAE and the form of safeguards in the connection with office is not inconsistent with the agency statute. The implementation of safeguards is not assistance under the IAEA statute. If it were, article two says that the IAEA should ensure to the extent that it is able, that assistance that it provides doesn't contribute to any military purses. IEA safeguards is not assistance under the statute.

Process, should the Board of Governors be asked to approve whatever arrangement is developed. History is a little bit ambiguous on this. The drafters of 153 actually modified the original proposal by the secretariat, which would have said for board approval the negotiators chose to use agency. Several people opined that it would be enough for the DG to do so. In 1978, another irony of this whole thing, the Australians wrote a letter to the IAEA DG and said, "What's up with this paragraph 14 thing? Are you going to ask the board to approve them?" The board and the director general as director generals have been known to do, responded with, "Well, I'm going to keep the board informed and it'll be for the board to decide on the appropriate actions." No clear answer on that.

I suspect that what will probably happen, I'm not encouraging it, but I suspect that the board might decide on its own that it wants to require approval. We'll wait and see. A committee to negotiate this? Committees worked well in the negotiation of the 153 and the model additional protocol. It worked really poorly under the negotiation in 2005 of a misplaced effort to further strengthen safeguards. Why? Because of the political environment.

I think, to try to do that in this case, either with Brazil or Australia's cases, I think it's not practical. I think it would get hijacked by the political environment, not because I don't believe that collaborating with the member states is a good idea. Is it going to affect the broader conclusion? For those of you who aren't steeped in the arcade knowledge of safeguards, Australia has a broader conclusion to the effect that all nuclear material in the country remained in peaceful activities. Well, that's not going to be the case when they have a military submarine.

Will this impact on how the broader conclusion is formulated? It will almost have to. Now, there's another thing you might not know. There's nothing magical about the words the agency currently uses for broader conclusion. I think somebody is going to be having to take a look at that as we go further. The purpose of these arrangements is that nuclear material doesn't get lost to safeguards, which is exactly why this concept of a military-to-military transfer cannot as a legal matter, and should not as a policy matter be used to do an end run around safeguards.

Here's why. Here's how that argument goes. Well, there safeguards agreement says only nuclear material and peaceful nuclear activities is subject to safeguards. Well, if that's the case, wouldn't that permit a state to take nuclear material, put it in military activity and say that's off-limits. That is profoundly against the object and purpose of comprehensive safeguards agreements. Indeed, in 1993, the member states of the IAEA rejected that argument when North Korea made it in the context of their program. They said, "Oh, those locations are military." We said to them, and the
board agreed, "There is no automatic exception for any activity under a comprehensive safeguards agreement, simply because it's military." No military-to-military transfer.

What's important is that we all pull in the same direction and not create opportunities for states to use these arrangements as a cover for diversion. I respect the nonproliferation credentials highly of Australia, but they don't get a pass just because they're Australia. This deal has to be good no matter what the names are on that arrangement, whether it's Australia, UK, US or China, Russia, Iran.

Ward: Well, goodnight everyone. That was great. We did it. We solved it all. Well, actually thank you all for your opening remarks. My colleagues here, Mariana and Laura made my job a little easier by giving me about two questions to start with you Ian if you don't mind, with you Ian if you don't mind, and it touches upon your statement. The first is, why don't we do a little diplomacy right here? Should we have some Brazil-Australia Naval propulsion collaboration? Why don't we start with that one before I go to a question inspired by Laura?

Biggs: I had a very interesting set of visits to Brasilia and Rio earlier this year to discuss the relationship between the two programs and fascinating. We're doing it very differently as we just heard. The big difference for Australia is that we're not doing any enrichment, any reprocessing, any fuel fabrication in connection with our submarine program. We'll be acquiring sealed welded units from United States or United Kingdom, which will have all the fuel they need for the life of the boat. This is an attempt to reduce proliferation pathways. It's a very different approach from the Brazilian, essentially indigenous development of most of the technology.

There is certainly no problem with discussing with Brazil because we are both working on the assumption that this is legitimate under the NPT and in accordance with our safeguards agreements. We need to get it right so that the precedent set is applicable as Laura said to any other country, any other non-nuclear weapon state which is interested in acquiring propulsion technology and making sure that it does not threaten the nonproliferation regime.

Ward: So yes to more Australia-Brazil cooperation?

Biggs: There's lots of that, but more is good.

Ward: Fair enough. Again my colleagues here effectively asked questions of you, so I'm giving you a chance to respond. Laura basically said, and correct me if I'm wrong, I don't want to paraphrase incorrectly. Effectively said that there do need to be safeguards on this agreement, it doesn't matter who's on it because there will be a military purposing, this is for military submarines. Does she have a point here? Does there need to be a ruling here? Some more safeguards when it comes to the deal?

