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IN THE POST-COLD WAR WORLD

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Introduction and Moderator:

KEMAL KIRIŞCI
TUSIAD Senior Fellow
The Brookings Institution

Featured Speaker:

JESSICA C. VARNUM
Nuclear Threat Initiative Project Manager and Research Associate,
James Martin Center for Nonproliferation Studies
Adjunct Professor, Monterey Institute of International Studies

Discussant:

CHARLES K. EBINGER
Senior Fellow and Director, Energy Security Initiative
The Brookings Institution

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ANDERSON COURT REPORTING
706 Duke Street, Suite 100
Alexandria, VA 22314
Phone (703) 519-7180 Fax (703) 519-7190

P R O C E E D I N G S

MR. KIRIŞCI: Well, good afternoon. Thank you for joining us this afternoon for the presentation of “Closing the Nuclear Trapdoor in the U.S.-Turkey Model Partnership.” I am the director of the Turkey Project at the Brookings Institution, Foreign Policy, and the TUSIAD Senior Fellow.

This is the occasion for launching our first policy paper. We are hoping to have quarterly policy papers in the coming year. The first paper is the one that I hope you had a chance to acquire a copy. It's been prepared and written by Jessica Varnum, whom I got to meet for the first time in November, in Istanbul, in a meeting on U.S.-Turkish strategic dialogue. I was in touch with her earlier in the year as I was preparing to come and taking up this position at Washington, D.C., and she gracefully accepted to be the first to go in this policy paper series.

I realize it's a bit of an unusual topic to get the policy series started with, especially at a time when, yet once more, in Turkey, we're going through this famous Chinese "interesting times" period. I know Jessica is going to find a way of relating this topic to these interesting times in Turkey, and specifically in Istanbul.

But when you think about it, I think the issue of nuclear energy has been on Turkey's agenda for some time. I belong to a group of, I suspect, minority in Turkey that had always hoped and prayed and wished that Turkey would rise against the challenge, and say we're going to keep this country away from anything that has to do with nuclear or nuclear energy, and go for a more post-modern technology. But this has not been the case. We are run by a government and a prime minister that has a determined mind on nuclear energy in some ways. I suspect many understand the reasons behind it. Turkey is a major consumer of energy in the region, and most of its energy is imported energy. Turkey has great dependency on Russian oil and natural gas, as well as dependency on Iran.

So it is a way to circumvent some of this dependency and become a little bit self-sufficient, as far as energy goes.

But it you really were to squeeze me, I think there are other issues behind this nuclear energy program of Turkey. And, in some ways, there is a link to what has been happening in Turkey and in Istanbul. It's one of these grand projects that our prime minister has, that he believes is going to propel Turkey to become the 10th largest economy in the world by the year 2023.

The downside of this project is that they are top-to-bottom projects, projects that are initiated by himself or people around himself. And in many ways, I think, what you saw in the Gezi Park was reaction to these top-to-bottom projects, which appear to have very little consultation or an effort to seek consensus.

I will leave my political remarks at that, and maybe during the Q&A session, these issues may well come up.

I'd like to introduce to you Jessica Varnum. She's an expert on Turkish-West relations in general, but also an expert on nuclear energy issues. And I think she's literally one of a handful number of experts who are able to bring these two very different realms together: one the one hand, Turkish-American relations, and on the other, the nuclear energy issues -- and, of course, behind that, nuclear proliferation issues.

A good reason why she's able to do it, she's the project manager for the Nuclear Threat Initiative and research associate at the Center for Nonproliferation Studies, which is based at the Monterey Institute of International Studies. She's just told me how pleasant the weather is, as we are gearing up for some hot and humid days in Washington, D.C.

Without further ado, I think I'll turn the floor to Jessica. And once Jessica has made her remarks about the report, for roughly 20 minutes, Charles Ebinger, who is the director of the Energy Security Initiative at Brookings will have some remarks to share with you for about 8 and 10 minutes. And then we're going to open the floor to questions and answers.

Jessica, the floor is yours. Thanks.

MS. VARNUM: Thank you, Kemal. And thanks to Brookings for hosting me for this event, and the paper, as well.

I doubt that I'm going to have to work very hard to convince anyone in this audience of the relevance of Turkey to international affairs and to U.S. foreign policy, more specifically. Certainly, we've noticed in the past few years, Turkey just keeps popping up in the news, whether it's because of the interesting times in terms of domestic politics that recurs on a fairly frequent basis, the fact that Turkey is an economic dynamo, it seems, the past decade, or its foreign policy activism, increasingly, in the Middle East, which in some cases goes very nicely with U.S. policy, and in other cases conflicts in rather difficult manners, in a way that Turkey did not vocally disagree with the United States during the Cold War, for example.

So, while the underlying reasons for the U.S.-Turkey Cold War alliance have certainly evaporated, we find ourselves in a situation where the bilateral relationship is more important than ever to both sides, for different reasons. But, at the same time, as we're faced with common challenges and interests, it has been increasingly difficult to adjust that alliance to the post-Cold War reality, strategically speaking.

And so, in this line of thought, it was in 2009 that the Obama administration, of course, launched the concept of a new model partnership with Turkey, with broadened and deepened ties, both strategically and also economically, to give a greater range of diversity to the underpinnings of that relationship. And I would argue that, other than at the rhetorical level, much remains to be done to realize a genuine model partnership between the United States and Turkey. And, moreover, that U.S.-Turkey civil nuclear cooperation represents an opportunity that essentially civil nuclear issues are a trapdoor at this point, if you will, in the model partnership, through which many unexploited opportunities for positive interactions currently fall. And building a new narrative of civil nuclear cooperation is therefore one way to realize a true model partnership.

But I can imagine many of you sitting here thinking: Why civil nuclear cooperation? There's a very large number of tremendously important issues on the bilateral agenda, from Syria, Iran -- you name the long, long list.

But I repeatedly found in recent years of dialogue projects with Turkey, and studying U.S.-Turkey relations more specifically, that civil nuclear issues are a common thorn in bilateral relations. Essentially, Turkey and the United States embrace separate and contradictory interpretations of the Nuclear Nonproliferation Treaty, and of the nuclear nonproliferation regime writ large. And these find their way through a large number of issues. When we think about nonproliferation challenges in the world today, Iran is an example of differing interpretations of the peaceful nuclear uses clause of the Nuclear Nonproliferation Treaty -- as are a number of other challenges that we face.

And Turkey basically is in a position of believing, as do many non-nuclear weapon states, that non-nuclear weapon states, in compliance with the Treaty, have the right to have any aspect of the nuclear fuel cycle, from enrichment to reprocessing, that they want to have in support of their peaceful nuclear programs, and has vehemently Iran's right to enrichment because of that interpretation of the treaty. The United

States, on the other hand, and many nuclear suppliers, sees it as an issue of essentially enrichment and reprocessing technologies should not be spread further than they have already, for the most part, and that the right to the non-nuclear weapons states to have nuclear energy is satisfied by fuel-cycle services being provided.

So this has led to not only conflicts over Iran, but also conflicts in the nuclear suppliers group, where consensus rules to adopt more stringent requirements for enrichment and reprocessing exports were very largely blocked by Turkey, and had to be softened quite a bit because of Turkey's advocacy in the group against the U.S. position, and a number of other conflicts.

But meanwhile, in 2008, a much coveted U.S.-Turkey 123 nuclear cooperation agreement entered into force. And for those of you not familiar with 123s, they are the enabling agreements for any kind of nuclear trade, significant nuclear trade, to occur between the United States and other countries. We have one in place with Turkey, and it expresses ambitions in a number of areas for cooperation, but little cooperation of any kind has occurred.

And so the question becomes how do we do something about that? My publication addresses fairly extensively the history and the

current status of Turkey's nuclear power program. I'm not going to get into that a great deal now, because I really want to focus, in my remarks, on the opportunities and challenges for cooperation.

But I want to just lay the groundwork with a couple of points about the history and status of the program.

