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P R O C E E D I N G S

MR. O'HANLON: Good afternoon, everyone. And welcome to Brookings, and Happy Halloween. I'm Mike O'Hanlon with the Foreign Policy Program. And I have the real honor and pleasure of introducing my friend, Steve Pifer. And then having a bit of a conversation with him after he opens this discussion with some thoughts of his own before we go to you.

I can see it's a very distinguished crowd. I appreciate your enthusiasm coming out on a gorgeous fall day, and on Halloween, to discuss this topic, that maybe is appropriate in some ways, because all kidding aside, it is certainly one of the scariest topics out there in international security policy, and yet it's often a forgotten topic these days, except when we look at crises. Whether it's North Korea's latest nuclear test, or may Vladimir Putin moving a missile into Kaliningrad and making us worry about nuclear dangers.

But the whole subject of arms control, and nuclear arms control which Steve will be talking about, as well as a broader discussion of nuclear weapons policy at large, is one that's been a little bit put on ice, in some sense, especially with the deterioration of U.S.-Russia relations and the inability to pursue a traditional arms control agenda.

But Steve, nonetheless, in a paper that he's produced, that I think all of you are aware, you can access either here in hard copy, or via the website, in both longer and shorter forms. He recognizes this is a crucial subject for the next President of the United States for a number of reasons, which he'll get into. Some of them having to do with just framing a vision, and trying to be patient and wait for the opportunity, perhaps, to pursue it later.

Some of them having to do with choices that could consider in the near term, and certainly no subject could be more important to our nation's security, even if it hasn't always been the one that got the greatest attention on the campaign trail. Although I will quickly point out in passing, that our former colleague, Bruce Blair, a long-standing nuclear arms control expert, was just recently in a Hillary Clinton commercial pointing out the stakes here.

And obviously he had one candidate in mind more than another for who he was trying to support and who he was trying to critique, but he went into his ICBM launch control facility and reminded people about what we are actually talking about here when we are talking about nuclear weapons issues.

So, Steve Pifer, as you know is a Scholar here at Brookings. He is the Director of our Arms Control and Non-Proliferation Initiative. He is also a Member of the Broader Center on 21st Century Security and Intelligence, and the Center on the United States and Europe. He is a long-standing Career Foreign Service Officer before arriving at Brookings, and some of his most distinctive roles over that 27-year tenure, as I recall, involved not only being Ambassador to Ukraine, but also a Member of the U.S. Negotiation Delegation that led ultimately to the INF Treaty, and more generally a scholar and practitioner on Russia and Eurasia issues, including at the National Security Council.

So, a very distinguished career, and with no illusions about the nature of dealing with Russia on any of these issues, but of course it's not just about U.S.-Russia relations, as I mentioned, and Steve will lay things out.

So, without further ado, let me hand the floor over to him, and I'm just going to remind you that he's going to open up with some comments, then he and I will

have a little bit of a discussion, and then we'll look forward to going to you for your questions as well. So, actually, why don't you join me in welcoming, and thank you, Steve, for this great paper, and thanks for being at Brookings? (Applause)

MR. PIFER: Well, Mike, thank you very much. And thank you all for coming out. What I tried to do in this paper was look at some of the arms control choices that the next administration would face when it takes office in January. And it does so, or will do so at a time when the prospects for further U.S.-Russia nuclear arms control are pretty bleak. But I will also argue that (a) arms control can make a significant contribution to U.S. national security, and (b) arms control is actually more important when U.S.-Russia relations are more adversarial than they were, say, four or five years ago.

So, I argue in the paper, the next administration should seek to engage Moscow on a new dialogue of arms control, seeking both further reductions that would go beyond the New START Treaty, but also being prepared to address some of the issues that the Russians have raised over the course of the last three or four years. And the goal here initially would to test Moscow's readiness to engage.

So, the first question, why focus on Russia? Well, Russia, like the Soviet Union before it, is the only country in the world that could physically destroy the United States in a matter of minutes. That gives us an incentive. And going back now almost 50 years, you've had successive American administrations engage with Moscow, the Soviet Union, then Russia, on the agreements to limit and then reduce nuclear weapons.

So, the SALT Talks, the Treaty on Intermediate-Range Nuclear Forces, the START negotiations, and also unilateral steps, and you now have the latest agreement, the New START Treaty of 2010 which will bring each side down to about 1,550 deployed strategic warheads and no more than 700 deployed missiles and

bombers by February of 2018. And that's within an overall context where the estimates are that each side has roughly 4,500 total nuclear weapons when you count not just the deployed strategic weapons, but reserved strategic and non-strategic.

Now, the differences emerge between the Obama administration and the Russian approach, already back in 2012, where the Obama administration was pressing for further reductions going beyond the New START Treaty, talking about bringing in not just deployed strategic weapons but also non-strategic weapons, addressing reserved strategic, and opening the possibility that you might have a U.S.-Russia negotiation that would cover the entire arsenal on both sides.

The Russians indicated not much interest in further nuclear reductions, but instead pressed issues like missile defense advanced conventional strike weapons, and third-country nuclear forces, even there is a huge gap between the United States and Russia at about 4,500 a piece, and everybody else at about 300 weapons or lower in terms of the nuclear arsenals.

It's not really totally clear whether the Russians raised these questions as a pretext not to get into any negotiation on further nuclear cuts, or whether they reflect real concerns. You know, my guess is that actually it's a combination of both. But as you had this emergence of differences in the arms control approaches, you also had deterioration in the U.S.-Russia relationship, but today where it's probably at its lowest point since the Cold War ended, back at the end of the 1980s.

The difference is over Syria and the Ukraine, the difference is in the Arms Control area, the administration's concern, for example, that Russia has violated the Treaty on the Intermediate-Range Nuclear Forces, by testing a ground launch cruise missile of intermediate range. And this takes place against the backdrop of significant

modernization of Russian strategic forces, most of which, or much of which is simply replacing old stuff with newer stuff, which is what we will be doing in 10 years time, but also a more belligerent approach in general towards the West, and a certain degree of nuclear saber-rattling that is disquieting.

So, you are going to have a relationship, looking forward, that's going to be a mixture of issues where there are sharp differences between Washington and Moscow, and on issues where the interests converge. For example, the Iran Nuclear Program where they can work together. And my guess is that for the foreseeable future the U.S.-Russia relationship is going to have that mix.

Now, on the arms control side, there are not a lot of grounds for optimism in the near to medium term, but I try to optimistic so let me throw out two reasons why you might not totally give up.

One is, reportedly, Russian diplomats told their American counterparts that once the New START Treaty was fully implemented, and the limits then took full hold in February of 2018, at that point they might be prepared to have a more serious conversation.

The second point is just history. As you can go back and find a couple of instances, 2008 and then in 1984 where you had the U.S.-Soviet, or the U.S.-Russia dialogue at a very low point; nothing going on in arms control, and then within a year things had changed very dramatically.

So, I don't think the President in 2017 should expect that kind of dramatic change, but also should not exclude it. And so if both are ready to engage, Washington is going to want to have a position to engage them on, and if Russia is not ready to engage, then I think there actually still is a reason to have a forward-looking arms control

position.

Some of you may have seen that last week, the United Nations General Assembly voted to convene a negotiation on a ban on all nuclear weapons. This was over the objections of the United States, Russia, Britain, France, and others, but that kind of thing invariably is going to generate more pressure on the United States than other countries, and it's difficult to fight something with nothing, so if the United States has its own position, that is moving in the direction of further reductions, it will mean a stronger position to push back against that pressure.

