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Saudi Progress in Nuclear Research

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In November 2018, Saudi Crown Prince Mohammad bin Salman laid the foundation stone for seven scientific/technological projects in the kingdom, including a nuclear research reactor. Saudi Arabia's interest in nuclear matters is nothing new, nor is the concern that in certain conditions, the kingdom is liable to move toward nuclear weapons. To be sure, Saudi Arabia has serious reasons to seek civilian nuclear energy in order to meet its growing energy requirements, reduce its dependence on oil, and release more oil for export, but it is fairly clear that the main motive now for its nuclear development is security interests. Saudi Arabia does not want to be left behind Iran, and as Riyadh sees it, the nuclear agreement with Iran increased Tehran's aggression and did not halt its long term nuclear ambitions. Israel faces a dilemma. On the one hand, acceptance of enrichment capability in Saudi Arabia in the framework of negotiations between Riyadh and the US is liable to cause a regional avalanche if other countries demand this "right." On the other hand, Israel has an interest in the United States, which is more committed than many other countries to non-proliferation standards, winning access to the Saudi nuclear market.

In November 2018, Saudi Crown Prince Mohammad bin Salman laid the foundation stone for seven scientific/technological projects in the kingdom, including a nuclear research reactor. Saudi Arabia's interest in nuclear matters is nothing new, nor is the concern that in certain conditions, the kingdom is liable to move toward nuclear weapons. Indeed, even though it does not yet have any capabilities to speak of, anxiety about a Saudi nuclear project was validated last March when for the first time bin Salman said publicly and explicitly that if Iran acquires a military nuclear option, the kingdom will acquire the same capability without delay.

While construction of a nuclear research reactor is not a prerequisite for construction of large scale nuclear plants, as has been demonstrated by the United Arab Emirates, from a certain perspective, it is a wise step for a country lacking human and technological infrastructure. Such a measure is liable to prove alarming, however, if it becomes clear that its goal is not merely to train staff for the nuclear reactors, but also to prepare the infrastructure for possible production of plutonium from the irradiated nuclear fuel in the research reactor. This is certainly possible: the Iraqi reactor was originally presented as a

nuclear research reactor, and other reactors can, under certain conditions, be used for this plutonium production. The US is likely to demand that the reactor is powered with fuel enriched up to 20 percent, which will prevent the fuel from being used to separate plutonium and make it difficult (although not impossible) to irradiate natural uranium in order to produce plutonium. The P-5+1 countries are unlikely to knowingly supply Riyadh with a reactor fueled by natural uranium from which it is easier to produce plutonium for military purposes. According to one source, the reactor's power will be very low – approximately 100 kilowatts – a level that will allow study and research, but not production of a significant quantity of plutonium.

Negotiations between the United States and Saudi Arabia on nuclear cooperation were renewed over the past year. These talks had reached an impasse under the Obama administration, due to the kingdom's refusal to forego its "right" to enrich uranium that could be used as nuclear fuel in the nuclear reactors. Uranium enrichment can certainly be used for the legitimate purpose of providing fuel for nuclear power plants, but can also be used as a source of fissile material for nuclear weapons, as in Pakistan and Iran. The Trump administration is considering a new approach from that of the Obama administration: to allow limited enrichment in Saudi Arabia. US Secretary of Energy Rick Perry is to a large extent the main proponent of the new approach, but it has encountered some resistance from both Republican and Democratic legislators, who have expressed concern about Saudi Arabia's nuclear intentions. In addition, several legislators are now seeking suspension of the secret negotiations with Saudi Arabia following the murder of Jamal Khashoggi and the Saudi intervention in Yemen. Congressional pressure on the administration is expected to increase, given that many legislators are urging a reappraisal of relations with Saudi Arabia, which will further complicate the nuclear negotiations.

Saudi Arabia does not want to be left behind Iran. Several years ago, it announced an ambitious - some say overambitious - nuclear program involving construction of 16 nuclear reactors. The completion date for the reactors has been consistently postponed, and is now 2040. For construction of the first two reactors, Saudi Arabia has received bids from companies in the US, China, Russia, France, and South Korea, and announced that it will soon select the companies for construction of the reactors, which are scheduled to become active toward the end of the coming decade. The reactors will probably be located on the Gulf coast close to the border with the United Arab Emirates. South Korean Electric Power Corporation (KEPCO), which is admired by Riyadh for its success in building reactors in the UAE, likely has the best chances of winning the tender to build the Saudi reactors.