First, it's important to note that Turkey's nuclear power program is no recent flight of fancy -- in response to Iran, or any other structural factors. Turkey has been aggressively at various points in time -- less aggressively at others -- pursuing, under a range of governments since the 1950s, a nuclear energy program. And there's been a series of failed tenders throughout those decades that largely failed due to Turkey's weak governments, frequent military coups, and economic instability throughout those decades.

So, under the AK government, however, in the past decade, there has been another renewed push for nuclear energy. And this actually appears to be likely to bear results, in part, in large part, because in contrast to past tenders, there was an intergovernmental agreement that was signed between Turkey and Russia in 2010 to lay the foundation for Russia to build a nuclear power plant at the Akkuyu site. And this will be the first build-own-operate plant of its kind.

And Turkey is currently in exclusive negotiations with Mitsubishi-Areva for a second plant at Sinop. But I would caution that, unlike media reporting on the subject in general, this is not a done deal. This is exclusive negotiating rights. It may or may not happen -- whereas the Russian one is quite likely to happen.

The government, ideally, wants both plants in operation by 2023, not coincidentally, the centennial of the modern Turkish Republic. But there are a number of human and institutional capacity challenges to realizing that goal. These could essentially prevent the realization of the goal by 2023. But my greater concern is that corners will be cut in order to meet that deadline, at least in certain respects.

And so it seems to me that partnership with the IAEA and experienced nuclear power countries is critical to helping Turkey to meet some of its capacity-building challenges. And for conflict-of-interest reasons that I get into in the report, it's really important that these partnerships extend beyond Turkey's nuclear vendors to other countries.

Before discussing the opportunities for cooperation, I'd like to debunk three prevalent myths that overshadow bilateral relations on nuclear energy issues.

First, contrary to popular narrative, Turkey is not a proliferation domino. And I can empathize with the reflexive tendency to think of it as likely to go nuclear in response, for example, to Iran, should Iran acquire nuclear weapons. In fact, if you Google me, you'll find that in 2006 I co-authored an op-ed for the *International Herald Tribune*, in which I suggested, with my co-author, that there should be concern about Turkey's likely reaction to an Iranian nuclear program. But I subsequently spent a couple of years doing research on the domestic politics of Turkey's nuclear decision-making for a forecasting study that was published with Sanford University Press, and I found that it's highly unlikely -- if you look at the domestic political factors of building the intent to acquire nuclear weapons -- that Turkey would respond to an Iranian program with nuclear weapons. I'd be happy to discuss that in more detail in the question and answer if there are people who are interested in that.

But, moreover, Turkey is protected by the NATO nuclear umbrella, and is very much an adherent to the nonproliferation regime, in terms of participating in all of the relevant treaties, and a number of voluntary arrangements, as well.

And unlike those energy-rich countries that you hear about pursuing nuclear energy, and you think "Why?" -- Turkey has a genuine

need for nuclear power to address chronic energy insecurity. Its demand for natural gas and electricity doubled in the past decade, and the country has a staggering 72 percent energy dependence on primary Russia and Iran for oil and natural gas.

The second myth: While many in the Turkish government appear to believe otherwise, the U.S. government and the U.S. nuclear industry are entirely separate entities. And this has two important implications. First, the U.S. government did not, as some Turkish publications have suggested, play a determinative role in the failure of past nuclear tenders in the 1980s and 1990s -- although a number of people have suggested that, because of re-transfer of technology to Pakistan in the '80s, in particular, that there might have been pressure on vendors to back out of nuclear tenders.

But I would argue that my research suggests otherwise, in terms of talking with nuclear industry, in terms of looking at the evidence provided for the opposing claim, it appears that Turkey's decades of political and economic instability and aggressive financing needs were what alienated nuclear vendors -- purely commercial reasons.

And, secondly, during Turkey's most recent search for vendors in the 2000s, the U.S. government could not have pressured

industry into selling reactors to Turkey, even had it wanted to do so. Unlike Russia and other prospective nuclear vendors, the U.S. nuclear industry is not one with the U.S. government. But this is something that's poorly understood by many in Turkey's government. And it contributes to very negative tone in bilateral relations at times, because Turkey has wanted the United States to see it reactors.

So, for example, in April, there was a bit of a hubbub over the fact that the Minister of Energy and Electricity in Turkey, Yildiz, stated -- quote -- "U.S. officials told us that the project..." -- meaning the second power reactor -- "...was not feasible. It may not be feasible, but it is strategic. Making this strategic contribution falls upon Washington. Not making an offer for this project means not giving the real meaning to the model partnership."

And I've heard this sentiment expressed during dialogue projects by a number of people in Turkey, that clearly the United States must, A, be distrustful of the nuclear energy program, and B, not really value the partnership for it not to have put in an offer for one of the nuclear plans. But, again, this was purely a commercial decision by U.S. vendors.

And the third myth is that the United States, should it choose to engage in Turkey's program in some way, this does not imply

unqualified U.S. approval of every way in which the program is being pursued. Rather, engagement is about relationship building. And I think, in the U.S. community, there is tendency to believe that you should only cooperate with a country on issues where you're in full agreement.

But I think that holding any kind of cooperation hostage to other issues is rarely helpful with Turkey. I think this is abundantly clear with some of the EU discussions taking place right now, over whether negotiation of EU accession might be suspended over the Gezi Park protests. But at the same time, there is this issue of the need to engage the government to actually bring bout greater liberalization and cooperation.

And I also hear the argument expressed from some colleagues in the U.S. that we should not help Turkey if we feel that it's building reactors too fast for its regulatory capacity -- why would we essentially be a party to that? But I think that Turkey is going to go forward with this program regardless, and we have opportunities for positive engagement if we actually participate in a constructive manner.

So, if we look at examples of how the U.S. could improve cooperation with Turkey, I started out by looking at the official level. And here is where you really see the bulk of nuclear cooperation, due to the

fact that there aren't nuclear power reactor cooperative projects at this point. You primarily see some small, official-level Turkey-U.S. government initiatives that fall under, primarily, capacity-building and partnership projects through State Department and the Department of Energy's National Nuclear Security Administration, as well as the labs.

The bulk of cooperation in the broad civil nuclear area has occurred since the 1980s on export-control and border-security issues relating to nuclear. And so, essentially, we've had fairly extensive engagement through the State Department's export-control and related border-security program to help Turkey improving its anti-trafficking, essentially, on nuclear materials issues.

We also have a 2005 nonproliferation agreement that came about to enable a lot of other cooperation to occur through, for example, NNSA, but we haven't really seen a lot cooperation come out of that.

And I would argue that this is an issue of official-level initiatives' very often being held hostage to politically based implementation delays, to the fact that there's considerable suspicion, especially in any ministry other than the Ministry of Foreign Affairs in Turkey, of external cooperation of any kind, and particularly with the United States.

And that, essentially, while it's a positive notion to look at ways to improve cooperation in these smaller programs, and to enhance it through, for example, possibly a nuclear security center of excellence in Turkey, that additional opportunities at the official level are fairly limited. When I talk about politically based implementation delays, for example, there were a number of years in the 2000s where, because the United States was slow to seek entry into force of the Nuclear Cooperation Agreement with Turkey, due to some concerns about export controls in Turkey, that Turkey actually withheld cooperation on a number of initiatives relating to the export controls program that I mentioned, relating to other safeguards and nonproliferation cooperation.

So there's a lot of issue linkage that goes on, that can hold these programs up. And there's a lot of suspicion, as I said, of U.S. motivations in seeking cooperation. You know, is the U.S. -- for example, I've heard -- seeking cooperation on trafficking issues in order to expand its military influence in the Black Sea region? -- all kinds of what we might think of in the U.S. as conspiracy theories that go along with these cooperative programs.

But I think the two areas where there can be progress on the official level are, one, it would be a great idea to engage Turkey in projects

where it can be seen as a regional partner and a regional leader. And this is where I think advocacy by the U.S. government for the formation of something like a nuclear security center of excellence in Turkey could encourage Turkey, with its grand foreign policy ambitions, to take ownership of the issue regionally, especially with the Turkic states, and some of the Eurasian states, versus, say, the Middle East region.