Now the paper looks at some of the questions the administration might take a look at, first of all, it will inherit a strategies modernization program of record, that flowed from the Obama administration Nuclear Posture at the U.N. subsequent studies, and talks about a new ballistic missile submarine, a new intercontinental ballistic missile, a new B21 strategic bomber, and also a new long-range nuclear air launch cruise missile.

And one of the things I think the administration wants to ask, is look at what are its definitions of its requirements, and does it need to do all of that. Now, ideally, it will be a combination of force requirements and strategy that determine a force structure. But we don't live in an ideal world, and I think it would be unwise to omit the budget considerations. And one of the things that we do have about the current Strategic Modernization Program is, anybody who talks about it, at the Pentagon, when it gets to the question of money says, we don't know how we can afford this. And that's potentially, a problem. So I would factor that in.

So you could ask questions like: Do you need to maintain a triad of intercontinental ballistic missiles, submarine launch ballistic missiles and bombers? Do you need to stay at a planned number of 700 deployed missiles and bombers? Do you

need a new air launch cruise missile if the B21 bomber has stealth and electronic warfare capabilities that would allow her to operate in a sophisticated air defense environment? We originally built air launch cruise missiles back in the 1970s, because the B52 was a huge target on the radar screen, it couldn't penetrate (inaudible) air defenses. The B21, however, is supposed to be different.

So, that's a question. The administration wants to think about issues like nuclear policy, it will want to think about if there is a negotiation, what sorts of position is it going to take? The New START Treaty expires by its terms in 2021, but it can be extended by up to five years, by agreement besides. Does the administration want to extend that treaty? It goes beyond New START, what sorts of numbers does it have in mind? What do you do about non-strategic weapons, what do you do about reserve strategic weapons? So there's a list of questions that the administration will have to think about it.

And then you get into the related questions that the Russians have raised. So, for example, on missile defense, which has been an increasingly contentious issue between Washington and Moscow, if the Russians were prepared to talk about nuclear reductions, are there things that the U.S. government could do on missile defense that might be of interest to the Russians.

Advanced conventional strike, this is an issue that the Russians raised, because they say that with the increasing accuracy of conventional weapons, in some cases, conventional weapons can now perform missions that used to require nuclear weapons. So, are there some ways to address that issue?

Third, country forces, the Russians say it's time to expand the talks, it can't be bilateral. I agree in one sense that you can't have arms control, be it forever just

the United States and Russia, but I'm not sure you need to bring other countries in now given the huge disparity between the two superpowers and everybody else, but if you decided to think about that, are there some ways that you could begin to evolve at least, say, Britain, France and China, the third, fourth and fifth largest nuclear powers.

Now those are the sorts of issues, but the last part of the game says, the recommendations to consider, and, you know, my first recommendation was, I think the new administration should do a Nuclear Posture Review. It should decide; what are its requirements, what strategy does it want to have to guide its strategic forces? And then it should look at the current Strategic Modernization Program, the program of record that it will inherit, and ask: Does that meet its requirements? But again, also should ask the question, can it afford that program?

I would recommend that the next administration reaffirm that the United States would maintain a triad, submarine launch ballistic missiles on submarines make sense they are the most survivable leg of the triad at this point, once they go out to sea and under water it's very hard to find them. Bombers have advantages both because they perform conventional as well as nuclear missions, but also bombers are more readily usable than missiles if you want to signal, signal concerns.

So, for example, we've seen in the last year, I guess both B1s and B52s, used to overfly South Korea in a way that was sort of demonstrating American support for South Korea. The ICBM leg has been the one that many outside governments question. I actually would support the ICBM leg for two reasons. One is I think submarines are going to remain invulnerable, but you see increasing talk about under seas drones, things like that. I'm not sure you can make that assumption. So ICBMs will be, in part, a hedge against the compromise of our submarines at sea.

But the other point is, I could see in a crisis, an adversary, if they could track our submarines, saying, I can take those submarines out and that's not going to cross the threshold that would provide an American nuclear response. It's very different with ICBMs, if an adversary wants to take out the American ICBMs they have to pour hundreds of nuclear warheads into the heartland of America, and they have to be absolutely sure that that would provoke a nuclear response.

So I would keep the triad; the one element I would put on hold, at least suspended, is the air launch cruise missile. That doesn't seem to make a lot of sense to me in terms of a specific mission, but in particular when we have a bomber that would be designed to operate in a more difficult air defense environment. I would then look at the force structure, and ask the question, do we need 700 deployed missiles and bombers as the current plan calls for, and that would fit exactly under the New START Treaty Amendment, because you can actually go lower, and still actually maintain the 1550 deployed strategic warheads.

You may lose a little bit of flexibility, but you can do some things and, for example, you can go down to 500 and still have a force of 1,550 deployed strategic warheads, but that force of 500 missiles and bombers would result in some fairly significant cost savings, in terms of construction and lifecycle operations.

The nuclear policy, I think the administration should take a look at something this administration talked about, but didn't quite move to, and that would be making the sole purpose of American nuclear weapons, the deterrence of a nuclear attack on the United States or American allies, or American forces.

And my starting point is that at this point in time, the United States actually has a policy of no use of nuclear weapons against most of countries in world. If

you are a non-nuclear weapon state, if you are abiding by the MPT, our policy is, we would never use nuclear weapons against you. And thinking through, and this would have to be a policy doc only after a lot of consultations with allies both in Europe and Asia. But it's very hard for me to perceive its circumstances in which an American President would use nuclear weapons first, if nuclear weapons had been used against the United States or an American ally.

Thinking a little bit further, at this point in time, parity, exactly equivalence in numbers with Russia seems to matter less today in strategic terms. And the Obama administration, and the Obama Pentagon in the past have actually said, we don't need to have exact parity. Now, at the same time, what they have said, is there are political considerations that might make parity important. One is the U.S. has had this policy of nuclear forces second to none, if we were to move away from that, does that create some anxieties on the part of some American allies who are depending on the American nuclear deterrent.

The other question is if you have a significant gap between Russian numbers and American numbers, does that make negotiation more difficult? I think that's a serious question to consider, but I would also put down the warning, be careful about getting weapons as bargaining chips, because sometimes you'll find if you can't cash the chip in, you'll end up having paid a lot for a chip that you may not find, you know, particularly useful.

So, while not foreclosing unilateral steps by the next administration, it seems to me that the logical thing to do is seek to engage the Russians in a negotiation aimed at both mutual reductions, but also addressing some of those concerns. Except for the new air launch cruise missiles, and I would basically suspend that program.

So, this would be reaching out to the Russians at some point, you know, not too far in new administration saying, Washington is prepared to engage in a negotiation on further reductions, but also is prepared to have serious conversations on missile defense against conventional strike in third countries.

Also, there was one additional point, and it would be important to tell -- indicate to the Russians, that there needs to be full compliance with the INF Treaty. All of this becomes very, very hard to deal with including the idea of getting a new treaty through the Senate, if there are still concerns about Russia and observance of the INF Treaty.

So, in terms of further nuclear reductions, what the paper recommends is that the administration seeks to negotiate an agreement that covers all; (inaudible) or deployed, non-deployed, strategic, non-strategic, everything in the U.S. and Russian arsenals. And it suggests an aggregate limit of no more than 2,200 warheads, that would be about a 50 percent cut from the current level, but it would still leave Washington and Moscow each with seven times as many weapons as any third country.

