

# **Foundation for Defense of Democracies (FDD)**

## **Monitoring, Verification and Compliance Challenges for a Final Nuclear Deal with Iran**

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MARK DUBOWITZ: All right, folks. I think we're going to get started, in the interest of your time. If everybody could take their seats – if there's anybody outside – OK. Could you tell the folks outside that we're going to get started? Thank you.

OK. Hi there. I'm Mark Dubowitz, and I'm the executive director of the Foundation for Defense of Democracies, and really delighted to be here today with David Albright and Olli Heinonen and Orde Kittrie. We do regret that, for personal reasons, John Lauder is not able to join us today, but hopefully we'll see him soon and see a lot of familiar faces from the Hill – from the press corps, from the broader policy community.

As you know, FDD is a nonpartisan, nonprofit policy institute. We do a lot of work on Iran issues, particularly sanctions and nonproliferation, and very timely event, given the negotiations that are underway today with Iran and the P-5 plus one. And as they're beginning to draft their final agreement, we decided to hold this event to really delve into much more detail on a critical element of any final deal, which will be the monitoring, verification and compliance safeguards regime and to look at what the challenges would be for any potential final deal.

We're going to address the following questions today: What mechanisms are required to effectively verify a comprehensive nuclear agreement with Iran and maximize the chances that Iran will actually comply with this? What tools do the United States and the international community have and what is needed in order to guarantee nuclear transparency, resolve outstanding questions about Iran's military nuclear activities and prevent any further Iranian attempts at illicit procurement or illicit proliferation? After an agreement is signed, what happens if we do catch the Iranian government in noncompliance?

And this is to the sanctions question. Can the United States retain and reapply economic leverage or will the sanctions architecture have been too severely eroded? What tools, economic or otherwise, can the United States and allies use? And certainly, what role can Congress play, very importantly, in maximizing the chances that any cheating by Iran on its nuclear commitments under such an agreement would be prevented, deterred or quickly detected and effectively addressed? So in short, if they reach a final agreement in Vienna, what challenges remain the most pressing after the ink dries?

So two reminders – please turn off your cellphone. The event is on the record. And we're going to start with very brief remarks by the panelists – no more than three to five minutes – and then a moderated discussion. A number of you have sent in questions. We'll certainly bring in those questions. We've got microphones and we're also in small room so feel free to remain in your seats and use a loud voice. So with that, let me turn it over to David Albright.

DAVID ALBRIGHT: Thank you very much. I'm happy to be here. I just wanted to go through this very briefly, which means quickly. If you're interested in more details, I'd refer you to some reports we've written, one of which was what we called a comprehensive solution model that we published in mid-January, which reflected a lot of discussions through the following winter of what a comprehensive solution should look like.

And before I give some of those, I'd like to say that in our analysis we're driven by three or four guidelines, fairly broad ones, one of which is there needs to be a sufficient breakout time

if Iran reneges on the deal that there can be an international response that does not include or does not require military options in order to stop Iran. And I think for us, you are driven to at least six months. Others have said that's not nearly enough time if you want a nonmilitary response. And I think in our bottom line, we're thinking of having a program or programs that would have a six to 12 month breakout time.

But that's just one condition. And it would apply to enrichment and plutonium production. Others that are not as discussed but drive our work is – one is the concept of irreversibility. In arms control, you want agreements that can't be quickly, in a sense, turned around and reversed by the parties that have agreed, and so you want to apply that to this. And what that does, is it excludes certain provisions or proposals. The other is, you want adequate transparency. And what I mean by that isn't the steps of the IAEA going to a place, it's the structural things you want in place that are necessary in order to have verifiability – a verifiable agreement. And I'll give some examples of those in a minute.

The other is – that we've added is that you don't want Iran to be conducting illicit nuclear trade – either as a proliferator or as a buyer. Its program depends heavily on acquiring things overseas. That continues to this day. There's regular prosecutions of Iranian smuggling agents. There's sting operations that actually arrest Iranian nationals involved in these smuggling operations. And you want Iran to stop doing those activities. And again, that would be – is related to verifiability.

If Iran can buy – is out buying the things it needs for covert centrifuge plant, you want in the agreement Iran at least committing not to do that. And you don't want a situation where they're able to go out and buy these things, illegally or legally, and that they're claiming they're used in a civil program but in fact they would be used in a covert program. And that they – it would give them a tremendous leg up and undermine the verifiability of the agreement if they were able to do this.

Now, some examples of the constraints – and again, this is – these are just taken from this comprehensive solution model – is we think there should be no more than 4,000 IR-1 centrifuges. And that also means, given that they have 18,000 IR-1s, that the rest are removed. It's not enough to leave them in place. And we – at the request of governments, Congress, we've looked at this question of what in North Korea was called disablement, that you leave them in place but you make them hard to restart.

And we couldn't come up with schemes that give you more than three – two to three months. And that, to us, would be a very reversible deal where they could – if they decided to renege, they could simply start up these 18,000 centrifuges and, in essence, do whatever they want. And again, that doesn't mean that they would be breaking out. So you would actually be confronted with a very destabilizing situation when they say, look, you haven't performed as promised. We're now going to restart our centrifuges. And they can do it quickly and would create a – and it would just be a very unstable situation and something to avoid. And that's – and therefore, we think the centrifuges should be removed.

There's also – we think, limits on the LEU stocks should be taken, but those aren't as critical as the – as the getting rid of the centrifuges because, again, the program is going to remain. So they're always going to be producing low-enriched uranium. That's the whole point of them having a program, and so any constraints built on low-enriched uranium limits is, again, fairly reversible. And so I would point out that – you know, there's a report by the International Crisis Group. We would reject – we would say those are bad compromises in there because they're mostly focused on limiting the LEU stocks, not on removing the centrifuges, and therefore you could reverse the deal pretty quickly.