Rockwood: It's a really excellent question. I'm so glad you asked that because people read paragraph 14 and they think, "Oh, because it says safeguards under this agreement shall not be applied." Well, if it were as simple as that, they wouldn't have bothered with the rest of paragraph 14. What the drafters wanted to do was to build in a safety net, or let's say, a constraint that provided assurances to the global
community that this isn't being used as a mechanism to divert nuclear material, or as a fig leaf for a nuclear weapons program. That is why an arrangement is required.

Under that arrangement, the drafters assumed there would be something more, some belts and suspenders that would follow that material. The agency has to be told what kind of material it is, how much of it is, whether it's in the country or being exported, and the period of time that it is under these special procedures or withdrawn from safeguards should be as short as possible. You want to get as close to that submarine as you can, and as close to that spin fuel after it's out. Those are verification activities. They are not safeguards under the agreement. They are verification activities under the arrangement.

That material should either be subject to safeguards, routine safeguards under your comprehensive safeguards agreement, or being managed, verified, whatever you want to call it under this special arrangement.

**Biggs:** That's exactly what we've been negotiating with the IAEA Secretariat over the last nine months. A whole series of procedures which we'll have to apply so that we can be sure that there is no diversion and no proliferation. The main complication and the reason why ordinary safeguards or safeguards in the rest of the Comprehensive Safeguards Agreement won't work on their own is because of sensitive military information. The IAEA cannot be involved in proliferation through the release of sensitive information and we need to find a way to make those two imperatives compatible.

I'm confident after five, six rounds of discussion already with the secretariat, that we can do it. We're also reporting all of that to the IAEA board every three months, every time it meets. The Director General has made one long report to the board on the progress that we've made, and there'll be a more complete description of how it will be done at the end of the consultation period, which is meant to be March of 2023.

**Ward:** Got you. I want to come back to Ian, but I also don't want this to be the ask Ian, pepper Ian with a bunch of questions.

**Rockwood:** He can handle it.

**Ward:** But Mariana, you said something that I found very intriguing in your opening remarks here. Which is the sense from countries like Brazil that there's a double standard when a deal like AUKUS is made, that there's a sense of inequality. Are you concerned, or are you implicit in your statement I should say, is that we will see more countries try to make their own sort of Brazil-like arrangements because they're not expecting--. Well, the AUKUS door is open, and they're not expecting an authority to come in and say, "It's okay to go." They're just going to go. Is that a concern to you?

**Nascimento Plum:** That's not what I'm implying.

**Ward:** Fair enough.

**Nascimento Plum:** I'm implying that we need rules and norms very strict. If any other country, any other non-nuclear weapon country wish to pursue the same path,
they will have the conditions and they will not be denied just because they are not an ally of the US or the UK or any other West Country. Rules and norms should be written and should be followed to anyone, no exceptions.

**Ward:** Fair enough. But I guess the concern that I hear when I talk to just people in the administration or elsewhere, is it's all well and good, that a Brazil or an Australia or whoever, they want set precedent that this isn't going to be the start and a dawn of a proliferation age. But no matter how much you try to close the door, that door is going to be even slightly open. Isn't this effectively no matter how well Australia and Brazil do, or whoever, there's now a pathway to proliferate let's say these kinds of deals? Going forward is the Pandora's box open? Is I guess the concern that people express to me.

**Nascimento Plum:** Open a way but you should work on making the International Atomic Energy Agency stronger, and Brazil is doing that. I don't know if many people know, but our program is being developed by the Navy and we are the only military installation under safeguards in the world. None other country has their military installations under safeguards. We opened the design of our reactor to the agency. We have a very open fashion way in our program, and that makes safeguard stronger, and that makes nonproliferation stronger, and that shows that the NPT can work. Non-proliferation, disarmament, peaceful uses of nuclear technology, but everybody needs to follow these three pillars; disarmament, non-proliferation and peaceful uses of technology.

**Ward:** Laura it's seems like you want to get in on this.

**Rockwood:** I couldn't agree with Mariana more. I think there needs to be a consistency in application. The difficulty we have here, these are two distinctly different approaches to nuclear naval submarines. I as a safeguard lawyer for donkey's years, I prefer the situation where a non-nuclear weapon state receives a reactor that's a once-off reactor, and then it goes back. It's not prohibited under the NPT, or the Safeguards Agreement for a country to develop its own indigenous enrichment approaches, fuel fabrication and reprocessing.

Now, here's the rub, your Safeguards Agreement says the period of special procedures or withdrawal should only be that time that it's in that activity and should be returned to routine safeguards as soon as it is in a peaceful nuclear activity. So what does that mean? Well, the negotiators talked about it. They couldn't agree on a definition, but what they did say was that-- Let me see if I've got the quotation correct.

"The Agency should be consulted and satisfactory administrative arrangements concerning the use of any nuclear material for military purpose permitted under the NPT, whether or not that material was initially under safeguards. And it was further noted that safeguards should be applied to all nuclear material which was either actually under safeguards or to be withdrawn, which had never been placed under safeguards and which was intended to be used in a nuclear activity."