Within that overall limit of 2,200, are the proposals for a sub-limit of 1,000 deployed strategic warheads, which would cover primarily, the warheads on intercontinental ballistic missiles, and submarine-launched ballistic missiles. Those are the weapons of most concern. And then you would have a limit of 500 deployed strategic missiles and bombers.

Now, I think this would interest the Russians in several ways. First of all, the reduction in the limit on strategic delivery vehicles and missile and bombers coming from 700 down to 500, that would actually bring the American Force down to what it looks like the Russian Force is going to be or the foreseeable future.

Moreover, it would also reduce the American upload capacity, most of our missiles, in fact, probably all of our missiles under the current plan will carry less than the number of warheads than they could, but that allows for the possibility to upload if there's a breakdown in the treaty. And my back of the envelope calculation was that the U.S., if the treaty were to break down, could add over 1,000 warheads to its deployed missile force. And reducing that, I think would be of interest to the Russians.

But it would also be important to indicate to the Russians to address these other questions. So, on missile defense, a couple things; one, reiterate the offer that was made in 2013 for an executive agreement on missile defense transparency. And the idea here is to give the sides to do a declaration every year that says not only current numbers of interceptors, launches and radars, but also looks out 10 years, and says, due to the projected numbers 10 years from now, so that the other side can see, is that a problem or not, and if it says, it's a problem, it then has advanced warnings they can act.

But I would also consult with NATO and say, are there some ways that we could consider capping the number of SM3 missile interceptors in Europe, because that seems to be the focus of the Russian concern. And although the joint comprehensive plan of action with Iran address nuclear weapons only, not ballistic missiles, I worry less, and I think the Europeans I've talked to worry a lot less about an Iranian ballistic missile with a conventional warhead than one with a nuclear warhead. And does that create some possibilities, for example, to maybe do something about the SM3 site in Poland.

On advanced conventional strike, I would suggest that the government -- the U.S. government could offer a side agreement, if we precede with hypersonic glide

vehicles, which seem to be the systems of most concern with the Russians, that you could limit with a relatively low number, because the Pentagon has been saying for several years now, it doesn't need a lot of these things. And you could probably handle that fairly easily.

The more difficult conventional question is going to be conventional cruise missiles, which are not necessarily prompt, but there are large numbers. And the U.S. Military had an advantage of these for several decades, and has been reluctant to, in fact, limit them. I think we've seen by the Russian use of both air-launched cruise missiles, and sea-launched cruise missiles in Syria, but the Russians are catching up.

My guess is neither side is prepared to limit these sorts of capabilities, but at least have a dialogue and say, what effect do cruise missiles have on the strategic nuclear balance? My own sense is there maybe some perceptions in Washington that are not fully justified.

On third country systems, it's very hard to figure out how you would actually do a negotiation among just even five countries, not to talk about the full nine; because how do you come up with equal limits that would have sense for where the United States and Russia are compared to Britain, France and China. And although the Russians have called for this broader round of negotiation, they've not yet indicated a specific proposal, which I interpret to be -- they also can't come up with an approach.

So, what I would, say, a little bit more modestly, and the idea here would be, if you had a U.S.-Russian agreement that was bringing U.S. and Russian forces down, you then go to the British, French and Chinese and say, we would like to undertake unilateral political commitments, that as long as the United States and Russia are coming down, you won't build up. And that might be a reasonable way to begin this --

to start to bring these countries in the process.

Now, I think there's a chance, one that these ideas, if we could achieve, that we could translate it into agreements, could bridge the gap that emerge between Washington and Moscow three to four years ago. And also could produce agreements that ultimately are going to be in the U.S. security interest, and might have the advantage of even serving as a positive impetus towards a more positive, broader relationship which arms control has done in the past.

But what the really big question here, and which I don't have the answer to, unfortunately, is would the Kremlin see this the same way? If the Russians are prepared to engage you'll have some decent prospects. But if the Russians are not prepared to engage, in fact the Russians has decided that for whatever reasons in the near term, arms control that goes beyond the new start, doesn't really answer their security concerns, then I think the administration ends up with some difficult choices.

Particularly the question about, do you do some things on a unilateral basis? On the one hand, you don't want to take unilateral steps in a way that it looks like it rewards or ignores bad Russian behavior. In the last several years we've definitely seen some significant bad Russian behavior. But on the other hand, we don't want to lock ourselves into programs that ultimately we are not going to be able to afford, or end up causing us to do things that we normally wouldn't want to do, and I think that's going to be a dilemma if the Russians don't want to engage.

So, where I came out as bottom line of the paper is, seek to engage the Russians on a mutual basis, but if the Russians aren't prepared to play don't foreclose unilateral steps that you might be prepared to take, depending on the requirements if the next administration comes up with, in terms of its needs for deterrence, assurance and

stability. At that point I'll stop.

MR. O'HANLON: Fantastic. Very rich, very concise. Thank you, Steve. I'm just going to follow up on four of the specific issues that you raised, or maybe the dozen to 15 important subjects that you discussed in the paper. And then I'm sure others of you will want to follow up as well.

So, I'd like to ask you, just to list the four, I want to talk about ICBMs a little bit, I want to talk about no-first-use policy, which we know President Obama was thinking about recently as well. Testing of warheads to the extent that you have a view on that, of course we are still on a moratorium on nuclear testing, but no ratification on the comprehensive Test-Ban Treaty. That's not your main focus in this paper, but I wanted to see if you wanted to touch on that. And I'll come back to each of these in turn.

And then finally, Russia, and leave aside the current impasse in U.S.-Russia relations, how do you think about Russia's longer-term needs for nuclear weapons? At least as Russians define them; as we think about the potential for not just the next round of cuts, but deeper down the road, or even going towards zero someday seems an impossible thought at the moment. But how do the Russians, you know, NATO to their west and China to their south, how do they think about protecting their own territory with conventional and nuclear means?

But let me, maybe, step through each of those, one by one. And so on ICBMs, I think you make a very persuasive case myself, for why we should keep that third leg of the triad, but as you well know, this a rich debate, and Bill Perry, has recently come out against the ICBM, and as you say, the budgetary pressures, may come out against the ICBM as well, because we are going to, it looks like, build the B21 bomber, for a combination of conventional and nuclear purposes regardless. We certainly need to

replace, at some future date, the Ohio class submarines which would be getting old. So that leaves the ICBM pillar as sort of the potentially most strategically and budgetarily vulnerable.

I guess my question, to put it all to a head, would you be willing, despite your desire to preserve the ICBM force in some sense, would you be willing to delay or even kill the idea of modernizing it, replacing the Minuteman Force? And as I understand things, the reason we are going to have to have a new ICBM, as much as anything, is because we've run out of test missiles to keep maintaining the reliability of the Minuteman Force 10 years from now. But if one were prepared to sort of scale back the size of the deployed force, you could create a whole new pool of available missiles for testing, and maybe extend the life another decade or more, is that option we ought to be thinking about?

MR. PIFER: No -- I think the ICBM leg is worth preserving. I don't think we need to preserve 400 deployed ICBMs. And actually there were some suggestions that several years ago, the Air Force was actually prepared to go down to 300. The Air Force though has made very clear that it would like a new intercontinental ballistic missile. There was a study done by RAND about two years ago, where RAND said, if you took the Minuteman III, and the Minuteman III was first deployed back in the early 1970s, so it's been around for a while. You know, but it's gone through this continuous program of life extension and modernization, and the RAND study actually said that you could save quite a bit of money, by just taking the Minuteman III and extending its life.

