

Chapter 1

Avoiding a Nuclear Wild, Wild West in the Middle East¹

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The following is divided into three sections. The first is an overview. The second is a rundown of why Congress should be wary of any U.S. nuclear deal with Riyadh that fails to ban Saudi enrichment and reprocessing as is required in the 2009 nuclear cooperative agreement with the United Arab Emirates (UAE), who's nuclear nonproliferation requirements are referred to as "the Gold Standard." The last section makes the case for proposed legislation that would require a majority vote in both houses of Congress before a U.S. nuclear cooperative agreement with a non-weapon state can come into force if it fails to include these Gold Standard nuclear nonproliferation conditions.

Overview

Failure to require Riyadh to forswear enriching or reprocessing in the text of a U.S.-Saudi nuclear agreement (either by excluding this condition or proposing to put a sunset on it) risks pouring kerosene on the embers of nuclear proliferation already present in the Middle East. Last Sunday, Crown Prince Mohammed Bin Salman threatened to withdraw from the Nuclear Nonproliferation Treaty, insisting in a 60 Minutes interview that "If Iran developed a nuclear bomb, we will follow suit as soon as possible."² The Saudi government also has made it clear that it intends to be "self-sufficient" in nuclear fuel making.³

This is unprecedented. Unlike official public comments made during the negotiation of previous U.S. civil nuclear cooperative agreements, these Saudi statements lay bare for all to see exactly what the security implications of failing to get Riyadh to forswear enriching and reprocessing will be. It's quite clear the Saudis are interested in a nuclear weapons option that can be exercised, if needed, "as soon as possible." That, rather than any economic purpose, is why the Kingdom is seeking U.S. nuclear assistance and is insisting on its "right" to enrich and reprocess.

1. This chapter is from the author's written testimony presented before a Hearing of The House Foreign Affairs Subcommittee on the Middle East and North Africa titled "Implications of a U.S.-Saudi Arabia Nuclear Cooperation Agreement for the Middle East," held on March 21, 2018. A video of the hearing is available from <http://www.npolicy.org/article.php?aid=1381&rtid=8>.

2. "Saudi Crown Prince: If Iran Develops Nuclear Bomb, So Will Saudi," *CBS News*, March 15, 2018, available from <https://www.cbsnews.com/news/saudi-crown-prince-mohammed-bin-salman-iran-nuclear-bomb-saudi-arabia/>.

3. Sylvia Westall, "Saudi Arabia to Extract Uranium for 'Self-Sufficient' Nuclear Program," *Reuters*, October 30, 2017, available from <https://www.reuters.com/article/us-saudi-nuclear/saudi-arabia-to-extract-uranium-for-self-sufficient-nuclear-program-idUSKBN1CZ1ON>. See also, Rania El Gamal and Katie Paul, "Saudi Arabia Should Not Forfeit 'Sovereign' Right to Enrich Uranium: Senior Prince," *Reuters*, December 21, 2017, available from <https://www.reuters.com/article/us-saudi-nuclear-turki/saudi-arabia-should-not-forfeit-sovereign-right-to-enrich-uranium-senior-prince-idUSKBN1EF287>.

If our government green lights such Saudi efforts by failing to uphold the Gold Standard, no one will be fooled as to what we are doing: Instead of upholding the last 73 years of American and international efforts to limit the spread of nuclear weapons by tightening nuclear controls, our government will be doing just the opposite, playing a risky game of nuclear chicken between Riyadh and Tehran. What's worse, this competition will not be limited to just the Saudis and Iranians.

Administration officials may also renew, revise, or cut additional nuclear cooperative agreements with Jordan, Egypt, Turkey, Morocco, and the UAE. As a practical matter, there will be tremendous pressure to have these understandings track whatever we allow the Saudis, turning an already troubled Middle East into a nuclear Wild, Wild West. In this new, nuclearized arena, not just Iran and Saudi Arabia, but their largest neighbors will gain the nuclear technology they need to join the nuclear-armed ranks of the Israelis and Pakistanis. The hope, against almost all experience, is that deterrence will work perfectly in one of the world's most imperfect, unstable regions. As for what might follow if such deterrence fails, the mind boggles—think a nuclear 1914.

To avoid this, it is essential first to hold the line by insisting on the Gold Standard conditions in the U.S.-Saudi nuclear cooperative agreement. Second, the United States must hold the same line with agreements it might negotiate with Riyadh's neighbors and to work with the world's three key nuclear reactor supplier states—France, China, and Russia—and the three key uranium fuel supplier states—France, the British-Dutch-German URENCO consortium, and Russia—to tighten nuclear restraints on their civil nuclear exports as well. Finally, along with others, the United States needs to convince Iran to back off its enrichment efforts. To be sure, this is a tall order. That said, not to try at all assures a failure of the most horrific kind.