So what did they talk about? What's a peaceful nuclear activity? They did agree that peaceful nuclear activities were such as transport and storage, and activities or processes which merely change the chemical or isotopic composition of nuclear
material such as enrichment and reprocessing. Which are not intrinsically military and therefore not entitled to exclusion and safeguards under paragraph 14. Just remember, it's safeguards as close to the submarines as you can. So they have two very different programs. Probably the specific arrangements that are developed in the AUKUS case will be different in some respects from the Brazilian program, but they need to be well-thought-through and applicable to any other country which takes the same approach which should give some comfort to those who aren't crazy about the whole idea of naval nuclear propulsion anyway.

_Ward:_ Ian, I saw a couple of headshakes there, which in Australian culture is basically a scream, so I'm going to let you go ahead.

[laughter]

_Biggs:_ We have had to deal a great deal of disinformation and misunderstanding over the last many months. Some of the terminology from that disinformation campaign against the AUKUS submarine program is in the language that I'm hearing. Pandora's box, or loophole, or weapons-grade. We can make a very clear distinction, the IAEA makes a very clear distinction in its safeguard approach between propulsion systems and weapons. There's absolutely no potential connection between a sealed unit, a reactor provided for a submarine and the development of a nuclear warhead.

If Pandora's box implies that somehow this makes it easier for malignant nations to acquire weapons, there's simply no connection between this technology under safeguards or under some kind of international verification regime which we're working out with the IAEA. No connection between that and proliferation with the opening of Pandora's box to use that unfortunate phrase. Similarly, the notion that there's a loophole, what we're dealing with is a requirement to find a mechanism to reassure the international community that there is no connection between our propulsion systems and weapons proliferation.

I'm confident that we can do this in a way which sets a good strong precedent. Means that any other country with a similar interest in enhancing its naval capabilities will have to work through the same difficult process of providing reassurance and subjecting themselves to a level of inspection and surveillance which keeps us all safe.

_Ward:_ I do want to get your reaction to maybe one of the most-- I don't want to put words in these people's mouths, but their major concern over this deal. You could think it's a bit too hypothetical or outside the box, but let's go there because it's a think tank event after all. Australian foreign policy, national security policy is what it is today and this deal is being done within that context, but things could change down the line. America may not be as reliable an ally down the line, the Indo-Pacific could get a lot more dangerous. Australia may feel alone and no longer is supported by allies. What's to stop Australia from, again, in this apocalyptic somewhat scenario to crack open the nuclear submarine, take out the HEU and go, "Let's start making some nukes."

_Biggs:_ I'm not an engineer. I'm not a nuclear physicist, but people who are engineers and physicists tell me that it's not as simple as that.
Ward: You all heard that? All right.

Biggs: We certainly don't have facilities that would enable us to extract fuel. The bigger picture point that I must make is that Australia is fully committed to the international rules-based order. We are subject to a set of treaty obligations, including those of our own comprehensive safeguards agreement, which mean that we cannot.

Ward: Fair enough.

Biggs: We're not interested in building weapons of mass destruction. If we were to do so, you can be completely confident that the IAEA, for which both Laura and I worked for many years, would know pretty quickly.

Ward: Fair enough.

Biggs: It's not as simple as that.

Ward: No. I didn't think so, but I want to get their concerns out there. I'm not saying these people are in the room, I'm just saying some folks are out there. Let me just put a question to the entire panel. Does anyone here think there's any validity whatsoever to any of the criticisms we're hearing from China on this deal. That this is about entrapping them, that this is about proliferation, eventually they'll-- et cetera, et cetera, et cetera. You know all of that. Does anyone here think that it's mostly them just bloviating in propaganda or is there any kernel of truth to their concerns?

Rockwood: The former.

Ward: Sorry?

Rockwood: The former. Not the latter.

Ward: Yes. Oh, sorry. Thank you.

Biggs: If it's my turn, let me say in the nine months since I took on the current position, I have made-- Charlie will tell me exactly, I think 26, this makes 27 international visits to explain Australia's position. Advocacy and outreach and found everywhere, including in countries where there was some concern that our position is understood when it's explained properly.

At the nuclear supplies group plenary, and the non-proliferation treaty review conference, and the IAEA general conference, we found, not unanimity, but something close to that. A general understanding of the logic of the safeguard system as it apply to this technology, and a certain sympathy based on many decades of appropriate behavior in the nonproliferation field. To wheel back and answer your question, no, I don't think there is any validity to the charge, to the suggestion that we are somehow attempting proliferation through this mysterious backdoor of naval propulsion.

Ward: Does Brazil have to do anything to assure China or other countries that might have these concerns that it's going to be a nonproliferation champion? Does anything have to change in the way Brazil is handling your process?
**Nascimento Plum:** The AUKUS? Our own process.