And then as you suggested, if we decided, instead of having a force of 400 deployed ICBMs, we went down to, say, 250 that would make available 150 ICBMs for your continued test programs. So you could continue to do I think it's between three

and five reliability tests every year for quite some time. So that might be an option, and what it might do, is it would at least -- The problem the Pentagon has in its Strategic Modernization Program is in the mid-2020s, the plan is to build -- rebuilding a new ballistic missile submarine, a new ICBM, and new B21 bomber, a new nuclear air-launch cruise missile, doing some life extension programs on warheads, at the same time when the (inaudible) are building F35s and KC46 tankers and destroyers, and TAC 7, things like that.

If you decided to extend the life of the Minuteman, that might take the heavy Minuteman decision and push it down the road a little bit, and at least lessen some of the cost that you might face. So I think it's something that the Air Force might want to take a look at again, simply from the cost perspective.

MR. O'HANLON: Thank you. Let me ask about nuclear no-first-use, and as I understand things, as best as we can from the outside, because of course this was apparently internal administration decision, but a lot of lit got into the light of day, and the public discussion as well. It appears that President Obama, in recent months, anxious to have some kind of an ongoing nuclear legacy in favor of reducing the role of these weapons in international politics, but stymied by the state of the U.S.-Russia relationship and other matters in his arms control ambitions, looked at a few specific policies he might consider including the idea of nuclear no-first-use.

And from all accounts, on the outside, what it sounds like is his own Cabinet essentially veto that idea, a soft veto since they don't have formal vetoes over their own boss. But the Secretary of State and Secretary of Defense apparently both reported back to the White House that our allies really didn't like this idea, because in a dangerous world that had been, especially unsettled for the last two-and-a-half years or

so, it made allies wonder if somehow, this was yet again proof of America pulling back.

And irrespective of whether our treaty alliance arrangements required, in military terms, such an option, it just didn't look good at this moment. Do you have any sympathy for that argument?

MR. PIFER: No --

MR. O'HANLON: Do you think that argument gets overtaken by events once we have a new President on January 20th? How should we think about that issue as we contemplate nuclear no-first-use?

MR. PIFER: Well, I actually favor the formulation of sole purpose, which is a little bit different, but it has some similarities. No, I actually -- Well, I think sole purpose deserves a hard look. You can't move to either sole purpose or no-first-use without a lot of very extensive consultation with allies. And it's a two-way street, but it's explaining what it means, and it was hard for me to see the administration being able to view that in the relatively little time it had left.

So, I think there's actually the issue in part that's left to the next administration. But I think the next administration ought to think very hard about, and I would go back to a point I made which is, under the Negative Security Assurance is that the Obama administration announced back in 2010, if you are a non-nuclear weapon state, a part of the NPT and in compliance with your nuclear non-proliferation obligations, there are no circumstances under which the United States would use or threaten to use nuclear weapons against you.

Now, there's a little asterisk there, where they said, look, if there's a huge development in the biological warfare area, the policy might be revisited. But that, mainly the security assurance covers probably 95 percent of the countries in the world; that

small group of countries that aren't covered, are mostly nuclear weapon states. So I'm trying to think through the circumstances in which there might be a Russian or a Chinese, or a North Korean attack on and American ally, that's much more likely an attack on the U.S. homeland that did not involve nuclear weapons.

I'm thinking through how an American President will respond. What would she or he do? And it's very hard for me to see the American pres saying, I'm going to use a nuclear weapon as a response, given the panoply of other conventional force capabilities that they have. Because that inevitably triggers an American first use, then you'll have to consider, does that trigger nuclear use by the country we attack, either the U.S. homeland, or against our ally.

So, I can understand why people say, if you take the nuclear part out of the component, you are reducing the overall deterring impact of American Military Forces. But, again, when I try to think that through it's hard for me to come with the scenario that would be realistic, in which an American President would say, they haven't hit us with nuclear weapons first, but I'm going to resort to the nuclear option. That was certainly an option that the U.S. Government preserved throughout the Cold War in the '70s and '80s, at a time when you had this huge disparity in conventional forces, where the Soviet the Warsaw Pact tank numbers were two to three times that of NATO, but that situation has dramatically changed, and if the U.S. and NATO and our allies make some relatively smart decisions, and relatively modest investments, we are never going to get back to that situation. So I think it is something that the next administration could seriously consider.

MR. O'HANLON: Just a clarifying question on that subject before I go to my third. The distinction between sole purpose no-first-use are you -- with sole purpose

are you allowing for the possibility of an American preemption in the very strict, literal sense of that term, if indeed we see a nuclear attack about to be launched upon us. Is that why you are making the distinction?

MR. PIFER: That's the one circumstance in which I could foresee the American President saying, if you had absolutely compelling evidence, and it would have to be used that we are about to be hit in a large way with nuclear weapons. Sole purpose, to my mind, leaves that option open.

MR. O'HANLON: So, I wanted to talk about nuclear testing, and I realize this may not have been quite essential to your paper as some of the other issues you've touched upon. But of course, just to review the bidding for where we are now, I guess about 20 years after the signing of the CTBT, and 17 years after the U.S. Senate declined to ratify. So we've learned a lot in those 17 years, we've learned that verification is, perhaps, pretty good, because we've heard a lot of North Korea nuclear tests since then. And of course that very moment, of 1999, that was right after India and Pakistan had done a lot of their tests, which we picked up pretty well as well.

On the other hand, we have seen nuclear weapons tests by North Korea, raising the question of what's the best deterrent to others testing, if there's any relevance to the American program. We've seen the American plutonium pits hold up pretty well. Maybe better than we thought they might at the end of the 20th Century, which then, perhaps, reduces the pressure, to think about replacing them with some other kind of variant. On the other hand, the Department of Energy in the Nuclear Security Agency have this concept for reducing the number of warheads in the inventory. Now, my understanding is those don't requirements new pits or new testing, but I just want to ask, you know, your take.

And then finally, we have the question of potential new uses for nuclear weapons, even though you just said that you favor sole purpose, but what about, you know, the hypothetical North Korean buried nuclear weapon that can only be pursued by an earth penetrator or what have you? Is there any new case for a different type of American nuclear weapon, perhaps a small one that could burrow deeply before detonating?

Putting all this together, how do you view where we should be on the Comprehensive Test-Ban Treaty? Whether the next President, you know, if he or she sees an opportunity to pursue ratification, however much of a long shot that may be, should he or she propose that to the Senate, should we consider testing nuclear weapons again in the foreseeable future; any thoughts on that range of subjects?

MR. PIFER: No. I continue to believe that the Comprehensive Test-Ban Treaty and the U.S. ratification will be in the U.S. interest. First of all, because we now have almost -- Well, we have 20 years of experience with the Stockpile Stewardship Program, and I've actually had a chance to talk to a couple directors of the National Labs, and they seem to be very confident that with that program, the United States is going to be able to maintain confidence and reliability with the safety and security of its nuclear arsenal. So, I don't see a need for us to test.

The second point and as you mentioned, I think verification has improved over the last 15, 20 years. We don't a lot about some of the U.S. national technical means because they are classified. But you do have this international monitoring system run by the Comprehensive Test-Ban Treaty Organization, which has no roughly 300 centers around the world. You mentioned the North Korea test, which I think was picked up by 25 of those stations.