Other things – I mean, on the Arak reactor, I think there's an interesting proposal out there on turning – using enriched uranium, but again on the reversibility question, it's only a good idea if the core is changed. Again, I don't want to get too technical, but it's a core designed to hold natural uranium, it can hold a lot of fuel assemblies. You could go to low-enriched uranium. You would use a small fraction of the fuel channels. If you don't change the hardware of the core, they can simply reverse it in a short period of time and go back to a natural uranium reactor.

The same would apply to the power. The idea is to reduce the power of the reactor from 40 to 10 to 20 megawatts thermal. Well, again, you have to modify the heat exchangers that, in essence, you use that to pull the heat out of the core and dissipate the heat, which allows the higher power operation. And so you also need to modify the heat exchangers so that it's – they're sized to a much smaller reactor. And again, you don't want them to reverse it and just simply go back. And again, these steps – these aren't going to be things that are going to trigger international alarm if they just decide – if they just decide to renege on the deal.

And again, we were confronted with this over and over again in the case of North Korea. I mean, what is – what is a violation? And it's – and – you know, in a sense, from a compliance point of view, you wish the country would just say we're quitting this agreement; we're going to build nuclear weapons. But that's not how it happens in the – in the real world. They're going to do things that would be below the level of triggering a massive international response, but would then allow them to build back to a point where they could have a very rapid breakout capability.

And so, again, you have to, I think, design the agreement so that it had adequate breakout time, it's irreversible, in an arms control sense – it's not going to ever be perfectly irreversible. But you're talking about a year or two, not two to three months – and that you need to build in the transparency structurally so that you can actually have a verifiable agreement. Thank you. And sorry for going over.

MR. DUBOWITZ: OK. Great. Thank you, David. Olli, you can pick up on this point. If the deal meets David's articulated minimum requirements – and I guess especially if it doesn't – talk a little bit about the IAEA, the safeguards. I mean, what additional terms of access has the IAEA gotten under the JPOA? And what would they need in a final agreement to increase the likelihood of effective monitoring? And are they likely to get this level of access in any final deal?

OLLI HEINONEN: Thank you. First of all, thanks for inviting me to come here to I think a warmer place than Boston. So it's nice to be here in middle of summer for a couple of days. (Laughter.) Yes – actually, the JPOA doesn't bring very much to the IAEA verification scheme because basically you continue the implementation of a standard safeguards agreement. It didn't provide an additional access in terms of the – of the additional protocol. So these things are still to come, somewhere. And – but if we look it in a little bit bigger picture and draw the lessons from the previous implementation of safeguards in Iran after 2003, read the lessons from North Korea, read the lessons from Syria, read the lessons from Libya, the most difficult thing is to confirm the absence of undeclared material and activities. This has traditionally been the big weakness of verification system, so how to cope with that.

Actually, we have here three ways to cope. One is to have this full implementation of a normal safeguards agreement, which would also welcome Iran to implement the Additional Protocol. But I don't think we can stop here, for a number of reasons. One reason is that Iran conducted a couple of decades of nuclear activities which it failed to report to the IAEA under the Comprehensive Safeguards Agreement. When it was caught, it didn't really fully change the course of action. We got some additional troubles in 2004 with the P2 program and a little bit later with this facility which was under construction in Fordo.

So now on Sunday, again President Rouhani repeated the normal things, say that we are not going to compromise anything in our nuclear capabilities, no binding count of enrichment or centrifuges in Natanz or Fordo, and no stoppage of our heavy water reactor construction. And yesterday, when Arachi go to Vienna, he said that this reactor is going to be built for 40 megawatts no matter what happens.

So – but Rouhani suggested one more thing. He said that, well, that's what we are going to keep, but we come with full transparency. Full transparency – what does it mean? And I think that this is where we have a solution.

The first thing from these lessons which we have learned here – it has to be not voluntary, but legally binding, because when we go to the previous implementation – I think it was early '90s or 2003, 2004 – Iran always said that these are voluntary measures, and therefore, you know, we comply unless something like national security is jeopardized, or we just stop implementation because we are unhappy with the progress in the other elements of the negotiations. So this needs to be legally binding.

And then what kind of transparencies we really want there? Let's start from the centrifuges. Iran has, as David said, 19,000 IR-1s there, and they have another 1,000 IR-2 centrifuge, which are much more powerful. The first transparency for me is how many centrifuges Iran has in total, how many they have manufactured, where they are, where they've been done, where the material is kept, so that we get the feel how many additional are there, because these are the ones which have been installed. The same thing is then with their centrifuge R&D. The IAEA has to have an access to R&D places so that you see what's going to happen there.

Same thing goes with the heavy water production or visits to – IAEA visits to uranium mines or milling facilities. This should not be occasional visits to these places, but there should be a system. For example, Iran has to explain in a verifiable manner how much they have produced yellowcake, where is it today, has all the nuclear material declared to the IAEA, et cetera. So this needs to be put in place in a verifiable manner.

But then I would like – in my view, there needs to be a little bit more, because this is based on the fact that the success of the IAEA depends on the access to information, sites, people, equipment. This needs to be enshrined, also the people and equipment to this deal which will be negotiated, and in a legally binding manner.

But I want to go one step further. When we go back to the history of implementation, sometimes the IAEA inspectors encounter some restrictions, so therefore the system has to be created such a way and the information provided in such a way that you can verify some of the elements without going to Iran, the same way like U.S. was monitoring Russian missile silos in 1960s. Then we probably will have a verification system in place which can tackle better the unknown activities and gets an early warning if something starts to go wrong.