**Ward:** No. Not AUKUS. Your own.

**Nascimento Plum:** Well, I think one important difference from the AUKUS program and the Brazilian Naval Nuclear program is that where we are going to operate our submarines and where Australia is operating their submarines. We have, in South America and in the South Atlantic, very peaceful relations, a very peaceful environment. We are known to have nuclear weapon-free zones in Latin America. We have a deal with Argentina, Uruguay and the coastal countries of Africa, that the South Atlantic will be a nuclear weapons-free zone as well. The geopolitical context in Brazil and in the surroundings of Brazil are very different from the geopolitical context where the submarines of Australia will operate.

We are seeing growing tensions in the Pacific Ocean. It could be an area of future dispute, so we understand how for some people, the submarines of Australia could lead to arms race in an area that is very very tense.

**Ward:** It's one of the questions on here. There is concern that Iran might follow Australia and Brazil in pursuit of nuclear submarines. Does that possibility influence any thinking whatsoever in any of the peaceful assurances that either Australia or Brazil are developing around their programs?

**Nascimento Plum:** I think that we have to have stronger safeguards agreement, to have stronger norms, stronger rules. What Laura has been saying, establish with the International Atomic Energy Agency, those standards so that if Iran in the future wants to have the same kind of deal, if they follow the rules, if they are following the safeguards agreement, if they are opening their program to the inspectors of the agency, why not?

**Biggs:** You hear that?

**Ward:** Fair enough.

**Biggs:** That's exactly right. It's a question if Iran had similar ambitions and were subject to the similar safeguards arrangements, then there we are. That is the prompt, the discussion about the environment in which we're operating that Australia's own naval activities, all of them, not merely the submarines, are in full compliance with the South Pacific nuclear-free zone. It's not quite as old as Tlatelolco, as the Latin American nuclear-free zone, but it's very effective. It has membership of all the states in our region, and Australia as a fully-committed member of the Rarotonga Treaty is making sure that our neighbors understand what we're doing and don't feel threatened by it.

**Ward:** I do have just one very Australia-centric question here. Obviously, you're still in the consultation period, but you have a lot of work to do to make this deal a reality. I believe you'll have to build a whole port on one of your coasts.

**Biggs:** Don't feel threatened by it.

**Ward:** I do have just one very Australia-centric question here. Obviously, you're still in the consultation period, but you have a lot of work to do to make this deal a reality.
I believe you'll have to build a whole port on one of your coasts. You're going to have to attract a lot of workforce, a lot of know-how on this. How are you able to pull all of this off? It's a lot of money, that's a lot of time, that's a lot of focus on this one issue, so how do you pull this off in the reasonable amount of time?

**Biggs:** That's a challenge, which fortunately, I don't have to solve alone. Australian Government has devoted significant resources to getting the optimal pathway in place. There are several hundred people working in Department of Defense and Department of Foreign Affairs and Trade to make sure that we get this right. It's a commitment which would last-- might take 15 years to get the fleet ready. The submarines will operate for 30 or 40 years each and then there'll be decommissioning period, so we're talking about 80 years of policy continuity that needs to be in place.

**Ward:** 80? 8-0?

**Biggs:** I expect so. It's a long-term undertaking and it does involve, as you say, significant resources, a lot of money, a lot of effort, but it has, fortunately, the consistent support of the Australian Government. We've had a change of government in the last couple of months, but the policy remains in place and the effort is continuing. We had a national budget announced just a couple of days ago with the allocation of resources necessary to take this forward in a responsible way. It's not easy. It will be a long-term undertaking, but we're a stable country, we can do this.

**Ward:** How long until the decision on where you're going to put the new nuclear port? I believe that's on the East Coast.

**Biggs:** Most of the details around the program will be announced in March 2023, at the end of our consultation period.

**Ward:** Fantastic. All right. I will now go to the audience questions. You don't have to listen to me blather anymore. [chuckles] I'll just go in the order in which they are here. This is from Ankit Panda. How are you, Ankit? How are you doing? "Can Ambassador Biggs confidently state that whatever precedent AUKUS sets would be a fine standard insofar as non-proliferation is concerned if Russia or China chose to pursue a similar agreement to transfer naval nuclear propulsion to one of their partners?"

**Biggs:** Yes.

**Ward:** [chuckles]

**Rockwood:** Next question.

**Ward:** We got a thumbs up. We're good to go. I figured we took it, but I'm going to ask in the order that they're here. From Noah Mayhew, "Many talk about AUKUS as if, one, nuclear-powered submarines are the only aspect of the partnership, and two, the provision of nuclear-powered submarines to Australia is a done deal. Could Ambassador Biggs give us a sense as to these two assumptions?"
Biggs: On the first part of it, it is true that there are many other capabilities under discussion. Submarines are the first and biggest undertaking so far, but the three governments, United States, United Kingdom, and Australia are also discussing everything from electronic warfare to artificial intelligence, and undersea capabilities, and cyber capabilities, and hypersonics and counter-hypersonics. There is a lot more work happening in other technological fields. Submarines are the first and so far the biggest part of it, but not the whole story. What was the second part of the question? It's not a done deal.