And, secondly, I would really strongly suggest that in the U.S. policy community we tone down our tendency to talk about Turkey as a proliferation domino. I can't tell you how many people in Turkey, when I participate in dialogue projects, find this extremely insulting. And you hear the question raised every time, "Well, what would you do in response to a nuclear Iran?" And the last time this was asked, one of my colleagues in Turkey said, "Stop asking that question. It's insulting." And another one after that said, basically, you know, I don't tend to question the NATO guarantee, but when you ask that question, I wonder if I should -- basically, to paraphrase.

So, it really is not a useful issue to either bring out straight out, or to have kind of as an obvious undertone to discussions with Turkey. It isn't constructive, as far as the Turks are concerned.

So, if you can't make progress at the official level, what about other levels?

And this is where I looked at, first of all, industry. There's an assumption industry involvement has to mean reactor sales. But U.S. industry's comparative advantage is actually in nuclear consulting, and in high-value-added component sales for pressurized water reactors at this point in time. And so, the Turkish Atomic Energy Authority, which had put out, at one point, a technical support services tender -- but canceled that for the meantime -- is going to need significant outside help with consulting services to evaluate the licensing for its first nuclear power plant from Russia, and ultimately for any other plants, as well. It simply doesn't have the internal capacity to do this thoroughly.

And the principal challenge, of course, to hiring a consultant is that both reactor types the government is looking at -- the Russian VVER 1200, and the Atmea 1 that Mitsubishi-Areva proposes to sell, neither one of them is in operation anywhere in the world. They're Generation III-plus reactor technologies, and they have no operating history on which to draw licensing evaluations. So, anyone you might hire to do the licensing with direct design experience is going to have a conflict

of interest with the vendor in question, and therefore not be able to provide you with a truly unbiased licensing process.

So my suggestion would be, frankly, that Turkey consider hiring a third-country firm, whether the U.S. or another country, with expertise in pressurized water reactors. While both the firm and Turkey will face a steep learning curve in the licensing review, this would allow for a much more thorough review.

You can also consider that U.S. suppliers might be involved in any supply chain for an Atmea reactor, because they produce components for both Mitsubishi's advanced pressurized water reactor, and Westinghouse's AP 1000. So this is a possibility, as well.

But even if you don't see industry sales, I would say that mutually beneficial cooperation can include outreach on peer assistance visits to check on nuclear safety in Turkey, through organizations like the Institute for Nuclear Power Operations, which does international work, and also peer-to-peer bilateral engagement. So, best-practices sharing and bench-marking among nuclear vendors, or nuclear operators, rather, is a very common thing from a safety and operating best-practices standpoint. And then while it's most typical for operators using the exact same design to share best-practices, there are a number of reasons why you can

consider a U.S. operator and a Turkey operator sharing their experiences to be useful. First, Turkey can use that kind of information from experienced U.S. operators, regardless of the pressurized water reactor design. And on the U.S. side of things, a company like Southern, for example, which is building the U.S. version of a Generation III-plus pressurized water reactor, can learn a lot about new-build projects by looking at what's going on in the emerging nuclear newcomer world.

So, I want to conclude by talking about university partnership opportunities, and civil society partnership opportunities.

At the university level, I see this as one of the promising areas for partnership to support the overall bilateral relationship that's been unexploited to date. Turkey actually has a fairly advanced educational infrastructure for a nuclear newcomer, including through Hacettepe University, which has graduated 300 students as nuclear engineers in the past couple of decades. But there's a goal expressed by Minister Yildiz, for 80 to 85 percent localization of the third nuclear power plant that Turkey is planning, which will require a significant expansion of university and technical school programs in Turkey if that's to be possible.

And so, collaborations with some of the most experienced nuclear education programs in the world in the United States, could be

tremendously helpful from a capacity-building standpoint, whether we're talking informal exchanges, or joint degrees. And there's a strong informal foundation for this kind of cooperation, because Turkey sends 12,000 students to the United States each year to study. And that's one of the highest rates you'll see from any country for education.

And when you look at the departments in the major universities in Turkey, you look at Koç University, for example, 95 percent of its faculty received their Ph.D. in the United States. At Hacettepe's nuclear engineering department, four out of six of the faculty have Ph.D.s from U.S. programs.

So, I interviewed a number of U.S. and Turkish professors in nuclear engineering programs, and found that, universally, they would welcome increased cooperation, memoranda of understanding, and various initiatives. This is something that's useful not only on the Turkish side for capacity-building, but also on the U.S. side, where programs in the United States are interested in being a positive part of new builds in the nuclear newcomer world, and also in learning from the experiences of countries who have a very different approach to nuclear issues from the United States.

There are precedents for this kind of collaboration, if you look at North Carolina State's collaboration with Jordan University of Science of Technology, for example, and programs through MIT, Texas A&M, and my own institution, doing train-the-trainers work. One of the main obstacles to this kind of cooperation is, of course, finding the funding. And this is where government can also play a key role.

On the civil society end of things, I think facilitating Track 2 and Track 1.5 dialogues -- that is, at the unofficial and semi-official levels -- that we can make the most foundational progress, with the hope that that eventually trickles through to the official level. These build key person-to-person contacts, and cultivate respect and empathy on differences of opinion. And they're also really appropriate for foundational dialogues where issues are not yet ripe for official-level progress. An example of this would be the goal in the 123 nuclear cooperation agreement for Turkey and the U.S. to cooperate on multilateral approaches to the nuclear fuel cycle. This issue is not yet ripe for the official level, partly because Turkey's energy program has much bigger priorities right now, and all the experts for this kind of thing are the same people. And, secondly, because there's a lot of skepticism on the Turkish side that something like this could be created that would not violate peaceful-use guarantees in the

Nuclear Nonproliferation Treaty, from their perspective. Track 2 level is a great place to start foundational dialogues.

So, do the recent protests change anything in the report? I've gotten that question quite a bit. You know, "You wrote this report, you sent it to the publishers, and then all of this happened in Turkey. Have you changed your mind about everything?"

I would say, by and large, the answer to that is there's very little impact, from my perspective, on the conclusions and issues raised in this report. There are two areas where I would say there is a possibility for some impact, and it's unclear how significant those would be.

First, I would say that, given that there's no meaningful opposition to the AK party politically in Turkey, AK is going to stay in government, and they are likely to continue to feel strongly about a nuclear energy program -- but they may need to approach decision-making in a more consensual fashion in the future. And while nuclear protests so far, in the country, against nuclear energy have been pretty much on the margins, very local to the particular plants that are planned, the wrong kind of government response to those protests in the future could do what, you know, happened with the Gezi Park environmental movement, and essentially create a movement of thousands of people

who don't, frankly, care about nuclear energy all that much, but do care about a democratic discussion and debate about issues that is not stifled by the government.

And, secondly, the protests are likely to increase the cost of Turkey's second nuclear power plant, and might make it financially infeasible in the short term. The first plant's financed by Russia. It doesn't really matter. The second plant, however, is, as I said, not fully decided, in terms of an actual deal between the parties, and the envisioned financing was to be part Japanese financing, through kind of an export-important bank type arrangement, and part Turkish financing. Foreign investors are already being scared off by the economic challenges posed by the protests in terms of political instability, and this is also raising the cost of borrowing. So any kind of foreign direct investment into the program, or borrowing on the Turkish end of things is going to be more expensive. This is ironic, of course -- it's a far cry from the outlook in May, when Moody's upgraded Turkey to investment-grade status, but there was a precipitous tumble after that, of course.

As they so often do, some in the Turkish government and media have blamed foreign powers and the international media for interfering in, and worsening the protests, but I'd argue this is just one

more reason for enhancing the model partnership on all levels. It's governments that feel that they're cut off from the international community and under siege from outside parties that most typically act in this way.