We need to address also some of the aspects of this military program, military-related – dimension. IAEA had some meetings on exploding bridgewires, has asked to have an access to Parchin. These are important, but they are such simple individual steps. The system needs to be interactive. You can't solve this one by one. You need to get the full picture in order to be able to ensure that all nuclear materials and activities have been declared. And we also keep in our mind that the chain is never stronger than its weakest link.

Thank you.

MR. DUBOWITZ: Great. Thank you, Olli.

I'm going to turn it over to Orde Kittrie. Orde, discuss the Defense Science Board's report findings in relation to Iran with respect to kind of history of U.S. monitoring, verification, and also what Congress' potential role should be given the above, and what specific and concrete suggestions you have for Congress with respect to oversight.

ORDE KITTRIE: Thanks, Mark. It's a pleasure to be here. I'm delighted to see such a good turnout because I, for one, as a former nuclear negotiator for the U.S. State Department, as a professor, and a historian of arms control, have been surprised by how inactive Congress has been on Iran issues since the Joint Plan of Action was rolled out last November.

The Founding Fathers, in the U.S. Constitution, arranged for Congress and the executive branch to serve as checks on each other when it comes to foreign policy. In general, the security of the United States has been well-served by that arrangement. Yet Congress has, since November, been remarkably disengaged with regard to the Iran negotiations. No legislation passed, just a couple of letters, remarkably few hearings, far less legislative action and far fewer hearings than one would have expected given both Congress' prior leadership role in imposing

sanctions on Iran and the decades-long tradition of vigorous congressional engagement with regard to arms control agreements with U.S. adversaries.

What does that long tradition include? Well, for decades Congress insisted that select members actually serve on the U.S. delegation to arms control negotiations. There's a long tradition, therefore, of including members of Congress, usually one from each party, as observers on the U.S. teams negotiating arms control agreements. Members of Congress served as participants on the negotiating teams, as observers to negotiations of agreements on topics including strategic arms control, nuclear weapons in outer space and the ocean floor, environmental modification, chemical weapons, and on and on.

In addition, past U.S. senators like Henry "Scoop" Jackson, a Democratic senator from the state of Washington, traditionally played a very vigorous legislative role on arms control negotiations, moving legislation, holding oversight hearings and using other tools to ensure that U.S. arms control negotiators held a firm line. In addition, Jackson and his allies, through creation of the Helsinki Commission and such laws as the Jackson-Vanik Amendment, ensured that arms control negotiations with undemocratic regimes did not occur in a vacuum, but rather were verifiable, were vigorously enforced, and often accompanied by human rights provisions.

Thanks to senators like Jackson, Congress received regular classified briefings and insisted that as much information as possible be in the public domain. As a recent CRS report noted, quote, "the number of unclassified reports to Congress on WMD-related issues has decreased considerably in recent years." U.S. national security was far better off because senators like Jackson actively engaged in the arms control negotiations process.

I'm not going to speculate in this presentation as to why Congress has been so disengaged with regard to the Iran negotiations. Instead, I'll focus on how Congress could increase its role with regard to the topic of today's panel: monitoring, verification and compliance issues. While most of the discussion in the press of the negotiation with Iran have focused on questions such as how many centrifuges and how much enriched uranium Iran should be allowed to retain, there's a set of monitoring, verification and compliance questions that have been less discussed but are just as important. They go to the key question of if Iran agrees to X, what will be our capacity to know whether Iran is complying with that commitment? And what will we do if we receive evidence that Iran is cheating? This is especially important when an agreement leaves a country like Iran six months or maybe a year away from acquiring nuclear weapons. Will we know if and when Iran starts cheating on the agreement and moves towards a bomb? How quickly will we know?

You might assume that the U.S. intelligence community has the tools to detect such cheating. You would be wrong. In January, the U.S. government's Defense Science Board – and if I understand correctly there may be copies of the executive summary of this report – issued a remarkably frank but unfortunately little-noticed unclassified report titled "Assessment of Nuclear Monitoring and Verification Technologies." The authors of the report included many of the U.S.' leading experts on nuclear monitoring and verification. Their conclusion was shocking.

If you turn to page 2 of the report in that executive summary, you will see that they concluded that U.S. government tools, quote, “are either inadequate or, more often, do not exist” for a list of current challenges that read like the challenges that will be posed by an agreement with Iran. The report says that U.S. government tools are either inadequate or more often do not exist for monitoring, quote, “small inventories of” nuclear “weapons and materials;” quote, “small nuclear enterprises designed to produce, store and deploy only a small number of nuclear weapons;” and, quote, “undeclared facilities and/or covert operations.”

Thanks in part to past congressional engagement with arms control agreements, the U.S. government was good and remains good at monitoring, for example, a particular large Russian missile stockpile located there to ensure that the number of missiles doesn't change, or doesn't change by much. The U.S. government is far less good, according to this report, at detecting whether somewhere in the entire territory of Iran there's a covert facility that is manufacturing nuclear warheads, or enriching uranium using advanced centrifuges, or good at detecting whether Iran is acquiring high-enriched uranium or plutonium from North Korea.

Well, what does this mean? What does this gap in U.S. capacity mean for the nuclear negotiations with Iran? It means that when it comes to detecting Iranian cheating, the U.S. is going to be highly dependent on the level of access which the agreement provides to the International Atomic Energy Agency, the IAEA, and the vigor with which the IAEA uses that access. For example, to minimize the chances of Iran cheating using covert facilities, the IAEA is going to need to be able to go anywhere anytime in Iran. The IAEA does not currently have that level of access in Iran. The IAEA will only have that level of access in Iran if the U.S. and the other members of the P-5 plus one insist that the agreement with Iran provide such access to the IAEA.

How can Congress do more, right? I started by saying that Congress has been relatively disengaged. How can Congress do more to ensure that the agreement includes the necessary monitoring, verification and compliance mechanisms? I'm going to list several issues.

