# From Oil to Nuclear Energy? The Development of Civilian Nuclear Programs in the Middle East

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In recent years, several Middle East states have begun developing civilian nuclear infrastructures in their territory. In this respect, the UAE has progressed most among the Arab states – the planned reactors are already under construction – and it is expected to be the first Arab country to use nuclear energy within its borders. Turkey is also quite advanced in this regard. Construction of the first reactor, expected to be operational in 2022, began in April 2015. In March 2015, Jordan signed an agreement for the construction of two nuclear reactors with Rosatom Atomic Energy, a Russian state corporation. Egyptian plans call for four completed nuclear power stations by 2025. Even Saudi Arabia has recently sent out feelers to outside companies for the purpose of developing civilian nuclear energy on its soil, and has started building the technological and scientific infrastructures required.

The various states claim that their decisions to develop civilian nuclear programs are motivated primarily by energy needs. Indeed, in most of the countries under discussion, rapidly increasing energy needs are not met by existing infrastructures; furthermore, renewable energy, such as solar and wind power, is insufficient and can provide only a small fraction of current energy demands. Nonetheless, there is real concern that in the future these projects could serve as springboards for the development of military nuclear programs. This concern is amplified by the fact that some of the states refuse to waive (even in principle) their right to develop the capabilities for enriching uranium and separating plutonium on their soil.

Given the technical complexity and tremendous resources required even for starting the development of a civilian nuclear infrastructure, it is not at all clear if the respective states will be able to realize their nuclear plans, some of which are very ambitious indeed. At the same time, the concern about a possible future transition from civilian to military capabilities requires close monitoring of nuclear developments in the nations of the region.

## A Survey of Civilian Nuclear Programs in the Middle East[1]

*Egypt*: Egypt suffers from a chronic deficit of electricity, and many blackouts result from a lack of fuel for electricity production. Furthermore, the nation suffers from a deficit of potable water, and the intention is to use nuclear power for desalination. In 2006, the Egyptian government began to show renewed interest in developing a nuclear power program, and announced renewed investments in the field and partnerships with international companies. Although former President Husni Mubarak announced the start of construction of a nuclear power plant in el-Dabaa (west of Alexandria along the Mediterranean coast) as long ago as 2010, the project suffers from delays and has, to date, not progressed in any significant way. In 2012, the Egyptian Electricity and Energy Ministry announced that notwithstanding the political upheavals, the decision was made to continue the program promoted under Mubarak aimed at completing construction of four nuclear power plants by the year 2025.[2]

Egypt is increasingly looking to nuclear energy as a solution. However, despite the existence of a considerable reserve of nuclear scientists and engineers, only two small research reactors are currently operating in Egypt. In el-Dabaa, the site designated for Egypt's first nuclear power plant, only preliminary work on the reactor has begun. Construction was halted in January 2012 when local armed residents seized control of the area and vandalized equipment, claiming that their rights to the land had been violated, and only in January 2016 was work resumed. The International Atomic Energy Agency (IAEA) reported that during the unrest in el-Dabaa, radioactive material was stolen from one of the onsite labs, providing a demonstration of the challenges Egypt faces when it comes to reactor safety and security.[3] In October 2013, in a speech marking the fortieth anniversary of the October War (after the site was retaken by the Egyptian armed forces and a promise made to build a new tourist resort to create employment opportunities for locals), acting President Adly Mansour announced a relaunch of the program

to build a nuclear power plant, slated to be operable in 2020, that would ease Egypt's chronic electricity shortage.[4]

Egypt, which in recent years has faced tremendous political, security, and economic challenges, is hard pressed to locate the requisite economic and political resources to maintain the nuclear program. Because of its economic woes, the Electricity and Energy Ministry's assessment is that construction of the el-Dabaa nuclear power plant will have to depend on external financing for 85 percent of the project.[5] During Russian President Vladimir Putin's visit to Egypt in February 2015, the sides signed a memorandum of understanding whereby they would join forces in building the first nuclear power plant in el-Dabaa.[6] South Korea and China are also looking into the possibility of entering into joint ventures with Egypt; in May 2015, China even signed a memorandum of understanding that mentions "cooperation in constructing nuclear reactors."[7] The main stumbling block to the project is the question of financing. On November 19, 2014, Egypt and Russia signed an agreement that Russia would build four nuclear power plants in Egypt with a capacity of 1,200 MW each, and would grant Egypt a $25 billion loan to cover the cost of construction.[8]

*Jordan*: The rising demand for energy in Jordan, the lack of oil reserves (the kingdom imports about 90 percent of its energy), and the ongoing interruptions in both oil supplies from Iran and gas supplies from Egypt because of regional upheavals are all factors motivating the country to establish civilian nuclear capabilities within its borders. The rising demand for energy for electricity production and for future desalination plants also stems from the influx of hundreds of thousands of Syrian refugees. Jordan would like to exploit its large deposits of uranium ore (about 2 percent of global reserves are located in the Hashemite kingdom),[9] and hopes that the reactors to be built there will run on uranium mined on Jordanian soil.