So, I would say, while recent political and economic challenges might complicate Turkey's pursuit of nuclear power, they don't change the underlying structural reasons, or the overall likelihood of the program's success. And they certainly don't change the rationale for U.S.-Turkish cooperation.

Since opportunities at the official level are limited, I think the U.S. government can most effectively support improved cooperation by quietly supporting industry, university, and civil society led outreach through grants for projects that support nuclear newcomers, for example, and capacity-building, and through export promotion on behalf of industry in the services sector.

Successful collaboration in these areas would ultimately have positive spillover effects for government-to-government relations and, I think, could contribute meaningfully to the development of a true model partnership.

Thank you. (Applause.)

MR. KIRIŞCI: Many thanks, Jessica.

I really urge you to have a look at the report. I think the report does a tremendous job for helping people like myself, who are not very well versed on the details, technical details, of this nuclear energy issue, and help us to better understand. I must say, I was one of the victims of those myths that you have so skillfully debunked. And I also agree with Jessica that if her recommendations could indeed be taken up, it would make that important contribution to this notion of model partnership, or injecting some life into the model partnership project. And the "Opportunities" section of the report is also very enriching, in terms of the ground that could be covered in this area.

I'm not going to -- I also appreciate that the last bit of the report -- or the presentation, you won't find it in the report, of how Gezi Park, or the events in Gezi Park does relate to this topic.

I think I will leave the more technical side to be discussed by Charlie.

Charlie, the tough bit of reflecting on Jessica's report is yours. Thanks.

MR. EBINGER: Thank you, Kemal. And I think Jessica did an outstanding job in this report. And as one who's done some work on

the Turkish nuclear program myself, I think it's a very valuable contribution to the field, and goes far beyond other folks' previous work.

I do, however, have some quibbles with the fundamental principles of the Turkish nuclear program. And I think it's interesting to note how long -- as Jessica highlighted, we have more than 50 years of attempts by Turkey. It's interesting to note that the other major country in the Middle East which has tried to build a nuclear power plant for about the same time, Egypt, also with good, trained engineers, also has failed to do so.

My major concern with the Turkish nuclear program is I'm not sure that they may not have cheaper energy options -- at least to a significant extent. I won't argue that Turkey doesn't have a staggering electricity growth, and one can make the case that they need lots of power from all sources.

But you also have to look at why do they have such high electricity and natural gas growth, and I would argue the overwhelming point is that prices are too low, and heavily subsidized. And to embark on cost nuclear power projects, which we've seen a number of nations do in a fit-and-start sort of way, and then be unable to afford them, or unable to bring them to market, I think is cause for concern. Even India which, on

paper, still has one of the most ambitious nuclear power programs of any third-world nation, has accomplished less than 5 percent of what the plan actually says, and is unlikely ever, in the future, to attain the growth rates that continue to be the fundamental forecasts.

So, the whole issue of pricing, I think, needs to be looked at. Turkey is in the process, of course, of potentially becoming a major conduit for natural gas coming from the Middle East, which would offer unique opportunities for a gas-based economy. We have the prospect of very sizable natural gas being developed in the next 5 to 10 years in the Eastern Mediterranean, off Turkey, off Cyprus, off Lebanon, off Israel. No one's quite sure how big a resource that is, but it may be a cheaper option than building expensive nuclear power plants with unproven technology.

We also have the prospect of tremendous natural gas resources -- both conventional and shale-gas resources -- emerging in Algeria, not far from the Turkish mainland.

And we, of course, down the road -- it's hard to envisage right now, with the turmoil that's still reigns in Iraq and Iran -- but we all know that Iraq is sitting on staggering natural gas resources that will need a market. And very likely, Turkey could be another transit route for that market to move, not only through Turkey and providing Turkey with gas,

but on into other markets in Europe. And, likewise, Iran. We all, I think, have gotten so accustomed in this town to not saying anything good about Iran that we forget it used to be the second largest oil producer in the world, and still has, perhaps, the second largest natural gas reserves in the world. And someday, when it resumes the family of nations, those resources will look for market outlets. And I would suggest Turkey could be a major one for them. But one can argue about that.

My biggest concern about the Turkish nuclear program is precisely what Jessica highlighted -- that they are violating the number one rule that the International Atomic Agency puts out whenever a new nuclear-interested country comes to them, and that is don't develop unproven technology. And it's not to say that the Russian reactor may not be perfectly fine. But the very fact that there is no body of regulatory expertise that has the ability to do that, I would quibble a little with Jessica that even if we had a third-party review, that the requisite expertise on the Russian reactor would necessarily be adequate to oversee this.

And, likewise, even the second reactors they're looking at -- anyone familiar with the newest Areva reactors and the experiences in France -- I just returned from Finland, staggering cost overruns, not at all proven that this design is going to be what everyone hoped it would be.

I would also add that I think there have been reasons for concerns over the years on nonproliferation concerns. She mentions, rightfully, in her paper the allegations of links -- they were more than allegations -- the allegations, or reality, of A.Q. Khan's network in Pakistan, at least using conduits through Turkey, with or without the knowledge of the Turkish government, we can argue about. But it certainly seems to have occurred. And those individuals involved, once it came to the attention of the Turkish authorities, were certainly not prosecuted or gone after with any judicious speed or final act of arrest.

We also had allegations, again, at the time of Saddam Hussein's nuclear power program that Turkey may have served as a conduit for certain pieces of equipment when Saddam was actively pursuing a nuclear weapon.

Finally, in the interest of time, let me just say I think her comments on the opportunities for exchanges with universities in the United States is particular sound. I think there are other areas of cooperation that might be worth exploring, for example, in the regulatory arena, with NARUC, the National Association of Regulatory Utility Commissioners, that provides technical assistance around the world. This is an outstanding body that would be more than willing to help. The U.S.

Energy Association, also, with their membership utilities also provide technical expertise, in addition to the other organizations that Jessica mentioned.

And I do think -- I liked her observation, particularly, about perhaps giving Turkey a role, if we were to, under the IAEA auspices, or whatever, if we were to move to multilateral fuel banks, or such a thing, to perhaps have one located in Turkey, that would be a highly visible thing I think the Turkish government would be supportive of. And it could be a bank that served and provided services to the entire Middle East.

Thank you. (Applause.)

MR. KIRIŞCI: Many thanks, Charlie. I wasn't aware that you were keeping your cards so close to your chest, and that a useful, very helpful, critical perspective would emerge from your remarks. Thanks, Charlie, again, for those of us who may not be very well versed on the details of this issue, your remarks are very revealing and very helpful.

I am, of course, ideologically incline to empathize with your criticism there, in the wish of hoping to see a Turkey that is independent of nuclear energy, and anything that has to do with nuclear, really. I may be a bit biased, or poorly informed on this issue, but there you go. And I do also empathize with your point that the way the trends are developing is

that we may be entering a period when alternative sources of energy may be more attractive.

Nevertheless, this doesn't in any way demean or undermine the value of Jessica's report and her arguments. And before I open the floor to Q&A, I would like to give Jessica an opportunity to respond to Charlie.

MS. VARNUM: Thank you very much for your insights. And I'm going to be very agreeable about the first part of your insights, and say that I agree completely that it is madness to be essentially focusing the nuclear development efforts on two reactor designs that are not in operation anywhere in the world today, and have no proven track record.

But the problem is, that is entirely beside the point, in the sense that while, yes, this is a bad, bad idea, it turns out that we've stumbled upon a model that we may see beyond Turkey, of nuclear vendors essentially looking for an opportunity to build these first-of-kind designs any way they can. And that means that this is also the only way that nuclear newcomers, in many cases, like Turkey can actually find a financing model that works for them. Because essentially, the vendor in question is willing to make certain compromises on the financing end of things just to have the opportunity to build a reactor and see how it goes.