I think Congress might consider holding hearings on those questions and pressing, legislatively and otherwise, to ensure that they're addressed. Remember, Congress playing bad cop brought Iran to the negotiating table. Congress must continue to play bad cop if it wants to ensure that the negotiations with Iran result in a comprehensive agreement that is verifiable and bolsters the security of the U.S. and its allies.

So what are those questions? One, Congress should hold hearings and task CRS and other research assets to examine what it would take to monitor and verify the expected and then, once the deal is rolled out, agreed elements of the Iran nuclear agreement. What does it take to ensure that there isn't a covert facility of that type or that Iran isn't stockpiling more than it should be of this or that or the other?

What are the U.S.' capacities? Congress could take the Defense Science Board report and I'm sure get good classified briefings that go into even more detail as to what capacities the U.S. has, what it doesn't have, and therefore what it needs to rely on the IAEA for. That's the

way arms control agreements used to work: Congress would demand to know what is militarily significant cheating and will we be able to detect it?

Congress might also want to look into that long history I mentioned of members of Congress participating as observers in the process of negotiating various international agreements and see if that should be done with regard to the remainder of the negotiations with Iran.

Congress could also continue to look for ways to draft legislation – I mean, as I understand it, the Kirk-Menendez bill is stalled but there may be other bills, better bills that could be introduced and passed. Legislation that makes clear to Iran the consequences of failure to constructively negotiate and comply with a final agreement with Iran. Iran will be more effectively deterred from cheating if it knows that there will be consequences for cheating and knows that those consequences will be significant.

As I know from my experience negotiating and implementing nuclear nonproliferation agreements in the executive branch while serving as a State Department lawyer for 10 years, I know that those in the executive branch who labor to produce an agreement become very invested in their handiwork and move to defend it vigorously. If Iran fudges some aspects of the deal there may be great pressure and temptation to try to work things out even at the risk of not strictly enforcing the agreement.

Congress has a role to play in specifying the consequences of cheating and facilitating the imposition of meaningful consequences. If Iran openly tries to dash for a bomb, we and Iran know that the consequences may be U.S. bombing. But what if Iran tries to creep towards a bomb through one small cheating step at a time? What tools does the U.S. have for responding to such steps? Are there sanctions set up to serve as spigots that can be incrementally ratcheted up to match the size of the small cheating step? In the absence of such sanctions spigots, there may be a temptation to ignore the small cheating step. If all we have is the bombing hammer and no other tools, we may just look the other way. Congress should consider how the current Iran sanctions could be adjusted to serve such a ratchet role.

Congress also, it seems to me, should very carefully study, again, that January 2014 Defense Science Board report and consider introducing and moving legislation that would address the proliferation monitoring gaps identified by the report.

Congress should also consider bolstering its Iran deal oversight expertise and access. One option is to establish a commission to oversee implementation of the Iran agreements. Congress established the Commission on Security and Cooperation in Europe in 1976 to monitor the implementation of the Helsinki Accords. Commission membership consisted – consists still of senators, representatives, members of the executive branch. The commission also has professional staff that, unlike congressional staff who get pulled in so many different directions, can focus on monitoring implementation of the agreement and are hired specifically with that skill set in mind.

Not surprisingly, the executive branch back then opposed the establishment of the Helsinki Commission as an intrusion into the negotiating and implementation responsibilities of the executive branch. Nevertheless, the commission has worked successfully for years and is considered by experts to have helped strengthen the U.S. negotiating position and helped contribute to promoting first Soviet and then Russian compliance with the Helsinki Accords. There may be other examples of commissions designed to facilitate congressional oversight of agreement implementation. They should also be identified, studied, and consideration given to replicating their relevant successful aspects.

Thank you very much.

MR. DUBOWITZ: Great, Orde. Thank you very much.

Before turning to questions, Orde raised the issue of the use of sanctions as a potential instrument of leverage. In a post-deal environment, how do you use sanctions to actually enforce a deal? I think, you know, Orde raised the sort of provocative question, about, well, what else can you do if the Iranians do cheat, and they cheat incrementally? Can you threaten military strikes every time the Iranians fall out of compliance? Clearly not.

Can you – is there a process to go through, through the IAEA and the U.N. Security Council, where the Iranians will be effectively demarched for doing so? I would just add to that that I think that U.S. economic leverage is absolutely key, and that thinking about maintaining some kind of sanctions architecture where sanctions either remain in place or are quickly snapped back in the event of noncompliance will be essential.

With respect to U.S. financial sanctions, clearly these are sanctions that the Iranians are going to want to see lifted very quickly. The entire architecture of U.S. financial sanctions today is actually not predicated on Iran's nuclear program, right? They're actually predicated on protecting the integrity of the global financial system and of the U.S. financial system from bad Iranian banks.

The Treasury Department has issued a Section 311 of the Patriot Act ruling that finds the entire jurisdiction of Iran, the entire territory of Iran, to be of primary money-laundering concern. And that ruling was predicated not only on proliferation sensitive financing the Iranian have been engaged in, but terror financing and money laundering and sanctions evasion. Twenty-four Iranian banks have been designated. Twenty-three of them have been designated for proliferation-related offenses, including eight because they serve as the bankers for the Revolutionary Guards. One bank, Bank Saderat, has been designated because of its role in terrorism financing.

You know, the question remains, do we lift these designations? Do we find ourselves in another situation that many of you remember from North Korea with Banco Delta Asia where too quickly a bank is permitted to be reintroduced back in the global financial system, and in doing so, we lose that economic leverage. Is there still a rationale to keep these designations in place in order to protect the integrity of the global financial system from bad Iranian banks? But on the other hand, how do you actually provide a meaningful sanctions relief pathway so that you can actually get a comprehensive nuclear deal with Iran.