And when you talk to people, you have to get around a fairly complex understanding of GROG which I don't pretend to understand, but they basically are pretty confident, and you could detect a test anywhere in the world of 1 to 2 kilotons. And in some geologies which happily include North Korea, the old Soviet test sites, may be even be down to 0.1 to 0.2 kilotons.

So, if you have that kind of confidence, it seems to me that the concerns that led the Senate not to approve ratification back in 1999, which is how do you maintain reliability of the American arsenal, and how do you know that no one's cheating, I think that gives you actually some pretty good answers.

But I guess I would actually go beyond that and just make the point, two other points which I touched on very briefly in the paper is, just the political point. Look how hard Nevada, as a state, fought against storage of nuclear waste, at what's now called the Nevada National Security Site, it used to be the Nevada Test Site. Do we really think that Nevada would say, sure, let's resume nuclear testing at a place about 60 miles from Los Vegas, and the population of Los Vegas has now triple what it was when the last nuclear test was done in 1992. Politically I think that's in the very-hard-to-do box.

But I guess the last point I would make if you look at the history of testing, we did more -- as many tests as the rest of the world combined, and in many cases we learnt, I think, more. One example from my own experience in 1987 -- 1988, I went out to the Soviet Nuclear Test Site, and this was in preparation for joint experiments we did with the Soviets. And they took us and they showed us a vertical shaft that they had drilled for one of their upcoming tests. And it was about a meter in diameter, and went down, I don't know, maybe 500, 600 meters, and there was somebody from the Nevada test site that looks in the hole and says, boy, when the Soviets come next month

to visit Nevada, they are going to be really surprised.

I said why is that? He goes, we typically drill our vertical shafts about 3 meters in diameter, and that's 9 to 10 feet. And I said, why would you do that, the weapons aren't that big? And he said, it's not about the size of the weapons, it's about maximizing your area, so you can have instruments. So, I think by that anecdote we were probably getting a lot more information than others were.

So the advantage of the test-ban seems to me is, why would we not want to freeze the rest of the world in a position when they know a less about nuclear weapons than we do. And when we have what I think is probably the world's most sophisticated system for monitoring the reliability of the reliability of the arsenal without having to resort to testing.

MR. O'HANLON: Excellent. And I'm just going to ask this one last question now, and you mentioned Russia, it's really now sort of broadened to a longer-term discussion. Let's imagine we are not in 2016 or even 2017, or 2018. I can't imagine if she wins, that Hillary Clinton and Vladimir Putin are going to begin with a love fest that leads to a quick nuclear arms control accord. So it's probably going to be a while, as you say, for a lot reasons.

But let's image we've gotten beyond immediate tough problem in U.S.-Russia relations, and we can imagine the next round of nuclear arms control, in some sense being responsive to the fundamental military requirements as the two countries define them. And you've already made the point and I find it persuasive at least that the United States doesn't have a whole of military needs for nuclear weapons beyond deterrence of nuclear use against us, or sole purpose, of preventing that kind of attack against the United States or its allies. But Russia may see things differently; it has a

huge land mass, a shrinking population, rising superpower to itself.

An alliance that, at least, it says it perceives as hostile to its West although I don't always how sincerely it will take the Russian protest, that they really fear NATO, but they certainly resent NATO. In any event when you put all this together, what do you Russians, maybe the Russian leader beyond Putin, but Russians in general, how are they likely to define their long-term nuclear needs? And do you think it's possible to get to a point where we are talking about only hundreds of strategic warheads per country, or is that just going to be inconceivable even looking out decades?

MR. PIFER: No. I would like to get that point. I think it's going to be very hard with Russia, because for some of the reasons why I've argued elsewhere, that if I had a magic button here and I could push that button, and verifiably all the nuclear weapons in the world would disappear. I would probably push that button, because from an American point of view, given geography, the Pacific Ocean, the Atlantic Ocean, alliance structures, powerful conventional forces; that seems to me to a pretty positive world in security terms.

Now, it has risks, I mean, and I think the biggest risk is, do you somehow make the rule then safe for large-scale conventional war, and we have to remember that in World War II nuclear weapons kill 200,000 people, and bombs, tanks, bazookas, knives, killed 50 million. But I said that against the risk of a continued reliance on nuclear deterrence, where, nuclear deterrence certainly worked in terms of maintaining a cool piece between the United States and the Soviet Union during the Cold War, it worked. But there were five or six points where you could go back and point to and say, we came really close and had deterrence failed the possibility would have been 2 or 300 million dead.

So, you have to think of the risks. Now, I think it's a very different calculation for the Russians, because the Russians, it's a different geographical situation, they have NATO one side. I believe that the Russians overly hyped the NATO opposes, but they seemed to have talked to themselves, you know, there's a NATO threat there. They'll look at China, I think that makes them nervous, and so a non-nuclear world from the point of view of Russia, when you are dealing with advanced conventional forces in NATO and the United States, and the large-scale conventional power that China could now have, I think is a very different proposition as seen from Washington.

So, getting them to go into the low 100s is probably really difficult. What I would hope though, is you could persuade them and say, look, you don't need 4,500 today. You could have just as much security with 2,200 and also then begin to get the U.S. to address some of the other concerns that you've raised.

MR. O'HANLON: Great. Well, thank you. That was masterful, Steve; and really opened up a lot of subjects, so let's bring all of you in with your questions. I'll probably -- Do you want to take one at a time or two, what's the --

MR. PIFER: I'll probably, two --

MR. O'HANLON: okay. So we'll begin with the second row, and we'll take both the questions, and then go back to Steve for comments. So, I guess, do we have microphones anywhere? Here he comes. So, yes, as the microphone is approaching; please identify yourselves, even if I know who you are, and pose the question as you wish. Here in the second row, yes. We'll start with Harlan, and then -- Okay, either way.

MR. ULLMAN: I'm Harlan Ullman. Thanks for a very, very good presentation, Steve. I want to ask a broader question in this context about Russia. As

you know, Ash Carter has said we have a four-plus-one matrix in which the United States has to deter and if necessary defeat in a war Russia or China, or, or, or, or. What do you think it takes to deter or defeat Russia? And is that really something sensible to be saying in open public? I think that continuity planning, yes, but when you are talking about deterring and defeating Russia as the number one defense priority as the services are, that, to me, seems reckless. But in any event, what does it take to deter and defeat in your minds, and I'd like Mike to respond to that as well.

SPEAKER: I'm Albert Wofine, the LA for Foreign Affairs in the Office of Congressman Steve Chabot, I'm just asking this on my own personal capacity. A lot of discussions across the main deterrents discuss the so-called new triad of space, cyber, and then nuclear. And what I wanted to get at, is sort of a broader question, you know, how should new technologies be taken into account when formulating some of the nuclear arms control agreements that you spoke about now, and you talk about in your report? For example, high-energy weapons, robotics, et cetera. Thank you.

MR. PIFER: Okay. Two good questions. Let me take the second one first. This is actually, I think, one of the things is more complicated than it was during the Cold War. During Cold War where you talked about strategic stability, was between the United States and the Soviet Union, and you look at the mix of nuclear -- offensive nuclear weapons and missile defense, and of course for most of that period, or actually for all of Cold War, at least from 1972 on, missile defense was limited by the Anti-Ballistic Missile Treaty.

I think strategic stability now has to be broadened. You know, you have to bring China into the equation, if you bring China into the equation, then you'll have to talk about India, Pakistan. You have these new domains, space, obviously important,

cyber, and I'm not going to try to venture answers on those, in part because since my daughter went away at college my cyber capability has dropped significantly.