This would certainly, I would argue, be the case with the Atmea 1 design that Japan and France are pushing. And in addition to that, what you also see at play here is that the Japanese were willing to make financing concessions -- and may still be willing to make financing concessions -- that they would not have been able to or been willing to make pre-Fukushima, because their domestic market for nuclear reactors has collapsed, and they don't have an export track record.

And so, essentially, they want to build the Atmea 1, in part to build the Atmea 1 somewhere and see how it goes and, in part, to establish an export record. And because of that, they will create the terms that make it possible for Turkey to get the reactor -- even if, really, it's not the best idea in the world to get that particular reactor.

And I would argue, in the Russian case, because the deal was made for strategic reasons -- I mean, it was basically a quid pro quo for the pipeline project that Russia got, that it wanted it, Russia is building the reactor at a loss. And it's likely to go forward regardless.

And so if you see these reactor projects that are going to happen whether we think it's a good idea or not, it seems to me that the situation is you need to make the best of a bad situation, and try and help, both for the good of nuclear power and nuclear safety regionally and

globally, and also for the good of bilateral relations, to play a constructive role, rather than to stand back in horror and say, "Oh, no."

So that would be my argument in response to the first point.

I also agree that there are concerns on the nonproliferation front that haven't been fully resolved, in the sense that there are still some reforms that need to be made to the export-control system, still some issues that will be even more significant with the establishment of a nuclear power program, of creating a nuclear security culture in Turkey.

But I would distinguish between Turkey's nonproliferation situation and the situation you see in many other potential nuclear newcomers, in the sense that what you're talking about are activities that occurred without the knowledge -- I am convinced -- without the knowledge of the government, and that are not in any way a part of the state's policy. Turkey, I think, is very committed to nonproliferation as a government, and has made significant, meaningful progress on export-control reforms. And that stands in distinction from countries who are in some way undermining the nonproliferation regime as a policy. I think that's a very different issue. And I think that the positive steps that Turkey has made, with U.S. assistance, in the last decade on export controls are proof of its good faith.

So, again, I would argue engagement is the best way to tackle the remaining issues.

MR. KIRIŞCI: Thanks, Jessica. I completely agree with the logic behind your engagement argument, but as a longstanding citizen of the Turkish state, the final remarks about nonproliferation issue, and the government, and it not being part of the government and state policy, I'd rather not reflect on that part -- and open the discussion to the floor.

I think, let's -- the way we have about -- let me take three questions from here, and then we'll go for the next round of questions.

Yes, please. Yes, there's a micro coming.

MR. BOROS: Hello. My name is Nicholas Boros. I'm with the Department of Energy, Russian and Eurasian Affairs.

And I was wondering if you could just give some specific reasons why Turkey should work with the U.S. specifically to develop its nuclear program, as opposed to other countries.

And I do have a second question -- I'm sorry -- if there is to be more U.S. participation in the development of the nuclear sector, I've heard the Turkish government should perhaps be offering more risk mitigation to the U.S. companies. Do have any proposals about how to make that happen?

MS. KUMUSH: Olga Kumush, for (inaudible)

And then my question goes well with yours, because I wonder why, for Turkey, it will be more interesting to cooperate with U.S. rather than France, rather than the Sécurité Nucléaire?

Thank you.

MR. FLOTTABO: Yes, thank you -- Jan Flottabo, State Department, Office of Nuclear Energy, Safety, and Security.

Question: One of the issues that's blocking or affecting U.S. companies' working more in Turkey is that of nuclear liability. And Turkey is not a member of at least the convention on supplementary compensation due to nuclear damage, which the U.S. is. I don't think they're in the Vienna convention, either.

But do you have any thoughts on that, or thoughts that Turkey might be stepping toward joining one of these conventions?

MS. VARNUM: So, I think in answer to the question of why the United States, I should again clarify the perspective from which this report was written was essentially: Where are there unexploited opportunities to improved U.S.-Turkish relations?

So the objective here is less about nuclear energy, specifically, and much more about areas where relations have been

difficult, and where a positive narrative would be a good thing. I mean, I think the premise essentially was: I see all these areas where we have negative interactions on nuclear issues, where they're a major source of conflict in the relationship. If you have a positive narrative to help balance that out -- particularly because the cadre of people who work on these issues in Turkey is so small you're working essentially with the exact same people on both the Iran stuff and the nuclear energy program stuff -- that this is essentially a strategy for addressing that issue, is one of the reasons.

Another reason, fundamentally, is, I mean, when you look at, okay, why not France? I would say absolutely Turkey should collaborate with France, too, and other countries, including whoever its vendors ultimately are. The United States is not in the position -- nor it should be -- to create all of the capacity-building programs that Turkey will need for its nuclear energy program, or to play the pivotal role. I think the issue is that, strategically, it's a good idea to play a positive role.

And also that the United States and industry, and universities in the United States have an extensive history on nuclear energy that would be valuable to nuclear newcomers, and that we're sharing through a number of programs with a lot of other nuclear

newcomers -- ironically, more extensively, in some cases, than with Turkey, even though in some cases the other nuclear newcomers are actually less likely to get nuclear power plants.

And, again, I would also focus the type of cooperation I'm talking about in the report, which is much more about relationship-building through, again, universities, civil society, and minor industry contracts that wouldn't essentially run up against the big liability issues of building the actual plants.

When we look at the liability issues -- from both of the questions that got into that -- interestingly -- I mean, I did a number of interviews with industry, including with U.S. industry executives, and this was not an issue that was regularly raised by industry. It was mentioned in some other interviews with people who were not connected with industry. So I get the impression there's a perception this is a bigger issue that it perhaps truly is as far is industry is concerned for why they are not participating. My sense was there was the possibility for progress in that area if other issues could have been resolved.

I am, honestly, not 100 percent sure as to your question in the back, Jan, about the Vienna convention. My recollection is that Turkey

is a part of the Vienna convention, but perhaps not part of the supplementary convention you mentioned. I would have to double-check.

But I think the big difference between the U.S. vendors and most of the other vendors in question here is that they have state backing, and are therefore able to take on risk on a level that, even with participation in some of the liability conventions, U.S. industry can't provide the same level of guarantee that Russia or France would do, for example.

MR. BRIALLI: Noah Brialli, Department of Commerce.

Charlie, you mentioned these cost overruns in Finland you just saw. And Jessica, you mentioned that the AP 1000 Westinghouse reactor is being built by Southern Company, has a similar unproven design.

Can you talk about the design, direct design experience of Nuclear Regularly Commission regulators in the U.S.? And, Charlie, can you talk about the possibility for ever of building this reactor on-budget, in a, you know, commercially viable way here in the United States?

MR. KIRIŞCI: Any other questions from -- yes, please, sir.

MR. LOPEZ: This is Frank Lopez, from CH2M Hill.

Getting at this question with regard to the, if you will, the newness of basically the two reactor power plant projects that are underway, I think it's pretty common knowledge that TAEK, their nuclear regulator, is already struggling, if you will, with the collaboration with the nuclear regulator in Russia to get what I'd call the agreement and cooperation that's needed. Because obviously you're not going to create NRC overnight, so they can't start with a clean sheet of paper, so there needs to be some degree of so-called "country of origin" basis.

And the Atmea situation is a version of that, where there may be bits and pieces of -- certification of bits and pieces of the design but, once again, no internationally recognized regulator that's certified that design.

I'd be interested in your thoughts with regard to the model partnership: Is there a role there for U.S. government -- whether it be NRC, Commerce, State -- in establishing an independent peer-review framework to sort of say, you know, without having any, quote, "prior bias," is there some way that the U.S. government might participate, and that be part of the model partnership?

MR. KIRIŞCI: Thanks.

We have a question right in the back, and then (inaudible) will come to you.

MS. KANE: Chen Kane, from the Center for Nonproliferation Studies. Thank you, Jessica and Charlie, for your very interesting presentation.

I have two comments and one question.

First, about the export control issue, while I agree fully with you, Jessica, that export-control, probably, violations were not part of state policy, I will argue that the fact that Turkey has been used a lot as a trans-shipment point for violations could be closed by just adopting the export-control legislation that has been sitting for many years without doing anything. So, that's a very small thing to show real commitment for export control.

