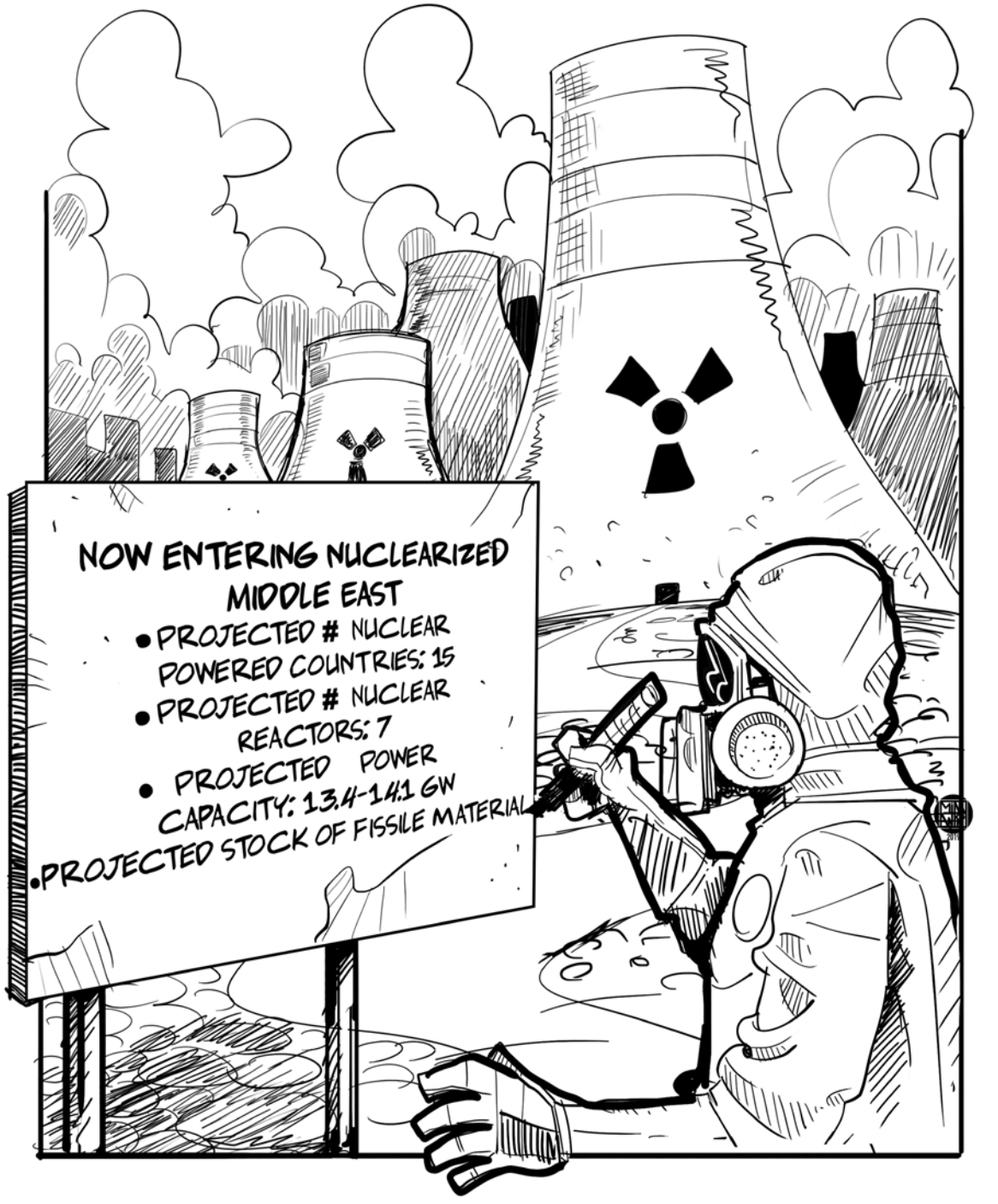
NOW ENTERING NUCLEARIZED MIDDLE EAST
• PROJECTED # NUCLEAR POWERED COUNTRIES: 15
• PROJECTED # NUCLEAR REACTORS: 7
• PROJECTED POWER CAPACITY: 13.4-14.1 GW
• PROJECTED STOCK OF FISSILE MATERIAL