But we have to figure out, you know, how do you address that. Are there some ways where across domain deterrence works? And part of the question is just, does the U.S. Government -- and I don't think we have then articulated cyber deterrence policy. Several weeks ago, the Vice President told Meet the Press, you know, we've got hit, we are going to go back and hit the people who did it, and you probably won't notice that.

That's, I think, the most public statement I've seen whereas with nuclear weapons there's more an articulated policy of deterrence. And so before we probably can start talking about across domain deterrence I think we have to then, what is our policy in cyber. You know, what would be the red lines, those sorts of things that might draw an American cyber-attack in response. And at that point I think your strategic stability calculation gets significantly different.

I still think, though, with the kinds of reductions and the steps I'm taking in talking about this paper, is you could do that safely, even in a world where you have new domains and new players to take account of.

What would it take to deter the Russians I think? I guess I'd make three points. I think the Russians see, understand and respect the American strategic nuclear forces, and they understand there's going to be a modernization program, they are doing a lot now. As I said, replacing a lot of old stuff. Ten years from now we are going to be doing a lot again replacing a lot of old stuff, so they understand that. I think probably the focus is perhaps doing a little bit -- would enhance the American conventional capabilities, particularly with regards to Europe.

And this is the one where I think NATO has probably made the smart decision in terms of what it's doing in the Baltic States, deploying a battalion needs to the three Baltic States in Poland, in the sense of putting the capability there that will reinforce the red line between Russia and NATO territory, but also is not going to be usually provocative. I mean 1,000-person battalion in Lithuania is not going to set off and drive towards Moscow, but it is going to serve the purposes of very robust trip wire, if in the very unlikely case, perhaps not zero, that there were ever a conflict involving the Russians in the Baltic States.

The one thing that I guess I we would be critical of this administration though on the deterrence question is, I think they have not responded in the way that they could have to what I regard as unfortunate and unsettling saber-rattle when it comes out of Moscow, with references to back in, I guess, about a-year-and-a-half ago in a documentary on the seizure of Crimea, President Putin says, and I was prepared to put Russian nuclear forces on alert.

And those are sort of following the Russian-Ukraine situation going: Why would you do that? I mean, Ukraine gave up its nuclear weapons back in the 1990s, in part because they had an assurance from Russia, that Russia would respect the Ukraine's territorial integrity. Things that are said enough where the Russian Ambassador in Denmark feels that he can go out and threaten to target nuclear weapons on Denmark. And I think that in conjunction with, you know, this idea, and it's a bit of a nebulous idea that the Russians used about de-escalation, that they might escalate the use of a small number of nuclear weapons to resolve a conflict on terms, accept all of them.

And it's an interesting question because I've been in probably three

Track II conversations in the last year-and-a-half, where the Russians have said, that is absolutely not a part of formal doctrine. But I think people at NATO and in the U.S. government were actually preparing that it might well be, and it's this idea that you could somehow use a few nuclear weapons, and it will small and that will be somehow different, I wish the administration, in its communication with Moscow, but also publicly, would not let that stand.

I would like to see a senior official go out and say look, in Moscow you should not think that the use of a nuclear weapon because it's small or the use is discrete is some somehow going to be different, as opposed saying, no, if you used that nuclear weapons you would have crossed a threshold, you will have breached a threshold that hasn't been breached in 70 years, and you should anticipate that the consequences are going to be unpredictable, potentially very nasty and catastrophic. And try to basically devalue that, because I don't think it's a good thing for the American deterrent posture, the NATO deterrent posture, for someone in Moscow to try to think, well, yeah, we could probably use a couple of these things and somehow get away with it.

MR. O'HANLON: That's a great answer. I don't have a whole lot to add. I think one different take I might put forth which I think is complementary, or at least I don't intend to disagree, is that I think on the nuclear-to-nuclear Russia-U.S. showdown, or confrontation, it's not so much a concern about who might have 5 percent greater fire power or survivability in a hypothetical all out. It's more the issue of test of wills as to who would be willing to back up whatever commitments we are talking about with whatever force.

You know, as I think you know, Harlan, we had General Sir Richard Shirreff here a couple weeks ago talking about his new novel, War with Russia, and I

think his overriding concern was that our commitment to Baltic States might not be clear enough, and Russia might therefore be tempted to nip away, chip away at it. He was a little more concerned, I believe, when he began writing the book, than he might be today, because the European Reassurance Initiative has begun to move these four battalions into place, which I consider about the right magnitude of response.

And even General Shirreff didn't want a whole lot more than that himself, even though he was dramatizing the stakes with this novel, War with Russia. And so I think that the key point here is even though I wasn't necessarily even in favor of the NATO expansion to the Baltic States, now that they are in, we have to be very clear that they are in, and that we intend to defend them as need be.

How we would handle any future members is another subject, and I'm less inclined to go down that road. But I do think we have to be unambiguous in our commitment to Baltic States security, which is not just a question about threatening a nuclear response, not the use of the -- Well, not just the question of who could win a hypothetical nuclear showdown precipitated by a Baltic struggle.

It would be as much as anything, how well could we apply tougher economic sanctions if Russia, let's say, seized one town in Eastern Latvia, to try to invalidate Article V, knowing that we would probably be half crazy to send 500,000 troops and five tank divisions to liberate that one town at the risk of nuclear war. On the other hand, if we do nothing, we've essentially acquiesced to Russian aggression against a NATO member state.

So we need to think to very hard about a number of options, which would include, I think, frankly escalation in economic warfare, to a point where this could never from a Russian point of view a desirable idea to pursue. So that's where I worry as much

about deterrence as I do about who can take out the other's hard aim points with higher probability than the other.

SPEAKER: Well, I thought, because I think Steve made a point about -- made a really important point about the propaganda issues. As you know the Russians have sent an Iskander missile into Konigsberg and Kalibr cruise missiles at a nuclear-capable into the Baltics. And as you may know last week they had a nuclear defense, civil defense exercise in Moscow which is a signal in which they want to emphasize the fact that they had numerical advantages in tactical weapons, nuclear weapons to intimidate Europe, and they are doing a pretty good job at that.

And so therefore it seems to me that your point about countering, this is very, very important. And s how would you go on with a more dramatic or at least a better PR strategy to deal with the declaratory warnings that are coming out of Russia, where they are really, quite frankly, way ahead of us?

MR. PIFER: Let's just say, I think I would tackle directly this idea, this de-escalation doctrine because, again, I don't want the Russians to persuade themselves that, yeah, in a crisis, we could use one or two weapons, and somehow get away with it. I think personally once that threshold is crossed, you know, all bets are off. And I want Moscow to, you know, understand that. But again, I think, you know, the conventional force postures is what I would focus on in Europe, and we are moving in the right direction, you know, depending on how things -- there might be some other things that you could do. If you Google Earth the Sierra Army Depot in Northern California, you'll see lined up, rows and rows of M1 tanks.

You know, putting a couple of those tanks prepositioned in a place like Germany; that would increase their deterrent value as opposed to having them in

California. So I think there are things that you could and should be doing at the conventional level, but again anticipating that, what I want the Russians to understand is they can't escalate to a nuclear level without horrific consequences, and that even at a conventional level, you know, there will be NATO resources there that in the end are going to defeat them.

MR. O'HANLON: Let's go back of the room this time, and then we'll keep mixing it up. So there is a gentleman in the red sweater, and then we'll take that, and then we'll come up here to the woman in her orange jacket; and then to go to Steve.