Jordan is a signatory to the Nuclear Nonproliferation Treaty and was the first Middle East nation to sign the Additional Protocol (1998). Jordan would like to build a civilian nuclear infrastructure, but lacks the scientific knowledge to do so, and has therefore reached out to the international community for help. In 2009, Jordan and a South Korean company signed an agreement on the construction of a small (5 MW) research reactor, based on uranium enriched to 19 percent, to be provided by the French company Areva.[10] In March 2015, Jordan also signed an agreement with the Russian company Rosatom over the construction of two reactors in northern Jordan,

each with a 1,000 MW capacity.[11] The first reactor is expected to enter operation in 2024, and the second in 2026. The deal totaled $10 billion, with Rosatom putting up 50 percent of the financing.[12] Jordan, which initially asked Washington for assistance, began negotiating with the Russians after rejecting an American demand that it not operate a nuclear fuel cycle on its territory. As of the time of this writing, the parties had not yet reached agreement on the particulars for financing the project. Beyond the project's steep price tag, there are also serious geological risk factors. Jordan itself acknowledged this by requesting Israel to provide scientific data, a request that was accommodated.

*Turkey*: Because Turkey has virtually none of its own energy sources and demand is on the rise there too, the nation has for several decades – and even more so at present – worked to develop a civilian nuclear program. The goal of Turkish decision makers is to have five nuclear power stations based on 20 nuclear reactors up and running by the year 2030. As of 2016, Turkey had only a single nuclear power plant (with four units, each with a capacity of 1,200 MW) whose construction was started by Rosatom in Akkuyu on the coast of the Mediterranean, and it is expected to be operable in 2022.[13] Turkey committed itself to buy most of the electricity to be produced by the plant, but the reactors themselves will remain in the hands of the Russian company, which operates using the BOO (build-own-operate) model. Similarly, Rosatom will be in charge of recycling the fuel. In April 2016, the Russian company announced its plans to sell 49 percent of its reactor ownership to private (apparently Turkish) companies. While the sale of shares was Rosatom's original plan, this announcement came earlier than expected. Whereas some relate this to difficulties in financing due to the economic problems in Russia, other have linked this announcement to the growing tension between Russia and Turkey following the downing of the Russian jet by Turkish jets in November 2015.[14] In fact, the deep crisis between the states had sparked concern in Turkey that the whole project was in jeopardy.

In January 2015, it was revealed that some of the signatures of the engineers who supposedly prepared the environmental impact study for the Akkuyu reactor had been forged, raising serious questions about the study's validity.[15] Nonetheless, the Turkish energy minister noted in April 2015 that Akkuyu is the safest structure in Turkey, capable of withstanding an earthquake measuring 9 on the Richter scale, and that no earthquake of that

magnitude had ever struck the country.[16] While the Turks had hoped that by 2023 there would be three operational nuclear power stations, construction is behind schedule (and even the first plant will probably be inaugurated two years later than planned).

As for the second nuclear power plant, designated for Sinop, on the Black Sea, a bilateral agreement between Turkey and Japan for construction on the BOT (build-operate-transfer) model was signed in October 2013.[17] A French company will also take part in the work, and completion of the plant is planned for 2023. The Turkish-Japanese agreement was the first time Japan sold a nuclear power plant since the Fukushima disaster, which likely lent the Turks a relatively strong bargaining position. In particular, Turkey insisted on including a clause, albeit vaguely phrased, that would seem to provide the country with the possibility of enriching or recycling nuclear fuel should it want to do so.[18] This is the first practical manifestation of a previous declaration by Turkish President Recep Tayyip Erdogan (when he was still Prime Minister) that Turkey retains the right to develop independent fuel cycle capabilities.[19]

The third nuclear power will be built in Igneada district, 10 kilometers from the Bulgarian border.[20] The proposal to build it on the Black Sea near the Bulgarian border aroused fierce opposition from Bulgaria. In November 2014, it was made public that Turkey was initiating contact with the US-based Westinghouse, which is currently part of the Japanese conglomerate Toshiba, with cooperation of the Chinese State Nuclear Power Technology Cooperation (SNPTC).[21] By constructing this plant, the Turks hoped to reduce their dependence on foreign entities and give Turkish companies a more dominant role.[22] Even if this expectation proves unrealistic, however, due to the lack of sufficient know-how in Turkey, one can assume that contracts for building this plant will include clauses that refer to a measure of partnership with locals.