I think it's certainly worth Congress, which has spent so much time and energy putting in place such an effective sanctions architecture, to begin to think through what a sanctions relief architecture looks like, what are these pathways. We don't have the time to go into the complexity of the legislation and the executive orders that have been put in place, but there is clearly a smart way to do this, and there is a less smart way to do this. There is a way that actually allows you to use financial leverage, energy leverage in order to ensure that you have an enforcement mechanism when Iran is out of compliance. There's a less smart way, which assumes that you can just easily turn sanctions on and off like a dial and calibrate it the way that you can calibrate nuclear physics.

So I would just stop with that. And let's open the floor to questions. Again, there are microphones, if you can get up. If not, please project your voice.

I don't have my glasses on, so I see hands raised. Sir.

Q: Yes, Victor Comras. I think you've all made very valid points about the complexity of oversight and assuring compliance. But there is one other aspect that makes it more difficult, complex and dubious. And that is that we're only one player, and when it comes to sanctions, international sanctions, we're only one player. We have a lot of leverage, but that leverage has been in place since 1995 when we first put sanctions. How do we convince all the other members of the P-5 plus one – in fact, larger international community – to also view as we would view a violation of the agreements? Thank you.

MR. HEINONEN: Yeah. I think Europe is pretty much in a key position here. If you look the current sanctions, actually, the European sanctions are the ones which bite. And the whole European setup is also different. We need to keep in our mind that Europeans put the sanctions not only because of nuclear program. They are there because of human rights violation(s) of Iran. And the attitude is very different in the European Union compared perhaps to the – what is this side of the ocean. So I think that, you know, when you look partners, you should actually look also European Union and not just EU-3, with Germany, France and U.K. – without undermining them.

MR. KITTRIE: Yeah, I'd add to that, you know, I think that that's going to be a real challenge. Once business with Iran gets back up and running, I think it's going to be very hard to convince countries to crack down on why is – you know, often – you know, what are the chances that Iran going to make a publicly announced dash for a bomb? No, that's not what they're going to do. They're going to cheat a little bit here, a little bit there. And the totality will be concerning. And it's going to be very difficult at any one point in that to rally the international community to reimpose sanctions on Iran, certainly very difficult to get the U.N. Security Council to reimpose sanctions on Iran.

That's why, for instance, you need to think about, if the U.S. can pull it off, having the U.N. Security Council, rather than lifting its sanctions on Iran, rather, to suspending them, say, for six months at a time or a year at a time or something like that so that the Chinese and the Russians don't have a veto on reimposition of the sanctions.

MR. DUBOWITZ: Yeah. I agree with that. And there's no doubt these sanctions and the architecture depends on European cooperation and maintaining this sort of legal veneer that the UNSC provides.

But I would say that there is no substitute for U.S. leadership. There is no substitute for the power of the U.S. dollar. There is no substitute for OFAC and the Office of Terrorism and Financial Intelligence, and that what I fear is there will be a lot of pressure to de-designate Iranian banks as part of a comprehensive deal.

I think that there Congress could play a very useful role in asking Treasury to provide what I would call a rehabilitation program. What is going to take for Treasury to rehabilitate these banks? Because this is based on bad conduct. We've had repeated statements from the president, from Undersecretary Cohen, from former Undersecretary Levey, that the financial sanctions were put in place, again, to protect the integrity of the global financial system from bad banks. The day after a nuclear deal, those banks don't become good banks. They are still banks that have engaged in illicit financial activity.

And what is a rehabilitation program look like? What do the banks have to demonstrate? How long will program take? And should Treasury have to certify that a bank has actually gone through a rehabilitation program, and it should now be introduced back into the financial system? Because that certainly will influence the reaction of the Europeans with respect to their designation lists. It'll influence to what extent the banks should be allowed back into SWIFT. It's going to have a dramatic impact with respect to the Central Bank of Iran and its connection to the energy sanctions. So a rehabilitation program is going to be required, and the question will be, who ultimately will design that, and will Congress have oversight on its implementation?

Q: I have a quick comment for Orde and then a question.

MR. DUBOWITZ: Could you also just introduce yourself, sir?

Q: Edward Levine, retired from the Senate Foreign Relations Committee staff.

Orde, I don't blame you for beating up on Congress, but I would note that in this case, Congress has a weapon that will come up after an agreement is reached, which is that it will require legislation to undo some of the U.S. sanctions. And so one reason for holding back is that they have plenty of time to assert their will later on in the process.

Also note, when you talk about observers, most of those observers historically only went over for one or two visits during the negotiation. We are rarely talking about real activity on the negotiating team. And if they want to do that in this or other negotiations, on the Senate side, the national security working group does exist, and it's the successor to the arms control observer group. So there is a mode by which they could work something out to observe negotiations.

Now, the question I have is what resources will have to be brought to bear in order to achieve effective verification? And particularly, what resources will the IAEA need to that it doesn't have? And here I'm thinking not only in terms of access written into an agreement but

also financial resources personnel, all the things that it takes to really run a truly intrusive inspection regime. And are we prepared, are our allies prepared to put up the money and materiel when we'll need it?

And final question, and this is just a hobby horse of mine: I wonder whether the technical monitoring of a place like Natanz could be supplemented with the use of Monte Carlo simulation, perhaps in near real time nowadays since computer resources are much greater than they were in the past.

Q: Do you want – (off mic) – Monte Carlo – (off mic).

Q: Oh, the Monte Carlo simulation is a simulation that is done on the computer of complex systems in which you feed into the simulation how do you think the systems work and what uncertainties you have for each parameter that goes into the simulation, then you can run the simulation thousands of times in order to get an average outcome with higher confidence than you would get just from making general predictions from the data that you have.

MR. DUBOWITZ: OK, does anybody want to take any of these questions, respond to any of these comments? Olli.