As for the proposed legislation, the House Foreign Affairs Committee did the right thing in 2011 when it unanimously approved an earlier version of the bill. Given the nuclear proliferation developments that have transpired since the last major revision of the rules governing nuclear cooperative agreements in 1978, approval of such legislation is long overdue.

Why Congress should be wary of a U.S.-Saudi nuclear agreement that fails to uphold the Gold Standard:

First, it risks igniting a nuclear arms race starting in the Middle East. Language in the current UAE and Egyptian nuclear cooperative agreements with the United States explicitly stipulates that if Washington seals a nuclear deal with any other Middle Eastern state that is more “favorable in scope and effect” than what Cairo and Abu Dhabi were able to secure, the UAE and Egypt have the right to demand “equal terms and conditions.”⁴ In theory, the United States could try to resist such demands. In practice, Washington would be under tremendous pressure to cave. Egypt's nuclear cooperative agreement with the United States is up for renewal in 2021. Then, there is Turkey—its agreement is up for renewal in 2023—and Jordan, which the United States has long sought to strike a nuclear cooperative agreement with. Egypt, Turkey, and Jordan all insist they have a right to enrich and reprocess. Once our government opens the door for the Saudis to do so, these states will demand no less. How this impacts Israel, other than negatively, is unclear. Last week, Prime Minister Netanyahu told the Senate Foreign Relations Committee, the President, and the Israeli cabinet that the United States should cut no nuclear deal with Saudi Arabia unless

4. “Relevant Sections of the Agreement for Cooperation between the Government of the United States and the Government of the United Arab Emirates,” *Nonproliferation Policy Education Center*, 2017, available from http://npolicy.org/US_UAE_Agreement_Relevant_Sections.pdf.

it clearly prohibits enrichment and reprocessing.⁵

Assuming our government goes ahead, it is uncertain what Israel, which already has nuclear weapons, might do.⁶ It is worth noting, however, that every large reactor in the region—Israeli, Iranian, Syrian, and Iraqi—has either been bombed or targeted with aerial attacks. In each case, the attacking state was concerned that weapons plutonium or uranium was either being or might be produced. This worry, perhaps more than any other, is why the United States insisted in 2009 that the UAE forswear enriching or reprocessing in the text of the nuclear cooperative agreement. It was understood that without such a legally binding pledge, the UAE's program would be viewed warily by its neighbors. If the United States is serious about promoting peaceful nuclear power in the region, it needs to get more states in the region to adopt this standard, not fewer.

Finally, states outside the Middle East are watching. South Korean President Moon Jae-in wants to build nuclear submarines. These would require enriched uranium fuel. The current U.S.-ROK civilian nuclear agreement only allows the ROK to enrich uranium if it first secures U.S. permission, which Washington has yet to grant. If the United States allows the Saudis to enrich uranium and reprocess spent reactor fuel, though, Seoul would likely step up its demands, arguing, that as a close security ally, it should be afforded equal treatment for its planned submarines. Needless to say, this nuclear activity could also be used to support a nuclear weapons option.⁷ Assuming Seoul persuaded President Trump to relent and honor its request, the responses of Japan, North Korea, and China could be dramatic.⁸

Second, Riyadh's interest in enriching and reprocessing is difficult to explain—*unless* it wants a bomb option. In 2012, the Saudis announced their intention to build 16 reactors by 2032. By 2017, Saudi planners had pushed this back to 2040. Shortly thereafter, Crown Prince Mohammed bin Salman backed a national development plan for 2030 that didn't mention nuclear power but instead focused on investing in renewables. Most recently, the Saudis announced that instead of opening bidding on 16 large power reactors, they are only soliciting bids for two. Some analysts contend that this slippage reflects the Kingdom's desire to finance reactor construction with its oil revenues.⁹ With the price of oil dropping from \$100 a barrel several years ago to roughly \$60 a barrel today, the schedule for nuclear construction, they argue, had to slide. A more compelling explanation, however, is that Riyadh doesn't need nuclear power. Recent analyses have determined that the Saudis could more cheaply and more quickly meet their energy and environmental requirements by developing their natural-gas resources and investing in renewables—photovoltaic, concentrated solar power and wind. These analyses also found economic value in the Kingdom

5. "Netanyahu Warns of Mideast Nuclear Arms Race," *The Times of Israel*, March 11, 2018, available from <https://www.timesofisrael.com/netanyahu-warns-of-mideast-nuclear-arms-race/>.