A Nuclear Curse and a Nuclear Blessing

The decline of the United States is mirrored in the rise of Russian and Chinese nuclear energy reactors being built across the Middle East and beyond

By Selim Sazak

With global demand for energy expected to double by 2030, the demand for nuclear power is rising. There are currently fifty-five reactors under construction in over a dozen countries and one hundred and fifty more in planning stages. While growth in nuclear energy is led by Asian economies like China—which accounts for nearly one-third of new construction—countries of the Middle East are also making rapid progress in fulfilling their nuclear ambitions. The United Arab Emirates (UAE) has already joined the nuclear club: the country's first reactor is currently active and its nuclear power plant at Al-Barakah is expected to be fully operational by 2020. Turkey will likely be the next country to have a nuclear power plant. Construction is underway at Akkuyu, where Russia is building four 1200-MW VVER-1200 pressurized water reactors at a cost of over $20 billion, and Ankara is in talks to build reactors at two other sites, Sinop and İğneada.

Although the UAE and Turkey are farthest along in their nuclear ambitions, there are others following close behind. Jordan and Egypt are slowly but steadily advancing in building nuclear power plants. Meanwhile, both Israel and Iran are believed to have plans to expand their existing reactors. Finally, Saudi Arabia, filled with ambition, plans to enter sixteen nuclear reactors (at a cost of more than $80 billion) into service by 2040—enough to provide 15 percent of the country's power requirements.

The resurgent interest in nuclear power in the Middle East has sparked the debate on how many of these countries will actually reach the finish line, the roadblocks they will face along the way, and whether their nuclear ambitions will remain peaceful in nature. There are, however, two questions that remain largely ignored. First, timing: why is it only now that countries like Egypt and Turkey are making progress on nuclear energy production given the fact that nuclear power has been available for over a half-century? Second, sourcing: why is the thrust for the Middle East's nuclear renaissance coming from Russia

and China while the West and its allies' only success in the regional market is the UAE's Korean-made reactors?

Rise of Russia's and China's Reactor Sectors

These puzzles are not unique to the Middle East. Out of the seventy-two new nuclear reactor export deals across the globe, Russia has thirty-nine and China has fifteen while Western exporters (France, South Korea, and the United States) have only eighteen combined, less than half than those of Russia. This is a new development. A decade-by-decade comparison from the 1960s onward shows that Russia's share of the exports has always hovered at around 25 percent. In the past decade, however, Russia's market control has more than doubled—a shift that is made even more interesting by the fact that China's domestic nuclear energy program picked up considerably only from the 1990s onward, expanding in the past few years into exporting nuclear energy. With China entering the market, one would have expected Russia to lose its share, like all the other competitors did, but the opposite has happened.

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One popular explanation for this is that Russia and China rose because their Western rivals fell. One of the United States' two nuclear exporters, Westinghouse Electric Company, declared bankruptcy after delays and overruns at its two major domestic projects—the Summer NPP in South Carolina and Vogtle NPP in Georgia—and almost sunk its Japanese partner, Toshiba. The other, GE-Hitachi, is still alive, but it has had little success in the nuclear export market.

Canada's Atomic Energy of Canada Limited (AECL) and France's Areva looked poised for bankruptcy in the late 2000s and were only saved thanks to government bailouts. The Canadian government divested itself from AECL, which was privatized and acquired by SNC-Lavalin. Areva underwent a multi-year corporate restructuring and ultimately split into two companies: Framatome, which exports reactors, and Orano, which conducts fuel cycle activities. Even South Korea's Kepco, which is arguably the most successful of Western-allied nuclear reactor companies, does not come close to its Russian and Chinese competitors.