*Gulf states*: Recent years have seen a growing awareness of nuclear energy, at least on the declarative level, because of the need to meet rising energy demands. Another factor motivating this trend is the Iranian nuclear program, both because of the need to respond to it with independent nuclear development, even if symbolic, and in an attempt to increase pressure on the United States and the international community to resolve the crisis to the satisfaction of the Gulf states. Iran's determination to continue with its nuclear project has prodded the Arab Gulf states to advance joint as well as

separate projects designed to develop nuclear infrastructures and knowledge. Moreover, the agreement between Iran and the P5+1 that recognizes Iran's "right" to retain enrichment capabilities on its soil has prompted other nations – led by Saudi Arabia – to demand this "right" for themselves as well.

*UAE*: Although the UAE possesses one of the largest oil reserves in the world, it is advancing a civilian nuclear energy program, given the drive to reduce air pollution (the country is one of the biggest per capita polluters in the world), meet a rapidly rising demand for electricity, boost economic growth, and diversify the country's energy mix. By 2020, the UAE's electricity consumption is expected to hit 40 GWs, while at present its production capabilities can provide only half of that. Motivated by this forecast, the UAE in 2009 began preparations for developing a civilian nuclear infrastructure, and the expectation is that by 2020 about one fourth of the country's energy needs will be provided by nuclear power. Joining this motive is the desire to have alternate energy sources as a way to protect the nation's natural resources and reserve them for export, as well as the positive effect such an achievement would have on the UAE's prestige in a field associated with modernization and technological progress.

Compared to the other states discussed, the UAE has made the biggest strides in terms of establishing the necessary nuclear power institutions, legislation, and contracts for cooperation with other nations, and has done so in record time – less than one decade from formulation of a strategy to its expected realization, i.e., operation of the first nuclear reactor and its connection to the electric grid. The wealthy federation managed to overcome economic, legal, and logistical obstacles on the road to acquisition of the first civilian nuclear program in an Arab nation. The program, already in an advanced construction stage, includes the building of four reactors, the first of which can be expected to be operable as early as late 2017.[23]

Many in the international community see the UAE's nuclear program as meeting the highest standards of cooperation with international bodies, including the IAEA, regarding nuclear safety and nonproliferation, in part because the UAE a priori waived the goal of uranium enrichment on its soil and will rely on imports of nuclear fuel from other states (the so-called gold standard). The case of the UAE is unique and cannot be expected to serve as a model for future nuclear development programs in other countries, as some had hoped. The fact that the UAE conceded its right to operate a fuel cycle within its borders does not indicate the start of a regional trend, as

evidenced by agreements the United States signed subsequently and public demands made by nations such as Saudi Arabia about their "right" to enrich uranium.

*Saudi Arabia*: The kingdom has embarked on a civilian nuclear program designed to provide its energy needs, reduce dependence on oil, and perhaps even expand its oil export capabilities. At the present rate of consumption, by the end of the next decade Saudi Arabia is liable to find itself providing most of the oil it produces for its own internal needs. A nuclear infrastructure would also expand the industrial base in Saudi Arabia and provide training and employment opportunities to many Saudis. Accordingly, the kingdom embarked on a series of projects and signed agreements of cooperation with several nations, among them South Korea, the United States, France,[24] and Russia, and with China – most recently in January 2016, on the construction of a high-temperature gas-cooled reactor (HTR)[25] – as well as agreements with Arab nations, such as Jordan. It was also reported that Saudi Arabia has begun to select sites for the reactors and that the construction of the first one should be completed by 2020. According to the Saudi government, the plan comprises the building of 16 nuclear reactors to produce electricity and to power desalination plants, and is one of the largest projects ever undertaken within its borders, requiring an investment of more than $100 billion over two decades (making the kingdom the biggest marketplace in the world in the field of civilian nuclear power).[26]

The kingdom has yet to begin construction on the reactors (the start is slated for 2017), but as early as 2010 it decided to establish a renewable and nuclear energy research campus in Riyadh for laying the groundwork and training personnel for various projects.[27] By the end of the project, Saudi Arabia wants to be able to provide half of its energy needs from nuclear and renewable sources. On several occasions, the kingdom has signaled that it will not waive its right to enrich uranium on its soil, as Iran received exactly the same right through its nuclear agreement with the world powers.[28] These hints have aroused the suspicion that Saudi Arabia has nuclear ambitions that are not only civilian. Furthermore, there is no guarantee that the kingdom will agree to any commitment in exchange for international aid, as was the case with the UAE, which also included an acceptance of the Additional Protocol.