The second part that I might disagree with both of you is actually about the non-proven design. While it is, of course, concern that a design that has not been built anywhere else might be a big issue, but nobody said anything to the UAE when they chose the APR 1400. So my point is that it's probably, as you mentioned, Jessica, a trend that we need to realize that if we want cheaper nuclear energy, that's something that we need to deal with.

But I would say that the main concern with -- it's not that the design has not been proven, but it's trying to do it, which Turkey is trying to do, is on the cheap, and very past -- which is violating, actually, another rule by the IEA, like trying -- the recommendation of the IEA to have 10 to 15 years to have new, for a newcomer to have their first reactor, which Erdoğan, I think, wants it within 7 years. So I think that is the main concern.

So then I'm going to the question. And I don't think you actually spoke about motivation. And what exactly do you see as the motivation for Turkey to pursue nuclear energy? You mentioned a little bit energy security and independence, which I think that's one of the obvious ones. But since, as Charlie mentioned, it doesn't really -- nuclear is not actually the cheaper way to achieve nuclear [sic] independence and security, what do you see as the other motivations?

And I think you talked a little bit about the domino effect, and Iran, and nuclearization, which I think is the easiest to refute. But I think there might be other motivation that might be a little bit harder.

So I will welcome your comments.

MR. KIRIŞCI: Okay, Jessica, let's turn to you, and then we'll take one more round of questions.

MS. VARNUM: So, I think the first question from the gentleman from Commerce is well taken. I'm not 100 percent sure I am -- I'm not 100 percent sure it's relevant to the proceedings, in the sense that I think you're talking about AP 1000 in the United States, and Southern Company's construction of it.

So, I don't want to get into too much, except to say that I think the licensing process that the NRC has gone through with regard to the AP 1000 has been extremely thorough. And it has been a learning process, but they've essentially dedicated the time and resources that you want to see dedicated for this kind of a licensing process.

Now, when you get into the whole issue of nuclear new-build in countries like the U.S. that haven't done it for many years, mainly for reasons of, essentially, the financing escalating out of control because of the political uncertainties involved, that that's a whole other set of issues that, in a way, does not tend to impact nuclear newcomers very much, and countries like China and India, where they just go full-steam ahead, regardless of the either wisdom or uncertainties of doing so. And maybe Charlie has further comments.

But I'm going to just get back to Turkey to focus on the two latter questions.

So, the question of the possibility for U.S. involvement in creating a licensing peer-review process, or in some supporting licensing of this new design, I think there are some very interesting opportunities for international cooperation through the Nuclear Regulatory Commission, in fact. They have an Office of International Programs that has a number of really great initiatives. One of those I mention in the report, which is the International Regulatory Development Partnership. It's non-design-specific, meaning countries, regardless of the design that they've adopted -- this is kind of prior to that phase -- they help with regulatory best-practices sharing in the run-up to the actual design selection.

But then they also essentially have networks to be able to assist countries in a multilateral context, in trying to form working groups about particular designs, because, of course, VVER 1200 is going to be built, it's in the process of being built in Russia, as well. So I think there are a number of lessons there.

There's also opportunities that are less likely to be appropriate to Turkey because they are focused more on countries that are developing designs the U.S. also licenses. So, for example, we have foreign exchanges through the NRC where people can come from other countries and spend time working at the NRC, but those are more likely to

apply to countries that are adopting, say, the AP 1000, and want direct AP 1000 experience.

But I think that if Turkey is willing, there's certainly outreach in that direction. But perhaps some of the more informal networks of reactor operators may be more appropriate in this regard for certain aspects of that question.

On the final question, from Chen, first of all, the issue of whether building an unproven design is a problem, I think it's a challenge regardless of what country you are. And if I was writing a report about the UAE, I would have pointed that out, too. Because I think you just don't know what challenges you're going to face, and as a nuclear newcomer, it's not the wisest decision to make. But, in reality, it is the decision that countries are being led into making because of the vendors' preferences on this subject. So it's a reality we have to deal with.

Why is Turkey pursuing nuclear energy? I would say, in addition to the reasons having to do with supply of energy security, there's a definite prestige element here. Absolutely. When you talk to people who are nuclear engineers in Turkey, when you talk to people who have no connection whatsoever to the program, but who are in Turkish

government or whatever, you definitely hear this sense that by adopting this sophisticated technology, Turkey will join the club.

But it's not, from my view, about nuclear weapons at all. And, in fact, most people in Turkey would not see nuclear weapons as prestigious. They'd see it as undermining the regional prestige of Turkey, because its influence very much depends on being a rule-follower, and leading rule-following behavior in the region.

But I think it more fits it with Turkey's involvement in the CERN project in Switzerland, and Turkey's involvement in regional nuclear energy projects having to do with research, and wanting to be a leader on accelerator projects, and that kind of thing.

So I'll just stop there. But, I mean, I think it's a mix of prestige and actual, genuine need for additional power sources.

MR. KIRIŞCI: Charlie?

MR. EBINGER: I don't know whether these numbers are right -- these are numbers that I was told -- in Finland, for example, that the Areva reactor is now, has now reached the point where it's about 11.3 billion euros -- euros. And as for the Southern Company, which is an excellent utility, I think it's important to recognize that the only reason that

they are going to be able, possibly, to build their reactor is they still are in a State that has guaranteed rates of return for investment.

With most of the States in the United -- well, with half the States, say roughly, now having deregulated energy markets, you cannot build a nuclear reactor in the United States in a deregulated energy market. And certainly, the trend worldwide seems to be moving towards deregulation. I'm not suggesting that's going to hit Turkey overnight, but it's certainly the trend.

But two other major concerns which we haven't addressed here, which I think have not gotten adequate attention, is the whole subject of how is Turkey going to manage its nuclear waste. I know the Russians have said they'll take it back.

And the other question is, you know, you're talking about a country with an active seismic problem -- not necessarily the finest place to build a nuclear reactor.

And let me say -- I may sound critical, Nick, I used to be a spokesperson for the industry. I am the last of the pro-nukes, sometimes, I think in this town. But as an analyst, you've got to look at objective facts.

Let me just say, too, on the -- not to digress, but on the Emirates, I think it's a totally different situation. Because, for better or

worse, the Emirates have the cash and the ability that they have hired the best they can find of international expertise, a situation which, unfortunately, does not share. I mean, they've got some of the top reactor designs, they've hired regulatory experts. They've built whole universities, and hired expatriate personnel, centering on various aspects of the nuclear technologies. So, I don't think you can compare the experience of the Emirates, even if you you're a little concerned, perhaps, with the Korean technology, to the situation in Turkey.

MR. KIRIŞCI: Thanks, Charlie.

I, personally, have difficulties in understanding what is it that makes nuclear energy a source of prestige. I may be ideologically biased there, too. I would see prestige, frankly, in renewable technology, and Turkey becoming a leading country in that area.

But be that as it may, I think there were some other questions.

Yes -- second one? All right. Yes, sir. Yes -- no, you go ahead, and then -- all right. Way back.

MR. HOWES: Walter Howes, with Verdigris Capital, and the Atlantic Council.

The Atlantic Council is about to launch a two-year effort on global commercial nuclear power. And in preparing for that -- this question is not Turkey-specific, but it is addressed, in some desperation, to the panel, and anyone who could help with the answer to this -- which is on the 123 agreements.

If you ask the question from the perspective of the United States: Who's in charge? When you say, "Can you draw me a wiring map, a diagram, of who is involved, all the cooks in the kitchen, who's in charge?" it seems almost impossible to find. It's really quite muddled and quite confusing.

So, one, do we have the skills to negotiate a 123 agreement, going forward, create whatever new ones? And who really, what does the wiring diagram look like?

SPEAKER: Chen asked most of my question, but I just wanted to follow up on two things.