China's rise is more understandable in that it is an economic powerhouse. The East Asian nation has a concerted strategy to expand its influence in emerging markets; One Belt, One Road, for example, is massively investing in its domestic nuclear capacity, and has the political heft and financial resources to do so.

What About Russia, Though?

The Russian reactors are not newer, cheaper, more advanced, or more efficient than their Western competitors. Indeed, buying from Russia's nuclear energy sector is not a better alternative, but arguably a worse one. The country's economy is hurting from international sanctions and low oil prices. Its operators have a terrible record of corruption and malfeasance. Also, its production capacity is overstretched. Unable to produce more than one reactor per year, the Russians have nevertheless committed to nineteen reactors in fourteen nations. Even if Moscow remains committed to its nuclear projects, its customers are in for a rough ride. So far, Russia's reactors have taken twice as long to build, and cost double what was promised.

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Why, then, are countries playing this game with Russian nuclear companies, knowing full well that some projects will inevitably be delayed or terminated and even those that are not, will take more money and time than initially anticipated? The answer lies in the changing structure of the international system.

Nuclear Reactor Building in the New World Order

During the Cold War period, both the United States and the Soviets exported primarily to their allies. In some cases, they sold reactors to client states that did not even have the capacity to complete their construction—as happened when the United States built the Bataan plant in the Philippines and when the Soviets built the Juragua plant in Cuba. For countries whose loyalties were not perfectly clear, the crucial variable was whether they could afford buying from both sides. This was the case in a few states like India and Finland, who commissioned, in 1956 and 1977 respectively, reactors from both the United States and the Soviets. For those lacking the means to do so—Turkey and Egypt being two examples—nuclear power remained an elusive dream for decades.

The end of the Cold War brought about the United States' unipolar moment—and the American nuclear industry's slow march to irrelevance as a confluence of factors from an oil-centric energy policy, to stringent regulation, to the shale gas revolution, and the falling cost of renewable technologies—made nuclear energy in the United States an ignored sector of the economy.

In the past twenty years, by contrast, both Russia and China have come to consider nuclear energy and reactors a national priority. Chinese and Russian companies are directly controlled by the state and benefit from lavish spending on domestic projects, especially in the case of China whose insatiable hunger for energy has fueled a rapidly growing nuclear power industry.

The competitive disadvantage of the West, however, is only one side of the coin. The other side is that not only are Russia and China better positioned to sell their reactors but countries that had less interest in buying from the two nations are now actively courting them. This is what political scientist Patricia Weitsman describes as "hedging". As American power declines, weaker allies are stepping up their engagement with the United States' adversaries like Russia and China to gain strategic flexibility.

As Jakub Grygiel and Wess Mitchell, authors of *The Unquiet Frontier: Rising Rivals, Vulnerable Allies, and the Crisis of American Power,* observe, both Moscow and Beijing are actively promoting this strategy particularly vis-à-vis the West's "frontier allies" in theaters like Eastern Europe, the Middle East, and Southeast Asia. It is not that these countries do not know that their nuclear reactors may never be completed by the Russians or Chinese. It is that these nations have other goals that they hope to achieve in the meantime and the strategic flexibility that comes with having established a practical engagement with Russia and/or China helps them in this pursuit.

Moving Nuclear Energy Forward

Despite fears to the contrary, the Middle East's nuclear reactors can be a force for good, but reactor building requires sensible policies, cooperative measures, and mutual confidence. To capitalize on the benefits, states in the region must keep several points in mind.

Firstly, nuclear power must be viewed as a means, not an end. It is neither reasonable nor realistic for a state to invest in a reactor just for the sake of having one. Most countries cite energy security as the rationale for their pursuit of nuclear reactors, but the relationship between the two is not always straightforward. As noted in a paper by Benjamin Sovacool and Ishani Mukherjee, there is no simple formula for energy security, and there are hundreds of indicators to measure it. Instead of rushing haphazardly into ambitious schemes, states should thoroughly consider their needs and abilities, and ensure that nuclear reactors are not only feasible but optimal as a solution. A key step in this direction is for these efforts to proceed in a culture of dialogue that actively engages different stakeholders inside and outside the state as opposed to the "I can, therefore I do" mindset that remains the norm.