6. It should be noted that the last time the United States made an exception from its nonproliferation policies and legal requirements not to promise to transfer controlled nuclear commodities to another close friend, India, Israel quietly petitioned for equal treatment. See Glenn Kessler, "Israel Submits Nuclear Trade Plan," *The Washington Post*, September 30, 2007, available from <http://www.washingtonpost.com/wp-dyn/content/article/2007/09/29/AR2007092901530.html>.

7. "Moon Gets US to Agree in Principle to Let South Korea Build Nuclear Subs: Report," *Asia Times*, September 20, 2017, available from <http://www.atimes.com/article/moon-gets-us-agree-principle-let-south-korea-build-nuclear-subs-report/>. See also, Lami Kim, "Has South Korea Renounced 'Nuclear Hedging?'," *Bulletin of the Atomic Scientists*, June 27, 2017, available from <https://thebulletin.org/has-south-korea-renounced-“nuclear-hedging”10863>.

8. See *How Dark Might East Asia's Nuclear Future Be?* (Working Paper 1601), Nonproliferation Policy Education Center, August 26, 2016, available from <http://www.npolicy.org/article.php?aid=1322&rid=2>.

9. Dan Yurman, "Saudi Arabia's Ambitious Plans for Nuclear Energy," *Neutron Bytes*, January 15, 2018, available from <https://neutronbytes.com/2018/01/15/saudi-arabias-ambitious-plans-for-nuclear-energy/>.

upgrading its electrical grid and reducing government subsidies that artificially drive up electrical demand. These findings are hardly surprising. The UAE, Riyadh's next-door neighbor, which began construction of four power reactors several years ago, just announced it would not be building any more nuclear plants.¹⁰ Why? Cheaper alternatives: In addition to plentiful natural gas and wind resources, the Emirates are now investing in photovoltaic systems and solar thermal storage systems, which together can operate twenty-four hours a day more cheaply than nuclear.¹¹ These findings also apply to Saudi Arabia, which has begun working on all of these options.¹²

As for the Saudis enriching their own uranium, the economic case, again, is negative. Uranium is plentiful globally from a variety of suppliers and priced at historic lows (less than \$23 a pound)¹³, as are uranium-enrichment services.¹⁴ If the Kingdom is anxious about security of supply, it would make far more economic sense for it to buy long-term contracts for uranium ore and enrichment services than to spend billions on a variety of plants (besides a large centrifuge facility) that would be needed to produce its own nuclear fuel. Even under the most optimistic of scenarios, investing in such an undertaking would only make economic sense after the Kingdom had most or all of its planned 16 large reactors up and running sometime after 2040.¹⁵ It currently has no reactors operating and has only opened a process for buying two. All of these facts help explain Crown Prince Salman's comment that if Iran got the bomb, the Kingdom would "follow suit as soon as possible" and why he insists his country should be allowed to reprocess and enrich. The two points are tightly related: One is the goal (to get a bomb quickly if needed); the other is the means (having the ability to produce and stockpile nuclear weapons uranium and plutonium). This is not something Washington should be a party to. Instead, it should uphold the Gold Standard, help Saudi Arabia with safer nonnuclear energy options, and push these policies throughout the Middle East, including Iran.

Third, failure to secure the Gold Standard with Riyadh, when Washington has the leverage to do so, risks *reducing* U.S. strategic influence in and outside the region. As I've explained in detail elsewhere, the Saudis are unlikely to buy reactors from France, the United States, or China.¹⁶ In each case, the export models being pitched for export have not yet operated and, where they are being built, are dramatically behind schedule and over budget. Meanwhile, the Russians' export reactor (the VVER-1200) has an ex-

10. Peter Fairley, "The United Arab Emirates' Nuclear Power Gambit," *IEEE Spectrum*, January 4, 2018, available from <https://spectrum.ieee.org/energy/nuclear/the-united-arab-emirates-nuclear-power-gambit>.

11. Ali Ahmad, "Economic Considerations of Nuclear Power Deployment in Saudi Arabia," *Nonproliferation Policy Education Center*, November 27, 2017, available from http://npolicy.org/Articles/March%202018%20Drafts/Ahmad_SaudiArabia_Nov17.pdf.