Charlie, at the beginning you said that the cost of nuclear energy compared to gas is much higher, is that -- did I get you correctly? Do you have the numbers on that, and do you -- I mean, I'm just trying to figure out how much of a hit will Turkey take by just going with nuclear when, as you said, there is gas out there? Although some of the gas only

became known recently -- whether it's Eastern Med, or Kurdish gas, it was not known two years ago, three years ago.

Second, in terms of motivations, Jessica, is it also possible -- I agree with what you said in terms of prestige -- is it also possible that, down the road, if you want to have a nuclear option, you might as well build the first power plant. If you don't have it -- at the moment, Turkey cannot do anything on this. They would have to buy from the Pakistanis, like the Saudis, or something. Is that also a potential motivation?

MR. NUMARK: Hi. Neil Numark, Numark Associates.

I just wanted to comment that I thought the emphasis on the newness of the technologies being proposed in Turkey, and your concern about that, I think could be somewhat misleading, and take attention away from other concerns.

First of all, it's important to note that these are not radically new and different technologies, they're evolutionary advances over existing technologies. And I think the VVER 1200, in that case, is already being built, and there's a reference plant for the one that's going to be built at Akkuyu -- just as, you know, the Barakah plant in the Emirates is based on a reference plant, Shin Kori, in South Korea. And they're just not

radically different. They're meant as evolutionary improvements and advances over existing technologies.

And, you know, if you were to say, well, just pick some off-the-shelf Generation III, or even Generation II technology, to avoid the concerns about the newness of the technology, and then, oh, just, you know, let Turkey or other countries like that go ahead with those because they don't yet have a good regulatory capacity, I think that would really be a -- you know, the wrong direction to go it.

Because I think more important questions to focus on are the capacity of the regulator, and the standards that they follow, the licensing standards, and the thoroughness of the review, and the independence of the regulator to guarantee the safety of the facility.

So that's kind of a comment, and I welcome any reaction.

But I had one other related question. You were talking about the -- you mentioned this in your remarks, but I also found the quote in the report, it's the easiest way to comment on it -- that one of the principal challenges is that neither the VVER 1200 or the Atmea is in operation anywhere. And anyone qualified to evaluate either design likely has a conflict-of-interest relationship with the vendor.

And I'm trying to understand where -- what you mean by that. I mean, what is the standard for saying that somebody has a conflict?

I guess, just briefly, one last point there, that I would suggest that the parties doing that technical review don't necessarily have to be exactly experienced with that particular model, the VVER 1200. They may have experience with very closely related PWR technologies that is -- I mean, after all, wherever it is that the first VVER 1200 is being built -- I forget if it's in Russia or Ukraine -- you know, someone had to do the initial review there without ever having reviewed that particular reactor.

The Atmea may be a different case, because I'm not aware that any have been ordered and are under review elsewhere, but that is also the second one after the VVER 1200, and, you know, perhaps others will have been the first cases of that.

Thank you.

SPEAKER: Very quickly, Jessica.

You are stating that in 2000, the Clinton administration didn't sign the agreement 123 because of some concerns about the Turkish nationals who have links with A.Q. Khan network.

Any concrete concerns about this? Actually, this is very important, because we have discussed several times in the Turkish press these kind of allegations, but I didn't see any concrete proof about that.

And also, is there still reserve of the administration in terms of this security risk? Because you stated that the administration didn't send the agreement to the Congress for the ratification.

And you are stating very clearly that there is not any clear influence of the administration on the private companies who are not thinking that this is a feasible project. But is there any dimension, in terms of this security risk, also, in the approach of the administration?

MR. KIRIŞCI: Jessica?

MS. VARNUM: Thank you. And I'm actually going to go backwards, just because it's fresher in my mind, and easier to keep track of.

So, to answer your questions first, there's concrete evidence that there were Turkish nationals who were involved in the A.Q. Khan network, but there were also nationals from a number of other countries that, overall, are nonproliferation-abiding states, including Germany, and other European countries, who had nationals who, unbeknownst to the government, were in some way involved in the illicit A.Q. Khan network.

What this points to is weaknesses that have been exploited somewhere in a country's export control system, or border security system. And it's not necessarily in any way a fault of the government in terms of its commitment, politically speaking, to nonproliferation.

I'd be happy to point out some articles that get into the details of the cases specifically, if you're looking for examples.

SPEAKER: (off mic)

MS. VARNUM: Right. Well, and I think it's pretty much acknowledged by the Turkish government, at this point, that that went on, too. I mean, these were cases that were actually brought by the Turkish prosecutor on this subject.

But the issue, in terms of -- I mean, there were a few issues in terms of why it took so long, because, basically, Clinton signed with Turkey the 123 agreement in 2000. And then it should have bone, in normal circumstances, directly to Congress for 90 days, to sit before Congress for approval. But, ultimately, the President did not send it to Congress because these allegations came forth from the intelligence community and they had to be looked into. Yet it's eight years later before the agreement gets put before Congress again.

And the main reason for this, from my understanding of talking to some of the relevant players, was that in addition to working with Turkey through programs like export control assistance programs, and that kind of thing, to strengthen the system, to prevent problems in the future and show good faith in doing that, there was an issue with the United States government wanting certain bits of evidence about the cases in question, and the prosecutor's office in Turkey saying we can't legally provide you with information on these cases while they're still ongoing because of Turkish domestic law which prohibits us from sharing this information with you.

So, in the U.S., this was perceived as inadequate cooperation in providing details of the trafficking cases, and of the prosecutions themselves. And so for a long time, there was a stalemate over whether the U.S. would go forward with the agreement in the absence of this information on the cases.

Finally, there was a political decision made by the Bush administration to just send the agreement to Congress, because, ultimately, it was the President's decision one way or the other. And so he sent it to Congress -- and I've got a quote in here -- indicating that the

"pertinent issues have been sufficiently resolve" as far as the U.S. administration was concerned.

Now, when we get back to a comment that Chen made, there is pending continued export control reform legislation that's been sitting in front of the prime minister for a long, long time -- years -- that would resolve a number of the concerns the U.S. still has about export control laws in Turkey. And so I have indicated in the report that one very good-faith measure that the Turkish government could take to improve cooperation from its end, would be to actually do something about this legislation. And so that, I think, addresses your question.

To go to the question about -- oh, gosh, what was the one right before that?

SPEAKER: (off mic)

MS. VARNUM: Okay. That was actually the first question, but I'll answer that now.

I would be happy to direct you to my report on the subjects, actually -- 123s, I am one of the nerdy types out there, one of the few, who follows 123 agreements, and their negotiation, in extreme and excruciating detail. So I wrote a report on this for the Nuclear Threat Initiative in the fall, that went into the debate over what's known as the "gold standard," of

foreswearing enrichment and reprocessing as a precondition for a 123 agreement with the United States, and whether that's helpful or hurtful to nonproliferation.

To get into the nuts and bolts of who actually does this stuff, I'd be happy to talk to you in more detail later. But suffice it to say, the main players are within the executive branch, and specifically Richard Stratford at the State Department personally negotiates a lot of these agreements. And so he gets his marching orders on what countries to negotiate with, and he's got a portfolio of countries that he's got ongoing negotiations with.

We absolutely do still actively negotiate these. And there's a whole, you know, process of approvals they go through in the executive branch, because there has to be a proliferation assessment out of the State Department, as well, that's supported by the intelligence community, et cetera. And ultimately, the President signs off. And the only way that it goes through, at this point in time, is during the review process in front of Congress, of 90 days. But there's been movement in Congress to look into whether affirmative approval might be required of future agreements -- essentially an up-down vote. And there's a lot of concern on the part of the executive branch that that would mean we would have absolutely no

nuclear cooperation agreements occur in the future. But for now, we're still with the old process.

And the major reason that a lot of negotiations have stalled, is the sense that Congress wants all of them to abide by the gold standard. The executive branch would rather have freedom to decide when it should and when it shouldn't, but they probably haven't wanted to have a confrontation with Congress over it just yet.