Politics should also take a backseat to deciding if and how a country moves forward with its pursuit of nuclear energy. Today, the United States' retreat from the world and the willingness of its rivals to take its place is adding momentum to the Middle East's race for reactors, but tomorrow these sands may shift. Financial and political incentives might change. However, building a nuclear reactor is like entering into a marriage: once you say yes, you are likely in it for decades. From fuel cycle management to human capital development, there are

various aspects of nuclear energy that make it difficult for a state to wean off of its original supplier even if it so desires down the road. Thus, states should decide to build nuclear reactors out of rational calculation, not political convenience.

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Good governance must remain a priority, especially considering that Russia and China are dominating the region's nuclear business. The global nuclear industry's corruption record is far from pristine, and there is no single country that could be held up as an exemplar. The West, however, has put in place a regime that achieved modest progress over the past decades as it disincentivizes business in markets with high corruption risks, penalizes those that remain invested in them, hurts their share prices when they get ensnared in illegal actions, and exposes them to costly shareholder litigation. In contrast, Russian and Chinese nuclear energy consortiums are largely immune from these concerns because their countries' legal framework is less onerous, and these companies are mostly state-owned, which shields them from market forces.

Cooperation between states can ultimately turn nuclear energy into a win–win proposition for the entire region. Every nuclear program in the Middle East is facing its own set of challenges. Each country has different economic and political conditions and levels of education, scientific knowledge, financial capacity, and regulations. Some, like the UAE and Saudi Arabia, have the resources to build indigenous capacity in a short time, but such capacity certainly will not come cheap and would have to rely heavily on foreign expertise.

Smaller countries like Bahrain, Kuwait, Oman, and Qatar have problems of size and scale. Turkey and Egypt, meanwhile, have robust legal and regulatory frameworks, legacy institutions that have been in operation for a long time, an adequate number of university graduates in the relevant fields, research reactors, substantial international cooperation, and an existing base of professional scientists. However, in the case of Turkey and Egypt, money is a major issue. Although political difficulties leave little prospect for regional cooperation to materialize in the near term, it is apparent that each country in the region could benefit from one another's strengths.

Business can also be a catalyst for cooperation, especially in the area of energy connectivity. Despite several efforts in this direction, the Middle East still lacks a regionally integrated energy grid, which, if it existed, would have helped solve the Gulf Cooperation Council's energy problems, made a windfall for Turkish and Egyptian engineers, provided increased supply for European markets, spurred foreign energy investments, and built confidence by encouraging certain countries to abandon their nuclear ambitions as they would no longer have a rationale to fight each other.

The Tacit Realignment

As worrisome as it is, proliferation risks are not the main challenge in the Middle East's race for nuclear reactors. Neither the West nor its adversaries are likely to give a helping hand to a regional country aspiring to develop nuclear weapons and there is in place a robust regime that would significantly slow down, if not entirely thwart, a solo sprint to go nuclear. This is not to say that nuclear reactors are not a crucial facet of the multidimensional chess game between the United States, China, and Russia—their significance, however, is more economic than military.

Nuclear reactor exports matter not because they are a prelude to nuclear weapons but because they imply a tacit realignment. Take Turkey as an example. Ankara's Russian-made reactors are not an isolated instance; they come in the context of a growing energy trade, new infrastructure investments, and deepening defense–industrial cooperation that both helps and is helped by closer relations between Russia and Turkey. As Russia and China increase their nuclear business in the Middle East, the West (particularly the United States) will have to grapple with more unruly allies.

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The decline of American influence may give the region an opportunity to clear some of the hostile legacies created by U.S. foreign policy in the past decades, but it can also turn the region into a grand chessboard of great-power competition. The former would be a blessing, but the latter will be a curse. ℝ