Ward: Right.

Biggs: Yes, that's true, but the partnership was formed through a trilateral agreement and all of our work so far, including negotiations with the IAEA, including outreach efforts around Southeast Asia, the Pacific, and the rest of the world, are being done trilaterally. It is a done deal? No. We don't know the details until the consultation period is finished, but we have full commitment from three governments to make this work.

Ward: From Edwin Kindler, "Much of the dialogue around this issue has focused on preserving the non-proliferation regime, but another significant part of the NPT is the importance of peaceful nuclear technology. Can the panelists talk about how the spread of nuclear energy for non-peaceful purposes might weaken or impact norms about Article IV and the spread of peaceful nuclear technology to non-nuclear-weapon states?" Maybe we'll go with Laura [unintelligible 00:44:46].

Rockwood: I was hoping you would go with Mariana first. [crosstalk]

Ward: Fine. We'll go with Mariana first then.

Nascimento Plum: Can you repeat the question? [crosstalk]

Ward: Yes. It's a long one.

Nascimento Plum: What is it?

Ward: This, the first one here.

Rockwood: It's basically, if they're pursuing a military application of peaceful energy could call into question the peaceful-

Ward: Precisely.

Rockwood: -nuclear activities.

Nascimento Plum: I don't think so. Again, I'm repeating myself over and over, but if you follow the rules and if you are in compliance with the International Atomic Energy Agency-- In the case of Brazil, we have signed the NPT, we have a nuclear-weapon-free zone. We negotiated the Treaty on the Prohibition of Nuclear Weapons, we were the first country to sign it.

If you follow the rules and if you do whatever that you have to do according to what established on the nuclear non-proliferation regime, you could set a good precedent
of having a regime that controls nuclear proliferation and that allows nuclear technology for peaceful purposes because besides naval nuclear propulsion, we have other uses of nuclear technology that could benefit societies such as radioisotopes, nuclear energy, especially in a moment that we are discussing climate change. You have other uses of nuclear energy that are useful for societies, but you have to deal with how you're going to develop these in line with norms and rules and everything.

**Rockwood:** I'm ready. They're reactors. These are reactors. If we are able to effectively safeguard the use of nuclear material in those activities, then I see that it corresponds more accurately to people's fear about the proliferation of civilian nuclear reactors. You have more nuclear reactors, you have a higher risk of nuclear weapons programs. I'm not sure I'm convinced by that argument, but I don't say that I don't de-legitimize those arguments.

It's a similar thing. Just because you have more of these things doesn't mean you're going to have a higher risk of nuclear weapons programs. What is important is they get it right, that this deal be fit for purpose and anticipates all the back doors that can be gone through. Will there be people who are uncomfortable with this? Sure. They should keep challenging the people who are promoting these to make sure that they aren't misused. After all, they are reactors.

**Ward:** Right.

**Nascimento Plum:** Can I make just a quick comment? [crosstalk]

**Ward:** Please. It doesn't have to be quick.

**Nascimento Plum:** [chuckles] What I think is really important is that neither the AUKUS or the Brazilian deal, it's a discriminatory one. We have to ensure that not only nuclear-weapon states could benefit from the nuclear technology, nuclear technology should be accessible to anyone who is following the rules. That's why the International Atomic Energy Agency was created in the first place, to allow people to have access to nuclear technology for peaceful purposes.

What this deal shouldn't be about, it's something that it's being done to attempt the interest of a minority, as it has been done in other times. This is fit for purpose. Everybody should have access if they are following the rules. We cannot end the regime in the 21st Century with the TPNW, cannot accept more discrimination between nuclear-weapon states and allies and non-nuclear-weapon states.

**Ward:** Proliferation's the wrong word, but more access to nuclear technology for the world as long as they're rule followers, that's basically the proposition?

**Nascimento Plum:** Yes, that's what written in the NPT.

**Ward:** Fair enough.

**Biggs:** If I could insert there that the rules are not only about proliferation. It's not just safeguards. As Director General Grossi said a moment ago, a lot of the work of the IAEA is on safety and security as well. This technology needs to be managed, or overseen, or subject to the highest possible standards for safety and security. There
are legitimate concerns about the legacy of some earlier nuclear activities which did not respect those safety and security concerns. It's very important that we get all of that right as well as the non-proliferation undertakings.

**Ward:** I think this fits very nicely to what we've been talking about. From Charlie Pryor, "The concern that Australia or any other nation involved in a similar deal could or would use these materials and technology to develop nuclear weapons is the same as any concern that Australia or any other nation could develop nuclear weapons. Given that, is the international consternation over AUKUS more a reflection of the fragility of the International Safeguards regime?"