MR. HEINONEN: Yeah. First of all, start from the IAEA. Actually, IAEA has some experience in this since 2003 in Iran, how to run monitoring, particularly during the suspension from– 2003, 2004, 2005, when there was – and since then there has been a continuous IAEA presence. That's one thing.

The second thing is that certainly one has to take into – advantage of remote monitoring and new techniques. Unfortunately, Iran has not agreed to that, citing security reasons. They say that their scientists will be subject to monitoring, et cetera. But I think that one can overcome those. So therefore, it's not a huge amount of human resources which need to be dedicated, but the most important is that the mobility of the inspectors in such a way that the inspections become unpredictable so that the systems are not bypassed. It's almost like a quality control measure.

So to run this one, now IAEA has, I think, about four persons permanently stationed in Iran. But you don't want them to stay there 365 days a year, so normally inspectors spend something like 80 to a hundred days in field, so you can compute from that that you need quite a crowd. But this is not tremendous in terms of (costs ?). It will be much less than what was put, for example, to Iraq in 1991 from the U.N. and IAEA. I'm not talking about what U.S. put at a later date). So I don't – it's hard for me, really, to see that the money will be a problem here, but the problem will be the access rights, mobility and how you keep – are able to maintain the predictability, unpredictability, and to assure that all this donkey work goes to the instrumentation and you'll take the skills of the people and you can have skillful people there. I think that these are more of importance.

MR. ALBRIGHT: Let me – on the Monte Carlo, I mean, if it wasn't Natanz, it may be easier. I mean, they're -- because of the role of Stuxnet, interfacing with any of their computer systems would probably be very difficult to achieve. I mean, I'm not being flip; I mean, it's just – and if you were going to try to create something independent, you'd need a lot of sensors,

probably, and they may – and that – they may argue that they’re just not willing to take the risk that somehow there could be a crossover effect. So, yeah, I think it – and again, I’m not – I’m not really – I don’t understand the – in full detail what you’re proposing, but I think I – right now I think it would be tough in Natanz.

Q: OK.

MR. ALBRIGHT: And it’s unclear what advantage it would get you in the short term.

And let me add one thing, though. Olli didn’t mention it, but it’s not quite a resource, but it’s going to save a lot of resources, is Iran needs to generate a good baseline, and we just don’t have it. We don’t know how – you know, for example, they have – they get 25 kilograms of weapon-grade uranium. We don’t even know how much they need in a bomb. You know, the bomb designs the IAEA talks about that they were working on in 2003, you know, they know – you know, they have the information about its exact size. But unless Olli corrects me, they don’t know how much weapon-grade uranium was for that design. Was it 20 kilograms, 15? You know, we used 25 as a baseline or as a fallback, but we don’t actually know. We don’t know how quickly they can make a bomb. The IAEA pretty clearly feels they know how to make a crude one, but we don’t know – you know, do they have components on the shelves? Do they have – you know, have they practiced making components? Is it three months, six months, a year? Just don’t know. And so the – and then if you get into the centrifuge program, Olli raised with does not know how much – how many centrifuges they’ve made. Do they have none on the shelf, 2,000, 3,000? So there’s a real need for a baseline that would then become sort of what the IAEA would work from.

And I would argue that it – you need to have baseline on critical parts before there’s a final deal. You need Iran to demonstrate that it’s going to cooperate. And you need it upfront because if they’re not willing to cooperate now, which they’re clearly not – and the IAEA’s reporting now on the exploding bridgewires – they got, in a sense, the same old story – then why would we expect them to cooperate after a deal, when sanctions are dramatically weakened?

MR. DUBOWITZ: And David –

MR. ALBRIGHT: And in that sense, indirectly, we’re going to have these fights all over again. But on the other side of the deal – and I would add that it would create an unstable deal and that the IAEA would be constantly having to confront Iran about these same old questions and then – and then what is the U.S. going to do.

MR. DUBOWITZ: So, David, I think you started to answer this. I’m getting questions emailed to me as well. But someone’s asking and actually quoting Jim Walsh and Bob Einhorn are saying – Jim Walsh is saying it’s unrealistic to expect Iran to confess to everything they know and did, adding that he doubted a full public mea culpa by the country was needed. Bob Einhorn has said, quote: “While full and honest Iranian disclosure of past activities is undoubtedly the best result, such an outcome faces formidable obstacles.” And I believe Bob had a report out a few weeks ago where he suggested that some of these outstanding concerns should be punted until after there is a deal and actually tying Iranian disclosure and calibrating it to post-deal sanctions relief. Do you want to respond to that?

MR. ALBRIGHT: Yeah. I think what Bob Einhorn said is accurate. It's complicated to get Iran to do this. And in fact, I know last summer we sent signals to the Iranians, you know, don't talk about this issue. But instead, in September at the U.N. you saw one official after another from Rouhani on down making a point that they never had a nuclear weapons program. And they didn't need to make any statements, and they continued to make them. So clearly they've dug their heels in.

But unfortunately, it's a little hard to see how you could have a deal that – where the main issue driving the whole thing isn't dealt with. I mean, this is – if it was just about enrichment, I don't think ISIS wouldn't care. I mean, we don't challenge Japan, I mean, on their credibility and their intentions. And so if this isn't resolved, then I don't see how any deal would last. I mentioned some of these – you know, the IAEA's still going to be going after this. They were told to shut up in 1994 on North Korea. Olli can talk about this personally. It didn't work out very well in that case. And so I don't see the IAEA rolling over on this one, and I don't see some of the European countries necessarily rolling over on this issue, if you think of some of the things the French have said. So I think it – you have to deal with this.