Saudi Arabia has serious reasons to seek civilian nuclear energy in order to meet its growing energy requirements, reduce its dependence on oil, and release more oil for export, but it is fairly clear that the main motive now for its nuclear development is security interests. As Riyadh sees it, the nuclear agreement with Iran increased Tehran's aggression and did not halt its long term nuclear ambitions. Another motive is prestige. Just as Saudi Arabia does not want to trail behind Iran, it is not happy about the UAE's relatively rapid progress in this area. Competition for prestige has always been an important feature of relations between the Arab Gulf states, and has motivated much of the infrastructure activity in these countries, including in military procurement. It is thus possible that the implicit threat in starting the project was designed to push the US and the international community into stepping up their pressure on Iran in order to prevent it from producing nuclear weapons. The declaration about construction of the reactor at the present time, however, also has an internal aspect related to bin Salman's status and his desire to bolster it, especially in view of the Khashoggi affair aftermath.

The UAE, which completed construction of the first civilian nuclear reactor on its territory in April, reached an agreement with the United States in 2009 to refrain from enriching uranium in exchange for essential international nuclear aid. This barrier has been labeled a "gold standard" for future nuclear agreements, but Saudi Arabia is unwilling to accept it; from Saudi Arabia's perspective, it should be allowed to do whatever is permissible for Iran. As a rule, Saudi Arabia wants to position itself so that it has as many (nuclear) options as possible.. More than any other regional actor, Saudi Arabia has a strategic motive and the economic capabilities to accomplish this. A sustainable nuclear program will help Saudi Arabia keep step not only with Iran, but also with the UAE, Turkey, and Egypt, which are only at the beginning but have made more nuclear progress than Saudi Arabia. As for inspection of the Saudi nuclear program, Riyadh has signed the Nuclear Non-Proliferation Treaty and since 2009, an inspection agreement with the International Atomic Energy Agency (IAEA), but this is a minimal agreement only. Saudi Arabia has not signed the Additional Protocol that greatly expands the authority of IAEA inspectors. The current agreement (Small Quantities Protocol) obligates Saudi Arabia to very little, and in any case requires a revision when construction of the nuclear research reactor begins.

Development of the Saudi civilian nuclear program is a long term goal, given the lack of sufficient technological knowledge and appropriate facilities in the kingdom. The JCPOA, if it remains in effect, gives Saudi Arabia more or less a decade in which to develop a "civilian" nuclear effort without withdrawing from the NPT. In the short term, under the scenario of an Iranian breakout to nuclear weapons Saudi Arabia may already have some kind of response available from Pakistan. Despite some tension in recent

years, Pakistan still constitutes strategic depth for Saudi Arabia, and is liable to provide it with assistance in developing nuclear weapons.

Israel faces a dilemma. On the one hand, acceptance of enrichment capability in Saudi Arabia in the framework of negotiations between Riyadh and the US is liable to cause a regional avalanche if countries like Jordan, Egypt, and Turkey also demand this "right." As it has already hinted, the UAE is likewise liable to regard itself as not obligated by the agreement with it. In any case, if Saudi Arabia decides to seek military nuclear capability in the future, the planned civilian nuclear program is liable to provide it with a short cut to military nuclear capability. On the other hand, Israel has an interest in the United States, which is more committed than many other countries to non-proliferation standards, winning access to the Saudi nuclear market.

It is therefore likely that the US will exert pressure on Saudi Arabia to grant the license to South Korea for building Westinghouse-made nuclear power plants. Washington will thereby be more aware of what occurs in this area, and will gain additional leverage over Riyadh. In this way, Saudi Arabia's ability and motivation to covertly develop nuclear capabilities can also be reduced. The question arises regarding the manufacturer of the research reactor to be built in Riyadh. There are many possible sources for this, including the US and many other countries, such as France, Russia, China, Argentina, and possibly also Pakistan. To a considerable extent, the supplier of the reactor will determine its purpose, because it is fairly clear that the supplier will have extensive influence on both the future purpose and the supply of the nuclear reactors.

As Riyadh will not be able to complete a sustainable nuclear project without massive outside assistance, the US and Saudi Arabia will have to reach a compromise. One possibility is a partnership (financial, not technical) in an American facility that will enrich uranium from Saudi raw materials (the Shah of Iran was a partner in a French enrichment plant). A less likely possibility is that the US will build and operate an enrichment facility on Saudi territory. President Trump wants to preserve his relations with Riyadh, and is concerned about the interests of the American nuclear industry, which is experiencing difficulties. Although it has major common interests with Riyadh and, according to reports, benefits from cooperation with it, Israel should take action in Washington to prevent Saudi Arabia from attaining unlimited enrichment capability, and to try to make sure that the nuclear transaction with it, should one materialize, will be as close as possible to the nuclear "gold standard."