**Rockwood:** I don't think so. I honestly don't think so. The big debate, no longer working in the IAEA, it strikes me that it's become a very political issue. As you read the objections that are posed by China to this deal, it's clear that they feel a security interest in this. I think as a way of trying to derail that, they are using arguments that I don't think hold water in the context of AUKUS. I don't think it's a reflection of a lack of confidence in the safeguards. It's a lack of familiarity, it's a heightened political environment, and nobody's really sure what this is going to come out. More a sense of "We don't know where this is going." but not because of a lack of confidence in safeguards.

**Ward:** Ambassador Biggs, you're a popular man on here, you'll be shocked to hear. [laughs] This is from Galina Salnikova. Apologies, if I've said your name incorrectly. How do you plan to keep full conformity with IAEA Safeguards as the submarines are going to be dynamic and an active part of the national security infrastructure which may cause disruptions in information sharing? Are you considering a separate agreement with the IAEA on this?

**Biggs:** It's not a separate agreement, but it is a series of subsidiary arrangements. I'm not sure whether it will take the form of protocol, but yes, arrangements are being negotiated and will be implemented by the IAEA secretariat. It does need new work, and that's why we're taking 18 months to work out the how you do verification. It is a dynamic environment, a submarine at sea. Director General Grossi spoke about this at the Lucas Heights reactor in Sydney, a couple of months ago. He was quite poetic about just how hard it is, but there are ways to monitor a reactor from a distance without compromising sensitive information.

There are also ways to monitor radioactivity in a country as a whole. Laura's already spoken about the broader conclusion. It is possible, we believe, for Australia to maintain the broader conclusion that there is nothing undeclared and no misuse and no diversion happening anywhere in the country. If we monitor the whole country, then we will know that there is nothing being taken out of a submarine or misused in a submarine.

It's a technical challenge, but one that's-- With modern technology, some of it developed in the-- The International Partnership on Nuclear Disarmament Verification has been doing very clever things around exactly how you would keep track of radioactivity, without getting too close to sensitive material. Those capabilities are available to the IAEA now, and we're working out exactly how to apply them in that dynamic environment. A challenge, but one we can meet.
Ward: I know we're about 20 minutes from lunch. I want to make sure you're still with us and awake, so we're going to do a quick team activity if you're okay with that. Just wondering, anyone here, if you believe this, raise your hand. Do you believe that the AUKUS deal, it poses proliferation risks? Raise your hand. Ooh, minority. Interesting. Everyone else is cool with AUKUS basically? All right. Fair enough. [chuckles] I think you get a medal now.

[laughter]

Rockwood: A gold star.

Ward: I will go back to this. Just wanted to get a sense. We will go eat some lunch first. If you do have a question that posed anything, please put it into the app, it will show up here and we'll answer. You don't have the app?

Audience member: I have the app [inaudible 00:54:38] internet connection.

Ward: Oh, no. Do you want to ask it?

Audience member: Sure, if you don't mind. I was very interested in Ms. Plum's discussion [inaudible 00:54:48] but one of the things I wanted to ask about is, is [inaudible 00:54:54]--

Ward: Sorry, I apologize. It's my fault. I should've brought you a microphone.

Audience member: [inaudible 00:54:57].

Ward: That's my fault.

Audience member: Thank you for this great discussion. I wanted to follow up with Ms. Plum on your discussion of the Brazilian program and ask about Brazil's willingness to adopt an additional protocol. You've talked about being a member of [unintelligible 00:55:17] and all these other protections, but an additional protocol seems to me, to be a very crucial element to, again, pursue in conjunction with the pro-- or just in general, completely aside from this program. Thank you.

Nascimento Plum: I was waiting for this question. It took a while. Brazil has a pretty strong stance of not signing the additional protocol. Even in the discussions that are being done in the Review Conference and now in the International Atomic Energy Agency Conference, Brazil has written that it will not accept because the additional protocol is a voluntary one, that this will be put as something mandatory for our country to operate a nuclear-propelled submarine, but I know that that's not your question.

Brazil has all the technical aspects for applying an additional protocol. They're good to go in Brazil. This is my perspective. However-- This is also my perspective-- I think that not signing the additional protocol, it's much more to do with a political stance of a non-nuclear weapon state not accepting more restrictions in its program while non-nuclear-weapon states are not following their commitment with the disarmament.

It's a political stance, it's not a way to say, "Yes, we are very transparent about our program. We have opened all our military installations for the safeguards of the
International Atomic Energy Agency. We have a good relations with them, but since it's a voluntary agreement, we decided not to sign because we think that nuclear-weapon states should advance in their commitment to a nuclear disarmament. Then we will be able to adhere to the additional protocol." It's more a political position than a technical position.