And then in terms of what Jim Walsh says, I mean, he's just given a kind of an extreme position. I mean, no one's asking for a mea culpa. This isn't about – I don't know, but this isn't about confession. This is about can you construct a verifiable regime that provides assurance they're not going to build the bomb or that – you know, shouldn't use the term "assurance" not to build the bomb – you'll never have that – but to provide a lot of warning and that you're not going to have to always be on hair-trigger alert because you're worried that they're just going to renege, because, in the end, all they're doing is buying time. And so you need some demonstration by them that they – that the IAEA evidence is either false or is true, and that they walk the IAEA through that.

Now, they're obviously not going to reveal everything. And Olli can – probably should comment on this, because there's hundreds of concerns from the Physics Research Center, which you may or may not know, it was a military entity that was seen as sort of running the military fuel cycle dimensions in the '90s, to activities that go up to almost this day on components of nuclear weapons. So, of course, not all these concerns need to be addressed, but Iran's taking a position that it won't address any of them in a way that satisfies the IAEA. So there's certainly a way around this.

And another thing I should add is that they don't have to address everything. In the South African case, South Africa was, in a sense, forced to reveal its nuclear weapons program. There was tremendous pressure, including from Congress, that they weren't going to be allowed to sign the NPT without fessing up about their past work on nuclear weapons, and it took about 18 months for the pressure to build until, finally, South Africa reveals.

But they said in that revelation, we're not going to reveal certain information. We will not talk about delivery systems, and we will not talk about foreign procurement. And the IAEA was able to work around that, and within five months, report that they had pretty high assurance that South Africa had revealed enough about its nuclear weapons program.

Informally, information about delivery systems and procurement was given, at least in a partial sense, as the cooperation and trust developed. But formally, you can – you can actually

work around Iran's objections on certain issues and still end up with a determination whether their declaration is both correct and complete, which is fundamentally the IAEA mission.

MR. DUBOWITZ: OK. I know panelists have other comments, so – but we only have about seven minutes remaining, and I want to make sure if there are any outstanding questions – so I'm going to go back to –

Q: Hooman Bakhtiar with Voice of America. I have a question. There's a little-known provision in that Geneva accord agreement that was reached back in November that says that Iran has agreed to put – to have these limitations and restrictions put on its nuclear program, but all these restrictions and limitations have an expiration date. So, like, in five or 10 years, or 15 years, Iran will eventually become a threshold nuclear state. Is that something that doesn't concern U.S. officials, that Iran, eventually, will be treated like the Netherlands or South Korea?

MR. DUBOWITZ: Hooman, I'm glad you asked that question. This is the sort of sunset provisions, and I'd like the panelists to answer this. I mean, is there – does it make sense, a priori, to be actually specifying a time period after which Iran is normalized? Or do – you know, are we able to judge today that it should be 10 years or 15 years or 25 years when, in fact, this is really conduct-based? Is there – does it make sense? Orde, Olli, kind of talk about that.

MR. HEINONEN: It should be not a number. It should be performance-based. Taste is in the pudding itself, so if Iran meets the requirements, then I think it has, in other words, to rehabilitate itself. I would not put that it's five years or 10 years and have a big discussion of whether it should be eight or 12. I don't think it brings anything. It should be performance-based, and then, someone has to judge whether they have met the requirements.

MR. DUBOWITZ: Orde, do you want to comment on that?

MR. KITTRIE: Yeah, I actually want to respond to a couple of very interesting points made earlier by Ed Levine. You know, Ed talked about using Monte Carlo simulation, various sort of high-end tactics with regard to monitoring and verification. I'd point people to page eight of the executive summary of the Defense Science Board report, which notes that the advances in "persistent surveillance," "rapid analyses of large and multi-source data sets," et cetera, "have not yet been exploited by the nuclear monitoring community. Conversely, developers of these capabilities are largely unaware of the challenges and requirements for nuclear activity monitoring."

So these tools that, you know, Google, et cetera are using to figure things out are not yet known, apparently, or are implemented with regard to nuclear nonproliferation monitoring. If I were Congress, I would want to know why that is and how quickly it can be fixed. Another point that Ed made – Ed had indicated that – if I'm sort of summarizing it correctly, that Congress' best leverage will come after the deal with Iran is rolled out. I disagree completely.

First of all, if you look at the playbook for what happened to the Joint Plan of Action and the Menendez-Kirk bill, once there's a deal with Iran, those who were supporters of the deal, at least based on that past experience, will call anyone who calls it into question a warmonger and basically say that this is our deal; it's the best we could do with the Iranians. If you don't like it, you are, ipso facto, a warmonger. That is exactly what happened before. I see no reason why that's not going to happen again. And it worked before. It slowed the – Menendez-Kirk had its

problems, too, as a bill, but I think that is part of why Congress has basically rolled over and played dead with regard to the Iran nuclear negotiations.

The other reason why that provides little to no leverage is that – look, I mean, I spent four or five years as a sanctions attorney at the State Department, and if you look at the sanctions legislation with regard to Iran, if you look at the executive orders, you go through them, and you can see that, basically, they all can, at least for the short term, be made to go away with purely executive action, right?

The president, as he has done with regard to so many things – he says he has a phone and a pen – well, he can do the same thing with regard to the Iran sanctions. There are waivers, there are the trigger provisions, there are de-designations. Now, whether that's going to be enough for the Iranians, I don't know, but there's no question in my mind that with regard to probably all or certainly almost all of the Iran sanctions provisions, the Executive Branch can make them go away for six months or a year at a time purely through executive action.

So you're going to have, I think, a situation where; here's the deal, if you don't like it, you're a warmonger, and we don't need you anyway, because we can just live up to the commitments, right – the Joint Plan of Action required no legislation to implement it. It was just executive branch action. So I think that Congress' leverage is much greater now than it will be after a deal is rolled out.