In the absence of suitable infrastructures, know-how, and facilities, a Saudi nuclear program whose core is the ability to enrich uranium is a

long term proposition. In Riyadh's view, Iran's nuclear agreement gives the kingdom about a decade during which Iran will have to show restraint on the nuclear front. Saudi Arabia hopes to be able to examine various nuclear options available in the NPT framework within this window of opportunity.

## Transition from Civilian to Military Nuclear Programs?

While a civilian nuclear project can help meet the rising energy demands of the region's nations, many are concerned that in the future, nuclear activity might be diverted from the civilian side to the development of military nuclear capabilities. Indeed, only two non-European nations with developed nuclear infrastructures – Japan and Mexico – did not at some point look into the idea of developing military nuclear power.[29] Given that some of the region's states have already considered developing military nuclear capabilities, and some have even amassed nuclear knowledge and harnessed cooperative nuclear ventures, and given the threat that Iran's nuclear program poses to the region and the region's growing instability, this concern is hardly trivial.

Although Egyptian Presidents Anwar Sadat and Husni Mubarak rejected the idea of developing military nuclear power, not all the relevant Egyptian elements were in agreement. Egypt is an NPT signatory and has been a long time and vocal supporter of making the Middle East a nuclear weapons-free zone,[30] but Egypt is frustrated that this position has encountered significant opposition. Furthermore, the upheavals in the Arab world make Egypt's vision seem farther than ever from realization. Egypt refuses to sign the Additional Protocol, which would allow the IAEA to conduct much closer inspections of Egyptian facilities.[31] While Egypt stresses its energy needs as the reason for its desire for a nuclear power program, its regional importance and the fact that it continues to sport its traditional role as leader of the Arab world could, in the future, prompt it to opt for the development of military nuclear capabilities. Egypt has what it takes to promote such a project, both in terms of its technological infrastructure and in terms of manpower. Its decision whether to pursue nuclear arms is primarily a political decision, and likewise depends on willingness to allocate the financial resources. Yet despite various declarations, Egypt has to date undertaken very little nuclear development, and the nation's political and economic instability is sure to hinder it even more.

Similar to Egypt, considerations of prestige and regional position could motivate Turkey at some point to transition to a military nuclear program.

However, unlike the other states under review, Turkey, as a NATO member, is covered by the organization's nuclear umbrella. In this sense, it would seem that Turkey has no use for its own military nuclear program, and Turkey has in fact signed all the key treaties on the nonproliferation of WMD (including the Additional Protocol). On the other hand, rising tension between Turkey and other NATO members,[32] along with the concern that when push comes to shove, NATO members will not to come to Turkey's aid, is motivating Turkey to seek a more independent foreign policy. In particular, Turkey's insistence on retaining the right-in-principle of uranium enrichment (even though it lacks the independent means to do so for now) amplifies the concern that Turkey wants to keep all of its options open.

Jordan and Saudi Arabia, like Turkey but in contrast to the UAE, refuse to waive their right to enrich uranium or separate plutonium within their borders. The discovery of uranium deposits in Jordan has made Amman more determined than before to oppose a ban on uranium enrichment. While Jordan would find it very difficult logistically and financially to develop a military nuclear program, Saudi Arabia would – at least in terms of financial resources – find it much simpler. Over the years, the Saudi financial support for Pakistan's nuclear program was a basis for the common belief that if Saudi Arabia asks Pakistan to use its nuclear capabilities to help Saudi Arabia, such help will be forthcoming. In the past, the possibility was raised that in a scenario of an Iranian breakout to nuclear weapons, Pakistan's commitment to the kingdom's security would be manifested by stationing Pakistani nuclear weapons on Saudi soil, or by helping transfer the technology needed by Saudi Arabia to launch its own nuclear program. Indeed, it appears that Saudi Arabia believes that in the event of an Iranian breakout to nuclear weapons, Pakistan will come to its aid in one way or another, even if perhaps the two sides interpret the understandings between them differently.[33] All of this would be motivated by the kingdom's growing concern about a possible Iranian breakout to nuclear arms manufacturing under the mantle of the agreement with the West that eases the economic sanctions imposed on Iran. While the agreement with Iran is not expected to generate the launch of a military nuclear program in Saudi Arabia immediately, the agreement has already made Riyadh – in tandem with an unprecedented level of conventional arms buildup – adopt a strategy that seeks to keep all nuclear options on the table.