Rockwood: I have to say, if I may, my discussions with various Brazilian authorities reflects what Mariana is saying. Historically, you know Itamaraty, their foreign ministry has been very strong about, "We're not going to accept any more safeguards until there's movement on disarmament by the nuclear-weapon states." Just a few years ago, when I was at the VCDNP, we invited the Brazilian Navy representatives to give a presentation on the program. I must say, I was pleased to hear that they were going to use LEU and not HEU. Sorry, Ian. We had a really, really constructive discussion.

I think they finally came to the understanding that implementation of the additional protocol is perhaps not as scary as they thought or as scary as I wanted. I got the sense that they're comfortable that if they were to continue to go down the route of a Nuclear Naval Propulsion Program that the access issues could be managed in maybe different ways than they are managed, in the case of Australia, but because of the existence of domestic enrichment reprocessing capabilities, it might be technically a little bit more challenging. I had the impression that as a technical matter, they weren't resistant to it, but that it's a political issue [unintelligible 00:58:55].

Nascimento Plum: It's a subject that's coming and going through administrations. In our first national defense strategy, we wrote that Brazil will not adhere to more restrict measures in the nuclear non-proliferation regime if the nuclear-weapon states don't advance in their commitments. That statement no longer appears in the newer versions of our own strategy, so it's something that's coming and going, but it's a political stance.

Ward: I'm very glad the internet did not thwart us from having that great discussion. That's very important. Going back to those who were able to use the app, from Toby Dalton, "Safeguards is focused on verifying non-diversion, but there is also a need to assure the international community that the SSN programs are peaceful, which requires actions beyond safeguards. What norms or practices could be put in place to address the gap between fissile material safeguards and non-weapons verification?"

Rockwood: I'm sorry, can you say that again?

Ward: I can. [laughs]

Rockwood: Would you, please?

Ward: I would. Happy to. "Safeguards are focused on verifying non-diversion, but there's also a need to assure the international community that the SSN programs are peaceful, which requires actions beyond safeguards. What norms or practices could be put in place to address the gap between fissile material safeguards and non-weapons verification?"
**Biggs:** I don't think, in the Australian context, that we pretend that a submarine is a peaceful program.

[laughter]

**Rockwood:** I think that's why I was confused.

**Biggs:** It's a non-proscribed military activity.

**Ward:** Toby, are you here? Did we do that right?

**Toby Dalton:** It's okay. What's the difference between fissile material verification and assurance that a non-proscribed military activity is not also associated with nuclear weapons?

**Rockwood:** I guess you have to do fissile material verification. Safeguards focuses nuclear material, but the activities, the verification activities surrounding that are broader than just a focus on the nuclear material. It's not the agency's responsibility to prove that a submarine program is peaceful or non-peaceful. I remember when we were negotiating the Argentina-Brazil agreement that the argument was made that a submarine program is not necessarily non-peaceful if it's defensive and not offensive. A crazy argument, but it worked.

[laughter]

Brazil and Argentina are now part of the NPT, so that's good. I'm not sure I understand your question, Toby.

**Ward:** We'll save that for lunchtime. You guys can have that kind of discussion. From Eric Brewer-- Again, Ian, you're so popular, man-- "In the working paper released in August, Australia stated, it "will work with the IAEA to continue to implement and deepen additional safeguards measures outside of the nuclear-powered submarine program to maintain international confidence that there is no undeclared nuclear material or activity in Australia." This included the voluntary development of new measures with the IAEA. Can you elaborate on what those measures may be?"

**Biggs:** This is what I was speaking about a moment ago. The effort is to demonstrate that nothing untoward is happening anywhere in Australia. It will mean more surveillance, more inspections, more visits for the rest of our nuclear industry, uranium mines, and research reactors, and nuclear medicine facilities and anything else. There will be more work for the agency's inspectors and for Australia's own safeguards office, but if we can demonstrate, we'll continue to demonstrate that there's nothing going on, or nothing that shouldn't be going on anywhere in the country, then we will know that nothing has been taken out of a submarine and misused.

How do we do that? Well, there's a series of techniques that the Safeguards division of the IAEA is working on. They include the wide-area environmental sampling and other technologies. It's possible now to provide that broader conclusion. We've been able to achieve that for, I think it's 18 years now. Our intention is to continue despite the difficulties.
**Ward:** From Jaewoo Shin, "If it is decided that board approval will be required for the specific special arrangement, how confident are you that an arrangement that would be accepted by the board can be negotiated in the near term?"

**Biggs:** I'm very confident. We've had extensive discussions with the secretariat to make sure that the arrangements around the submarines are respectable and presentable. Every time we've had a board meeting-- There's been, what, four, or five since the AUKUS partnership was announced-- we've had a great deal of understanding-- I want to say that there is respect, there is real respect for the legitimate concerns expressed around safety and security and indeed proliferation by our partners in Southeast Asia, in the Pacific.

We work very hard to make sure that they understand both the logic for what we're doing and how it is technically possible working with the agency secretariat to find a way to get international assurance. I'm confident that when we take the final arrangements to the board, either as something to be announced or as something to be considered by the board, we will get the support we need to proceed, confident that we have the consent of the international community expressed through the IAEA board.