MR. DUBOWITZ: Now, Orde may be right. I hope he's wrong. I mean, I certainly see a sense of an appetite in the administration to start thinking about what a post-deal sanctions architecture looks like, and I think Orde's admonition is worth thinking about. It could either be a sanctions architecture wholly designed by the Executive Branch without any Congressional input, if Orde's scenario proves to be true, or it could be a sanctions architecture that's well-designed, with cooperation from Congress, and is linked to some of the termination criteria and other things that Ed alluded to.

So again, I think they're giving this some thought. I hope folks on the Hill are in close contact with people in the administration, thinking through a post-deal sanctions architecture, recognizing the dangers that you cannot calibrate this the way you would a nuclear physics dial.

We have a few minutes remaining, and then you've all got a busy day. Any other remaining questions? OK, you've all figured it out. Bobby, do you want one more question?

Q: Yeah. Bobby Zarate. I have a question about the centrifuge issue. And you know, the – Secretary Perry and,,I think, Sig Hecker wrote an op-ed arguing, you know, Iran, for its – the size of its nuclear program, only needs X number of centrifuges. But it's really, you know, hard to make the economic argument. Do you see any ways to do so usefully? You know, nuclear – the Nuclear Nonproliferation Act of 1978, Title V, has a provision about energy assessments in countries. You know, is there – is there a way that either Congress can get the executive branch to produce paper on this issue, to talk about what actually an economically justifiable enrichment program would look like? I haven't seen any analysis on the outside, really any hard analysis that talks about that. But can the economic part of it be made more effectively?

MR. ALBRIGHT: Yeah, one thing – it's hard to make. I mean, and it depends on your attitude toward nuclear power. I mean, if you're a big believer in nuclear power plants, then you build your enrichment plant to provide the low-enriched uranium for nuclear power plants. You know, a hundred thousand centrifuges of the IR-1 type is just enough for one of these reactors. So, you know, they would say, we need enough for 20. So it's a – in a sense, it's – and you can make an economic argument, if you're very pro-nuclear, that would support that assessment.

And that's essentially what the Iranians do. They never, in any place I've ever been, have – and I know they're beginning to talk about it in terms of these negotiations. But in the end, they say, look, we want a very large centrifuge program; we want it big enough to provide the low-enriched uranium for power reactors. And so I think it's a very American attitude that, you know, that's all nonsense; you can buy the LEU, you know, and you can get it cheaper, and you can run your program in a more sound way by buying the enriched uranium overseas like most countries do, in fact, do. I'm not sure; does the U.S. – I guess we now make LEU, right, at centrifuge plants? But it – you know, we were – for a while, I don't think the gaseous diffusion plants were making any LEU, and we were getting our LEU from blending down Russian weapon-grade uranium.

So, you know, you don't have to have an enrichment plant to have a very viable nuclear power program. But if you're a deep believer in nuclear power like Iran is, I think you're always going to lose that argument with the Iranians, even if it makes sense. And you can – and again, I mean, if you look at Einhorn's paper – and I know I worked with him quite a bit on these numbers – you know, a rational view would be they just need enough enrichment capacity to maybe – if they do convert the Arak reactor to enriched uranium, and let's say maybe they'll someday make some 20 percent, and – 4,000 centrifuges is fine. But if your view is we are dependent on nuclear power, that's only fine for a certain period of time, and then they need, 50, a hundred, a million centrifuges.

And that – and they'll make that argument regardless, and they'll justify it as a strategic investment, so it'll trump the pure economic argument that it's just about cost. It's also about foreign – being independent of foreign dependence and on and on and on, which also, I think, on this – the performance-based criteria, I'm a little bit agnostic on, but I understand it. I think fundamentally, the deal needs to last 20 years or longer, I mean, because performance-based methods are hard to negotiate and hard to create the mechanism that decides. And – but time is the best predictor of performance, I think. And so if you have 20 years, then you have a much greater chance of gaining the assurance that this isn't going to just be turned into a bomb program as soon as these extra conditions are removed.

MR. DUBOWITZ: Olli, did you want to have a comment?

MR. HEINONEN: Yeah, just about the uranium enrichment and the picture in the world. . There's currently actually excess production of enriched uranium. There's no shortage of uranium in the next 10 decade – or the next decade. This is one fact.

And go to Europe. Sweden has 12 power reactors. Finland has five. Hungary has four. I think something like 15 in Ukraine. None of them have any enrichment. But they have one

common also with Iran: They don't have uranium. Iran is actually having a shortage of uranium. There's – they don't have big uranium resources.

So what is the independence if you get the enrichment, but you don't get the feed material? And if there are some embargos or restrictions, if the people don't sell you enriched uranium, I don't think they will sell you uranium either. And if you solve your uranium problem and your enrichment problem, you still need to have the design of the fuel. And this is where the Russian companies make their money.

So it's hard for me to see that they are happily selling from Russia the fuel manufacturing technology to Iran when they plan to cash most of their Bushehr project and the funds from there to their system. So I think that these arguments are weak.

Then 20 percent enriched uranium. Well, there are not very many producers of that, that's true. But there are hundreds of tons of excess high-enriched uranium from the weapons programs and from the Cold War. So there is no shortage for 20 percent enriched uranium.

MR. DUBOWITZ: OK, I want to be sensitive to time. I want to thank the panelists. FDD will be doing a lot more work on verification and inspection, so please keep in touch with us. You know, ultimately, there may not be a technical algorithm that can solve the strategic problem. The strategic problem may be the nature and conduct of this regime. But if our negotiators can conclude a technical compromise, I think it's clear from this panel that the verification and inspection regime that's designed and the enforcement mechanisms that accompany it will be absolutely critical to preventing Iran from breaking out to a nuclear weapon.

So thank you to the panelists. Thank you for your time, and we look forward to being in touch. (Applause.)

(END)