12. Robin Mills, "Saudi Arabia Energy Needs and Nuclear Power," *Nonproliferation Policy Education Center*, February 11, 2018, available from http://npolicy.org/Articles/March%202018%20Drafts/Mills_Saudi_Arabia_Feb18.pdf. See also, Stanley Reed, "From Oil to Solar: Saudi Arabia Plots a Shift to Renewables," *The New York Times*, February 5, 2018, available from <https://www.nytimes.com/2018/02/05/business/energy-environment/saudi-arabia-solar-renewables.html>.

13. "Media – In the Market," *TradeTech*, March 2, 2018, available from http://www.uranium.info/in_the_market.php.

14. Steve Kidd, "Uranium Enrichment – Why Are Prices Now Much Lower and What Is the Impact?," *Nuclear Engineering International*, December 8, 2016, available from <http://www.neimagazine.com/opinion/opinionuranium-enrichment-why-are-prices-now-much-lower-and-what-is-the-impact-5692128/>.

15. Dan Yurman, "What Is Saudi Arabia's End Game for a 123 Agreement?" *The Energy Collective*, March 2, 2018, available from <http://www.theenergycollective.com/dan-yurman/2428621/saudi-arabias-end-game-123-agreement>.

16. Henry Sokolski, "5 Myths about Saudi Arabia's Nuclear Program," *The National Interest*, March 6, 2018, available from <http://nationalinterest.org/feature/5-myths-about-saudi-arabias-nuclear-program-24771>.

tremely limited, troubled safety record. More important, given the Saudis' interest in developing a bomb option, Riyadh will be hard-pressed to trust the Russians to keep their confidences, as the Russians have long provided sensitive nuclear technology to their Iranian adversaries and cooperate with Iran in fighting against the Kingdom's interests in Syria. Who might Riyadh, then, buy from? The Kingdom's original nuclear bid requirements were for two reactors that would produce 2,800 megawatts. There is only one proven, operating reactor that can meet this requirement—South Korea's APR 1400. This reactor is up and running in South Korea, is fully and properly safety certified, and is being built (in the UAE) roughly on time and on budget. The APR 1400 bid also has one other clear advantage: The construction crews finishing their work on the Korean reactors in the UAE are tried and true and can be easily dispatched to complete APR 1400 construction work in the Kingdom. In fact, the Saudis changed their bid requirements to permit reactors other than the APR 1400 *only* after U.S., Chinese, Russian, and French reactor vendors all complained.

In any case, the South Koreans are most likely to win the bid. Given the APR 1400 reactor's American technical content, senior Korean officials are convinced they cannot export it to the Kingdom unless the Saudis first reach a nuclear cooperative agreement with the United States.¹⁷ For this reason (and others besides), Washington has serious leverage over Seoul and what nonproliferation conditions it might choose to place on its Middle Eastern nuclear exports. It would be remarkable if our government chose not to use this leverage. Seoul would surely spot this and would likely demand equal treatment regarding its desire to enrich. As already noted, Egypt, Turkey, Jordan, and the UAE would also take notice. But there's more. Besides the awkward optics of looking like a version of the 2015 Iran nuclear deal (which President Trump says is "the worst deal ever" because it allowed enrichment),¹⁸ a permissive deal with Riyadh that failed to include the Gold Standard would make a hash of the President's announced desire to get Germany, the European Union, the UK, France, Russia, and China to work with Washington to "fix" the Iran deal and its enrichment provisions. I have already noted the concerns of our key ally in the region, Israel, and Netanyahu's request that the United States make a prohibition on enrichment and reprocessing a precondition of any nuclear cooperation with the Kingdom. Clearly, bending to Saudi nuclear ambitions to enrich and reprocess will only reduce, not increase, Washington's "wins" for nuclear influence with all of these states.

The Case for Requiring Congress to Vote to Approve Nuclear Cooperative Agreements that Fail to Include the Gold Standard

It's been 40 years since Congress updated the Atomic Energy Act to reflect the latest insights into what the safety margin should be between "peaceful" nuclear activities and materials and nuclear bomb making. Congress incorporated its first thoughts on this issue in the Atomic Energy Act of 1946. At the time, Congress and the Executive Branch were wary of sharing any nuclear technology, peaceful or military, with any foreign government. With the further development of experimental power reactor designs, though, Congress reconsidered and amended the act in 1954 to promote Eisenhower's Atoms for Peace Program. As a result of this program, the United States actively shared the means to make and separate plutonium, a nuclear weapons explosive, on the mistaken assumption that bilateral and international inspections would be sufficient to prevent its misuse.