**Ward:** I just have a very-- just procedural question and also for my own calendar. When the 18 months consultation period is over and you've all agreed on what you're going to do, how are you going to announce it? Is it going to be a report? Will there be a speech? How are you going to tell us all what you came up with?

**Rockwood:** Tweet it?

**Ward:** Yes. Are you going to tweet it? [laughs] [unintelligible 01:05:36] Instagram post?

**Biggs:** I don't think the communication strategy has been completely mapped out yet, but I'm confident that given the investment involved, this will certainly have speeches by prime minister, foreign minister, defense minister, yes. It will certainly be done in collaboration with British and American partners. There will certainly be some kind of statement or announcement from the Deputy General of the IAEA on the arrangements that they'll work through with this, but no, I can't.

**Ward:** Make sure President Biden knows the prime minister's name for sure. [laughs]

**Biggs:** It's a different prime minister now.

**Ward:** I know. Exactly. That's why. He's got a better shot [unintelligible 01:06:20] I didn't expect such hisses by the way. [unintelligible 01:06:24] A couple more before we all break for lunch. I know I'm between you and whatever delicious things they have out there. We are now at the people who have asked a second question. If you haven't asked a question yet and you want to put it in there, please do. From Ankit again, "Australia won't be enriching or reprocessing in connection with AUKUS, so would it be a good idea for the Australian Government to forswear both indefinitely going forward? Should such a ban be legislated?"
Biggs: At this stage, Australia has no civil nuclear energy production, therefore, it's hypothetical. I think we wouldn't want to rule out permanently the possibility of a civil nuclear energy future. It's not policy now. We don't need it. We are blessed with both renewable and fossil fuel energy sources, so Australia hasn't needed to be part of that rather fraught debate around civil nuclear energy. That's a long-winded way of saying nothing in connection with the submarines, but the government doesn't want to promise that there will never be any interest in nuclear technology more generally. Hence, that very careful wording, no enrichment, no reprocessing, no fuel fabrication in connection with the submarine project.

Ward: That would imply a growing civil nuclear program perhaps, or at least the door is open to that?

Biggs: Yes. Look, it's so hypothetical. There is no social license, no political pressure, no economic interest at the moment in Australia in any fuel cycle activities, so no, it's hypothetical.

Rockwood: Let me give you some breathing space.

Ward: [chuckles]

Rockwood: As I said, I think sometimes these committees of the board of governors can operate very, very effectively with great communication between the secretariat and member states. Worked well in 153, it worked well with the Model Additional Protocol. It worked seriously badly in 2005 on Committee 25. As I said when I started, if I thought that we were in an environment that we're capable of making excellent, thoughtful technical judgments about what should and shouldn't be done in order to ensure that this doesn't become a mechanism for diversion, then yes, but I don't think we're there.

That's unfortunate. I wrote actually an article couple years ago about different institutional arrangements that could be done, both externally and internally, but the bottom line was, you have to know your environment. I don't think it would be a constructive environment right now, and that's unfortunate.

Biggs: Just to say, we're talking about the implementation of existing safeguards, treaties of agreements that are in place, we don't need to negotiate a new legal arrangement of the sort that a special committee might produce. Also that the
description that we've already had from Mariana about Brazil's program reminds us just how differently you can do these things.

To set up a committee to create a Model Subsidiary Arrangement for propulsion systems, we're dealing with quite different technological approaches. It's better to be negotiating them between the experts, between the national agencies and the secretariat to apply to the technology that's actually in use. I'm not convinced that any sort of special committee of the board would be able to generate something that would apply effectively, both to the Brazilian model and to the Australian pattern.

**Nascimento Plum:** To conclude, I think that maybe Brazil and Australia could work in something close to paragraph 13 of the Quadripartite Agreement and the special procedures that we have in our safeguards. That could be good for Australia, and that could be good for the nuclear non-proliferation regime if that is transformed in the standard for application of military safeguards for naval propulsion, so something to talk.

**Ward:** A public appeal. The most important question I'll ask you, how are your countries going to do in the World Cup next month?

[laughter]

**Rockwood:** [unintelligible 01:12:31] Is the US in the World Cup?

**Ward:** The US is in, yes.

[laughter]

Shockingly, the men's team made the World Cup.

**Rockwood:** I was going to say, but the women's team [unintelligible 01:12:39]--

[crosstalk]

**Ward:** I believe the men's team made the World Cup.

**Biggs:** What are we talking about?

[laughter]

**Ward:** All right. Only the Brazil--

**Nascimento Plum:** Maybe win?

**Ward:** Maybe win. There you go. All right. Since you were the only brave one, any presidential election predictions?

**Nascimento Plum:** [sighs] No.

**Ward:** All right. On that, thanks so much for joining us.

[applause]

[01:12:45] [END OF AUDIO]