SPEAKER: Hi. Alex (Inaudible), I write for Jane's Defense Weekly and (Inaudible). My question is about when it comes to U.S. nuclear forces; my question is about military training and military morale. Three years ago we had the Malmstrom Base cheating scandal, five months ago, more or less, it was drug usage scandal in, I think, Warren Air Force Base in Wyoming. And I'm wondering, as you talk about the new equipment, what contingents are being made in the training, in the morale, and into what ways are -- is morale being increased among the U.S. Military personnel that's in charge of protecting these very important and critical weapons. Thank you.

MR. O'HANLON: Then, up here, please?

MS. LIM: Good afternoon. I'm Eunjung Lim. I'm teaching Korean Politics at SAIS, Johns Hopkins University. I really enjoyed the discussions between you and my former Professor at Colombia University. My question is, of course I do understand the rationales behind the downsizing or arm control between Russia and here, the United States. But how about that nowadays in South Korea one of the key allies of the United States, the fear or again the anxiety about this kind of -- kind of shrinking, or withdrawal of the United States as really becoming a -- increasingly

becoming a big concern. So, now more and more Korean people think that we might need to, we might need to have our own nuclear weapons too. So how would you think about this kind of situation and how would you recommend for the next administration to re-assure these East Asian allies?

MR. PIFER: Okay. Well, let me start off on the training question. I think that actually the U.S. Air Force recognized that there was an issue there several years ago, and they are trying to find ways to rectify those problems. And so hopefully those programs are going to be successful and you are not going to see a reoccurrence of those issues. It does seem to I think within the U.S. military over the last several years there has been renewed focus on operation of nuclear forces, you know, training people and such.

On the South Korea issue, I mean, this I think it gets to the really difficult question, which is, deterrence of an attack against the United States itself is pretty easy I think. How do you extend that deterrent to cover countries like South Korea, Japan, NATO countries, where, and the question goes back to the Cold War, we are we understand, we always ask, is an American President really prepared to risk Chicago to defend Bonn?

And so, part of it is not only deterring the other guys, in this case North Korea, but also is assuring, you know, your government, the South Korea Government that that commitment is there. A lot of it I think is just consultations, just having a conversation. This is how we think about these things, this is how we would respond, and this was done in NATO, I mean back in the 1960s, I describe it as a software solution as opposed to new weapons, but just actually having conversations so that you raise the allies' comfort level in terms of, we now understand how the United States thinks about

these issues, we understand how the United States would respond, and that takes a lot of time and effort, but I think it can be successful.

I mean, in the case of North Korea, it does seem -- it's very hard for me to see a situation in which North Korea used a nuclear weapon. If that happened, my guess is it would be almost certain there would be an American nuclear response. Now that's going to be a presidential decision, but it seems to me that if there was not an American nuclear response, the risk, the other side said, hey, I got away with it once, can I get away with it two, three or four or five times?

So, I think there is that protection on the nuclear side. If there were a conflict, a major conflict between North Korea and South Korea and it did not go nuclear, it stayed at the conventional level, you've got, I think 24,000 American troops there who are going to be in that conflict from day one. That's a pretty good indicator of the U.S. commitment. And again I would argue in that situation, you know, I'm not sure anybody would want to make first use of an American nuclear weapon, because if the United States did that, then what might be the North Korean response to South Korea?

So I think there are some ways to talk about where you may somewhat reduce your reliance on nuclear weapons, you know, but still maintain a strong commitment and assure allies that that commitment is there for their defense.

MR. O'HANLON: If you don't mind, I'm going to add to that, because that was really a very good answer. And I'd just like to make a couple of additional points. A couple weeks ago I wrote a column in The Wall Street Journal, in which I argued that Donald Trump's thinking about Korea was one of his more objectionable ideas because, in fact, South Korea's spending, as you undoubtedly well know, 2.5 percent of its GDP on its own defense, which is one of the highest numbers among any American ally in the

world, especially if you don't count some of the Middle Eastern countries that are at war, or virtually in a war zone.

And on top of that fact, as Steve says, we have this very long-standing commitment. We have, you know, the resolute clear commitment through the presence of more than 20,000 Americans on the Peninsula, close to 30,000 I think. And on top of that, you know, this is a place where we found out the hard way what happens when you start to get shaky in your commitments, that's what happened back in 1950 and we shouldn't make the same mistake twice.

But I also think, to back Steve's arguments of that, if, for example, the North Koreans decided, in a future conflict, that we need our high technology assets more than they need theirs, and that ours are more vulnerable to a nuclear strike, or that Western populations are weaker and can be more easily intimidated. And therefore they could try a nuclear weapon or two, in a sort of limited way, high altitude burst over an airfield, for example, try not to cause a lot of civilian fatalities at first, but to send a message they are willing to cross that threshold, then I agree with Steve, we would have to do the same kind of thing ourselves.

And in that situation, we would have to leave no doubt. We don't have to necessarily escalate at first, especially if they still have 15 weapons left, and we don't know where they are. But we would have to indicate that we are not going to be -- assuming Seoul agrees with Washington on this -- that we are not going to be somehow browbeaten into submission or revealed to be irresolute.

One last thing which is, I think, very fortunate, is that after a decade of trying to pursue this ill-conceived idea to transfer military command to the South Koreans, or essentially to distribute it into the two different militaries where you would dissolve the

combined integrated command structure. The United States and South Korea are no longer in a hurry to do that. They've declared a conditions-based approach towards changing their command which, to me, is a perfect way of saying, we are never going to change it as long as there's a North Korean threat. And that's what the policy should be.

We've spent 30 years in the United States, on the Goldwater-Nichols and other military reforms trying to integrate and simplify, and streamline our military commands. We shouldn't be trying to do the just the opposite with our U.S.-ROK alliance, and luckily we are not any longer. So that's one more reason why I feel fairly good, once we get through this U.S. election, which has raised some of the biggest, oldest and, you know, most existential questions about the future of the alliance, we'll be able to remind people of some of the reassuring facts.

Okay, maybe the sixth or seventh row?

MR. RUST: Thank you. Dean Rust. The elephant in the room it seems to me partly the fact that there's no longer a bipartisan consensus in the United States in support of arms control. We can say all we want about what the administration might try to do, but if it's Hillary Clinton, you'll know what's going to happen on the other side. If it's Donald Trump, you'll have seen Republican willingness to reduce reliance on nuclear weapons over the past 10, 15 years, but not in a treaty context.

They say the world is unpredictable, and they have to be able to respond, not bound by treaties. And of course a combination of those two things makes it extremely difficult, whether you are a Democratic trying to do some of the stuff, or whether you're a Republican, to get to some of the things you want you'd think that the next administration ought to do. So, have we reached a point where arms control is over until the Republican National Security establishment comes back to embrace some of the

stuff? Or, is there a chance sometime in the next 10, 15 years, that that will happen?

MR. PIFER: Well, that's a domestic political question; I'll answer it, in some hazard. You know, I think your right. Certainly, I think the room for arms control agreements, particularly, that are concluded by a Democratic administration, and the possibility that it could get consent ratification by a Senate, and wouldn't be sufficient to go to the Republicans, it's a lot more difficult than it was, you know, even a couple decades ago. And the example of all that is, if you look at the New START Treaty and compare it with the 2002 Strategic Offensive Reductions Treaty that was signed by the George W. Bush administration with the Russians, the limits in those treaties were actually pretty close.