Henri, your question was about motivations, and -- specifically, yeah. And I think the hedging question -- and by "hedging," I mean you get nuclear power reactors as a possible strategic hedge, so that down the road, if you wanted to get nuclear weapons, even if you have no intent to do so right now, that would provide you with a better basis to do so.

Is it possible there are some people in Turkey supportive of the nuclear power program who have this in the back of their minds? Sure.

It's my sense, however, that A, most people in Turkey who pay any attention to these issues whatsoever, frankly don't have the technical sophistication to have that conversation, in many cases. And don't necessarily -- honestly don't understand the links between

proliferation and nuclear energy on some of the technical issues in question. I mean, this was one of the reasons we had such difficulty with the Iran fuel swap deal, because the concept of the difference between 20 percent enrichment and standard-level enrichment was not something that was a major issue for the Turkish negotiators of this agreement. And there are absolutely people in Turkey who do understand the difference, but they're few and far between, and not necessarily involved in the decision-making.

The other thing is, frankly, I think that this has been a priority for people who are much more interested in the economic future of Turkey, and the way in which this could be helpful to the construction sector, to industry, et cetera.

So, are there a few people who think of it that way? Probably. But I think they're in the minority.

MR. KIRIŞCI: And patronage, of course.

MS. VARNUM: Yes.

MR. KIRIŞCI: Charlie, there was a question --

MS. VARNUM: I feel like I missed one other one, and I can't remember which one.

MR. EBINGER: The question on the relative cost is a -- maybe our friend from CH2M Hill would be better to answer this question. Because, of course, it depends on how you're pricing natural gas. It depends -- you know, you're talking about different size of plants, so you'll have to build more gas plants to equal one nuclear plant, so the cost construction in the particular place you're talking about. You also have the fact that a nuclear plant takes a lot longer, so what is the cost of capital that you're tying up over the life of the construction? So it's a difficult equation.

But if I had -- and I stand to be corrected -- but if I had to take a rough guess, I'd say it's somewhere in the neighborhood of 30 to 35 percent cheaper -- as a --

SPEAKER: Natural gas.

MR. EBINGER: Gas is cheaper.

If I can just make one final comment, because it's a subject near and dear to my heart, on 123 agreements, I think the United States threw out its nonproliferation policy when we signed the India-U.S. nuclear deal. I know that's not a popular view, but how in the devil's name we can stand here and say that under Article 4, other countries don't have the right to get enrichment and reprocessing, when we basically gave away

the baby and the bath water to the Indians, a country that still has not signed the NPT, an agreement that, as I read it, at least, allows the India's plants that have been indigenously developed to extract the plutonium from their indigenously developed plants and move it into their weapons program.

This, to me, threw out the whole concept that there is no link between civilian nuclear power and military power. And I think for us to get on our high horse with some of these other countries is the height of hypocrisy.

MS. VARNUM: So, I remembered which question I forget -- Neil Numark. So I'll answer that question. I apologize. There were just too many to keep track of.

But the new designs issue -- there's a reason I focus on its with regard to Turkey. And I want to be clear, I don't have a problem with countries' building Generation III-plus designs. I think moving in that direction is great as an overall improvement in nuclear power technology, with some of the passive safety design improvements, et cetera.

But I think that those are the kinds of designs that should be built in countries that are already heavily experienced with licensing and operating the older technologies. Realistically, we have to contend with

the fact that's not going to happen, but we also need to be very aware of, and try to take steps to mitigate, I think, with our cooperation partners, the risks associated with that.

And the reason I think there are major risks is that you have a situation in which an undeveloped regulatory authority is seeking to develop the expertise, not only to regulate a nuclear power plant, but to regulate a nuclear power plant no one else has regulated or licensed.

You mentioned the plant, the VVER 1200 that's under construction, as a reference plant. My problem there is I wouldn't really base a regulatory best-practices how-to guide on how the Russians proceed on these things. You know, maybe that sounds a little biased on my part, but I think we do things a little differently when you talk about, say, the NRC approach to best-practices.

And, frankly, Rosatom has definite interests in submitting its design to as little scrutiny as possible in the Turkish case. And so, from what I've heard, there's been a lot of information asymmetries in what Rosatom has actually been willing to provide to the Turkish regulatory authority.

And there's very much a need -- you know, when I talk about -- somebody, it might have been you, or it might have been one of the

other questioner, mentioned this issue of why is it that I would inherently be concerned about a conflict of interest, when you talk about finding somebody qualified to evaluate a VVER 1200 design? Well, you would have to find somebody, at the very least, with VVER experience. And you're therefore talking about somebody affiliated with Rosatom. And the conflict of interest issues with a vendor like Rosatom are much more legion, I would say, than with companies in countries where you have more diffusion of expertise outside of the company itself. So that worries me.

When you talk about the Atmea design, I think there's greater hope for transparency there. And you could conceivably talk about, much more realistically, U.S. services tender, where pressurized water reactor experts for the Mitsubishi design, or for the AP 1000 design might be qualified to help in review of that type of a design.

So my concern is not about the concept that it's a new design, it's that you can't ask a regulator like TAEK to effectively regulate this kind of design.

SPEAKER: Yes, I think you expressed the concern pretty well. I was just -- I think what TAEK has in mind with the VVER 1200, I

think in the initial bid documents they excluded Russian (inaudible) from bidding on it out of concern about conflict.

And so probably what they had in mind was other Eastern European VVER 1000 (inaudible).

MS. VARNUM: I think in theory that's a possibility. In reality, they ended up basically dismissing the tender for technical support services this last March as invalid -- presumably because they did not get any decent bids.

MR. KIRIŞCI: We've almost run out of time. But, given the remarks you've just made about Rosatom, I have this very quick question.

What is the track record of Russia when it comes to safety issues? Because my -- as a man in the street, my view of Russian position on these safety issues is very much formed by the Chernobyl experience, and then the manner in which our Minister of Agriculture responded to it by drinking a glass of tea from the tea-growing areas along the Black Sea in Turkey, saying, "This is safe. Just get on and drink it. There's no danger here." And now, everyone in Turkey knows that the cancer rates in that part of Turkey is much higher than the average rates in Turkey. So, I'm the man in the street, and this is pretty much what many people in Turkey would think about it.

So, safety record of Russia when it comes to their own plants.

MS. VARNUM: I have to preface that by quoting -- you know, not precisely -- but one of my favorite things a Turkish official has every said, which was, I believe, Minister Yildiz, but if it was a different Turkish official I apologize -- when he said, in response to safety concerns about nuclear power plants in Turkey, that people have a much higher risk of premature death by remaining unmarried -- you know, looking at statistics of how men live longer who are married, than those who remain single -- than you would have of increased mortality risk from a nuclear power plant. And I just died laughing when I read that, because it's just symbolic of the kind of non-answers you get to these kinds of questions in Turkey.

On the Russian safety record, it's definitely mixed. I mean, I think post-Chernobyl, a lot of important steps were taken to improve the safety end-design and, you know, nuclear-safety culture. It's my personal opinion that you still have a lot of problems. And one of my major concerns with exports is the tendency to essentially seek exports without, in my view, sufficient regard to the nuclear safety in the countries the reactors are being exported to. And I worry much more about nuclear

exports from Russia than I do the reactors being built in Russia, where there at least is some experience and expertise.

The main concern is -- one of my main concerns is on the seismic front, because from what I have heard, the designs being exported, you can essentially pick from a menu of how seismically robust you want your reactor to be. And, obviously, the cost increases the more you want it to be able to withstand earthquakes.

It's not clear to me, therefore, that the designs being selected for particular countries actually are designed to withstand the design-basis threat earthquake or seismic event you would expect for that particular country, in that particular region, versus just "What can we actually afford to pay for in the way of safety?" And in the West, at least, we don't see that as the way you go about safety. You look at safety objectively, based on what is needed to prevent an accident.

MR. KIRIŞCI: Okay. Well, thank you, Jessica, and thank you, Charlie. Thank you to you all, as well. (Applause)

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