17. Jay Solomon, "Saudi Nuclear Talks: Risk and Limitations," *The Washington Institute for Near East Policy*, January 31, 2018, available from <http://www.washingtoninstitute.org/policy-analysis/view/saudi-nuclear-talks-risks-and-limitations>.

18. Morgan Chalfant, "Trump: Iran Nuclear Deal an 'Embarrassment'," *The Hill*, September 19, 2017, available from <http://thehill.com/homenews/administration/351323-trump-iran-nuclear-deal-an-embarrassment>.

India's 1974 nuclear weapons test literally blew this assumption away. Thinking it had clear assurances that New Delhi would not use its help to make bombs, Washington helped India get the reactor, the heavy water to run it, and the reprocessing plant that produced the plutonium New Delhi used in its first "peaceful" nuclear test. At first, State Department officials denied that India had used U.S.-exported heavy water. This, however, proved to be untrue. When Congress found out, it amended the Atomic Energy Act in 1978, tightening controls over reprocessing and enrichment of U.S. nuclear materials and the export of the most dangerous "peaceful" nuclear technology and hardware. Congress also required that a majority of both houses of Congress approve any proposed U.S. civilian nuclear agreement with non-weapons states that did not place all of their nuclear facilities under international nuclear inspections. Experts hoped that these conditions would be sufficient to afford a sufficient margin of safety against the possible diversion of exported civilian nuclear goods to bomb making.

Unfortunately, the last 40 years suggest otherwise. Iraq used its internationally "safeguarded" nuclear program to support its nuclear weapons program. North Korea did the same, openly reprocessing spent fuel and stockpiling plutonium, insisting it had a "peaceful" right to do so. Syria, meanwhile, imported and constructed a covert nuclear production reactor from North Korea even while its nuclear program was supposedly under "full-scope" international nuclear inspections. Iran's insistence on a "right" to enrich and the worrisome practical and diplomatic fallout is too well known to need review. In each of these cases, though, finding a clear violation of any binding commitment was extremely difficult or impossible to make. Finally, in recognition of these developments, the Bush and Obama administrations successfully negotiated a new, tough set of nuclear nonproliferation conditions for the U.S.-UAE deal, known as the Gold Standard.

This history more than recommends yet another adjustment of what the U.S. Atomic Energy Act specifies as a "compliant" nuclear cooperative agreement—i.e., one that automatically comes into force unless Congress passes a veto-proof law after 90 days of continuous executive session. Currently, a joint resolution of Congress is only required to bring a nuclear cooperative agreement into force if the country in question did not have nuclear weapons at the time the Nuclear Nonproliferation Treaty was negotiated and refuses to place all its nuclear activities and materials under international nuclear inspections. This is why a joint resolution of approval was needed in the case of India.

After what we have learned about the inadequacy of such safeguards for countries that want to reprocess or enrich (overtly or covertly), though, it's time Congress updated the act. In specific, if a proposed U.S. civilian nuclear cooperative agreement does not include the nuclear nonproliferation conditions contained in the U.S.-UAE agreement, it ought to require a joint resolution of approval.

The nuclear industry is strongly opposed to this. Having Congress vote on agreements that do not contain the Gold Standard, the nuclear industry argues, could jeopardize significant nuclear commerce. This is the same complaint industry made against the 1978 amendments, which the nuclear industry also opposed. This concern turned out to be unfounded, and now the industry backs those changes. Given the fall in U.S. nuclear exports and the decline of nuclear power's fortunes internationally, there is even more reason to believe the industry's complaints today are also unfounded.¹⁹

But perhaps industry has things right and nuclear cooperative agreements are important trade agreements. Assuming this, though, it hardly strengthens the nuclear industry's case against the proposed legislation.

19. Jodi Lieberman, "Nonproliferation, Congress, and Nuclear Trade: Plus ça Change, Plus C'est la Même Chose," *Center for Strategic and International Studies*, November 15, 2011, available from <https://www.csis.org/analysis/nonproliferation-congress-and-nuclear-trade-plus-%C3%A7a-change-plus-c%E2%80%99est-la-m%C3%Aame-chose>.

Congress, after all, must approve all significant trade agreements by joint resolution. Given the security equities now at play with U.S. civil nuclear cooperative agreements—where they are serving more and more as the equivalent of high-tech mutual security pacts (with emerging security partners such as the UAE, Vietnam, India and, now Saudi Arabia)—treating nuclear cooperative agreements that fail to include the Gold Standard as being at least as important as normal trade agreements, then, only makes sense.