I mean, slightly different counting rules, but the numbers they come out about the same. The treaty that's signed by President Bush was two pages. It had not agreed counting rules, no agreed definitions, no verification measures, and in fact I think the Russians were counting -- we were counting more things than the Russians were counting. The New START Treaty was 500 pages, it had detailed verification measures, precise counting rules or things like that, and if you go back and you look at how Senators voted, I think there are either 16 or 18 Republicans Senators, who voted for the Treaty in 2002, and then voted against New START.

And so I think there's a certain degree of politics, unfortunately, which has intruded on this. So, there are a couple questions here, you know, can you come up with an arrangement, and can you persuade the Senate that, in fact, these arms control arrangements do serve the American interest. The other factor that might come at play here is, you know, how do Democrats in Congress react towards a fairly expensive strategic modernization program? Where you are now seeing questions among some

about what the bill is going to be for this.

I think the Republicans in the Senate were very effective in 2010 in mobilizing to, say, in order to get support for the New START Treaty and its ratification, the administration has to make certain commitments on Strategic Force Modernization. Like, I wonder, well Democrats in the Senate say, okay, well, we are prepared to support that modernization in return, though, for a reasonable arms control. So, in my ideal world which is probably naïve, and probably won't happen given the difficult politics, is you could have a situation where arms control bring the numbers down, but you also would have support on both sides for ensuring that the forces that are within those goal limits are actually modernized.

I'm not going to make a prediction that will happen. I would like to see it happen, we'll have to see. And a lot of it, I think, will depend on what's the composition of the Senate. I mean, if there is a Democratic President in the White House in 2017, in full disclosure, I very much hope there will be, in terms of winning support for a treaty, how many Republican votes would that President need?

MR. O'HANLON: Any other questions? Yes, sir.

SPEAKER: Steve, I had a chance to read your report, and I find it -- I really want to compliment you on a very balanced on this hand and on the other hand. It really, I mean that. There are a couple things I think you should examine. One is, going to 10 submarines is really going to 8, because you have a backfit problem in the 2030 to 2040 period. You can't get to where you want to go with the numbers you talk about. Second of all, the notion that the Air Force supports a Service Life Extension Program for Minuteman versus modernization is erroneous.

I know what RAND did, but RAND doesn't speak for the Air Force. In

fact, Air Force has testified before Congress that a Slap would cost more than a modernization, and if you are talking about the next 10 years, that's absolutely true. If you talking about 30 years, no. But the next two (inaudible) of an incoming administration are going to be to 2024, '25, and there the cost of a Slap exceeds the amount of modernization. And if you do a slap of 250 missiles, you've got to do a Slap of 150 test missiles. And the issue there is not so much test assets as accuracy. That's one of the big issues, and the cost of maintenance. And that also includes the C-cubed command and control.

The third issue which Michael raised, which you go through in your report, is this idea that for Minuteman to survive it has to be used first, and therefore to de-alert it or take the warheads off is necessary. Bob Bill in 1997, had a press conference at the White House in which he said U.S. policy has not been launched under attack, or launched on warning, it is not, in fact he had to have a special press conference to persuade the media that had gotten a hold of the presidential directive on the nuclear policy, you would have assumed that that was our policy.

And he pointed out, this is November 1997, it's online, we haven't had that policy, in fact, we spend all this money precisely because we don't have to launch Minuteman under attack or on warning, we can ride out an attack. And if there's not an attack on CONAS, there's a regional attack in Europe or Asia, Minuteman will be available.

So, I would urge you to -- I understand you looked at both sides of those issues, but in your recommendations you talk about de-alerting, or even taking warheads off of missiles, which as the Russians said here, as Brad Roberts said here, just a few months ago, you get into a re-alerting race. And as the Russians said, how do you verify

it, because you can't on a de-alerted thing. So I would urge you to take a look at both the backfit problem as Admiral Benedict has laid out, and the Minuteman Slap versus modernization.

And finally, I asked General Weinstein, why do you want to modernize? Do you want just a new, shiny, or does it really mean these things are going to deteriorate, and not usable? And I asked him Friday at Heritage. And he said, we absolutely have to replace these systems because they are being degraded and they are not going to survive beyond the time in which they need to be replaced. This is not a matter of: Oh, nice to have. The problems of the whole life for subs, the problem in terms of stealth, is an issue and the issue on Minuteman is both accuracy and cost of maintenance.

But otherwise I want to compliment you on a really well-done report, because I could see a lot of things that a lot of us in the pro-modernization side have been saying, which you also, I think fairly laid out what those who want to do something else. So, again, I compliment you.

MR. PIFER: Thank you, Peter. Let me, just briefly. I think though, just to be clear, I think I did say on ICBMs, that the Air Force has made clear its preferences for a new ICBM.

SPEAKER: Right.

MR. PIFER: There is the RAND report out there, which is just the alternative. Again, it may be something worth thinking about, there's a cost issue. On the question of launched under attack, just to be clear, in my paper I didn't advocate taking the warheads off the ICBMs, but I did say, you know, maybe the White House can just tell the Air Force, you do not have to plan for launch under attack.

I think it generally makes sense to do what we can to give the President hours and even days to consider use of nuclear weapons. If this is going to be the most monumental decision that he or she ever makes, and so I want that President to have as much time as they need to make it. And the launch under attack, and I agree, I think it's a little bit unclear exactly what the status is. I mean I go back to the 2013 Statement that the Defense Department sent to Congress on the implementation study for the Nuclear Posture Review, and it talked about examining options for moving away from launch under attack, but still didn't quite completely give it up.

So, when I'm talking about de-alerting, it's not in a sense of -- you don't have to do anything physical, you can just say to the Air Force, you don't have to train practice because you should not anticipate that you are going to get an order to launch on four or five minutes' notice. Which I think also is just highly impractical. I mean when you look at the timelines and the amount of decision time that the President would actually have to make a launch decision, if you see a couple hundred ICBMs headed towards the United States, my guess is, the first question the President will ask is: Are we really, really sure? Yeah.

On the submarine question, I think -- you know, I take your point about the numbers of submarines, although I think actually, you might get to a point where in the 2040s you are talking about 10 submarines, maybe will be 9, if you plan for one being out. Because you are going to have less time in the shipyard --

SPEAKER: (Inaudible)?

MR. PIFER: Yeah. But I think I --

SPEAKER: Is 2030 and (inaudible) build 10 new ones?

MR. PIFER: Yeah, but we are already in a situation where the Navy has

said basically that for most of the 2030s it will be able to get by, it's going to get by with 10 submarines --

SPEAKER: But what do you think (inaudible), what's the difference?

MR. PIFER: Yeah, but -- But I think when you get with the new submarine though because of the lesser time, because you don't need to refuel the reactor, you don't have to have to have that much, and you don't have to have two submarines out at the time.

SPEAKER: That's not the issue, the issue (inaudible) that they are not going to be available.

MR. PIFER: Yeah. Okay.

SPEAKER: (Inaudible) and I'll be happy to share what it is (inaudible).

MR. PIFER: But at a cost level, I mean, when you look at the construction cost, though, that the lifecycle of each of each cost, if you went from 12 to 10 you could probably save about \$50 billion over the course of the program. So, there, again, I'm trying to give the programs also not just in terms of requirements, but on terms of what we can afford. And I worry right now that the program that the Military has is going to be very difficult to fund come 2025.

MR. O'HANLON: Let's see if we have a final question, and if not, we'll get you all out, because it's starting getting ready for trick-or-treating a little bit on the early side. But any final questions? Well, if not, please join me in thanking Steve, and best wishes to you all. (Applause)

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