Given the nuclear agreement concluded between Iran and the P5+1, Saudi Arabia will find it difficult to stand idly by, even if only motivated by the desire for greater prestige and influence, and will likely decide to present an answer – if only partial – to the Iranian threat. In many ways, US security guarantees are a preferable solution for the Saudis, but even if the United States provides Saudi Arabia with security guarantees – and so far it has avoided doing so – it is doubtful that the kingdom would deem them sufficient. Riyadh is also weighing the option of promoting a nuclear weapons-free zone, but the kingdom's fear that in certain scenarios it could find itself confronting an increasingly powerful Iran on its own is liable to reinforce its drive to have other available options. More than any other actor in the Middle East, Saudi Arabia has a strategic motive and the economic wherewithal to make military nuclear capabilities a reality.

## Conclusion

The development of civilian nuclear energy could well serve states lacking significant energy resources of their own, such as Jordan and Turkey, as well as states unable to provide the energy needs of their populations, such as Egypt. In this sense, a civilian nuclear project could prove to be a stabilizing element if it has a positive impact on those states' economic development. Nonetheless, other than the Gulf states, the nations need significant external financing in order to make headway with nuclear projects. Russian dominance in the financing and building of the first nuclear power reactors in Turkey, Jordan, and Egypt is readily apparent, as well as in extensive Russian-Saudi Arabian cooperation on nuclear ventures.[34] In April 2016, Rosatom announced it opened a regional office in Dubai.[35] While this could be seen as an element that strengthens Russia's position in the region, the opposite could occur if the difficulties faced by the Russian economy itself impede progress in the projects to which it is already committed. This may have already been evident in the proposed sale of Rosatom shares in Turkey's first nuclear plant, although this may be also the result of Russian-Turkish tensions.

Although the biggest concern about civilian nuclear programs in the Middle East has to do with their potential as springboards for military nuclear programs, an important restraining factor is the relationship of the nations under discussion with the United States. Traditional US policy has been to oppose fiercely nuclear proliferation in general and in the Middle

East in particular. As long as Gulf security depends on a US presence in the region, Jordan depends on Western aid to fight the Islamic State, and Turkey remains a NATO member, it is highly probable that none of these states will engage in a move that would anger Washington to the point of threatening bilateral relations. In this sense, Saudi Arabia is somewhat sui generis. Given the international imprimatur to Iran to enrich uranium on its soil, one cannot rule out the possibility that the kingdom will pursue a similar route in the future, even if this defies US preferences. At this point, none of the region's nations is showing any sign of wanting to compete with Iran's military nuclear program, but several states have already hinted that at least at the technological and scientific level, they have no intention of being left behind.

Beyond the concern about transitioning from civilian to military nuclear projects, there are fears about the safety and security of the facilities under construction. Some of the reactors planned are intended to be built near earthquake-prone zones. It may also be that considerations of budgets and prestige will translate into cutting corners on appropriate security and safety measures so as to save money and advance the projects as rapidly as possible, a concern raised about the construction of the first nuclear power station in Turkey. Furthermore, given past terrorist attacks on energy infrastructures in the region, such as the Sinai gas pipeline and the oil lines coming out of Iraq, there is a concern that similar groups will try to damage developing nuclear facilities. As was seen in the case of the el-Dabaa reactor in Egypt, local unrest can also result in damage to nuclear installations.

## Notes

1 This survey is an updated version of a previous essay on the topic: Yoel Guzansky, Ephraim Asculai, and Gallia Lindenstrauss, "Civilian Nuclear Programs in the Middle East: Nuclear Spring or Nuclear Autumn?" *Strategic Assessment* 15, no. 1 (2012): 95-111, http://www.inss.org.il/uploadimages/Import/(FILE)1337251535.pdf.

2 Shaul Shay, "Egypt and the Nuclear Option," *Israel Defense*, October 6, 2014.

3 **"**Radioactive Material Said Stolen from Egyptian Plant,**"** *Reuters*, January 19, 2012.

4 "Egypt to Launch First Nuclear Power Plant in Dabaa: President," *al-Ahram*, October 5, 2013.

5 Ayah Aman, "Egypt Moves Ahead with Nuclear Plant to Address Electricity Crisis," *al-Monitor*, November 26, 2013.

6 Anna Borshchevskaya, "Russia-Egypt Nuclear Power Plant Deal: Why Ignoring Egypt's Needs is Bad for the U.S.," *Forbes*, February 13, 2015.
7 "China, Egypt Agree to Nuclear Cooperation," *World Nuclear News*, May 28, 2015.
8 "Russia to Lend Egypt $25 Billion to Build Nuclear Power Plant," *Reuters*, May 19, 2016.
9 Mohammad Ghazal, "Jordan to Build JD100M Uranium Extraction Plant," *Jordanian Times*, May 21, 2014.
10 "French Fuel for Korean Reactor in Jordan," *World Nuclear News*, April 19, 2013.
11 "Russia to Build Jordan's First Nuclear Power Plant," *al-Jazeera*, March 24, 2015.
12 "Russia to Build First Nuclear Power Plant in Jordan," *Russia Today*, December 25, 2014.
13 "Turkish Nuke Plant Delays Completion Date, Again," *Today's Zaman*, September 30, 2015.
14 "Russian Company Puts 49 percent of Turkey's First Nuclear Plant on Sale: Report," *Hurriyet Daily News*, April 27, 2016.
15 "Signatures on Nuclear Power Plant Environmental Impact Report Forged," *Today's Zaman*, January 12, 2015.
16 Seyma Eraz, "Energy Minister: Akkuyu to be Turkey's Securest Structure," *Daily Sabah*, April 12, 2015.
17 "Turkey and Japan Sign Formal Agreement to Build Second Nuclear Plant in Sinop," *Hurriyet Daily News*, October 30, 2013.
18 "Turkish Energy Minister Denies Uranium Enrichment Intention," *Hurriyet Daily News*, January 9, 2014.
19 Sinan Ulgen et al., "The Turkish Model for Transition to Nuclear Energy," Istanbul, Center for Economics and Foreign Policy Studies, 2011, p. 156.
20 "Turkey Reveals Location of Planned Third Nuclear Plant," *Daily Sabah*, October 14, 2015.
21 "Turkey in Preliminary Talks with Westinghouse on Third Nuclear Plant," *Reuters*, November 25, 2014; "Turkey Mulls Building Nuclear Plant with China, US," *Daily Sabah*, March 25, 2016.
22 "Turkey Plans to Build Third Nuclear Plant with Own Resources,"*Hurriyet Daily News*, October 22, 2014.
23 Anthony McAuley, "UAE Nuclear Project Enters Critical Phase," *The National (UAE)*, July 7, 2015.
24 "French Scientists to Train Saudis in Nuclear Energy," *Arab News*, August 15, 2015.
25 "KSA, China Sign Nuclear Cooperation Deal," *Arab News*, August 10, 2014, and "Saudi Arabia, China Sign MoU to Build Nuclear Reactor," *Gulf News*, January 19, 2016.
26 "Saudi Arabia Plans to Build 16 Nuclear Reactors by 2030," *al-Arabiya News*, June 2, 2011.

27 Abber Allam, "Saudi Arabia Announces Nuclear Centre," *Financial Times,* April 18, 2010.
28 Eli Lake and Josh Rogin, "Saudi Arabia May Go Nuclear because of Obama's Iran Deal," *Daily Beast*, February 14, 2014.
29 "The Dream that Failed," *Economist Special Report*, March 10, 2012, p. 5.
30 Emily B. Landau, "Egypt, Israel and the WMDFZ Conference for the Middle East: Setting the Record Straight," *Israel Journal of Foreign Affairs* 7, no. 1 (2013): 13-16.
31 Guzansky, Asculai, Lindenstrauss, "Civilian Nuclear Programs in the Middle East," pp. 97-99.
32 For more on this, see, e.g., Metin Gurcan, "Is NATO Membership Shackling Turkey," *al-Monitor,* October 29, 2014.
33 Yoel Guzansky, "Pakistan and Saudi Arabia: How Special are the 'Special Relations'?" *INSS Insight* No. 797, February 16, 2016.
34 Jack Caravelli, "Russia Signs Nuclear Deals with Traditional U.S. Allies in Middle East," *Washington Free Beacon*, July 30, 2015.
35 Matthew Cottee and Hassan Elbahtimy, "Russia's Nuclear Ambitions in the Middle East," *Foreign Affairs*, May 20, 2016.